Appendix L. Transportation Impact Analysis

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TO: Kelsey Hawkins, Deputy Project Manager; Harris & Associates

FROM: Phuong Nguyen, PE; CR Associates

DATE: March 6, 2023

RE: De Anza Natural Amendment to the Mission Bay Park Master Plan – Transportation Impact Analysis

The purpose of this technical memorandum is to document potential transportation impacts associated with the De Anza Natural Amendment to the Mission Bay Park Master Plan project (the "Project").

Project Description

The De Anza Cove Amendment area is in the northeastern corner of Mission Bay Park in the City of San Diego (City). **Figure 1** displays the Project location. The project area consists of approximately 314 acres of land and includes approximately 191.2 acres of open water for a total of approximately 505.2 acres. It includes the Kendall-Frost Marsh Reserve/Northern Wildlife Preserve (KFMR/NWP), Campland on the Bay (Campland), Pacific Beach Tennis Club athletic fields, Mission Bay Golf Course and Practice Center, and De Anza Cove area, including a vacated mobile home park and supporting infrastructure, Mission Bay RV Resort, public park, public beach, parking, and water areas. The project area falls within the boundaries of Mission Bay Park, a regional park that serves San Diego residents and visitors.

The proposed project is an amendment to the Mission Bay Park Master Plan (MBPMP) to update existing language in the MBPMP and to add new language and recommendations pertaining to the project area to serve local and regional recreation needs while preserving and enhancing the natural resources of the De Anza Cove area. The project would expand the project area's natural habitat and improve water quality through the creation of additional wetlands while implementing nature-based solutions to protect the City against the risk of climate change in line with the City's Climate Resilient SD Plan. The project would enhance the existing regional parkland by providing a variety of uses, including low-cost visitor guest accommodations (recreational vehicles and other low-cost camping facilities), active and passive recreational opportunities to enhance public use of the area, and improvements to access to recreational uses. Finally, the project would recognize the history and ancestral homelands of the Iipay-Tipay Kumeyaay people, providing opportunities to partner and collaborate on the planning and restoration of the area. **Figure 2** displays the Project Site Plan. The MBPMP assigns land use designations, which are summarized in **Table 1**, Proposed Land Use Acreages, throughout the MBPMP area, including the project area.

The Proposed Project would include wetlands enhancement and restoration within the existing KFMR/NWP, the area currently occupied by Campland, the eastern side of Rose Creek, and the areas in De Anza Cove currently occupied by the vacated mobile home park and open water (Figure 3). The Proposed Project would provide a total of approximately ~~227.4~~ 225.1 acres of wetlands, consisting of approximately 30.7 acres in the area currently occupied by Campland, approximately 86.8 acres of wetlands at the existing KFMR/NWP, and approximately ~~109.8~~ 107.6 acres of other new wetlands. Approximately ~~37.4~~ 36.7 acres of upland habitat, including dune, sage, and buffer area, would also be

provided. Two new upland islands would be created: one in the area currently occupied by Campland and the other in the De Anza Cove area at the eastern terminus of the vacated mobile home park. ~~Two possible~~ A location~~s~~ for a new Interpretive Nature Center ~~have~~ has been identified~~: one at the northwestern edge of the restoration area along Pacific Beach Drive and another~~ within the regional parkland area just north of the open beach. The nature center and its parking/service areas would be buffered by native vegetation. The open water area of De Anza Cove would be increased to approximately ~~95.9~~ 95.5 acres with the creation of new east and west outfalls that would allow water and sediment flows to proposed wetlands on either side of Rose Creek.

Table 1 - Proposed Land Use Acreages

Land Use	Acres
KFMR/NWP	80.4
Expanded Marshland/Habitat	~~140.4~~138.3[1]
Upland Habitat (Dune, Sage) and Buffer Area	~~37.5~~36.7
Low-Cost Visitor Guest Accommodations	48.5
Regional Parkland	~~25.9~~23.4
Boat Facilities/Clubhouse	2.6
Interpretive Nature Center (1 Location)~~[2]~~	—
Water Lease~~s~~[2]	~~2.1~~1
Active Recreation	~~60.5~~66.5
Open Water	~~102.3~~95.5
Open Beach	5.5
Road[4]	~~1.6~~1.4
Restaurant Lease	—
Total	505.2

Notes: KFMR/NWP = Kendall-Frost Marsh Reserve/Northern Wildlife Preserve

[1] Expanded wetlands includes approximately 30.7 acres currently occupied by Campland and approximately 107.6 ~~109.8~~ acres of other new wetlands.

~~[2] Area for the Interpretive Nature Center has not been determined, and programming for the center is assumed to occur after adoption of the amendment as part of a future General Development Plan.~~

[2] Lease area~~s~~ overlap~~s~~ with other land uses; therefore, acreages are not included in the total.

[3] Service roads, vehicular access, and parking would be in areas proposed for low-cost visitor accommodations, regional parkland, boating, and active recreation, subject to future design and subsequent approvals.

In addition, the project would incorporate a range of active recreational uses on approximately ~~60.5~~ 66.5 acres in the northeastern area of the project area. A portion of the Mission Bay RV Resort and the vacated mobile home park would be replaced with approximately 48.5 acres of low-cost visitor guest accommodations land use. A new channel connecting Rose Creek to the De Anza Cove water area would be constructed at approximately Lilac Drive, creating a new island that would be accessed via two new bridges. Approximately ~~26~~ 23.4 acres of regional parkland would be enhanced with new recreational amenities and opportunities. ~~An o~~Open beach area~~s~~ totaling approximately 5.5 acres would be provided with access to De Anza Cove. The project would also include approximately 2.6 acres for boat facilities and a clubhouse for public use. ~~Two~~ One potential water lease location~~s~~ would be located ~~are indicated~~ on the cove. Water quality design features are proposed along the edges of the active recreational areas.

The proposed water quality detention basins would be of differing sizes and would capture and treat stormwater before flowing into Mission Bay. New water quality basins would be located to treat the entire project area in accordance with local and state requirements.

Multi-use paths would be throughout areas proposed for active recreation, regional parkland, low-cost visitor accommodations, dune and upland areas and along the beach shorelines. Vehicular access to the project area would be provided from Pacific Beach Drive, Grand Avenue, and North Mission Bay Drive. Service roads, vehicular access, and parking would be in areas proposed for low-cost visitor accommodation, regional parkland, boating, and active recreation.

Analysis Methodology

The transportation impact analysis was performed in accordance with the requirements of the *City of San Diego Traffic Impact Study Manual (COSDTSM), September 2020* and the *City of San Diego CEQA Significance Determination Thresholds (COSDCEQA), September 2020*. The COSDTSM requires a project to determine its consistency with the thresholds provided in the COSDCEQA by conducting a Transportation Impact Study (TIS) and determining if the project would have any adverse effects on the local transportation network by conducting a Local Mobility Analysis (LMA). The TIS focuses on whether the project would cause an increase in the regional Vehicle Miles Traveled (VMT) and the LMA focuses on whether the project would cause a significant increase in delay to the local transportation network.

Since the majority of the land uses within the project area are passive land uses (i.e., open spaces, preserved, etc.), improvements of the existing land uses (e.g., boat launch ramp, public beaches, park land), or complementary land uses (active recreation activities such as camp site club house, interpretive nature center, tennist courts, boat rental lease, etc) are not likely to generate new trips or VMT. Therefore, the analysis will focus on the guest housing land use, which could potentially generate additional trips or VMT. Note that the guest housing land use will replace the existing Campland and Mission Bay RV land uses. Trip generation associated with the existing and proposed land uses are discussed in the next section.

Figure 1 - Project Location

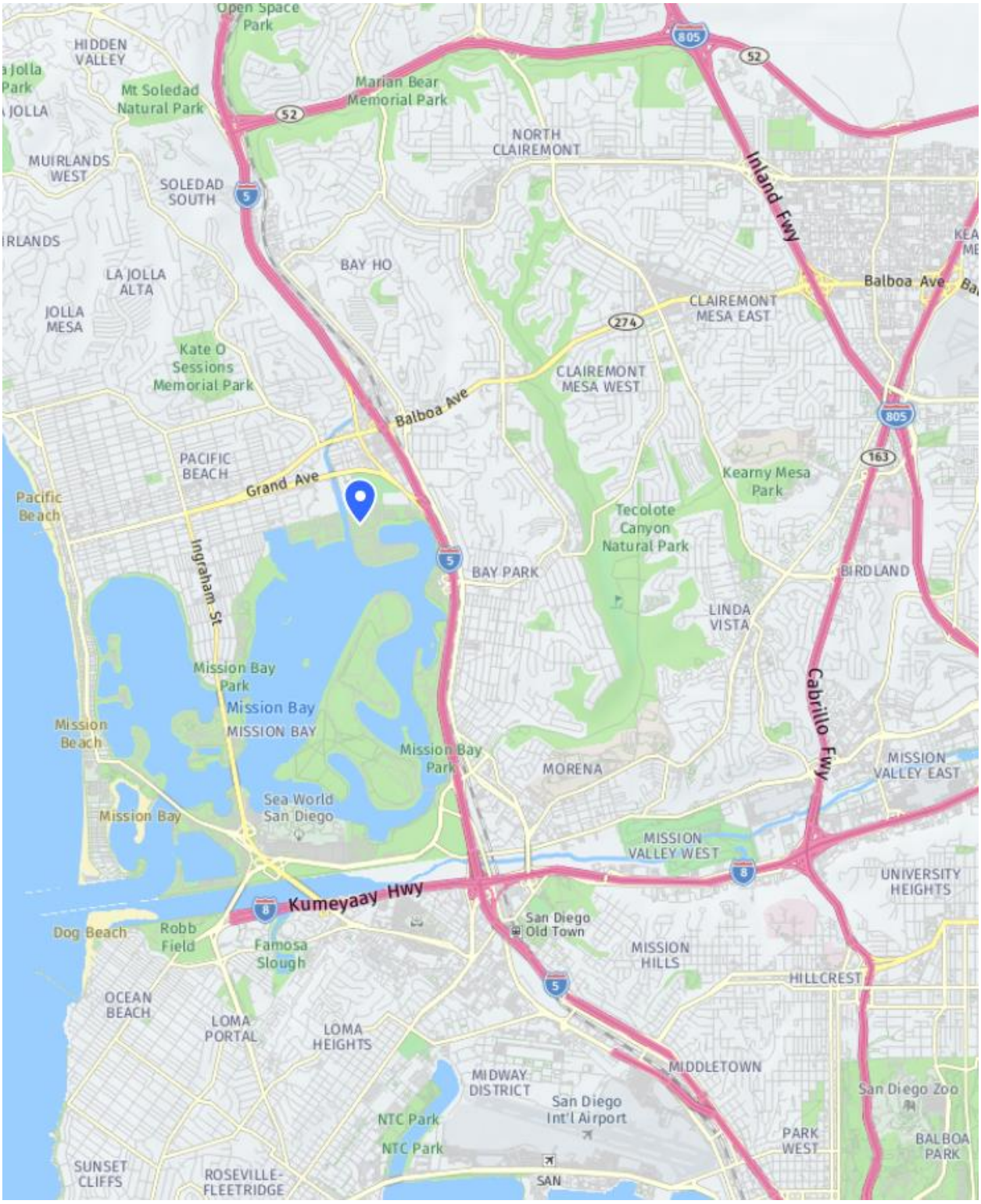


Figure 2 - Site Plan

Source: City of San Diego 2023.

Project Trip Generation

The campsite trip generation estimates were calculated based on existing counts at the Campland and Mission Bay RV Resort sites, including the supporting land uses such as the tennis court, ball field, volleyball field, playgrounds, and public beach access. Daily weekday and Saturday driveway counts were collected at the two campsite driveways in May and early June 2018. Based upon review of freeway traffic counts and understanding of the traffic patterns near the project site, the 2018 traffic counts are considered to be the best data available that is reflective of pre-pandemic traffic conditions for both the Project's site and the surrounding area.

In estimating the number of new trips generated by the proposed project, understanding the land use components as described in the De Anza Cove Amendment to the Mission Bay Park Master Plan and in Chapter 3 – Project Description of the project's Program Environmental Impact Report (PEIR) were critical. Below is a breakdown of the overall trip generation approach and assumptions used to yield the net new project trips that are commensurate with this revitalization effort.

- The existing Mission Bay RV Resort has limited on-site amenities compared to Campland on the Bay. Due to the lack of amenities, campers at De Anza Cove are more susceptible to make external vehicular trips for goods and services than campers staying at Campland. The campsite rates derived from the respective campgrounds are reflective of this condition, since the campsite trip rates derived from the Mission Bay RV Resort are predominately higher than the Campland derived rates. As part of the proposed project, more on-site amenities would be provided for De Anza campers; therefore, it was appropriate to assume the trip rates derived from Campland to forecast the trips associated with the new De Anza campsites in the guest housing area.
- New on-site boat launch and rental areas are ancillary uses that would serve De Anza campers and beach users (current and future). No trip generation have been assumed for these supporting facilities.
- Redeveloping De Anza Cove would also include upgrades to the existing athletic uses (i.e., Pacific Beach Tennis Center, athletic fields, and golf course), the regional parkland, and the beach areas. Since these are all existing uses, their associated trips are already captured in the existing traffic counts. It is assumed that the project's enhancements to these uses would not generate new trips, and so no additional trip generation for these uses were projected.
- With the removal of the existing campsites at the Mission Bay RV Resort and the campsites at Campland, their associated trips were applied as a reduction in the trip generation calculations. Providing credit for an existing use on site is a common practice in the traffic engineering field and often applied in traffic studies. A primary reason for including existing development as a credit is because traffic from the existing use is included in the traffic counts. Additionally, the campsite trip rates derived from the corresponding campsites were respectively applied in the "existing uses to be removed" trip generation for Mission Bay RV Resort and Campland. Because the proposed project's land use characteristics are similar to the existing land use, it is anticipated that the project would attract the same type of users as the existing land uses (Mission Bay RV Resort & Campland on the Bay and other passive supporting land uses). The distance traveled by these users is likely to be similar as well. Thus the amount of VMT by each user would likely remain the same.
- Although there are different uses within the proposed project site, no mixed-use reduction was applied to reflect any internalization that would occur with campsite patrons and other project features. This project is not a typical mixed-use development with commercial, residential, and/or office spaces, so it is difficult to accurately determine the project's

magnitude of mixed-use travel characteristics. With no internalization reduction applied, the trip generation reflects a conservative analysis.

- No non-motorized trip reduction was assumed despite the active transportation amenities provided within and around the project site. Therefore, the trip generation reflects a conservative analysis.

Table 2 displays the weekday daily, AM and PM peak hour driveway volumes, and **Table 3** displays the daily Saturday and mid-day peak hour driveway volumes.

Table 2 - Existing Weekday Driveway Volumes

Site	Daily	AM Peak Hour					PM Peak Hour				
		%	Trips	Split	In	Out	%	Trips	Split	In	Out
Mission Bay RV Resort	1,495	4%	60	4:6	24	36	9%	135	6:4	81	54
Campland	**2,088**	**5%**	**104**	**4:6**	**42**	**62**	**9%**	**188**	**5:5**	**94**	**94**

Source: CR Associates (2022)

Notes: Driveway volumes were calculated using the daily volume and the rounded distribution percentages (i.e., peak hour percentage and inbound/outbound splits). Consequently, the volumes are slightly different than the actual driveway count shown in **Attachment A.**

Table 3 - Existing Saturday Driveway Volumes

Site	Daily	Midday Peak Hour				
		%	Trips	Split	In	Out
Mission Bay RV Resort	1,704	10%	170	6:4	102	68
Campland	3,386	8%	271	6:4	162	109

Source: CR Associates (2022)

Notes: Driveway volumes were calculated using the daily volume and the rounded distribution percentages (i.e., peak hour percentage and inbound/outbound splits). Consequently, the volumes are slightly different than the actual driveway count shown in the appendix.

As shown above, Saturday generated higher daily volumes compared to the weekday, and Campland generated 40 percent (2,088 vs. 1,495) and 99 percent (3,386 vs. 1,704) higher volumes than Mission Bay RV Resort during the weekday and on Saturday, respectively.

The data from Table 2 and Table 3, along with the actual occupied campsite units during data collection were used to calculate the campsites' trip generation rates for daily, AM, PM, and midday (Saturday) peak hours. **Table 4** and **Table 5** show the calculated trip rates for weekday and weekend, respectively.

Table 4 – Existing Weekday Trip Generation Rates

Site	Occupied Units[1]	Trips Generated			Trip Rate		
		Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak
Mission Bay RV Resort	138	1,495	60	135	10.83	0.43	0.98
Campland	242	2,088	104	188	8.63	0.43	0.78

Source: CR Associates (2022)

Notes: [1]Occupied units during the collection of driveway counts.

Table 5 - Existing Saturday Trip Generation Rates

Site	Occupied Units[1]	Trips Generated		Trip Rate	
		Daily	Midday Peak	Daily	Midday Peak
Mission Bay RV Resort	130	1,704	170	13.11	1.31
Campland	442	3,386	271	7.66	0.61

Source: CR Associates (2022)

Notes: [1]Occupied units during the collection of driveway counts.

The Mission Bay RV Resort generated 10.83 trips and 13.11 trips per occupied unit during the weekday and on Saturday, respectively. This site generated approximately 20 to 30 percent higher daily and peak hour trips on Saturday than on the weekday. Campland generated 8.63 trips per occupied units during the weekday, and 7.66 trips per occupied unit during Saturday.

Since both sites were not fully occupied at the time of the data collection, the trip generation rates documented in Table 4 and 5 were interpolated to determine the trip generation associated with the full occupancy of both sites, which typically happens during the summer and holidays. **Table 6** and **Table 7** display the estimated fully occupied trip generation for the two existing land uses.

Table 6 - Existing Weekday Maximum Capacity Trip Generation

Land Use	Units	Trip Rate	ADT	AM Peak Hour					PM Peak Hour				
				Trip Rate	Trips	Split	In	Out	Trip Rate	Trips	Split	In	Out
Mission Bay RV Resort	260 sites	10.83	2,816	0.43	112	4:6	45	67	0.98	255	6:4	153	102
Campland	556 sites	8.63	4,798[1]	0.43	239	4:6	96	143	0.78	434	5:5	217	217
Total			**7,614**		**351**		**141**	**210**		**689**		**370**	**319**

[1] Approximately 113 trips per acres weekday and 100 trips per acres on the weekend. Aerial measurements show that the active portion of the site is approximately 42.5 acres.

Source: CR Associates (2022)

Table 7 - Existing Saturday Maximum Capacity Trip Generation

Land Use	Units	Trip Rate	ADT	Midday Peak Hour				
				Trip Rate	Trips	Split	In	Out
Mission Bay RV Resort	260 sites	13.11	3,409	1.31	341	6:4	204	136
Campland	556 sites	7.66	4,259	0.61	339	6:4	203	136
		Total	**7,668**		**680**		**407**	**272**

Source: CR Associates (2022)

As shown above, at maximum capacity, both sites would generate 7,614 trips on a weekday and 7,668 trips on the weekend. Specifically, the Campland site, which has similar characteristics as the proposed project would generate 4,798 trips (approximately 113 trips per acres) on a weekday and 4,259 trips (approximately 100 trips per acres) on the weekend. The weekend trip generation is less than the weekday trip generation, likely because most Campland visitors/users are prone to check in on a weekday and stay throughout the weekend.

Since the proposed project is still at the planning stage and analyzed at the programmatic level, it is unknown how many campsites will be provided at the project's site. Therefore, the trip generation rates obtained from the existing Campland site were converted from trips per site to trips per acres, and then applied to the 48.5 acres of low-cost visitor accommodations provided in Table 1 to estimate the proposed project's weekday and weekend trip generation.

Table 8 and **Table 9** displays the proposed project trip generation for the weekday and weekend, respectively. Average daily trips generation rate and peak hours splits were obtained from the existing condition trips generation analysis.

Table 8 – Weekdays Trips Generation – Proposed Project

Site	Daily	AM Peak Hour					PM Peak Hour				
		%	Trips	Split	In	Out	%	Trips	Split	In	Out
Mission Bay RV Resort - Existing	2,816	4%	112	4:6	45	67	9%	255	6:4	153	102
Campland - Existing	4,798	5%	239	4:6	96	143	9%	434	5:5	217	217
Total (Existing)	**7,614**		**351**		**141**	**210**		**689**		**370**	**319**
De Anza Cove (Proposed)	5,481	5%	274	4:6	110	164	9%	493	5:5	247	246
Net (Proposed – Existing)	**-2,134**		**-77**		**-31**	**-46**		**-196**		**-123**	**-73**

Table 9 – Weekend Trips Generation – Proposed Project

Site	Daily	Midday Peak Hour				
		%	Trips	Split	In	Out
Mission Bay RV Resort - Existing	3,409	10%	341	6:4	204	136
Campland - Existing	4,259	8%	339	6:4	203	136
Total (Existing)	**7,668**		**680**		**407**	**272**
De Anza Cove (Proposed)	4,850	8%	388	6:4	233	155
Net (Proposed – Existing)	**-2,818**		**-292**		**-174**	**-117**

As shown above, the proposed project would generate 5,481 average daily trips (2,134 trips less than existing conditions) during the weekday and 4,850 average daily trips (2,818 trips less than existing conditions) during the weekend.

Transportation Impact Analysis

Under Section 15064.3 of the California Environmental Quality Act (CEQA) Guidelines, vehicle miles traveled (VMT), which includes the amount and distance of automobile traffic attributable to a project, is identified as the "most appropriate measure of transportation impacts." The COSDTSM requires a project to determine if the project would cause an increase in regional VMT. Since not all projects are likely to generate additional VMT, the COSDTSM provides categories where a project is presumed to have a less than significant VMT impact, several of which are applicable to the proposed project. Per the COSDTSM, the Project is presumed to have a less than significant VMT impact under the following screening criteria:

1. Redevelopment project that would likely generate less VMT than the existing land use.

As shown above, the proposed project would generate less trips than the existing land uses, and since the project's characteristics are likely to remain the same as existing land uses (i.e. similar types of campers who drive similar distances), the project is likely to generate less VMT.

As mentioned above, the proposed land uses are likely to have the same characteristic as the existing land uses, thus the amount of VMT generated by each user or the average distance of each trip is likely to remain the same. Since the project would generate less trips, but have the same average trip distance, the total VMT[2] would be less than the existing condition's. However, to provide a conservative analysis, a market capture study was conducted to determine the effect of the project on the regional VMT by evaluating the service area with and without the project[3]. While there are many guest housing (RV/Camping) facilities in San Diego County, there are limited facilities that provide crucial coastal access. Thus, the GIS analysis conducted as part of the market capture study (service area) focused on these publicly accessible coastal guest housing facilities including South Carlsbad State Beach, San Elijo State Beach, Silver Strand State Beach, Mission Bay Campland (existing Campland and proposed project), and Tijuana Valley Campground. The service area of each coastal guest housing facilities was calculated using GIS network analysis, which determine how far a guest housing customer have to drive to get to a guest housing site with coastal access. The figures below provides a comparison of the service area with and without the Project. The "with Project" condition is a scenario where the existing land use is redeveloped to provide high quality amenities and include campsites, similar to existing conditions. **Figure 3** displays the service area that is reflective of either the areas serviced by the existing Mission Bay Campland or the proposed project. The "without Project" condition assumed that the DeAnza Cove site is redeveloped, but without the camping component. **Figure 4** displays the service areas without the proposed Project.

As shown in Figure 4, without the proposed project, the service area of the remaining coastal accessible facilities has expanded significantly. This indicates that without the proposed project, the driving distance for residents within the region would increase, resulting in an increase in VMT.

[2] VMT of the Project = Number of daily trips x average travel distance
[3] The market capture (service area) study was conducted

Conversely, with the implementation of the proposed project, the service areas are divided more evenly among the facilities, resulting in more localized trips, and therefore less VMT.

Multimodal Access

This section provides a discussion of the active transportation facilities along and near the Project's frontage, including transit, pedestrians, and bicycle access.

Transit Access

Future transit services serving the vicinity of the study area include improvements to MTS Route 30 service, completion of the Mid-Coast Trolley and Balboa Avenue Station, as well as potential light rail or skyway transit along Grand Avenue. The Mid-Coast Trolley, which consists of the MTS Blue Line Trolley line extension from Downtown San Diego to the University community, is east of the project area. The Balboa Avenue Station located approximately 0.25 mile northeast of the project area and the Clairemont Drive Station located approximately 0.75 mile southeast of the project area would provide region-serving high-quality light-rail transit to the project area that would meet Goal ME B.9.d to locate new public facilities that generate large numbers of person trips, including recreational facilities in areas with existing or planned transit access. Therefore, the project would not conflict with the goals and policies of the City's General Plan Mobility Element.

Planned Transit Routes/Stops

Detail discussion of the planned public transportation routes that serve the study area are provided in **Attachment A**. Per the San Diego Forward: The Regional Plan (2021 Regional Plan), MTS Route 30 is slated to be upgraded to Rapid branding, which will include stop amenity upgrades and frequency improvements to 10 minutes on- and off-peak.

Further, the recently completed Balboa Avenue Station of the Mid-Coast Trolley extension will provide region-serving high-quality light rail transit to the vicinity of the study area and include first- and last-mile pedestrian and bicycle improvements to facilitate connections to De Anza Cove.

Additional transit options are currently being evaluated as a part multiple Comprehensive Multimodal Corridor Plan. The 2021 Regional Plan proposes high-quality transit between Mission Boulevard in the Pacific Beach community and the Balboa Avenue station. This service, under study in the Pacific Beach Corridor Study (2017), may be implemented as light rail transit or an aerial skyway, likely running along Grand Avenue. To serve De Anza Cove and the local surrounding area, the light rail alternative proposes a station near the intersection of Mission Bay Drive and Grand Avenue, as well as near the intersection of Lee Street and Grand Avenue. The aerial skyway alternative proposes a station near the intersection of Mission Bay Drive and Grand Avenue. It has not been determined to which degree this service may supersede the existing Route 27.

Figure 3 - Service Area with the Project (Existing & Proposed)

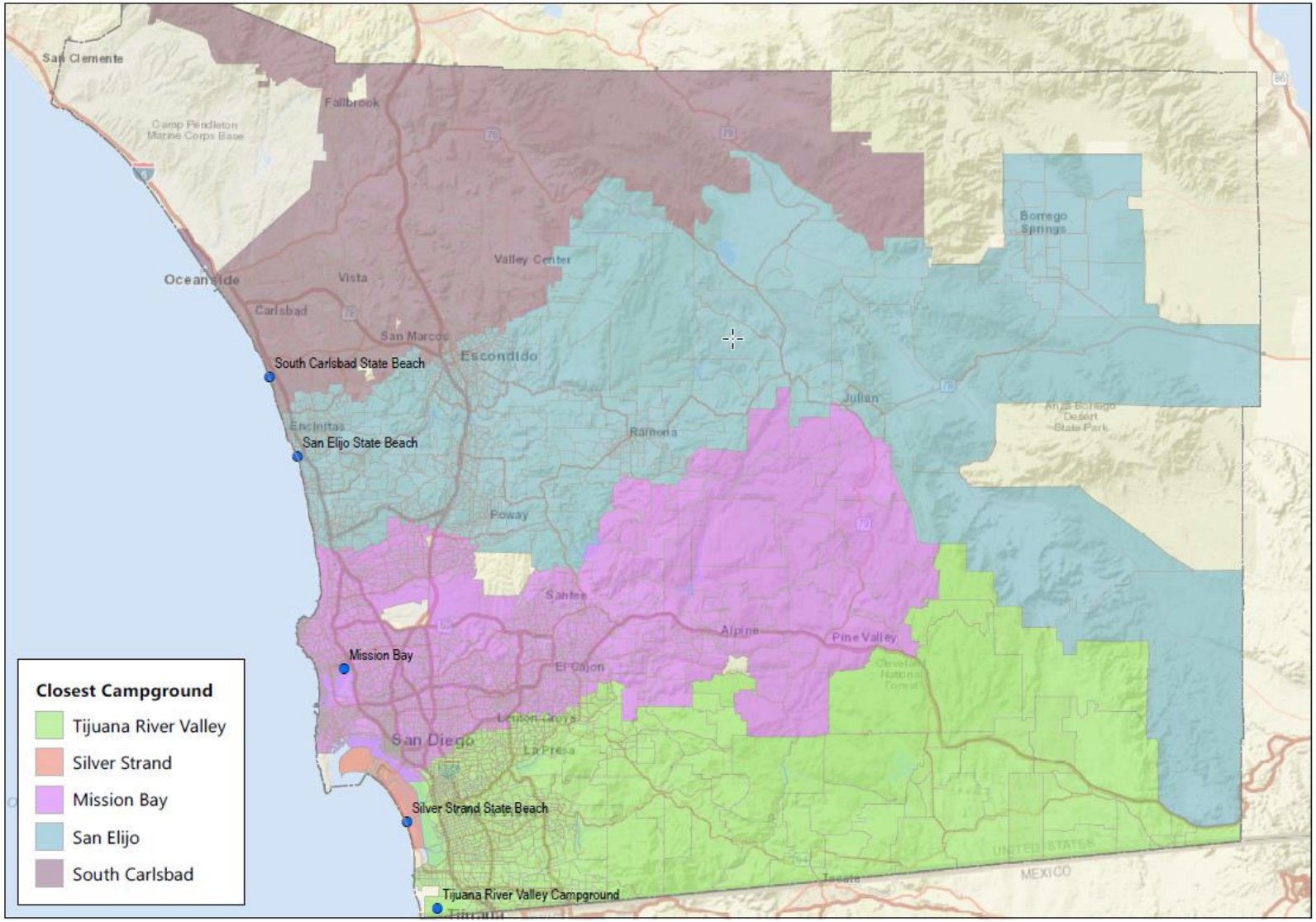
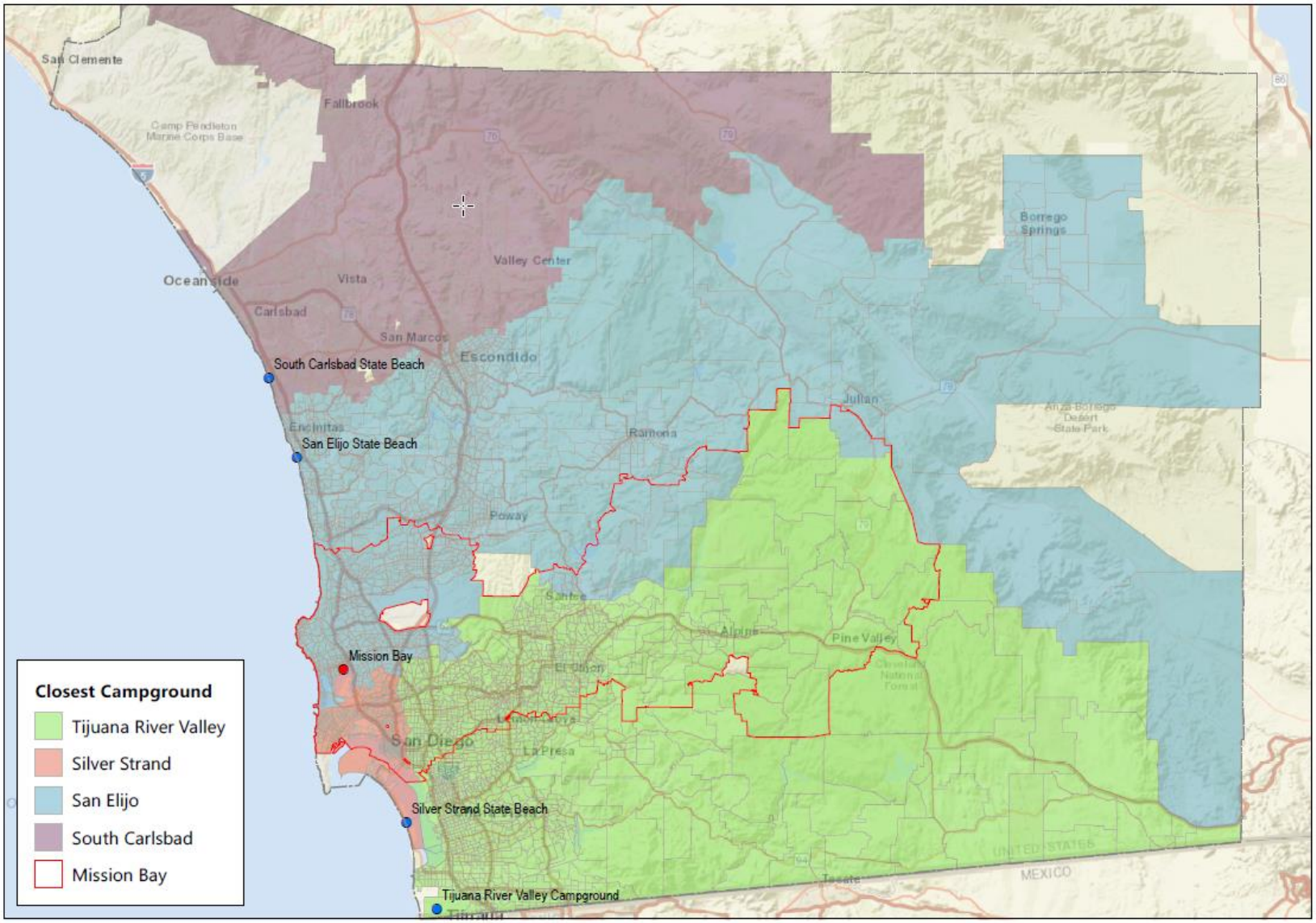


Figure 4 - Service Area without the Project



Pedestrians and Bicycle Access

Pedestrian and bicycle access and network are discussed in Attachment A. Within the De Anza Cove project site, connectivity will be provided via a Class I multi-use path, also referred to as an enhanced pedestrian and bicycle waterfront trail. Specifically, the trail would be located within the "100-foot buffer/public use zone" along the east side of Rose Creek frontage adjacent to the tennis courts and ball fields (similar to how the existing multi-use path traverses through the northern portion of the project site today), and then parallels the perimeter of the guest housing area, offering access to viewing areas and overlooks of Rose Creek, the adjacent proposed/expanded Habitat Area and Mission Bay. Overall, the waterfront trail would provide pedestrian and bicycle access and connect the guest housing area with the regional park facilities, food services, the quality restaurant, and boat rental facilities that are proposed within De Anza Cove, as well other parks uses to the south.

Additionally, the planned SANDAG project AT034 - Coastal Rail Trail San Diego – Mission Bay (Clairemont to Tecolote), SANDAG project AT055 - Pacific Beach to East Mission Bay, and the Pacific Beach Mobility Hub projects will provide additional active transportation connectivity to and from the Project's site.

Local Mobility Analysis (LMA)

The COSDTSM require all projects to conduct a LMA unless they meet the following conditions:

- Consistent with community plan and zoning designation and generates less than 1,000 daily unadjusted driveway vehicle trips
- Inconsistent with community plan or zoning designation and generates less than 500 daily unadjusted driveway vehicle trips

Since the proposed Project generates more than 1,000 daily unadjusted driveway vehicle trips, the project would have to conduct a Local Mobility Analysis.

Table 10 displays the fulfillment criteria to determine the project study area as defined in the COSDTSM.

Table 10 Determination of Project Study Area – City of San Diego

Facility	Project Trips Generated[1]	Community Plan Consistency?	Trips Added by Proposed Project
Roadway Segments[2]	-	Yes	1,000+ ADT
	-	No	500+ ADT
Signalized Intersections[3]	<2,400	-	50 or more trips to any turning movement
Unsignalized Intersections[3]	<2,400	-	50 or more trips in either direction
Freeway Interchange (Signalized or Unsignalized)	<2,400	-	50 or more trips in either direction

Table 10 Determination of Project Study Area – City of San Diego

Facility	Project Trips Generated[1]	Community Plan Consistency?	Trips Added by Proposed Project
Signalized Intersections	>2,400	-	50 or more trips to any turning movement
Unsignalized Intersections	>2,400	-	50 or more trips on any approach
Freeway Interchange (Signalized or Unsignalized)	>2,400	-	50 or more trips on any approach
Bicycle Facilities	½ mile biking from Proposed Project driveway		
Transit Facilities	½ mile walking distance from pedestrian access point		
Pedestrian Facilities	½ mile walking distance from pedestrian access point		

City of San Diego TSM (September 2020)

Notes:
ADT = Average Daily Traffic
[1] Final Driveway Trips
[2] AND have improvements identified in the community plan or not built to the community plan ultimate classification
[3] Located ½ mile driving distance from Proposed Project Driveway for project

As shown in Table 10, the minimum threshold for intersections along local roadways and freeway interchanges to be included in the study area is 50 peak hours trips added by the proposed project. While the minimum threshold for roadway segments to be included in the study area is 1,000 ADT added by the proposed project. However, as shown, in Table 8 and 9, the project would holistically generate less trips than the existing uses on Mission Bay RV Resort and Campland. The project would not result in net new peak hour and daily trips that exceed these minimum thresholds at any of the nearby external transportation facilities, and therefore no study locations were identified for the extent of the LMA roadway segment and intersection operational analyses.

It is important to note that areas concentrated along segments, intersections, and internal driveways that face the key redevelopment areas of the site and offer direct access to and from the campsites may experience an increase in traffic compared to the current conditions. While the overall new increase in project traffic may exceed the identified thresholds in Table 10 for certain intersection turning movements or approaches due to a more compact footprint, an operational assessment of the facilities that provide site access was not conducted in this LMA. This is because the site plan is currently at a high program level concept, and the details of internal circulation are subject to further refinement. It is assumed that the site access will be further evaluated as part of the Project's General Development Plan.

Additionally a mobility analysis was previously conducted based on an earlier project description and studied the following intersections:

1. Recreational Center/Bond Street & Grand Avenue
2. Grand Avenue & Figueroa Boulevard
3. Mission Bay Drive & Grand Avenue
4. I-5 SB On-Ramp & Mission Bay Drive

5. Pacific Beach Drive & Olney Street
6. De Anza Road & N. Mission Bay Drive
7. Mission Bay Drive & De Anza Cove Park Parking Lot & N. Mission Bay Drive
8. E Mission Bay Drive/Mission Bay Drive & Clairemont Drive

The previous study is included as Attachment A. As shown in Attachment A, the project would not cause a detrimental effect to any of the nearby roadway or intersections. The current iteration of the project would construct improved roadways and intersections along the project's frontage to the City of San Diego Street Design Manual standards, and therefore would not substantially increase hazards due to a design feature.

Conclusion

Based on the analysis results documented above, the proposed Project would not conflict with an adopted program, plan, ordinance, or policy addressing the transportation system, including transit, roadways, bicycle and pedestrian facilities. The Project is presumed to have a less than significant VMT impact and would not substantially increase hazards due to a design feature. Therefore, the Project would not cause any additional impact under the City of San Diego CEQA check list, and no additional analysis would be required.

Attachment A – 2019 Mobility Assessment

De Anza Cove Amendment to the Mission Bay Park Master Plan

DRAFT Mobility Assessment

May 2019

Prepared for:
The City of SAN DIEGO

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1.0 Introduction

1.1 Project Description

The De Anza Cove Amendment to the Mission Bay Park Master Plan represents a comprehensive outreach and planning program intended to reimagine, repurpose, and revitalize the northeast corner of Mission Bay Park. This planning effort and amendment is intended to yield a preferred plan developed from a series of alternatives that were proposed through a comprehensive public outreach effort and will set forth recommendations for land use in the De Anza Special Study Area (SSA). The proposed project includes:

- Redeveloping Mission Bay RV Resort to include up-to 600 camping sites in a guest housing area for RV's and/or cabins (this includes the removal of the existing 260 sites);
- Replacing Campland on the Bay with habitat area (remove 526 RV sites and 30 camping sites) through the expansion of the KFMR/NWP;
- Developing 5,000 square feet of quality restaurant uses;
- Upgrading of the Pacific Beach Tennis Club, Mission Bay Athletic Area/Bob McEvoy Youth Fields, and Mission Bay Golf Course and Practice Center; and
- Enhancements to the Regional Parkland, Potential Leases, and Beach.

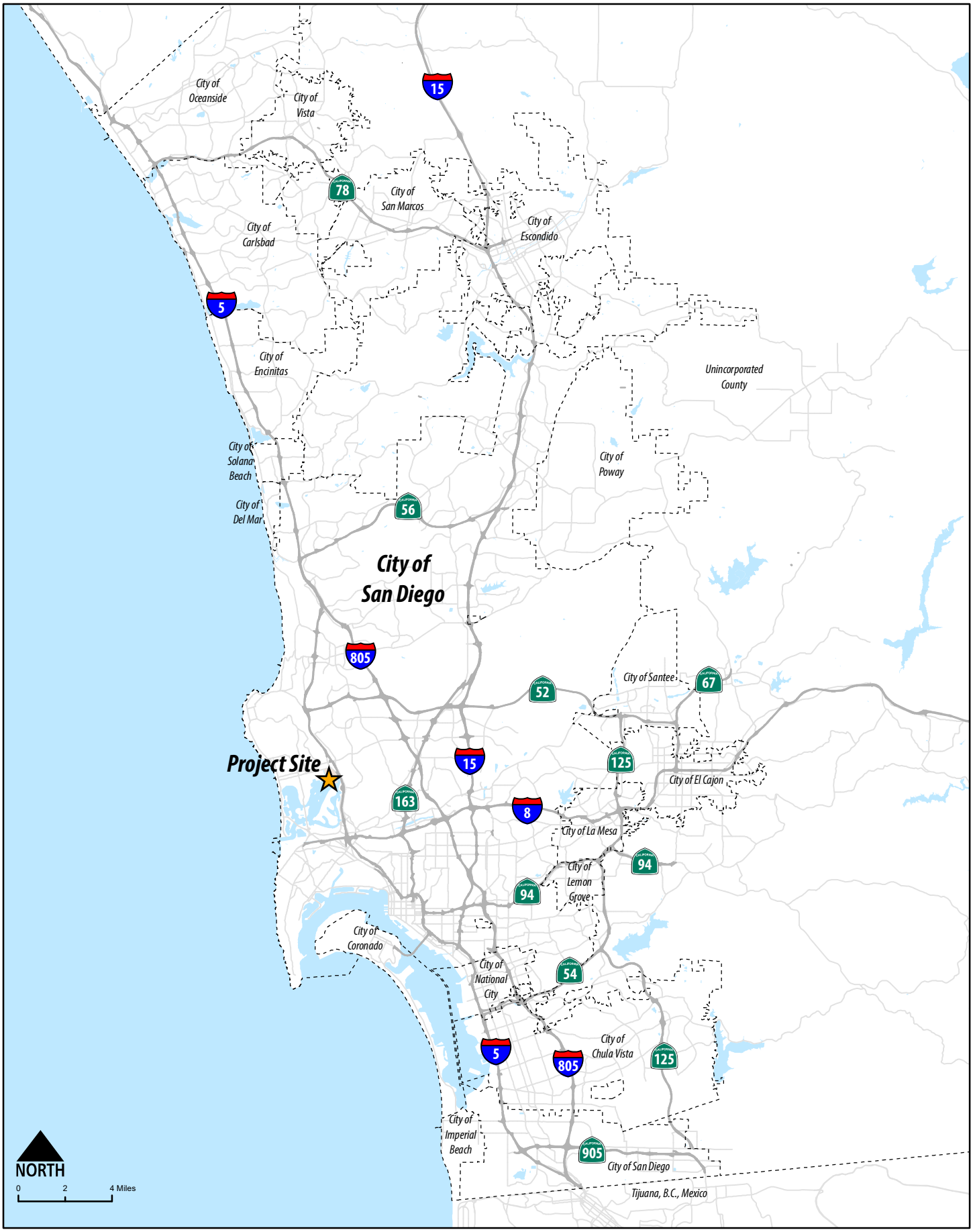
1.2 Study Area and Project Site

The project site of the De Anza Cove Amendment is in the northeast corner of the Mission Bay Park Community Planning Area in the City of San Diego. The location is encompassed by the Mission Bay Park Master Plan (MBPMP) area, including all land south of Grand Avenue and west of Mission Bay Drive. The subject property consists of approximately 322 acres of land and approximately 135 acres of open water, for a total of approximately 457 acres. The proposed project area includes the Kendall-Frost Marsh Reserve/Northern Wildlife Preserve (KFMR/NWP); Campland on the Bay (Campland) areas; the Mission Bay Tennis Center, Athletic Fields and Golf Course, and the De Anza Cove Area, which was formerly the De Anza Special Study Area (SSA) as designated in the MBPMP, including the water area of De Anza Cove. The project site location is displayed in Figure 1-1. The proposed project site plan is illustrated in Figure 1-2. To ensure that interconnectivity to communities surrounding the project site are properly considered in a holistic context, also reflecting planned transportation improvements, the study area will include neighboring parcels in the immediate vicinity of the project site.

1.3 Report Organization

Following this introductory chapter, the report will be organized as follows:

- *Chapter 2* presents a review of relevant local planning documents that pertain to the project site and surrounding relevant neighboring sub-areas.
- *Chapter 3* describes the methodologies used to determine the area to be studied and assess the pedestrian, bicycle, transit, and vehicular systems under existing and "Plus Project" conditions.
- *Chapter 4* provides an overview of existing conditions pertaining to pedestrian, bicycle, vehicle, and transit mobility.
- *Chapter 5* presents an analysis of "Plus Project" conditions for each mode analyzed.
- *Chapter 6* concludes the document with a summary of findings.



De Anza Cove Amendment to the Mission Bay Park Master Plan

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Figure 1-1
Project Regional Location

De Anza Cove Amendment
to the Mission Bay Park Master Plan

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Figure 1-2
Project Site Plan

2.0 Review of Relevant Planning Documents

A review was performed of pertinent planning documents related to the De Anza Cove Amendment project study area, the project site's surrounding land uses, and the MBPMP area as a whole, which are summarized below.

Fiesta Island/Mission Bay Park Master Plan Amendment (2018)

The Amendment evaluates two potential park use plan options for the Fiesta Island subarea of Mission Bay Park. The first option ("Option A") proposes a roadway extension into the area currently designated as an off-leash dog park area, and the development of a parking area, supervised swimming beach, boat storage, and park at the southern beach of the subarea. The development of these amenities would be constructed on a small portion (approximately 6 acres) of the land currently designated as existing, fenced, off-leash dog park area. This option has been approved as of 2007 and represents the currently planned direction for the Fiesta Island portion of Mission Bay Park.

The second option ("Option B") proposes a modification to land uses and includes additional trails and a pavilion. This option would not include a public roadway extension, or the development of a parking area, supervised swimming area, or boat storage as described in Option A. Both options propose changes to the roadway configuration, modifications to parking, integrated pedestrian and bicycle paths, and increased pedestrian access through the interior of the island.

The supplementary mobility assessment focused on evaluating the existing and future conditions on the roadways, pathways, and bicycle facilities providing access to Fiesta Island, as well as modifications to access and circulation within Fiesta Island. The traffic operations analysis with either Option A or Option B in place identified intersection and roadway impacts that would require mitigation.

Balboa Avenue Station Area Specific Plan (On-going)

The Specific Plan analyzes the impacts of the planned Balboa Avenue Station that is being constructed as part of the Mid-Coast Trolley project. The Balboa Avenue Station Area overlaps with multiple facilities within this study area, and the fully realized Balboa Avenue Station Area Specific Plan provides ways to connect people to the Balboa Avenue station via all modes of travel, with a focus on active modes of transportation. These connections will serve this study area.

The Balboa Avenue Station Area Specific Plan is currently going through the City's planning approval process with an anticipated adoption in Spring 2019.

Pacific Beach Corridor Study (2017)

This Corridor Study by SANDAG identifies potential transportation solutions to connect Mission Boulevard and its coastal amenities to the Balboa Avenue Station that will be in place when the under-construction Mid-Coast Trolley enters service. The Pacific Beach Corridor Study examines two potential connectivity alternatives, including light rail transit and an aerial skyway. The report found both technologies to be feasible given the nature of the intended application, and both are forecast to adequately handle anticipated demand. Impact differences will mainly be visual in nature, particularly if the skyway option is chosen. Cost considerations indicate that light rail will require a higher construction cost, but the skyway will be more expensive to operate due to the need for station staffing. Although various routing options exist, the most desirable alignment would be along Grand Avenue, with the skyway option allowing for relatively more flexibility. The light rail alternative would include two stops in close proximity to the project

site: a Pacific Beach Balboa Terminal Station, west of the I-5, and at the intersection of Grand Avenue and Lee Street. The aerial skyway would include one station in proximity to the project site, at Mission Bay Drive and Bunker Hill Street.

Recreational Center Access Evaluation (2017)

The Recreational Center Access Evaluation is a report prepared by Kimley-Horn Associates that assesses the existing driveway access to the Mission Bay Athletic Area/Bob McEvoy Fields and Pacific Beach Tennis Club south of Grand Avenue between Mission Bay Drive and the Rose Creek Inlet. Intersection traffic counts were collected in November 2017 for the weekday PM peak period and weekend midday period. There were no AM peak period counts collected.

Similar to the *De Anza Revitalization Plan*, this study identified community concerns of cut- through traffic through the neighborhood on Bond Street and Figueroa Boulevard. This study ultimately recommended that the intersection of Grand Avenue and Bond Street be signalized to allow for left-turns into and out of the recreational center driveway and only right-turns from Bond Street.

De Anza Revitalization Plan Existing Mobility Plan (2016)

The Mobility Plan documents the existing transportation facilities within the De Anza Cove project site and the existing trip generation of De Anza Cove, which includes the RV campsites and the previous Mobile Homes. The counts used in this analysis were collected in December 2015 and consisted of weekday and weekend peak hour intersection and daily roadway counts.

A community workshop was conducted on January 18, 2016 where the community identified three (3) key issues in and around the project site:

1. Connectivity from De Anza Cove to planned trolley stations;
2. Minimizing auto traffic through adjacent neighborhoods; and
3. Improve the walking and bicycling environment along the cove.

These concerns will be incorporated in our evaluation and aid in our development of potential multimodal and access improvements for the project.

Mission Bay Park Master Plan Update (1994)

The 1994 Mission Bay Park Master Plan Update, with updates in 1995, 1997, and 2002, provides primary guidance for the Mission Bay Park area, in which the De Anza Cove project site is located. This Amendment serves as a localized update to this Plan. The Plan frames the land use, water use, environmental, access and circulation, art, and economic aspects of the Park, with further specific guidance to the South Shores/Fiesta Island area. The Plan also provides implementation framework. In the De Anza Cove vicinity, the Plan identifies the nature of habitat preservation in the surrounding marsh areas and notes the disposition of the lease area of the De Anza Mobile Estates that necessitate the implementation of this Amendment.

3.0 Analysis Methodology

This chapter describes the methodologies utilized to analyze the De Anza Cove project site and surrounding area's mobility network (the "study area").

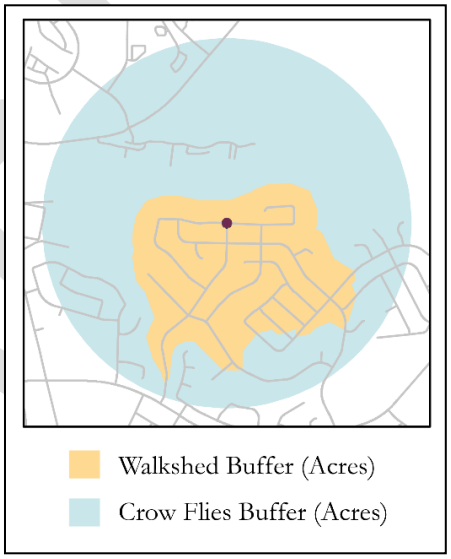
3.1 Active Transportation Access and Connectivity

3.1.1 Walking

Pedestrian network connectivity was assessed using a two-step process: 1) develop the pedestrian network; and 2) perform a pedestrian travelshed or walkshed 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, since the Roads_All shapefile does not include all pedestrian connections – such as trolley stations where people accessing stations may traverse large parking lots, schools, parks, shopping centers or other large institutions – they were manually added to the shapefile to reflect the actual pedestrian network to be studied, prior to conducting the travelshed analysis. In addition, all roadway segments in the Roads_All shapefile that do not allow pedestrians are removed from the analysis, including freeway segments and freeway ramps.



Travelshed Analysis

The pedestrian travelshed analysis assesses the level of connectivity provided at each parcel within the pedestrian study area. The travelshed analysis requires first creating a 0.5-mile pedestrian network (walkshed) buffer at each parcel. That area is then compared to the area of a 0.5-mile as-the-crow-flies buffer (502 acres) to develop a Pedestrian Connectivity or Walkshed Ratio for each parcel. The higher the Walkshed Ratio, the better the overall connectivity is for that parcel.[1]

An illustration of the variables that are used to compute a Walkshed Ratio is included above to the right. The Walkshed Ratio is presented in a mapped format, displaying results for each parcel. Each parcel is represented by a color reflecting the Walkshed Ratio scale.

3.1.2 Biking

A bicycle travelshed or bikeshed analysis was performed to assess the level of connectivity provided at each parcel within the study area. A Bicycle Connectivity or Bikeshed Ratio was calculated by comparing the area of a one-mile bicycle network buffer (using all bikeable roadways plus bike paths) at each parcel within

[1] 65% is typically the highest Walkshed Ratio that can be achieved in even the most ideal communities (i.e. urban downtown settings with tight street grid networks). Therefore, any community with a connectivity ratio over 50% should be considered ideal.

the study area to the area of a one-mile as-the-crow-flies buffer (or 2,010.6 acres). A higher Bikeshed Ratio indicates better overall bicycle connectivity from the individual parcel. The Bikeshed Ratio results for each parcel within the study area are reported for existing conditions and displayed in a mapped format.

3.2 Active Transportation Safety Analysis

3.2.1 Walking

To understand existing pedestrian safety issues, safety was evaluated using collision data obtained from the City of San Diego Police Department's Crossroads software (SDPD) for the period from January 2012 through September 2017. Collisions from SDPD were geocoded and mapped to display the locations of pedestrian-involved collisions within the study area.

Several tables were also created to further understand safety issues and trends within the study area. These include: collision severity, most frequent collision locations, cause of collisions, collisions by party at fault and collision location types. The collision location types are differentiated between intersection and midblock. Collisions that occurred within the footprint of the intersection were identified as intersection collisions. Collisions that occurred outside of the intersection and immediate intersection vicinity were identified as mid-block collisions.

3.2.2 Biking

Similar to pedestrian safety, existing bicycle safety was evaluated using collision data obtained from the SDPD's Crossroads software for the period from January 2012 through September 2017. Collisions from SDPD were geocoded and mapped to display the locations of bicycle-involved collisions within the study area.

Tables displaying collision severity, most frequent collision locations, cause of collisions, collisions by party at fault and collision location types were also created to further understand bicycle safety issues and trends within the study area.

3.3 Transit Access and Connectivity

Connectivity to transit stops serving routes in the vicinity of De Anza Cove was assessed for both pedestrians and cyclists. Drawing from the Walkshed Ratio and Bikeshed Ratio results, the connectivity to transit analyses calculate the percentage of a crow-flies buffer of the active transportation network (a half-mile for pedestrian facilities, and a mile for bicyclist facilities) that can be accessed from a transit stop given the adjacent roadway network. A half-mile walk and a mile bike ride to transit are generally seen as acceptable distances for much of the public.

3.4 Traffic Operations Analysis

The operations analysis was performed in accordance with the requirements of the *City of San Diego Traffic Impact Study Manual, July 1998* and the *City of San Diego Significance Determination Thresholds, January 2011*. Detailed information on roadway segment and intersection analysis methodologies, standards, and thresholds are discussed in the following sections.

3.4.1 Level of Service Definition

Level of Service (LOS) is a quantitative measure describing operational conditions within a traffic stream, and the motorist's and/or passengers' perception of operations. A LOS definition generally describes these conditions in terms of such factors as delay, speed, travel time, freedom to maneuver, interruptions in traffic flow, queuing, comfort, and convenience. Table 3-1 describes generalized definitions of the various LOS categories (A through F) as applied to roadway operations.

Table 3-1 Level of Service Definitions

LOS Category	Definition of Operation
A	This LOS represents a completely free-flow condition, where the operation of vehicles is virtually unaffected by the presence of other vehicles and only constrained by the geometric features of the highway and by driver preferences.
B	This LOS represents a relatively free-flow condition, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.
C	At this LOS the influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles.
D	At this LOS, the ability to maneuver is notably restricted due to traffic congestion, and only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.
E	This LOS represents operations at or near capacity. LOS E is an unstable level, with vehicles operating with minimum spacing for maintaining uniform flow. At LOS E, disruptions cannot be dissipated readily thus causing deterioration down to LOS F.
F	At this LOS, forced or breakdown of traffic flow occurs, although operations appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages.

Source: Highway Capacity Manual 2010

3.4.2 Intersection

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

- *Pedestrian Calls per Hour:* 10 calls per hour for each pedestrian movement was assumed.
- *Heavy Vehicle Factor:* A 2% heavy vehicle factor was assumed for all intersections within the study area.
- *Signal Timing:* Based on existing signal timing plans (as of May 2018), provided in Appendix A.
- *Peak Hour Factor*: Based on existing peak hour count data.

Signalized Intersection Analysis

The analysis of signalized intersections utilized the operational analysis procedures as outlined in the *2010 Highway Capacity Manual (HCM)*. This method defines LOS in terms of delay, or more specifically, average stopped delay per vehicle. Delay is a measure of driver and/or passenger discomfort, frustration, fuel consumption and lost travel time. This technique uses 1,900 vehicles per hour per lane (VPHPL) as the maximum saturation volume of an intersection. This saturation volume is adjusted to account for lane width, on-street parking, pedestrians, traffic composition (i.e., percentage trucks) and shared lane movements (i.e. through and right-turn movements originating from the same lane). The LOS criteria used for this technique are described in Table 3-2. The computerized analysis of intersection operations was performed utilizing the *SYNCHRO 10.0* traffic analysis software.

Table 3-2 Signalized Intersection Level of Service Criteria

Average Stopped Delay Per Vehicle (seconds)	Level of Service (LOS) Characteristics
<10.0	*LOS A* describes operations with very low delay. This occurs when progression is extremely favorable, and most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
10.1 – 20.0	*LOS B* describes operations with generally good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
20.1 – 35.0	*LOS C* describes operations with higher delays, which may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
35.1 – 55.0	*LOS D* describes operations with high delay, resulting from some combination of unfavorable progression, long cycle lengths, or high volumes. The influence of congestion becomes more noticeable, and individual cycle failures are noticeable.
55.1 – 80.0	*LOS E* is considered the limit of acceptable delay. Individual cycle failures are frequent occurrences.
>80.0	*LOS F* describes a condition of excessively high delay, considered unacceptable to most drivers. This condition often occurs when arrival flow rates exceed the LOS D capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay.

Source: Highway Capacity Manual 2000, TRB Special Report 209

Unsignalized Intersection Analysis

Unsignalized intersections, including two-way and all-way stop controlled intersections, were analyzed using the 2010 Highway Capacity Manual (Chapter 19 & Chapter 20) unsignalized intersection analysis methodology. The *SYNCHRO 10.0* Traffic Analysis software supports this methodology and was utilized to produce LOS results based on average stopped delay expressed in seconds per vehicle. The LOS for a two-way stop controlled (TWSC) or a side-street stop controlled (SSSC) intersection is determined by the computed control delay and is defined for each minor movement, and the worst movement is reported. The LOS for an all-way stop controlled (AWSC) intersection is determined by the whole intersection weighted average stopped delay. Table 3-3 summarizes the LOS criteria for unsignalized intersections. The City of San Diego considers LOS D or better during the AM and PM peak hours to be acceptable for intersection LOS.

Table 3-3 Unsignalized Intersection Level of Service Criteria

Average Control Delay (sec/veh)	Level of Service (LOS)
≤10	A
>10 and ≤15	B
>15 and ≤25	C
>25 and ≤35	D
>35 and ≤50	E
>50	F

Source: Highway Capacity Manual 2010

3.4.3 Roadway Segment Level of Service and Thresholds

Roadway segment LOS standards and thresholds provide the basis for analysis of arterial roadway segment performance. The analysis of roadway segment LOS is based on the functional classification of the roadway, the maximum capacity, roadway geometrics, and existing Average Daily Traffic (ADT) volumes. Table 3-4 presents the roadway segment capacity and LOS standards utilized to analyze roadway segments in this report.

Table 3-4 City of San Diego Roadway Segment Daily Capacity and Level of Service Standards

Roadway Functional Classification	Lanes	Level of Service				
		A	B	C	D	E
Freeway	8	60,000	84,000	120,000	140,000	150,000
Freeway	6	45,000	63,000	90,000	110,000	120,000
Freeway	4	30,000	42,000	60,000	70,000	80,000
Expressway	6	30,000	42,000	60,000	70,000	80,000
Prime Arterial	8	35,000	50,000	70,000	75,000	80,000
Prime Arterial	6	25,000	35,000	50,000	55,000	60,000
Major Arterial	7	22,500	31,500	45,000	50,000	55,000
Major Arterial	6	20,000	28,000	40,000	45,000	50,000
Major Arterial	5	17,500	24,500	35,000	40,000	45,000
Major Arterial	4	15,000	21,000	30,000	35,000	40,000
Major Arterial	3	11,250	15,750	22,500	26,250	30,000
Major Arterial	2	7,500	10,500	15,000	17,500	20,000
Major Arterial (one-way)	3	12,500	16,500	22,500	25,000	27,500

Table 3-4 City of San Diego Roadway Segment Daily Capacity and Level of Service Standards

Roadway Functional Classification	Lanes	Level of Service				
		A	B	C	D	E
Major Arterial (one-way)	2	10,000	13,000	17,500	20,000	22,500
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)	4	5,000	7,000	10,000	13,000	15,000
Collector (w/o two-way Left-Turn lane)	3	4,000	5,000	7,500	10,000	11,000
Collector (w/o two-way Left-Turn lane)	2	2,500	3,500	5,000	6,500	8,000
Collector (w/o two-way Left-Turn lane) – no fronting property	2	4,000	5,500	7,500	9,000	10,000
Collector (one-way)	3	11,000	14,000	19,000	22,500	26,000
Collector (one-way)	2	7,500	9,500	12,500	15,500	17,500
Collector (one-way)	1	2,500	3,500	5,000	6,500	7,500
Sub-Collector (single-family)	2	-	-	2,200	-	-

Source: City of San Diego Traffic Impact Study Manual (1998)
Updated with input from City of San Diego Planning Department Mobility Staff (2017)

These standards are generally used as long-range planning guidelines to determine the functional classification of roadway segments. The actual capacity of a roadway facility varies according to its physical attributes. Typically, the performance and LOS of a roadway segment is heavily influenced by the ability of its intersections to accommodate peak hour traffic volumes. For the purposes of this traffic analysis, LOS D is considered acceptable for circulation element roadway segments.

3.4.4 Vehicular Safety

Vehicular safety was evaluated using collision data from the SDPD's Crossroads software for the period from January 2012 through September 2017. Vehicle collisions, excluding pedestrian- and bicycle-involved collisions, from SDPD were geocoded and mapped to display the locations of collisions within the study area.

Several tables were also created to further understand safety issues and trends within the study area. These include: collision severity, most frequent collision locations, cause of collisions, collisions by party at fault, collision type, and collision location types. The collision location types are differentiated between intersection and midblock. Collisions that occurred within the footprint of the intersection were identified as intersection collisions. Collisions that occurred outside of the intersection and immediate intersection vicinity were identified as mid-block collisions.

4.0 Existing Conditions

This chapter presents an analysis of existing conditions pertaining to the De Anza Cove study area and its general vicinity.

4.1 Active Transportation Mobility

This section describes pedestrian- and bicycle-oriented access, connectivity, and safety in the study area under existing conditions.

4.1.1 Access and Connectivity

Site access to the De Anza Cove Area for pedestrians and bicyclists are currently provided via a combination of driveways with road and/or sidewalk coverage, as well as through Class I multi-use paths.

Driveways are located along North Mission Bay Drive including at the intersections of Mission Bay Drive and De Anza Road east of Rose Creek. The driveways along North Mission Bay Drive provide access to the San Diego Mission Bay Boat & Ski Club, the Mission Bay Golf Course, and the Mission Bay recreational area and RV Resort. Despite direct access to key existing De Anza Cove uses, these driveways lack sidewalk connectivity on both sides of the road and lack dedicated bicycle facilities as bicyclists share the roadway with vehicles. The northern point of entry for the De Anza Cove Area is located on the south leg of the Grand Avenue and Bond Street intersection and provides direct access to the Mission Bay Athletic Area. This access point has sidewalk connectivity, as well as connectivity to bicycle lanes on Grand Avenue.

The proposed project area will eventually include areas west of the Rose Creek Channel and south of Pacific Beach Drive, such as Campland. Access to Campland on the Bay is provided at Pacific Beach Drive and Olney Street west of the Rose Creek inlet. Sidewalk connectivity into Campland is limited as there are no sidewalks provided along both sides of Pacific Beach Drive east of Olney Street until right at the Campland driveway. There are also no dedicated bicycle facilities into Campland from the west.

Furthermore, those arriving to De Anza using existing transit contend with large parcels that are difficult to cross. However, the Rose Creek Trail offers a point of central connectivity to bicyclists and pedestrians either accessing from the north, or from nearby transit stops.

Specifically, the Rose Creek Trail is a recreational pedestrian and bicycle connection from the Pacific Beach Community that provides direct access into the De Anza Cove recreational area and is also classified as a Class I multi-use path. The Rose Creek Trail extends from De Anza Cove and parallels Rose Creek to the north and terminates near the Damon Street/Mission Bay Drive intersection, with a planned extension to the north in the future to connect with the improved Rose Creek Trail alongside Interstate-5 leading to Rose Canyon.

Rose Creek Bikeway and Pedestrian Bridge, also known as the Mike Goth Memorial Bridge, connects the De Anza Cove Area with the Pacific Beach Community along Pacific Beach Drive, including key destinations such as Campland on the Bay, Crown Point on Mission Bay and the Pacific Ocean. Pedestrians access the Rose Creek Bikeway and Pedestrian Bridge from the west along smaller roadways such as Olney Street. In many cases, these local streets have sidewalk on only one side. There are no sidewalks along Pacific Beach Drive from the Rose Creek Bikeway and Pedestrian Bridge up to the intersection of Crown Point Drive.

Along the perimeter of Mission Bay, a multi-use path is provided that serves pedestrians and bicyclists. The path connects the De Anza Cove recreational area to activity centers within Mission Bay Park including Fiesta Island, picnic areas, restrooms and other facilities. This path is heavily utilized throughout the year and attracts visitors from throughout the County. However, the path terminates at the parking lot located within the De Anza Cove recreational area. Currently, the path does not extend into the RV Park and does not directly connect with the Rose Creek Trail or Rose Creek Bikeway and Pedestrian Bridge.

Walking

Figure 4-1 displays the location of missing sidewalks along roadway segments in the vicinity of the study area. Sidewalk inventory was provided by City staff in Geographic Information System (GIS) format of the study area for review and analysis in the ArcGIS software. This information was used to provide an overview of where pedestrian connections is currently provided, areas that have missing pedestrian facilities, and barriers that may impede pedestrian connectivity. As shown, multiple roadways throughout the community are sidewalk deficient on one or both sides of the street. Portions of Mission Bay Drive and existing internal circulation roadways in De Anza Cove and Campland on the Bay are missing sidewalks, although sections are paralleled by a series of Class I multi-use paths within the project site. Missing sidewalks were also noted along residential streets in the study area.

Figure 4-2 identifies existing permitted and prohibited pedestrian crossings at all study intersections. As shown, most study intersections have one or more legs where pedestrian crossings are not permitted. One exception is the western intersection of Mission Bay Drive and North Mission Bay Drive (study intersection #7), where all four legs are stop controlled, thus permitting pedestrian crossings. Although pedestrians are technically allowed to cross at this intersection, especially since there is no signage prohibiting them from doing so, there are no sidewalk facilities provided at the intersection and its immediate vicinity.

A half-mile pedestrian travelshed analysis was used to assess the level of connectivity provided from each parcel within the study area, using the methodology described in Chapter 3. Figure 4-3 displays the Walkshed Ratio results. The higher the ratio, the better the overall connectivity is at the parcel. Greater pedestrian connectivity was generally identified along the Garnet/ Avenue corridor, with secondary connectivity found between Garnet and Grand Avenues, as well as the northwest portion of the study area. The remainder of the study area, such as parcels east of Mission Bay Drive, offer relatively less connectivity to other parcels.

Biking

Figure 4-4 displays the location of existing bicycle facilities within the study area. The network is comprised of Class I multi-use paths, Class II bike lanes, and Class III bike routes. Class I multi-use paths are found along Rose Creek, within the De Anza Cove recreational area, and along the shores of Mission Bay from the De Anza Cove recreational area to the Tecolote Shores-North Park located south of De Anza Cove. Class II bike lanes are generally found along larger circulation element roadways that serve Mission Bay Park and the Pacific Beach Community, such as Grand Avenue, Morena Boulevard, and Soledad Mountain Road. Class III bike routes provide additional connectivity between gaps in the Class I and Class II network, in both the Pacific Beach Community and within Mission Bay Park. Class III bicycle routes are provided along North Mission Bay Drive, Mission Bay Drive, and sections of Garnet Avenue. These facilities are denoted by Bike Route signage and may include sharrows in the roadway.

Barriers to bicycle travel include a lack of connectivity across the I-5 freeway to the planned Balboa Avenue Station, as well as few opportunities to access Mission Bay Park from neighboring areas.

A one-mile Bikeshed Ratio analysis was performed from each parcel to assess the level of connectivity. A higher Bikeshed Ratio indicates better overall bicycle connectivity from the individual parcel. Figure 4-5 displays the Bikeshed Ratio results.

Greatest connectivity was identified along the Garnet Avenue corridor, with additional relatively greater connectivity north of Grand Avenue, near Campland on the Bay, and in the northwest portion of the project site. Relatively less connectivity was found east of Mission Bay Drive and within much of the project site.

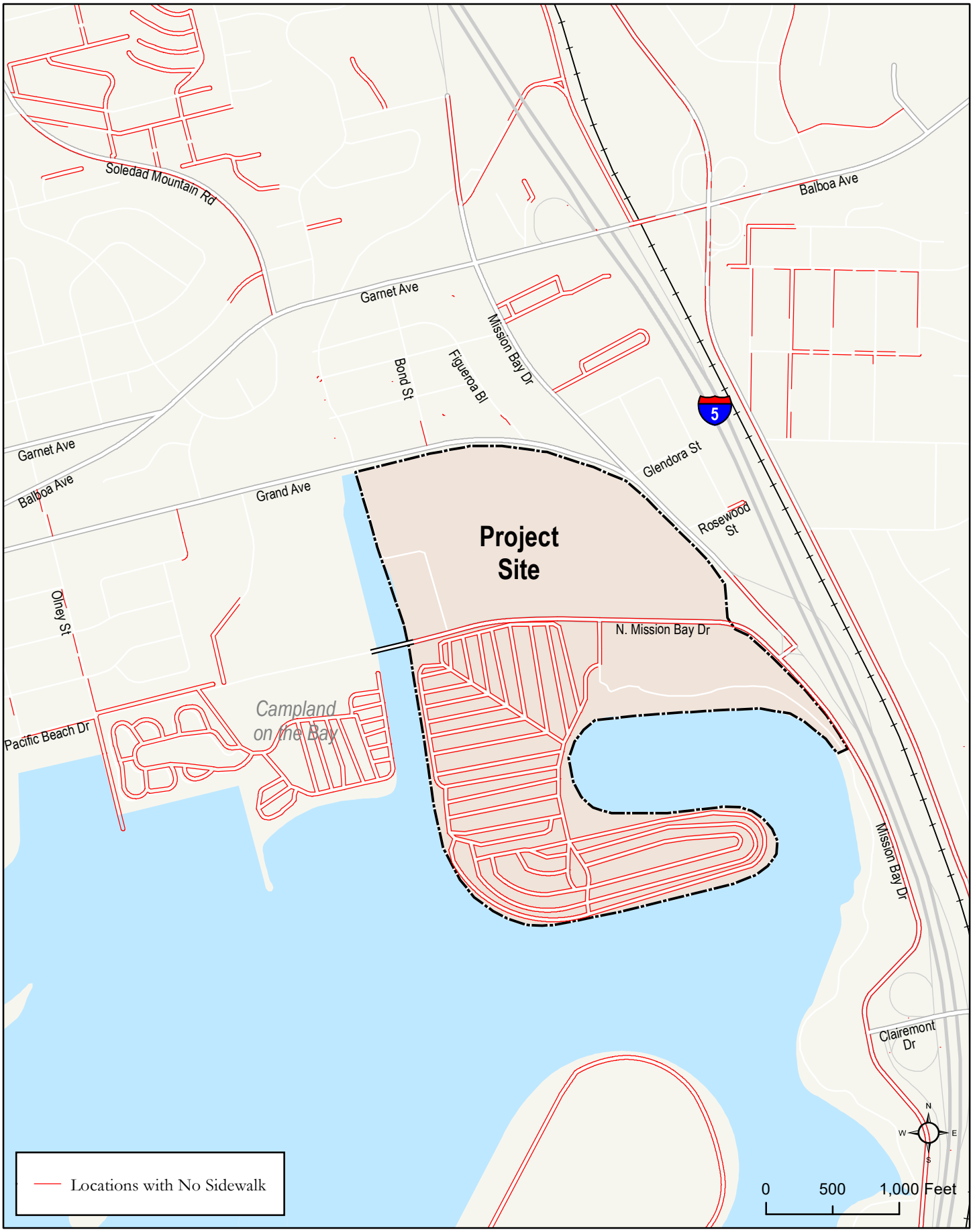


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Figure 4-1
Locations with No Sidewalk

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Figure 4-2
Pedestrian Crossings at Study Intersections

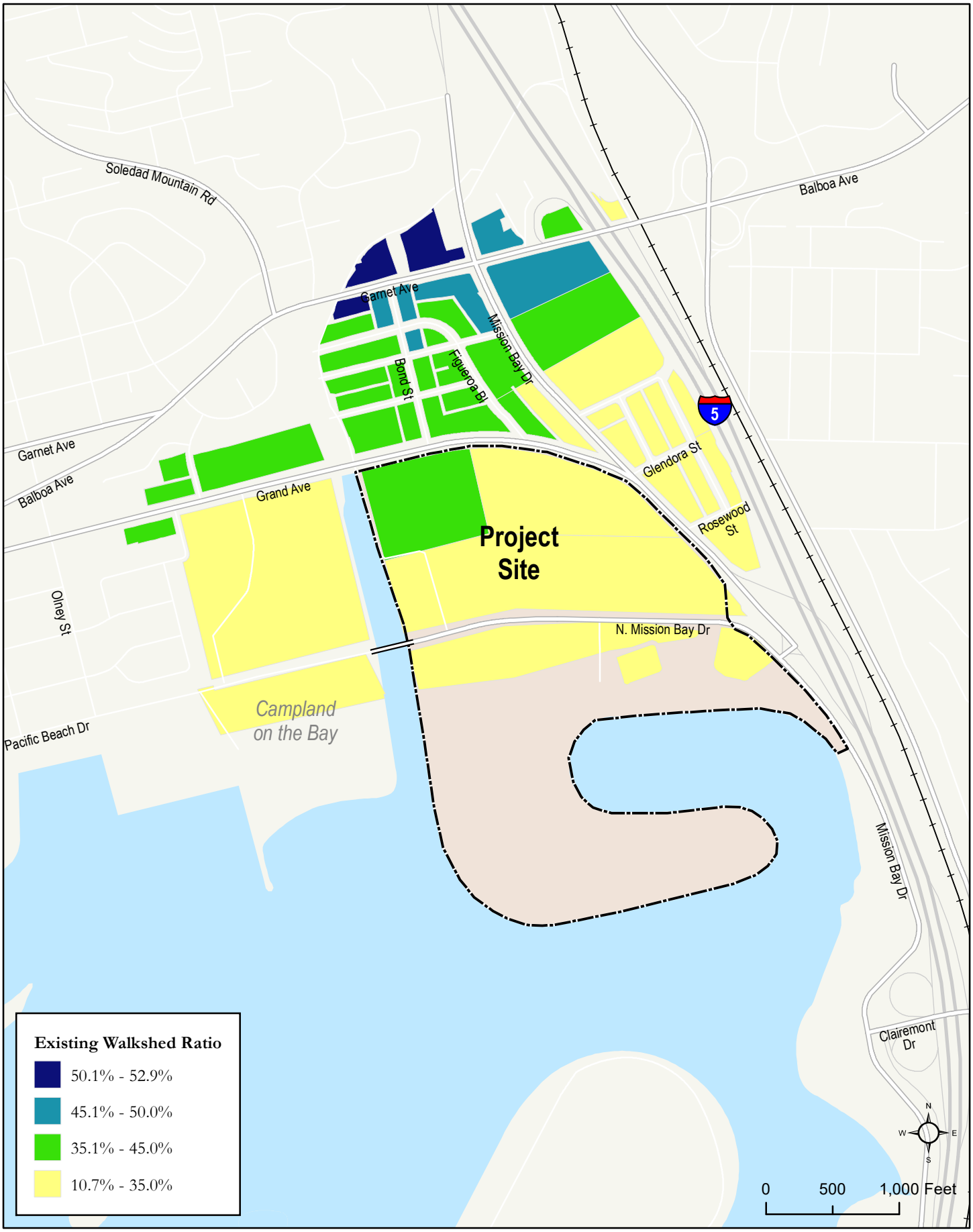

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Figure 4-3
Existing Pedestrian Connectivity Ratio

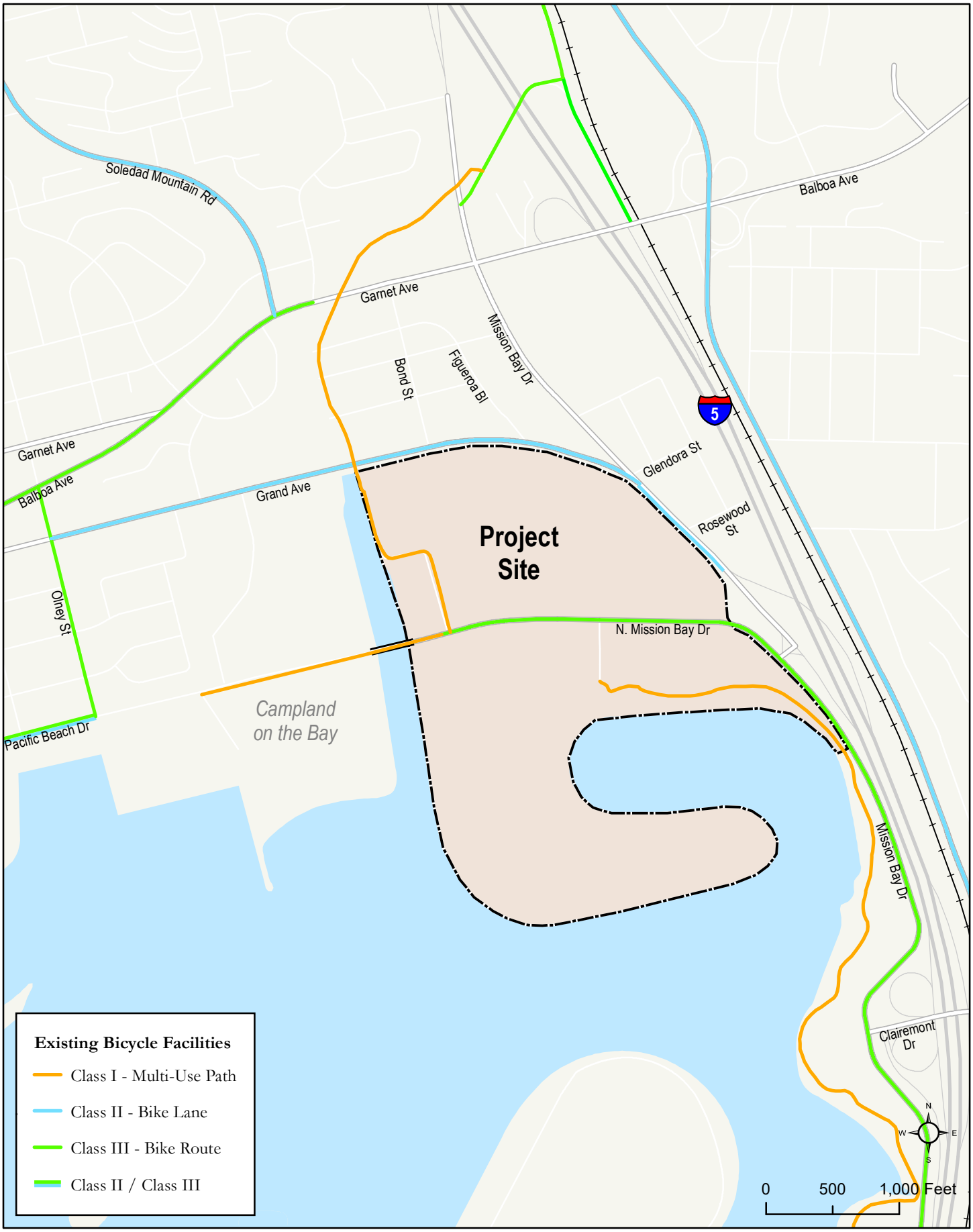

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Figure 4-4
Existing Bicycle Facilities

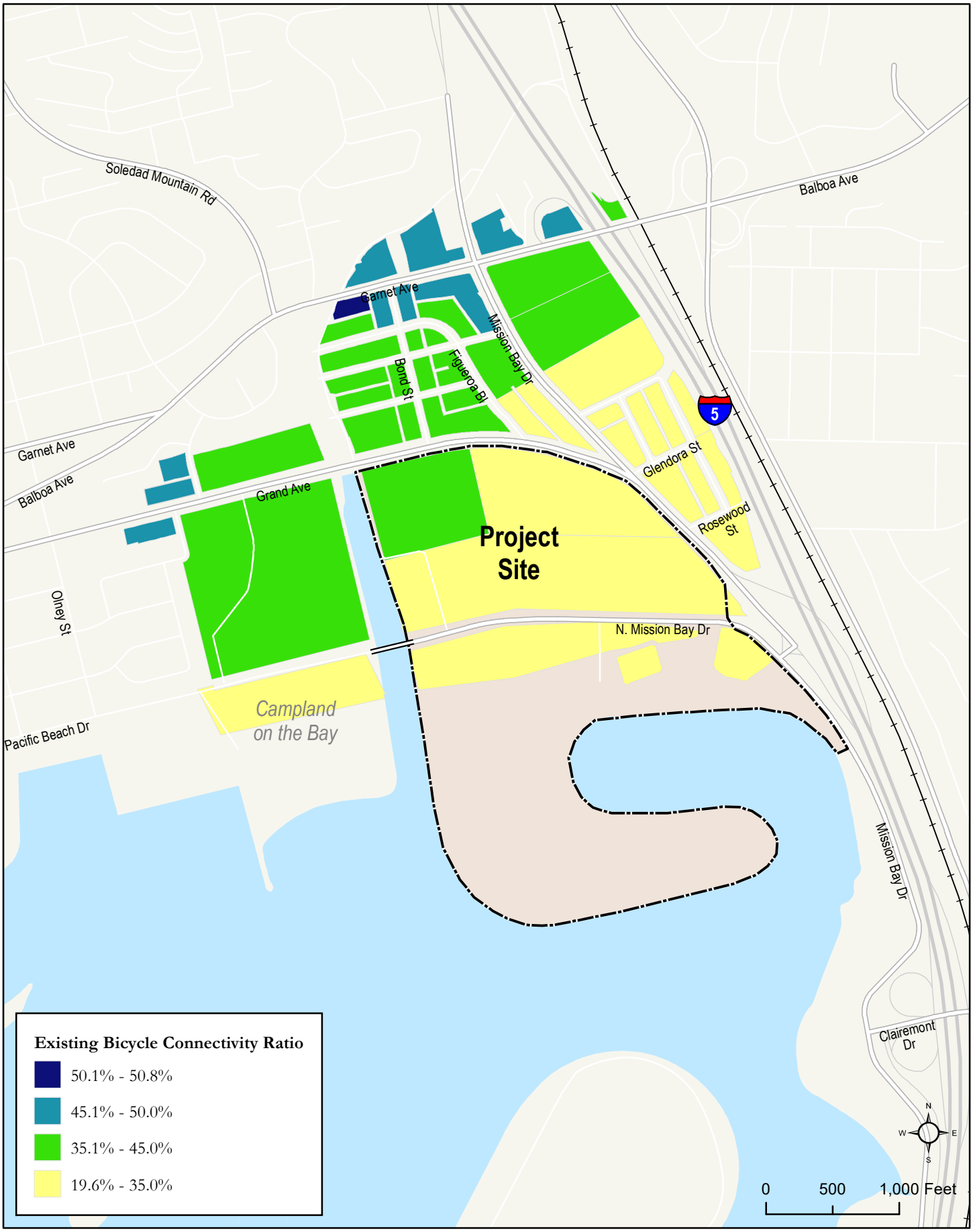

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Figure 4-5
Existing Bicycle Connectivity Ratio

4.1.2 Safety Analysis

Walking

Pedestrian safety was evaluated using Crossroads collision data obtained from the City of San Diego for the period from January 2012 to September 2017. A total of 29 pedestrian-involved collisions was reported during this 5+ year period. Figure 4-6 displays the distribution of the pedestrian-involved collisions across the study area. It should be noted three (3) such collisions are beyond the extents of this figure.

Table 4-1 displays pedestrian collisions by level of severity. As shown, "other visible injury" was most commonly reported, at 11 collisions, or 37.9 percent. There was one pedestrian fatality, located at Mission Bay Drive at the I-5 southbound on-ramp, for unknown or unrecorded reasons.

Table 4-1 Pedestrian Collision Severity (January 2012- September 2017)

Severity	Collisions	Percent
Other Visible Injury	11	37.9%
Complaint of Pain	10	34.5%
Severe Injury	5	17.2%
Property Damage only	2	6.9%
Fatal	1	3.5%
Total	29	100%

Source: City of San Diego (2019)

Collisions by location types are summarized in Table 4-2, differentiating between intersection and mid-block locations. The majority of pedestrian-involved collisions occurred at intersections, accounting for 72.4%.

Table 4-2 Pedestrian Collision Location Types (January 2012- September 2017)

Collision Location	Collisions	Percent
Intersection	21	72.4%
Mid-block	8	27.6%
Total	29	100%

Source: City of San Diego (2019)

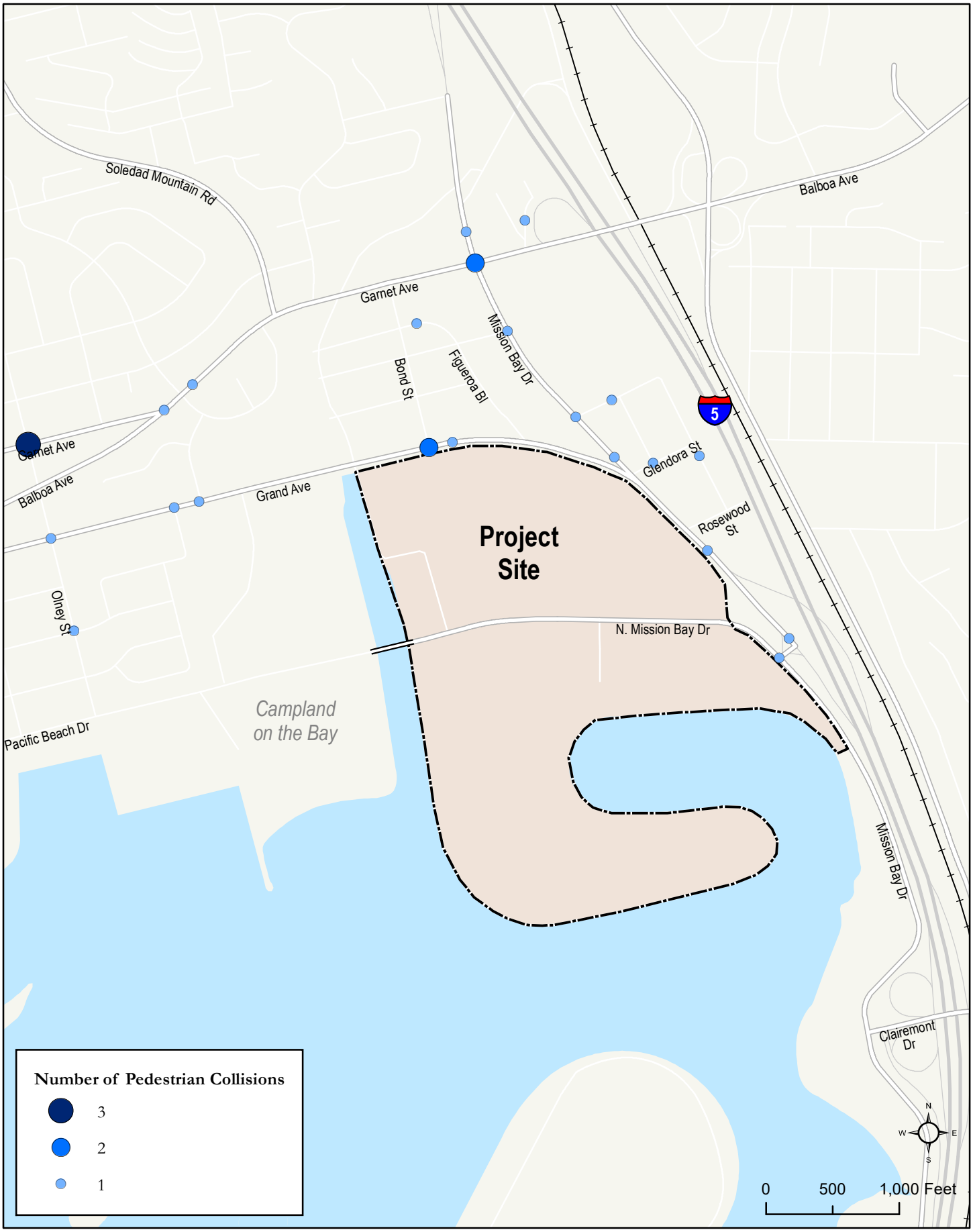

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Figure 4-6
Pedestrian Collisions (January 2012 - September 2017)

Table 4-3 identifies the three intersections where multiple collisions were reported. No multiple-collision midblock locations were noted during the period evaluated.

Table 4-3 Most Frequent Pedestrian Collision Locations (January 2012- September 2017)

Location	Collisions
Olney Street and Garnet Avenue	3
Mission Bay Drive and Garnet Avenue	2
Bond Street and Grand Avenue	2

Source: City of San Diego (2019)

Table 4-4 identifies the primary collision cause reported for the 29 pedestrian-involved collisions in the study area. Collisions caused by a pedestrian being at fault was reported as the leading cause, accounting for 31.0% of total collisions, followed by violation of a pedestrian's right-of-way at 17.2%.

Table 4-4 Primary Pedestrian Collision Cause (January 2012- September 2017)

Primary Collision Cause	Collisions	Percent
Pedestrian at Fault	9	31.0%
Violated Pedestrian's Right-of-Way	5	17.2%
Unsafe Starting or Backing	4	13.8%
Violated Vehicle's Right-of-Way	3	10.3%
Other Hazardous Movement	2	6.9%
Unknown or Not Stated	2	6.9%
Unsafe Speed	2	6.9%
D.U.I.	1	3.5%
Other Causes	1	3.5%
Total	29	100.0%

Source: City of San Diego (2019)

Table 4-5 reports pedestrian-involved collisions by party-at-fault. As shown, pedestrians were reported as most at-fault, accounting for 37.9% of collisions. The party-at-fault was the driver in 34.5% of collisions and was not known or stated in 27.6% of the pedestrian-involved collisions.

Table 4-5 Pedestrian Collisions by Party-At-Fault (January 2012- September 2017)

Party-at-Fault	Collisions	Percent
Pedestrian	11	37.9%
Driver	10	34.5%
Unknown/Not Stated	8	27.6%
Total	29	100.0%

Source: City of San Diego (2019)

Biking

Bicycle safety was evaluated using collision data obtained from the City of San Diego for the same analysis period as pedestrians (January 2012 - September 2017). A total of 37 bicycle-involved collisions were reported during this 5+ year period within the study area. Figure 4-7 displays the distribution of the bicycle-involved collisions across the study area. It should be noted two (2) such collisions are located around Noyes Street and Garnet/Balboa Avenue, which is beyond the extents of this figure.

Table 4-6 displays bicycle collisions by level of severity. As shown, "complaint of pain" was most commonly reported, at 17 collisions, or 45.9 percent. No collisions were reported as fatal.

Table 4-6 Bicycle Collision Severity (January 2012- September 2017)

Severity	Collisions	Percent
Complaint of Pain	17	45.9%
Other Visible Injury	16	43.3%
Severe Injury	2	5.4%
Property Damage only	2	5.4%
Fatal	0	0.0%
Total	37	100%

Source: City of San Diego (2019)

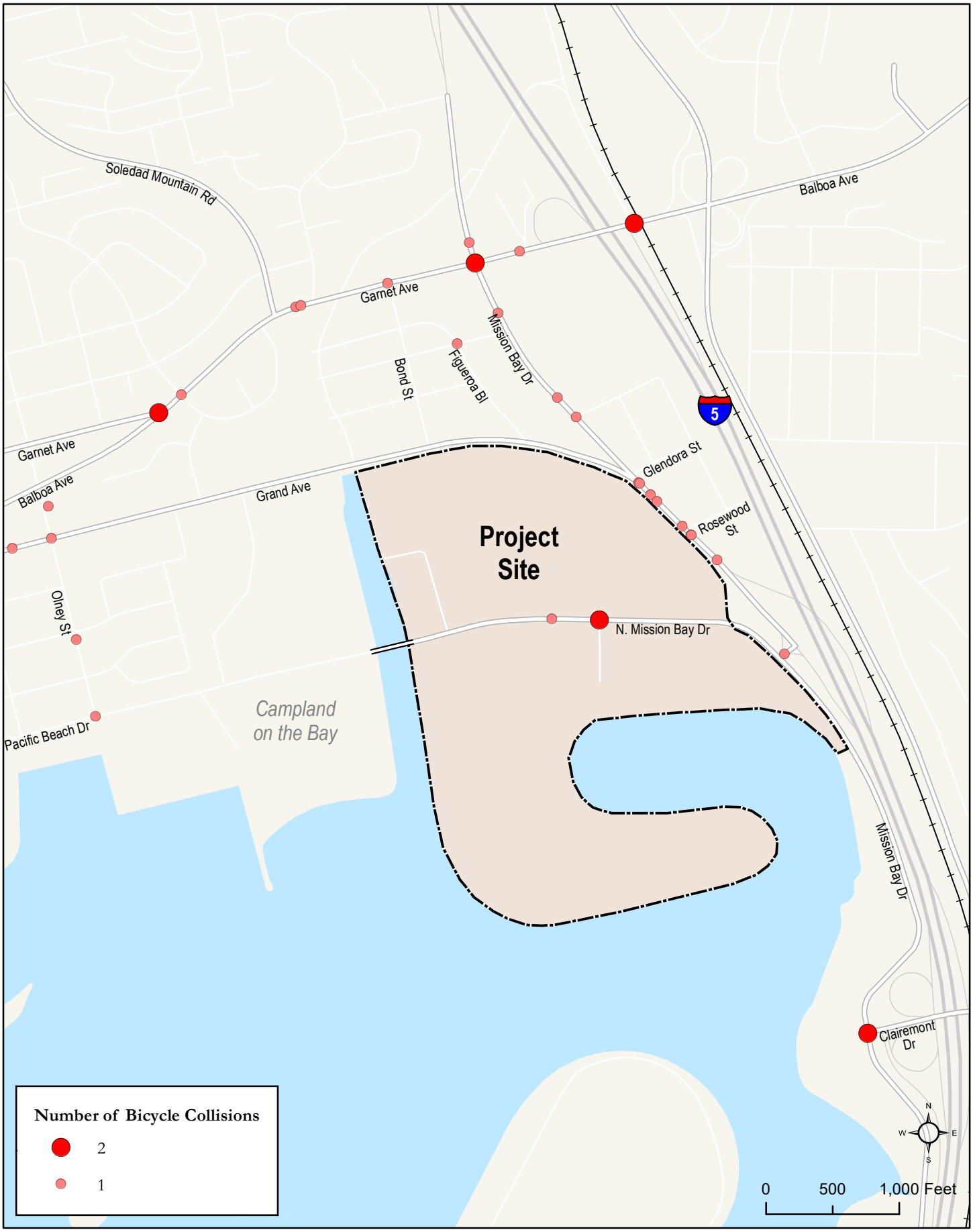

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Figure 4-7
Bicycle Collisions (January 2012 - September 2017)

Bicycle-involved collision by location types are summarized in Table 4-7, differentiating between intersection and mid-block locations. The majority of bicycle-involved collisions occurred at mid-block locations, compared to pedestrian-involved collisions which were more common at intersections.

Table 4-7 Bicycle Collision Location Types (January 2012- September 2017)

Collision Location	Collisions	Percent
Mid-block	20	54.1%
Intersection	17	45.9%
Total	37	100.0%

Source: City of San Diego (2019)

Table 4-8 identifies intersections where multiple bicycle collisions were reported. As shown, 5 intersections experienced multiple bicycle-involved collisions.

Table 4-8 Most Frequent Bicycle Collision Locations (January 2012- September 2017)

Location	Collisions
I-5 NB Off-Ramp/Santa Fe Street and Balboa Avenue	2
Mission Bay Drive and Garnet Avenue	2
Balboa Avenue and Garnet Avenue	2
N. Mission Bay Drive and De Anza Road	2
E. Mission Bay Drive and Clairemont Drive	2

Source: City of San Diego (2019)

Table 4-9 identifies the primary collision cause reported for the 37 bicycle-involved collisions in the study area. The leading cause was attributed to "Improper Turning" followed by "Violated Vehicle's Right-of-Way".

Table 4-9 Primary Bicycle Collision Cause (January 2012 – September 2017)

Primary Collision Cause	Collisions	Percent
Improper Turning	12	32.4%
Violated Vehicle's Right-of-Way	9	24.4%
Unsafe Lane Change	5	13.5%
Unknown/Not Stated	3	8.1%
Other Hazardous Movement	3	8.1%
Unsafe Speed	3	8.1%
Wrong Side of Road	1	2.7%
Other Improper Driving	1	2.7%
Total	37	100.0%

Source: City of San Diego (2019)

Table 4-10 identifies the party-at-fault for each of the 37 bicycle-involved collisions. The driver was reported at-fault for 40.5% of collisions.

Table 4-10 Bicycle Collisions by Party-At-Fault (January 2012 – September 2017)

Party-At-Fault	Collisions	Percent
Driver	15	40.5%
Unknown/Not Stated	12	32.5%
Bicyclist	10	27.0%
Total	37	100.0%

Source: City of San Diego (2019)

4.2 Access to Transit

Transit service in the vicinity of Mission Bay Park is operated by the Metropolitan Transit System (MTS), currently consisting of bus services, with planned Light Rail Trolley service currently under construction in the project vicinity.

4.2.1 Existing Transit Routes/Stops

Figure 4-8 displays the existing public transportation routes that stop near De Anza Cove, including Route 27 and Route 30.

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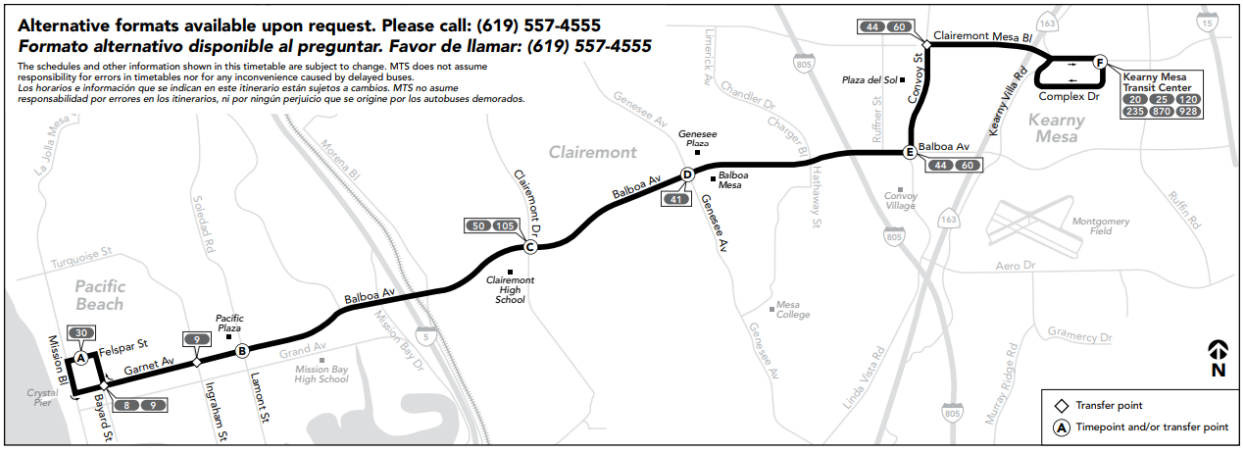
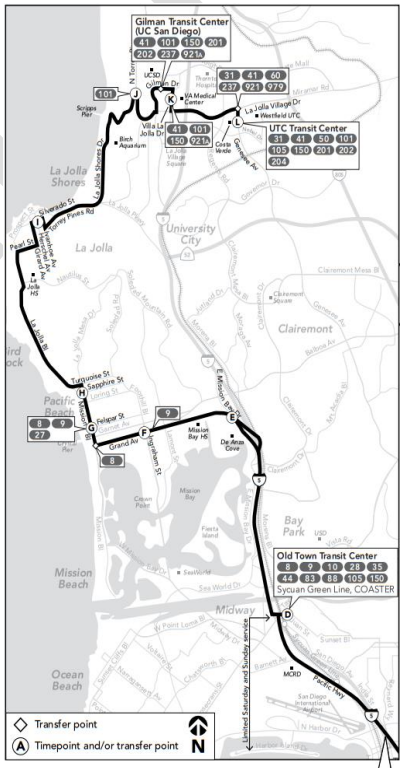
Figure 4-8
Existing Public Transportation Routes and Stops

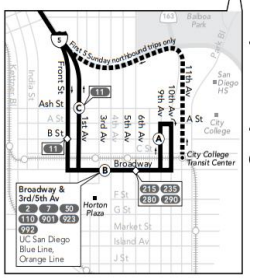
MTS Route 27 provides service between the Kearny Mesa Transit Center and the community of Pacific Beach. Stops serving both directions of travel nearest to De Anza Cove are located at a Mission Bay Drive, Bond Street, and Soledad Mountain Road. Route 27 operates with 30-minute headways throughout the majority of the service day on weekdays. Saturday service offers 1-hour headways. No service is operated on Sundays.



MTS Route 30 provides service between Downtown San Diego and the UTC Transit Center by way of the Old Town Transit Center and the community of Pacific Beach. Stops serving both directions of travel are located at Grand Avenue, Bond Street, and Culver Street. An additional stop serving Downtown San Diego-bound travel is located at Olney Street.

Route 30 operates with 15-minute headways throughout the majority of the service day, seven days a week. Weekend service is offered between Old Town Transit Center and the UTC Transit Center, and does not serve Downtown San Diego. Further, service is limited on weekends between the Mission Boulevard and Felspar Street stop in the Pacific Beach community and at the UTC Transit Center, with 30-minute headways.





4.2.2 Walk and Bike Sheds to Transit

Connectivity to transit stops serving routes in the vicinity of De Anza Cove were identified for both pedestrians and cyclists. These connectivity analyses calculate the percentage of a crow-flies buffer of the active transportation network (a half-mile for pedestrian facilities, and a mile for bicyclist facilities) that can be accessed from a transit stop given the adjacent roadway network. A half-mile walk and a one mile bike ride to transit are generally seen as acceptable distances for much of the public.

Figure 4-9 displays the results of the Walkshed Ratio from transit stops analysis. As shown, the local pedestrian network offers the ability for pedestrians to access between 29.6% and 57.3% of the half-mile radius surrounding a respective transit stop. The lowest connectivity was found at transit stops near De Anza Cove and along the portion of Balboa Avenue east of I-5, while the greatest connectivity was found at transit stops along Garnet Avenue.

Figure 4-10 displays the results of the Bikeshed Ratio from transit stops analysis. As shown, the local bicycle network offers access to between 29.8% and 51.5% of the one-mile radius surrounding a respective transit stop. The lowest connectivity was found at transit stops near De Anza Cove, while the greatest connectivity was found at transit stops along Garnet Avenue.

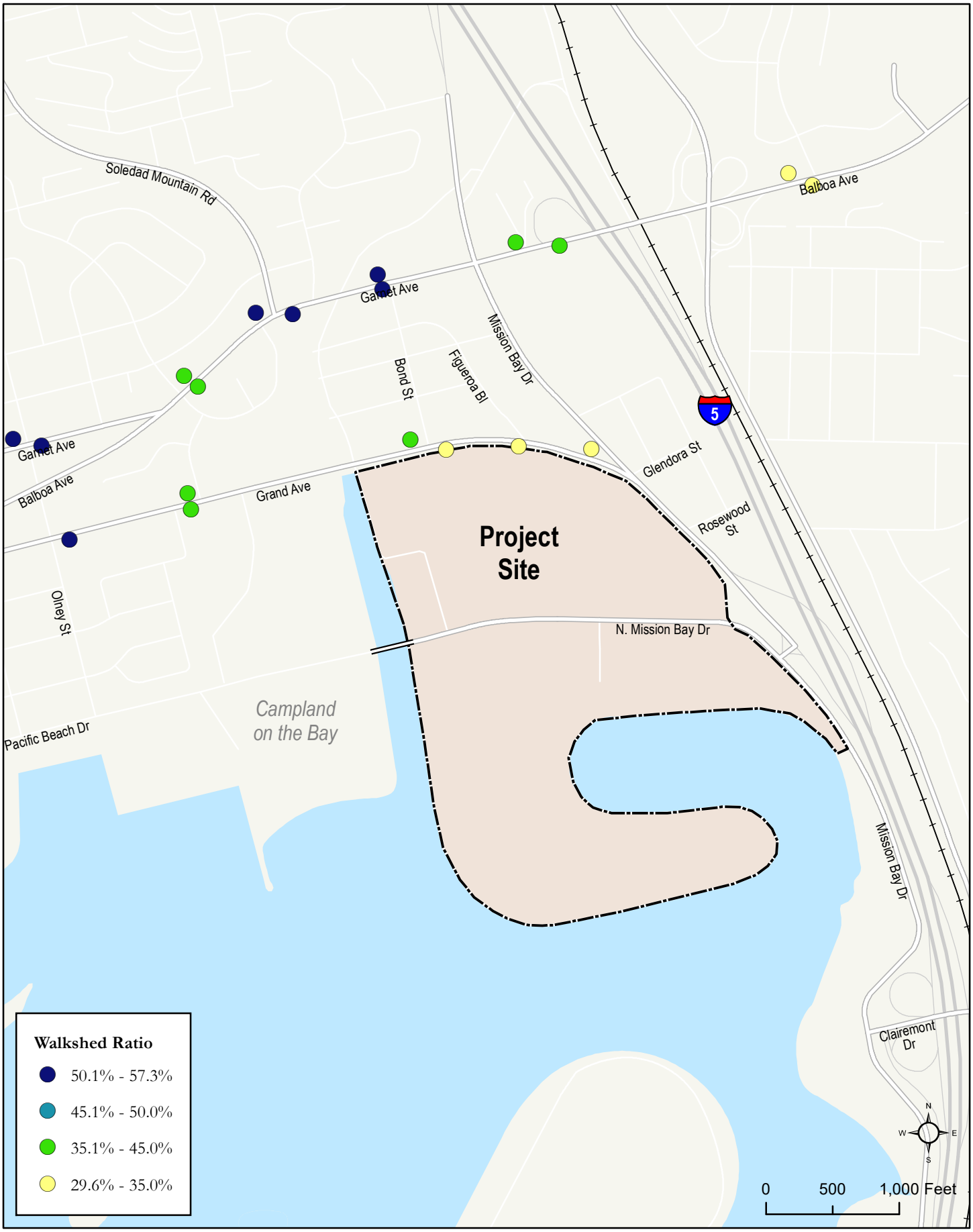


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Figure 4-9
Existing Walkshed Ratio from Transit Stops

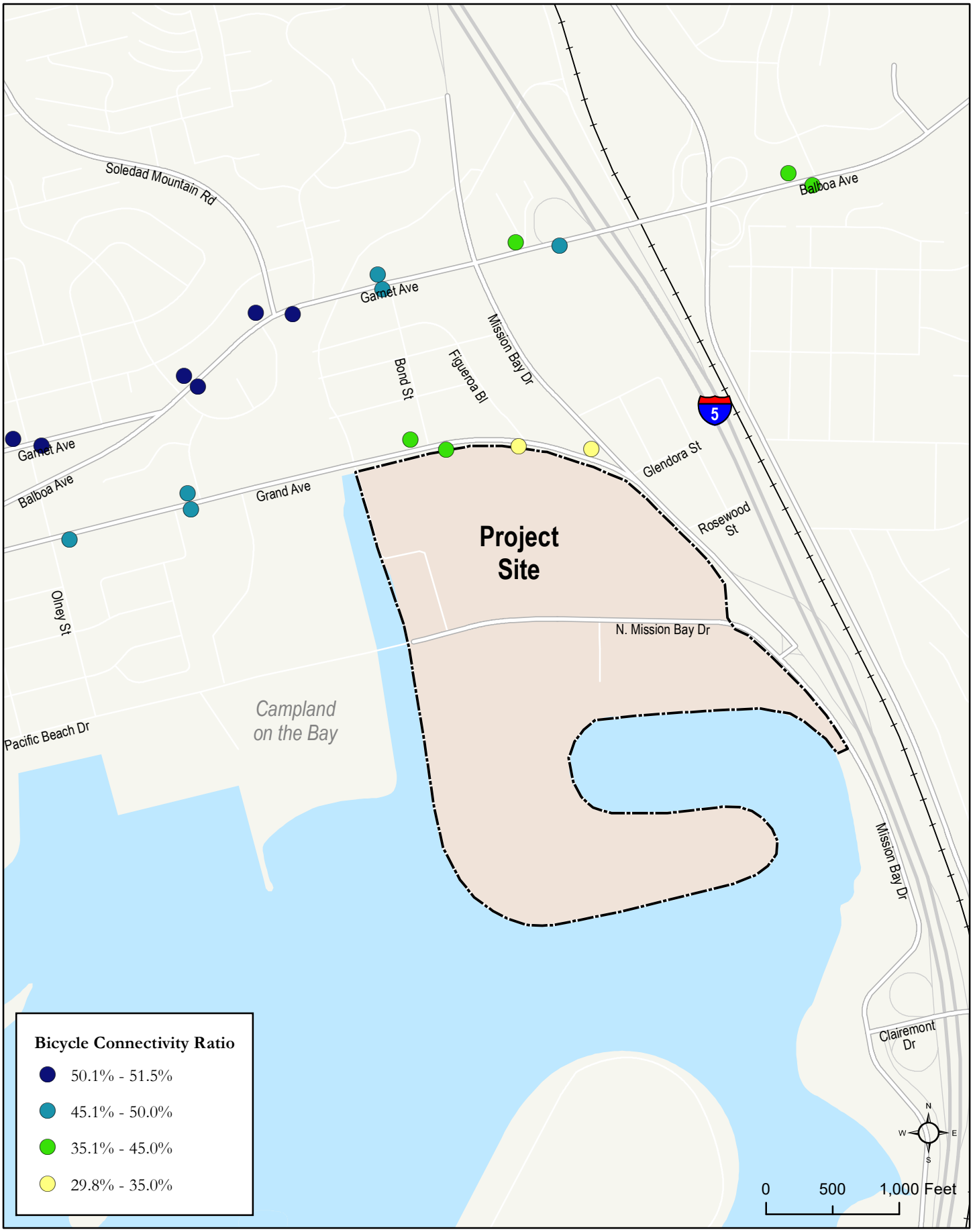

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Figure 4-10
Existing Bicycle Connectivity Ratio from Transit Stops

4.3 Traffic Operations

This section describes key roadway segments and intersections, existing daily roadway and peak hour intersection traffic volume information, and LOS analysis results under Existing Conditions.

4.3.1 Existing Roadway Network

Five (5) regionally and locally significant roadways traverse the study area. Each of the key roadways, as well as the associated study intersections are discussed below. Vehicular access to existing activity centers within De Anza Cove is also highlighted.

Interstate 5 (I-5) is a north-south freeway immediately east of the project site. Access from I-5 to the De Anza Cove study area is taken from the Grand Avenue-Garnet Avenue interchange to the north, and the Mission Bay Drive and Clairemont Drive interchange to the south.

De Anza Road is a two-lane north-south roadway that connects North Mission Bay Drive to the De Anza Cove recreational area. The roadway is approximately 550 feet long and has a southern terminus with a turnaround that connects to the multi-use path located on the perimeter of Mission Bay Park. De Anza Road does not currently provide sidewalks or bicycle facilities. This roadway provides direct access to the Mission Bay RV Resort.

North Mission Bay Drive is a two-lane road that extends from the entrance of the San Diego Boat & Ski Club at the west to the intersection of North Mission Bay Drive/Mission Bay Drive in the east. This roadway bisects the De Anza Cove area and provides access to the majority of the uses within De Anza Cove (i.e., San Diego Boat & Ski Club, the Mission Bay Golf Course, and the De Anza Cove recreational area parking lot and RV Park). There are currently no sidewalks along the corridor and bicyclists share the roadway as denoted by the existing sharrows painted on the pavement. The Mission Bay RV Resort driveway is accessed via North Mission Bay Drive at De Anza Road.

Mission Bay Drive is a north-south roadway that parallels the I-5 freeway and connects the I-5 ramps north of Garnet Avenue to Clairemont Drive. Within the study area, Mission Bay Drive is a four-lane divided roadway between the I-5 ramps north of Garnet Drive to North Mission Bay Drive. South of the North Mission Bay Drive intersection, the roadway narrows to an undivided two-lane roadway. The four-lane northern segment of Mission Bay Drive has a posted speed limit of 35 miles per hour (mph) and provides sidewalks on both sides of the roadway. On the southern segment of Mission Bay Drive, the posted speed limit is 30 mph and does not provide bicycle lanes or sidewalks.

Grand Avenue is a four-lane east-west roadway that connects Mission Bay Drive to the beach at Mission Boulevard. Grand Avenue borders the northern area of the site and provides access to the Mission Bay Athletic Area/Bob McEvoy Youth Fields and the Pacific Beach Tennis Club immediately east of Rose Creek. Within the study area, Grand Avenue is divided with a raised median with sidewalks provided on both sides of the roadway. This roadway also provides access to the existing Rose Creek Trail, which runs along the eastern edge of Rose Creek.

The following eight (8) intersections and nine (9) roadway segments are included in the project study area:

Intersections:

1. Bond Street / Grand Avenue (access intersection to project site)
2. Figueroa Boulevard / Grand Avenue
3. Mission Bay Drive / Grand Avenue
4. I-5 SB On-Ramp / Mission Bay Drive
5. Olney Street / Pacific Beach Drive
6. De Anza Road / N. Mission Bay Drive (access intersection to project site under existing conditions only)
7. Mission Bay Drive / N. Mission Bay Drive (access intersection to project site)
8. Mission Bay Drive / Clairemont Drive

Roadway Segments:

1. Grand Avenue, between Olney Street and Bond Street
2. Grand Avenue, between Bond Street and Figueroa Boulevard
3. Grand Avenue, between Figueroa Boulevard and Mission Bay Drive
4. Mission Bay Drive, between Grand Avenue and Mission Bay Drive/I-5 SB On-Ramp
5. Mission Bay Drive, between N. Mission Bay Drive and Clairemont Drive
6. Pacific Beach Drive, between Olney Street and entrance to Campland on the Bay
7. N. Mission Bay Drive, west of De Anza Road
8. N. Mission Bay Drive, between De Anza Road and Mission Bay Drive
9. De Anza Road, south of N. Mission Bay Drive

The existing roadway and intersection geometrics are shown in Figure 4-11.

4.3.2 Existing Traffic Volumes

Figure 4-12a and Figure 4-12b shows both the existing ADT volumes for the study area roadway segments and the AM/PM and midday Saturday peak hour traffic volumes for the study area intersections, respectively. These peak periods were chosen due to the campsite activity during the weekdays and weekend midday conditions. The roadway segment and study area intersection traffic counts were collected on Thursday, May 3, 2018 and Saturday, June 9, 2018. Individual intersection count sheets are provided in Appendix B.

During the time of collection, construction activity occurred on Grand Avenue west of Mission Bay Drive; however, there were no major lane closures on Grand Avenue. The only lane closure associated with the construction was the eastbound left-turn lane at the intersection of Grand Avenue and Figueroa Boulevard. Consequently, 2016 AM/PM weekday counts from the *Balboa Avenue Station Area Specific Plan TIS* and 2015 midday Saturday counts from the *Recreation Center Access Evaluation* were used for the Grand Avenue and Figueroa Boulevard intersection and compared to the 2018 counts to ensure that traffic patterns did not substantially change.

Other than the construction on Grand Avenue, traffic counts were collected under typical conditions when the weather was normal, local schools were in session, and there were no special events occurring in the study area.

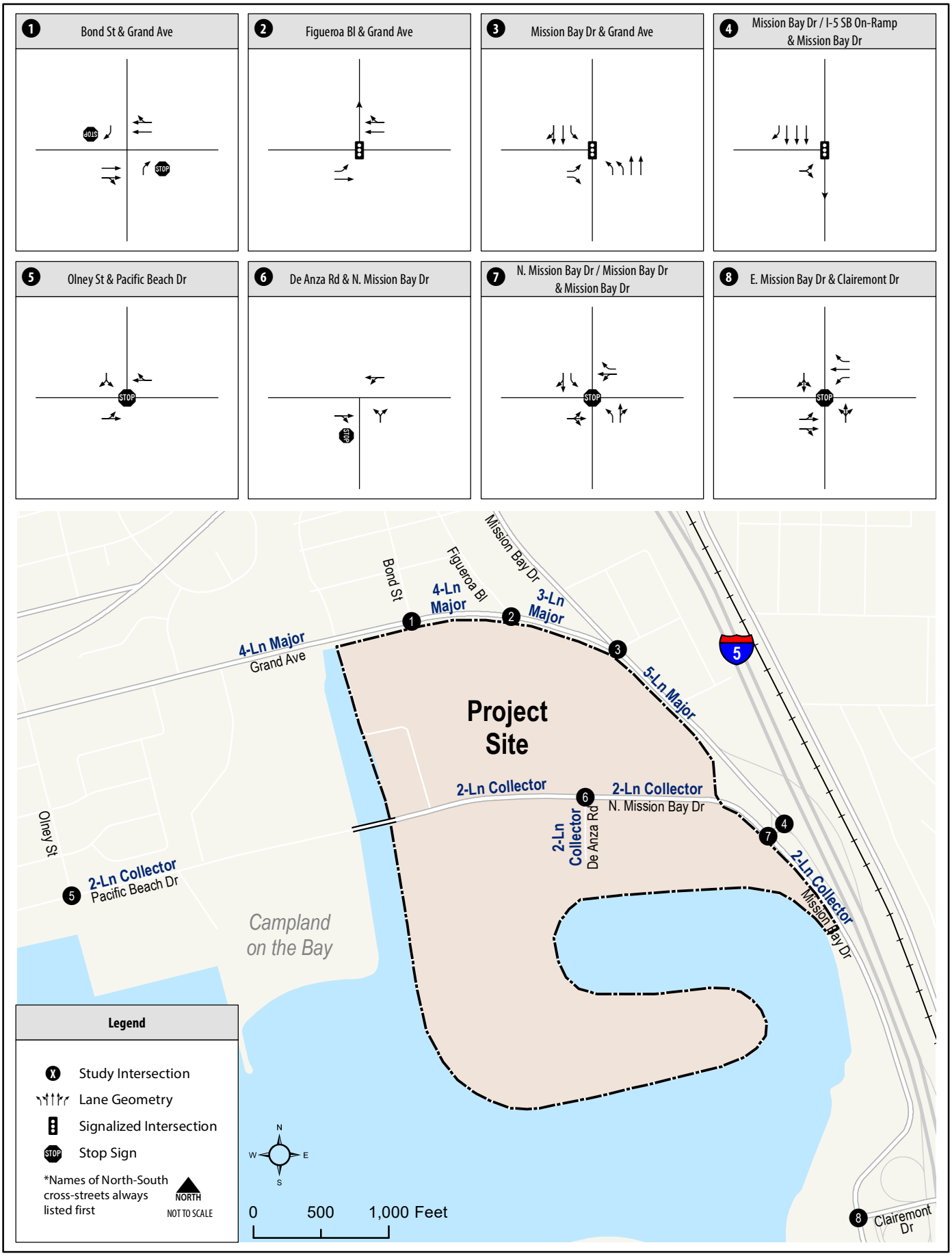

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Figure 4-11
Existing Roadway and Intersection Geometrics

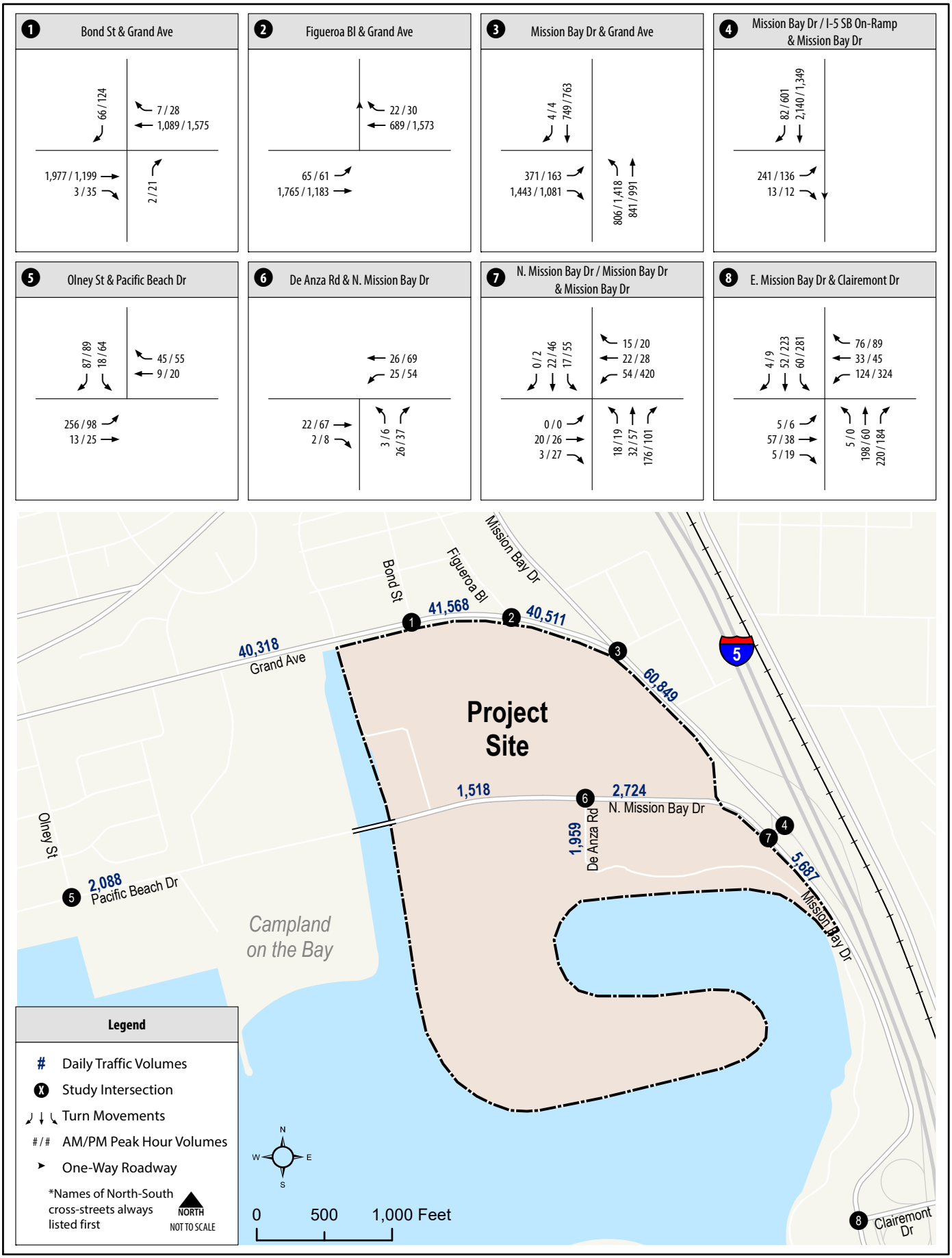

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Figure 4-12a
Existing Weekday Traffic Volumes

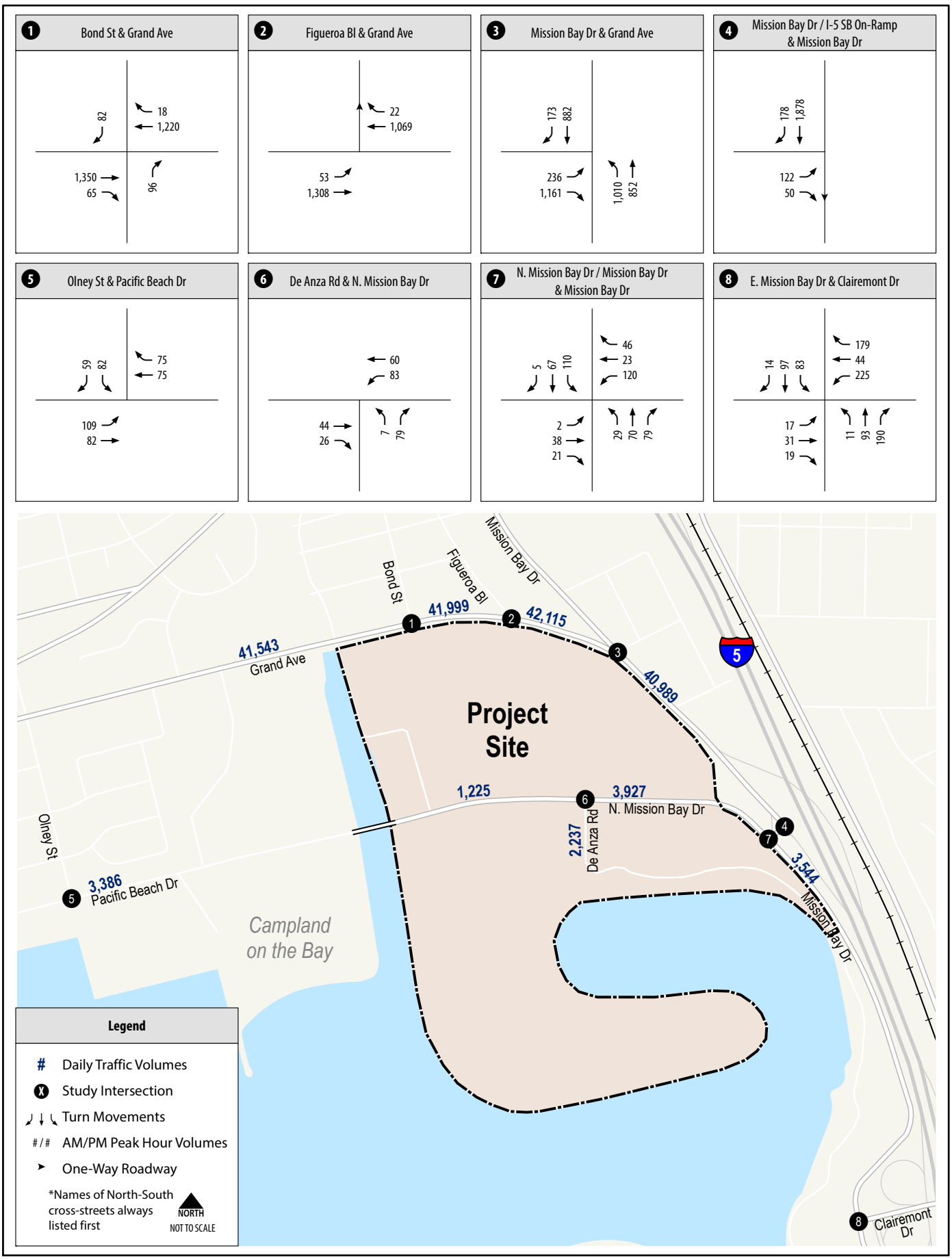

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Figure 4-12b
Existing Weekend Traffic Volumes

4.3.3 Existing Intersection Analysis

Table 4-11 displays the intersection level of service and average vehicle delay results for the study area intersections under Existing Conditions. Level of service calculation worksheets for Existing Conditions are provided in Appendix C.

Table 4-11 Peak Hour Intersection Level of Service Results - Existing Conditions

Intersection	Control	AM Peak Hour		PM Peak Hour		Weekend Midday Peak hour	
		Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
1. Recreational Center/Bond Street & Grand Avenue	SSSC	24.4	C	27.1	D	21.5	C
2. Grand Avenue & Figueroa Boulevard	Signal	38.8	D	4.6	A	4.5	A
3. Mission Bay Drive & Grand Avenue	Signal	39.9	D	51.3	D	42.5	D
4. I-5 SB On-Ramp & Mission Bay Drive	Signal	0.9	A[1]	0.5	A[1]	0.8	A
5. Pacific Beach Drive & Olney Street	AWSC	11.2	B	8.2	A	9.3	A
6. De Anza Road & N. Mission Bay Drive	SSSC	8.6	A	9.1	A	9.0	A
7. Mission Bay Drive & De Anza Cove Park Parking Lot & N. Mission Bay Drive	AWSC	8.9	A	25.9	D	10.4	B
8. E Mission Bay Drive/Mission Bay Drive & Clairemont Drive	AWSC	15.2	C	67.7	**F**	14.9	B

Source: NDS & Chen Ryan Associates (2019)

Notes:
Bold text indicates substandard LOS E or F.
AWSC = All-Way Stop Control.
SSSC = Side-Street Stop Control.
[1]Operations are worse than reported in the table due to the downstream ramp meter and based on field observations.

As shown, all study intersections operate at LOS D or better under the AM, PM, and Saturday midday peak hours, with the exception of East Mission Bay Drive/Mission Bay Drive and Clairemont Drive, which operates at LOS F in the PM peak hour. This is primarily associated with the heavy southbound approach volume on a single shared left/through/right-turn lane.

Additionally, actual operations of the Mission Bay Drive and I-5 Southbound On-Ramp intersection are worse than what is reported in the table based on field observations. The analysis does not take into account the I-5 Southbound ramp meter, which is located approximately 400 feet downstream of the intersection. Field observations indicate long queues resulting from the ramp meter and prevents vehicles from traveling through the intersection during weekday peak hour traffic times. On most weekends, ramp meters are not operational and do not affect the intersection operating conditions of the Mission Bay Drive and I-5 Southbound On-Ramp intersection during the weekend midday peak hour.

4.3.4 Existing Roadway Segment Analysis

Table 4-12 displays the LOS results for the study area roadway segments under Existing Conditions.

Table 4-12 Roadway Segment Level of Service Results - Existing Conditions

Roadway	Segment	Cross-Section	Capacity (LOS E)	Weekday			Weekend		
				ADT	V/C	LOS	ADT	V/C	LOS
Grand Avenue	Lee Street to Bond Street	4-Lane Major Arterial	40,000	40,318	1.008	**F**	41,543	1.039	**F**
	Bond Street to Figueroa Boulevard	4-Lane Major Arterial	40,000	41,568	1.039	**F**	41,999	1.050	**F**
	Figueroa Boulevard to Mission Bay Drive	3-Lane Major Arterial (2-lanes WB; 1-lane EB)	30,000	40,511	1.350	**F**	42,115	1.404	**F**
Mission Bay Drive	Grand Avenue to Mission Bay Drive/I-5 SB On-Ramp	5-Lane Major Arterial	45,000	60,849	1.352	**F**	40,989	0.911	**E**
	N Mission Bay Drive to Clairemont Drive	2-Lane Collector (w/o two-way Left-Turn lane)	8,000	5,687	0.711	D	3,544	0.443	C
Pacific Beach Drive	Olney Street and entrance to Campland on the Bay	2-Lane Collector (w/o two-way Left-Turn lane)	8,000	2,088	0.261	A	3,386	0.423	B
N. Mission Bay Drive	West of De Anza Road	2-Lane Collector (w/o two-way Left-Turn lane)	8,000	1,518	0.190	A	1,225	0.153	A
	De Anza Road to Mission Bay Drive	2-Lane Collector (w/o two-way Left-Turn lane)	8,000	2,724	0.341	B	3,927	0.491	C
De Anza Road	South of N Mission Bay Drive	2-Lane Collector (w/o two-way Left-Turn lane)	8,000	1,959	0.245	A	2,237	0.280	A

Source: NDS & Chen Ryan Associates (2019)

Notes:
Bold text indicates substandard LOS E or F.
ADT = Average Daily Traffic.
V/C = Volume to Capacity Ratio.
LOS = Level of Service.

As shown in Table 4-12, the following four (4) roadway segments are currently operating at substandard (i.e. LOS E or F) conditions:

- Grand Avenue, between Lee Street and Bond Street (LOS F for both the weekday and weekend conditions)
- Grand Avenue, between Bond Street and Figueroa Boulevard (LOS F for both the weekday and weekend)
- Grand Avenue, between Figueroa Boulevard and Mission Bay Drive (LOS F for both the weekday and weekend)

- Mission Bay Drive, between Grand Avenue and Mission Bay Drive/I-5 Southbound On-Ramp (LOS F on the weekday and LOS E on the weekend, respectively)

4.3.5 Vehicular Safety

Vehicular collision data was obtained for the period from January 2012 through September 2017. A total of 480 vehicular collisions (excluding bicyclist- and pedestrian-involved collisions) were reported during this 5+ year period. Figure 4-13 displays the distribution of the vehicular collisions across the study area.

Table 4-13 displays vehicular collisions by level of severity. As shown, "property damage only" was most commonly reported, at 254 collisions, or 52.9 percent. There were three fatalities in total, which were located at the intersection of Grand Avenue and Lee Avenue, Garnet Avenue and Bond Street, and Morena Boulevard and Paul Jones Avenue.

Table 4-13 Vehicular Collision Severity (January 2012- September 2017)

Severity	Collisions	Percent
Property Damage only	254	52.9%
Complaint of Pain	164	34.2%
Other Visible Injury	53	11.0%
Severe Injury	6	1.3%
Fatal	3	0.6%
Total	480	100%

Source: City of San Diego (2019)

Vehicular collisions by location type is summarized in Table 4-14, differentiating between intersection, mid-block, and non-roadway locations. The majority of collisions occurred at mid-block locations, accounting for just over half, followed by at intersection locations.

Table 4-14 Vehicular Collision Location Type (January 2012-September 2017)

Collision Location	Collisions	Percent
Mid-block	274	57.1%
Intersection	200	41.7%
Not On Road	6	1.2%
Total	480	100.0%

Source: City of San Diego (2019)

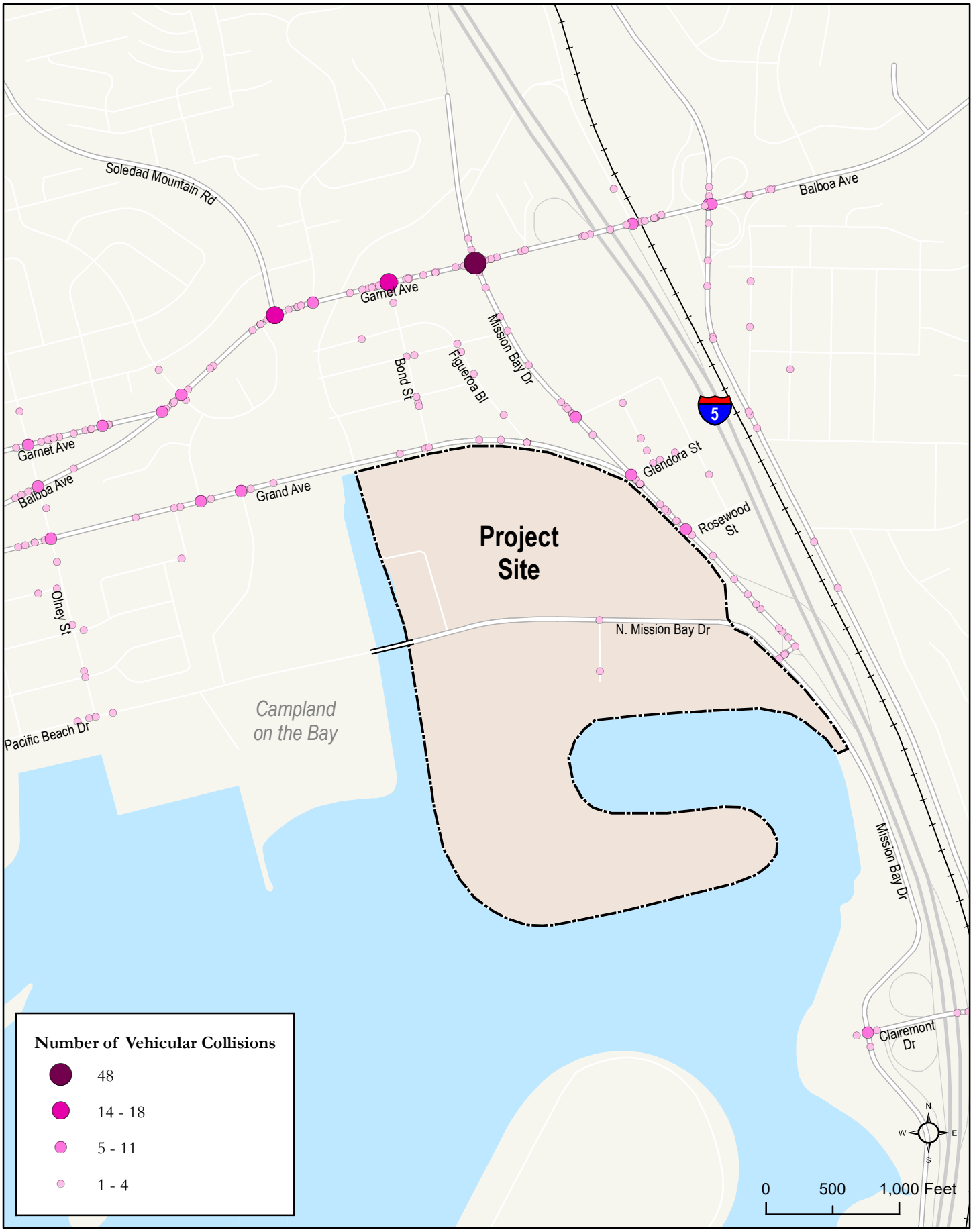

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Figure 4-13
Vehicular Collisions (January 2012 - September 2017)

Table 4-15 identifies the top three locations with the most reported collisions.

Table 4-15 Most Frequent Vehicular Collision Locations (January 2012-September 2017)

Location	Collisions
Mission Bay Drive and Garnet Avenue	48
Bond Street and Garnet Avenue	18
Soledad Mountain Road and Garnet Avenue	14

Source: City of San Diego (2019)

As shown in Figure 4-13, collisions were reported throughout the study area and mapped extent. A concentration of collisions is apparent along major thoroughfares such as Garnet Avenue, Grand Avenue, Balboa Avenue, and Mission Bay Drive. There is an additional cluster of collisions near the intersection of E Mission Bay Drive and Clairemont Drive, which also provides access to and from Interstate 5. Table 4-16 identifies the primary collision cause reported for each of the 480 vehicular collisions. The leading collision cause was attributed to "Unsafe Speed" accounting for 22.5% of all vehicular collisions, followed by "Improper Turning" and "Not Stated".

Table 4-16 Primary Vehicular Collision Cause (January 2012-September 2017)

Primary Collision Cause	Collisions	Percent
Unsafe Speed	108	22.5%
Improper Turning	100	20.8%
Not Stated	65	13.5%
Violated Vehicle's Right-of-Way	57	11.9%
Unsafe Lane Change	34	7.1%
Following Too Close	28	5.8%
Unsafe Starting or Backing	23	4.8%
Other Hazardous Movement	19	4.0%
D.U.I.	13	2.7%
Unknown	11	2.3%
Traffic Signals and Signs	7	1.6%
Other	5	1.0%
Other Improper Driving	3	0.6%
Wrong Side of Road	3	0.6%
Improper Passing	2	0.4%
Other Than Driver	1	0.2%
Pedestrian Violation	1	0.2%
Total	480	100.0%

Source: City of San Diego (2019)

Table 4-17 summarizes vehicular collisions by the type of collision. "Rear End" collisions were reported as the most frequent collision type, followed by "Side Swipe" and "Broadside" collisions.

Table 4-17 Vehicular Collision Type (January 2012-September 2017)

Collision Type	Collisions	Percent
Rear-End	155	32.3%
Side Swipe	94	19.6%
Broadside	77	16.0%
Other	50	10.4%
Hit Object	40	8.4%
Unknown/Not Stated	35	7.3%
Head-On	16	3.3%
Overturned in Road	13	2.7%
Total	480	100.0%

Source: City of San Diego (2019)

4.3.6 Parking

Parking is currently provided via four (4) surface lots along N Mission Bay Drive and Grand Avenue. Table 4-18 displays the number of parking spaces provided at each lot. There is a total of 912 parking spaces, with 305 provided for the activity centers (i.e. Recreational Center, Mission Bay Golf Course, and San Diego Boat and Ski Club), and 607 as public parking provided for the De Anza Cove Park or recreational area. All parking lots are free of charge, but do not allow for overnight parking. The Rose Creek Trail can be directly accessed by the West and East lots. On-street parking is currently not provided on any of the roadways fronting the project site.

Table 4-18 De Anza Cove Parking Supply

Parking Lot	Access	Supply
Recreational Center	Grand Avenue/Bond Street intersection	108
Mission Bay Golf Course	N. Mission Bay Drive	148
San Diego Boat and Ski Club	N. Mission Bay Drive	49
West Lot	N. Mission Bay Drive/De Anza Road intersection	297
East Lot	N. Mission Bay Drive/Mission Bay Drive intersection	310
	Total	912

Source: Chen Ryan Associates (2019)

4.4 Mobility Needs

4.4.1 Connectivity Evaluation

A lack of pedestrian connectivity was noted around the project site and throughout much of the study area. Sidewalks are only present on the edges of the project site along Grand Avenue from Rose Creek to the De Anza Cove entry when it ties into North Mission Bay Drive. At this point, pedestrians are then forced to walk on the shoulders of the roadway and/or walk on landscaping areas. Pedestrian connections are also lacking from within the De Anza Cove site itself, as well as to and from parcels located across Mission Bay Drive, generally due to a lack of sidewalks and crossing facilities along Mission Bay Drive and North Mission Bay Drive.

Overall, there are several bicycle facilities within the study area. However, gaps and lack of separated bicycle facilities in the bicycle network limit direct, high quality connections throughout much of the community. For example, there is a significant gap in bicycle connectivity along Mission Bay Drive, where the Class II bicycle facility ends approximately 750 feet north of the I-5 Southbound On-Ramp and Mission Bay Drive intersection. Southbound bicyclists accessing De Anza Cove in this particular area must share the road or use the sidewalk. Additionally, there are no bicycle facilities provided along Mission Bay Drive north of Grand Avenue, where bicyclists must share the road with this high volume, high speed traffic roadway to access De Anza Cove and Mission Bay Park from the north. There are also no separated bicycle facilities provided along East Mission Bay Drive and North Mission Bay Drive; however, these roadways are designated as Class III bicycle routes and bicyclists accessing De Anza Cove from the south can also opt to use the parallel Class I multi-use path along the Mission Bay shores.

Class I multi-use paths that traverse portions of the project site's perimeter provide supplementary connectivity for bicyclists and pedestrians. However, there are gaps to this network. Most notably, the east-west Class I multi-use path that starts at the western terminus of North Mission Bay Drive, traverses over the Mike Gotch Memorial Bridge, and then ends at the entrance to Campland on the Bay, where there are no facilities to accommodate either pedestrians or bicyclists.

Existing transit service is provided on the northern edges of the project site along Grand Avenue. The nearest bus stop is located at the entrance to the Mission Bay Athletic Area at the intersection with Bond Street. Transit patrons destined to the central areas of De Anza Cove must walk at least 0.8 miles along the site's perimeter, which is 0.3 miles in excess of the standard 0.5 mile walking distance for pedestrians from a bus stop. Also, another evident barrier to transit stops is the lack of crossing facilities, which negatively impact the transit walkshed and bikeshed analyses. Implementation of crossings, dedicated bicycle and pedestrian facilities, and other connectivity-related improvements will then provide users quality connections to transit stops.

4.4.2 Safety Evaluation

Safety for all modes of travel are of high importance. Each mode experiences relatively higher numbers of collisions along major roadways that carry high volumes of vehicular traffic and serve as primary points of access to Mission Bay Park and De Anza Cove from neighboring communities. As planned transit improvements are implemented, such as the Balboa Avenue Station with the Mid-Coast Trolley extension, patrons will continue to use these roadways for station access to and from neighboring communities or Mission Bay Park. Therefore, it is important to identify and implement a series of on-and off-road treatments that ensure safe, comfortable connectivity for non-motorized users. Improved pedestrian and

bicycle connectivity will bolster both active and utilitarian (commute or errand-related) trips, as well as remove certain conflicting movements from the roadway environment.

4.4.3 Site Access Evaluation

Site access challenges are similar in nature to the overall connectivity challenges identified in Chapter 4.4.1. A lack of quality crossing facilities along North Mission Bay Drive and Mission Bay Drive prevent easy access from much of the surrounding community, including transit stops, to De Anza Cove. Improved pedestrian and bicycle facilities that feed additional crossings along these roadways would provide quality access to the De Anza Cove project site to multimodal users.

4.4.4 Community-Identified Concerns

The development of the De Anza Cove Amendment to the Mission Bay Park Master Plan entailed a comprehensive outreach process, in which community input was solicited to shape the development and refinement of potential alternatives. Several key issues were identified, which are summarized in this section.

Connectivity from North of De Anza Cove and to Planned Trolley Stations

Several participants expressed concern that the golf course currently serves as a barrier between the Pacific Beach community and the De Anza Cove recreational area. As one travels along Grand Avenue, the presence of De Anza Cove immediately south of the golf course is not readily apparent, and views of the bay are obstructed by the golf course. Pedestrian and bicycle access for those not familiar with the Rose Creek Trail perceive the only access into Mission Bay Park and De Anza Cove is along Mission Bay Drive, which carries high traffic volumes and speeds. Therefore, improved access from Grand Avenue to De Anza Cove for pedestrians, bicycles, and potentially autos should be a consideration when developing alternatives for the Plan.

In addition to improving community connectivity to the Cove, participants also provided several ideas that would improve pedestrian and bicycle access from the two planned trolley stations along the Mid-Coast Trolley line nearest to De Anza Cove. Many participants agree that I-5, Mission Bay Drive, and Claremont Drive are barriers for pedestrians trying to access Mission Bay Park from the east side of the I-5 corridor. The on-going Balboa Avenue Station Area Specific Plan and Morena Corridor Specific Plan are recommending improvements to the walking and bicycling environment along Morena Boulevard that runs parallel to the existing rail corridor on the east side of I-5. Connections from this corridor through either grade separated crossings or improved access routes would provide the connectivity needed to bring rail passengers and other active transportation users, while minimizing their interaction with automobile and large vehicle traffic.

Minimize Vehicle Diversion through Adjacent Neighborhoods

Community workshop participants who live in the neighborhoods north of Grand Avenue expressed a concern about existing cut-through traffic. Based upon input from the community, visitors to Mission Bay Park pass through their neighborhood along Bond Street, Figueroa Boulevard and Magnolia Avenue to access Grand Avenue and Mission Bay Drive. The intersections of Garnet Avenue/Bond Street and Magnolia Avenue/Mission Bay Drive are signalized intersections that allow full access into and out of the neighborhood.

When designing the access and circulation for De Anza Cove, residents in this neighborhood are concerned that connections through the sports park or golf course between Grand Avenue and North Mission Bay

Drive will increase cut-through traffic in their community. Therefore, considerations were made during the plan development phase for potential changes in traffic patterns that may occur as a result of new vehicle-oriented connections through the study area.

Improve the Walking and Bicycling Environment along the Cove

Several participants expressed how much they enjoy walking and bicycling around Mission Bay Park. However, access around De Anza Cove is discontinuous and challenging. From the Rose Creek Pedestrian and Bicycle Bridge and the Rose Creek Trail, there is no direct connection south along De Anza Cove. The existing condition includes a fence that separates the mobile home park from North Mission Bay Drive.[2] Removing this fence and connecting the existing paved walking trail that extends along a portion of the perimeter of the Cove would provide an improved walking and bicycling connection in the study area. At the north end of the existing multi-use path within De Anza Cove Park, there is a fence that separates the mobile home park from the RV spaces. Removal of this fence would also improve access. At the opposite end of the existing paved multi-use path, the path ends at the parking lot and the sandy beach along the cove. Extending the paved path along this area to connect to the existing multi-use path that encircles Mission Bay Park would complete the loop and improve connectivity.

[2] Since receipt of public input back in January 28th, 2016, the mobile home park has since been vacated and demolished.

5.0 Multimodal Circulation with Master Plan Amendment

This chapter describes the quality and access provided by the pedestrian, bicycle, vehicular, and transit facilities within the study area with the implementation of the Master Plan Amendment and planned improvements from other pertinent planning documents summarized in Chapter 2.0.

5.1 Planned and Proposed Improvements

A number of mobility improvements adjacent to the study area are currently planned or under construction and are included as cumulative projects for the purposes of this analysis. Projects include:

- Completion of the Mid-Cost Trolley extension and the Balboa Avenue Station
- Pedestrian and bicycle improvements to/from the Balboa Avenue Station as identified in the Station Area's Specific Plan (BASASP), which include but are not limited to:
    - Class I multi-use paths and Class II bike lanes along Mission Bay Drive from Garnet Avenue to Grand Avenue
    - Class I multi-use paths and additional on-street bicycle facilities along Garnet Avenue, east of Mission Bay Drive
    - Reconfiguration of the intersection of Mission Bay Drive and Grand Avenue, which will include marked pedestrian crossings
    - Class I multi-use connection over I-5 to/from the Balboa Avenue Station
    - Buffered Class II bicycle lanes along Bunker Hill from Mission Bay Drive to I-5 freeway
- Continuation of 4-lane Major arterial along Grand Avenue from Figueroa Blvd to Mission Bay Drive (BASASP)
- Extension of Rose Creek Trail to Rose Canyon (Rose Creek Bikeway Project/SANDAG Regional Bike Plan)
- New signal with marked pedestrian crossings at the intersection of Mission Bay Drive and Rosewood Street (Jefferson Pacific Beach Housing Project)
- Light rail or a skyway along Grand Avenue, connecting the Pacific Beach community to the planned Balboa Avenue Station (Pacific Beach Corridor Study)

As part of the De Anza Cove Amendment to the Mission Bay Park Master Plan, the following mobility improvements will be included as project features:

- New signal and reconfiguration at the intersection of Grand Avenue and Bond Street to provide for more effective access to/from the Athletic Fields
- De Anza Cove Class I multi-use waterfront trail that would run along the perimeter of the southern portion of the project site
- Enhancements to the existing active transportation facilities on the east side of the Golf Course, such as a non-contiguous sidewalk along Grand Avenue where sidewalks are to remain and the implementation of a Class I multi-use path along a portion of Grand Avenue/Mission Bay Drive north of North Mission Bay Drive. The intent and recommendation of this particular Class I multi-use facility is to provide a connection between the bicycle and pedestrian facilities located in the southern portion of the project site and in Mission Bay Park with the proposed BASASP Class I multi-use facilities to the north.

Overall, the proposed project's mobility features and improvements would be further detailed and defined, in terms of design and other specificities, during the Request for Proposal (RFP) and/or General Development Plan (GDP) processes.

5.2 Supporting Mobility Policies

As set forth in the Mission Bay Park Master Plan Update:

> *Mission Bay Park should provide safe, efficient and enjoyable access to all of its recreation areas, minimizing circulation and parking impacts on adjacent residential areas. Traffic and parking should support, but not overwhelm the Park's recreation areas, the regional parkland areas in particular. Bicycle and pedestrian paths should reach all areas of the Park and extend to adjacent open space corridors in as safe and enjoyable a manner as possible.*

Keeping these overall mobility goals in mind, the proposed mobility network as part of the De Anza Cove Amendment supplemented with the future mobility network in the surrounding area will steer the project area toward the desired mobility vision that is well-connected with viable transportation options. Additionally, this vision will further enhance the recreation experience for patrons and is supported by the policies outlined below.

- Design, build, and maintain an on-site circulation network in a manner that accommodates not only vehicles, but also non-motorized modes of transportation and recognizes these active modes as an integral element to the circulation system that provides for the needs of all types of users (i.e. all ages and all abilities/skill levels) to improve safety, access, and mobility on De Anza Cove.
- Provide and support a comprehensive network of safe, convenient, and attractive Class I multi-use paths, trails, sidewalks, and/or facilities to accommodate pedestrian and bicyclists, and that are designed to connect them to various activity centers, the northern and southern portions of De Anza Cove bisected by North Mission Bay Drive and the Rose Creek Trail. These active transportation facilities should be as continuous as possible with minimal to no network gaps.
- Install wayfinding map signs on the multi-use path system, including to/from transit stops and key destinations.
- Upgrade the pedestrian network by seeking additional right-of-way for wider, non-contiguous sidewalks and parkway areas and closing gaps in the sidewalk network. Of particular interest, is the implementation of an enhanced walkway with non-contiguous sidewalks and/or a Class I multi-use path along Grand Avenue, where feasible.
- Provide and support a continuous network of safe, convenient, and attractive bicycle facilities that connect De Anza Cove to the Pacific Beach community, other communities and to the regional bicycle network, as recommended in Figure 5-3: Future Bicycle Facilities and as roadways are resurfaced or required property becomes available.
- Implement pedestrian and bicycle facilities that meet or exceed accepted standards and guidelines. For example, the multi-use paths will be designed consistent with the Mission Bay Park Master Plan Design Guidelines and/or the *City of San Diego Street Design Manual* (March 2017).
- Support the implementation of the mobility improvements identified under the Balboa Avenue Station Area Specific Plan, including the proposed Class I multi-use facilities along Mission Bay Drive and Garnet Avenue, and other multi-modal improvements to enhance transit, bicycle and pedestrian facilities designed to increase safety at the intersection of Grand Avenue at Mission Bay Drive.

- Coordination with the Mission Bay Golf Course lessee regarding an opportunity of shifting the location of the fence along the golf course perimeter to accommodate enhanced pedestrian and bicycle facilities.
- Provide secure, accessible, and adequate bicycle parking.
- Provide for more effective vehicular access to/from the Athletic Fields Driveway by reconfiguring the intersection of Bond Street and Grand Avenue to allow for left-turns into and out of the driveway, installing a traffic signal, and allowing for a safe pedestrian signalized crosswalk across Grand Avenue. Include this improvement as part of the GDP.
- Provide adequate vehicular site access at key De Anza Cove activity centers, including new dedicated driveways along North Mission Bay Drive for the guest housing area and for the quality restaurant. In general, driveways will be designed to ensure accommodation for larger vehicles (i.e., RVs), efficient vehicular ingress/egress, and adequate sight distance. Driveway configurations and operational detail will be included as part of the GDP.
- Internal roadways will be designed, traffic controlled, and signed to ensure efficient vehicular circulation and to reduce driver confusion. Additionally, corner radii and aisle widths would allow for the circulation of emergency vehicles and larger vehicles (i.e. RVs and delivery trucks) through the site's internal roadways. Internal roadway design would be included as part of the GDP.
- Support the provisions of parking facilities that do not hinder active transportation modes and provide adequate spaces in accordance with applicable parking standards. Identify parking locations, interior parking accessways, and accessible pedestrian pathways as part of the General Development Plan process.
- Encourage SANDAG and MTS to improve the study area transit stop environment, reduce the necessity for automobile use, and provide the "first mile last mile" connectivity which could include, but is not necessarily limited to the following:
    - Pedestrian oriented lighting,
    - Photovoltaics powered shelters with additional seating, and real-time transit schedules,
    - Shade-producing street trees,
    - Trash receptacles,
    - Wider sidewalks where needed.
- Support SANDAG and MTS's consideration of the implementation of a bicycle and pedestrian access between the Balboa Avenue Station and De Anza Cove via a connection across I-5 from the Balboa Avenue Station to the area east of Mission Bay Drive within the vicinity of Magnolia Avenue and Bunker Hill Street.
- Support and encourage SANDAG to provide robust transit along Grand Avenue (i.e., light rail) and coordinate appropriately with SANDAG on this future transit service to ensure synergy with De Anza Cove mobility improvements.

5.3 Active Transportation Mobility

This section describes pedestrian- and bicycle-oriented access and connectivity quality in the study area under Master Plan Amendment ("Plus Project") conditions.

5.3.1 Access and Connectivity

Walking

Figure 5-1 displays permitted and prohibited pedestrian crossings at all study area intersections under Master Plan Amendment conditions, as well as with buildout of the proposed improvements outlined in Chapter 5.1. As shown, traffic-controlled crossings, in the form of new crosswalk legs, will be provided along Grand Avenue at Bond Street and Mission Bay Drive/Glendora Street, as well as along Mission Bay Drive at Rosewood Street. The intersection of Olney Street and Pacific Beach Drive will maintain three traffic-controlled intersection legs. Greater study area connectivity will also be provided via the planned pedestrian and bicycle facility across the I-5 freeway that would connect to the planned Balboa Avenue Station.

Within the De Anza Cove project site, connectivity will be provided via a Class I multi-use path, also referred to as an enhanced pedestrian and bicycle waterfront trail. Specifically, the trail would be located within the "100-foot buffer/public use zone" along the east side of Rose Creek frontage adjacent to the tennis courts and ball fields (similar to how the existing multi-use path traverses through the northern portion of the project site today), and then parallels the perimeter of the guest housing area, offering access to viewing areas and overlooks of Rose Creek, the adjacent proposed/expanded Habitat Area and Mission Bay. Overall, the waterfront trail would provide pedestrian and bicycle access and connect the guest housing area with the regional park facilities, food services, the quality restaurant, and boat rental facilities that are proposed within De Anza Cove, as well other parks uses to the south.

Figure 5-2 displays the Pedestrian Connectivity Ratio results. As shown, pedestrian connectivity is projected to improve between 2.8% and 12.4% within the project site, and up to 18.6% elsewhere in the study area with the proposed pedestrian improvements.

De Anza Cove Amendment
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Figure 5-1
Future Pedestrian Network

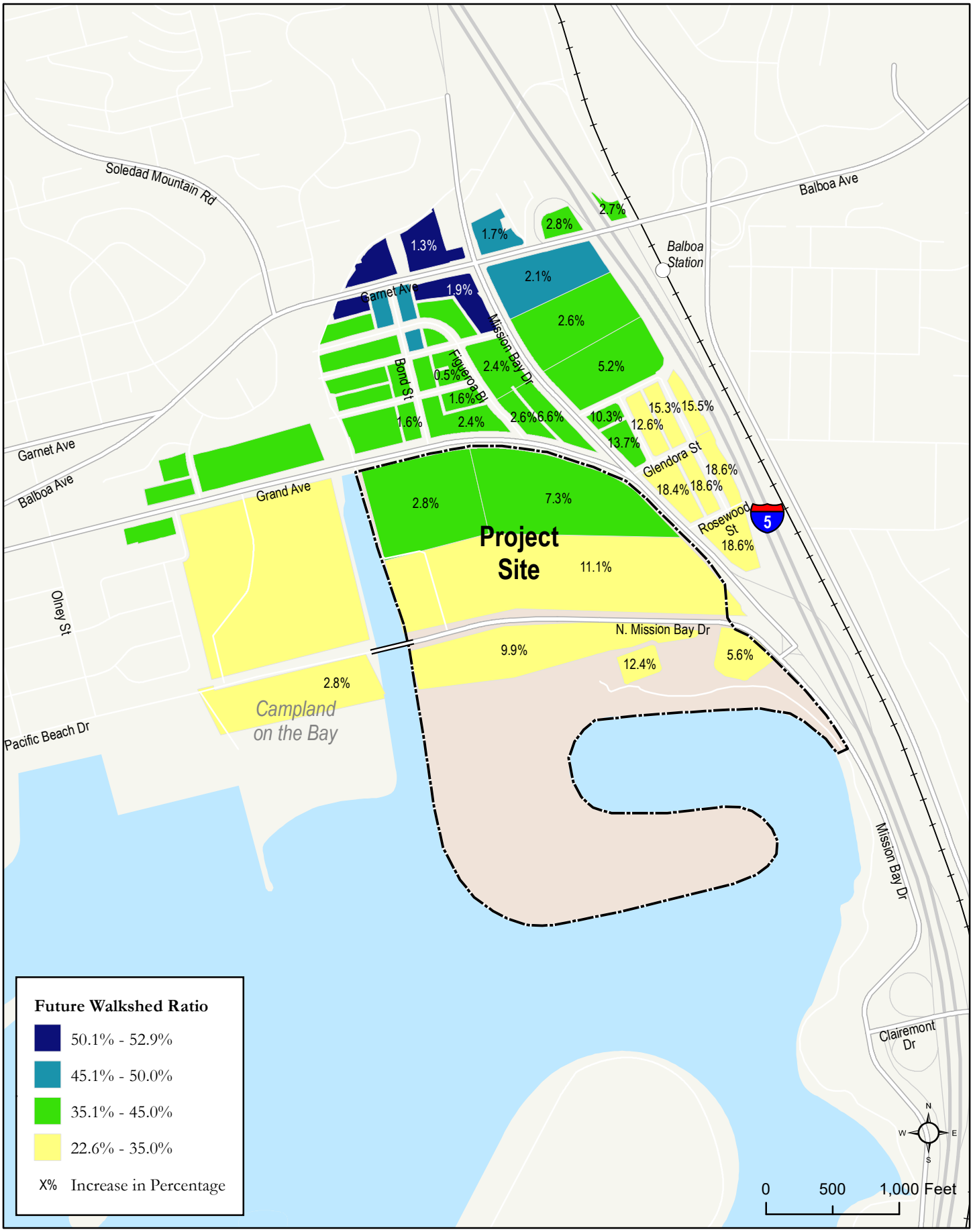

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Figure 5-2
Future Pedestrian Connectivity Ratio

Biking

Figure 5-3 displays the location of bicycle facilities within the study area under Master Plan Amendment conditions, as well as with buildout of the proposed improvements outlined in Chapter 5.1. A proposed Class I multi-use path, as described in Chapter 5.3.1 and in the previous section, will be installed within the De Anza Cove project site, and will connect to planned Class I multi-use paths along Mission Bay Drive and Garnet Avenue/ Balboa Avenue.

Figure 5-4 displays the Bicycle Connectivity analysis results. As shown, bicycle connectivity is projected to improve between 3.3% and 7.3% within the project site, and up to 15.2% elsewhere in the study area with the proposed bicycle connectivity improvements.

5.4 Access to Transit

Future transit services serving the vicinity of the study area include improvements to MTS Route 30 service, completion of the Mid-Coast Trolley and Balboa Avenue Station, as well as potential light rail or skyway transit along Grand Avenue.

5.4.1 Planned Transit Routes/Stops

Figure 5-5 displays the planned public transportation routes that serve the study area. Per the *San Diego Forward* Regional Plan, MTS Route 30 is slated to be upgraded to *Rapid* branding, which will include stop amenity upgrades and frequency improvements to 10 minutes on- and off-peak.

Further, the planned Balboa Avenue Station of the Mid-Coast Trolley extension will provide region-serving high-quality light rail transit to the vicinity of the study area and include first- and last-mile pedestrian and bicycle improvements to facilitate connections to De Anza Cove.

Additionally, the *San Diego Forward* Regional Plan proposes high-quality transit between Mission Boulevard in the Pacific Beach community and the Balboa Avenue station. This service, under study in the Pacific Beach Corridor Study (2017), may be implemented as light rail transit or an aerial skyway, likely running along Grand Avenue. To serve De Anza Cove and the local surrounding area, the light rail alternative proposes a station near the intersection of Mission Bay Drive and Grand Avenue, as well as near the intersection of Lee Street and Grand Avenue. The aerial skyway alternative proposes a station near the intersection of Mission Bay Drive and Grand Avenue. It has not been determined to which degree this service may supersede the existing Route 27.

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Figure 5-3
Future Bicycle Facilities

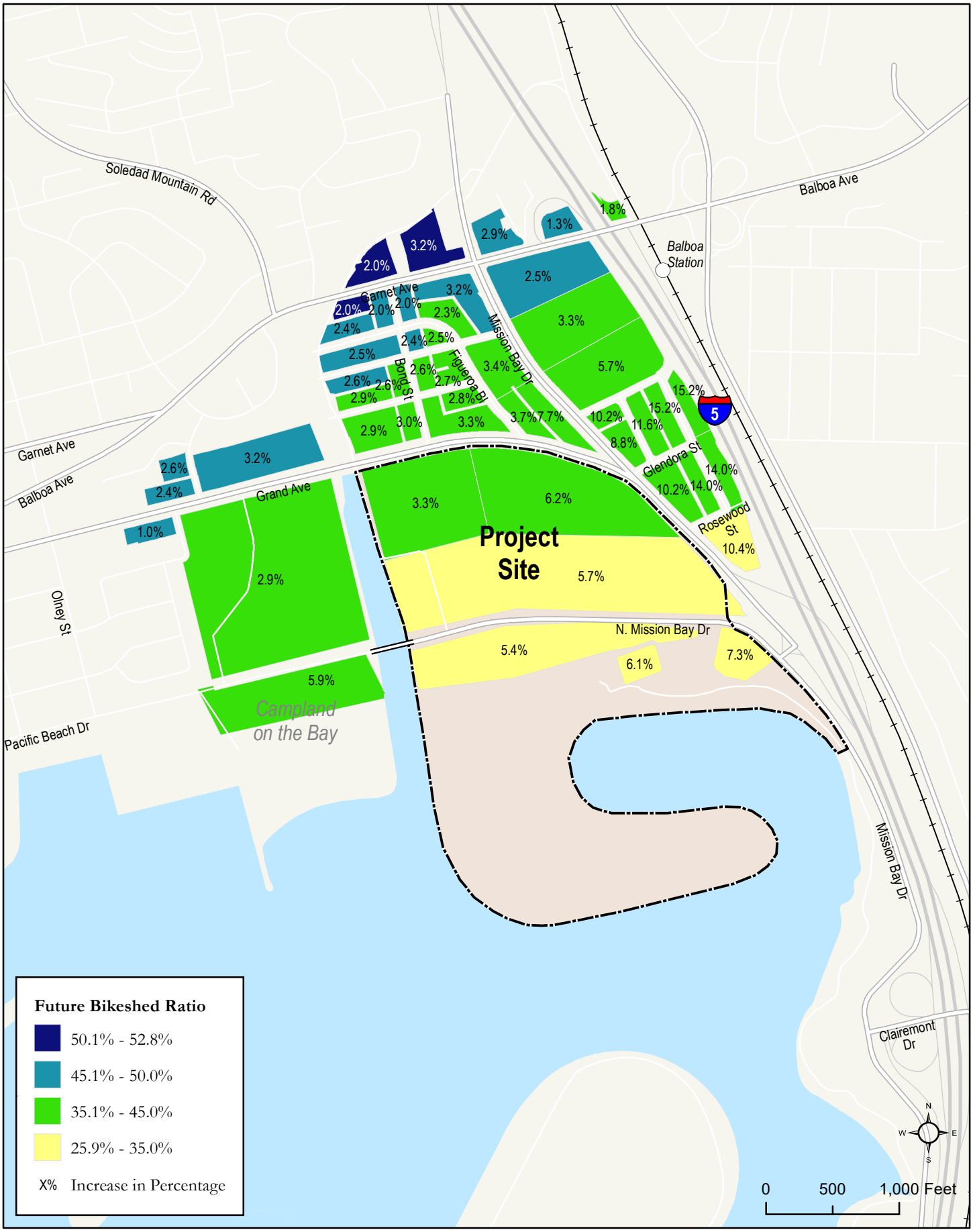

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Figure 5-4
Future Bicycle Connectivity Ratio

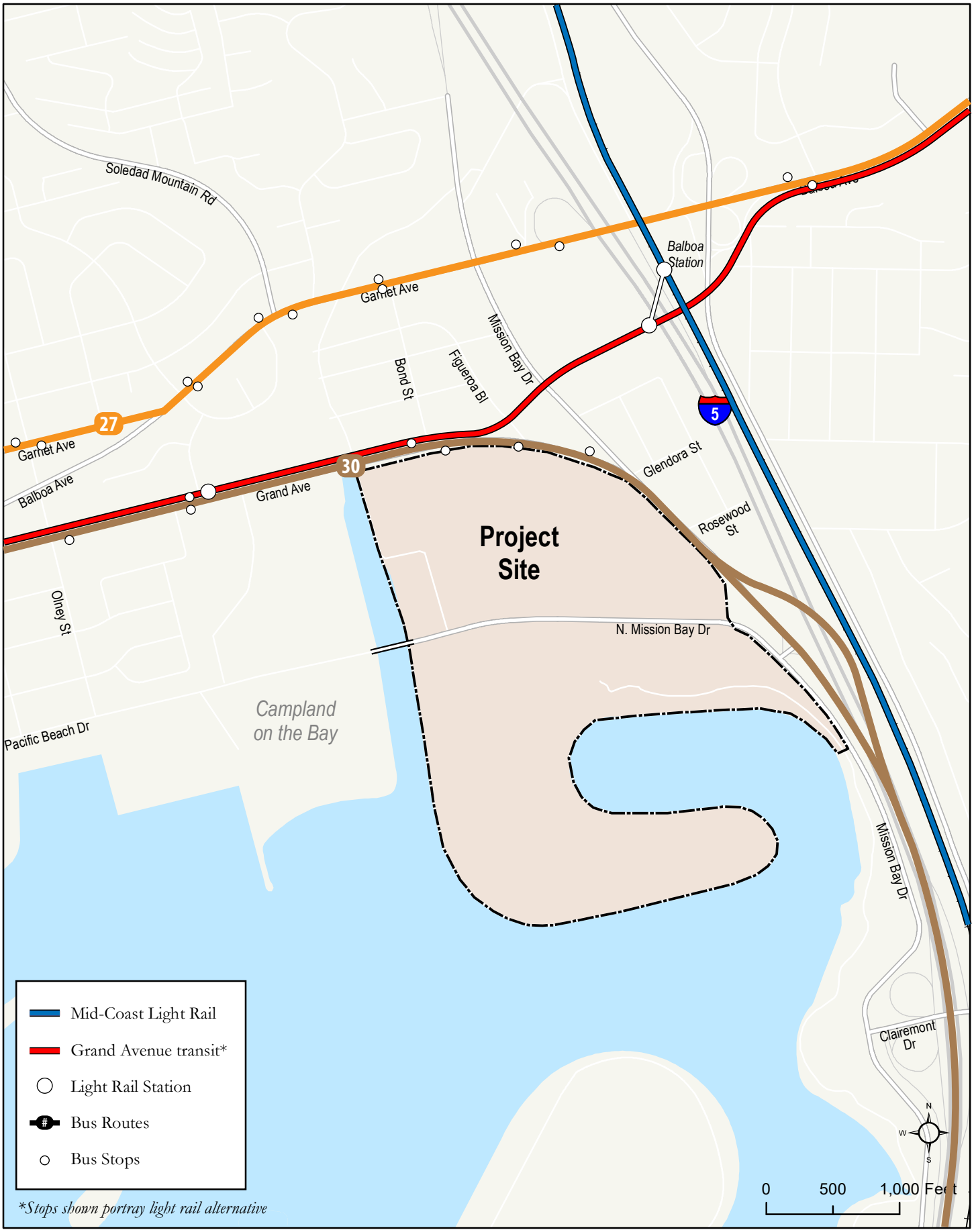

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Figure 5-5
Future Transit Facilities

5.4.2 Walk and Bike Sheds from Transit

Figure 5-6 displays the results of the future Walkshed Ratio from transit stops analysis. Future stops, as shown, include those proposed as part of the Pacific Beach Corridor Study under the light rail alternative, due to a having a higher density of stop spacing.

As shown, with the set of pedestrian improvements under Master Plan Amendment conditions, as well as with buildout of the proposed improvements outlined in Chapter 5.1, an increase in the walkability ratio of between 0.9% and 4.6% is found at the transit stops nearest De Anza Cove. These transit stops are also the closest in proximity to the enhanced pedestrian crossings and Class I multi-use paths that are proposed for the De Anza Cove site, as well as to enhanced connections to the Balboa Avenue Station. Further walkshed ratio increases are also anticipated at existing bus stops along Garnet Avenue, as a secondary beneficiary to the planned and proposed connectivity improvements.

Figure 5-7 displays the results of the Bikeshed Ratio from transit stops analysis. As shown, with the bicycle improvements under Master Plan Amendment conditions, as well as with buildout of the proposed improvements outlined in Chapter 5.1, an increase in the bikeshed ratio of between 3.2% and 7.1% is found at the selection of transit stops nearest De Anza Cove. A further range of bikeshed improvements between 1.1% and 45.8% is found within the study area, particularly near the planned Balboa Avenue Station.

Aside from improvement percentages, the highest overall bikeshed ratios are generally found along Garnet Avenue, since their high connectivity under Existing Conditions remains strongest among transit stops in the study area.

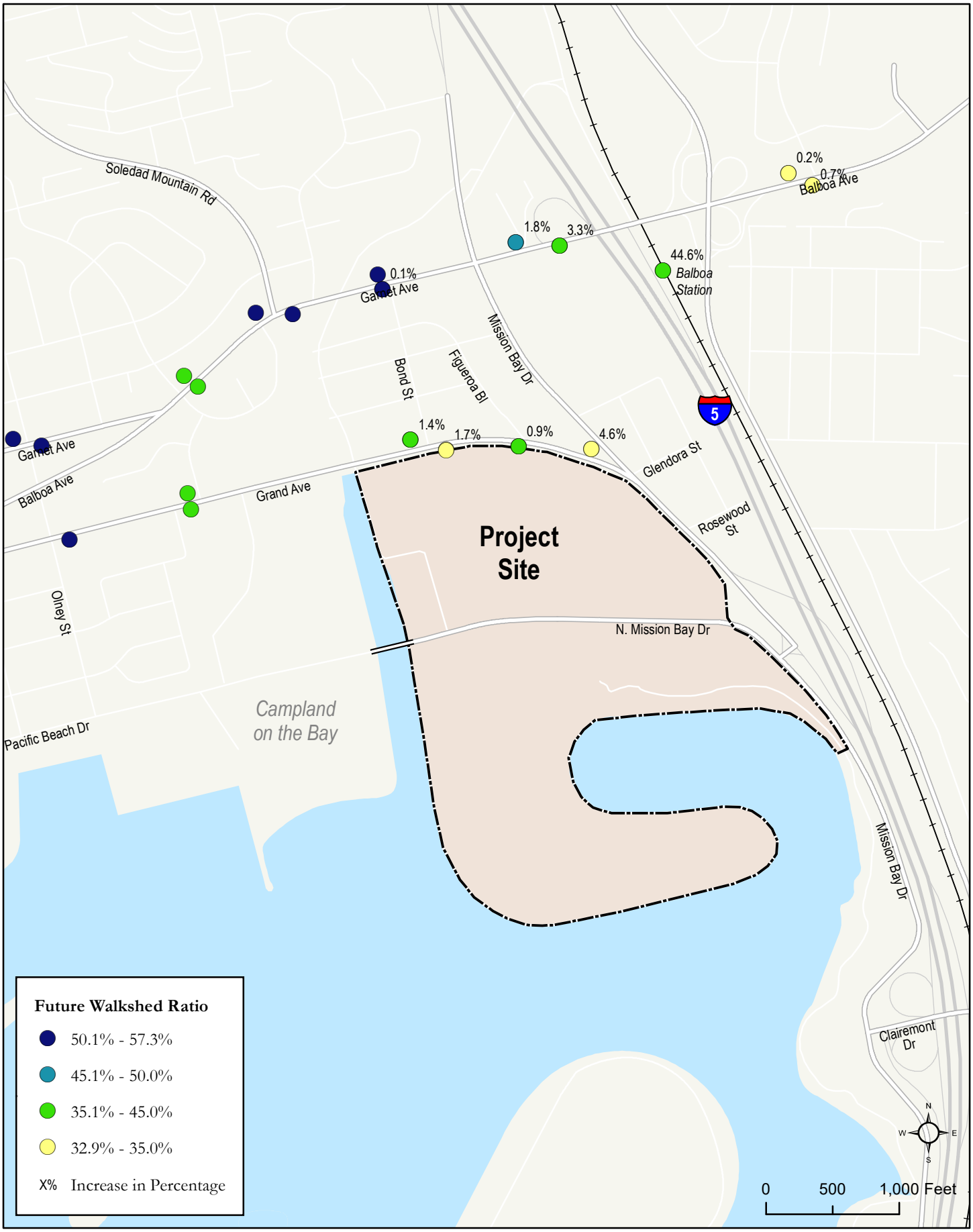

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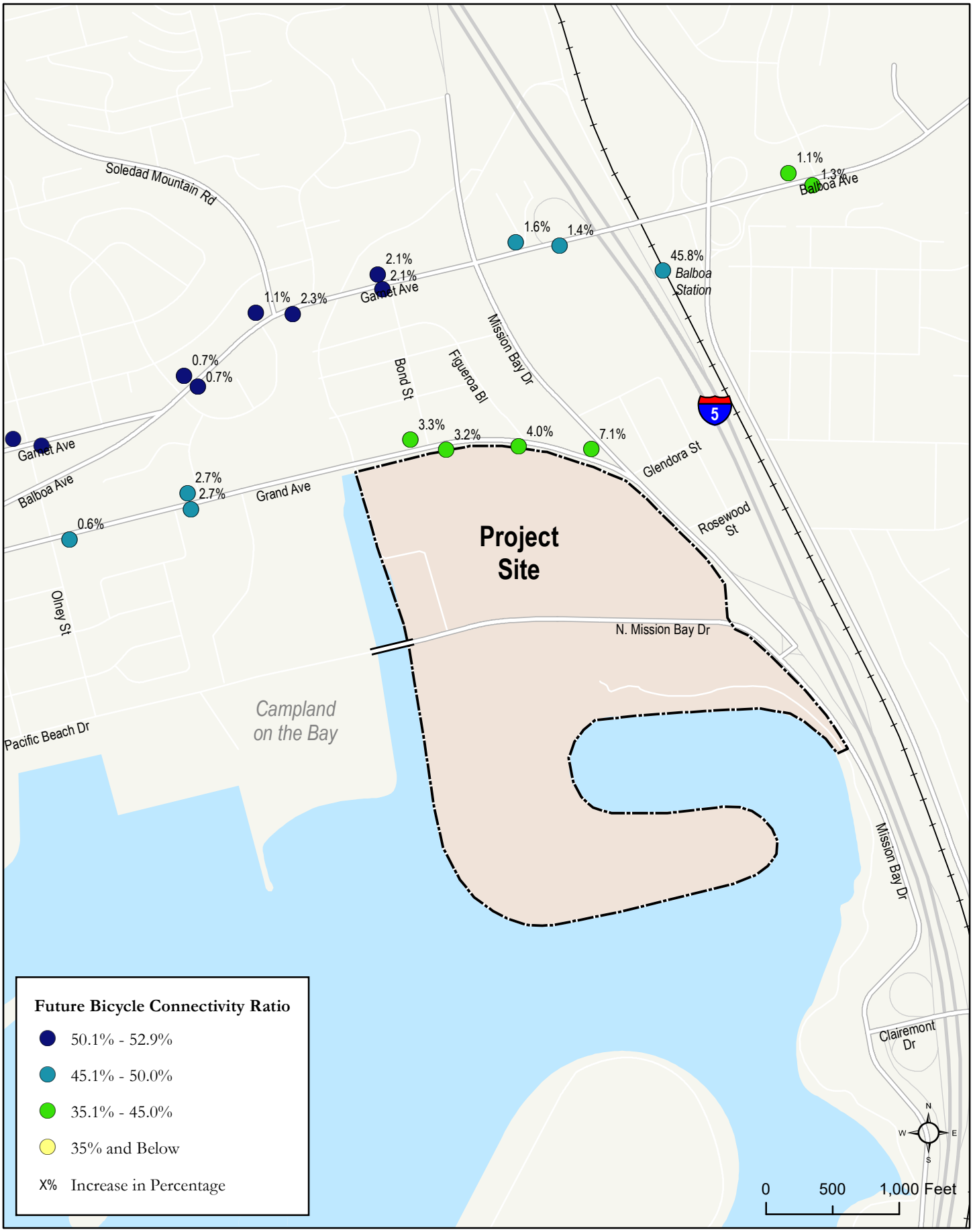
Figure 5-6
Future Walkshed Ratio from Transit Stops



De Anza Cove Amendment to the Mission Bay Park Master Plan

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Figure 5-7
Future Bicycle Connectivity Ratio from Transit Stops

5.5 Traffic Operations

The amount of traffic expected to be generated on the study roadway system by the proposed project is estimated using the following methodologies:

- Trip generation to estimate the amount of project-generated traffic that will be added to the roadway network
- Trip distribution to estimate the direction of travel to and from the project site
- Trip assignment to assign new trips to specific street segments and intersection turning movements

This section describes the proposed project's trip generation, trip distribution, and trip assignment. Using these project estimates, this section also includes a quantitative and qualitative assessment of key site access points.

5.5.1 Project Trip Generation

Campsite Trip Generation Rates

The campsite trip generation estimates were calculated based on existing driveway counts at the Campland and Mission Bay RV Resort driveways. Daily weekday and Saturday driveway counts were collected at the two campsite driveways in May and early June 2018. Table 5-1 displays the weekday daily, AM and PM peak hour driveway volumes, and Table 5-2 displays the daily Saturday and mid-day peak hour driveway volumes.

Table 5-1 Existing Weekday Driveway Volumes

Site	Daily	AM Peak Hour					PM Peak Hour				
		%	Trips	Split	in	Out	%	Trips	Split	in	Out
Mission Bay RV Resort	1,495	4%	60	4:6	24	36	9%	135	6:4	81	54
Campland	2,088	5%	104	4:6	42	62	9%	188	5:5	94	94

Source: Chen Ryan Associates (2019)

Notes:
Driveway volumes were calculated using the daily volume and the rounded distribution percentages (i.e. peak hour percentage and inbound/outbound splits). Consequently, the volumes are slightly different than the actual driveway count shown in Appendix B.

Table 5-2 Existing Saturday Driveway Volumes

Site	Daily	Midday Peak Hour				
		%	Trips	Split	in	Out
Mission Bay RV Resort	1,704	10%	170	6:4	102	68
Campland	3,386	8%	271	6:4	162	109

Source: Chen Ryan Associates (2019)

Notes:
Driveway volumes were calculated using the daily volume and the rounded distribution percentages (i.e. peak hour percentage and inbound/outbound splits). Consequently, the volumes are slightly different than the actual driveway count shown in the appendix.

As shown in the two tables, Saturday generated higher daily volumes compared to the weekday, and Campland generated 40 percent (2,088 vs. 1,495) and 99 percent (3,386 vs. 1,704) higher than De Anza during the weekday and on Saturday, respectively.

The data from Tables 5-1 and 5-2, along with the actual occupied units during data collection were used to calculate the campsites trip generation rates for daily, AM, PM, and midday peak hours. Tables 5-3 and 5-4 show the calculated trip rates for weekday and weekend, respectively.

Table 5-3 Weekday Trip Generation Rates

Site	Occupied Units[1]	Trips Generated			Trip Rate		
		Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak
Mission Bay RV Resort	138	1,495	60	135	10.83	0.43	0.98
Campland	242	2,088	104	188	8.63	0.43	0.78

Source: Chen Ryan Associates (2019)

Notes:
[1]Occupied units during the collection of driveway counts.

Table 5-4 Saturday Trip Generation Rates

Site	Occupied Units[1]	Trips Generated		Trip Rate	
		Daily	Midday Peak	Daily	Midday Peak
Mission Bay RV Resort	130	1,704	170	13.11	1.31
Campland	442	3,386	271	7.66	0.61

Source: Chen Ryan Associates (2019)

Notes:
[1]Occupied units during the collection of driveway counts.

The Mission Bay RV Resort generated 10.83 trips and 13.11 trips per occupied units during the weekday and on Saturday, respectively. This site generated approximately 20 to 30 percent higher daily and peak hour trips on Saturday than on the weekday. Campland generated 8.63 trips per occupied units during the weekday, and 7.66 trips per occupied unit during Saturday. The *City of San Diego's Trip Generation Rate Summary* does not provide trip rates for "Campsites", but SANDAG's *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) specifies four (4) daily trips per each campsite for "Campground" uses. Both Mission Bay RV Resort and Campland sites generate more than double the SANDAG daily trip rate. Based on discussions with the two campsite staff, the higher trip rates are primarily attributed to the location of the site and the multiple external attractions available nearby, whereas the SANDAG rates are more reflective of rural campsites where visitors typically stay within the campgrounds during their stay.

Quality Restaurant Trip Generation Rates

The City of San Diego's *Trip Generation Manual* (2003) includes weekday trip generation rates for "Quality Restaurant", but the manual does not provide weekend trip rates for that use. Therefore, the City's weekday rates were adjusted based on the Institute of Transportation Engineers (ITE) *Trip Generation*

Manual (10th Edition) weekday-to-weekend ratio for quality restaurant to yield City of San Diego weekend trip rates. According to the ITE trip rates, the weekend rates are approximately five (5) percent higher than the weekday rates. Table 5-5 displays the trip generation rates for quality restaurant.

Table 5-5 Quality Restaurant Trip Generation Rates

Land Use	Weekday Trip Rate[1]			Weekend Trip Rate[2]	
	Daily	AM Peak % of ADT (Trip Rate)	PM Peak % of ADT (Trip Rate)	Daily	Midday Peak % of ADT (Trip Rate)
Quality Restaurant	100 / ksf	1% (1.0 / ksf)	8% (8.0 / ksf)	105 / ksf	11% (11.6 / ksf)

Source: Chen Ryan Associates (2019)

Notes:
ksf = Thousand Square Feet
[1]Source: City of San Diego Trip Generation Manual
[2]Source: City of San Diego Trip Generation Manual and ITE Trip Generation Manual (10th Edition)

Overall Project Trip Generation

In estimating the number of new trips generated by the proposed project, understanding the land use components as described in the *De Anza Cove Amendment to the Mission Bay Park Master Plan* and in Chapter 3 – Project Description of the project's Program Environmental Impact Report (PEIR) were critical. Below is a breakdown of the overall trip generation approach and assumptions used to yield the net new project trips that are commensurate with this revitalization effort.

- The existing Mission Bay RV Resort has limited on-site amenities compared to Campland on the Bay. Due to the lack of amenities, campers at De Anza Cove are more susceptible to make external vehicular trips for goods and services than campers staying at Campland. The campsite rates derived from the respective campgrounds are reflective of this condition, since the campsite trip rates derived from Mission Bay RV Resort are predominately higher than the Campland derived rates. As part of the proposed project, more on-site amenities would be provided for De Anza campers; therefore, it was appropriate to assume the trip rates derived from Campland to forecast the trips associated with the 600 new De Anza campsites in the guest housing area.
- New on-site, community-oriented amenities, such as casual food services/concessions, a market/deli, an amphitheater, a pool/spa, are ancillary uses that would serve De Anza campers. No trip generation have been assumed for these supporting facilities.
- The 5,000 square-feet quality restaurant is a potential lease hold, where restaurant goers can enjoy fine dining and waterfront views from the Cove. Since this use would primarily be geared towards drawing external patrons to De Anza Cove, it has been assumed in the project trip generation.
- Redeveloping De Anza Cove would also include upgrades to the athletic uses (i.e., Mission Bay Tennis Center, Athletic Fields, and Golf Course), the regional parkland, and the beach areas. Since these are all existing uses, their associated trips are already captured in the existing traffic counts. It is assumed that the project's enhancements to these uses would not generate new trips, and so no additional trip generation for these uses were projected.
- With the removal of the existing 260 campsites at Mission Bay RV Resort and the 556 campsites at Campland on the Bay, their associated trips were applied as a reduction in the trip generation calculations. Providing credit for an existing use on site is a common practice in the traffic

engineering field and often applied in traffic studies. A primary reason for including existing development as a credit is because traffic from the existing use is included in the traffic counts. Additionally, the campsite trip rates derived from the corresponding campsites were respectively applied in the "existing uses to be removed" trip generation for Mission Bay RV Resort and Campland on the Bay.

- Although there are different uses within the proposed project site, no mixed-use reduction was applied to reflect any internalization that would occur with campsite patrons and other project features, like the quality restaurant. This project is not a typical mixed-use development with commercial, residential, and/or office spaces, so it is difficult to accurately determine the project's magnitude of mixed-use travel characteristics. With no internalization reduction applied, the trip generation reflects a conservative analysis.
- No non-motorized trip reduction was assumed despite the active transportation amenities provided within and around the project site. Therefore, the trip generation reflects a conservative analysis.

Based on the approach and assumptions described above, the weekday and Saturday trip generation are shown in Table 5-6 and Table 5-7, respectively. The proposed project will generate a total of -1,936 net daily weekday trips, with -88 net trips occurring in the AM peak hour (-34 inbound; -54 outbound) and -180 net trips occurring during the PM peak hour (-108 inbound; -73 outbound). On Saturday's, the proposed project is estimated to generate -2,547 net daily trips and -256 net trips during the midday peak hour (-154 inbound; -102 outbound). These resulting negative net new trips showcase that the proposed project will holistically generate less trips compared to the traffic generated by existing uses on Mission Bay RV Resort and Campland on the Bay.

Table 5-6 Weekday Proposed Project Trip Generation

Land Use	Units	Trip Rate	ADT	AM Peak Hour					PM Peak Hour				
				Trip Rate	Trips	Split	In	Out	Trip Rate	Trips	Split	In	Out
Proposed Project Trip Generation													
De Anza Guest Housing	600 sites	8.63	5,178	0.43	258	4:6	103	155	0.78	468	5:5	234	234
Quality Restaurant	5 ksf	100	500	1.0	5	6:4	3	2	8.0	40	7:3	28	12
Total Gross Project Trips			**5,678**		**263**		**106**	**157**		**508**		**262**	**246**
Existing Uses to Be Removed													
Mission Bay RV Resort	-260 sites	10.83	-2,816	0.43	-112	4:6	-45	-67	0.98	-255	6:4	-153	-102
Campland	-556 sites	8.63	-4,798	0.43	-239	4:6	-96	-143	0.78	-434	5:5	-217	-217
Total Trips to be Removed			**-7,614**		**-351**		**-140**	**-211**		**-688**		**-370**	**-319**
Total Net New Project Trips			**-1,936**		**-88**		**-34**	**-54**		**-180**		**-108**	**-73**

Source: City of San Diego & Chen Ryan Associates (2019)

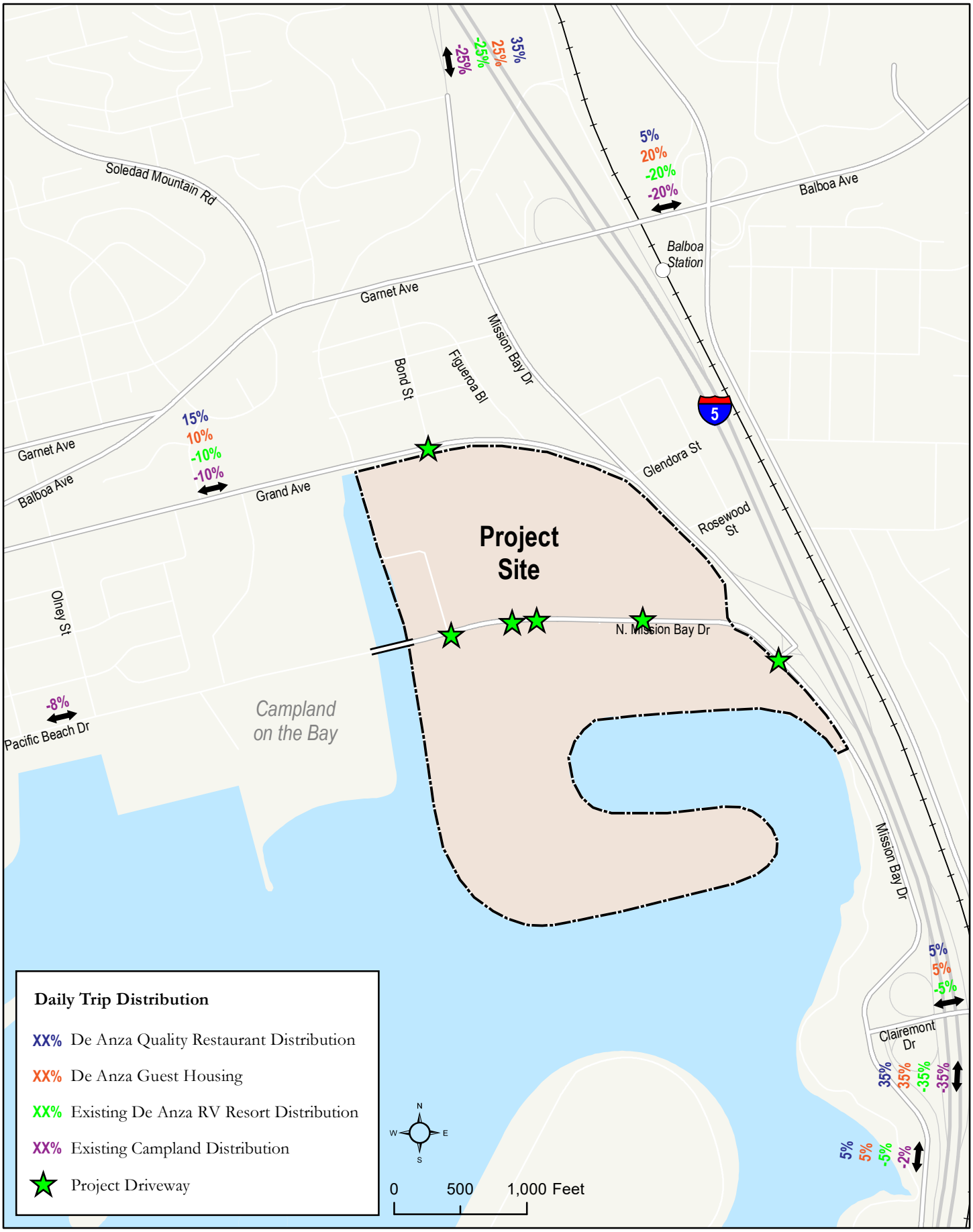
Table 5-7 Saturday Proposed Project Trip Generation

Land Use	Units	Trip Rate	ADT	Midday Peak Hour				
				Trip Rate	Trips	Split	In	Out
Proposed Project Trip Generation								
De Anza Guest Housing	600 sites	7.66	4,596	0.61	366	6:4	220	146
Quality Restaurant	5 ksf	105	525	11.6	58	5.9:4.1	34	24
Total Gross Project Trips			**5,121**		**424**		**254**	**170**
Existing Uses to Be Removed								
Mission Bay RV Resort	-260 sites	13.11	-3,409	1.31	-341	6:4	-204	-136
Campland	-556 sites	7.66	-4,259	0.61	-339	6:4	-203	-136
Total Trips to be Removed			**-7,668**		**-680**		**-408**	**-272**
Total Net New Project Trips			**-2,547**		**-256**		**-154**	**-102**

Source: City of San Diego & Chen Ryan Associates (2019)

5.5.2 Trip Distribution and Assignment

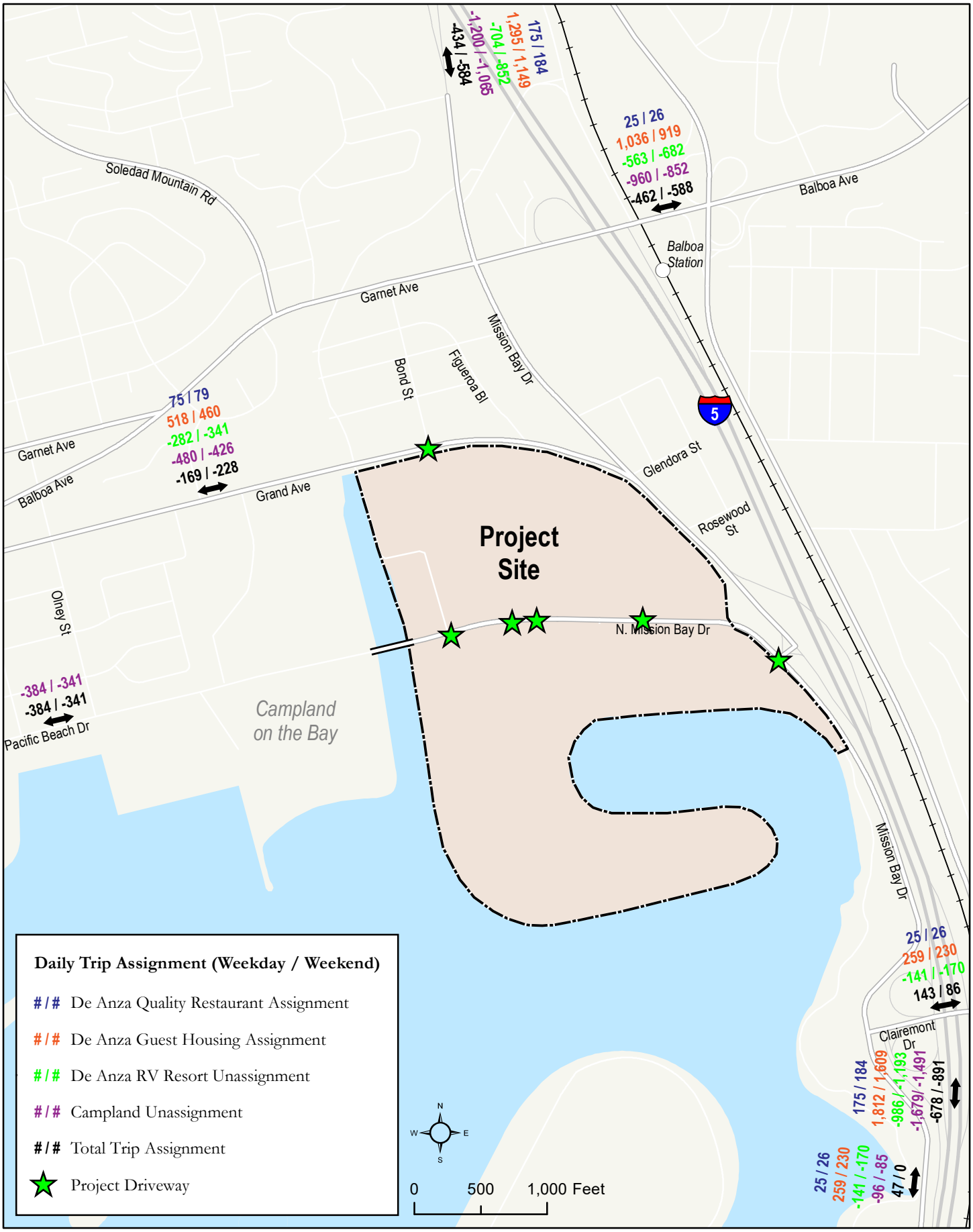
Trip distribution for the proposed project was developed based on the project's land use characteristics, the project's location in relation to surrounding land uses, and the project's accessibility to freeways. Figure 5-8 displays the assumed project trip distribution and Figure 5-9 displays the anticipated trip assignment for the proposed project.



De Anza Cove Amendment to the Mission Bay Park Master Plan

CHEN RYAN

Figure 5-8
Project Trip Distribution



De Anza Cove Amendment
to the Mission Bay Park Master Plan

CHEN RYAN

Figure 5-9
Project Daily Trip Asisgnment

5.5.3 Project Impact Assessment

Given that the project would be reducing the total number of RV/campsites by consolidating the Campland and De Anza Cove campsites, a transportation impact study is not required based on the *City of San Diego Traffic Impact Study Manual (July 1998)* since the project, which is in conformance with the adopted land use plan and transportation elements, is not generating more than 1,000 daily trips and/or 100 peak hour trips. Additionally, the project will generally be decreasing the amount of vehicle traffic on the surrounding roadways, and therefore, improving most intersection and roadway segment operations within the study area. Locations where project trips will increase the amount of traffic when compared to current conditions are concentrated along roadway facilities fronting the key areas of the site's redevelopment.

Access Impact Assessment

Even though the project holistically does not warrant a transportation impact analysis, access impacts or deficiencies could potentially still occur because all the new vehicle trips associated with the guest housing campsites and the quality restaurant would traverse through select project driveways, study intersections, and segments. Therefore, an assessment was conducted to understand ingress and egress functionality at De Anza Cove with the proposed project in place. Access deficiencies were identified via an Existing Plus Project impact analysis, where an assessment of impacts of the entire project was measured in relation to existing traffic and roadway conditions (i.e., Existing Conditions versus Existing Plus Project Conditions).

According to the City of San Diego's *CEQA Significance Determination Thresholds* document (January 2011), a project is considered to have a significant impact if the addition of project related traffic results in conditions that exceed the thresholds summarized in Table 5-8. These significance thresholds apply only when the type of facility already operates at LOS E or LOS F. For intersections and roadway segments affected by the project, LOS D or better is considered acceptable. Therefore, if a project causes an intersection or roadway segment that was operating at an acceptable LOS (LOS A through D) prior to project implementation to operate at either LOS E or LOS F with the project in place, then the project is considered to cause a significant impact.

Table 5-8 Summary of Significance Thresholds

Level of Service with Project	Allowable Increase Due to Project	
	Roadway Segments	Intersection
	Volume-to-Capacity (V/C) ratio	Delay (seconds)
E	0.02	2.0
F	0.01	1.0

Source: *CEQA Significance Determination Thresholds, City of San Diego (January 2011)*

For consistency purposes, the above City threshold standards were used to determine significant access impacts.

5.5.4 Vehicular Site Access

The subsequent sections include a qualitative and quantitative discussion of the critical access points. Traffic operations under Existing Plus Project Conditions were evaluated only at site driveways, intersections, and roadway segments most affected by the redevelopment under the De Anza Cove Amendment. This quantitative analysis conducted at these select locations served as the premise of the access impact assessment.

Site Driveways

Vehicular access to De Anza Cove with the project in place would be provided via six (6) driveways. Four (4) of the driveways are currently in operation and two (2) additional driveways would be implemented along North Mission Bay Drive. As part of redevelopment of the southern portion of the project site, De Anza Road at North Mission Bay Drive along with the existing De Anza Cove recreational area and Mission Bay RV Resort driveway would be removed. Design details and exact placement of the new project driveways, removal of De Anza Road, and the circulation design and construction details of new internal roadways would be determined during the project's RFP and/or GDP processes. Although driveway specificities at some of the locations are unknown at this time, the following six (6) project driveways were evaluated using best available information and reasonable assumptions:

- Western Access Driveway is an existing site driveway currently providing access to the San Diego Mission Bay Boat and Ski Club and is the westernmost access point on North Mission Bay Drive. Under project conditions, the driveway will provide access to recreational uses. No change in the intersection configuration and traffic control is anticipated at this location.

- Mission Bay Golf Course Driveway is an existing site driveway that will continue to provide access to the golf course with the project in place. This driveway is located west of the existing De Anza Road and North Mission Bay Drive intersection and no change in the intersection configuration and traffic control is anticipated at this location.

- Guest Housing Driveway would be located on North Mission Bay Drive across from the Mission Bay Golf Course driveway, essentially west of the existing intersection at De Anza Road. This driveway would be the primary access for the campsites. This intersection would be a side-street stop-controlled intersection with the Guest Housing driveway as the stop-controlled approach and North Mission Bay Drive as the uncontrolled approaches. It is assumed that the left-turn and right-turn movements would be allowed into and out of the driveway.

  Table 5-9 shows the peak hour operation results of this intersection under Existing Plus Project Conditions. As shown, given the substantially low vehicular through volumes on North Mission Bay Drive and at the project driveway, this intersection would operate at low vehicle delays under the three peak hours. Given the low vehicle delays, no queuing issues are anticipated at this intersection.

Table 5-9 Peak Hour Intersection Level of Service – Existing Plus Project

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour		Saturday Midday	
		Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
Guest Housing Driveway/N. Mission Bay	SSSC	9.1	A	9.9	A	9.2	A

Source: Chen Ryan Associates (2019)

Notes:
SSSC = Side-Street Stop-Controlled.
Results for SSSC represent highest-delay movement.

- Quality Restaurant Driveway would be located east of the existing De Anza Road and North Mission Bay intersection. This driveway would be the primary access to the restaurant. This intersection would be a side-street stop-controlled T-intersection with the quality restaurant driveway as the stop-controlled approach and North Mission Bay Drive as the uncontrolled approaches. It is assumed that the left-turn and right-turn movements would be allowed into and out of the driveway.

  Table 5-10 shows the peak hour operations results of this intersection under Existing Plus Project Conditions. As shown, given the substantially low vehicular through volumes on North Mission Bay Drive and at the project driveway, this intersection would operate at low vehicle delays under the three peak hours. Given the low vehicle delays, no queuing issues are anticipated at this intersection.

Table 5-10 Peak Hour Intersection Level of Service – Existing Plus Project

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour		Saturday Midday	
		Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
Quality Restaurant Driveway/ N. Mission Bay	SSSC	9.6	A	10.6	B	10.3	B

Source: City of San Diego & Chen Ryan Associates (2019)

Notes:
SSSC = Side-Street Stop-Controlled.
Results for SSSC represent highest-delay movement.

- Eastern Access Driveway is an existing site driveway located at the Mission Bay Drive and North Mission Bay Drive intersection (Study Intersection #7) and is a primary entry to the project site, where it would provide access to the driveways of key De Anza Cove activity areas. Additionally, the Mission Bay Drive and North Mission Bay Drive intersection would be the only intersection serving all the net new vehicle trips associated with the guest housing campsites and the quality restaurant.

  Table 5-11 shows the peak hour operation results of this intersection under Existing Plus Project Conditions.

Table 5-11 Peak Hour Intersection Level of Service – Existing Plus Project

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour		Saturday Midday	
		Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
7. Mission Bay Drive/N Mission Bay Drive (Eastern Access Driveway)	AWSC	9.8	A	37.3	**E**	10.9	B

Source: City of San Diego & Chen Ryan Associates (2019)

Notes:
Bold text indicates substandard LOS E or F.
AWSC = All-Way Stop Control.

The Eastern Access Driveway would operate at acceptable levels during the AM and Saturday Midday peak hour conditions; however, the additional project traffic would degrade operations during the PM peak hour from an existing LOS D to LOS E. This deficiency is primarily due to the heavy westbound left-turn volume (416 vehicles in the PM) on a shared though/left-turn lane in conjunction with the increase in westbound right-turn and southbound left-turn volumes caused by the project's inbound and outbound traffic to the guest housing and quality restaurant.

- Athletic Fields Driveway is an existing site driveway with only right-in/right-out capabilities and comprises the southern leg of the Grand Avenue and Bond Street intersection (Study Intersection #1). With the project, the driveway would continue to provide direct access to De Anza Cove recreational facilities, such as the Athletic Fields and tennis center. This intersection is currently unsignalized but is planned to be signalized and reconfigured to improve access as part of the project. Specifically, this project feature would allow for the following movements:

    - Northbound left from the Athletic Fields to Grand Avenue
    - Westbound left from Grand Avenue to the Athletic Fields
    - Northbound right from the Athletic Fields to Grand Avenue
    - Southbound right from Bond Street to Grand Avenue
    - Eastbound right from Grand Avenue to the Athletic Fields
    - Westbound right from Grand Avenue to Bond Street

  The intersection would include channelization islands to prohibit southbound through movements on Bond Street and northbound through movements from the Athletic Fields into the neighborhood along Bond Street, which would reduce cut-through traffic.

  Signalization and reconfiguration of this intersection would reduce conflicts and allow for a safe pedestrian signalized crosswalk across Grand Avenue. It would also reduce circuitous vehicular travel by eliminating the need for existing vehicles traveling westbound to make a U-turn at the intersection of Grand Avenue and Lee Street to access the driveway. Similarly, allowing left turns out of the Athletic Fields would eliminate the need to make the U-Turn at Figueroa Boulevard to continue westward travel on Grand Avenue.

  Overall, driveway improvements at this location is consistent with the 2014 *California Manual of Uniform Traffic Control Devices* (MUTCD) guidance on installation of a traffic signal since it would improve the overall safety and operation of the intersection. The intersection does meet the peak-hour signal warrant due to the high traffic volumes on Grand Avenue conflicting with southbound traffic from the neighborhood at Bond Street.[3] Still, prior to the installation of a traffic signal at Grand Avenue and Bond Street, a full signal warrant analysis shall be conducted based on field-measured traffic data and a thorough study of traffic and roadway conditions to the satisfaction of the City Engineer.

[3] This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume-based signal warrants (i.e., the 4-hour or 8-hour warrants). Additionally, this peak hour warrant analysis is not intended to replace a rigorous and complete traffic signal warrant analysis by the City of San Diego.

Key Study Intersection

The intersection of East Mission Bay Drive and Clairemont Drive (Study Intersection #8) is a key access point for De Anza Cove patrons going to/coming from areas south of the study area. Under Existing Conditions, this southern gateway operates at a LOS F under the weekday PM peak hour. Due to the identified existing deficiency and the project assignment showcasing an addition of project trips traversing this intersection, the traffic operations were further assessed at this location under Existing Plus Project Conditions. Similar to Existing Conditions, the results in Table 5-12 show that the intersection would continue to operate at acceptable levels during the AM and Saturday Midday peak hour conditions and continue to operate deficiently during the PM Peak hour.

Table 5-12 Peak Hour Intersection Level of Service – Existing Plus Project

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour		Saturday Midday	
		Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
8. E. Mission Bay Drive/Mission Bay Drive & Clairemont Drive	AWSC	15.8	C	80.0	**F**	15.1	C

Source: City of San Diego (2019)

Notes:
Bold text indicates substandard LOS E or F.
AWSC = All-Way Stop Control.

Key Roadway Segment

Roadways along the project site are expected to sufficiently serve the existing demand with the additional project traffic. Grand Avenue currently operates at LOS F, but operations would improve with the removal of Campland and would result in lower traffic volumes on that corridor. North Mission Bay Drive, which currently has excess vehicle capacity, is projected to operate acceptably under Existing Plus Project Conditions along its segments bisecting the project site based on a qualitive assessment of the resulting project trip assignment and generation. However, a critical section of North Mission Bay Drive adjacent to the Guest Housing area was evaluated under Existing Plus Project Conditions to confirm such acceptable operations.

The key North Mission Bay Drive segment bounded by the two new project driveways (i.e., Guest Housing driveway and Quality Restaurant driveway) would be the segment most affected by the redevelopment. It is conservatively projected that all the daily traffic associated with the De Anza campsites (5,178 ADT on weekdays and 4,596 ADT on weekends) would traverse this facility. North Mission Bay Drive is currently classified as a 2-lane Collector Without a Two-way Left-turn Lane but based on the project uses and site plan North Mission Bay Drive between the Guest Housing Driveway and Quality Restaurant Driveway would be re-classified as a 2-lane Collector Without Two-way Left-turn Lane – No Fronting Property under Existing Plus Project Conditions.

As shown in Table 5-13, the Existing Plus Project analysis of the key roadway segment would yield LOS C operations on weekday and weekends, which is considered acceptable operations (LOS D or better).

Table 5-13 Roadway Segment Level of Service Results – Existing Plus Project Conditions

Roadway	Segment	Cross-Section	Capacity (LOS E)	Weekday			Weekend		
				ADT	V/C	LOS	ADT	V/C	LOS
N. Mission Bay Drive	Guest Housing Driveway to Quality Restaurant Driveway	2-Lane Collector (w/o two-way Left-Turn lane) – no fronting property	10,000	6,696	0.670	C	5,821	0.582	C

Source: City of San Diego (2019)

Notes:
Bold text indicates substandard LOS E or F.
ADT = Average Daily Traffic.
V/C = Volume-to-Capacity Ratio.
LOS = Level of Service.

5.5.5 Access Impacts and Mitigation Measures

The following summarizes the findings of the access impact analysis under a comparison of Existing Plus Project Conditions against Existing Conditions. Measures needed to mitigate the identified impacts are also described in the subsequent sections below.

Existing Plus Project Access Impact Analysis

Analysis of the existing operating conditions at the critical De Anza Cove access points determined that the net change in delay due to the project exceeded the allowable threshold resulting in a significant impact at the following study intersections during the weekday PM peak hour:

- Significant Impact 1: Mission Bay Drive / North Mission Bay Drive (Eastern Access Driveway)
  This intersection is currently operating at an acceptable LOS D in the PM peak hour; however, under Existing Plus Project Conditions intersection operations would degrade to a deficient LOS E causing a direct impact under full project buildout.

  It should be noted that the identified access deficiency is primarily caused by the 416 vehicles projected to turn westbound left in the PM peak hour resulting in a movement LOS F, which substantiates the phenomena that motorists use Mission Bay Drive/East Mission Bay Drive as an alternate route to bypass congestion on the I-5 Southbound Freeway. The project would further significantly contribute to the deficiency with the 109 net new inbound project trips and 144 net new outbound project trips traversing through this unsignalized intersection.

- Significant Impact 2: East Mission Bay Drive / Clairemont Drive (Southern Gateway)
  This unsignalized intersection is already operating at a LOS F during the PM peak hour and the existing deficiency is primarily caused by the 281 southbound left-turn vehicles and 223 southbound through vehicles traversing through a shared left-turn/through/right-turn lane. Under Existing Plus Project Conditions, the project would be contributing to this cumulative impact via a total of 68 project vehicle trips in the PM peak hour, which would be enough for operations at this intersection to exceed the significance delay threshold. It should also be noted that the amount of project traffic traversing through southbound approach primarily causing the deficiency would be only 4 southbound through vehicles and 19 southbound left-turn vehicles.

The following measures would mitigate the above significant access impacts:

- Mitigation Measure 1: Mission Bay Drive / North Mission Bay Drive

  There are two possible mitigation measures that would reduce the direct project impact to less than significant:

  Option 1: Install a traffic signal. Given the close proximity of this intersection to the I-5 Freeway southbound on-ramp signal at Mission Bay Drive, this would require the two signals to operate under one controller, also known as a "clustered" intersection. Clustering the two intersections can be timed to improve traffic flow at both locations by setting up the timing so that the corresponding movements (e.g. southbound right from Mission Bay Drive/I-5 Southbound Ramp to North Mission Bay Drive and eastbound left from Mission Bay Drive to North Mission Bay Drive) get the green phase at the same time, which could increase vehicle throughput and reduce the potential for queue spillbacks.

  Prior to the installation of a traffic signal, it is recommended that a full signal warrant analysis be conducted based on field-measured traffic data and a thorough study of traffic and roadway conditions to the satisfaction of the City Engineer.[4] Furthermore, the decision to install a signal should not be based solely on the warrants because the installation of signals can lead to certain types of collisions.

  By installing a traffic signal at this location, the resulting PM peak hour delay equates to an improved level of service (i.e., LOS E to LOS B), fully mitigating the identified impact and maintaining acceptable operations under the other analyzed peak hours.

  Option 2: Widen and reconfigure the westbound approach to provide a separate westbound left-turn lane and a shared through/right-turn lane. This would also require modification of the channelization island on the east leg and overall intersection reconfiguration to minimize offset with the De Anza Cove Eastern Access Driveway on the west leg. With this mitigation, the resulting PM peak hour delay equates to an improved level of service (i.e., LOS E to LOS D), fully mitigating the identified impact and maintaining acceptable operations under the other analyzed peak hours.

  Level of Significance After Mitigation: Although Option 1 and Option 2 of Mitigation Measure 1 would mitigate the access impact identified at Mission Bay Drive/North Mission Bay Drive, their recommendation for implementation was evaluated based on the following considerations:

  - Results of a full signal warrant analysis is unknown (Option 1).
  - Coordination with Caltrans would be needed to determine the feasibility of installing a signal at this location (Option 1).

[4] Signal warrant analysis is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals. It estimates future development-generated traffic compared to a sub-set of the standard traffic signal warrants recommended in the *California Manual on Uniform Traffic Control Devices* (CA *MUTCD*) guidelines.

- Reconfiguration of the westbound approach from a shared through/left-turn lane and a separate right-turn lane to a separate left-turn and a shared through/right-turn lane could limit the turning movement capability for large vehicles. RVs and trailers particularly use the westbound right-turn to access the campsite driveway (Option 2).
- Reconfiguration of the westbound approach could potentially require improvements beyond the intersection extents, such as additional widening of the outer southbound lane on Mission Bay Drive that channelizes drivers into North Mission Bay Drive and De Anza Cove or realignment of the east leg of the intersection with the west leg (Project's Eastern Access Driveway) to reduce any offset (Option 2).
- Roadway widening could potentially require additional right-of-way, which could reduce park space (Option 2).
- Improving intersection operations at this location may increase the amount of traffic diversion from the I-5 Southbound Freeway to Mission Bay Drive/East Mission Bay Drive, a parallel facility, and such latent demand could unintentionally cause secondary impacts (Option 1 and 2).

With the amount of uncertainty associated with the operational and physical feasibility as well as the potential environmental and secondary impacts of these mitigation options at the time this report was prepared, Option 1 and Option 2 of Mitigation Measure 1 are not recommended and the impact at this location is determined to be unmitigated, significant and unavoidable.

- Mitigation Measure 2: East Mission Bay Drive / Clairemont Drive

  There are two possible mitigation measures that would reduce the cumulative impact to less than significant:

  Option 1: Install a traffic signal. Prior to the installation of a traffic signal, it is recommended that a full signal warrant analysis be conducted based on field-measured traffic data and a thorough study of traffic and roadway conditions to the satisfaction of the City Engineer.[4] Furthermore, the decision to install a signal should not be based solely on the warrants because the installation of signals can lead to certain types of collisions.

  By installing a traffic signal at this location, the resulting PM peak hour delay equates to an improved level of service (i.e., LOS F to LOS C), fully mitigating the identified impact and maintaining acceptable operations under the other analyzed peak hours.

  Additionally, during the signalization evaluation process an analysis should be performed at this location to determine if a roundabout would be feasible and improve operations to a less than significant impact. If a roundabout is determined as feasible and confirmed to improve intersection operations, it may be implemented in lieu of signalization.

  Option 2: Widen and reconfigure the southbound approach to provide a separate southbound left-turn lane and a shared through/right-turn lane. This would also require intersection reconfiguration to minimize offset with the south leg. With this mitigation, the resulting PM peak hour delay equates to an improved level of service (i.e., LOS F to LOS D), fully mitigating the identified impact and maintaining acceptable operations under the other analyzed peak hours.

Level of Significance After Mitigation: Although Option 1 and Option 2 of Mitigation Measure 2 would mitigate the access impact identified at East Mission Bay Drive/Clairemont Drive, their recommendation for implementation was evaluated based on the following considerations:

- Results of a full signal warrant analysis is unknown (Option 1).
- Given the proximity of the intersection to the unsignalized I-5 Freeway southbound ramps at Clairemont Drive, coordination with Caltrans would be needed to determine not only the feasibility, but also any secondary effects on their facilities (Option 1).
- Adding a separate southbound left-turn lane could potentially require improvements beyond the intersection extents, such as additional widening and/or modifications to the curvature of Mission Bay Drive north of the intersection or realignment of the north leg of the intersection with the south leg to reduce any offset (Option 2).
- Roadway widening could potentially require additional right-of-way, which could reduce park space (Option 2).
- Improving intersection operations at this location may increase the amount of traffic diversion from the I-5 Southbound Freeway to Mission Bay Drive/East Mission Bay Drive, a parallel facility, and such latent demand could unintentionally cause secondary impacts (Option 1 and 2).
- Implementation of traffic control improvements at this location, whether it be reconfiguration and/or alternative traffic control (e.g., signal, roundabout), are within the City's jurisdiction. However, this impact is not a direct project impact of the Mission Bay Park Master Plan – De Anza Cove Amendment but instead determined to be a cumulative impact that is contributing to an existing deficiency (Option 1 and 2).
- The currently adopted Mission Bay Master Plan Update did not identify nor recommend any improvements at this location. A future comprehensive update to the Mission Bay Park Master Plan Update shall evaluate the traffic operations at this key access point. At that point, recommended improvements or mitigation measures could be incorporated into a new Mission Bay Park capital improvements list to which the City can choose funds identified in the Appendix X of the Mission Bay Park Master Plan Update or other funding mechanisms available to finance implementation (Option 1 and 2).

With the amount of uncertainty associated with the operational and physical feasibility, the potential environmental and secondary impacts, as well as the funding of these mitigation options at the time this report was prepared, Option 1 and Option 2 of Mitigation Measure 2 are not recommended and the impact at this location is determined to be unmitigated, significant and unavoidable.

Table 5-14 summarizes intersections with a significant impact, potential mitigation measures, and resulting operating conditions with the mitigation.

Table 5-14 Impacted Access Points and Identified Mitigation Measures

Mitigation ID	Access Point Location	Peak Hour	Existing		Existing Plus Project (E+P)			Mitigation Measure	With Proposed Mitigation	
			Avg. Delay (Sec.)	LOS	Avg. Delay (Sec.)	LOS	Change in Delay		Avg. Delay (Sec.)	LOS
1-1	Mission Bay Drive/N Mission Bay Drive (Eastern Access Driveway)	Weekday AM	8.9	A	9.8	A	0.9	**Option 1:** Signalize intersection	5.9	A
		Weekday PM	25.9	D	37.3	**E**	11.4		18.7	B
		Saturday MD	10.4	B	10.9	B	0.5		11.3	B
1-2		Weekday AM	8.9	A	9.8	A	0.9	**Option 2:** Widen and reconfigure westbound approach to be a separate left-turn lane and a shared through/right-turn lane	9.8	A
		Weekday PM	25.9	D	37.3	**E**	11.4		30.7	D
		Saturday MD	10.4	B	10.9	B	0.5		10.7	B
2-1	Mission Bay Drive/Mission Bay Drive & Clairemont Drive (Southern Gateway)	Weekday AM	15.2	C	15.8	C	0.6	**Option 1:** Signalize intersection	7.0	A
		Weekday PM	67.7	**F**	80.0	**F**	12.3		33.5	C
		Saturday MD	14.9	B	15.1	C	0.2		7.4	A
2-2		Weekday AM	15.2	C	15.8	C	0.6	**Option 2:** Widen and reconfigure southbound approach to be a separate left-turn lane and a shared through/right-turn lane	17.7	C
		Weekday PM	67.7	**F**	80.0	**F**	12.3		34.6	D
		Saturday MD	14.9	B	15.1	C	0.2		16.4	C

Source: City of San Diego (2019)

Notes:
Bold text indicates substandard LOS E or F.

5.5.6 On-site Parking

Specific parking lot location and design details for the new uses on the southern portion of the project site is unknown at this time. The lots and interior parking accessways will be designed during the GDP process. However, it has been identified that a vehicle access route to a parking area adjacent to the open beach area and shoreline will be provided as part of the guest housing. It is recommended that all parkland facilities will have an adequate amount of parking as prescribed per appropriate parking standards. For example, the quality restaurant at 5,000 square feet will need to be supported by 25 spaces using the City of San Diego's Municipal Code parking requirements for food and drinking establishments of five (5) spaces per 1,000 square feet in a Coastal Overlay Zone.

For the northern portion of the project site, the existing parking facilities associated with the Athletic Fields and San Diego Mission Bay Boat & Ski Club will be updated at the time of redevelopment and implementation of project enhancements. It is assumed that the existing parking lot associated with the Mission Bay Golf Courses will remain.

6.0 Findings and Conclusions

6.1 Active Transportation Mobility

Pedestrians

A lack of connectivity for pedestrians was noted around the project site and throughout much of the study area. Connectivity was particularly lacking from within the De Anza Cove site itself, as well as to parcels located across Mission Bay Drive, generally due to a lack of pedestrian crossing facilities.

Under Master Plan Amendment conditions and with buildout of the proposed improvements outlined in Chapter 5.1, traffic-controlled crossings in the form of new crosswalk legs and intersections, will be provided along Grand Avenue at Bond Street, Figueroa Boulevard, and Mission Bay Drive/Glendora Street, and along Mission Bay Drive at Rosewood Street. The intersection of Olney Street and Pacific Beach Drive will maintain three traffic-controlled intersection legs.

Pedestrian connectivity is projected to improve between 2.8% and 10.8% within the project site, and up to 16.6% elsewhere in the study area with the planned and proposed pedestrian improvements.

Bicycles

Class I multi-use path facilities are present along Rose Creek, as well as within Mission Bay Park, and are supplemented by Class II bike lanes along Grand Avenue, Soledad Mountain Road, and Morena Boulevard, as well as by Class III bike routes along Balboa Avenue, Olney Street, Pacific Beach Drive, and North and East Mission Bay Drive. These facilities, however, do not offer seamless connectivity to and from the project site due to existing land use barriers and network gaps. Currently, site access is limited to a Class I multi-use path along Rose Creek and on-street shared Class III bike routes.

Additional connectivity under Plan Amendment conditions will be provided via a Class I multi-use path within the De Anza Cove project site, as well as a planned connection to the future Balboa Avenue Station. The proposed Class I multi-use path, as described in Chapter 5.3.1, will connect to planned Class I multi-use paths along Mission Bay Drive and Garnet Avenue/Balboa Avenue.

Bicycle connectivity is projected to improve between 3.3% and 7.3% within the project site, and up to 15.2% elsewhere in the study area with the planned and proposed bicycle network improvements.

6.2 Access to Transit

Pedestrian and bicycle facility deficiencies are also a barrier to transit stops, which negatively impact the transit walkshed and bikeshed. Improvements to connectivity that include providing crossing, bicycle, and pedestrian facilities will benefit each mode of travel, including transit, with quality connections to transit stops.

Future transit services serving the vicinity of the study area include improvements to MTS Route 30 service, completion of the Mid-Coast Trolley extension and Balboa Avenue Station, as well as potential light rail or skyway transit along Grand Avenue, and will result in an increase in the walkability ratio of between 0.9% and 4.6% at the transit stations nearest De Anza Cove, and improvements to the bikeshed ratio of between 3.2% and 7.1% is found at the transit stations nearest De Anza Cove. The highest bikeshed ratios in the study area, however, are generally found along Garnet Avenue.

6.3 Traffic Operations

Vehicular access to the project site will be sufficiently served by the project's six driveways. Due to the proposed land use changes especially the consolidation of campsites in the study area, the project holistically will generate less trips than today. Consequently, traffic operations on the surrounding roadways will generally improve as traffic volumes will go down. Locations where project trips will increase the amount of traffic when compared to current conditions are concentrated along roadway facilities near the Guest Housing area and quality restaurant, which are key areas of the site's redevelopment. An access impact assessment was conducted to understand operations at the key project driveways, study intersections, and roadway segments with the project in place.

The results of the access impact assessment demonstrated that significant impacts are forecast to occur at the following locations under the PM peak hour of Existing Plus Project Conditions:

- Mission Bay Drive / North Mission Bay Drive (Eastern Access Driveway)
- East Mission Bay Drive / Clairemont Drive (Southern Gateway)

Although mitigation measures are included in this mobility assessment, these mitigation options are not recommended due to the amount of uncertainty associated with the feasibility related to funding, operations, and physical constraints, as well as potential environmental and secondary impacts at this time this report was prepared. Therefore, the two significant access impacts identified are determined to be unmitigated, significant and unavoidable.

North Mission Bay Drive, which currently has excess vehicle capacity, is projected to operate acceptably under Existing Plus Project Conditions along its segments bisecting the project site. Additionally, the North Mission Bay Drive/Guest Housing Driveway and North Mission Bay Drive/Quality Restaurant Driveway will operate at low delays under all peak hours.

Appendix A
Signal Timing Sheets

INTERSECTION: Figueroa Bl @ Grand Ave

223 Program

Group Assignment: 4070
Field Master Assignment: none
N/S Street Name: Figueroa
E/W Street Name: Grand
Last Database Change:
System Ref. Number:

N

Row	Phase # ---->	1	2 (Grand →)	3	4	5 (Grand ↑)	6 (Grand ←)	7	8 (Figueroa Ped)
0	Ped Walk						7		6
1	Ped FDW						7		27
2	Min Green		10			4	10		4
3	Type 3 Limit								
4	Add/Veh								
5	Veh Extn		4.4			2.0	4.4		0.0
6	Max Gap		4.4			2.0	4.4		0.0
7	Min Gap		0.2			2.0	0.2		0.0
8	Max Limit		60			30	60		0
9	Max Limit 2								
A	Bus Adv								
B	Call to Phs								
C	Reduce By		0.1				0.1		
D	Every		0.7				0.7		
E	Yellow		4.3			3.4	4.3		3.0
F	Red Clear		1.0			1.0	1.0		
	Grade								

Phase Timing - Bank 1 <F Page>
F + Phase + Row

Row		E
	RR-1 Delay	
	RR-1 Clear	
	EV-A Delay	0
	EV-A Clear	0
	EV-B Delay	
	EV-B Clear	
	EV-C Delay	0
	EV-C Clear	0
	EV-D Delay	
	EV-D Clear	
	RR-2 Delay	
	RR-2 Clear	
	View EV Delay	---
	View EV Clear	---
	View RR Delay	---
	View RR Clear	---

Preempt Timing
F + E + Row

Row		F
0	Permit	_2__56_8
1	Red Lock	
2	Yellow Lock	
3	Min Recall	_2___6__
4	Ped Recall	
5	Peds (View)	_____6_8
6	Rest In Walk	
7	Red Rest	
8	Dbl Entry	
9	Max Recall	
A	Soft Recall	
B	Max 2	
C	Cond Serv	
D	Ped Lock	12345678
E	Yellow Start	_2___6__
F	1st Phases	_____8

Phase Functions <F Page>
F + F + Row

Max Initial	0 (F + 0 + E)
Red Revert	5.0 (F + 0 + F)
All Red Start	0.0 (F + C + O)

Start / Revert Times

Drop Number	17	C + 0 + 0
Zone Number	17	C + 0 + 1
Area Number	6	C + 0 + 2
Area Address	41	C + 0 + 3
QuicNet Channel	DIGI17:	(QuicNet)

Communication Addresses

C + F + O	F	Row
Free Lag	_2___6_8	0

Lag Phases <C Page>

Overlap Timing

	Row	9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
Overlap A	A				
Overlap B	B				
Overlap C	C				
Overlap D	D				

<F Page> F + COLOR +
<D Page> D + 0 + OVERLAP

Manual Plan	0 (C + A + 1)
Manual Offset	0 (C + B + 1)

Manual Selection

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Downtime Flash	255	(minutes)

Downtime Before Auto Manual Flash
F + 0 +8

Disable Ports	_234____

Disable Communication Ports
D + D + 9

Timing Sheet By: FLG
Approved By: EFF
Drawing Number:
Timing Implemented On:

10

Row	Time	Function	Day of Week	Column F Phases/Bits
0	00 : 01	E	1234567	1_____
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Function <D Page>

7 + ROW D + F + ROW

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Row		F
0		
1	RR Overlap A - Phases	
2	RR Overlap B - Phases	
3	RR Overlap C - Phases	
4	RR Overlap D - Phases	
5	Ped 2P	
6	Ped 6P	6
7	Ped 4P	
8	Ped 8P	8
9	Yellow Flash Phases	
A	Overlap A - Phases	
B	Overlap B - Phases	
C	Overlap C - Phases	
D	Overlap D - Phases	
E	Restricted Phases	
F	Assign 5 Outputs	

Configuration <E Page>

E + F + ROW

Row		E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	
C	EV-C Phases	6
D	EV-D Phases	
E	Extra 1 Config. Bits	1 345
F	IC Select (Interconnect)	2

Configuration

For access, set F + 9 + E = 1 E + E + ROW

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 = Remote Download
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Day of Week

1 = Sunday
2 = Monday
3 = Tuesday
4 = Wednesday
5 = Thursday
6 = Friday
7 = Saturday

Assign 5 Outputs
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Time and Date

8-0 Hour, Minute, Day-of-Week
8-1 Day-of-Month, Year, Month
8-F Seconds

Disable Parity	0	D+B+0

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Program Information

C + C + 0 = program
C + C + F = version

Remote Download

C + 0 + 4 = 1 -255
w/ E + E + E bit 5 on

Row	1 Delay	3 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	1I1	14
	2I2U	1
	2I2L	5
	2I3U	21
	2I3L	25
	2I4	9
	3I5	16
	4I6U	3
	4I6L	7
	4I7U	23
	4I7L	27
	4I8	11
	1I9U	18
	3I9L	20
---	---	---
---	---	---

Row	2 Delay	4 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	5J1	13
	6J2U	2
	6J2L	6
	6J3U	22
	6J3L	26
	6J4	10
	7J5	15
	8J6U	4
	8J6L	8
	8J7U	24
	8J7L	28
	8J8	12
	5J9U	17
	7J9L	19
---	---	---
---	---	---

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Row	Detector Numbers 1 2 3 4 5 6 7 8	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Row		0 Detector #
0		
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (min)	5	D+A+E
Max OFF (min)	60	D+A+F

Detector Failure Monitor

Phase Number	0	F+C+1
Time Before Yellow	0.0	F+C+3

Advance Warning Beacon - Sign 1

Phase Number	0	F+D+1
Time Before Yellow	0.0	F+D+3

Advance Warning Beacon - Sign 2

Long Failure	0.5	F+0+6
Short Failure	0.5	F+0+7

Power Cycle Correction (Default = 0.5)

INTERSECTION: Figueroa Bl @ Grand Ave

223 Prog

Coordination Timing By: KHA
Implemented On: 9/18/07

Row	Column # ---->	Plan 1	2	3	4	5	6	7	8	9
	Plan Name ---->	AM	Mid	PM						
0	Cycle Length	150	150	170						
1	Phase 1 - ForceOff									
2	Phase 2 - ForceOff	0	0	0						
3	Phase 3 - ForceOff									
4	Phase 4 - ForceOff									
5	Phase 5 - ForceOff	63	59	63						
6	Phase 6 - ForceOff	0	0	0						
7	Phase 7 - ForceOff									
8	Phase 8 - ForceOff	38	36	36						
9	Ring Offset									
A	Offset A	110	100	120						
B	Offset B									
C	Offset C									
D	Permissive	10	15	10						
E	Hold Release	100	95	100						
F	Ped Shift	0	0	0						

Coordination <C Page>

C + Plan + ROW

FOR OBSERVATION ONLY

Master Plan	C + A + 2
Current Plan	C + A + 3
Next Plan	C + A + 4
T.O.D. Plan	C + A + 5
Master Cycle	C + A + 0
Ring A Cycle	C + B + 0
Ring B Cycle	C + D + 0
Min Cycle	C + A + E
Max Cycle	C + B + E

Row	Time	Plan	Offset	Day of Week
0	06 : 30	1	A	_23456_
1	09 : 00	2	A	1____7
2	11 : 00	2	A	_23456_
3	15 : 00	3	A	_23456_
4	18 : 00	2	A	_23456_
5	18 : 00	E	A	1____7
6	19 : 30	E	A	1234567
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Coordination

<9 Key with C+0+9=1>

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

	E	Row		F
		0	Free Lag	
Plan 1	_2___6__	1	Plan 1 - Lag	_2___6_8
Plan 2	_2___6__	2	Plan 2 - Lag	_2___6_8
Plan 3	_2___6__	3	Plan 3 - Lag	_2___6_8
Plan 4		4	Plan 4 - Lag	
Plan 5		5	Plan 5 - Lag	
Plan 6		6	Plan 6 - Lag	
Plan 7		7	Plan 7 - Lag	
Plan 8		8	Plan 8 - Lag	
Plan 9		9	Plan 9 - Lag	
Coord Ped*		A	Coord Max *	
NEMA Hold		B	Coord Lag *	
		C		
		D		
		E		
		F		

Sync Phases

C + E + FUNCTION #

Lag Phases <C Page>

C + F + FUNCTION #

Transition Type	0

TBC Transition
C + D + D

Transition Type
0 = Shortway
Non-zero = Lengthen

INTERSECTION: Grand Ave @ Mission Bay Dr

223 Program

Group Assignment:
Field Master Assignment: none
N/S Street Name: Mission Bay
E/W Street Name: Grand
Last Database Change:
System Ref. Number:

N

Mission Bay | Grand | Mission Bay

Row	Column # ---->	Phase 1	2	3	4	5	6	7	8
	Phase # ---->	↰	↓		↗	↱	↑		
0	Ped Walk								
1	Ped FDW								
2	Min Green	4	7		4	4	7		
3	Type 3 Limit								
4	Add/Veh								
5	Veh Extn	2.0	3.6		2.0	2.0	4.6		
6	Max Gap	2.0	3.6		2.0	2.0	4.6		
7	Min Gap	2.0	0.2		2.0	2.0	0.2		
8	Max Limit	50	60		30	30	50		
9	Max Limit 2								
A	Bus Adv								
B	Call to Phs								
C	Reduce By		0.1				0.1		
D	Every		0.9				0.9		
E	Yellow	4.7	3.9		3.4	3.4	4.7		
F	Red Clear	1.0	1.0		1.0	1.0	1.0		
	Grade								

Phase Timing - Bank 1
F + Phase + Row
<F Page>

Row		E
	RR-1 Delay	
	RR-1 Clear	
	EV-A Delay	0
	EV-A Clear	0
	EV-B Delay	0
	EV-B Clear	0
	EV-C Delay	0
	EV-C Clear	0
	EV-D Delay	
	EV-D Clear	
	RR-2 Delay	
	RR-2 Clear	
	View EV Delay	---
	View EV Clear	---
	View RR Delay	---
	View RR Clear	---

Preempt Timing
F + E + Row

Row		F
0	Permit	12_456__
1	Red Lock	
2	Yellow Lock	
3	Min Recall	_2___6__
4	Ped Recall	
5	Peds (View)	
6	Rest In Walk	
7	Red Rest	
8	Dbl Entry	
9	Max Recall	
A	Soft Recall	
B	Max 2	
C	Cond Serv	
D	Ped Lock	12345678
E	Yellow Start	_2___6__
F	1st Phases	___4____

Phase Functions <F Page>
F + F + Row

Max Initial	0	F + 0 + E
Red Revert	5.0	F + 0 + F
All Red Start	0.0	F + C + O

Start / Revert Times

Drop Number	2	C + 0 + 0
Zone Number	2	C + 0 + 1
Area Number	6	C + 0 + 2
Area Address	2	C + 0 + 3
QuicNet Channel	DIGI17:	(QuicNet)

Communication Addresses

C + F + O	F	Row
Free Lag	_2_4_6__	0

Lag Phases <C Page>

Overlap Timing

	Row	9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
Overlap A	A				
Overlap B	B				
Overlap C	C				
Overlap D	D				

<F Page> F + COLOR +
<D Page> D + 0 + OVERLAP

Manual Plan	0	C + A + 1
Manual Offset	0	C + B + 1

Manual Selection

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Downtime Flash	255	(minutes)

Downtime Before Auto Manual Flash
F + 0 +8

Disable Ports	_234____

Disable Communication Ports
D + D + 9

Timing Sheet By: FLG
Approved By: EFF
Drawing Number: 29028-2-D
Timing Implemented On:

6

Row	Time	Function	Day of Week	Column F Phases/Bits
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Function <D Page>

7 + ROW D + F + ROW

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Row		F
0		
1	RR Overlap A - Phases	
2	RR Overlap B - Phases	
3	RR Overlap C - Phases	
4	RR Overlap D - Phases	
5	Ped 2P	
6	Ped 6P	
7	Ped 4P	
8	Ped 8P	
9	Yellow Flash Phases	
A	Overlap A - Phases	
B	Overlap B - Phases	
C	Overlap C - Phases	
D	Overlap D - Phases	
E	Restricted Phases	
F	Assign 5 Outputs	

Configuration <E Page>

E + F + ROW

Row		E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	_2__5___
B	EV-B Phases	___4____
C	EV-C Phases	1____6__
D	EV-D Phases	
E	Extra 1 Config. Bits	1_345___
F	IC Select (Interconnect)	_2_____

Configuration

For access, set F + 9 + E = 1 E + E + ROW

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 = Remote Download
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Day of Week

1 = Sunday
2 = Monday
3 = Tuesday
4 = Wednesday
5 = Thursday
6 = Friday
7 = Saturday

Assign 5 Outputs
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Time and Date

8-0 Hour, Minute, Day-of-Week
8-1 Day-of-Month, Year, Month
8-F Seconds

Disable Parity	0	D+B+0

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Program Information

C + C + 0 = program
C + C + F = version

Remote Download

C + 0 + 4 = 1 -255
w/ E + E + E bit 5 on

Row	1 Delay	3 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	1I1	14
	2I2U	1
	2I2L	5
	2I3U	21
	2I3L	25
	2I4	9
	3I5	16
	4I6U	3
	4I6L	7
	4I7U	23
	4I7L	27
	4I8	11
	1I9U	18
	3I9L	20
---	---	---
---	---	---

Row	2 Delay	4 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	5J1	13
	6J2U	2
	6J2L	6
	6J3U	22
	6J3L	26
	6J4	10
	7J5	15
	8J6U	4
	8J6L	8
	8J7U	24
	8J7L	28
	8J8	12
	5J9U	17
	7J9L	19
---	---	---
---	---	---

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Row		0 Detector #
0		
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (min)	5	D+A+E
Max OFF (min)	60	D+A+F

Detector Failure Monitor

Phase Number	0	F+C+1
Time Before Yellow	0.0	F+C+3

Advance Warning Beacon - Sign 1

Phase Number	0	F+D+1
Time Before Yellow	0.0	F+D+3

Advance Warning Beacon - Sign 2

Long Failure	0.5	F+0+6
Short Failure	0.5	F+0+7

Power Cycle Correction (Default = 0.5)

INTERSECTION: Grand Ave @ Mission Bay Dr

223 Prog

Coordination Timing By: KHA
Implemented On: 9/18/07

Row	Column # ---->	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5	Plan 6	Plan 7	Plan 8	Plan 9
	Plan Name ---->	AM	Mid	PM						
0	Cycle Length	75	75	170						
1	Phase 1 - ForceOff	52 ~~47~~	45 ~~40~~	105						
2	Phase 2 - ForceOff	0	0	0						
3	Phase 3 - ForceOff									
4	Phase 4 - ForceOff	25 ~~20~~	20 ~~15~~	28						
5	Phase 5 - ForceOff	34 ~~29~~	25	38						
6	Phase 6 - ForceOff	0	0	0						
7	Phase 7 - ForceOff									
8	Phase 8 - ForceOff									
9	Ring Offset									
A	Offset A	56	38	110						
B	Offset B									
C	Offset C									
D	Permissive	7 ~~10~~	7 ~~10~~	17 ~~10~~						
E	Hold Release	255	255	255						
F	Ped Shift	0	0	0						

FOR OBSERVATION ONLY

Master Plan	C + A + 2
Current Plan	C + A + 3
Next Plan	C + A + 4
T.O.D. Plan	C + A + 5
Master Cycle	C + A + 0
Ring A Cycle	C + B + 0
Ring B Cycle	C + D + 0
Min Cycle	C + A + E
Max Cycle	C + B + E

Coordination <C Page>

C + Plan + ROW

FLG
7-28-16

Row	Time	Plan	Offset	Day of Week
0	06 : 30	1	A	_23456_
1	09 : 00	2	A	1____7
2	11 : 00	2	A	_23456_
3	15 : 00	3	A	_23456_
4	18 : 00	2	A	_23456_
5	18 : 00	E	A	1____7
6	19 : 30	E	A	_23456_
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Coordination

<9 Key with C+0+9=1>

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

	E	Row		F
		0	Free Lag	
Plan 1	_2___6__	1	Plan 1 - Lag	_2_4_6__
Plan 2	_2___6__	2	Plan 2 - Lag	_2_4_6__
Plan 3	_2___6__	3	Plan 3 - Lag	_2_4_6__
Plan 4		4	Plan 4 - Lag	
Plan 5		5	Plan 5 - Lag	
Plan 6		6	Plan 6 - Lag	
Plan 7		7	Plan 7 - Lag	
Plan 8		8	Plan 8 - Lag	
Plan 9		9	Plan 9 - Lag	
Coord Ped*		A	Coord Max *	
NEMA Hold		B	Coord Lag *	
		C		
		D		
		E		
		F		

Sync Phases

C + E + FUNCTION #

Lag Phases <C Page>

C + F + FUNCTION #

Transition Type	0

TBC Transition
C + D + D

Transition Type
0 = Shortway
Non-zero = Lengthen

INTERSECTION: Mission Bay Dr @ I-5/De Anza

223 Program

Group Assignment: 4070
Field Master Assignment: none

N/S Street Name: Mission Bay
E/W Street Name: De Anza

Last Database Change:
System Ref. Number:

N

Mission Bay

De Anza

Phase Timing - Bank 1
F + Phase + Row

Row	Column # ----> / Phase # ---->	1	2	3	4	5	6	7	8	Row
			↓		↑					
0	Ped Walk									0
1	Ped FDW									1
2	Min Green		10		4					2
3	Type 3 Limit									3
4	Add/Veh									4
5	Veh Extn		6.1		3.0					5
6	Max Gap		6.1		3.0					6
7	Min Gap		2.0		3.0					7
8	Max Limit		50		40					8
9	Max Limit 2									9
A	Bus Adv									A
B	Call to Phs									B
C	Reduce By		0.1							C
D	Every		0.7							D
E	Yellow		4.7		3.4					E
F	Red Clear		2.0		1.0					F
	Grade									

<F Page>

Preempt Timing
F + E + Row

Row	E
RR-1 Delay	
RR-1 Clear	
EV-A Delay	
EV-A Clear	
EV-B Delay	
EV-B Clear	
EV-C Delay	
EV-C Clear	
EV-D Delay	
EV-D Clear	
RR-2 Delay	
RR-2 Clear	
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Phase Functions <F Page>
F + F + Row

Row	F	Row
Permit	_2_4___	0
Red Lock		1
Yellow Lock		2
Min Recall	_2_____	3
Ped Recall		4
Peds (View)		5
Rest In Walk		6
Red Rest		7
Dbl Entry		8
Max Recall		9
Soft Recall		A
Max 2		B
Cond Serv		C
Ped Lock	12345678	D
Yellow Start	_2_____	E
1st Phases	___4___	F

Max Initial	0
Red Revert	5.0
All Red Start	0.0

F + 0 + E
F + 0 + F
F + C + O

Start / Revert Times

Drop Number	1
Zone Number	1
Area Number	6
Area Address	1
QuicNet Channel	DIGI17:

C + 0 + 0
C + 0 + 1
C + 0 + 2
C + 0 + 3
(QuicNet)

Communication Addresses

C + F + O	F	Row
Free Lag	_2_4___	0

Lag Phases <C Page>

Overlap Timing

	Row	9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
Overlap A	A				
Overlap B	B				
Overlap C	C				
Overlap D	D				

<F Page>
F + COLOR +

<D Page>
D + 0 + OVERLAP

Manual Plan	0
Manual Offset	0

C + A + 1
C + B + 1

Manual Selection

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Downtime Flash	255 (minutes)

Downtime Before Auto Manual Flash
F + 0 +8

Disable Ports	_234___

Disable Communication Ports
D + D + 9

Timing Sheet By: FLG
Approved By: EFF
Drawing Number:
Timing Implemented On:

Row	Time	Function	Day of Week	Column F Phases/Bits
0	00 : 01	E	1234567	1_____
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Function <D Page>

7 + ROW D + F + ROW

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Row		F
0		
1	RR Overlap A - Phases	
2	RR Overlap B - Phases	
3	RR Overlap C - Phases	
4	RR Overlap D - Phases	
5	Ped 2P	
6	Ped 6P	
7	Ped 4P	
8	Ped 8P	
9	Yellow Flash Phases	
A	Overlap A - Phases	
B	Overlap B - Phases	
C	Overlap C - Phases	
D	Overlap D - Phases	
E	Restricted Phases	
F	Assign 5 Outputs	

Configuration <E Page>

E + F + ROW

Row		E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	
B	EV-B Phases	
C	EV-C Phases	
D	EV-D Phases	
E	Extra 1 Config. Bits	1_3_5___
F	IC Select (Interconnect)	_2_____

Configuration

For access, set F + 9 + E = 1 E + E + ROW

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 = Remote Download
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Day of Week

1 = Sunday
2 = Monday
3 = Tuesday
4 = Wednesday
5 = Thursday
6 = Friday
7 = Saturday

Assign 5 Outputs
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Time and Date

8-0 Hour, Minute, Day-of-Week
8-1 Day-of-Month, Year, Month
8-F Seconds

Disable Parity	0	D+B+0

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Program Information

C + C + 0 = program
C + C + F = version

Remote Download

C + 0 + 4 = 1 -255
w/ E + E + E bit 5 on

Row	1 Delay	3 Carry-over
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	1I1	14
	2I2U	1
	2I2L	5
	2I3U	21
	2I3L	25
	2I4	9
	3I5	16
	4I6U	3
	4I6L	7
	4I7U	23
	4I7L	27
	4I8	11
	1I9U	18
	3I9L	20
---	---	---
---	---	---

Row	2 Delay	4 Carry-over
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	5J1	13
	6J2U	2
	6J2L	6
	6J3U	22
	6J3L	26
	6J4	10
	7J5	15
	8J6U	4
	8J6L	8
	8J7U	24
	8J7L	28
	8J8	12
	5J9U	17
	7J9L	19
---	---	---
---	---	---

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Row		0 Detector #
0		
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (min)	5	D+A+E
Max OFF (min)	60	D+A+F

Detector Failure Monitor

Phase Number	0	F+C+1
Time Before Yellow	0.0	F+C+3

Advance Warning Beacon - Sign 1

Phase Number	0	F+D+1
Time Before Yellow	0.0	F+D+3

Advance Warning Beacon - Sign 2

Long Failure	0.5	F+0+6
Short Failure	0.5	F+0+7

Power Cycle Correction (Default = 0.5)

INTERSECTION: Mission Bay Dr @ I-5/De Anza

223 Progra

Coordination Timing By: KH
Implemented On: 9/18/07

Row	Column # ---->	Plan 1	2	3	4	5	6	7	8	9
	Plan Name ---->	AM	Mid	PM						
0	Cycle Length	75	75	85						
1	Phase 1 - ForceOff									
2	Phase 2 - ForceOff	0	0	0						
3	Phase 3 - ForceOff									
4	Phase 4 - ForceOff	28	32	34						
5	Phase 5 - ForceOff									
6	Phase 6 - ForceOff									
7	Phase 7 - ForceOff									
8	Phase 8 - ForceOff									
9	Ring Offset									
A	Offset A	36	4	32						
B	Offset B									
C	Offset C									
D	Permissive	10	10	10						
E	Hold Release	255	255	255						
F	Ped Shift	0	0	0						

Coordination <C Page>

C + Plan + ROW

FOR OBSERVATION ONLY

Master Plan	C + A + 2
Current Plan	C + A + 3
Next Plan	C + A + 4
T.O.D. Plan	C + A + 5
Master Cycle	C + A + 0
Ring A Cycle	C + B + 0
Ring B Cycle	C + D + 0
Min Cycle	C + A + E
Max Cycle	C + B + E

Row	Time	Plan	Offset	Day of Week
0	06 : 30	1	A	_23456_
1	09 : 00	2	A	1____7
2	11 : 00	2	A	_23456_
3	15 : 00	3	A	_23456_
4	18 : 00	2	A	_23456_
5	18 : 00	E	A	1____7
6	19 : 30	E	A	_23456_
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Coordination

<9 Key with C+0+9=1>

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

	E	Row		F
		0	Free Lag	
Plan 1	_2_____	1	Plan 1 - Lag	_2_4____
Plan 2	_2_____	2	Plan 2 - Lag	_2_4____
Plan 3	_2_____	3	Plan 3 - Lag	_2_4____
Plan 4		4	Plan 4 - Lag	
Plan 5		5	Plan 5 - Lag	
Plan 6		6	Plan 6 - Lag	
Plan 7		7	Plan 7 - Lag	
Plan 8		8	Plan 8 - Lag	
Plan 9		9	Plan 9 - Lag	
Coord Ped*		A	Coord Max *	
NEMA Hold		B	Coord Lag *	
		C		
		D		
		E		
		F		

Sync Phases

C + E + FUNCTION #

Lag Phases <C Page>

C + F + FUNCTION #

Transition Type	0

TBC Transition
C + D + D

Transition Type
0 = Shortway
Non-zero = Lengthen

Appendix B
Traffic Counts

Chen Ryan Associates

3900 Fifth Avenue, Suite 310 San Diego, CA 92103

Average Daily Traffic

Location: **Grand Avenue, between Olney Street and Bond Street**

Date: **Thursday, May 3, 2018** Total Daily Volume: **40318** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
508	378	258	153	208	572	1506	2590	2274	2026	1952	2209	2284	2298	2705	2710	2732	2940	2474	2149	1814	1515	1195	868
131	95	85	45	34	69	258	610	572	522	448	534	601	544	631	656	692	689	599	542	495	400	331	257
136	85	57	39	45	128	320	655	570	463	435	555	591	545	751	674	678	704	623	571	492	416	315	236
134	93	64	32	56	174	447	707	549	519	525	547	543	619	678	691	667	774	626	496	417	363	300	187
107	105	52	37	73	201	481	618	583	522	544	573	549	590	645	689	695	773	626	540	410	336	249	188

Date: **Thursday, May 3, 2018** Total Daily Volume: **21400** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
281	244	163	92	126	360	990	1789	1614	1144	1078	1168	1192	1160	1449	1334	1175	1271	1075	1015	933	730	592	425
67	62	58	26	18	49	171	395	421	299	253	287	323	284	325	339	320	296	278	246	261	188	151	130
80	51	32	23	28	78	202	410	419	264	238	289	298	286	427	330	306	305	256	254	265	210	167	117
67	57	43	20	35	114	292	523	411	308	300	292	289	320	382	349	273	331	268	272	215	174	157	89
67	74	30	23	45	119	325	461	363	273	287	300	282	270	315	316	276	339	273	243	192	158	117	89

Date: **Thursday, May 3, 2018** Total Daily Volume: **18918** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
227	134	95	61	82	212	516	801	660	882	874	1041	1092	1138	1256	1376	1557	1669	1399	1134	881	785	603	443
64	33	27	19	16	20	87	215	151	223	195	247	278	260	306	317	372	393	321	296	234	212	180	127
56	34	25	16	17	50	118	245	151	199	197	266	293	259	324	344	372	399	367	317	227	206	148	119
67	36	21	12	21	60	155	184	138	211	225	255	254	299	296	342	394	443	358	224	202	189	143	98
40	31	22	14	28	82	156	157	220	249	257	273	267	320	330	373	419	434	353	297	218	178	132	99

SATURDAY - JUNE 9, 2018 CITY: MISSION BAY PROJECT: PTD18-0608-03

GRAND AVENUE - OLNEY STREET TO BOND STREET

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			162		123			12:00			280		316		
00:15			138		105			12:15			319		344		
00:30			122		86			12:30			309		371		
00:45			124	546	80	394	940	12:45			292	1200	365	1396	2596
01:00			102		83			13:00			309		353		
01:15			115		80			13:15			288		402		
01:30			131		78			13:30			313		390		
01:45			149	497	83	324	821	13:45			291	1201	340	1485	2686
02:00			151		60			14:00			248		343		
02:15			102		63			14:15			292		336		
02:30			111		52			14:30			291		342		
02:45			97	461	49	224	685	14:45			329	1160	311	1332	2492
03:00			60		28			15:00			314		369		
03:15			51		28			15:15			330		347		
03:30			44		25			15:30			323		343		
03:45			30	185	20	101	286	15:45			363	1330	342	1401	2731
04:00			39		30			16:00			325		336		
04:15			29		18			16:15			338		341		
04:30			37		19			16:30			362		316		
04:45			33	138	37	104	242	16:45			397	1422	338	1331	2753
05:00			23		42			17:00			360		318		
05:15			39		25			17:15			355		300		
05:30			44		32			17:30			384		278		
05:45			49	155	64	163	318	17:45			384	1483	325	1221	2704
06:00			70		57			18:00			338		291		
06:15			74		71			18:15			385		268		
06:30			89		84			18:30			358		279		
06:45			94	327	113	325	652	18:45			373	1454	277	1115	2569
07:00			114		100			19:00			339		248		
07:15			116		94			19:15			343		257		
07:30			154		148			19:30			318		268		
07:45			149	533	170	512	1045	19:45			349	1349	230	1003	2352
08:00			167		151			20:00			300		200		
08:15			172		174			20:15			312		215		
08:30			203		202			20:30			312		234		
08:45			237	779	231	758	1537	20:45			263	1187	212	861	2048
09:00			219		225			21:00			265		245		
09:15			227		225			21:15			261		219		
09:30			292		269			21:30			238		223		
09:45			286	1024	300	1019	2043	21:45			223	987	255	942	1929
10:00			268		282			22:00			239		259		
10:15			294		314			22:15			234		232		
10:30			296		307			22:30			243		215		
10:45			308	1166	294	1197	2363	22:45			207	923	222	928	1851
11:00			272		309			23:00			202		171		
11:15			289		312			23:15			206		188		
11:30			324		317			23:30			198		174		
11:45			292	1177	342	1280	2457	23:45			157	763	147	680	1443
Total Vol.				6988		6401	**13389**					14459		13695	**28154**

	Daily Totals				
	NB	SB	EB	WB	**Combined**
			21447	20096	**41543**

	AM			**PM**		
Split %	52.2%	47.8%	**32.2%**	51.4%	48.6%	**67.8%**
Peak Hour	11:30	11:45	**11:45**	16:45	12:45	**16:15**
Volume	1215	1373	**2573**	1496	1510	**2770**
P.H.F.	0.94	0.93	**0.95**	0.94	0.94	**0.94**

Chen Ryan Associates

3900 Fifth Avenue, Suite 310 San Diego, CA 92103

Average Daily Traffic

Location: **Grand Avenue, between Bond Street and Figueroa Boulevard**

Date: **Thursday, May 3, 2018** Total Daily Volume: **41568** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
514	378	270	150	207	583	1541	3002	2452	2003	1958	2233	2288	2326	2898	2950	2720	2869	2510	2206	1829	1550	1254	877
135	99	95	39	40	72	263	656	648	512	452	561	607	561	619	647	687	651	634	571	491	408	346	259
142	86	62	42	41	128	334	687	583	452	435	565	587	545	762	686	673	709	644	578	507	432	345	238
131	94	60	32	56	173	451	828	622	518	514	539	547	624	831	852	683	779	611	511	411	368	310	189
106	99	53	37	70	210	493	831	599	521	557	568	547	596	686	765	677	730	621	546	420	342	253	191

Date: **Thursday, May 3, 2018** Total Daily Volume: **23108** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
286	238	171	89	128	364	1008	2221	1816	1167	1114	1224	1239	1215	1683	1615	1221	1282	1170	1081	963	745	639	429
67	60	64	22	20	48	167	421	503	301	263	312	344	312	324	337	332	294	329	279	265	191	165	131
84	52	34	25	27	79	212	457	437	264	247	308	304	294	445	374	324	328	292	267	269	215	174	117
68	57	43	20	36	113	300	657	487	310	295	298	298	330	551	524	293	330	270	271	226	178	176	88
67	69	30	22	45	124	329	686	389	292	309	306	293	279	363	380	272	330	279	264	203	161	124	93

Date: **Thursday, May 3, 2018** Total Daily Volume: **18460** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
228	140	99	61	79	219	533	781	636	836	844	1009	1049	1111	1215	1335	1499	1587	1340	1125	866	805	615	448
68	39	31	17	20	24	96	235	145	211	189	249	263	249	295	310	355	357	305	292	226	217	181	128
58	34	28	17	14	49	122	230	146	188	188	257	283	251	317	312	349	381	352	311	238	217	171	121
63	37	17	12	20	60	151	171	135	208	219	241	249	294	280	328	390	449	341	240	185	190	134	101
39	30	23	15	25	86	164	145	210	229	248	262	254	317	323	385	405	400	342	282	217	181	129	98

SATURDAY - JUNE 9, 2018 CITY: MISSION BAY PROJECT: PTD18-0608-03

GRAND AVENUE - BOND STREET TO FIGUEROA BOULEVARD

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			176		120			12:00			333		323		
00:15			132		102			12:15			341		352		
00:30			126		91			12:30			320		355		
00:45			124	558	71	384	942	12:45			304	1298	358	1388	2686
01:00			106		72			13:00			346		359		
01:15			117		87			13:15			291		384		
01:30			134		76			13:30			334		392		
01:45			164	521	87	322	843	13:45			307	1278	350	1485	2763
02:00			150		61			14:00			282		353		
02:15			99		64			14:15			315		326		
02:30			122		55			14:30			313		354		
02:45			95	466	39	219	685	14:45			339	1249	345	1378	2627
03:00			61		24			15:00			335		345		
03:15			49		27			15:15			330		341		
03:30			44		26			15:30			338		314		
03:45			31	185	23	100	285	15:45			358	1361	333	1333	2694
04:00			38		26			16:00			344		335		
04:15			29		15			16:15			321		319		
04:30			35		20			16:30			374		311		
04:45			36	138	35	96	234	16:45			380	1419	329	1294	2713
05:00			23		43			17:00			344		310		
05:15			42		26			17:15			368		296		
05:30			48		34			17:30			377		297		
05:45			48	161	62	165	326	17:45			358	1447	308	1211	2658
06:00			75		60			18:00			364		270		
06:15			72		70			18:15			387		263		
06:30			104		83			18:30			382		283		
06:45			98	349	112	325	674	18:45			375	1508	257	1073	2581
07:00			111		88			19:00			324		266		
07:15			130		111			19:15			335		256		
07:30			147		131			19:30			342		255		
07:45			159	547	192	522	1069	19:45			341	1342	221	998	2340
08:00			179		140			20:00			314		213		
08:15			197		175			20:15			310		198		
08:30			205		203			20:30			323		248		
08:45			263	844	230	748	1592	20:45			256	1203	200	859	2062
09:00			205		229			21:00			281		240		
09:15			248		216			21:15			245		205		
09:30			298		254			21:30			257		207		
09:45			306	1057	287	986	2043	21:45			224	1007	260	912	1919
10:00			293		291			22:00			244		253		
10:15			315		302			22:15			243		235		
10:30			298		286			22:30			263		213		
10:45			325	1231	294	1173	2404	22:45			221	971	207	908	1879
11:00			303		290			23:00			194		173		
11:15			310		334			23:15			216		186		
11:30			348		308			23:30			195		172		
11:45			299	1260	343	1275	2535	23:45			168	773	141	672	1445
Total Vol.				7317		6315	**13632**					14856		13511	**28367**

	Daily Totals				
	NB	SB	EB	WB	**Combined**
			22173	19826	**41999**

	AM			PM		
Split %	53.7%	46.3%	**32.5%**	52.4%	47.6%	**67.5%**
Peak Hour	11:30	11:45	**11:45**	18:00	12:45	**12:45**
Volume	1321	1373	**2666**	1508	1493	**2768**
P.H.F.	0.95	0.97	**0.96**	0.97	0.95	**0.95**

Chen Ryan Associates

3900 Fifth Avenue, Suite 310 San Diego, CA 92103

Average Daily Traffic

Location: **Grand Avenue, between Figueroa Boulevard and Mission Bay Drive**

Date: **Thursday, May 3, 2018** Total Daily Volume: **40511** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
520	379	266	151	216	587	1534	2639	2344	2014	1951	2240	2284	2305	2679	2701	2658	2847	2501	2220	1812	1536	1249	878
137	97	91	39	44	73	255	646	594	518	456	566	602	560	615	622	655	652	634	571	490	419	346	267
143	88	61	40	42	128	336	675	572	451	437	552	588	536	699	653	658	727	635	583	499	411	354	231
133	92	60	35	58	173	445	692	583	522	517	553	543	615	698	689	684	764	614	522	412	371	312	196
107	102	54	37	72	213	498	626	595	523	541	569	551	594	667	737	661	704	618	544	411	335	237	184

Date: **Thursday, May 3, 2018** Total Daily Volume: **22051** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
288	240	171	89	127	365	995	1848	1689	1167	1103	1213	1232	1182	1482	1374	1190	1283	1166	1079	963	744	632	429
71	62	64	22	20	49	166	407	453	306	261	306	341	298	319	320	315	298	322	278	270	192	164	132
84	52	33	23	27	79	209	446	415	264	245	299	302	290	388	349	311	333	293	265	270	214	173	115
68	57	42	22	35	113	291	518	441	308	297	307	298	320	423	350	297	320	264	269	223	177	172	93
65	69	32	22	45	124	329	477	380	289	300	301	291	274	352	355	267	332	287	267	200	161	123	89

Date: **Thursday, May 3, 2018** Total Daily Volume: **18460** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
232	139	95	62	89	222	539	791	655	847	848	1027	1052	1123	1197	1327	1468	1564	1335	1141	849	792	617	449
66	35	27	17	24	24	89	239	141	212	195	260	261	262	296	302	340	354	312	293	220	227	182	135
59	36	28	17	15	49	127	229	157	187	192	253	286	246	311	304	347	394	342	318	229	197	181	116
65	35	18	13	23	60	154	174	142	214	220	246	245	295	275	339	387	444	350	253	189	194	140	103
42	33	22	15	27	89	169	149	215	234	241	268	260	320	315	382	394	372	331	277	211	174	114	95

SATURDAY - JUNE 9, 2018 CITY: MISSION BAY PROJECT: PTD18-0608-03

GRAND AVENUE - FIGUEROA BOULEVARD TO MISSION BAY DRIVE

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			176		121			12:00			329		320		
00:15			130		101			12:15			348		360		
00:30			130		96			12:30			312		348		
00:45			120	556	67	385	941	12:45			310	1299	365	1393	2692
01:00			108		74			13:00			342		356		
01:15			114		84			13:15			294		388		
01:30			141		84			13:30			334		393		
01:45			156	519	80	322	841	13:45			305	1275	349	1486	2761
02:00			156		68			14:00			290		362		
02:15			96		61			14:15			307		319		
02:30			125		59			14:30			318		360		
02:45			96	473	40	228	701	14:45			336	1251	343	1384	2635
03:00			60		23			15:00			336		347		
03:15			58		36			15:15			330		342		
03:30			37		19			15:30			336		313		
03:45			37	192	29	107	299	15:45			366	1368	342	1344	2712
04:00			36		24			16:00			336		328		
04:15			31		17			16:15			326		325		
04:30			36		21			16:30			371		309		
04:45			35	138	34	96	234	16:45			380	1413	331	1293	2706
05:00			28		48			17:00			344		311		
05:15			38		22			17:15			366		295		
05:30			50		36			17:30			380		302		
05:45			45	161	59	165	326	17:45			353	1443	304	1212	2655
06:00			83		68			18:00			365		272		
06:15			65		63			18:15			382		260		
06:30			111		90			18:30			388		291		
06:45			95	354	109	330	684	18:45			367	1502	250	1073	2575
07:00			115		92			19:00			330		273		
07:15			130		112			19:15			331		253		
07:30			145		130			19:30			345		259		
07:45			167	557	201	535	1092	19:45			341	1347	222	1007	2354
08:00			171		133			20:00			312		212		
08:15			202		181			20:15			318		207		
08:30			202		201			20:30			315		241		
08:45			264	839	232	747	1586	20:45			261	1206	206	866	2072
09:00			205		230			21:00			278		238		
09:15			246		215			21:15			246		207		
09:30			306		263			21:30			257		208		
09:45			298	1055	280	988	2043	21:45			222	1003	259	912	1915
10:00			298		297			22:00			252		262		
10:15			312		300			22:15			235		228		
10:30			299		288			22:30			268		219		
10:45			325	1234	295	1180	2414	22:45			218	973	205	914	1887
11:00			301		289			23:00			195		175		
11:15			314		339			23:15			216		187		
11:30			343		304			23:30			193		171		
11:45			300	1258	345	1277	2535	23:45			172	776	146	679	1455
Total Vol.				7336		6360	**13696**					14856		13563	**28419**

	Daily Totals				
	NB	SB	EB	WB	**Combined**
			22192	19923	**42115**
	AM			**PM**	
Split %	53.6%	46.4%	**32.5%**	52.3%	47.7%	**67.5%**
Peak Hour	11:30	11:45	**11:45**	18:00	12:45	**12:45**
Volume	1320	1373	**2662**	1502	1502	**2782**
P.H.F.	0.95	0.95	**0.94**	0.97	0.96	**0.96**

Chen Ryan Associates

3900 Fifth Avenue, Suite 310 San Diego, CA 92103

Average Daily Traffic

Location: **Mission Bay Drive, between Grand Avenue and I-15 SB On-Ramp**

Date: **Thursday, May 3, 2018** Total Daily Volume: **60849** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
725	517	363	228	378	1062	2492	3467	3606	3241	3202	3527	3494	3526	3966	4250	4044	4209	3500	3134	2666	2281	1764	1207
217	146	124	52	73	146	440	864	906	842	741	841	932	838	978	965	1048	1071	936	761	705	600	499	347
181	122	82	53	70	224	587	859	860	778	749	910	898	848	1007	1088	1005	1023	861	845	670	628	503	329
161	117	85	63	101	298	706	905	902	831	820	899	822	957	996	1097	958	1069	831	757	653	549	409	283
166	132	72	60	134	394	759	839	938	790	892	877	842	883	985	1100	1033	1046	872	771	638	504	353	248

Date: **Thursday, May 3, 2018** Total Daily Volume: **30090** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
341	209	154	120	180	542	1190	1350	1466	1581	1541	1719	1728	1778	1927	2031	2247	2375	1889	1638	1312	1219	912	641
109	63	47	27	41	70	218	407	330	415	354	399	454	412	484	488	538	599	496	379	340	339	265	181
84	51	40	26	32	102	302	339	354	381	373	458	445	419	490	518	569	570	474	449	316	332	272	168
82	44	32	36	47	145	345	313	330	400	374	430	386	473	466	516	532	633	443	394	331	292	192	162
66	51	35	31	60	225	325	291	452	385	440	432	443	474	487	509	608	573	476	416	325	256	183	130

Date: **Thursday, May 3, 2018** Total Daily Volume: **30759** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
384	308	209	108	198	520	1302	2117	2140	1660	1661	1808	1766	1748	2039	2219	1797	1834	1611	1496	1354	1062	852	566
108	83	77	25	32	76	222	457	576	427	387	442	478	426	494	477	510	472	440	382	365	261	234	166
97	71	42	27	38	122	285	520	506	397	376	452	453	429	517	570	436	453	387	396	354	296	231	161
79	73	53	27	54	153	361	592	572	431	446	469	436	484	530	581	426	436	388	363	322	257	217	121
100	81	37	29	74	169	434	548	486	405	452	445	399	409	498	591	425	473	396	355	313	248	170	118

SATURDAY - JUNE 9, 2018 CITY: MISSION BAY PROJECT: PTD18-0608-03

MISSION BAY DRIVE - GRAND AVENUE TO I-5 SB ON-RAMP

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	188		225					12:00	513		452				
00:15	154		200					12:15	553		491				
00:30	128		167					12:30	542		434				
00:45	107	577	161	753			1330	12:45	531	2139	425	1802			3941
01:00	108		145					13:00	553		469				
01:15	128		148					13:15	553		457				
01:30	97		159					13:30	568		496				
01:45	123	456	172	624			1080	13:45	547	2221	458	1880			4101
02:00	89		202					14:00	576		424				
02:15	94		143					14:15	552		424				
02:30	74		133					14:30	534		455				
02:45	51	308	118	596			904	14:45	497	2159	465	1768			3927
03:00	41		83					15:00	510		456				
03:15	38		60					15:15	524		504				
03:30	39		68					15:30	496		496				
03:45	33	151	36	247			398	15:45	492	2022	539	1995			4017
04:00	34		45					16:00	513		490				
04:15	34		40					16:15	471		504				
04:30	39		52					16:30	488		484				
04:45	54	161	48	185			346	16:45	510	1982	548	2026			4008
05:00	75		43					17:00	482		553				
05:15	54		60					17:15	442		538				
05:30	67		70					17:30	461		538				
05:45	112	308	77	250			558	17:45	465	1850	533	2162			4012
06:00	92		92					18:00	371		524				
06:15	122		103					18:15	422		522				
06:30	172		147					18:30	416		510				
06:45	205	591	143	485			1076	18:45	357	1566	504	2060			3626
07:00	170		161					19:00	348		485				
07:15	210		170					19:15	381		484				
07:30	238		245					19:30	352		468				
07:45	350	968	219	795			1763	19:45	314	1395	459	1896			3291
08:00	259		222					20:00	328		407				
08:15	290		275					20:15	284		433				
08:30	334		313					20:30	345		411				
08:45	415	1298	359	1169			2467	20:45	299	1256	385	1636			2892
09:00	352		335					21:00	349		370				
09:15	377		344					21:15	305		367				
09:30	393		412					21:30	293		318				
09:45	456	1578	440	1531			3109	21:45	370	1317	295	1350			2667
10:00	449		400					22:00	338		300				
10:15	462		442					22:15	342		309				
10:30	471		436					22:30	309		341				
10:45	504	1886	452	1730			3616	22:45	305	1294	291	1241			2535
11:00	486		434					23:00	269		263				
11:15	490		446					23:15	266		273				
11:30	523		468					23:30	228		278				
11:45	545	2044	458	1806			3850	23:45	193	956	202	1016			1972
Total Vol.		10326		10171			**20497**			20157		20832			**40989**

Daily Totals

NB	SB	EB	WB	**Combined**
30483	31003			**61486**

	AM			**PM**		
Split %	50.4%	49.6%	**33.3%**	49.2%	50.8%	**66.7%**
Peak Hour	11:45	11:30	**11:30**	13:15	16:45	**13:00**
Volume	2153	1869	**4003**	2244	2177	**4101**
P.H.F.	0.97	0.95	**0.96**	0.97	0.98	**0.96**

Chen Ryan Associates

3900 Fifth Avenue, Suite 310 San Diego, CA 92103

Average Daily Traffic

Location: **Mission Bay Drive, between N. Mission Bay Drive and Clairemont Drive**

Date: **Thursday, May 3, 2018** Total Daily Volume: **5687** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
9	11	8	13	27	38	115	311	333	271	301	285	297	258	295	729	689	684	508	228	114	83	55	25
5	1	2	1	7	11	23	53	90	75	72	80	85	81	61	140	194	152	144	84	39	27	13	6
1	5	2	2	6	5	21	81	90	66	52	68	68	45	86	178	181	172	135	59	22	19	18	7
1	2	3	5	3	10	35	81	87	61	82	68	62	62	74	208	143	177	113	41	33	22	12	8
2	3	1	5	11	12	36	96	66	69	95	69	82	70	74	203	171	183	116	44	20	15	12	4

Date: **Thursday, May 3, 2018** Total Daily Volume: **2401** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
3	5	3	9	9	22	72	221	244	167	163	148	152	122	146	187	152	170	151	109	54	49	31	12
1	0	1	1	2	3	9	38	62	51	41	43	42	34	31	37	48	39	41	36	12	14	9	4
0	2	0	1	2	4	8	56	74	47	26	37	36	19	43	39	41	41	47	38	12	13	14	2
0	1	1	3	3	5	28	58	59	30	45	29	38	31	34	45	34	41	34	16	22	13	3	4
2	2	1	4	2	10	27	69	49	39	51	39	36	38	38	66	29	49	29	19	8	9	5	2

Date: **Thursday, May 3, 2018** Total Daily Volume: **3286** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
6	6	5	4	18	16	43	90	89	104	138	137	145	136	149	542	537	514	357	119	60	34	24	13
4	1	1	0	5	8	14	15	28	24	31	37	43	47	30	103	146	113	103	48	27	13	4	2
1	3	2	1	4	1	13	25	16	19	26	31	32	26	43	139	140	131	88	21	10	6	4	5
1	1	2	2	0	5	7	23	28	31	37	39	24	31	40	163	109	136	79	25	11	9	9	4
0	1	0	1	9	2	9	27	17	30	44	30	46	32	36	137	142	134	87	25	12	6	7	2

SATURDAY - JUNE 9, 2018 CITY: MISSION BAY PROJECT: PTD18-0608-03

MISSION BAY DRIVE - N. MISSION BAY DRIVE TO CLAIREMONT DRIVE

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	6		7					12:00	64		47				
00:15	7		7					12:15	72		47				
00:30	3		6					12:30	52		45				
00:45	0	16	2	22			38	12:45	64	252	36	175			427
01:00	2		1					13:00	86		45				
01:15	2		3					13:15	72		43				
01:30	1		4					13:30	72		43				
01:45	2	7	3	11			18	13:45	79	309	53	184			493
02:00	2		1					14:00	94		58				
02:15	0		1					14:15	76		66				
02:30	0		3					14:30	73		41				
02:45	0	2	2	7			9	14:45	75	318	49	214			532
03:00	0		4					15:00	66		35				
03:15	1		0					15:15	61		40				
03:30	0		7					15:30	56		39				
03:45	1	2	0	11			13	15:45	50	233	49	163			396
04:00	1		3					16:00	61		42				
04:15	4		2					16:15	57		50				
04:30	2		1					16:30	46		30				
04:45	1	8	4	10			18	16:45	44	208	35	157			365
05:00	2		0					17:00	56		40				
05:15	1		4					17:15	64		41				
05:30	6		2					17:30	53		50				
05:45	7	16	4	10			26	17:45	57	230	39	170			400
06:00	3		5					18:00	35		26				
06:15	7		8					18:15	43		35				
06:30	9		10					18:30	42		47				
06:45	18	37	12	35			72	18:45	45	165	33	141			306
07:00	16		14					19:00	36		32				
07:15	22		17					19:15	31		23				
07:30	29		21					19:30	26		30				
07:45	47	114	21	73			187	19:45	27	120	32	117			237
08:00	45		34					20:00	28		20				
08:15	32		22					20:15	18		25				
08:30	34		21					20:30	16		27				
08:45	48	159	30	107			266	20:45	16	78	23	95			173
09:00	33		32					21:00	19		13				
09:15	38		29					21:15	16		11				
09:30	44		37					21:30	11		11				
09:45	40	155	32	130			285	21:45	11	57	9	44			101
10:00	45		46					22:00	7		5				
10:15	66		47					22:15	17		12				
10:30	61		32					22:30	13		14				
10:45	61	233	36	161			394	22:45	10	47	9	40			87
11:00	49		47					23:00	5		7				
11:15	44		32					23:15	2		3				
11:30	56		46					23:30	2		2				
11:45	62	211	41	166			377	23:45	4	13	2	14			27
Total Vol.		960		743			**1703**			2030		1514			**3544**

Daily Totals

NB	SB	EB	WB	**Combined**
2990	2257			**5247**

	AM			**PM**		
Split %	56.4%	43.6%	**32.5%**	57.3%	42.7%	**67.5%**
Peak Hour	11:30	11:30	**11:30**	13:45	13:30	**13:30**
Volume	254	181	**435**	322	220	**541**
P.H.F.	0.88	0.96	**0.91**	0.86	0.83	**0.89**

Chen Ryan Associates

3900 Fifth Avenue, Suite 310 San Diego, CA 92103

Average Daily Traffic

Location: **Pacific Beach Drive, between Olney Street and Campland RV Driveway**

Date: **Thursday, May 3, 2018** Total Daily Volume: **2088** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
15	12	5	4	10	29	53	104	88	121	106	132	145	153	146	163	147	189	151	101	83	62	43	26
5	3	2	1	1	2	12	26	16	35	23	36	32	42	35	41	31	49	38	18	24	19	9	12
1	3	0	1	2	7	11	20	31	23	31	33	38	38	35	44	35	34	40	21	22	16	13	5
3	5	1	1	2	12	13	28	21	27	25	28	33	32	44	35	39	51	37	35	22	20	6	6
6	1	2	1	5	8	17	30	20	36	27	35	42	41	32	43	42	55	36	27	15	7	15	3

Date: **Thursday, May 3, 2018** Total Daily Volume: **1017** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
7	9	2	2	3	8	27	29	32	60	43	61	68	88	75	85	79	103	81	48	42	35	23	7
2	2	0	1	0	1	5	2	5	21	8	18	15	21	19	22	18	25	22	7	10	10	4	4
1	2	0	1	1	3	6	7	15	12	11	17	14	20	18	19	18	19	23	10	12	9	5	2
1	4	1	0	0	2	7	7	4	13	9	8	16	22	17	20	18	27	18	20	11	10	5	1
3	1	1	0	2	2	9	13	8	14	15	18	23	25	21	24	25	32	18	11	9	6	9	0

Date: **Thursday, May 3, 2018** Total Daily Volume: **1071** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
8	3	3	2	7	21	26	75	56	61	63	71	77	65	71	78	68	86	70	53	41	27	20	19
3	1	2	0	1	1	7	24	11	14	15	18	17	21	16	19	13	24	16	11	14	9	5	8
0	1	0	0	1	4	5	13	16	11	20	16	24	18	17	25	17	15	17	11	10	7	8	3
2	1	0	1	2	10	6	21	17	14	16	20	17	10	27	15	21	24	19	15	11	10	1	5
3	0	1	1	3	6	8	17	12	22	12	17	19	16	11	19	17	23	18	16	6	1	6	3

SATURDAY - JUNE 9, 2018 CITY: MISSION BAY PROJECT: PTD18-0608-03

PACIFIC BEACH DRIVE - OLNEY STREET TO CAMPLAND RV DRIVEWAY

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			7		9			12:00			30		24		
00:15			5		10			12:15			42		25		
00:30			4		5			12:30			31		21		
00:45			4	20	2	26	46	12:45			39	142	23	93	235
01:00			3		3			13:00			33		26		
01:15			5		4			13:15			34		27		
01:30			6		3			13:30			41		31		
01:45			1	15	0	10	25	13:45			38	146	28	112	258
02:00			2		1			14:00			38		24		
02:15			2		0			14:15			35		15		
02:30			0		1			14:30			38		30		
02:45			4	8	3	5	13	14:45			37	148	23	92	240
03:00			1		1			15:00			44		28		
03:15			3		0			15:15			42		18		
03:30			0		0			15:30			30		22		
03:45			0	4	0	1	5	15:45			42	158	33	101	259
04:00			2		0			16:00			37		27		
04:15			0		1			16:15			35		23		
04:30			0		1			16:30			28		24		
04:45			1	3	3	5	8	16:45			44	144	29	103	247
05:00			0		1			17:00			33		36		
05:15			4		3			17:15			36		22		
05:30			1		4			17:30			43		43		
05:45			2	7	4	12	19	17:45			36	148	24	125	273
06:00			4		2			18:00			26		25		
06:15			7		8			18:15			27		28		
06:30			5		5			18:30			25		32		
06:45			6	22	9	24	46	18:45			25	103	22	107	210
07:00			6		9			19:00			36		31		
07:15			7		18			19:15			26		28		
07:30			15		10			19:30			31		31		
07:45			15	43	18	55	98	19:45			23	116	26	116	232
08:00			11		16			20:00			18		22		
08:15			11		16			20:15			26		32		
08:30			14		11			20:30			19		25		
08:45			17	53	24	67	120	20:45			10	73	19	98	171
09:00			12		10			21:00			17		27		
09:15			22		18			21:15			22		23		
09:30			19		24			21:30			15		23		
09:45			21	74	24	76	150	21:45			8	62	18	91	153
10:00			14		29			22:00			15		18		
10:15			20		20			22:15			18		17		
10:30			19		24			22:30			11		24		
10:45			26	79	27	100	179	22:45			14	58	20	79	137
11:00			28		21			23:00			8		12		
11:15			28		18			23:15			2		14		
11:30			25		21			23:30			3		4		
11:45			31	112	24	84	196	23:45			10	23	13	43	66
Total Vol.				440		465	**905**					1321		1160	**2481**

Daily Totals

NB	SB	EB	WB	Combined
		1761	1625	**3386**

	AM			PM		
Split %	48.6%	51.4%	**26.7%**	53.2%	46.8%	**73.3%**
Peak Hour	11:45	10:00	**11:45**	14:30	16:45	**16:45**
Volume	134	100	**228**	161	130	**286**
P.H.F.	0.80	0.86	**0.85**	0.91	0.76	**0.83**

Chen Ryan Associates

3900 Fifth Avenue, Suite 310 San Diego, CA 92103

Average Daily Traffic

Location: **N. Mission Bay Drive, between Circle Drive and De Anza Road**

Date: **Thursday, May 3, 2018** Total Daily Volume: **1518** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
4	4	0	2	7	4	37	60	25	58	75	119	120	133	133	108	126	163	110	115	55	38	18	4
0	0	0	0	0	1	7	18	5	19	17	22	27	34	33	24	27	47	25	51	25	14	5	4
2	1	0	2	0	3	15	19	6	17	10	32	39	32	31	19	34	39	32	25	12	9	6	0
2	2	0	0	3	0	5	14	9	13	23	31	26	38	35	30	28	44	31	20	8	8	7	0
0	1	0	0	4	0	10	9	5	9	25	34	28	29	34	35	37	33	22	19	10	7	0	0

Date: **Thursday, May 3, 2018** Total Daily Volume: **727** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
1	2	0	1	1	2	10	12	8	21	34	54	58	67	60	60	56	68	52	69	43	29	16	3
0	0	0	0	0	0	2	2	1	8	9	8	9	21	13	14	14	16	15	23	21	10	5	3
1	0	0	1	0	2	4	3	4	4	7	16	16	15	13	9	15	18	14	17	10	7	5	0
0	1	0	0	1	0	2	4	3	7	10	15	14	18	18	20	11	20	14	16	6	6	6	0
0	1	0	0	0	0	2	3	0	2	8	15	19	13	16	17	16	14	9	13	6	6	0	0

Date: **Thursday, May 3, 2018** Total Daily Volume: **791** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
3	2	0	1	6	2	27	48	17	37	41	65	62	66	73	48	70	95	58	46	12	9	2	1
0	0	0	0	0	1	5	16	4	11	8	14	18	13	20	10	13	31	10	28	4	4	0	1
1	1	0	1	0	1	11	16	2	13	3	16	23	17	18	10	19	21	18	8	2	2	1	0
2	1	0	0	2	0	3	10	6	6	13	16	12	20	17	10	17	24	17	4	2	2	1	0
0	0	0	0	4	0	8	6	5	7	17	19	9	16	18	18	21	19	13	6	4	1	0	0

SATURDAY - JUNE 9, 2018 CITY: MISSION BAY PROJECT: PTD18-0608-03

N. MISSION BAY DRIVE - CIRCLE DRIVE TO DE ANZA ROAD

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			3		0			12:00			26		25		
00:15			2		1			12:15			17		18		
00:30			1		0			12:30			17		12		
00:45			0	6	0	1	7	12:45			17	77	18	73	150
01:00			1		1			13:00			14		27		
01:15			0		0			13:15			21		18		
01:30			0		0			13:30			17		21		
01:45			0	1	0	1	2	13:45			14	66	17	83	149
02:00			2		2			14:00			18		22		
02:15			1		1			14:15			17		17		
02:30			0		0			14:30			16		13		
02:45			0	3	0	3	6	14:45			10	61	14	66	127
03:00			0		0			15:00			12		9		
03:15			0		0			15:15			7		8		
03:30			1		1			15:30			9		6		
03:45			0	1	0	1	2	15:45			11	39	15	38	77
04:00			0		1			16:00			7		10		
04:15			0		2			16:15			4		18		
04:30			0		1			16:30			8		6		
04:45			4	4	1	5	9	16:45			4	23	2	36	59
05:00			1		1			17:00			7		2		
05:15			0		0			17:15			4		1		
05:30			2		1			17:30			4		3		
05:45			1	4	1	3	7	17:45			3	18	0	6	24
06:00			0		1			18:00			4		0		
06:15			0		4			18:15			1		0		
06:30			0		6			18:30			1		0		
06:45			2	2	9	20	22	18:45			4	10	0	0	10
07:00			1		12			19:00			2		0		
07:15			3		9			19:15			4		2		
07:30			0		13			19:30			2		1		
07:45			4	8	15	49	57	19:45			1	9	0	3	12
08:00			8		24			20:00			1		0		
08:15			2		21			20:15			0		0		
08:30			4		12			20:30			0		0		
08:45			1	15	18	75	90	20:45			0	1	0	0	1
09:00			11		18			21:00			0		0		
09:15			8		15			21:15			1		0		
09:30			12		18			21:30			1		1		
09:45			10	41	21	72	113	21:45			0	2	0	1	3
10:00			9		28			22:00			0		0		
10:15			17		29			22:15			1		0		
10:30			13		23			22:30			0		0		
10:45			12	51	27	107	158	22:45			0	1	0	0	1
11:00			16		19			23:00			0		0		
11:15			12		11			23:15			0		0		
11:30			12		21			23:30			3		0		
11:45			27	67	18	69	136	23:45			0	3	0	0	3
Total Vol.				203		406	**609**					310		306	**616**

Daily Totals

NB	SB	EB	WB	Combined
		513	712	**1225**

	AM			PM		
Split %	33.3%	66.7%	**49.7%**	50.3%	49.7%	**50.3%**
Peak Hour	11:45	10:00	**11:30**	12:00	12:45	**12:45**
Volume	87	107	**164**	77	84	**153**
P.H.F.	0.81	0.92	**0.80**	0.74	0.78	**0.93**

Chen Ryan Associates

3900 Fifth Avenue, Suite 310 San Diego, CA 92103

Average Daily Traffic

Location: **N. Mission Bay Drive, between De Anza Road and Mission Bay Drive**

Date: **Thursday, May 3, 2018** Total Daily Volume: **2724** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
6	4	11	10	20	20	44	109	105	145	178	195	201	188	173	215	209	267	216	158	117	86	33	14
4	1	5	0	2	5	12	18	19	38	43	57	43	51	40	50	63	57	52	44	36	30	14	6
0	2	3	2	3	11	11	35	26	26	44	48	61	45	36	53	56	57	50	34	31	22	8	1
0	1	2	3	4	3	12	27	33	29	43	37	40	50	41	48	45	62	54	40	35	16	6	3
2	0	1	5	11	1	9	29	27	52	48	53	57	42	56	64	45	91	60	40	15	18	5	4

Date: **Thursday, May 3, 2018** Total Daily Volume: **1581** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
4	3	4	6	9	15	19	64	50	73	101	127	118	119	98	94	107	152	125	112	85	62	21	13
3	1	0	0	2	5	5	13	13	12	23	35	25	28	22	21	34	28	27	33	35	26	12	6
0	1	2	2	0	8	7	20	11	15	29	29	38	37	20	21	30	31	28	19	19	12	3	0
0	1	2	2	2	2	4	15	18	23	25	27	23	31	28	24	19	33	32	28	23	11	4	3
1	0	0	2	5	0	3	16	8	23	24	36	32	23	28	28	24	60	38	32	8	13	2	4

Date: **Thursday, May 3, 2018** Total Daily Volume: **1143** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
2	1	7	4	11	5	25	45	55	72	77	68	83	69	75	121	102	115	91	46	32	24	12	1
1	0	5	0	0	0	7	5	6	26	20	22	18	23	18	29	29	29	25	11	1	4	2	0
0	1	1	0	3	3	4	15	15	11	15	19	23	8	16	32	26	26	22	15	12	10	5	1
0	0	0	1	2	1	8	12	15	6	18	10	17	19	13	24	26	29	22	12	12	5	2	0
1	0	1	3	6	1	6	13	19	29	24	17	25	19	28	36	21	31	22	8	7	5	3	0

SATURDAY - JUNE 9, 2018 CITY: MISSION BAY PROJECT: PTD18-0608-03

N. MISSION BAY DRIVE - DE ANZA ROAD TO MISSION BAY DRIVE

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			7		2			12:00			44		48		
00:15			2		1			12:15			37		47		
00:30			4		2			12:30			44		36		
00:45			3	16	1	6	22	12:45			32	157	38	169	326
01:00			3		0			13:00			37		46		
01:15			0		0			13:15			43		55		
01:30			0		0			13:30			37		56		
01:45			4	7	1	1	8	13:45			47	164	49	206	370
02:00			1		4			14:00			41		52		
02:15			3		0			14:15			50		47		
02:30			0		0			14:30			39		35		
02:45			1	5	1	5	10	14:45			38	168	41	175	343
03:00			0		0			15:00			37		40		
03:15			0		0			15:15			30		39		
03:30			0		0			15:30			36		34		
03:45			0	0	1	1	1	15:45			38	141	34	147	288
04:00			0		1			16:00			41		34		
04:15			0		3			16:15			47		40		
04:30			2		3			16:30			35		43		
04:45			2	4	3	10	14	16:45			28	151	27	144	295
05:00			2		0			17:00			32		36		
05:15			2		1			17:15			43		48		
05:30			1		4			17:30			36		35		
05:45			4	9	8	13	22	17:45			29	140	37	156	296
06:00			3		2			18:00			23		28		
06:15			3		6			18:15			30		21		
06:30			4		8			18:30			38		20		
06:45			8	18	11	27	45	18:45			32	123	26	95	218
07:00			5		16			19:00			32		28		
07:15			11		17			19:15			31		21		
07:30			1		15			19:30			37		19		
07:45			12	29	27	75	104	19:45			31	131	16	84	215
08:00			15		33			20:00			19		14		
08:15			12		29			20:15			21		11		
08:30			16		14			20:30			38		18		
08:45			17	60	29	105	165	20:45			29	107	7	50	157
09:00			23		26			21:00			19		7		
09:15			23		27			21:15			14		9		
09:30			26		26			21:30			14		8		
09:45			30	102	27	106	208	21:45			11	58	12	36	94
10:00			22		40			22:00			7		4		
10:15			39		38			22:15			9		9		
10:30			27		53			22:30			10		7		
10:45			35	123	47	178	301	22:45			6	32	8	28	60
11:00			38		48			23:00			8		2		
11:15			40		37			23:15			3		2		
11:30			33		37			23:30			4		3		
11:45			50	161	55	177	338	23:45			0	15	5	12	27
Total Vol.				534		704	**1238**					1387		1302	**2689**

Daily Totals

NB	SB	EB	WB	Combined
		1921	2006	**3927**

	AM			PM		
Split %	43.1%	56.9%	**31.5%**	51.6%	48.4%	**68.5%**
Peak Hour	11:45	11:30	**11:45**	13:45	13:15	**13:15**
Volume	175	187	**361**	177	212	**380**
P.H.F.	0.88	0.85	**0.86**	0.89	0.95	**0.97**

Chen Ryan Associates

3900 Fifth Avenue, Suite 310 San Diego, CA 92103

Average Daily Traffic

Location: **De Anza Bay Drive, West of De Anza Road**

Date: **Thursday, May 3, 2018** Total Daily Volume: **1495** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
5	11	9	13	13	11	20	57	55	88	103	107	94	98	93	119	124	115	112	80	75	45	21	13
4	1	3	0	0	2	3	6	8	16	30	32	27	35	20	29	34	22	22	22	17	11	5	7
0	3	5	5	5	3	4	23	15	17	21	24	28	24	17	29	30	35	26	17	26	10	8	2
0	5	1	2	5	4	8	14	17	20	23	19	20	21	27	27	28	21	24	21	21	11	3	2
1	2	0	6	3	2	5	14	15	35	29	32	19	18	29	34	32	37	40	20	11	13	5	2

Date: **Thursday, May 3, 2018** Total Daily Volume: **772** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
3	7	6	7	7	6	12	35	26	52	54	63	45	49	46	50	55	54	56	52	45	21	12	9
2	1	2	0	0	2	2	4	6	11	17	19	14	17	11	13	15	11	7	15	13	5	4	5
0	2	3	2	2	2	2	14	7	12	10	14	13	12	9	11	14	15	14	11	13	5	4	0
0	3	1	2	4	1	5	9	8	15	13	12	8	9	15	13	12	10	13	12	12	5	2	2
1	1	0	3	1	1	3	8	5	14	14	18	10	11	11	13	14	18	22	14	7	6	2	2

Date: **Thursday, May 3, 2018** Total Daily Volume: **723** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
2	5	4	6	6	6	9	22	31	36	52	45	48	50	48	69	68	61	55	28	33	23	11	5
2	0	2	0	0	0	2	2	2	5	14	13	13	18	10	16	19	11	15	7	5	6	2	2
0	2	2	3	3	2	2	9	8	5	11	11	15	12	8	18	16	20	11	6	14	5	5	2
0	2	0	0	1	3	3	5	10	5	11	7	11	12	12	14	16	11	11	9	9	5	1	0
0	1	0	3	2	1	2	6	11	21	16	14	9	8	18	21	17	19	18	6	5	7	3	1

SATURDAY - JUNE 9, 2018 CITY: MISSION BAY PROJECT: PTD18-0608-03

DE ANZA BAY DRIVE - WEST OF DE ANZA ROAD

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	1		0					12:00	12		21				
00:15	2		1					12:15	17		26				
00:30	2		2					12:30	14		18				
00:45	4	9	1	4			13	12:45	14	57	14	79			136
01:00	2		1					13:00	14		20				
01:15	0		0					13:15	14		21				
01:30	0		1					13:30	22		29				
01:45	3	5	0	2			7	13:45	22	72	26	96			168
02:00	2		2					14:00	16		23				
02:15	2		1					14:15	24		18				
02:30	0		0					14:30	17		17				
02:45	0	4	0	3			7	14:45	16	73	18	76			149
03:00	0		0					15:00	19		20				
03:15	0		0					15:15	17		19				
03:30	0		1					15:30	17		22				
03:45	0	0	1	2			2	15:45	20	73	17	78			151
04:00	0		0					16:00	14		14				
04:15	0		2					16:15	14		19				
04:30	2		2					16:30	14		16				
04:45	0	2	0	4			6	16:45	12	54	11	60			114
05:00	1		1					17:00	16		16				
05:15	1		1					17:15	20		16				
05:30	0		2					17:30	16		14				
05:45	1	3	2	6			9	17:45	13	65	13	59			124
06:00	3		1					18:00	11		10				
06:15	1		2					18:15	13		9				
06:30	4		2					18:30	17		10				
06:45	2	10	4	9			19	18:45	12	53	11	40			93
07:00	3		5					19:00	16		11				
07:15	4		6					19:15	15		8				
07:30	1		3					19:30	22		10				
07:45	8	16	11	25			41	19:45	13	66	7	36			102
08:00	11		13					20:00	8		8				
08:15	5		11					20:15	13		5				
08:30	8		4					20:30	15		9				
08:45	11	35	10	38			73	20:45	10	46	4	26			72
09:00	11		9					21:00	8		6				
09:15	5		8					21:15	5		5				
09:30	11		11					21:30	8		5				
09:45	8	35	7	35			70	21:45	6	27	6	22			49
10:00	8		13					22:00	4		3				
10:15	13		14					22:15	5		5				
10:30	8		27					22:30	7		6				
10:45	12	41	16	70			111	22:45	4	20	4	18			38
11:00	13		16					23:00	4		1				
11:15	17		20					23:15	1		1				
11:30	14		17					23:30	2		1				
11:45	20	64	21	74			138	23:45	0	7	2	5			12
Total Vol.		224		272			**496**			613		595			**1208**

Daily Totals

NB	SB	EB	WB	**Combined**
837	867			**1704**

	AM			**PM**		
Split %	45.2%	54.8%	**29.1%**	50.7%	49.3%	**70.9%**
Peak Hour	11:00	11:45	**11:45**	13:30	13:15	**13:30**
Volume	64	86	**149**	84	99	**180**
P.H.F.	0.80	0.83	**0.87**	0.86	0.85	**0.88**

Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location:	#06 7-9 AM & 4-6 PM	File Name:	ITM-18-042-06.1
Ryan	Intersection:	Bond Street & Grand Avenue	Project:	Chen Ryan #0243.A2
Associates	Date of Count:	Thursday, May 03, 2018		Mission Bay

AM	Bond Street **Southbound**			Grand Avenue **Westbound**			Bond Street **Northbound**			Grand Avenue **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	0	16	0	251	3	0	0	0	0	426	1	697
7:15	0	0	25	0	237	1	0	0	1	0	468	2	734
7:30	0	0	10	0	157	2	0	0	1	0	538	0	708
7:45	0	0	15	0	444	1	0	0	0	0	545	0	1005
8:00	0	0	10	0	145	6	0	0	2	0	437	0	600
8:15	0	0	10	0	149	3	0	0	1	0	429	5	597
8:30	0	0	11	0	145	4	0	0	1	0	410	5	576
8:45	0	1	20	0	216	5	0	0	2	0	365	5	614
Total	0	1	117	0	1744	25	0	0	8	0	3618	18	5531
Approach%	-	0.8	99.2	-	98.6	1.4	-	-	100.0	-	99.5	0.5	
Total%	-	0.0	2.1	-	31.5	0.5	-	-	0.1	-	65.4	0.3	

AM Intersection Peak Hour: **07:00 to 08:00**

Volume	-	-	66	-	1,089	7	-	-	2	-	1,977	3	3,144
Approach%	-	-	100.0	-	99.4	0.6	-	-	100.0	-	99.8	0.2	
Total%	-	-	2.1	-	34.6	0.2	-	-	0.1	-	62.9	0.1	
PHF			0.66			0.62			0.50			0.91	

PM	Bond Street **Southbound**			Grand Avenue **Westbound**			Bond Street **Northbound**			Grand Avenue **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	0	17	0	271	5	0	0	12	0	298	14	617
16:15	0	0	31	0	403	10	0	0	4	0	294	16	758
16:30	0	0	37	0	353	2	0	0	6	0	292	11	701
16:45	0	0	28	0	341	5	0	0	7	0	313	13	707
17:00	0	0	30	0	404	4	0	0	4	0	300	9	751
17:15	0	0	38	0	408	9	0	0	7	0	304	5	771
17:30	0	0	30	0	390	11	0	0	4	0	287	9	731
17:45	0	0	26	0	373	4	0	0	6	0	308	12	729
Total	0	0	237	0	2943	50	0	0	50	0	2396	89	5765
Approach%	-	-	100.0	-	98.3	1.7	-	-	100.0	-	96.4	3.6	
Total%	-	-	4.3	-	53.2	0.9	-	-	0.9	-	43.3	1.6	

PM Intersection Peak Hour: **17:00 to 18:00**

Volume	-	-	124	-	1,575	28	-	-	21	-	1,199	35	2,982
Approach%	-	-	100.0	-	98.3	1.7	-	-	100.0	-	97.2	2.8	
Total%	-	-	3.9	-	50.1	0.9	-	-	0.7	-	38.1	1.1	
PHF			0.82			0.96			0.75			0.96	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates	Location:	#06 7-9 AM & 4-6 PM	File Name:	ITM-18-042-06.1
	Intersection:	Bond Street & Grand Avenue	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay

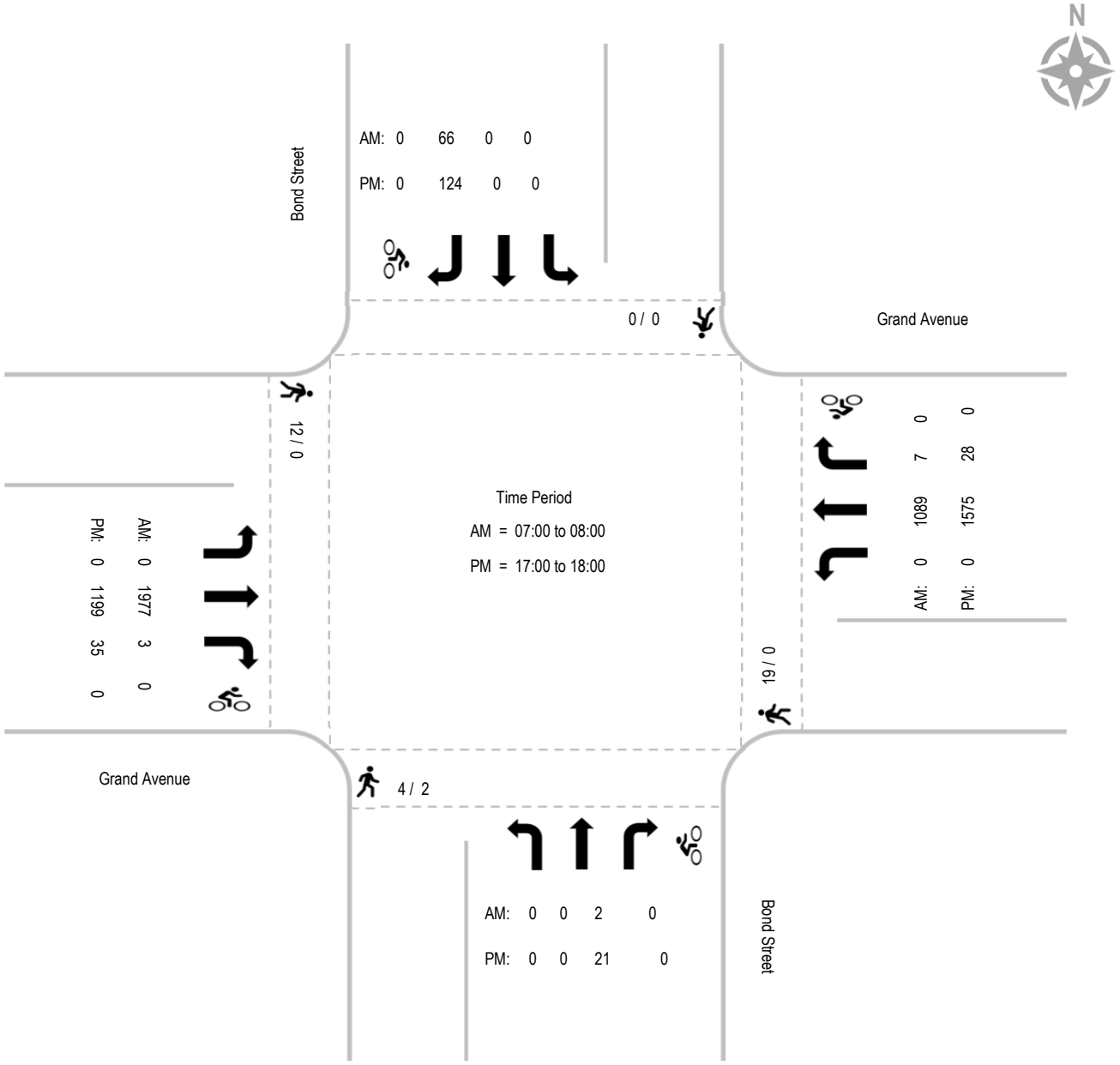
AM	Bond Street Southbound				Grand Avenue Westbound				Bond Street Northbound				Grand Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0
7:30	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
8:15	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	13	0
8:30	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0	0	7	0
8:45	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	6	0
Ped Total	0				19				4				12				35	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Bond Street Southbound				Grand Avenue Westbound				Bond Street Northbound				Grand Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				2				0				2	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen	Location:	#06 7-9 AM & 4-6 PM	File Name:	ITM-18-042-06.1

Ryan Associates	Intersection:	Bond Street & Grand Avenue	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay



Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location:	#06 11 AM To 2 PM	File Name:	ITM-18-053-06
Ryan	Intersection:	Bond Street & Grand Avenue	Project:	Chen Ryan #0243.A2
Associates	Date of Count:	Saturday, May 19, 2018		Mission Bay

AM	Grand Avenue **Westbound**			Bond Street **Southbound**			Grand Avenue **Eastbound**			Bond Street **Northbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	319	6	0	0	20	0	250	3	0	1	12	611
11:15	0	337	10	0	0	15	0	290	2	0	0	15	669
11:30	0	351	13	0	1	20	0	280	5	0	1	17	688
11:45	0	357	12	0	0	24	0	285	3	0	0	8	689
Total	0	1364	41	0	1	79	0	1105	13	0	2	52	2657
Approach%	-	97.1	2.9	-	1.3	98.8	-	98.8	1.2	-	3.7	96.3	
Total%	-	51.3	1.5	-	0.0	3.0	-	41.6	0.5	-	0.1	2.0	

AM Intersection Peak Hour: **11:00 to 12:00**

Volume	-	1,364	41	-	1	79	-	1,105	13	-	2	52	2,657
Approach%	-	97.1	2.9	-	1.3	98.8	-	98.8	1.2	-	3.7	96.3	
Total%	-	51.3	1.5	-	0.0	3.0	-	41.6	0.5	-	0.1	2.0	
PHF			0.95			0.83			0.96			0.75	

PM	Grand Avenue **Westbound**			Bond Street **Southbound**			Grand Avenue **Eastbound**			Bond Street **Northbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
12:00	0	351	18	0	0	20	0	298	0	0	0	35	722
12:15	0	341	19	0	0	21	0	297	6	0	0	28	712
12:30	0	343	10	0	0	22	0	309	8	0	0	15	707
12:45	0	315	18	0	0	19	0	316	4	0	0	18	690
13:00	0	309	6	0	0	15	0	305	4	0	1	15	655
13:15	0	304	4	0	0	15	0	283	7	0	0	9	622
13:30	0	297	8	0	0	19	0	331	4	0	0	15	674
13:45	0	310	10	0	0	25	0	312	6	0	0	9	672
Total	0	2570	93	0	0	156	0	2451	39	0	1	144	5454
Approach%	-	96.5	3.5	-	-	100.0	-	98.4	1.6	-	0.7	99.3	
Total%	-	96.7	3.5	-	-	5.9	-	92.2	1.5	-	0.0	5.4	

PM Intersection Peak Hour: **12:00 to 13:00**

Volume	-	1,350	65	-	-	82	-	1,220	18	-	-	96	2,831
Approach%	-	95.4	4.6	-	-	100.0	-	98.5	1.5	-	-	100.0	
Total%	-	50.8	2.4	-	-	3.1	-	45.9	0.7	-	-	3.6	
PHF			0.96			0.93			0.97			0.69	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates				
	Location:	#06 11 AM To 2 PM	File Name:	ITM-18-053-06
	Intersection:	Bond Street & Grand Avenue	Project:	Chen Ryan #0243.A2
	Date of Count:	Saturday, May 19, 2018		Mission Bay

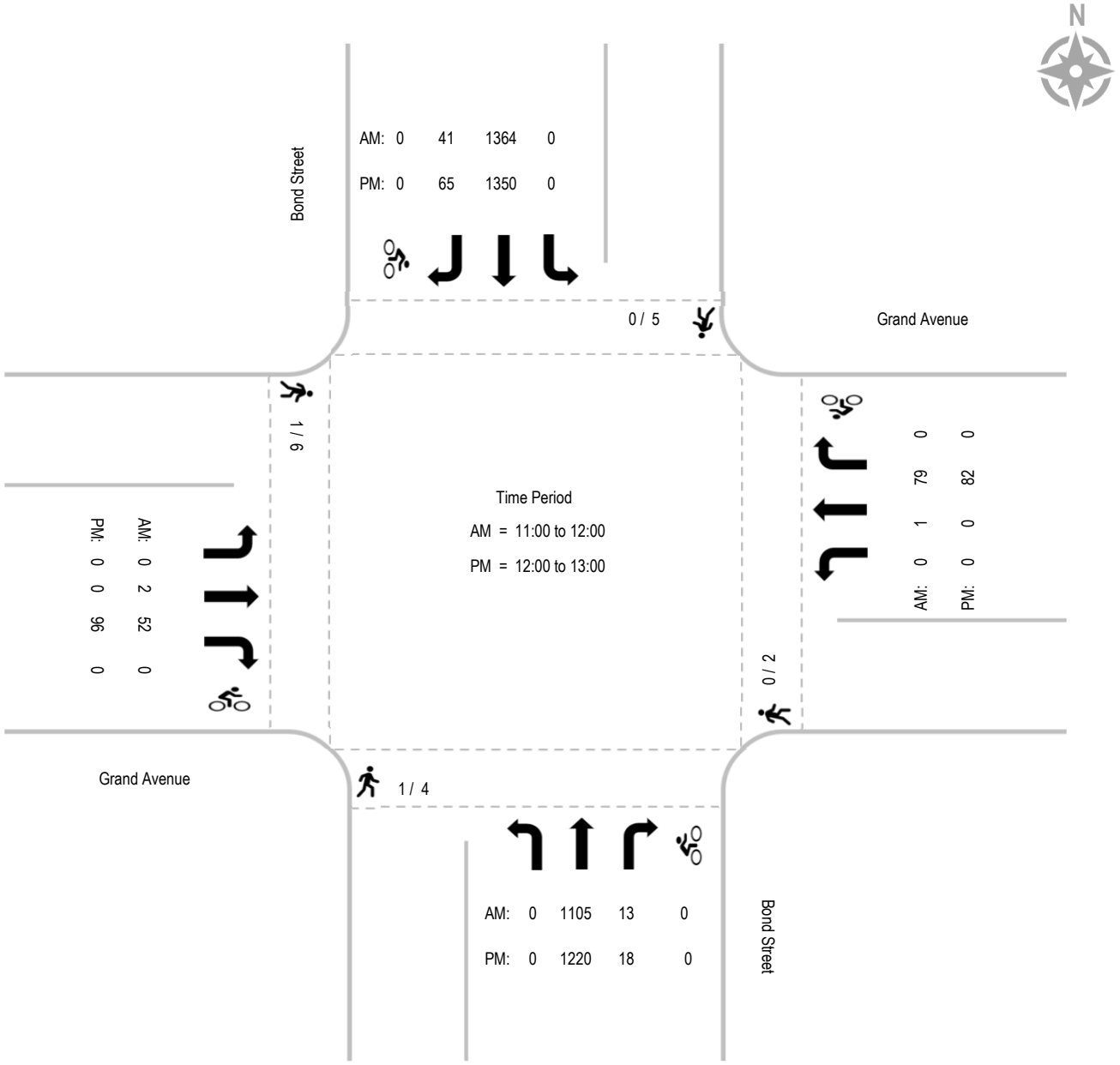
AM	Bond Street Southbound				Grand Avenue Westbound				Bond Street Northbound				Grand Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				1				1				2	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Bond Street Southbound				Grand Avenue Westbound				Bond Street Northbound				Grand Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
12:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
12:15	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	4	0
12:30	5	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	9	0
12:45	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	3	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	5				2				4				6				17	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen				
	Location:	#06 11 AM To 2 PM	File Name:	ITM-18-053-06

Ryan Associates	Intersection:	Bond Street & Grand Avenue	Project:	Chen Ryan #0243.A2
	Date of Count:	Saturday, May 19, 2018		Mission Bay



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-020 **Day:** Thursday

City: Pacific Beach **Date:** 6/9/2016

AM

NS/EW Streets:	Figueroa Blvd			Figueroa Blvd			Grand Ave			Grand Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 0	ST 0	SR 0	EL 1	ET 1	ER 0	WL 0	WT 2	WR 0	TOTAL
7:00 AM	0	0	0	0	0	0	11	360	0	0	206	5	582
7:15 AM	0	0	0	0	0	0	24	426	0	0	192	4	646
7:30 AM	0	0	0	0	0	0	21	490	0	0	144	3	658
7:45 AM	0	0	0	0	0	0	9	489	0	0	147	10	655
8:00 AM	0	0	0	0	0	0	9	428	0	0	125	11	573
8:15 AM	0	0	0	0	0	0	4	407	0	0	137	7	555
8:30 AM	0	0	0	0	0	0	10	401	0	0	157	11	579
8:45 AM	0	0	0	0	0	0	9	336	0	0	152	14	511
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	97	3337	0	0	1260	65	4759
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	2.82%	97.18%	0.00%	0.00%	95.09%	4.91%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	65	1765	0	0	689	22	2541
PEAK HR FACTOR :		0.000			0.000			0.895			0.842		0.965

UTURNS	NB	SB	EB	WB
	0	0	8	0
	0	0	14	0
	0	0	10	0
	0	0	1	0
	0	0	1	0
	0	0	1	0
	0	0	2	0
	0	0	1	0
	NB	SB	EB	WB
	0	0	38	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4184-020

Day: Thursday

City: Pacific Beach

Date: 6/9/2016

PM

NS/EW Streets:	Figueroa Blvd			Figueroa Blvd			Grand Ave			Grand Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 0	ST 0	SR 0	EL 1	ET 1	ER 0	WL 0	WT 2	WR 0	TOTAL
4:00 PM	0	0	0	0	0	0	24	304	0	0	291	8	627
4:15 PM	0	0	0	0	0	0	16	263	0	0	319	7	605
4:30 PM	0	0	0	0	0	0	13	282	0	0	322	4	621
4:45 PM	0	0	0	0	0	0	20	275	0	0	382	9	686
5:00 PM	0	0	0	0	0	0	12	326	0	0	402	11	751
5:15 PM	0	0	0	0	0	0	13	281	0	0	388	11	693
5:30 PM	0	0	0	0	0	0	17	295	0	0	369	3	684
5:45 PM	0	0	0	0	0	0	19	281	0	0	414	5	719
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	134	2307	0	0	2887	58	5386
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.49%	94.51%	0.00%	0.00%	98.03%	1.97%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	61	1183	0	0	1573	30	2847
PEAK HR FACTOR :		0.000			0.000			0.920			0.956		0.948

UTURNS				
NB	SB	EB	WB
0	0	11	0
0	0	10	0
0	0	6	0
0	0	10	0
0	0	2	0
0	0	6	0
0	0	7	0
0	0	9	0
NB	SB	EB	WB
0	0	61	0

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Figueroa Blvd and Grand Ave , San Diego

Date: 12/5/2015

Day: Saturday

Project #: 15-4362-001

City: San Diego

AM Peak Hour	
NOON Peak Hour	1200 PM
PM Peak Hour	

Peak Hour Summary

Southbound Approach

	Lanes	0	1	0		
AM		0	0	0	0	AM
NOON		1	0	0	75	NOON
PM		0	0	0	0	PM

Figueroa Blvd

Grand Ave

Eastbound Approach

Lanes	AM	NOON	PM
	0	1070	0
1	0	53	0
1	0	1308	0
0	0	0	0

CONTROL

Signalized

Westbound Approach

Lanes	AM	NOON	PM
0	0	22	0
2	0	1069	0
0	0	0	0
	0	1308	0

Count Periods	Start	End
AM	NONE	NONE
NOON	11:00 AM	1:00 PM
PM	NONE	NONE

Northbound Approach

AM	0	0	0	0	AM
NOON	0	0	0	0	NOON
PM	0	0	0	0	PM
Lanes		0	0	0	

Total Ins & Outs

North Leg		
0	0	AM
1	75	NOON
0	0	PM

West Leg			East Leg		
AM	NOON	PM			
0	1070	0	0	1091	0
0	1361	0	0	1308	0
			AM	NOON	PM

South Leg		
0	0	AM
0	0	NOON
0	0	PM

Total Volume Per Leg

North Leg	
0	AM
76	NOON
0	PM

West Leg			East Leg		
AM	NOON	PM			
0	2431	0	0	2399	0
			AM	NOON	PM

South Leg	
0	AM
0	NOON
0	PM

Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location:	#07 7-9 AM & 4-6 PM	File Name: ITM-18-042-07.1
Ryan	Intersection:	Mission Bay Drive & Grand Avenue	Project: Chen Ryan #0243.A2
Associates	Date of Count:	Thursday, May 03, 2018	Mission Bay

AM	Mission Bay Drive **Southbound**			Grand Avenue **Westbound**			Mission Bay Drive **Northbound**			Grand Avenue **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	154	0	0	0	0	177	198	0	71	0	324	924
7:15	0	197	0	0	0	0	125	201	0	107	0	319	949
7:30	0	185	0	0	0	0	225	218	0	104	0	394	1126
7:45	0	180	1	0	0	0	331	221	0	78	0	375	1186
8:00	0	187	3	0	0	0	125	201	0	82	0	355	953
8:15	0	171	0	0	0	0	146	198	0	74	0	333	922
8:30	0	213	6	0	0	0	142	173	0	64	0	342	940
8:45	0	184	13	0	0	0	191	218	0	67	0	271	944
Total	0	1471	23	0	0	0	1462	1628	0	647	0	2713	7944
Approach%	-	98.5	1.5	-	-	-	47.3	52.7	-	19.3	-	80.7	
Total%	-	18.5	0.3	-	-	-	18.4	20.5	-	8.1	-	34.2	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	-	749	4	-	-	-	806	841	-	371	-	1,443	4,214
Approach%	-	99.5	0.5	-	-	-	48.9	51.1	-	20.5	-	79.5	
Total%	-	17.8	0.1	-	-	-	19.1	20.0	-	8.8	-	34.2	
PHF			0.96			#DIV/0!			0.75			0.91	

PM	Mission Bay Drive **Southbound**			Grand Avenue **Westbound**			Mission Bay Drive **Northbound**			Grand Avenue **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	166	2	0	0	0	331	218	0	55	0	264	1036
16:15	0	153	0	0	0	0	374	228	0	40	0	256	1051
16:30	0	206	0	0	0	0	296	209	0	35	0	228	974
16:45	0	222	0	0	0	0	233	233	0	38	0	198	924
17:00	0	193	1	0	0	0	389	261	0	31	0	259	1134
17:15	0	188	0	0	0	0	329	253	0	46	0	270	1086
17:30	0	176	3	0	0	0	357	234	0	35	0	283	1088
17:45	0	206	0	0	0	0	343	243	0	51	0	269	1112
Total	0	1510	6	0	0	0	2652	1879	0	331	0	2027	8405
Approach%	-	99.6	0.4	-	-	-	58.5	41.5	-	14.0	-	86.0	
Total%	-	19.0	0.1	-	-	-	33.4	23.7	-	4.2	-	25.5	

PM Intersection Peak Hour: **17:00 to 18:00**

Volume	-	763	4	-	-	-	1,418	991	-	163	-	1,081	4,420
Approach%	-	99.5	0.5	-	-	-	58.9	41.1	-	13.1	-	86.9	
Total%	-	18.1	0.1	-	-	-	33.6	23.5	-	3.9	-	25.7	
PHF			0.93			#DIV/0!			0.93			0.97	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates				
	Location:	#07 7-9 AM & 4-6 PM	File Name:	ITM-18-042-07.1
	Intersection:	Mission Bay Drive & Grand Avenue	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay

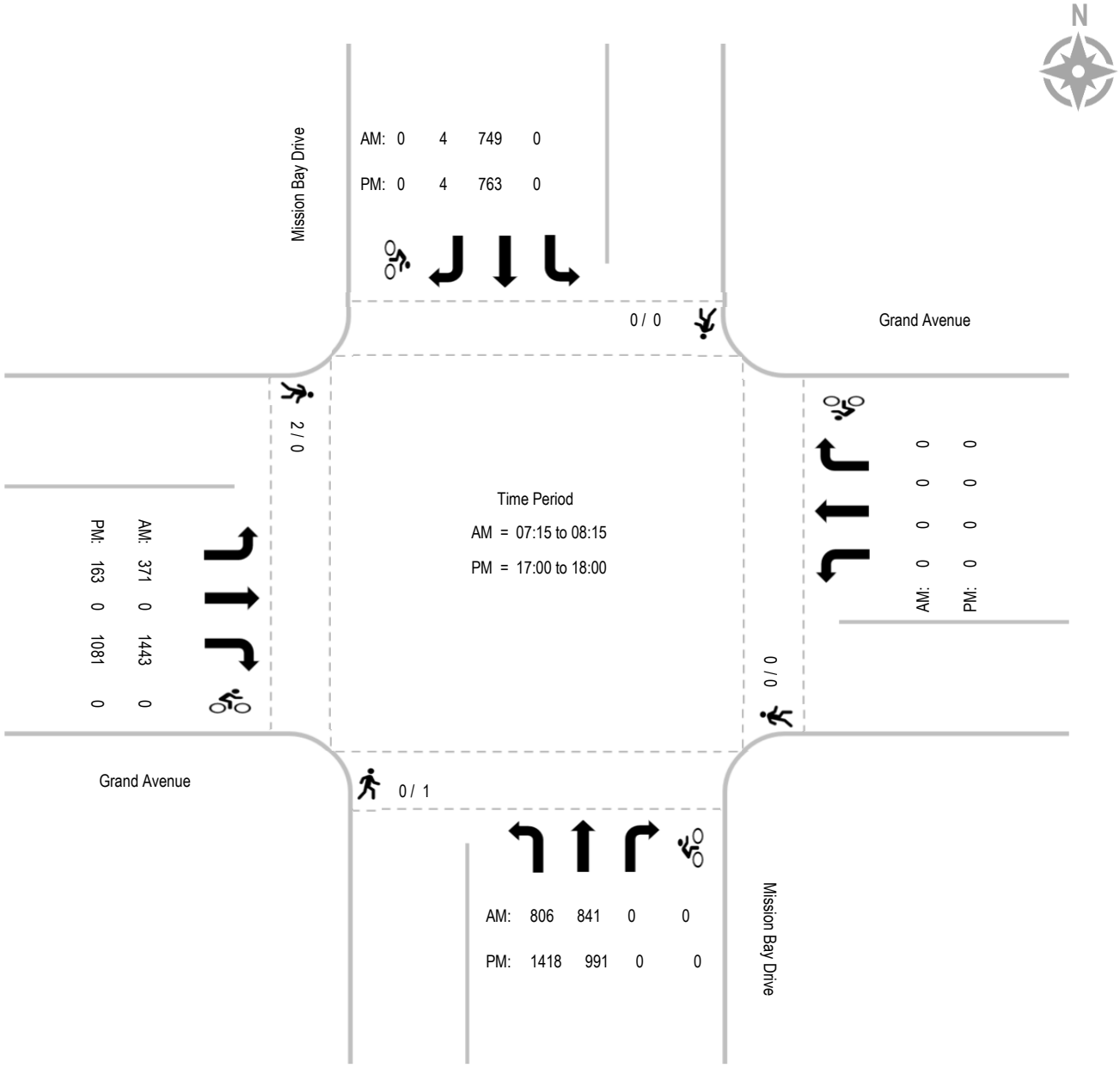
AM	Mission Bay Drive Southbound				Grand Avenue Westbound				Mission Bay Drive Northbound				Grand Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				2				2	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Mission Bay Drive Southbound				Grand Avenue Westbound				Mission Bay Drive Northbound				Grand Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				1				0				1	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen				
	Location:	#07 7-9 AM & 4-6 PM	File Name:	ITM-18-042-07.1

Ryan Associates	Intersection:	Mission Bay Drive & Grand Avenue	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay



Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location:	#07 11 AM To 2 PM	File Name: ITM-18-053-07
Ryan	Intersection:	Mission Bay Drive & Grand Avenue	Project: Chen Ryan #0243.A2
Associates	Date of Count:	Saturday, May 19, 2018	Mission Bay

AM	Mission Bay Drive **Southbound**			Grand Avenue **Westbound**			Mission Bay Drive **Northbound**			Grand Avenue **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	160	32	0	0	0	254	177	0	53	0	237	913
11:15	0	186	48	0	0	0	248	232	0	58	0	265	1037
11:30	0	213	37	0	0	0	245	206	0	48	0	269	1018
11:45	0	222	33	0	0	0	279	235	0	55	0	312	1136
Total	0	781	150	0	0	0	1026	850	0	214	0	1083	4104
Approach%	-	83.9	16.1	-	-	-	54.7	45.3	-	16.5	-	83.5	
Total%	-	19.0	3.7	-	-	-	25.0	20.7	-	5.2	-	26.4	

AM Intersection Peak Hour: **11:00 to 12:00**

Volume	-	781	150	-	-	-	1,026	850	-	214	-	1,083	4,104
Approach%	-	83.9	16.1	-	-	-	54.7	45.3	-	16.5	-	83.5	
Total%	-	19.0	3.7	-	-	-	25.0	20.7	-	5.2	-	26.4	
PHF			0.91			#DIV/0!			0.91			0.88	

PM	Mission Bay Drive **Southbound**			Grand Avenue **Westbound**			Mission Bay Drive **Northbound**			Grand Avenue **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
12:00	0	204	38	0	0	0	253	221	0	55	0	308	1079
12:15	0	240	45	0	0	0	250	221	0	62	0	315	1133
12:30	0	230	42	0	0	0	248	188	0	48	0	258	1014
12:45	0	208	48	0	0	0	259	222	0	71	0	280	1088
13:00	0	172	33	0	0	0	277	184	0	49	0	269	984
13:15	0	213	39	0	0	0	275	207	0	45	0	257	1036
13:30	0	147	40	0	0	0	280	174	0	37	0	227	905
13:45	0	151	47	0	0	0	279	236	0	46	0	257	1016
Total	0	1565	332	0	0	0	2121	1653	0	413	0	2171	8255
Approach%	-	82.5	17.5	-	-	-	56.2	43.8	-	16.0	-	84.0	
Total%	-	38.1	8.1	-	-	-	51.7	40.3	-	10.1	-	52.9	

PM Intersection Peak Hour: **12:00 to 13:00**

Volume	-	882	173	-	-	-	1,010	852	-	236	-	1,161	4,314
Approach%	-	83.6	16.4	-	-	-	54.2	45.8	-	16.9	-	83.1	
Total%	-	21.5	4.2	-	-	-	24.6	20.8	-	5.8	-	28.3	
PHF			0.93			#DIV/0!			0.97			0.93	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates				
	Location:	#07 11 AM To 2 PM	File Name:	ITM-18-053-07
	Intersection:	Mission Bay Drive & Grand Avenue	Project:	Chen Ryan #0243.A2
	Date of Count:	Saturday, May 19, 2018		Mission Bay

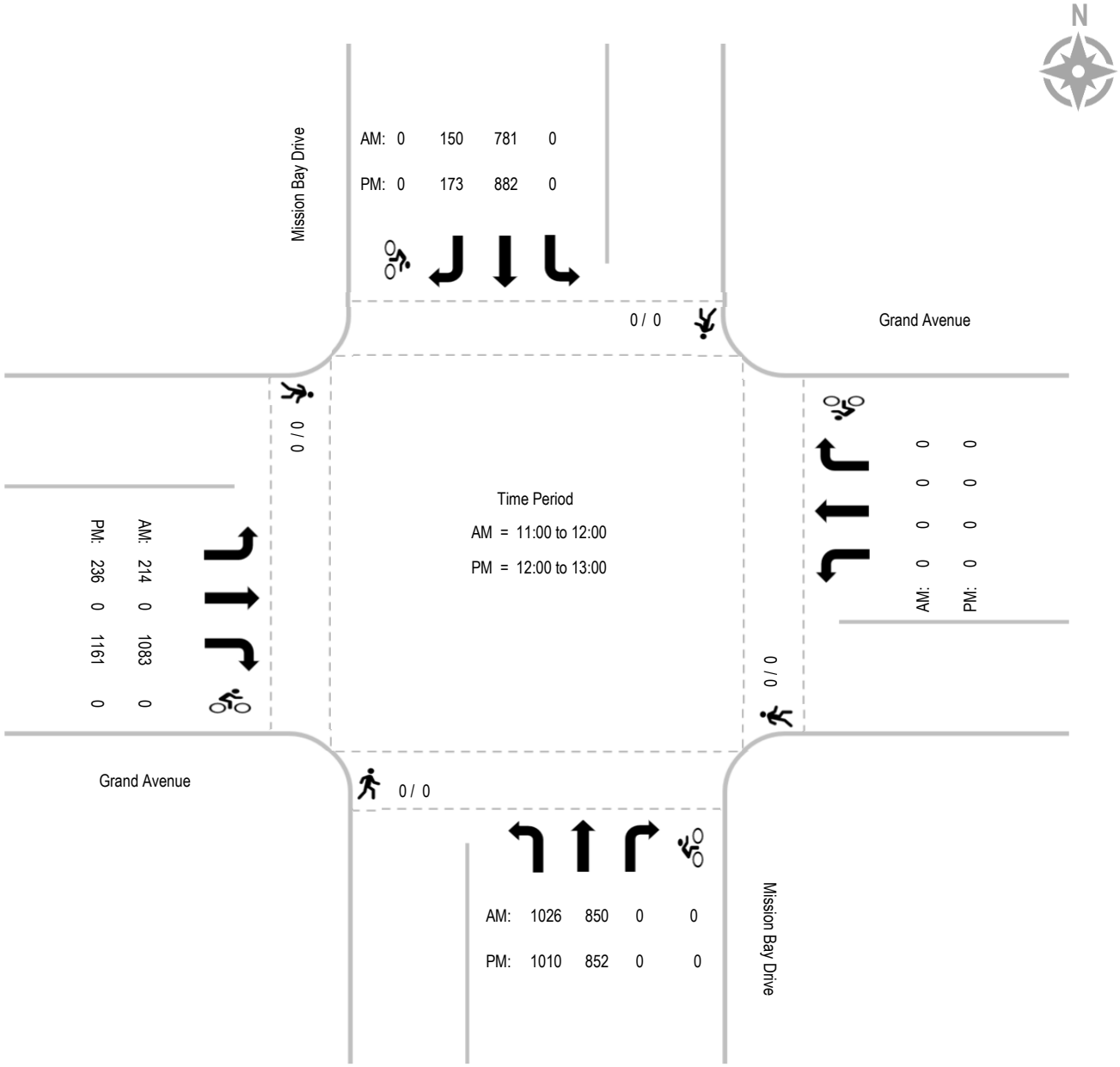
AM	Mission Bay Drive Southbound				Grand Avenue Westbound				Mission Bay Drive Northbound				Grand Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Mission Bay Drive Southbound				Grand Avenue Westbound				Mission Bay Drive Northbound				Grand Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen				
	Location:	#07 11 AM To 2 PM	File Name:	ITM-18-053-07

Ryan Associates	Intersection:	Mission Bay Drive & Grand Avenue	Project:	Chen Ryan #0243.A2
	Date of Count:	Saturday, May 19, 2018		Mission Bay



Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location: #01 7-9 AM & 4-6 PM	File Name:	ITM-18-042-01.1
Ryan	Intersection: I-5 SB On-Ramp & Mission Bay Dr	Project:	Chen Ryan #0243.A2
Associates	Date of Count: Thursday, May 03, 2018		Mission Bay

AM	I-5 SB On-Ramp **Southbound**			- **Westbound**			I-5 SB On-Ramp **Northbound**			Mission Bay Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	451	14	0	0	0	0	0	0	33	0	3	501
7:15	0	484	26	0	0	0	0	0	0	33	0	5	548
7:30	0	577	20	0	0	0	0	0	0	62	0	3	662
7:45	0	524	17	0	0	0	0	0	0	51	0	7	599
8:00	0	559	28	0	0	0	0	0	0	63	0	1	651
8:15	0	480	17	0	0	0	0	0	0	65	0	2	564
8:30	0	542	36	0	0	0	0	0	0	48	0	4	630
8:45	0	460	24	0	0	0	0	0	0	40	0	2	526
Total	0	4077	182	0	0	0	0	0	0	395	0	27	4681
Approach%	-	95.7	4.3	-	-	-	-	-	-	93.6	-	6.4	
Total%	-	87.1	3.9	-	-	-	-	-	-	8.4	-	0.6	

AM Intersection Peak Hour: **07:30 to 08:30**

Volume	-	2,140	82	-	-	-	-	-	-	241	-	13	2,476
Approach%	-	96.3	3.7	-	-	-	-	-	-	94.9	-	5.1	
Total%	-	86.4	3.3	-	-	-	-	-	-	9.7	-	0.5	
PHF			0.93			#DIV/0!			#DIV/0!			0.95	

PM	I-5 SB On-Ramp **Southbound**			- **Westbound**			I-5 SB On-Ramp **Northbound**			Mission Bay Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	337	162	0	0	0	0	0	0	36	0	5	540
16:15	0	335	158	0	0	0	0	0	0	40	0	4	537
16:30	0	297	129	0	0	0	0	0	0	22	0	2	450
16:45	0	380	152	0	0	0	0	0	0	38	0	1	571
17:00	0	249	82	0	0	0	0	0	0	36	0	1	368
17:15	0	361	159	0	0	0	0	0	0	33	0	5	558
17:30	0	320	131	0	0	0	0	0	0	43	0	5	499
17:45	0	362	151	0	0	0	0	0	0	32	0	3	548
Total	0	2641	1124	0	0	0	0	0	0	280	0	26	4071
Approach%	-	70.1	29.9	-	-	-	-	-	-	91.5	-	8.5	
Total%	-	56.4	24.0	-	-	-	-	-	-	6.0	-	0.6	

PM Intersection Peak Hour: **16:00 to 17:00**

Volume	-	1,349	601	-	-	-	-	-	-	136	-	12	2,098
Approach%	-	69.2	30.8	-	-	-	-	-	-	91.9	-	8.1	
Total%	-	54.5	24.3	-	-	-	-	-	-	5.5	-	0.5	
PHF			0.92			#DIV/0!			#DIV/0!			0.84	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates	Location:	#01 7-9 AM & 4-6 PM	File Name:	ITM-18-042-01.1
	Intersection:	I-5 SB On-Ramp & Mission Bay Dr	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay

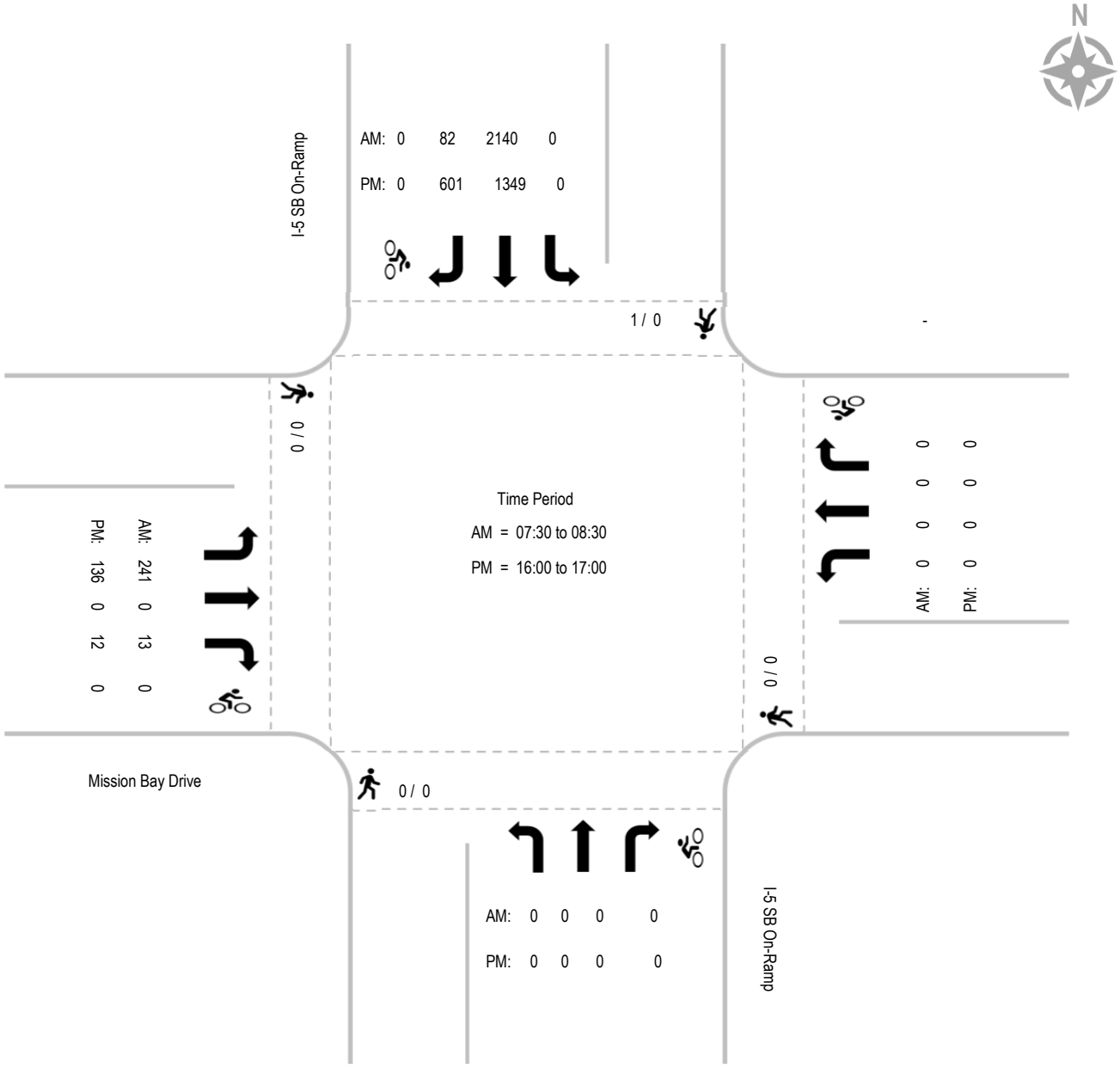
AM	I-5 SB On-Ramp Southbound				- Westbound				I-5 SB On-Ramp Northbound				Mission Bay Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	1				0				0				0				1	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	I-5 SB On-Ramp Southbound				- Westbound				I-5 SB On-Ramp Northbound				Mission Bay Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen	Location:	#01 7-9 AM & 4-6 PM	File Name:	ITM-18-042-01.1

Ryan Associates	Intersection:	I-5 SB On-Ramp & Mission Bay Dr	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay



Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location: #01 11 AM - 2 PM	File Name:	ITM-18-053-01
Ryan	Intersection: I-5 SB On-Ramp & Mission Bay Dr	Project:	Chen Ryan #0243.A2
Associates	Date of Count: Saturday, May 19, 2018		Mission Bay

AM	I-5 SB On-Ramp **Southbound**			- **Westbound**			I-5 SB On-Ramp **Northbound**			Mission Bay Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	455	42	0	0	0	0	0	0	17	0	20	534
11:15	0	522	45	0	0	0	0	0	0	34	0	12	613
11:30	0	468	42	0	0	0	0	0	0	34	0	11	555
11:45	0	433	49	0	0	0	0	0	0	37	0	7	526
Total	0	1878	178	0	0	0	0	0	0	122	0	50	2228
Approach%	-	91.3	8.7	-	-	-	-	-	-	70.9	-	29.1	
Total%	-	84.3	8.0	-	-	-	-	-	-	5.5	-	2.2	

AM Intersection Peak Hour: **11:00 to 12:00**

Volume	-	1,878	178	-	-	-	-	-	-	122	-	50	2,228
Approach%	-	91.3	8.7	-	-	-	-	-	-	70.9	-	29.1	
Total%	-	84.3	8.0	-	-	-	-	-	-	5.5	-	2.2	
PHF			0.91			#DIV/0!			#DIV/0!			0.93	

PM	I-5 SB On-Ramp **Southbound**			- **Westbound**			I-5 SB On-Ramp **Northbound**			Mission Bay Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
12:00	0	406	51	0	0	0	0	0	0	29	0	23	509
12:15	0	427	38	0	0	0	0	0	0	32	0	17	514
12:30	0	377	37	0	0	0	0	0	0	43	0	13	470
12:45	0	377	35	0	0	0	0	0	0	50	0	10	472
13:00	0	422	33	0	0	0	0	0	0	42	0	25	522
13:15	0	454	47	0	0	0	0	0	0	40	0	12	553
13:30	0	443	41	0	0	0	0	0	0	33	0	8	525
13:45	0	470	40	0	0	0	0	0	0	40	0	14	564
Total	0	3376	322	0	0	0	0	0	0	309	0	122	4129
Approach%	-	91.3	8.7	-	-	-	-	-	-	71.7	-	28.3	
Total%	-	151.5	14.5	-	-	-	-	-	-	13.9	-	5.5	

PM Intersection Peak Hour: **13:00 to 14:00**

Volume	-	1,789	161	-	-	-	-	-	-	155	-	59	2,164
Approach%	-	91.7	8.3	-	-	-	-	-	-	72.4	-	27.6	
Total%	-	80.3	7.2	-	-	-	-	-	-	7.0	-	2.6	
PHF			0.96			#DIV/0!			#DIV/0!			0.80	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates	Location: #01 11 AM - 2 PM	File Name: ITM-18-053-01
	Intersection: I-5 SB On-Ramp & Mission Bay Dr	Project: Chen Ryan #0243.A2
	Date of Count: Saturday, May 19, 2018	Mission Bay

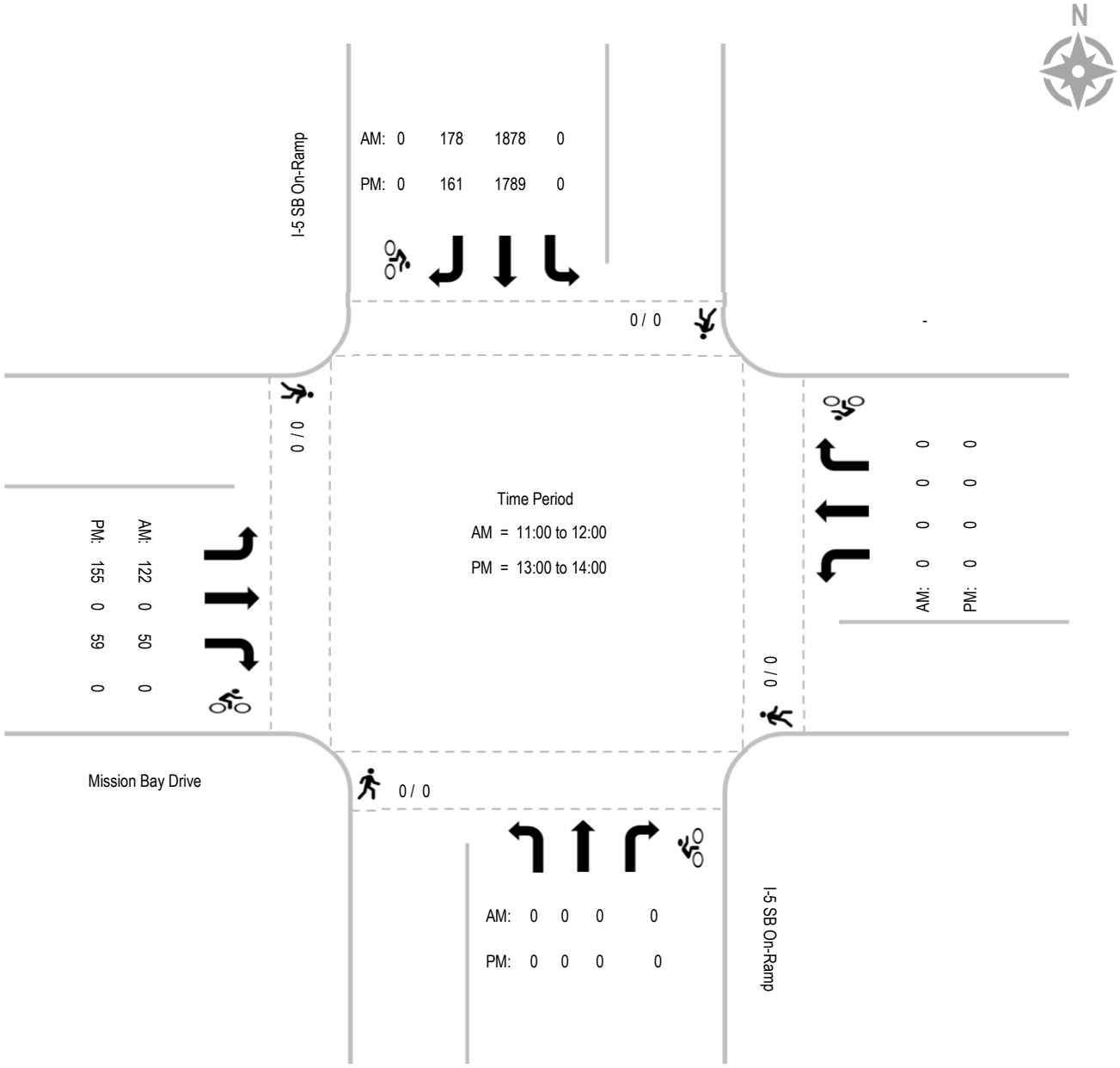
AM	I-5 SB On-Ramp Southbound				- Westbound				I-5 SB On-Ramp Northbound				Mission Bay Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	I-5 SB On-Ramp Southbound				- Westbound				I-5 SB On-Ramp Northbound				Mission Bay Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen	Location: #01 11 AM - 2 PM	File Name: ITM-18-053-01

Ryan Associates	Intersection: I-5 SB On-Ramp & Mission Bay Dr	Project: Chen Ryan #0243.A2
	Date of Count: Saturday, May 19, 2018	Mission Bay



Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location:	#02 7-9 AM & 4-6 PM	File Name: ITM-18-042-02.1
Ryan	Intersection:	Olney Street & Pacific Beach Drive	Project: Chen Ryan #0243.A2
Associates	Date of Count:	Thursday, May 03, 2018	Mission Bay

AM	Olney Street **Southbound**			Pacific Beach Drive **Westbound**			**Northbound**			Pacific Beach Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	2	0	16	0	4	17	0	0	0	53	1	0	93
7:15	3	0	35	0	1	4	0	0	0	102	3	0	148
7:30	6	0	22	0	3	14	0	0	0	64	4	0	113
7:45	7	0	14	0	1	10	0	0	0	37	5	0	74
8:00	2	0	9	0	4	3	0	0	0	68	3	0	89
8:15	4	0	11	0	5	11	0	0	0	42	8	0	81
8:30	1	0	9	0	2	6	0	0	0	41	1	0	60
8:45	6	0	14	0	2	3	0	0	0	35	4	0	64
Total	31	0	130	0	22	68	0	0	0	442	29	0	722
Approach%	19.3	-	80.7	-	24.4	75.6	-	-	-	93.8	6.2	-	
Total%	4.3	-	18.0	-	3.0	9.4	-	-	-	61.2	4.0	-	

AM Intersection Peak Hour: **07:00 to 08:00**

Volume	18	-	87	-	9	45	-	-	-	256	13	-	428
Approach%	17.1	-	82.9	-	16.7	83.3	-	-	-	95.2	4.8	-	
Total%	4.2	-	20.3	-	2.1	10.5	-	-	-	59.8	3.0	-	
PHF			0.69			0.64			#DIV/0!			0.64	

PM	Olney Street **Southbound**			Pacific Beach Drive **Westbound**			**Northbound**			Pacific Beach Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	9	0	21	0	4	4	0	0	0	21	3	0	62
16:15	9	0	23	0	4	9	0	0	0	16	8	0	69
16:30	11	0	20	0	5	7	0	0	0	15	8	0	66
16:45	16	0	22	0	3	10	0	0	0	18	4	0	73
17:00	16	0	23	0	4	19	0	0	0	26	8	0	96
17:15	17	0	27	0	5	11	0	0	0	17	6	0	83
17:30	18	0	21	0	4	13	0	0	0	31	3	0	90
17:45	13	0	18	0	7	12	0	0	0	24	8	0	82
Total	109	0	175	0	36	85	0	0	0	168	48	0	621
Approach%	38.4	-	61.6	-	29.8	70.2	-	-	-	77.8	22.2	-	
Total%	15.1	-	24.2	-	5.0	11.8	-	-	-	23.3	6.6	-	

PM Intersection Peak Hour: **17:00 to 18:00**

Volume	64	-	89	-	20	55	-	-	-	98	25	-	351
Approach%	41.8	-	58.2	-	26.7	73.3	-	-	-	79.7	20.3	-	
Total%	15.0	-	20.8	-	4.7	12.9	-	-	-	22.9	5.8	-	
PHF			0.87			0.82			#DIV/0!			0.90	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates				
	Location:	#02 7-9 AM & 4-6 PM	File Name:	ITM-18-042-02.1
	Intersection:	Olney Street & Pacific Beach Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay

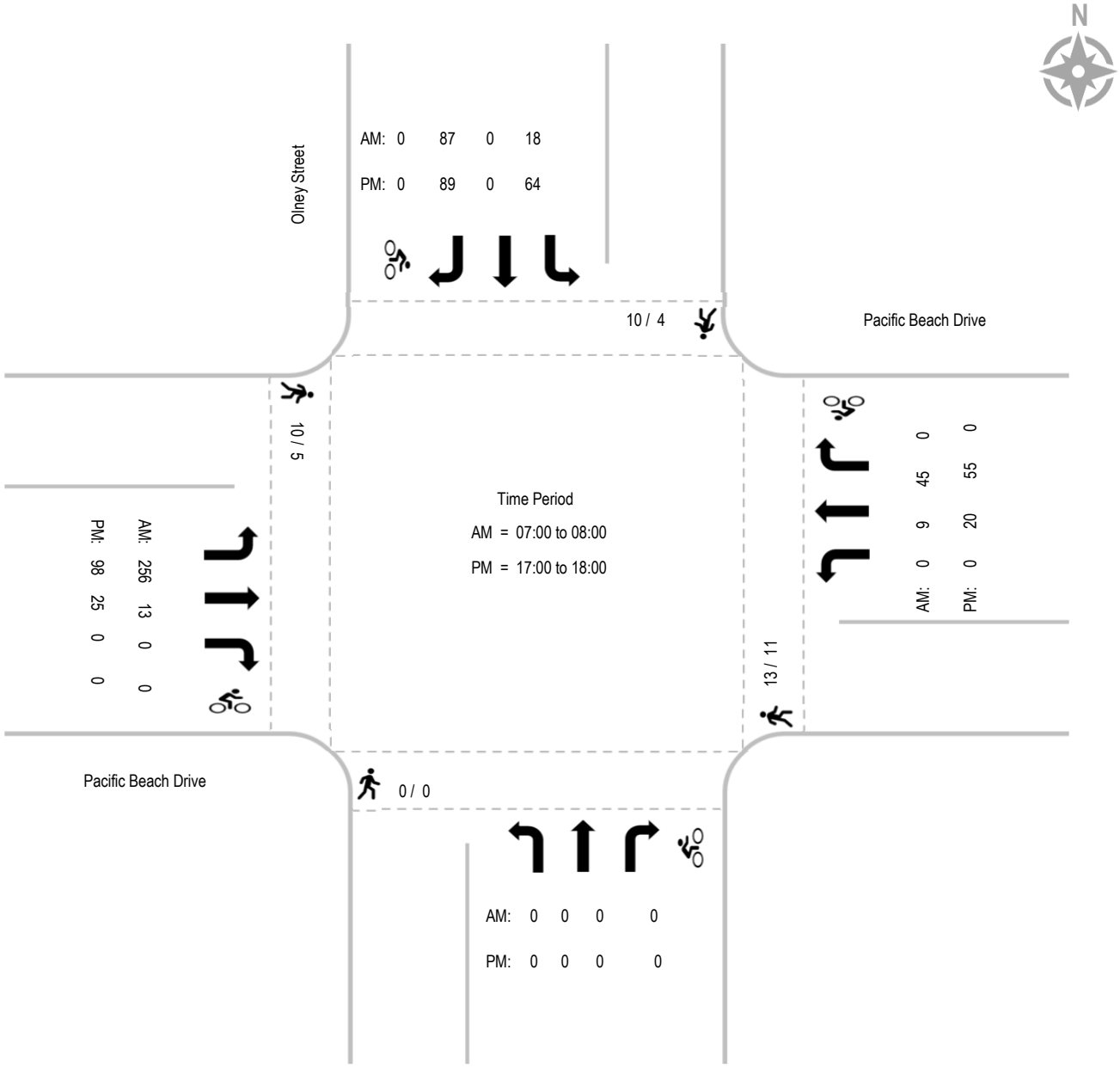
AM	Olney Street Southbound				Pacific Beach Drive Westbound				Northbound				Pacific Beach Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	11	0
7:15	2	0	0	0	1	0	0	0	0	0	0	0	4	0	0	0	7	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
8:00	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	3	0
8:15	2	0	0	0	2	0	0	0	0	0	0	0	3	0	0	0	7	0
8:30	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0
8:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0
Ped Total	10				13				0				10				33	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Olney Street Southbound				Pacific Beach Drive Westbound				Northbound				Pacific Beach Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
16:30	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
16:45	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	5	0
17:00	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	4	0
17:15	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	3	0
17:30	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
17:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0
Ped Total	4				11				0				5				20	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen				
	Location:	#02 7-9 AM & 4-6 PM	File Name:	ITM-18-042-02.1

Ryan Associates	Intersection:	Olney Street & Pacific Beach Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay



Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location:	#02 11 AM - 2 PM	File Name: ITM-18-042-02
Ryan	Intersection:	Olney Street & Pacific Beach Drive	Project: Chen Ryan #0243.A2
Associates	Date of Count:	Saturday, May 19, 2018	Mission Bay

AM	Olney Street **Southbound**			Pacific Beach Drive **Westbound**			- **Northbound**			Pacific Beach Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	19	0	20	0	10	22	0	0	0	20	35	0	126
11:15	22	0	15	0	13	24	0	0	0	30	28	0	132
11:30	21	0	14	0	12	22	0	0	0	19	17	0	105
11:45	18	0	15	0	7	27	0	0	0	31	21	0	119
Total	80	0	64	0	42	95	0	0	0	100	101	0	482
Approach%	55.6	-	44.4	-	30.7	69.3	-	-	-	49.8	50.2	-	
Total%	16.6	-	13.3	-	8.7	19.7	-	-	-	20.7	21.0	-	

AM Intersection Peak Hour: **11:00 to 12:00**

Volume	80	-	64	-	42	95	-	-	-	100	101	-	482
Approach%	55.6	-	44.4	-	30.7	69.3	-	-	-	49.8	50.2	-	
Total%	16.6	-	13.3	-	8.7	19.7	-	-	-	20.7	21.0	-	
PHF			0.92			0.93			#DIV/0!			0.87	

PM	Olney Street **Southbound**			Pacific Beach Drive **Westbound**			- **Northbound**			Pacific Beach Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
12:00	23	0	21	0	16	25	0	0	0	28	22	0	135
12:15	21	0	15	0	32	19	0	0	0	34	15	0	136
12:30	21	0	9	0	9	11	0	0	0	19	16	0	85
12:45	17	0	14	0	18	20	0	0	0	28	29	0	126
13:00	35	0	11	0	13	17	0	0	0	19	17	0	112
13:15	20	0	20	0	13	15	0	0	0	25	14	0	107
13:30	26	0	15	0	10	12	0	0	0	22	9	0	94
13:45	19	0	20	0	16	9	0	0	0	21	8	0	93
Total	182	0	125	0	127	128	0	0	0	196	130	0	888
Approach%	59.3	-	40.7	-	49.8	50.2	-	-	-	60.1	39.9	-	
Total%	37.8	-	25.9	-	26.3	26.6	-	-	-	40.7	27.0	-	

PM Intersection Peak Hour: **12:00 to 13:00**

Volume	82	-	59	-	75	75	-	-	-	109	82	-	482
Approach%	58.2	-	41.8	-	50.0	50.0	-	-	-	57.1	42.9	-	
Total%	17.0	-	12.2	-	15.6	15.6	-	-	-	22.6	17.0	-	
PHF			0.80			0.74			#DIV/0!			0.84	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates				
	Location:	#02 11 AM - 2 PM	File Name:	ITM-18-042-02
	Intersection:	Olney Street & Pacific Beach Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Saturday, May 19, 2018		Mission Bay

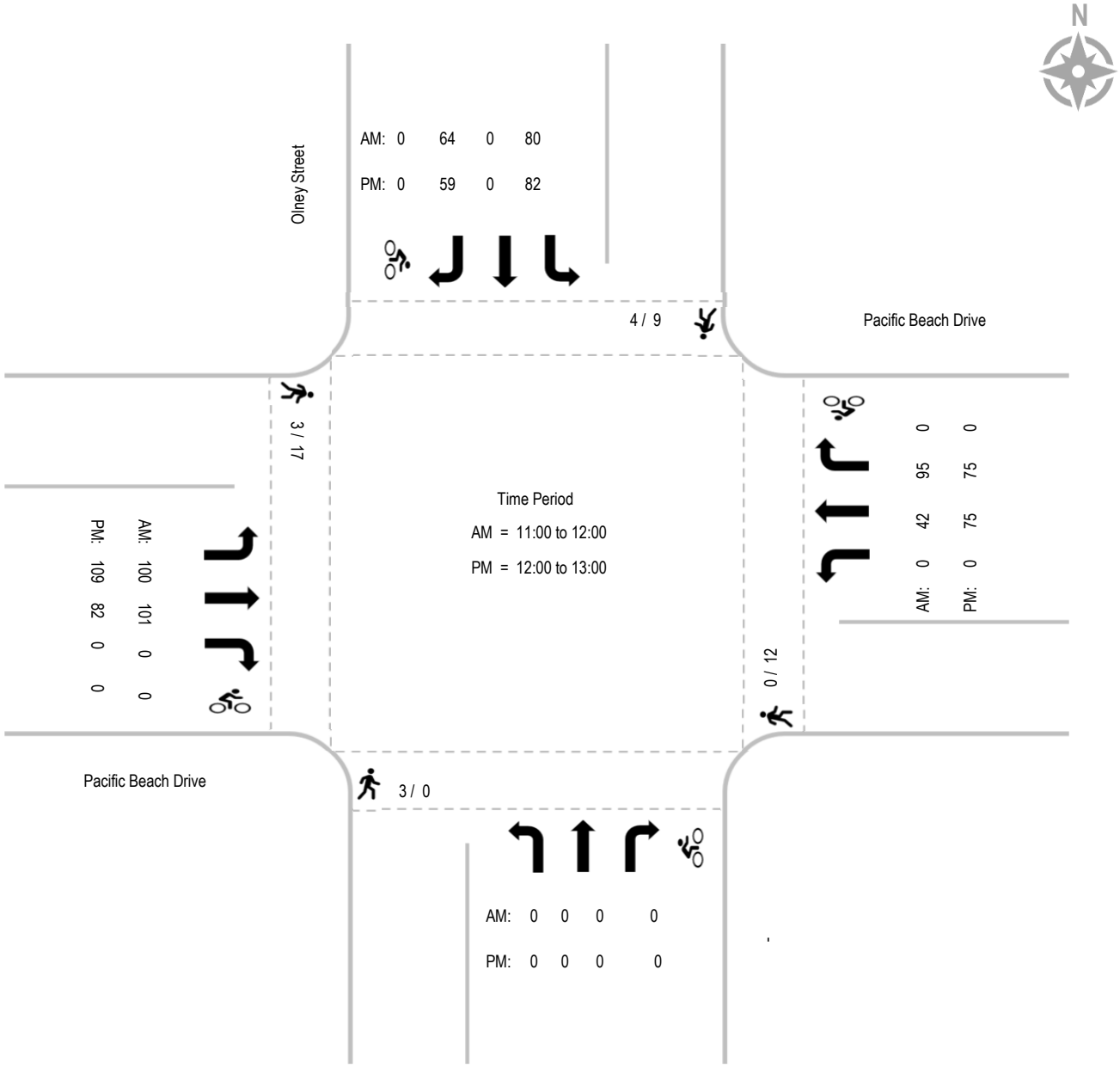
AM	Olney Street Southbound				Pacific Beach Drive Westbound				- Northbound				Pacific Beach Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
10:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
10:15	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
10:45	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	4	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	4				0				3				3				10	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Olney Street Southbound				Pacific Beach Drive Westbound				- Northbound				Pacific Beach Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
12:00	1	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	10	0
12:15	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
12:30	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	0	5	0
12:45	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0
13:00	3	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	11	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0
13:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0
Ped Total	9				12				0				17				38	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen				
	Location:	#02 11 AM - 2 PM	File Name:	ITM-18-042-02

Ryan Associates	Intersection:	Olney Street & Pacific Beach Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Saturday, May 19, 2018		Mission Bay



Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location:	#03 7-9 AM & 4-6 PM	File Name:	ITM-18-042-03.1
Ryan	Intersection:	De Anza Road & North Mission Bay Drive	Project:	Chen Ryan #0243.A2
Associates	Date of Count:	Thursday, May 03, 2018		Mission Bay

AM	- **Southbound**			North Mission Bay Drive **Westbound**			De Anza Road **Northbound**			North Mission Bay Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	0	0	1	5	0	0	0	7	0	1	0	14
7:15	0	0	0	9	3	0	0	0	12	0	3	2	29
7:30	0	0	0	4	9	0	0	0	6	0	3	0	22
7:45	0	0	0	6	3	0	0	0	8	0	6	0	23
8:00	0	0	0	4	7	0	3	0	5	0	5	1	25
8:15	0	0	0	7	8	0	0	0	5	0	6	1	27
8:30	0	0	0	8	8	0	0	0	8	0	5	0	29
8:45	0	0	0	4	9	0	0	0	3	0	5	0	21
Total	0	0	0	43	52	0	3	0	54	0	34	4	190
Approach%	-	-	-	45.3	54.7	-	5.3	-	94.7	-	89.5	10.5	
Total%	-	-	-	22.6	27.4	-	1.6	-	28.4	-	17.9	2.1	

AM Intersection Peak Hour: **07:45 to 08:45**

Volume	-	-	-	25	26	-	3	-	26	-	22	2	104
Approach%	-	-	-	49.0	51.0	-	10.3	-	89.7	-	91.7	8.3	
Total%	-	-	-	24.0	25.0	-	2.9	-	25.0	-	21.2	1.9	
PHF			#DIV/0!			0.80			0.91			0.86	

PM	- **Southbound**			North Mission Bay Drive **Westbound**			De Anza Road **Northbound**			North Mission Bay Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	0	0	15	18	0	2	0	10	0	18	1	64
16:15	0	0	0	16	13	0	2	0	11	0	12	4	58
16:30	0	0	0	18	8	0	4	0	6	0	10	1	47
16:45	0	0	0	9	10	0	1	0	11	0	10	4	45
17:00	0	0	0	12	16	0	0	0	9	0	16	4	57
17:15	0	0	0	18	12	0	2	0	6	0	14	1	53
17:30	0	0	0	9	17	0	4	0	9	0	18	3	60
17:45	0	0	0	15	24	0	0	0	13	0	19	0	71
Total	0	0	0	112	118	0	15	0	75	0	117	18	455
Approach%	-	-	-	48.7	51.3	-	16.7	-	83.3	-	86.7	13.3	
Total%	-	-	-	58.9	62.1	-	7.9	-	39.5	-	61.6	9.5	

PM Intersection Peak Hour: **17:00 to 18:00**

Volume	-	-	-	54	69	-	6	-	37	-	67	8	241
Approach%	-	-	-	43.9	56.1	-	14.0	-	86.0	-	89.3	10.7	
Total%	-	-	-	51.9	66.3	-	5.8	-	35.6	-	64.4	7.7	
PHF			#DIV/0!			0.79			0.83			0.89	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates				
	Location:	#03 7-9 AM & 4-6 PM	File Name:	ITM-18-042-03.1
	Intersection:	De Anza Road & North Mission Bay Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay

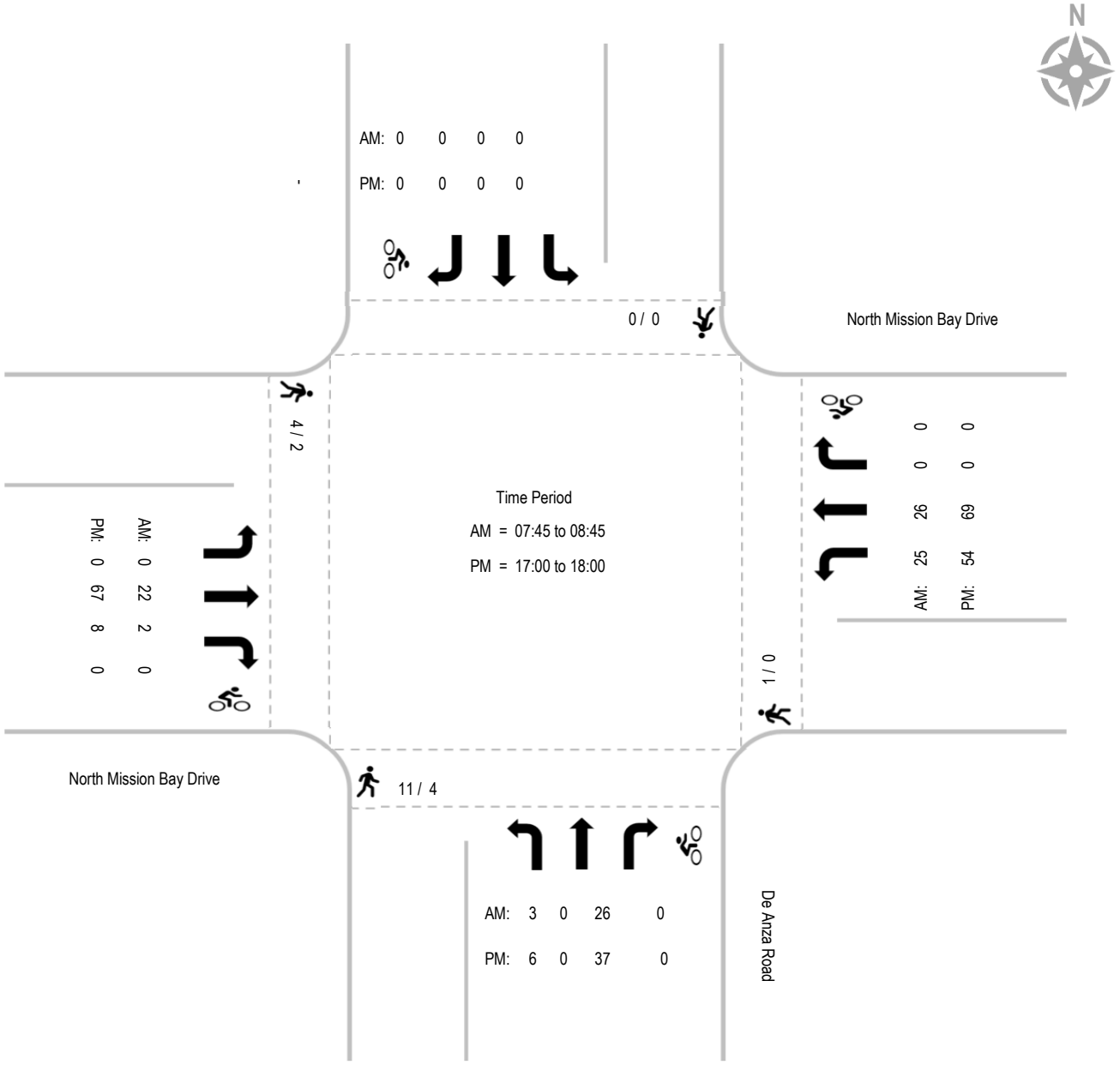
AM	- Southbound				North Mission Bay Drive Westbound				De Anza Road Northbound				North Mission Bay Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	1	0	0	0	8	0	0	0	3	0	0	0	12	0
7:15	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				1				11				4				16	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	- Southbound				North Mission Bay Drive Westbound				De Anza Road Northbound				North Mission Bay Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
16:30	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
17:15	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
17:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				4				2				6	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen				
	Location:	#03 7-9 AM & 4-6 PM	File Name:	ITM-18-042-03.1

Ryan Associates	Intersection:	De Anza Road & North Mission Bay Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay



Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location:	#03 11 AM & 2 PM	File Name:	ITM-18-053-03
Ryan	Intersection:	De Anza Road & North Mission Bay Drive	Project:	Chen Ryan #0243.A2
Associates	Date of Count:	Saturday, May 19, 2018		Mission Bay

AM	**Southbound**			North Mission Bay Drive **Westbound**			De Anza Road **Northbound**			North Mission Bay Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	14	7	0	3	0	17	0	11	4	56
11:15	0	0	0	12	9	0	0	0	18	0	1	4	44
11:30	0	0	0	19	15	0	0	0	24	0	10	1	69
11:45	0	0	0	16	9	0	2	0	22	0	9	2	60
Total	0	0	0	61	40	0	5	0	81	0	31	11	229
Approach%	-	-	-	60.4	39.6	-	5.8	-	94.2	-	73.8	26.2	
Total%	-	-	-	26.6	17.5	-	2.2	-	35.4	-	13.5	4.8	

AM Intersection Peak Hour: **11:00 to 12:00**

Volume	-	-	-	61	40	-	5	-	81	-	31	11	229
Approach%	-	-	-	60.4	39.6	-	5.8	-	94.2	-	73.8	26.2	
Total%	-	-	-	26.6	17.5	-	2.2	-	35.4	-	13.5	4.8	
PHF			#DIV/0!			0.74			0.90			0.70	

PM	**Southbound**			North Mission Bay Drive **Westbound**			De Anza Road **Northbound**			North Mission Bay Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
12:00	0	0	0	31	13	0	0	0	19	0	12	1	76
12:15	0	0	0	18	14	0	0	0	20	0	7	3	62
12:30	0	0	0	17	14	0	1	0	18	0	15	3	68
12:45	0	0	0	22	19	0	0	0	21	0	8	9	79
13:00	0	0	0	14	14	0	1	0	17	0	7	1	54
13:15	0	0	0	22	15	0	3	0	14	0	20	1	75
13:30	0	0	0	25	12	0	3	0	27	0	9	15	91
13:45	0	0	0	15	8	0	0	0	16	0	17	0	56
Total	0	0	0	164	109	0	8	0	152	0	95	33	561
Approach%	-	-	-	60.1	39.9	-	5.0	-	95.0	-	74.2	25.8	
Total%	-	-	-	71.6	47.6	-	3.5	-	66.4	-	41.5	14.4	

PM Intersection Peak Hour: **12:45 to 13:45**

Volume	-	-	-	83	60	-	7	-	79	-	44	26	299
Approach%	-	-	-	58.0	42.0	-	8.1	-	91.9	-	62.9	37.1	
Total%	-	-	-	36.2	26.2	-	3.1	-	34.5	-	19.2	11.4	
PHF			#DIV/0!			0.87			0.72			0.73	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates				
	Location:	#03 11 AM & 2 PM	File Name:	ITM-18-053-03
	Intersection:	De Anza Road & North Mission Bay Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Saturday, May 19, 2018		Mission Bay

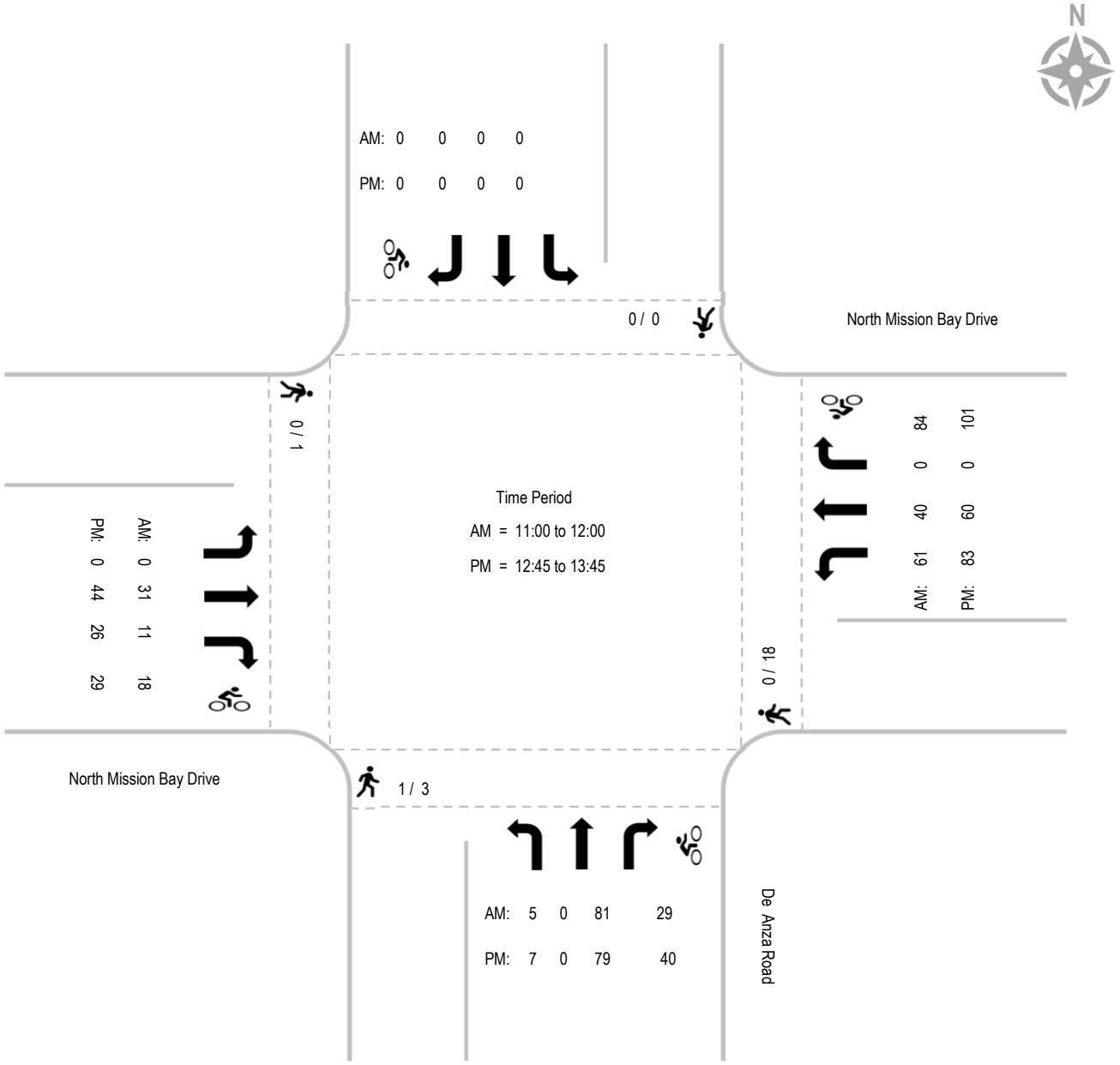
AM	Southbound				North Mission Bay Drive Westbound				De Anza Road Northbound				North Mission Bay Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	22	9	0	0	5	0	1	0	0	3	2	0	42
11:15	0	0	0	0	0	6	18	0	0	8	0	0	0	0	4	0	0	36
11:30	0	0	0	0	0	1	6	0	0	5	0	3	0	0	2	0	0	17
11:45	0	0	0	0	0	16	6	0	1	7	0	0	0	0	5	2	1	36
Ped Total	0				0				1				0				1	
Bike Total		0	0	0		45	39	0		25	0	4		0	14	4		131

PM	Southbound				North Mission Bay Drive Westbound				De Anza Road Northbound				North Mission Bay Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
12:00	0	0	0	0	0	5	13	0	1	6	0	0	0	0	9	1	1	34
12:15	0	0	0	0	0	2	8	0	0	5	0	0	0	0	5	1	0	21
12:30	0	0	0	0	0	10	4	0	1	5	0	0	0	0	4	1	1	24
12:45	0	0	0	0	0	12	3	0	1	7	0	0	0	0	3	0	1	25
13:00	0	0	0	0	0	10	14	0	0	3	0	0	0	0	1	0	0	28
13:15	0	0	0	0	18	3	5	0	0	3	0	1	1	0	3	0	19	15
13:30	0	0	0	0	0	5	1	0	0	3	0	1	0	0	0	0	0	10
13:45	0	0	0	0	0	4	2	0	0	6	0	0	0	0	1	0	0	13
Ped Total	0				18				3				1				22	
Bike Total		0	0	0		51	50	0		38	0	2		0	26	3		170

Intersection Turning Movement - Peak Hour Summary

Chen				
	Location:	#03 11 AM & 2 PM	File Name:	ITM-18-053-03

Ryan Associates	Intersection:	De Anza Road & North Mission Bay Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Saturday, May 19, 2018		Mission Bay



Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location:	#04 7-9 AM & 4-6 PM	File Name:	ITM-18-042-04.1
Ryan	Intersection:	Mission Bay Drive & North Mission Bay Drive	Project:	Chen Ryan #0243.A2
Associates	Date of Count:	Thursday, May 03, 2018		Mission Bay

AM	Mission Bay Drive **Southbound**			North Mission Bay Drive **Westbound**			Mission Bay Drive **Northbound**			North Mission Bay Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	9	2	1	7	4	6	3	11	25	0	2	3	73
7:15	4	7	0	16	6	4	1	10	60	0	10	0	118
7:30	8	3	0	14	3	2	1	12	48	0	2	0	93
7:45	1	3	0	13	6	5	6	6	40	0	3	2	85
8:00	4	9	0	11	7	4	10	4	28	0	5	1	83
8:15	9	5	1	14	9	2	5	5	35	0	5	2	92
8:30	4	7	0	10	7	2	5	7	37	0	7	4	90
8:45	9	1	0	15	3	2	7	6	26	0	6	1	76
Total	48	37	2	100	45	27	38	61	299	0	40	13	710
Approach%	55.2	42.5	2.3	58.1	26.2	15.7	9.5	15.3	75.1	-	75.5	24.5	
Total%	6.8	5.2	0.3	14.1	6.3	3.8	5.4	8.6	42.1	-	5.6	1.8	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	17	22	-	54	22	15	18	32	176	-	20	3	379
Approach%	43.6	56.4	-	59.3	24.2	16.5	8.0	14.2	77.9	-	87.0	13.0	
Total%	4.5	5.8	-	14.2	5.8	4.0	4.7	8.4	46.4	-	5.3	0.8	
PHF			0.75			0.88			0.80			0.58	

PM	Mission Bay Drive **Southbound**			North Mission Bay Drive **Westbound**			Mission Bay Drive **Northbound**			North Mission Bay Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	17	6	0	59	3	7	1	12	15	0	6	2	128
16:15	6	11	0	75	10	5	4	15	14	2	6	6	154
16:30	8	4	1	86	12	7	4	13	17	0	5	4	161
16:45	18	4	0	111	6	5	1	14	24	0	12	4	199
17:00	8	12	0	105	10	6	7	17	28	0	4	8	205
17:15	10	15	0	117	10	6	6	15	23	0	3	11	216
17:30	19	15	2	87	2	3	5	11	26	0	7	4	181
17:45	10	5	1	69	5	10	8	15	23	0	11	5	162
Total	96	72	4	709	58	49	36	112	170	2	54	44	1406
Approach%	55.8	41.9	2.3	86.9	7.1	6.0	11.3	35.2	53.5	2.0	54.0	44.0	
Total%	13.5	10.1	0.6	99.9	8.2	6.9	5.1	15.8	23.9	0.3	7.6	6.2	

PM Intersection Peak Hour: **16:45 to 17:45**

Volume	55	46	2	420	28	20	19	57	101	-	26	27	801
Approach%	53.4	44.7	1.9	89.7	6.0	4.3	10.7	32.2	57.1	-	49.1	50.9	
Total%	14.5	12.1	0.5	110.8	7.4	5.3	5.0	15.0	26.6	-	6.9	7.1	
PHF			0.72			0.88			0.85			0.83	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates				
	Location:	#04 7-9 AM & 4-6 PM	File Name:	ITM-18-042-04.1
	Intersection:	Mission Bay Drive & North Mission Bay Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay

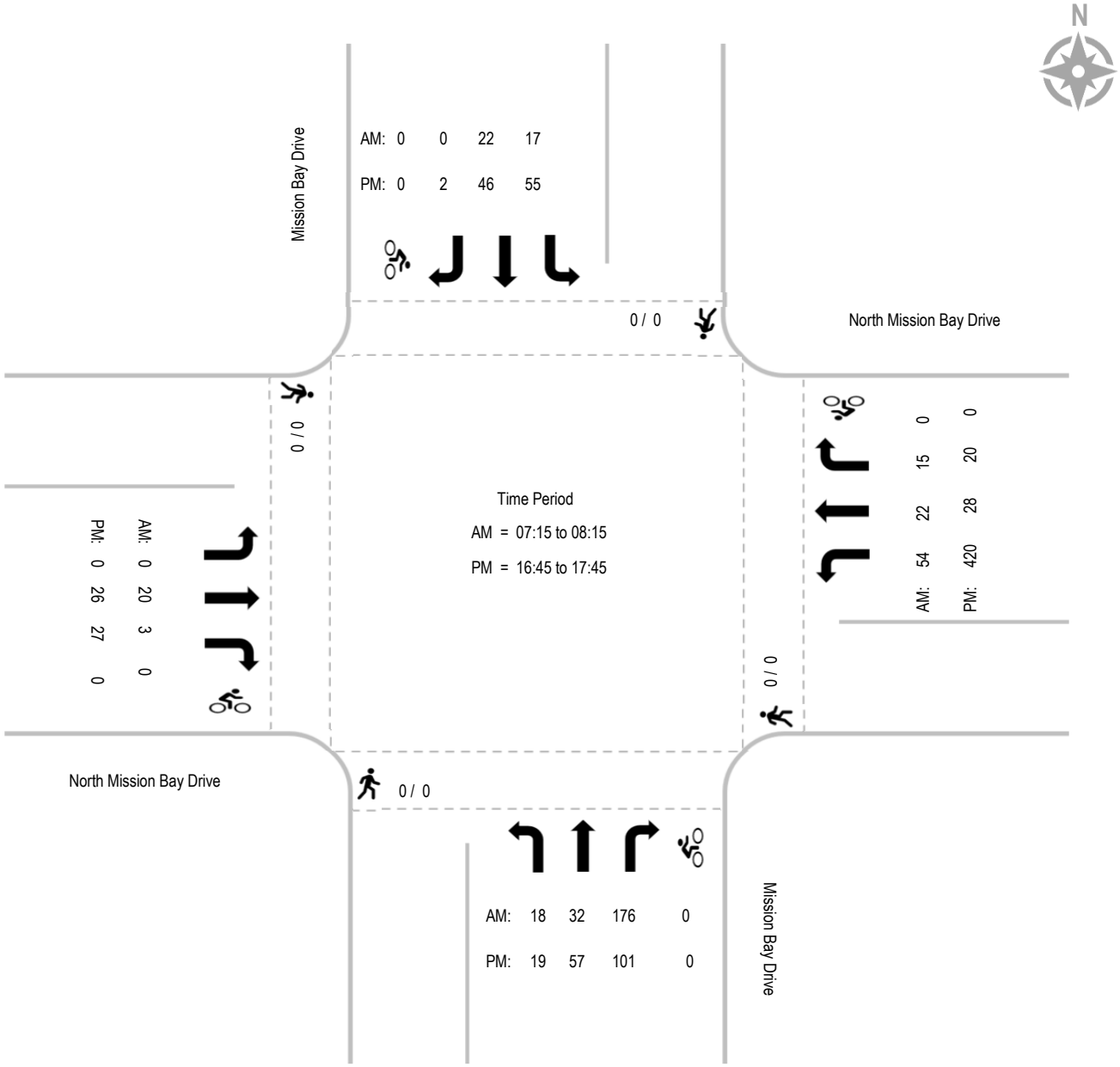
AM	Mission Bay Drive Southbound				North Mission Bay Drive Westbound				Mission Bay Drive Northbound				North Mission Bay Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Mission Bay Drive Southbound				North Mission Bay Drive Westbound				Mission Bay Drive Northbound				North Mission Bay Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen				
	Location:	#04 7-9 AM & 4-6 PM	File Name:	ITM-18-042-04.1

Ryan Associates	Intersection:	Mission Bay Drive & North Mission Bay Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay



Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location:	#04 11 AM To 2 PM	File Name:	ITM-18-053-04
Ryan	Intersection:	Mission Bay Drive & North Mission Bay Drive	Project:	Chen Ryan #0243.A2
Associates	Date of Count:	Saturday, May 19, 2018		Mission Bay

AM	Mission Bay Drive **Southbound**			North Mission Bay Drive **Westbound**			Mission Bay Drive **Northbound**			North Mission Bay Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	25	14	4	26	2	8	3	19	22	1	10	1	135
11:15	30	23	0	32	12	10	6	16	14	1	12	5	161
11:30	26	12	1	38	5	19	11	16	19	0	7	5	159
11:45	29	18	0	24	4	9	9	19	24	0	9	10	155
Total	110	67	5	120	23	46	29	70	79	2	38	21	610
Approach%	60.4	36.8	2.7	63.5	12.2	24.3	16.3	39.3	44.4	3.3	62.3	34.4	
Total%	18.0	11.0	0.8	19.7	3.8	7.5	4.8	11.5	13.0	0.3	6.2	3.4	

AM Intersection Peak Hour: **11:00 to 12:00**

Volume	110	67	5	120	23	46	29	70	79	2	38	21	610
Approach%	60.4	36.8	2.7	63.5	12.2	24.3	16.3	39.3	44.4	3.3	62.3	34.4	
Total%	18.0	11.0	0.8	19.7	3.8	7.5	4.8	11.5	13.0	0.3	6.2	3.4	
PHF			0.86			0.76			0.86			0.80	

PM	Mission Bay Drive **Southbound**			North Mission Bay Drive **Westbound**			Mission Bay Drive **Northbound**			North Mission Bay Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
12:00	30	12	0	24	2	16	8	36	19	0	5	6	158
12:15	19	6	0	23	12	12	11	18	19	0	5	6	131
12:30	22	12	0	24	6	11	10	29	13	3	7	6	143
12:45	19	10	0	29	9	17	15	42	11	0	1	6	159
13:00	30	20	1	21	8	7	9	25	14	0	5	3	143
13:15	33	12	0	21	6	12	12	25	13	2	3	4	143
13:30	30	14	1	14	3	10	10	32	22	1	7	8	152
13:45	40	8	0	21	6	9	10	18	20	1	11	3	147
Total	223	94	2	177	52	94	85	225	131	7	44	42	1176
Approach%	69.9	29.5	0.6	54.8	16.1	29.1	19.3	51.0	29.7	7.5	47.3	45.2	
Total%	36.6	15.4	0.3	29.0	8.5	15.4	13.9	36.9	21.5	1.1	7.2	6.9	

PM Intersection Peak Hour: **12:45 to 13:45**

Volume	112	56	2	85	26	46	46	124	60	3	16	21	597
Approach%	65.9	32.9	1.2	54.1	16.6	29.3	20.0	53.9	26.1	7.5	40.0	52.5	
Total%	18.4	9.2	0.3	13.9	4.3	7.5	7.5	20.3	9.8	0.5	2.6	3.4	
PHF			0.83			0.71			0.85			0.63	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates	Location:	#04 11 AM To 2 PM	File Name:	ITM-18-053-04
	Intersection:	Mission Bay Drive & North Mission Bay Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Saturday, May 19, 2018		Mission Bay

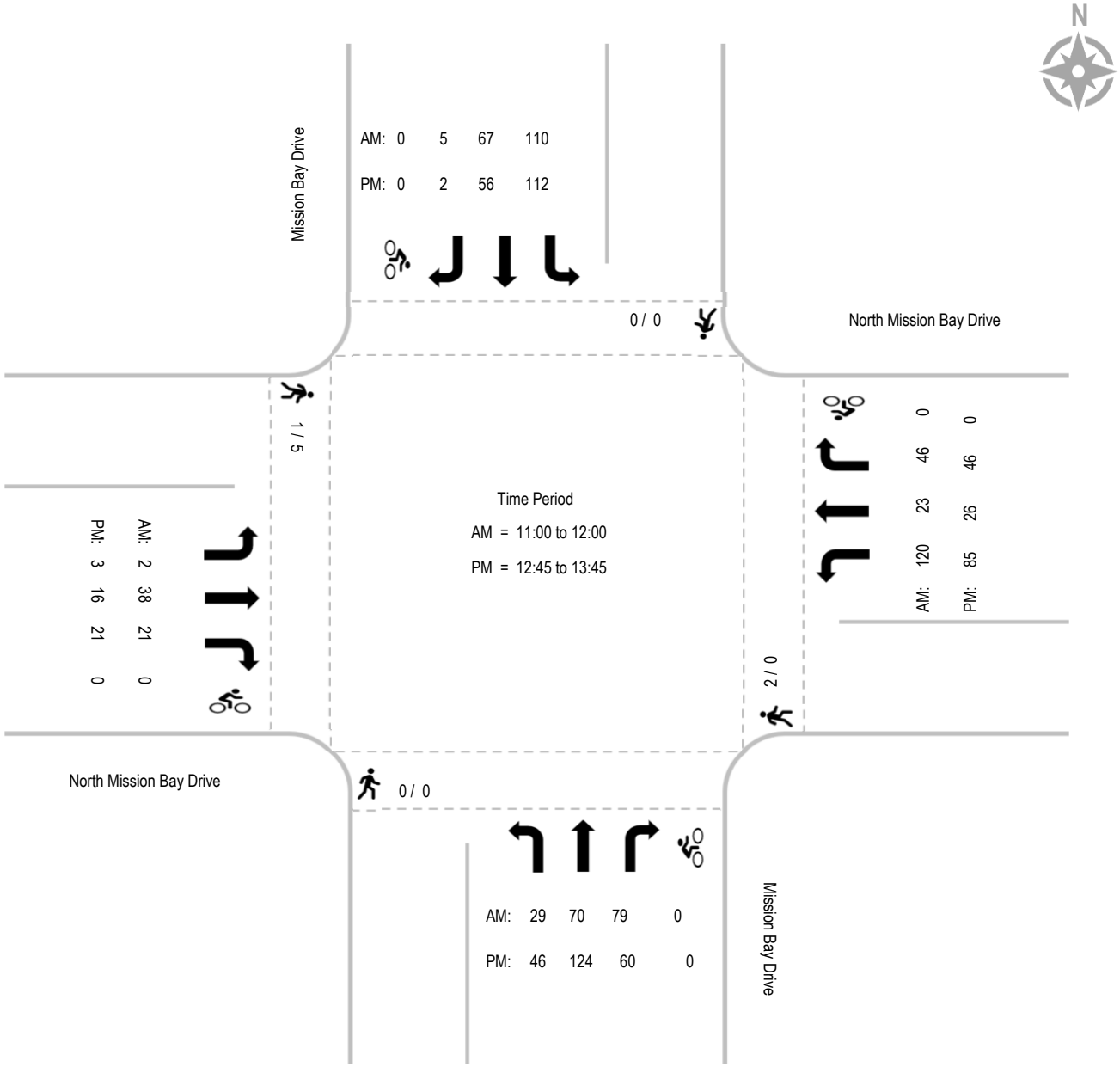
AM	Mission Bay Drive Southbound				North Mission Bay Drive Westbound				Mission Bay Drive Northbound				North Mission Bay Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
11:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Ped Total	0				2				0				1				3	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Mission Bay Drive Southbound				North Mission Bay Drive Westbound				Mission Bay Drive Northbound				North Mission Bay Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				5				5	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen	Location:	#04 11 AM To 2 PM	File Name:	ITM-18-053-04

Ryan Associates	Intersection:	Mission Bay Drive & North Mission Bay Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Saturday, May 19, 2018		Mission Bay



Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location:	#05 7-9 AM & 4-6 PM	File Name:	ITM-18-042-05.1
Ryan	Intersection:	Mission Bay Drive & Clairemont Drive	Project:	Chen Ryan #0243.A2
Associates	Date of Count:	Thursday, May 03, 2018		Mission Bay

AM	Mission Bay Drive **Southbound**			Clairemont Drive **Westbound**			Mission Bay Drive **Northbound**			Clairemont Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	6	8	0	23	30	10	0	33	20	0	14	1	145
7:15	15	14	0	26	7	18	0	35	46	0	17	2	180
7:30	19	13	0	27	3	13	0	27	59	0	19	0	180
7:45	16	9	2	26	6	18	3	53	53	1	15	1	203
8:00	18	14	0	30	14	13	1	47	67	2	13	1	220
8:15	11	11	1	32	3	24	0	58	48	2	17	1	208
8:30	15	18	1	36	10	21	1	40	52	0	12	2	208
8:45	14	11	2	33	3	21	2	41	41	0	13	1	182
Total	114	98	6	233	76	138	7	334	386	5	120	9	1526
Approach%	52.3	45.0	2.8	52.1	17.0	30.9	1.0	45.9	53.1	3.7	89.6	6.7	
Total%	7.5	6.4	0.4	15.3	5.0	9.0	0.5	21.9	25.3	0.3	7.9	0.6	

AM Intersection Peak Hour: **07:45 to 08:45**

Volume	60	52	4	124	33	76	5	198	220	5	57	5	839
Approach%	51.7	44.8	3.4	53.2	14.2	32.6	1.2	46.8	52.0	7.5	85.1	7.5	
Total%	7.2	6.2	0.5	14.8	3.9	9.1	0.6	23.6	26.2	0.6	6.8	0.6	
PHF			0.85			0.87			0.92			0.84	

PM	Mission Bay Drive **Southbound**			Clairemont Drive **Westbound**			Mission Bay Drive **Northbound**			Clairemont Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	88	54	4	74	11	32	2	24	45	1	10	5	350
16:15	92	50	0	68	3	19	1	21	45	0	13	2	314
16:30	66	52	2	76	4	24	0	18	30	3	6	3	284
16:45	57	67	6	80	13	16	0	14	50	2	12	12	329
17:00	64	48	1	68	9	26	0	11	41	1	8	0	277
17:15	86	40	1	80	13	23	0	19	38	1	5	4	310
17:30	74	68	1	96	10	24	0	16	55	2	13	3	362
17:45	92	43	4	55	9	20	1	19	47	0	9	2	301
Total	619	422	19	597	72	184	4	142	351	10	76	31	2527
Approach%	58.4	39.8	1.8	70.0	8.4	21.6	0.8	28.6	70.6	8.5	65.0	26.5	
Total%	40.6	27.7	1.2	39.1	4.7	12.1	0.3	9.3	23.0	0.7	5.0	2.0	

PM Intersection Peak Hour: **16:45 to 17:45**

Volume	281	223	9	324	45	89	-	60	184	6	38	19	1,278
Approach%	54.8	43.5	1.8	70.7	9.8	19.4	-	24.6	75.4	9.5	60.3	30.2	
Total%	33.5	26.6	1.1	38.6	5.4	10.6	-	7.2	21.9	0.7	4.5	2.3	
PHF			0.90			0.88			0.86			0.61	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates				
	Location:	#05 7-9 AM & 4-6 PM	File Name:	ITM-18-042-05.1
	Intersection:	Mission Bay Drive & Clairemont Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay

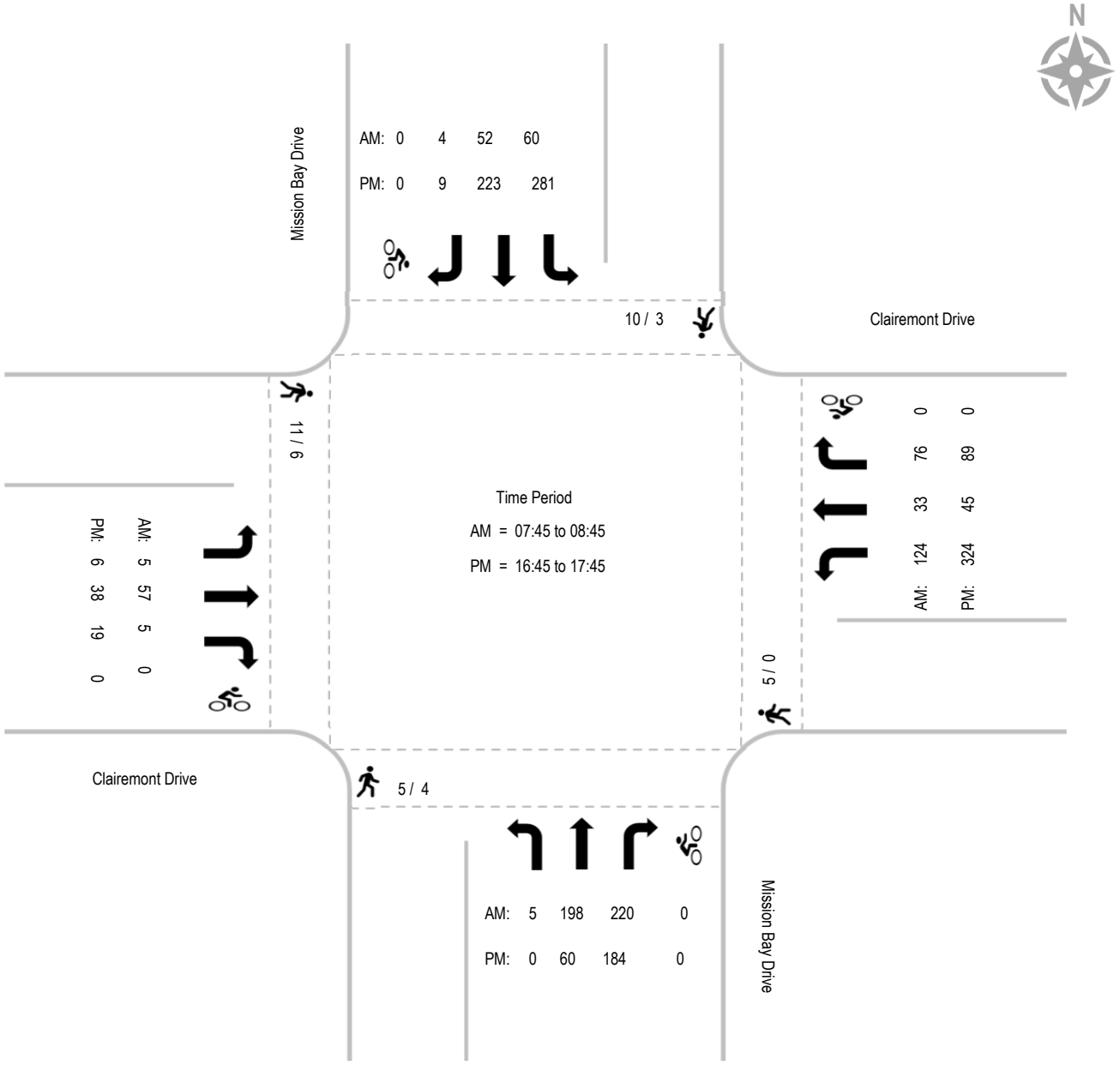
AM	Mission Bay Drive Southbound				Clairemont Drive Westbound				Mission Bay Drive Northbound				Clairemont Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
7:15	1	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	5	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
7:45	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	6	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:15	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	0	5	0
8:30	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0
8:45	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	6	0
Ped Total	10				5				5				11				31	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Mission Bay Drive Southbound				Clairemont Drive Westbound				Mission Bay Drive Northbound				Clairemont Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
16:15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	2	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	8	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	3				0				4				6				13	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen				
	Location:	#05 7-9 AM & 4-6 PM	File Name:	ITM-18-042-05.1

Ryan Associates	Intersection:	Mission Bay Drive & Clairemont Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Thursday, May 03, 2018		Mission Bay



Intersection Turning Movement - Peak Hour Vehicle Count

Chen	Location:	#05 11 AM To 2 PM	File Name:	ITM-18-053-05
Ryan	Intersection:	Mission Bay Drive & Clairemont Drive	Project:	Chen Ryan #0243.A2
Associates	Date of Count:	Saturday, May 19, 2018		Mission Bay

AM	Mission Bay Drive **Southbound**			Clairemont Drive **Westbound**			Mission Bay Drive **Northbound**			Clairemont Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	22	18	1	81	6	35	0	27	52	2	5	4	253
11:15	17	50	6	61	16	39	1	15	46	1	5	7	264
11:30	16	38	0	75	11	30	1	23	39	3	8	3	247
11:45	23	32	2	45	6	33	2	31	35	3	14	3	229
Total	78	138	9	262	39	137	4	96	172	9	32	17	993
Approach%	34.7	61.3	4.0	59.8	8.9	31.3	1.5	35.3	63.2	15.5	55.2	29.3	
Total%	7.9	13.9	0.9	26.4	3.9	13.8	0.4	9.7	17.3	0.9	3.2	1.7	

AM Intersection Peak Hour: **11:00 to 12:00**

Volume	78	138	9	262	39	137	4	96	172	9	32	17	993
Approach%	34.7	61.3	4.0	59.8	8.9	31.3	1.5	35.3	63.2	15.5	55.2	29.3	
Total%	7.9	13.9	0.9	26.4	3.9	13.8	0.4	9.7	17.3	0.9	3.2	1.7	
PHF			0.77			0.90			0.86			0.73	

PM	Mission Bay Drive **Southbound**			Clairemont Drive **Westbound**			Mission Bay Drive **Northbound**			Clairemont Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
12:00	20	24	1	60	15	37	3	37	56	2	6	3	264
12:15	20	28	1	56	9	37	2	27	52	3	7	2	244
12:30	19	28	3	48	12	41	3	30	47	3	3	8	245
12:45	21	20	4	58	14	48	1	24	42	3	8	3	246
13:00	15	31	5	47	15	42	1	18	45	5	9	9	242
13:15	21	28	3	55	7	38	4	24	58	6	8	4	256
13:30	26	18	2	65	8	51	5	27	45	3	6	3	259
13:45	10	14	3	40	13	35	0	27	47	1	5	7	202
Total	152	191	22	429	93	329	19	214	392	26	52	39	1958
Approach%	41.6	52.3	6.0	50.4	10.9	38.7	3.0	34.2	62.7	22.2	44.4	33.3	
Total%	15.3	19.2	2.2	43.2	9.4	33.1	1.9	21.6	39.5	2.6	5.2	3.9	

PM Intersection Peak Hour: **12:45 to 13:45**

Volume	83	97	14	225	44	179	11	93	190	17	31	19	1,003
Approach%	42.8	50.0	7.2	50.2	9.8	40.0	3.7	31.6	64.6	25.4	46.3	28.4	
Total%	8.4	9.8	1.4	22.7	4.4	18.0	1.1	9.4	19.1	1.7	3.1	1.9	
PHF			0.93			0.90			0.85			0.73	

Intersection Turning Movement - Bicycle & Pedestrian Count

Chen Ryan Associates	Location:	#05 11 AM To 2 PM	File Name:	ITM-18-053-05
	Intersection:	Mission Bay Drive & Clairemont Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Saturday, May 19, 2018		Mission Bay

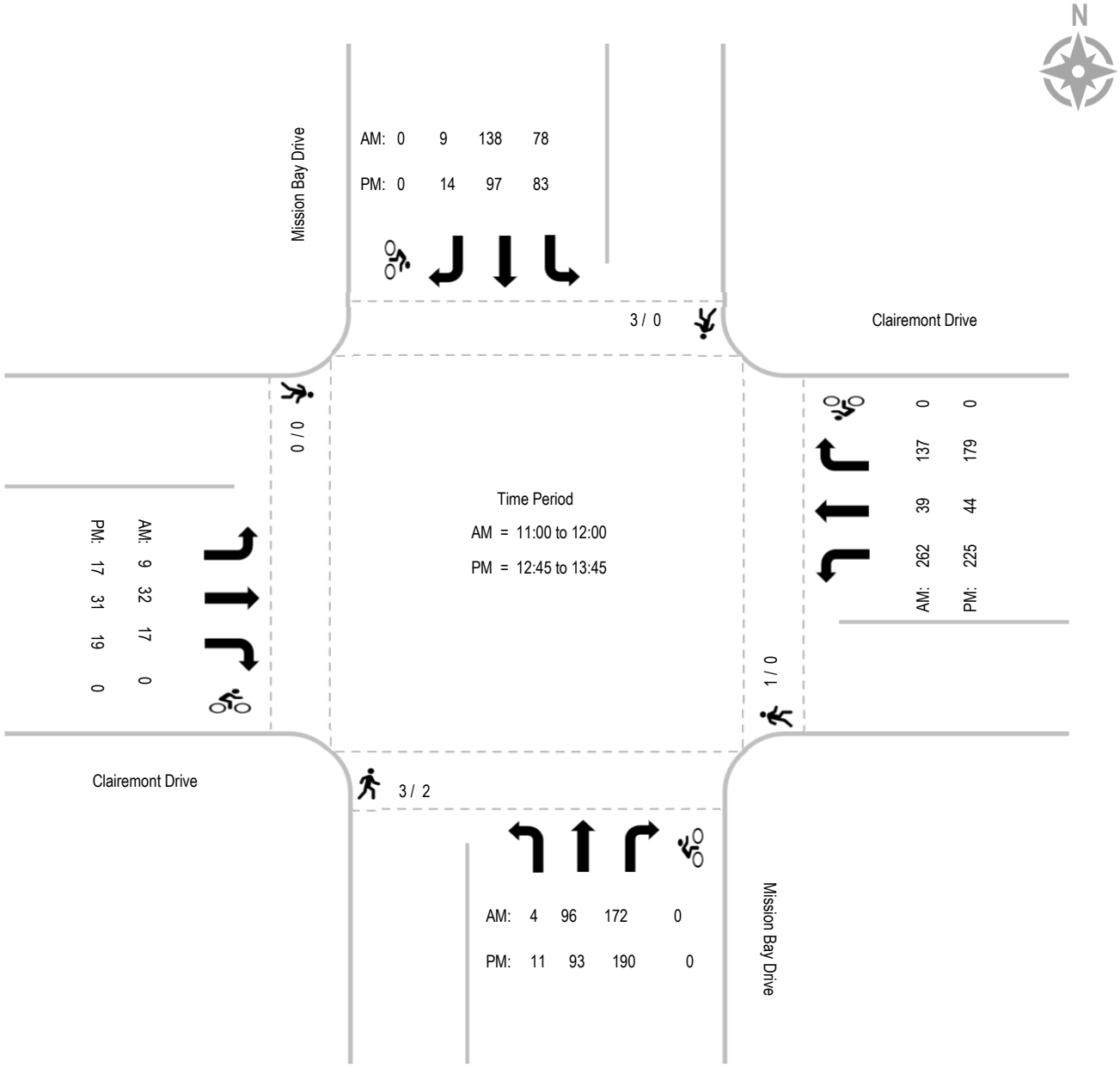
AM	Mission Bay Drive Southbound				Clairemont Drive Westbound				Mission Bay Drive Northbound				Clairemont Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Ped Total	3				1				3				0				7	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Mission Bay Drive Southbound				Clairemont Drive Westbound				Mission Bay Drive Northbound				Clairemont Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				2				0				2	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

Chen	Location:	#05 11 AM To 2 PM	File Name:	ITM-18-053-05

Ryan Associates	Intersection:	Mission Bay Drive & Clairemont Drive	Project:	Chen Ryan #0243.A2
	Date of Count:	Saturday, May 19, 2018		Mission Bay



Appendix C
Peak Hour Intersection Worksheets

Existing Conditions

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1977	3	0	1089	7	0	0	2	0	0	66
Future Vol, veh/h	0	1977	3	0	1089	7	0	0	2	0	0	66
Conflicting Peds, #/hr	0	0	1	1	0	0	6	0	0	0	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	62	62	62	50	50	50	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2173	3	0	1756	11	0	0	4	0	0	100

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	1089	-	-	890
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	211	0	0	286
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	211	-	-	284
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	22.4	24.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	211	-	-	-	-	284
HCM Lane V/C Ratio	0.019	-	-	-	-	0.352
HCM Control Delay (s)	22.4	-	-	-	-	24.4
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	-	1.5

HCM 2010 Signalized Intersection Summary
2: Grand Avenue & Figueroa Boulevard

03/14/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	1765	0	0	689	22	0	0	0	0	0	0
Future Volume (veh/h)	65	1765	0	0	689	22	0	0	0	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	0	1863	0			
Adj Flow Rate, veh/h	72	1961	0	0	820	26	0	0	0			
Adj No. of Lanes	1	1	0	0	2	0	0	1	0			
Peak Hour Factor	0.90	0.90	0.90	0.84	0.84	0.84	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	91	1797	0	0	3095	98	0	0	0			
Arrive On Green	0.05	0.96	0.00	0.00	0.88	0.88	0.00	0.00	0.00			
Sat Flow, veh/h	1774	1863	0	0	3594	111		0				
Grp Volume(v), veh/h	72	1961	0	0	414	432		0.0				
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1770	1842						
Q Serve(g_s), s	6.0	144.7	0.0	0.0	5.3	5.3						
Cycle Q Clear(g_c), s	6.0	144.7	0.0	0.0	5.3	5.3						
Prop In Lane	1.00		0.00	0.00		0.06						
Lane Grp Cap(c), veh/h	91	1797	0	0	1565	1629						
V/C Ratio(X)	0.79	1.09	0.00	0.00	0.26	0.26						
Avail Cap(c_a), veh/h	260	1797	0	0	1565	1629						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	70.4	2.7	0.0	0.0	1.3	1.3						
Incr Delay (d2), s/veh	5.7	50.8	0.0	0.0	0.4	0.4						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	3.1	87.7	0.0	0.0	2.7	2.8						
LnGrp Delay(d),s/veh	76.1	53.4	0.0	0.0	1.7	1.7						
LnGrp LOS	E	F			A	A						
Approach Vol, veh/h		2033			846							
Approach Delay, s/veh		54.2			1.7							
Approach LOS		D			A							

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		150.0			12.1	137.9		
Change Period (Y+Rc), s		5.3			4.4	5.3		
Max Green Setting (Gmax), s		109.0			22.0	82.6		
Max Q Clear Time (g_c+I1), s		146.7			8.0	7.3		
Green Ext Time (p_c), s		0.0			0.1	11.4		

Intersection Summary	
HCM 2010 Ctrl Delay	38.8
HCM 2010 LOS	D

Notes

User approved ignoring U-Turning movement.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	371	1443	806	841	749	4
Future Volume (veh/h)	371	1443	806	841	749	4
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	408	0	1075	1121	780	0
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.91	0.91	0.75	0.75	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	447	399	1037	2172	836	0
Arrive On Green	0.25	0.00	0.30	0.61	0.24	0.00
Sat Flow, veh/h	1774	1583	3442	3632	3725	0
Grp Volume(v), veh/h	408	0	1075	1121	780	0
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	0
Q Serve(g_s), s	16.8	0.0	22.6	13.4	16.2	0.0
Cycle Q Clear(g_c), s	16.8	0.0	22.6	13.4	16.2	0.0
Prop In Lane	1.00	1.00	1.00			0.00
Lane Grp Cap(c), veh/h	447	399	1037	2172	836	0
V/C Ratio(X)	0.91	0.00	1.04	0.52	0.93	0.00
Avail Cap(c_a), veh/h	475	424	1037	2172	836	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.3	0.0	26.2	8.2	28.1	0.0
Incr Delay (d2), s/veh	20.6	0.0	37.8	0.9	18.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	0.0	16.1	6.6	10.1	0.0
LnGrp Delay(d),s/veh	47.9	0.0	64.0	9.1	46.6	0.0
LnGrp LOS	D		F	A	D	
Approach Vol, veh/h	408			2196	780	
Approach Delay, s/veh	47.9			36.0	46.6	
Approach LOS	D			D	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	28.3	23.4		23.3		51.7		
Change Period (Y+Rc), s	5.7	* 5.7		4.4		5.7		
Max Green Setting (Gmax), s	22.6	* 17		20.1		44.8		
Max Q Clear Time (g_c+I1), s	24.6	18.2		18.8		15.4		
Green Ext Time (p_c), s	0.0	0.0		0.1		14.3		

Intersection Summary	
HCM 2010 Ctrl Delay	39.9
HCM 2010 LOS	D

Notes

User approved ignoring U-Turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

The SBL at this intersection was not coded because, while there is timing for that phase, the volumes were 0 under all peak periods which would result in the NBT receiving that green time, which is similar to not coding SBL.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	241	13	0	0	2140	82
Future Volume (veh/h)	241	13	0	0	2140	82
Number	7	14			2	12
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863			1863	1863
Adj Flow Rate, veh/h	254	0			2301	0
Adj No. of Lanes	1	1			3	1
Peak Hour Factor	0.95	0.95			0.93	0.93
Percent Heavy Veh, %	2	2			2	2
Cap, veh/h	0	0			4631	1442
Arrive On Green	0.00	0.00			0.91	0.00
Sat Flow, veh/h	0				5253	1583
Grp Volume(v), veh/h	0.0				2301	0
Grp Sat Flow(s),veh/h/ln					1695	1583
Q Serve(g_s), s					5.5	0.0
Cycle Q Clear(g_c), s					5.5	0.0
Prop In Lane						1.00
Lane Grp Cap(c), veh/h					4631	1442
V/C Ratio(X)					0.50	0.00
Avail Cap(c_a), veh/h					4631	1442
HCM Platoon Ratio					1.00	1.00
Upstream Filter(I)					1.00	0.00
Uniform Delay (d), s/veh					0.5	0.0
Incr Delay (d2), s/veh					0.4	0.0
Initial Q Delay(d3),s/veh					0.0	0.0
%ile BackOfQ(50%),veh/ln					2.5	0.0
LnGrp Delay(d),s/veh					0.9	0.0
LnGrp LOS					A	
Approach Vol, veh/h					2301	
Approach Delay, s/veh					0.9	
Approach LOS					A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		75.0						
Change Period (Y+Rc), s		6.7						
Max Green Setting (Gmax), s		42.6						
Max Q Clear Time (g_c+I1), s		7.5						
Green Ext Time (p_c), s		33.6						

Intersection Summary	
HCM 2010 Ctrl Delay	0.9
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	256	13	9	45	18	87
Future Vol, veh/h	256	13	9	45	18	87
Peak Hour Factor	0.64	0.64	0.64	0.64	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	400	20	14	70	26	126
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	12.8	7.8	8.8
HCM LOS	B	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	95%	0%	17%
Vol Thru, %	5%	17%	0%
Vol Right, %	0%	83%	83%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	269	54	105
LT Vol	256	0	18
Through Vol	13	9	0
RT Vol	0	45	87
Lane Flow Rate	420	84	152
Geometry Grp	1	1	1
Degree of Util (X)	0.534	0.1	0.196
Departure Headway (Hd)	4.572	4.264	4.633
Convergence, Y/N	Yes	Yes	Yes
Cap	790	837	773
Service Time	2.604	2.306	2.669
HCM Lane V/C Ratio	0.532	0.1	0.197
HCM Control Delay	12.8	7.8	8.8
HCM Lane LOS	B	A	A
HCM 95th-tile Q	3.2	0.3	0.7

Intersection	
Int Delay, s/veh	5.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	22	2	25	26	3	26
Future Vol, veh/h	22	2	25	26	3	26
Conflicting Peds, #/hr	0	1	1	0	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	80	80	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	2	31	33	3	29

Major/Minor	Minor2		Major2	
Conflicting Flow All	96	34	1	0
Stage 1	95	-	-	-
Stage 2	1	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	794	1039	1622	-
Stage 1	816	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	1039	1622	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	8.6	3.6
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1039	1622	-
HCM Lane V/C Ratio	0.027	0.019	-
HCM Control Delay (s)	8.6	7.3	0
HCM Lane LOS	A	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	20	3	54	22	15	18	32	176	17	22	0
Future Vol, veh/h	0	20	3	54	22	15	18	32	176	17	22	0
Peak Hour Factor	0.58	0.58	0.58	0.88	0.88	0.88	0.80	0.80	0.80	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	34	5	61	25	17	23	40	220	23	29	0
Number of Lanes	0	1	0	0	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	8.7	9	9	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	71%	0%	100%	0%
Vol Thru, %	0%	15%	87%	29%	0%	0%	100%
Vol Right, %	0%	85%	13%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	208	23	76	15	17	22
LT Vol	18	0	0	54	0	17	0
Through Vol	0	32	20	22	0	0	22
RT Vol	0	176	3	0	15	0	0
Lane Flow Rate	22	260	40	86	17	23	29
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.034	0.317	0.059	0.137	0.022	0.036	0.042
Departure Headway (Hd)	5.485	4.388	5.366	5.697	4.637	5.668	5.165
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	654	819	667	630	771	632	693
Service Time	3.207	2.11	3.406	3.432	2.372	3.399	2.896
HCM Lane V/C Ratio	0.034	0.317	0.06	0.137	0.022	0.036	0.042
HCM Control Delay	8.4	9.1	8.7	9.3	7.5	8.6	8.1
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.1	1.4	0.2	0.5	0.1	0.1	0.1

Intersection	
Intersection Delay, s/veh	15.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	57	5	124	33	76	5	198	220	60	52	4
Future Vol, veh/h	5	57	5	124	33	76	5	198	220	60	52	4
Peak Hour Factor	0.84	0.84	0.84	0.87	0.87	0.87	0.92	0.92	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	68	6	143	38	87	5	215	239	71	61	5
Number of Lanes	0	2	0	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	2
HCM Control Delay	10.6	11	19.7	11.3
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	1%	15%	0%	100%	0%	0%	52%
Vol Thru, %	47%	85%	85%	0%	100%	0%	45%
Vol Right, %	52%	0%	15%	0%	0%	100%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	423	34	34	124	33	76	116
LT Vol	5	5	0	124	0	0	60
Through Vol	198	29	29	0	33	0	52
RT Vol	220	0	5	0	0	76	4
Lane Flow Rate	460	40	40	143	38	87	136
Geometry Grp	7	8	8	7	7	7	7
Degree of Util (X)	0.695	0.08	0.078	0.275	0.068	0.139	0.245
Departure Headway (Hd)	5.445	7.262	7.078	6.937	6.427	5.713	6.466
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	662	491	504	517	556	626	554
Service Time	3.183	5.034	4.849	4.686	4.176	3.461	4.218
HCM Lane V/C Ratio	0.695	0.081	0.079	0.277	0.068	0.139	0.245
HCM Control Delay	19.7	10.7	10.5	12.3	9.6	9.4	11.3
HCM Lane LOS	C	B	B	B	A	A	B
HCM 95th-tile Q	5.6	0.3	0.3	1.1	0.2	0.5	1

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1199	35	0	1575	28	0	0	21	0	0	124
Future Vol, veh/h	0	1199	35	0	1575	28	0	0	21	0	0	124
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	75	75	75	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1249	36	0	1641	29	0	0	28	0	0	151

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	645	-	-	835
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	415	0	0	311
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	414	-	-	311
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	14.3	27.1
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	414	-	-	-	-	311
HCM Lane V/C Ratio	0.068	-	-	-	-	0.486
HCM Control Delay (s)	14.3	-	-	-	-	27.1
HCM Lane LOS	B	-	-	-	-	D
HCM 95th %tile Q(veh)	0.2	-	-	-	-	2.5

HCM 2010 Signalized Intersection Summary
2: Grand Avenue & Figueroa Boulevard

03/14/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	1183	0	0	1573	30	0	0	0	0	0	0
Future Volume (veh/h)	61	1183	0	0	1573	30	0	0	0	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	0	1863	0			
Adj Flow Rate, veh/h	66	1286	0	0	1639	31	0	0	0			
Adj No. of Lanes	1	1	0	0	2	0	0	1	0			
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	83	1805	0	0	3184	60	0	0	0			
Arrive On Green	0.05	0.97	0.00	0.00	0.90	0.90	0.00	0.00	0.00			
Sat Flow, veh/h	1774	1863	0	0	3646	67		0				
Grp Volume(v), veh/h	66	1286	0	0	815	855		0.0				
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1770	1850						
Q Serve(g_s), s	6.3	11.8	0.0	0.0	15.1	15.2						
Cycle Q Clear(g_c), s	6.3	11.8	0.0	0.0	15.1	15.2						
Prop In Lane	1.00		0.00	0.00		0.04						
Lane Grp Cap(c), veh/h	83	1805	0	0	1586	1658						
V/C Ratio(X)	0.80	0.71	0.00	0.00	0.51	0.52						
Avail Cap(c_a), veh/h	250	1805	0	0	1586	1658						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	80.2	0.3	0.0	0.0	1.7	1.7						
Incr Delay (d2), s/veh	6.4	2.4	0.0	0.0	1.2	1.1						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	3.2	6.6	0.0	0.0	7.5	8.1						
LnGrp Delay(d),s/veh	86.6	2.7	0.0	0.0	2.9	2.9						
LnGrp LOS	F	A			A	A						
Approach Vol, veh/h		1352			1670							
Approach Delay, s/veh		6.8			2.9							
Approach LOS		A			A							

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		170.0			12.3	157.7		
Change Period (Y+Rc), s		5.3			4.4	5.3		
Max Green Setting (Gmax), s		131.0			24.0	102.6		
Max Q Clear Time (g_c+I1), s		13.8			8.3	17.2		
Green Ext Time (p_c), s		49.2			0.1	42.5		

Intersection Summary	
HCM 2010 Ctrl Delay	4.6
HCM 2010 LOS	A

Notes

User approved ignoring U-Turning movement.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	163	1081	1418	991	763	4
Future Volume (veh/h)	163	1081	1418	991	763	4
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	168	0	1525	1066	820	0
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.97	0.97	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	188	168	1470	2954	1324	0
Arrive On Green	0.11	0.00	0.43	0.83	0.37	0.00
Sat Flow, veh/h	1774	1583	3442	3632	3725	0
Grp Volume(v), veh/h	168	0	1525	1066	820	0
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	0
Q Serve(g_s), s	15.9	0.0	72.6	12.1	32.1	0.0
Cycle Q Clear(g_c), s	15.9	0.0	72.6	12.1	32.1	0.0
Prop In Lane	1.00	1.00	1.00			0.00
Lane Grp Cap(c), veh/h	188	168	1470	2954	1324	0
V/C Ratio(X)	0.89	0.00	1.04	0.36	0.62	0.00
Avail Cap(c_a), veh/h	241	215	1470	2954	1324	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	75.1	0.0	48.7	3.3	43.3	0.0
Incr Delay (d2), s/veh	24.0	0.0	33.8	0.3	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	0.0	41.4	5.9	16.1	0.0
LnGrp Delay(d),s/veh	99.0	0.0	82.5	3.7	45.5	0.0
LnGrp LOS	F		F	A	D	
Approach Vol, veh/h	168			2591	820	
Approach Delay, s/veh	99.0			50.1	45.5	
Approach LOS	F			D	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	78.3	69.3		22.4		147.6		
Change Period (Y+Rc), s	5.7	* 5.7		4.4		5.7		
Max Green Setting (Gmax), s	72.6	* 59		23.1		136.8		
Max Q Clear Time (g_c+I1), s	74.6	34.1		17.9		14.1		
Green Ext Time (p_c), s	0.0	7.4		0.1		18.8		

Intersection Summary	
HCM 2010 Ctrl Delay	51.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

The SBL at this intersection was not coded because, while there is timing for that phase, the volumes were 0 under all peak periods which would result in the NBT receiving that green time, which is similar to not coding SBL.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	136	12	0	0	1349	601
Future Volume (veh/h)	136	12	0	0	1349	601
Number	7	14			2	12
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863			1863	1863
Adj Flow Rate, veh/h	162	0			1466	0
Adj No. of Lanes	1	1			3	1
Peak Hour Factor	0.84	0.84			0.92	0.92
Percent Heavy Veh, %	2	2			2	2
Cap, veh/h	0	0			4684	1459
Arrive On Green	0.00	0.00			0.92	0.00
Sat Flow, veh/h	0				5253	1583
Grp Volume(v), veh/h	0.0				1466	0
Grp Sat Flow(s),veh/h/ln					1695	1583
Q Serve(g_s), s					2.7	0.0
Cycle Q Clear(g_c), s					2.7	0.0
Prop In Lane						1.00
Lane Grp Cap(c), veh/h					4684	1459
V/C Ratio(X)					0.31	0.00
Avail Cap(c_a), veh/h					4684	1459
HCM Platoon Ratio					1.00	1.00
Upstream Filter(I)					1.00	0.00
Uniform Delay (d), s/veh					0.4	0.0
Incr Delay (d2), s/veh					0.2	0.0
Initial Q Delay(d3),s/veh					0.0	0.0
%ile BackOfQ(50%),veh/ln					1.3	0.0
LnGrp Delay(d),s/veh					0.5	0.0
LnGrp LOS					A	
Approach Vol, veh/h					1466	
Approach Delay, s/veh					0.5	
Approach LOS					A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		85.0						
Change Period (Y+Rc), s		6.7						
Max Green Setting (Gmax), s		46.6						
Max Q Clear Time (g_c+I1), s		4.7						
Green Ext Time (p_c), s		30.4						

Intersection Summary	
HCM 2010 Ctrl Delay	0.5
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	98	25	20	55	64	89
Future Vol, veh/h	98	25	20	55	64	89
Peak Hour Factor	0.90	0.90	0.82	0.82	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	109	28	24	67	74	102
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	8.6	7.5	8.3
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	80%	0%	42%
Vol Thru, %	20%	27%	0%
Vol Right, %	0%	73%	58%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	123	75	153
LT Vol	98	0	64
Through Vol	25	20	0
RT Vol	0	55	89
Lane Flow Rate	137	91	176
Geometry Grp	1	1	1
Degree of Util (X)	0.174	0.103	0.204
Departure Headway (Hd)	4.576	4.038	4.182
Convergence, Y/N	Yes	Yes	Yes
Cap	786	889	860
Service Time	2.591	2.054	2.196
HCM Lane V/C Ratio	0.174	0.102	0.205
HCM Control Delay	8.6	7.5	8.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.3	0.8

Intersection	
Int Delay, s/veh	5.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	67	8	54	69	6	37
Future Vol, veh/h	67	8	54	69	6	37
Conflicting Peds, #/hr	0	3	3	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	79	79	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	9	68	87	7	45

Major/Minor	Minor2		Major2	
Conflicting Flow All	226	90	3	0
Stage 1	223	-	-	-
Stage 2	3	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	673	968	1619	-
Stage 1	719	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	968	1619	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	9.1	3.2
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	968	1619	-
HCM Lane V/C Ratio	0.087	0.042	-
HCM Control Delay (s)	9.1	7.3	0
HCM Lane LOS	A	A	A
HCM 95th %tile Q(veh)	0.3	0.1	-

Intersection	
Intersection Delay, s/veh	25.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	26	27	420	28	20	19	57	101	55	46	2
Future Vol, veh/h	0	26	27	420	28	20	19	57	101	55	46	2
Peak Hour Factor	0.83	0.83	0.83	0.88	0.88	0.88	0.85	0.85	0.85	0.72	0.72	0.72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	31	33	477	32	23	22	67	119	76	64	3
Number of Lanes	0	1	0	0	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	10.2	37.3	11.8	11.1
HCM LOS	B	E	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	94%	0%	100%	0%
Vol Thru, %	0%	36%	49%	6%	0%	0%	96%
Vol Right, %	0%	64%	51%	0%	100%	0%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	158	53	448	20	55	48
LT Vol	19	0	0	420	0	55	0
Through Vol	0	57	26	28	0	0	46
RT Vol	0	101	27	0	20	0	2
Lane Flow Rate	22	186	64	509	23	76	67
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.045	0.323	0.113	0.88	0.032	0.156	0.126
Departure Headway (Hd)	7.231	6.265	6.345	6.226	5.048	7.343	6.803
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	494	573	562	580	708	487	525
Service Time	4.995	4.028	4.414	3.965	2.786	5.112	4.571
HCM Lane V/C Ratio	0.045	0.325	0.114	0.878	0.032	0.156	0.128
HCM Control Delay	10.3	12	10.2	38.6	8	11.5	10.6
HCM Lane LOS	B	B	B	E	A	B	B
HCM 95th-tile Q	0.1	1.4	0.4	10.1	0.1	0.5	0.4

Intersection	
Intersection Delay, s/veh	67.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	38	19	324	45	89	0	60	184	281	223	9
Future Vol, veh/h	6	38	19	324	45	89	0	60	184	281	223	9
Peak Hour Factor	0.61	0.61	0.61	0.88	0.88	0.88	0.86	0.86	0.86	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	62	31	368	51	101	0	70	214	312	248	10
Number of Lanes	0	2	0	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	2
HCM Control Delay	14	31.4	20.2	134.3
HCM LOS	B	D	C	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	0%	24%	0%	100%	0%	0%	55%
Vol Thru, %	25%	76%	50%	0%	100%	0%	43%
Vol Right, %	75%	0%	50%	0%	0%	100%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	244	25	38	324	45	89	513
LT Vol	0	6	0	324	0	0	281
Through Vol	60	19	19	0	45	0	223
RT Vol	184	0	19	0	0	89	9
Lane Flow Rate	284	41	62	368	51	101	570
Geometry Grp	7	8	8	7	7	7	7
Degree of Util (X)	0.572	0.105	0.151	0.816	0.106	0.19	1.201
Departure Headway (Hd)	7.709	10.067	9.567	8.566	8.047	7.32	7.588
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	471	358	378	427	448	494	479
Service Time	5.409	7.767	7.267	6.266	5.747	5.02	5.377
HCM Lane V/C Ratio	0.603	0.115	0.164	0.862	0.114	0.204	1.19
HCM Control Delay	20.2	13.9	14	39.6	11.7	11.7	134.3
HCM Lane LOS	C	B	B	E	B	B	F
HCM 95th-tile Q	3.5	0.3	0.5	7.5	0.4	0.7	21.6

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1350	65	0	1220	18	0	0	96	0	0	82
Future Vol, veh/h	0	1350	65	0	1220	18	0	0	96	0	0	82
Conflicting Peds, #/hr	5	0	4	4	0	5	6	0	2	2	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	97	97	97	69	69	69	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1406	68	0	1258	19	0	0	139	0	0	88

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	743	-	-	650
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	358	0	0	412
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	356	-	-	408
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	21.5	16.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	356	-	-	-	-	408
HCM Lane V/C Ratio	0.391	-	-	-	-	0.216
HCM Control Delay (s)	21.5	-	-	-	-	16.2
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q(veh)	1.8	-	-	-	-	0.8

HCM 2010 Signalized Intersection Summary
2: Grand Avenue & Figueroa Boulevard

03/14/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	1308	0	0	1069	22	0	0	0	0	0	0
Future Volume (veh/h)	53	1308	0	0	1069	22	0	0	0	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	0	1863	0			
Adj Flow Rate, veh/h	57	1406	0	0	1229	25	0	0	0			
Adj No. of Lanes	1	1	0	0	2	0	0	1	0			
Peak Hour Factor	0.93	0.93	0.92	0.92	0.87	0.87	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	73	1797	0	0	3172	65	0	0	0			
Arrive On Green	0.04	0.96	0.00	0.00	0.89	0.89	0.00	0.00	0.00			
Sat Flow, veh/h	1774	1863	0	0	3641	72		0				
Grp Volume(v), veh/h	57	1406	0	0	613	641		0.0				
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1770	1850						
Q Serve(g_s), s	4.8	16.3	0.0	0.0	8.4	8.4						
Cycle Q Clear(g_c), s	4.8	16.3	0.0	0.0	8.4	8.4						
Prop In Lane	1.00		0.00	0.00		0.04						
Lane Grp Cap(c), veh/h	73	1797	0	0	1582	1654						
V/C Ratio(X)	0.78	0.78	0.00	0.00	0.39	0.39						
Avail Cap(c_a), veh/h	237	1797	0	0	1582	1654						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	71.2	0.4	0.0	0.0	1.3	1.3						
Incr Delay (d2), s/veh	6.6	3.5	0.0	0.0	0.7	0.7						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	2.5	8.8	0.0	0.0	4.2	4.4						
LnGrp Delay(d),s/veh	77.8	3.9	0.0	0.0	2.0	2.0						
LnGrp LOS	E	A			A	A						
Approach Vol, veh/h		1463			1254							
Approach Delay, s/veh		6.7			2.0							
Approach LOS		A			A							

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		150.0			10.6	139.4		
Change Period (Y+Rc), s		5.3			4.4	5.3		
Max Green Setting (Gmax), s		111.0			20.0	86.6		
Max Q Clear Time (g_c+I1), s		18.3			6.8	10.4		
Green Ext Time (p_c), s		58.2			0.0	22.6		

Intersection Summary	
HCM 2010 Ctrl Delay	4.5
HCM 2010 LOS	A

Notes

User approved ignoring U-Turning movement.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	236	1161	1010	852	882	173
Future Volume (veh/h)	236	1161	1010	852	882	173
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	254	0	1041	878	948	0
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.93	0.93	0.97	0.97	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	295	264	945	2473	1232	0
Arrive On Green	0.17	0.00	0.27	0.70	0.35	0.00
Sat Flow, veh/h	1774	1583	3442	3632	3725	0
Grp Volume(v), veh/h	254	0	1041	878	948	0
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	0
Q Serve(g_s), s	10.4	0.0	20.6	7.5	17.9	0.0
Cycle Q Clear(g_c), s	10.4	0.0	20.6	7.5	17.9	0.0
Prop In Lane	1.00	1.00	1.00			0.00
Lane Grp Cap(c), veh/h	295	264	945	2473	1232	0
V/C Ratio(X)	0.86	0.00	1.10	0.35	0.77	0.00
Avail Cap(c_a), veh/h	357	319	945	2473	1232	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.4	0.0	27.2	4.5	21.8	0.0
Incr Delay (d2), s/veh	14.3	0.0	61.0	0.4	4.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.0	17.7	3.7	9.5	0.0
LnGrp Delay(d),s/veh	44.7	0.0	88.2	4.9	26.4	0.0
LnGrp LOS	D		F	A	C	
Approach Vol, veh/h	254			1919	948	
Approach Delay, s/veh	44.7			50.1	26.4	
Approach LOS	D			D	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	26.3	31.8		16.9		58.1		
Change Period (Y+Rc), s	5.7	* 5.7		4.4		5.7		
Max Green Setting (Gmax), s	20.6	* 24		15.1		49.8		
Max Q Clear Time (g_c+I1), s	22.6	19.9		12.4		9.5		
Green Ext Time (p_c), s	0.0	2.7		0.1		11.9		

Intersection Summary	
HCM 2010 Ctrl Delay	42.5
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

The SBL at this intersection was not coded because, while there is timing for that phase, the volumes were 0 under all peak periods which would result in the NBT receiving that green time, which is similar to not coding SBL.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	122	50	0	0	1878	178
Future Volume (veh/h)	122	50	0	0	1878	178
Number	7	14			2	12
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863			1863	1863
Adj Flow Rate, veh/h	131	0			2064	0
Adj No. of Lanes	1	1			3	1
Peak Hour Factor	0.93	0.93			0.91	0.91
Percent Heavy Veh, %	2	2			2	2
Cap, veh/h	0	0			4631	1442
Arrive On Green	0.00	0.00			0.91	0.00
Sat Flow, veh/h	0				5253	1583
Grp Volume(v), veh/h	0.0				2064	0
Grp Sat Flow(s),veh/h/ln					1695	1583
Q Serve(g_s), s					4.6	0.0
Cycle Q Clear(g_c), s					4.6	0.0
Prop In Lane						1.00
Lane Grp Cap(c), veh/h					4631	1442
V/C Ratio(X)					0.45	0.00
Avail Cap(c_a), veh/h					4631	1442
HCM Platoon Ratio					1.00	1.00
Upstream Filter(I)					1.00	0.00
Uniform Delay (d), s/veh					0.5	0.0
Incr Delay (d2), s/veh					0.3	0.0
Initial Q Delay(d3),s/veh					0.0	0.0
%ile BackOfQ(50%),veh/ln					2.0	0.0
LnGrp Delay(d),s/veh					0.8	0.0
LnGrp LOS					A	
Approach Vol, veh/h					2064	
Approach Delay, s/veh					0.8	
Approach LOS					A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		75.0						
Change Period (Y+Rc), s		6.7						
Max Green Setting (Gmax), s		38.6						
Max Q Clear Time (g_c+I1), s		6.6						
Green Ext Time (p_c), s		29.9						

Intersection Summary	
HCM 2010 Ctrl Delay	0.8
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	109	82	75	75	82	59
Future Vol, veh/h	109	82	75	75	82	59
Peak Hour Factor	0.84	0.84	0.74	0.74	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	130	98	101	101	103	74
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	9.7	8.8	9.3
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	57%	0%	58%
Vol Thru, %	43%	50%	0%
Vol Right, %	0%	50%	42%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	191	150	141
LT Vol	109	0	82
Through Vol	82	75	0
RT Vol	0	75	59
Lane Flow Rate	227	203	176
Geometry Grp	1	1	1
Degree of Util (X)	0.297	0.244	0.233
Departure Headway (Hd)	4.7	4.332	4.763
Convergence, Y/N	Yes	Yes	Yes
Cap	764	827	753
Service Time	2.736	2.368	2.805
HCM Lane V/C Ratio	0.297	0.245	0.234
HCM Control Delay	9.7	8.8	9.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	1	0.9

Intersection	
Int Delay, s/veh	6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	44	26	83	60	7	79
Future Vol, veh/h	44	26	83	60	7	79
Conflicting Peds, #/hr	0	3	3	0	1	18
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	73	73	87	87	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	36	95	69	10	110

Major/Minor	Minor2		Major2	
Conflicting Flow All	262	72	3	0
Stage 1	259	-	-	-
Stage 2	3	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	643	990	1619	-
Stage 1	694	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	990	1619	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	9	4.3
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	990	1619	-
HCM Lane V/C Ratio	0.097	0.059	-
HCM Control Delay (s)	9	7.4	0
HCM Lane LOS	A	A	A
HCM 95th %tile Q(veh)	0.3	0.2	-

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	38	21	120	23	46	29	70	79	110	67	5
Future Vol, veh/h	2	38	21	120	23	46	29	70	79	110	67	5
Peak Hour Factor	0.80	0.80	0.80	0.76	0.76	0.76	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	48	26	158	30	61	34	81	92	128	78	6
Number of Lanes	0	1	0	0	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	9.8	11.1	10	10.2
HCM LOS	A	B	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	3%	84%	0%	100%	0%
Vol Thru, %	0%	47%	62%	16%	0%	0%	93%
Vol Right, %	0%	53%	34%	0%	100%	0%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	29	149	61	143	46	110	72
LT Vol	29	0	2	120	0	110	0
Through Vol	0	70	38	23	0	0	67
RT Vol	0	79	21	0	46	0	5
Lane Flow Rate	34	173	76	188	61	128	84
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.059	0.262	0.126	0.326	0.086	0.224	0.133
Departure Headway (Hd)	6.322	5.44	5.928	6.242	5.112	6.291	5.736
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	568	662	605	578	702	572	626
Service Time	4.046	3.165	3.956	3.965	2.835	4.016	3.461
HCM Lane V/C Ratio	0.06	0.261	0.126	0.325	0.087	0.224	0.134
HCM Control Delay	9.4	10.1	9.8	12	8.3	10.8	9.3
HCM Lane LOS	A	B	A	B	A	B	A
HCM 95th-tile Q	0.2	1	0.4	1.4	0.3	0.9	0.5

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	31	19	225	44	179	11	93	190	83	97	14
Future Vol, veh/h	17	31	19	225	44	179	11	93	190	83	97	14
Peak Hour Factor	0.73	0.73	0.73	0.90	0.90	0.90	0.85	0.85	0.85	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	42	26	250	49	199	13	109	224	89	104	15
Number of Lanes	0	2	0	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	2
HCM Control Delay	11.4	13.7	17.7	14.5
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	4%	52%	0%	100%	0%	0%	43%
Vol Thru, %	32%	48%	45%	0%	100%	0%	50%
Vol Right, %	65%	0%	55%	0%	0%	100%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	294	33	35	225	44	179	194
LT Vol	11	17	0	225	0	0	83
Through Vol	93	16	16	0	44	0	97
RT Vol	190	0	19	0	0	179	14
Lane Flow Rate	346	45	47	250	49	199	209
Geometry Grp	7	8	8	7	7	7	7
Degree of Util (X)	0.593	0.101	0.099	0.488	0.088	0.32	0.405
Departure Headway (Hd)	6.172	8.186	7.516	7.025	6.514	5.799	6.984
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	581	440	480	510	546	615	511
Service Time	3.96	5.886	5.216	4.813	4.302	3.587	4.783
HCM Lane V/C Ratio	0.596	0.102	0.098	0.49	0.09	0.324	0.409
HCM Control Delay	17.7	11.8	11	16.4	9.9	11.3	14.5
HCM Lane LOS	C	B	B	C	A	B	B
HCM 95th-tile Q	3.9	0.3	0.3	2.6	0.3	1.4	1.9

Existing + Project Conditions

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	20	3	51	22	49	18	59	174	91	38	0
Future Vol, veh/h	0	20	3	51	22	49	18	59	174	91	38	0
Peak Hour Factor	0.58	0.58	0.58	0.88	0.88	0.88	0.80	0.80	0.80	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	34	5	58	25	56	23	74	218	121	51	0
Number of Lanes	0	1	0	0	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	9.3	9.2	10.2	9.6
HCM LOS	A	A	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	70%	0%	100%	0%
Vol Thru, %	0%	25%	87%	30%	0%	0%	100%
Vol Right, %	0%	75%	13%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	233	23	73	49	91	38
LT Vol	18	0	0	51	0	91	0
Through Vol	0	59	20	22	0	0	38
RT Vol	0	174	3	0	49	0	0
Lane Flow Rate	22	291	40	83	56	121	51
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.036	0.379	0.064	0.141	0.078	0.196	0.075
Departure Headway (Hd)	5.718	4.689	5.831	6.098	5.04	5.814	5.31
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	624	763	609	585	705	615	671
Service Time	3.47	2.44	3.915	3.867	2.809	3.575	3.071
HCM Lane V/C Ratio	0.035	0.381	0.066	0.142	0.079	0.197	0.076
HCM Control Delay	8.7	10.3	9.3	9.9	8.2	10	8.5
HCM Lane LOS	A	B	A	A	A	A	A
HCM 95th-tile Q	0.1	1.8	0.2	0.5	0.3	0.7	0.2

Intersection	
Intersection Delay, s/veh	15.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	57	5	124	33	100	5	199	220	71	54	4
Future Vol, veh/h	5	57	5	124	33	100	5	199	220	71	54	4
Peak Hour Factor	0.84	0.84	0.84	0.87	0.87	0.87	0.92	0.92	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	68	6	143	38	115	5	216	239	84	64	5
Number of Lanes	0	2	0	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	2
HCM Control Delay	10.8	11.1	20.9	11.9
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	1%	15%	0%	100%	0%	0%	55%
Vol Thru, %	47%	85%	85%	0%	100%	0%	42%
Vol Right, %	52%	0%	15%	0%	0%	100%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	424	34	34	124	33	100	129
LT Vol	5	5	0	124	0	0	71
Through Vol	199	29	29	0	33	0	54
RT Vol	220	0	5	0	0	100	4
Lane Flow Rate	461	40	40	143	38	115	152
Geometry Grp	7	8	8	7	7	7	7
Degree of Util (X)	0.711	0.082	0.08	0.278	0.069	0.185	0.278
Departure Headway (Hd)	5.552	7.415	7.231	7.015	6.505	5.79	6.583
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	650	481	493	510	549	617	543
Service Time	3.299	5.201	5.016	4.776	4.265	3.55	4.347
HCM Lane V/C Ratio	0.709	0.083	0.081	0.28	0.069	0.186	0.28
HCM Control Delay	20.9	10.9	10.7	12.5	9.8	9.9	11.9
HCM Lane LOS	C	B	B	B	A	A	B
HCM 95th-tile Q	5.9	0.3	0.3	1.1	0.2	0.7	1.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	177	0	3	129	0	2
Future Vol, veh/h	177	0	3	129	0	2
Conflicting Peds, #/hr	0	15	12	0	15	12
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	80	80	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	206	0	4	161	0	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	221	0	405	233
Stage 1	-	-	-	-	221	-
Stage 2	-	-	-	-	184	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1348	-	602	806
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	848	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1329	-	583	785
Mov Cap-2 Maneuver	-	-	-	-	583	-
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	836	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	785	-	-	1329	-
HCM Lane V/C Ratio	0.003	-	-	0.003	-
HCM Control Delay (s)	9.6	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	7.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	22	0	103	26	0	155
Future Vol, veh/h	22	0	103	26	0	155
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	0	112	28	0	168

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	24	0	276	24
Stage 1	-	-	-	-	24	-
Stage 2	-	-	-	-	252	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1591	-	714	1052
Stage 1	-	-	-	-	999	-
Stage 2	-	-	-	-	790	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1591	-	663	1052
Mov Cap-2 Maneuver	-	-	-	-	663	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	790	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.9	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1052	-	-	1591	-
HCM Lane V/C Ratio	0.16	-	-	0.07	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.2	-

Intersection	
Intersection Delay, s/veh	37.3
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	26	27	416	28	80	19	106	97	173	72	2
Future Vol, veh/h	0	26	27	416	28	80	19	106	97	173	72	2
Peak Hour Factor	0.83	0.83	0.83	0.88	0.88	0.88	0.85	0.85	0.85	0.72	0.72	0.72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	31	33	473	32	91	22	125	114	240	100	3
Number of Lanes	0	1	0	0	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	12.1	61.1	16.1	17
HCM LOS	B	F	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	94%	0%	100%	0%
Vol Thru, %	0%	52%	49%	6%	0%	0%	97%
Vol Right, %	0%	48%	51%	0%	100%	0%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	203	53	444	80	173	74
LT Vol	19	0	0	416	0	173	0
Through Vol	0	106	26	28	0	0	72
RT Vol	0	97	27	0	80	0	2
Lane Flow Rate	22	239	64	505	91	240	103
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.05	0.476	0.137	1.013	0.152	0.523	0.209
Departure Headway (Hd)	8.188	7.327	7.858	7.226	6.038	7.998	7.464
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	440	494	459	505	596	454	484
Service Time	5.888	5.027	5.858	4.934	3.746	5.698	5.164
HCM Lane V/C Ratio	0.05	0.484	0.139	1	0.153	0.529	0.213
HCM Control Delay	11.3	16.5	12.1	70.4	9.8	19.1	12.1
HCM Lane LOS	B	C	B	F	A	C	B
HCM 95th-tile Q	0.2	2.5	0.5	14.2	0.5	3	0.8

Intersection	
Intersection Delay, s/veh	80
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	38	19	324	45	133	0	61	184	300	227	9
Future Vol, veh/h	6	38	19	324	45	133	0	61	184	300	227	9
Peak Hour Factor	0.61	0.61	0.61	0.88	0.88	0.88	0.86	0.86	0.86	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	62	31	368	51	151	0	71	214	333	252	10
Number of Lanes	0	2	0	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	2
HCM Control Delay	14.4	30.5	20.8	167
HCM LOS	B	D	C	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	0%	24%	0%	100%	0%	0%	56%
Vol Thru, %	25%	76%	50%	0%	100%	0%	42%
Vol Right, %	75%	0%	50%	0%	0%	100%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	245	25	38	324	45	133	536
LT Vol	0	6	0	324	0	0	300
Through Vol	61	19	19	0	45	0	227
RT Vol	184	0	19	0	0	133	9
Lane Flow Rate	285	41	62	368	51	151	596
Geometry Grp	7	8	8	7	7	7	7
Degree of Util (X)	0.578	0.107	0.155	0.816	0.106	0.285	1.284
Departure Headway (Hd)	7.889	10.363	9.861	8.733	8.213	7.485	7.763
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	462	348	366	416	439	484	470
Service Time	5.589	8.063	7.561	6.433	5.913	5.185	5.468
HCM Lane V/C Ratio	0.617	0.118	0.169	0.885	0.116	0.312	1.268
HCM Control Delay	20.8	14.3	14.4	40.2	11.9	13.1	167
HCM Lane LOS	C	B	B	E	B	B	F
HCM 95th-tile Q	3.6	0.4	0.5	7.5	0.4	1.2	25.3

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	301	0	28	303	0	12
Future Vol, veh/h	301	0	28	303	0	12
Conflicting Peds, #/hr	0	15	12	0	15	12
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	79	79	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	338	0	35	384	0	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	353	0	822	365
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	469	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1206	-	344	680
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	630	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1189	-	322	663
Mov Cap-2 Maneuver	-	-	-	-	322	-
Stage 1	-	-	-	-	675	-
Stage 2	-	-	-	-	621	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	663	-	-	1189	-
HCM Lane V/C Ratio	0.022	-	-	0.03	-
HCM Control Delay (s)	10.6	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	67	0	234	69	0	234
Future Vol, veh/h	67	0	234	69	0	234
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	73	0	254	75	0	254

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	73	0	656	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	583	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1527	-	430	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	558	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1527	-	355	989
Mov Cap-2 Maneuver	-	-	-	-	355	-
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	558	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	989	-	-	1527	-
HCM Lane V/C Ratio	0.257	-	-	0.167	-
HCM Control Delay (s)	9.9	-	-	7.8	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	1	-	-	0.6	-

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	38	21	117	23	74	29	92	75	135	76	5
Future Vol, veh/h	2	38	21	117	23	74	29	92	75	135	76	5
Peak Hour Factor	0.80	0.80	0.80	0.76	0.76	0.76	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	48	26	154	30	97	34	107	87	157	88	6
Number of Lanes	0	1	0	0	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	10.2	11.1	10.7	11
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	3%	84%	0%	100%	0%
Vol Thru, %	0%	55%	62%	16%	0%	0%	94%
Vol Right, %	0%	45%	34%	0%	100%	0%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	29	167	61	140	74	135	81
LT Vol	29	0	2	117	0	135	0
Through Vol	0	92	38	23	0	0	76
RT Vol	0	75	21	0	74	0	5
Lane Flow Rate	34	194	76	184	97	157	94
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.061	0.306	0.131	0.329	0.144	0.281	0.154
Departure Headway (Hd)	6.491	5.665	6.183	6.437	5.307	6.433	5.883
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	552	635	580	558	676	559	610
Service Time	4.226	3.4	4.227	4.172	3.042	4.167	3.616
HCM Lane V/C Ratio	0.062	0.306	0.131	0.33	0.143	0.281	0.154
HCM Control Delay	9.6	10.9	10.2	12.3	8.9	11.7	9.7
HCM Lane LOS	A	B	B	B	A	B	A
HCM 95th-tile Q	0.2	1.3	0.4	1.4	0.5	1.1	0.5

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	31	19	225	44	199	11	92	190	90	95	14
Future Vol, veh/h	17	31	19	225	44	199	11	92	190	90	95	14
Peak Hour Factor	0.73	0.73	0.73	0.90	0.90	0.90	0.85	0.85	0.85	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	42	26	250	49	221	13	108	224	97	102	15
Number of Lanes	0	2	0	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	2
HCM Control Delay	11.5	13.9	18	15
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	4%	52%	0%	100%	0%	0%	45%
Vol Thru, %	31%	48%	45%	0%	100%	0%	48%
Vol Right, %	65%	0%	55%	0%	0%	100%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	293	33	35	225	44	199	199
LT Vol	11	17	0	225	0	0	90
Through Vol	92	16	16	0	44	0	95
RT Vol	190	0	19	0	0	199	14
Lane Flow Rate	345	45	47	250	49	221	214
Geometry Grp	7	8	8	7	7	7	7
Degree of Util (X)	0.597	0.102	0.1	0.49	0.089	0.358	0.425
Departure Headway (Hd)	6.236	8.273	7.603	7.158	6.546	5.831	7.157
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	572	435	474	508	542	610	507
Service Time	4.035	5.986	5.315	4.858	4.346	3.631	4.857
HCM Lane V/C Ratio	0.603	0.103	0.099	0.492	0.09	0.362	0.422
HCM Control Delay	18	11.9	11.2	16.5	10	11.9	15
HCM Lane LOS	C	B	B	C	A	B	B
HCM 95th-tile Q	3.9	0.3	0.3	2.7	0.3	1.6	2.1

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	190	0	34	280	0	24
Future Vol, veh/h	190	0	34	280	0	24
Conflicting Peds, #/hr	0	4	21	0	4	21
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	73	73	87	87	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	260	0	39	322	0	33

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	281	0	685	302
Stage 1	-	-	-	-	281	-
Stage 2	-	-	-	-	404	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1282	-	414	738
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	674	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1256	-	389	709
Mov Cap-2 Maneuver	-	-	-	-	389	-
Stage 1	-	-	-	-	723	-
Stage 2	-	-	-	-	671	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	709	-	-	1256	-
HCM Lane V/C Ratio	0.047	-	-	0.031	-
HCM Control Delay (s)	10.3	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	6.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	44	0	220	60	0	146
Future Vol, veh/h	44	0	220	60	0	146
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	0	239	65	0	159

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	48	0	591	48
Stage 1	-	-	-	-	48	-
Stage 2	-	-	-	-	543	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1559	-	470	1021
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	582	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1559	-	395	1021
Mov Cap-2 Maneuver	-	-	-	-	395	-
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	582	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.1	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1021	-	-	1559	-
HCM Lane V/C Ratio	0.155	-	-	0.153	-
HCM Control Delay (s)	9.2	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.5	-

Existing + Project Conditions with Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	20	3	51	22	49	18	59	174	91	38	0
Future Volume (veh/h)	0	20	3	51	22	49	18	59	174	91	38	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	34	5	58	25	56	22	74	218	121	51	0
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.58	0.58	0.58	0.88	0.88	0.88	0.80	0.80	0.80	0.75	0.75	0.75
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	255	37	469	72	254	848	153	450	627	682	0
Arrive On Green	0.00	0.16	0.16	0.16	0.16	0.16	0.37	0.37	0.37	0.37	0.37	0.00
Sat Flow, veh/h	0	1588	234	917	449	1583	1348	417	1229	1083	1863	0
Grp Volume(v), veh/h	0	0	39	83	0	56	22	0	292	121	51	0
Grp Sat Flow(s),veh/h/ln	0	0	1822	1367	0	1583	1348	0	1646	1083	1863	0
Q Serve(g_s), s	0.0	0.0	0.3	0.8	0.0	0.6	0.2	0.0	2.6	1.8	0.3	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.3	1.2	0.0	0.6	0.5	0.0	2.6	4.4	0.3	0.0
Prop In Lane	0.00		0.13	0.70		1.00	1.00		0.75	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	292	541	0	254	848	0	603	627	682	0
V/C Ratio(X)	0.00	0.00	0.13	0.15	0.00	0.22	0.03	0.00	0.48	0.19	0.07	0.00
Avail Cap(c_a), veh/h	0	0	1725	1708	0	1500	1632	0	1559	1256	1764	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	6.8	7.3	0.0	6.9	4.1	0.0	4.6	6.4	3.9	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.1	0.0	0.4	0.0	0.0	0.6	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	0.4	0.0	0.3	0.1	0.0	1.2	0.6	0.2	0.0
LnGrp Delay(d),s/veh	0.0	0.0	7.1	7.4	0.0	7.4	4.1	0.0	5.2	6.5	4.0	0.0
LnGrp LOS			A	A		A	A		A	A	A	
Approach Vol, veh/h		39			139			314			172	
Approach Delay, s/veh		7.1			7.4			5.2			5.8	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		11.5		7.5		11.5		7.5
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s		4.6		2.3		6.4		3.2
Green Ext Time (p_c), s		1.6		0.1		0.5		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	5.9
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	20	3	51	22	49	18	59	174	91	38	0
Future Vol, veh/h	0	20	3	51	22	49	18	59	174	91	38	0
Peak Hour Factor	0.58	0.58	0.58	0.88	0.88	0.88	0.80	0.80	0.80	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	34	5	58	25	56	23	74	218	121	51	0
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	9.3	9.1	10.2	9.6
HCM LOS	A	A	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	25%	87%	0%	31%	0%	100%
Vol Right, %	0%	75%	13%	0%	69%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	233	23	51	71	91	38
LT Vol	18	0	0	51	0	91	0
Through Vol	0	59	20	0	22	0	38
RT Vol	0	174	3	0	49	0	0
Lane Flow Rate	22	291	40	58	81	121	51
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.036	0.379	0.064	0.101	0.118	0.196	0.075
Departure Headway (Hd)	5.717	4.688	5.83	6.249	5.259	5.813	5.309
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	624	763	610	571	677	615	671
Service Time	3.469	2.439	3.914	4.019	3.028	3.574	3.07
HCM Lane V/C Ratio	0.035	0.381	0.066	0.102	0.12	0.197	0.076
HCM Control Delay	8.7	10.3	9.3	9.7	8.7	10	8.5
HCM Lane LOS	A	B	A	A	A	A	A
HCM 95th-tile Q	0.1	1.8	0.2	0.3	0.4	0.7	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	57	5	124	33	100	5	199	220	71	54	4
Future Volume (veh/h)	5	57	5	124	33	100	5	199	220	71	54	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	0.99		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1863	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	6	68	6	143	38	115	5	216	239	84	64	5
Adj No. of Lanes	0	2	0	1	1	1	0	1	0	0	1	0
Peak Hour Factor	0.84	0.84	0.84	0.87	0.87	0.87	0.92	0.92	0.92	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	715	62	570	432	363	149	329	358	499	325	20
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	105	3080	266	1306	1863	1563	5	811	883	677	803	50
Grp Volume(v), veh/h	43	0	37	143	38	115	460	0	0	153	0	0
Grp Sat Flow(s),veh/h/ln	1807	0	1644	1306	1863	1563	1700	0	0	1530	0	0
Q Serve(g_s), s	0.0	0.0	0.4	2.4	0.4	1.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	0.4	2.8	0.4	1.5	5.5	0.0	0.0	1.3	0.0	0.0
Prop In Lane	0.14		0.16	1.00		1.00	0.01		0.52	0.55		0.03
Lane Grp Cap(c), veh/h	585	0	382	570	432	363	835	0	0	845	0	0
V/C Ratio(X)	0.07	0.00	0.10	0.25	0.09	0.32	0.55	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	1440	0	1193	1214	1351	1134	1378	0	0	1228	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.5	0.0	7.5	8.6	7.5	7.9	6.0	0.0	0.0	4.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.2	0.1	0.5	0.6	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	0.9	0.2	0.7	2.6	0.0	0.0	0.7	0.0	0.0
LnGrp Delay(d),s/veh	7.5	0.0	7.6	8.8	7.6	8.4	6.6	0.0	0.0	4.9	0.0	0.0
LnGrp LOS	A		A	A	A	A	A			A		
Approach Vol, veh/h		80			296			460			153	
Approach Delay, s/veh		7.6			8.5			6.6			4.9	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		14.6		10.3		14.6		10.3
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s		7.5		2.4		3.3		4.8
Green Ext Time (p_c), s		2.2		0.3		0.8		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	7.0
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	17.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	57	5	124	33	100	5	199	220	71	54	4
Future Vol, veh/h	5	57	5	124	33	100	5	199	220	71	54	4
Peak Hour Factor	0.84	0.84	0.84	0.87	0.87	0.87	0.92	0.92	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	68	6	143	38	115	5	216	239	84	64	5
Number of Lanes	0	2	0	1	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	2
HCM Control Delay	10.9	11.8	24.8	11.4
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	1%	15%	0%	100%	0%	0%	100%	0%
Vol Thru, %	47%	85%	85%	0%	100%	0%	0%	93%
Vol Right, %	52%	0%	15%	0%	0%	100%	0%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	424	34	34	124	33	100	71	58
LT Vol	5	5	0	124	0	0	71	0
Through Vol	199	29	29	0	33	0	0	54
RT Vol	220	0	5	0	0	100	0	4
Lane Flow Rate	461	40	40	143	38	115	84	68
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.756	0.085	0.083	0.292	0.072	0.196	0.176	0.134
Departure Headway (Hd)	5.904	7.633	7.448	7.366	6.856	6.143	7.604	7.047
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	608	472	483	485	518	578	474	512
Service Time	3.684	5.34	5.155	5.165	4.654	3.94	5.304	4.747
HCM Lane V/C Ratio	0.758	0.085	0.083	0.295	0.073	0.199	0.177	0.133
HCM Control Delay	24.8	11	10.8	13.2	10.2	10.5	11.9	10.8
HCM Lane LOS	C	B	B	B	B	B	B	B
HCM 95th-tile Q	6.8	0.3	0.3	1.2	0.2	0.7	0.6	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	26	27	416	28	80	19	106	97	173	72	2
Future Volume (veh/h)	0	26	27	416	28	80	19	106	97	173	72	2
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	31	33	473	32	91	22	125	114	240	100	3
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.83	0.83	0.83	0.88	0.88	0.88	0.85	0.85	0.85	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	46	49	579	39	550	539	322	293	416	644	19
Arrive On Green	0.00	0.06	0.06	0.35	0.35	0.35	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	0	827	880	1667	113	1583	1286	899	820	1136	1799	54
Grp Volume(v), veh/h	0	0	64	505	0	91	22	0	239	240	0	103
Grp Sat Flow(s),veh/h/ln	0	0	1707	1779	0	1583	1286	0	1718	1136	0	1853
Q Serve(g_s), s	0.0	0.0	2.1	14.6	0.0	2.3	0.7	0.0	5.9	11.3	0.0	2.1
Cycle Q Clear(g_c), s	0.0	0.0	2.1	14.6	0.0	2.3	2.8	0.0	5.9	17.2	0.0	2.1
Prop In Lane	0.00		0.52	0.94		1.00	1.00		0.48	1.00		0.03
Lane Grp Cap(c), veh/h	0	0	96	618	0	550	539	0	615	416	0	663
V/C Ratio(X)	0.00	0.00	0.67	0.82	0.00	0.17	0.04	0.00	0.39	0.58	0.00	0.16
Avail Cap(c_a), veh/h	0	0	543	928	0	826	738	0	881	592	0	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	26.2	16.8	0.0	12.8	13.3	0.0	13.5	19.9	0.0	12.3
Incr Delay (d2), s/veh	0.0	0.0	7.8	3.6	0.0	0.1	0.0	0.0	0.4	1.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.2	7.8	0.0	1.0	0.2	0.0	2.9	3.7	0.0	1.1
LnGrp Delay(d),s/veh	0.0	0.0	34.0	20.4	0.0	12.9	13.3	0.0	13.9	21.2	0.0	12.5
LnGrp LOS			C	C		B	B		B	C		B
Approach Vol, veh/h		64			596			261			343	
Approach Delay, s/veh		34.0			19.2			13.9			18.6	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		24.7		7.7		24.7		24.1
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		29.0		18.0		29.0		29.5
Max Q Clear Time (g_c+I1), s		7.9		4.1		19.2		16.6
Green Ext Time (p_c), s		1.5		0.2		1.1		3.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.7
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	30.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	26	27	416	28	80	19	106	97	173	72	2
Future Vol, veh/h	0	26	27	416	28	80	19	106	97	173	72	2
Peak Hour Factor	0.83	0.83	0.83	0.88	0.88	0.88	0.85	0.85	0.85	0.72	0.72	0.72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	31	33	473	32	91	22	125	114	240	100	3
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	12	47.2	16	16.9
HCM LOS	B	E	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	52%	49%	0%	26%	0%	97%
Vol Right, %	0%	48%	51%	0%	74%	0%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	203	53	416	108	173	74
LT Vol	19	0	0	416	0	173	0
Through Vol	0	106	26	0	28	0	72
RT Vol	0	97	27	0	80	0	2
Lane Flow Rate	22	239	64	473	123	240	103
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.05	0.477	0.137	0.955	0.213	0.525	0.209
Departure Headway (Hd)	8.053	7.194	7.723	7.271	6.235	7.865	7.332
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	444	499	463	501	579	459	489
Service Time	5.808	4.948	5.788	4.971	3.935	5.618	5.084
HCM Lane V/C Ratio	0.05	0.479	0.138	0.944	0.212	0.523	0.211
HCM Control Delay	11.2	16.4	12	56.7	10.6	19	12
HCM Lane LOS	B	C	B	F	B	C	B
HCM 95th-tile Q	0.2	2.5	0.5	12	0.8	3	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	38	19	324	45	133	0	61	184	300	227	9
Future Volume (veh/h)	6	38	19	324	45	133	0	61	184	300	227	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1863	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	10	62	31	368	51	151	0	71	214	333	252	10
Adj No. of Lanes	0	2	0	1	1	1	0	1	0	0	1	0
Peak Hour Factor	0.61	0.61	0.61	0.88	0.88	0.88	0.86	0.86	0.86	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	117	59	411	432	365	0	233	703	416	270	11
Arrive On Green	0.06	0.06	0.06	0.23	0.23	0.23	0.00	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	338	2099	1051	1774	1863	1573	0	409	1233	626	474	19
Grp Volume(v), veh/h	55	0	48	368	51	151	0	0	285	595	0	0
Grp Sat Flow(s),veh/h/ln	1846	0	1643	1774	1863	1573	0	0	1642	1119	0	0
Q Serve(g_s), s	2.7	0.0	2.7	19.1	2.1	7.7	0.0	0.0	8.6	40.0	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	2.7	19.1	2.1	7.7	0.0	0.0	8.6	48.6	0.0	0.0
Prop In Lane	0.18		0.64	1.00		1.00	0.00		0.75	0.56		0.02
Lane Grp Cap(c), veh/h	103	0	92	411	432	365	0	0	936	697	0	0
V/C Ratio(X)	0.53	0.00	0.53	0.89	0.12	0.41	0.00	0.00	0.30	0.85	0.00	0.00
Avail Cap(c_a), veh/h	350	0	311	482	506	427	0	0	1084	817	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	43.6	0.0	43.6	35.4	28.8	31.0	0.0	0.0	10.6	23.2	0.0	0.0
Incr Delay (d2), s/veh	4.2	0.0	4.7	17.2	0.1	0.8	0.0	0.0	0.2	7.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	1.4	11.3	1.1	3.4	0.0	0.0	3.9	16.0	0.0	0.0
LnGrp Delay(d),s/veh	47.8	0.0	48.3	52.5	28.9	31.7	0.0	0.0	10.8	31.0	0.0	0.0
LnGrp LOS	D		D	D	C	C			B	C		
Approach Vol, veh/h		103			570			285			595	
Approach Delay, s/veh		48.1			44.9			10.8			31.0	
Approach LOS		D			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		58.7		9.8		58.7		26.5
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		62.7		18.0		62.7		25.8
Max Q Clear Time (g_c+I1), s		10.6		4.7		50.6		21.1
Green Ext Time (p_c), s		2.1		0.4		3.6		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	33.5
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	34.6
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	38	19	324	45	133	0	61	184	300	227	9
Future Vol, veh/h	6	38	19	324	45	133	0	61	184	300	227	9
Peak Hour Factor	0.61	0.61	0.61	0.88	0.88	0.88	0.86	0.86	0.86	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	62	31	368	51	151	0	71	214	333	252	10
Number of Lanes	0	2	0	1	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	2
HCM Control Delay	14.6	42.2	28.2	33.9
HCM LOS	B	E	D	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	0%	24%	0%	100%	0%	0%	100%	0%
Vol Thru, %	25%	76%	50%	0%	100%	0%	0%	96%
Vol Right, %	75%	0%	50%	0%	0%	100%	0%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	245	25	38	324	45	133	300	236
LT Vol	0	6	0	324	0	0	300	0
Through Vol	61	19	19	0	45	0	0	227
RT Vol	184	0	19	0	0	133	0	9
Lane Flow Rate	285	41	62	368	51	151	333	262
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.684	0.118	0.17	0.921	0.121	0.326	0.825	0.609
Departure Headway (Hd)	8.647	10.341	9.844	9.01	8.493	7.77	8.906	8.366
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	419	346	364	401	422	462	407	433
Service Time	6.399	8.11	7.612	6.755	6.239	5.515	6.653	6.113
HCM Lane V/C Ratio	0.68	0.118	0.17	0.918	0.121	0.327	0.818	0.605
HCM Control Delay	28.2	14.5	14.6	57.8	12.4	14.2	42.1	23.4
HCM Lane LOS	D	B	B	F	B	B	E	C
HCM 95th-tile Q	5	0.4	0.6	9.9	0.4	1.4	7.6	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	38	21	117	23	74	29	92	75	135	76	5
Future Volume (veh/h)	2	38	21	117	23	74	29	92	75	135	76	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	2	48	26	154	30	97	34	107	87	157	88	6
Adj No. of Lanes	0	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	0.80	0.80	0.80	0.76	0.76	0.76	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	88	48	270	53	284	577	288	234	487	523	36
Arrive On Green	0.08	0.08	0.08	0.18	0.18	0.18	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	46	1107	600	1496	292	1575	1293	951	773	1183	1724	118
Grp Volume(v), veh/h	76	0	0	184	0	97	34	0	194	157	0	94
Grp Sat Flow(s),veh/h/ln	1752	0	0	1788	0	1575	1293	0	1725	1183	0	1842
Q Serve(g_s), s	1.3	0.0	0.0	2.9	0.0	1.7	0.6	0.0	2.7	3.7	0.0	1.2
Cycle Q Clear(g_c), s	1.3	0.0	0.0	2.9	0.0	1.7	1.8	0.0	2.7	6.4	0.0	1.2
Prop In Lane	0.03		0.34	0.84		1.00	1.00		0.45	1.00		0.06
Lane Grp Cap(c), veh/h	140	0	0	322	0	284	577	0	523	487	0	558
V/C Ratio(X)	0.54	0.00	0.00	0.57	0.00	0.34	0.06	0.00	0.37	0.32	0.00	0.17
Avail Cap(c_a), veh/h	1021	0	0	1047	0	922	1038	0	1139	909	0	1216
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.7	0.0	0.0	11.6	0.0	11.1	8.6	0.0	8.5	11.0	0.0	7.9
Incr Delay (d2), s/veh	3.3	0.0	0.0	1.6	0.0	0.7	0.0	0.0	0.4	0.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	1.6	0.0	0.8	0.2	0.0	1.4	1.2	0.0	0.6
LnGrp Delay(d),s/veh	16.9	0.0	0.0	13.2	0.0	11.8	8.6	0.0	8.9	11.4	0.0	8.0
LnGrp LOS	B			B		B	A		A	B		A
Approach Vol, veh/h		76			281			228			251	
Approach Delay, s/veh		16.9			12.7			8.8			10.1	
Approach LOS		B			B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		13.9		7.0		13.9		10.1
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		20.4		18.0		20.4		18.1
Max Q Clear Time (g_c+I1), s		4.7		3.3		8.4		4.9
Green Ext Time (p_c), s		1.0		0.3		0.8		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	11.3
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	38	21	117	23	74	29	92	75	135	76	5
Future Vol, veh/h	2	38	21	117	23	74	29	92	75	135	76	5
Peak Hour Factor	0.80	0.80	0.80	0.76	0.76	0.76	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	48	26	154	30	97	34	107	87	157	88	6
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	10.1	10.8	10.7	10.9
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	3%	100%	0%	100%	0%
Vol Thru, %	0%	55%	62%	0%	24%	0%	94%
Vol Right, %	0%	45%	34%	0%	76%	0%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	29	167	61	117	97	135	81
LT Vol	29	0	2	117	0	135	0
Through Vol	0	92	38	0	23	0	76
RT Vol	0	75	21	0	74	0	5
Lane Flow Rate	34	194	76	154	128	157	94
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.061	0.305	0.131	0.279	0.194	0.28	0.154
Departure Headway (Hd)	6.479	5.654	6.172	6.517	5.472	6.422	5.871
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	553	635	580	551	656	560	611
Service Time	4.214	3.388	4.214	4.251	3.207	4.155	3.605
HCM Lane V/C Ratio	0.061	0.306	0.131	0.279	0.195	0.28	0.154
HCM Control Delay	9.6	10.9	10.1	11.8	9.5	11.6	9.7
HCM Lane LOS	A	B	B	B	A	B	A
HCM 95th-tile Q	0.2	1.3	0.4	1.1	0.7	1.1	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	31	19	225	44	199	11	92	190	90	95	14
Future Volume (veh/h)	17	31	19	225	44	199	11	92	190	90	95	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1863	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	23	42	26	250	49	221	13	108	224	97	102	15
Adj No. of Lanes	0	2	0	1	1	1	0	1	0	0	1	0
Peak Hour Factor	0.73	0.73	0.73	0.90	0.90	0.90	0.85	0.85	0.85	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	358	515	313	685	596	505	157	179	348	374	320	37
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	468	1611	979	1324	1863	1578	26	556	1078	514	991	113
Grp Volume(v), veh/h	51	0	40	250	49	221	345	0	0	214	0	0
Grp Sat Flow(s),veh/h/ln	1540	0	1519	1324	1863	1578	1660	0	0	1618	0	0
Q Serve(g_s), s	0.0	0.0	0.5	4.1	0.5	2.8	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.5	4.6	0.5	2.8	4.4	0.0	0.0	2.2	0.0	0.0
Prop In Lane	0.45		0.64	1.00		1.00	0.04		0.65	0.45		0.07
Lane Grp Cap(c), veh/h	700	0	486	685	596	505	684	0	0	730	0	0
V/C Ratio(X)	0.07	0.00	0.08	0.36	0.08	0.44	0.50	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	1261	0	1086	1208	1332	1129	1330	0	0	1264	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.0	0.0	6.0	7.6	6.0	6.8	7.3	0.0	0.0	6.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.3	0.1	0.6	0.6	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	1.5	0.2	1.3	2.1	0.0	0.0	1.2	0.0	0.0
LnGrp Delay(d),s/veh	6.0	0.0	6.1	7.9	6.0	7.4	7.9	0.0	0.0	6.8	0.0	0.0
LnGrp LOS	A		A	A	A	A	A			A		
Approach Vol, veh/h		91			520			345			214	
Approach Delay, s/veh		6.0			7.5			7.9			6.8	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		12.6		12.6		12.6		12.6
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s		6.4		2.5		4.2		6.6
Green Ext Time (p_c), s		1.7		0.4		1.1		1.5

Intersection Summary	
HCM 2010 Ctrl Delay	7.4
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	16.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	31	19	225	44	199	11	92	190	90	95	14
Future Vol, veh/h	17	31	19	225	44	199	11	92	190	90	95	14
Peak Hour Factor	0.73	0.73	0.73	0.90	0.90	0.90	0.85	0.85	0.85	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	42	26	250	49	221	13	108	224	97	102	15
Number of Lanes	0	2	0	1	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	2
HCM Control Delay	11.7	15.3	21.5	12.9
HCM LOS	B	C	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	4%	52%	0%	100%	0%	0%	100%	0%
Vol Thru, %	31%	48%	45%	0%	100%	0%	0%	87%
Vol Right, %	65%	0%	55%	0%	0%	100%	0%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	293	33	35	225	44	199	90	109
LT Vol	11	17	0	225	0	0	90	0
Through Vol	92	16	16	0	44	0	0	95
RT Vol	190	0	19	0	0	199	0	14
Lane Flow Rate	345	45	47	250	49	221	97	117
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.652	0.104	0.102	0.522	0.095	0.387	0.219	0.245
Departure Headway (Hd)	6.808	8.405	7.735	7.519	7.008	6.294	8.129	7.528
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	531	426	462	480	511	570	441	477
Service Time	4.553	6.168	5.498	5.265	4.754	4.04	5.882	5.281
HCM Lane V/C Ratio	0.65	0.106	0.102	0.521	0.096	0.388	0.22	0.245
HCM Control Delay	21.5	12.1	11.4	18.2	10.5	13	13.2	12.7
HCM Lane LOS	C	B	B	C	B	B	B	B
HCM 95th-tile Q	4.7	0.3	0.3	3	0.3	1.8	0.8	1