FINAL

MiraCosta Community College District Oceanside Campus Facilities Master Plan Environmental Impact Report
SCH No. 2017061039

Mira Costa Community College District
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Oceanside, California 92056
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ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
CEQA	California Environmental Quality Act
EIR	environmental impact report
MM	Mitigation Measure
MMRP	Mitigation Monitoring and Reporting Program
NOP	Notice of Preparation

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FINAL EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This Final Environmental Impact Report (EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) (California Public Resources Code, Section 21000 et seq.), as amended. The MiraCosta Community College District (MCCCD) is the lead agency for the environmental review of the Oceanside Campus Facilities Master Plan (project or proposed project) evaluated herein and has the responsibility for approving the proposed project. At the time it is called upon to consider approving the proposed project, MCCCD's Board of Trustees shall consider the information in this Final EIR along with other information that may be presented during the environmental review process and public hearing on the proposed project.

As described in the CEQA Guidelines (14 CCR 15000 et seq.), public agencies are charged with the duty to avoid or substantially lessen significant environmental effects, with consideration of other conditions, including economic, social, technological, legal, and other benefits. As required by CEQA, this Final EIR assesses the potentially significant direct and indirect environmental effects of the proposed project, as well as the potentially significant cumulative impacts that could occur from implementation of the proposed project. This Final EIR is an informational document only, the purpose of which is to identify the significant effects of the proposed project on the environment and to indicate the manner in which those significant effects can be avoided or significantly lessened (including feasible mitigation measures); to identify any significant and unavoidable adverse impacts that cannot be mitigated to below a less-than-significant level; and to identify reasonable and feasible alternatives to the proposed project that would avoid or substantially lessen any significant adverse environmental effects associated with the proposed project and achieve the fundamental objectives of the proposed project.

ES.2 CONTENTS AND ORGANIZATION OF FINAL EIR

This Final EIR is prepared pursuant to Sections 15088, 15089, and 15132 of the CEQA Guidelines. The Final EIR, in compliance with Section 15132 of the CEQA Guidelines, contains the following:

- **Final Executive Summary.** The Final Executive Summary provides the contents and organization of the Final EIR, a summary of procedural compliance with CEQA, and a brief description of the proposed project.
- **Chapter 1: Responses to Comments Received.** This chapter includes a list of persons, organizations, and public agencies that provided written comments on the Draft EIR during the public review period. This chapter also includes a copy of the comments received during the public review process for the Draft EIR, as well as MCCCD's responses to these written comments. Each comment is assigned a comment number, which corresponds to a response number and response.

- **Chapter 2: Changes to the Draft EIR.** This chapter contains a summary of changes made to the document since publication of the Draft EIR as a result of comments received. Revisions were made to clarify information presented in the Draft EIR and only minor technical changes or additions have been made. These changes and additions to the EIR do not raise important new issues related to significant effects on the environment. Such changes are "insignificant," as the term is used in Section 15088.5(b) of the CEQA Guidelines. This chapter describes changes that were made and presents textual changes made since public review as signified by strikethrough (~~strikethrough~~) where text is removed, and by underlined text (underline) where text is added for clarification.
- **Chapter 3: Findings of Fact in Support of the Proposed Project.** This chapter of the Final EIR provides a summary of the impacts associated with the proposed project and the findings regarding alternatives to the proposed project. This chapter also includes a summary of the general findings, legal effects of the findings, and a summary of the independent review and analysis.
- **Chapter 4: Mitigation Monitoring and Reporting Program.** This chapter of the Final EIR provides the mitigation monitoring and reporting program (MMRP) for the proposed project. The MMRP is presented in table format and identifies mitigation measures for the proposed project, the party responsible for implementing the mitigation measures, the timing of implementing the mitigation measures, and the entity responsible for monitoring and reporting compliance with each mitigation measure.

ES.3 CALIFORNIA ENVIRONMENTAL QUALITY ACT REVIEW

MCCCD has complied with CEQA and the CEQA Guidelines during preparation of the EIR for the proposed project. Pursuant to Section 15082 of the CEQA Guidelines, a Notice of Preparation (NOP) dated June 16, 2017, was prepared by MCCCD and circulated with the Initial Study to local, state, and federal agencies and to members of the public and other interested agencies, organizations, and individuals. The NOP was also sent to the State Clearinghouse at the California Governor's Office of Planning and Research to solicit participation from state agencies in determining the scope of the EIR. The State Clearinghouse assigned a state identification number (SCH No. 2017061039) to the EIR.

Pursuant to Section 15082 of the CEQA Guidelines, recipients of the NOP for the proposed project were requested to provide responses within 30 days of their receipt of the NOP. As such, the review period for the Initial Study and NOP ended on July 17, 2017. MCCCD received a total of 17 comment letters from the following parties:

- California Department of Fish and Wildlife (CDFW)
- Department of Toxic Substance Control

- California Department of Transportation (2 letters)
- Native American Heritage Commission
- San Diego Association of Governments
- Pala Tribal Historic Preservation Office
- Pauma Band of Luiseño Indians
- Rincon Band of Luiseño Indians
- Viejas Band of Kumeyaay Indians
- Elizabeth Shute
- Lene Olson
- Mark Minieri (2 letters)
- Victoria Bearden (2 letters)
- William and Stephanie McDonald

All comments received during the NOP public notice period were considered during the preparation of the Draft EIR. Appendix A of the Draft EIR includes the Initial Study, NOP, and copies of the comment letters received on the Initial Study and NOP.

The Draft EIR was circulated for public review and comment on January 5, 2018, initiating a 45-day public review period pursuant to CEQA and its implementing guidelines. The Draft EIR and Notice of Completion were distributed to the State Clearinghouse and a Notice of Availability was distributed to interested parties and to potentially interested parties and agencies. Notice of the Draft EIR public review period was also published in the *San Diego Union Tribune*, and copies were posted with the San Diego County Clerk's office. The review and comment period concluded on February 18, 2018.

During the public review period, copies of the Draft EIR and appendices were made available for public review at the following locations:

MCCCD Facilities Office, Oceanside Campus
1 Barnard Drive, Building 4200
Oceanside, California 92056

Oceanside Public Library
330 North Coast Highway
Oceanside, California 92054

The Draft EIR was also available for review on the MCCCD website (http://miracosta.edu/administrative/facilities).

MCCCD has reviewed this Final EIR. Chapters 3 and 4 make detailed findings with respect to the potential effects of the proposed project and refer, where appropriate, to the mitigation measures set forth in this Final EIR.

The Final EIR provides additional information in support of the findings of fact (Chapter 3) herein. The findings of fact are hereby incorporated in the Final EIR in its entirety. Furthermore, the mitigation measures set forth in the Final EIR and the MMRP are incorporated by reference in the findings. The MMRP was developed in compliance with California Public Resources Code Section 21081.6 and is contained in Chapter 4 of this Final EIR.

ES.4 PROJECT LOCATION AND SETTING

The Oceanside Campus and project location is within the City of Oceanside. The campus totals 121.5 acres. The campus sits on the highlands between the Buena Vista Creek valley and State Route 78, and the San Luis Rey River valley and State Route 76 (Figures ES-1 and ES-2).

The project site is located in an area surrounded by single-family and multifamily residential neighborhoods (Figure ES-3). The campus is located on a mesa top that is above College Boulevard, Rancho Del Oro Drive, and Cameo Drive. Single-family residential uses are located to the north of campus, primarily along Cameo Drive. Single-family residential neighborhoods are also located to the east of the campus and include homes along Johnson Drive, Roselle Avenue, and Brow Street. Single-family residences, primarily along Strawberry Place, are located to the south. To the west, there is open space between the homes on Barnard Drive and Balboa Drive, Aqua Lane, Campus Drive, Frenzel Circle, and McIntire Circle. Also to the west, north of the residences north of McIntire Circle, is the multifamily Del Oro Hills Development.

Development History

Many of the existing buildings were constructed in the 1960s around the main quad (Figure ES-4). Many are built around courtyards, which provide external circulation that is shaded by cantilevered overhangs. The designers of much of the subsequently built space have taken ques from these original buildings. The Theater is the most notable building that dates back to the 1980s; a portion of it has been remodeled recently. During the 1990s, the Student Center and several instructional buildings were built. During the last decade, many new facilities were constructed, including the Child Development Center, Library, Transfer and Counselling, Horticulture Complex, Creative Arts Building, and Concert Hall.

Buildings and Facilities

Existing buildings on campus, square footages, and year constructed are listed in Chapter 3, Project Description, Table 3-1, of the Draft EIR. Many of the older buildings listed in Table 3-1 are nearing the end of their useful lives and are in need of renovation or replacement. MCCCD participates in the California Community College Facility Condition Assessment program, which is a tool that is available to all districts for the assessment of existing community college buildings and the planning of repair work (MCCCD 2015). The results of the last assessment, which was conducted in November 2010 are shown in Figure ES-5. The Facility Condition Index is the ratio of the cost of addressing all of a facility's deficiencies versus that facility's replacement value. The Facility Condition Index was calculated for each existing facility. Facilities were placed in one of three categories.

- Good Condition indicates a Facility Condition Index of less than 5%
- Fair Condition indicates a Facility Condition Index of 5% to 10%
- Poor Condition indicates a Facility Condition Index of greater than 10%

As shown in Figure ES-5, the majority of the buildings have been identified as being in poor condition.

Campus Circulation

Vehicles enter the campus from two points, via Barnard Drive on the east side of campus and Glaser Drive on the west side of campus (Figure ES-6). A relatively small sign and the tennis courts are the first facilities encountered by visitors entering from Barnard Drive. A small sign at Glaser Drive and Rancho Del Oro Drive indicate the approach to the west campus entry. Both entry drives have bicycle lanes connecting to the City of Oceanside bicycle network. Barnard Drive circles much of the campus, providing access to parking lots throughout. North County Transit District Breeze bus lines 302 and 325 stop at several points on Barnard Drive and circle the campus core. Several pedestrian walks serve a second function to extend fire access into the center of campus.

High demand for parking during peak periods leads to congestion on Glaser Drive and Barnard Drive. Further, most parking lots are far from, or at a lower elevation than, most of the instructional buildings. These lots are not fully utilized during non-peak periods. Many parking stalls nearest to the Student Services buildings are designated for staff parking, leaving a need for more visitor and handicap accessible parking, as well as a passenger drop-off zone. Furthermore, the vehicular entrances do not make a strong welcoming first impression of the campus, and entry intersections were not designed for good traffic flow or wayfinding. Both entries to campus are characterized by undistinguished transitions from the suburban residential context to the campus core. The presence of a strong gateway design has been identified as a need in the Master Facilities Plan.

Pedestrian circulation around the campus is illustrated on Figure ES-7. Themed pedestrian directional signage is provided throughout most of the campus core and main quad. These vital links weaken as they extend beyond the core, especially to facilities that are situated below the campus core. Although technically accessible, some ramps are difficult to use, and other paths need to be upgraded to meet current accessibility requirements. There is a need to strengthen and extend the major pedestrians axes and gateways throughout the campus. There is not an appropriately sized entry from the heavily used Parking Lot 3C into Student Services. The ramp from Parking Lot 3C has the maximum allowable slope and does not accommodate emergency access. In addition, pedestrians walking to the gym and vehicles driving into Parking Lot 5A do not have separate paths, and entrances to Parking Lots 1A and 2A near Campus Police are encumbered by multiple crosswalks across Barnard Drive and the parking lot entrances.

Parking

As of September 2017, the campus had 1,972 surface parking spaces, which includes 74 handicap-accessible parking spaces (Figure ES-8).

Based on the existing number of spaces, and expected future growth, the campus is expected to have a parking deficiency of 527 spaces by the year 2020.

Open Space and Recreational Facilities

The Oceanside Campus has a diverse mix of open space that is well used by the college community. The quad is located at the geographical center of the campus (Figure ES-9). Several key buildings frame this space, including the Library and Student Center, along with the instructional buildings to the north. The quad hosts formal events such as College Hour, along with more casual uses such as small student gatherings and the occasional outdoor classrooms during the warmer summer months. Pedley Park, located southeast of the quad, contains an expansive turf area and is used primarily as a passive space by students and local residents.

The Arts and Horticulture areas are located along the edges of campus and are somewhat removed from the central open space. Both areas host community events such as musicals and plays at the community theater and high school 4-H events next to the Horticulture department.

A soccer field, a baseball field, and a large track and field facility are all located on the eastern side of campus. These fields are frequently used by campus athletic programs and community sports leagues.

ES.5 PROJECT DESCRIPTION

The Facilities Master Plan presents an overall picture of the proposed development that is designed to support the institutional goals for MiraCosta College. The Facilities Master Plan includes recommendations for future development to meet the needs of the projected enrollment and program forecasts for the campus through 2020. The recommendations in the Facilities Master Plan are a translation of educational planning data to facilities space needs. The recommendations include the construction of new buildings; renovation of existing facilities to support program needs; the modernization of many buildings, facilities, and support amenities to address safety, accessibility, and maintenance issues; an expanded parking program; outdoor athletic facilities; infrastructure improvements; landscaping; and other campus improvements. The campus improvements proposed under the Facilities Master Plan are shown on Figure ES-10.

The project would be developed in three phases. Phase 1 projects are evaluated at a project level in this EIR. Because not all project components are moving forward at this time or specifics about the specific projects are still unknown, Phases 2 and 3 are analyzed at a programmatic level in this EIR. For Phases 2 and 3, this EIR provides a general assessment of potential impacts and provides a framework of how impacts and mitigation will be addressed when specific details regarding those components of the master plan become available and those projects move forward. Once specific details regarding Phase 2 and Phase 3 components become available, this EIR will serve as the basis for determining if further environmental review is warranted.

ES.6 PROJECT OBJECTIVES

The project would facilitate MCCCD's projected growth and development by incorporating the following objectives:

- Extend the functional lifespan of existing buildings.
- Create a welcoming, visually appealing campus that strongly supports student learning and environmental sustainability.
- Provide quality facilities and services that accommodate the identified space deficiencies and functionality issues defined in the MCCCD Comprehensive Master Plan.
- Promote increased student–faculty interaction, collaborative learning, and building efficiency through creating a centralized campus with a new "one-stop-shop" Student Services Building.
- Create academic hubs throughout campus with related instructional space, study space and faculty office space—creating vibrant learning communities aimed at improving student success and excellence.
- Enhance and provide better access to recreational opportunities and facilities on campus.

- Plan for future growth with sensitivity to the surrounding residential neighborhoods.
- Alleviate existing parking shortages on campus.

ES.7 AREAS OF CONTROVERSY

Section 15123(b)(2) of the CEQA Guidelines requires the executive summary of an EIR to disclose areas of controversy known to the lead agency that have been raised by the agencies and the public. A NOP and Initial Study for this EIR was released on June 16, 2017, beginning the 30-day public scoping period for the EIR. Additionally, a scoping meeting was held on June 29, 2017, at 6:30 p.m. on the Oceanside Campus, to solicit comments from interested parties. During the public scoping period, input was obtained from public agencies and the general public regarding the environmental issues and concerns that may potentially result from the proposed project. During the 30-day scoping period, as well the months following, leading up to publication of the Draft EIR, the City received 17 comment letters and email comments in response to the NOP and Initial Study. Copies of these comment letters are provided in Appendix A of the Draft EIR. The primary areas of controversy and issues identified by the public and agencies included the following CEQA-related potential issues (the Initial Study and EIR sections that address the issues raised are provided in parentheses):

- Comments were received about the proposed Parking Lot 9. Specifically, there were concerns about the proximity to residential properties and the resulting noise from cars and car alarms, pollutant emissions from cars, pedestrian activity, lighting impacts, and aesthetic impacts.
- Comments were also received regarding the playing fields, of which there were similar concerns regarding car noise, car emissions, pedestrian activity, lighting impacts, and aesthetic impacts.
- Lastly, there were concerns about some of the existing conditions, including water runoff from the north parking lot, erosion in the northern portion of campus, inadequate fencing for security, and students trespassing through private property to access the campus.

ES.8 ISSUES TO BE RESOLVED BY LEAD AGENCY

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR contain a discussion of issues to be resolved. With respect to the proposed project, the key issues to be resolved include decisions by the MCCCD, as lead agency, as to the following:

- Whether this environmental document adequately describes the environmental impacts of the proposed project.
- Whether the recommended mitigation measures should be modified and/or adopted.

- Whether there are other mitigation measures or alternatives that should be considered for the proposed project besides those identified in the Draft EIR.

ES.9 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

As required by CEQA, a summary of the proposed project's impacts is provided in Table ES-1, Summary of Project Impacts, as follows. Also provided in Table ES-1 is a list of the proposed mitigation measures that are recommended in response to the potentially significant impacts identified in the EIR, as well as a determination of the level of significance of the impacts after implementation of the recommended mitigation measures.

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
Aesthetics			
1. Would the project have a substantial adverse effect on a scenic vista?	Less than significant	N/A	Less than significant
2. Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	No impact	N/A	No impact
3. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?	Potentially significant	**MM-AES-1** Parking Lot 9 shall setback between the parking lot boundary and off-campus residential land uses on Johnson Drive to a minimum of 60 feet. Within the increased setback, a landscape screen shall be installed to enhance screening of Parking Lot 9 components (primarily vehicles and parking canopies) from view of residences on Johnson Drive. Landscape screens shall break-up the mass and scale of parking canopies and screen nighttime vehicular lights. MCCCD shall also be responsible for continued maintenance of the landscape screens, including installation and maintenance of an irrigation system and implementation of, and consistency with, plant installation and maintenance standards including installation of plants in spring months, weed control, and pruning, thinning. Periodic monitoring and reporting to observe and assess the maintenance regime and implementation of appropriate measures to promote plant survival, growth, overall health, and vigor shall also be required. If necessary, adaptive measures shall be implemented in the subsequent spring season to address project deficiencies as they relate to the desired landscape screening effect. The landscape screens shall be designed by a licensed landscape architect or landscape designer and shall include trees and plants	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		compatible with the climate zone of the Oceanside Campus. Selected trees shall include drought-tolerant species that would display an estimated height of between 5 to 8 feet at planting and approximately 10 to 15 feet at 5 years post-installation. Larger nursery container sizes are recommended in recognition of the need to establish a beneficial visual screen at the time of installation.	
4. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Potentially significant	Refer to **MM-AES-1** **MM-AES-2** To minimize potential for unnecessary nighttime lighting associated new Parking Lot 9, motion control sensor lighting shall be installed. Motion control sensors would ensure that parking lot lights operate at sufficient levels when occupants are detected and are dimmed or off when unused areas of the parking lot are vacant during evening and late evening hours. The network control system for parking lot lighting shall allow the authorized administrator to adjust lighting schedules and levels for heavy and lightly used areas of the parking lot during nighttime hours to ensure students and faculty are provided adequate lighting and minimize unnecessary lighting of off-site properties. Light fixtures shall be installed in conformance with the County Light Pollution Code, the Building Code, the Electrical Code, and any other related state and federal regulations such as California Title 24. **MM-AES-3** Once a lighting plan has been developed for new Parking Lot 9, a photometric study shall be prepared to demonstrate that existing nighttime views in the surrounding area would not be adversely affected and that light trespass at adjacent residential properties would less than 0.2 foot-candles as measured five-feet onto the adjacent property. A qualified lighting vendor or a qualified lighting, mechanical, or electrical engineer shall prepare the photometric study. The photometric study shall include an equipment list/lighting schedule for the new parking lot and provide an illumination summary depicting the	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		maintained horizontal foot-candles at 5 feet onto adjacent residential property lines. If the photometric study reveals light trespass in excess of 0.2-foot-candles at five feet onto adjacent residential properties, additional measures to reduce light trespass will be included so that light trespass will not exceed the 0.2-foot-candle limit. If necessary, additional measures may include enhanced landscaping screening (see MM-AES-1) to increase density and scale of landscape materials and/or installation of an opaque fence or wall along the parking lot perimeter to improve light cutoff.	
5. Would the project have a cumulative aesthetic and/or lighting impact?	Less than significant	N/A	Less than significant
Air Quality			
1. Would the project conflict with or obstruct implementation of the applicable air quality plan?	No impact	N/A	No impact
2. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?	Less than significant	N/A	Less than significant
3. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	Less than significant	N/A	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4. Would the project expose sensitive receptors to substantial pollutant concentrations?	Less than significant	N/A	Less than significant
5. Would the project create objectionable odors affecting a substantial number of people?	Less than significant	N/A	Less than significant
6. Would the project have a cumulative air quality impact?	Less than significant	N/A	Less than significant
Biological Resources			
1. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Potentially significant	**MM-BIO-1** If construction activity occurs during the breeding season (typically February 1 through September 15), a biological survey for nesting bird species shall be conducted within the proposed impact area and a 300-foot buffer shall be delineated within 72 hours prior to construction. Any suitable raptor nesting areas will be surveyed within 500 feet of the construction limits. The number of surveys required for covering this area will be commensurate with the schedule for construction and the acreage that will be covered. Multiple surveys for nesting birds, if needed, will be separated by at least 48 hours in order to be confident that nesting is detected but the survey will be no more than 72 hours prior to the onset of construction. The survey is necessary to assure avoidance of impacts to nesting raptors (e.g., Cooper's hawk and red-tailed hawk) and/or birds protected by the federal Migratory Bird Treaty Act. If any active nests are detected, the area shall be flagged and mapped on the construction plans along with a buffer for native passerine species and raptors, as determined by the project biologist, and will be avoided until the nesting cycle is complete. Nest buffers will be determined based on the criteria outlined in an Avian Monitoring Plan, which will be submitted to, and receive approval from, the Wildlife Agencies when the Final EIR is certified. The Avian Monitoring Plan will outline criteria for the buffer determinations, including species type,	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		tolerance for human activities, topography, vegetation, screening, adjoining habitat, type of work proposed, and duration of proposed work. In accordance with this mitigation measure, nest buffers shall be implemented to ensure compliance with the MBTA and Fish and Game Code Sections 3503, 3503.5, and 3513. The results of the nesting bird surveys and buffers, including any determinations to reduce buffers, shall be included in the monitoring report. **MM-BIO-2** Due to the presence of coastal California gnatcatcher in the vicinity of the BSA and the presence of suitable habitat within and adjacent to the proposed project site, focused protocol-level surveys for coastal California gnatcatcher shall be conducted if project activities are planned to take place during the breeding season (February 1 through September 15) and in the vicinity of suitable habitat for this species. The surveys shall be conducted in accordance with the 1997 U.S. Fish and Wildlife Service (USFWS) guidelines for non-enrolled NCCP areas which states that a minimum 6 survey visits shall be conducted between March 15 through June 30, and at least one week apart between survey visits. The survey area for the coastal California gnatcatcher shall encompass all gnatcatcher-suitable habitat within the impact area, as well as within a 300-foot buffer. The surveys will be conducted at rates pursuant to the USFWS survey protocol (i.e., less than 80 acres surveyed per biologist per day) and will focus efforts within all suitable habitat (i.e., coastal sage scrub (CSS) habitat and CSS sub-associations). Should coastal California gnatcatcher be identified during the focused surveys, a 300-foot impact avoidance buffer will be established until the nest is vacant and the young have fledged. **MM-BIO-3** Although direct impacts to suitable habitat for least Bell's vireo are not proposed, focused protocol-level surveys for least Bell's vireo following the currently accepted USFWS protocol (USFWS 2001) shall be	

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		conducted if project activities are planned to take place during the breeding season (February 1 through September 15) and in the vicinity of suitable habitat for this species. The survey area for the least Bell's vireo shall encompass all habitats within the impact area, as well as within a 300-foot buffer. Should least Bell's vireo be identified as nesting in the vicinity of the proposed project site, noise attenuation measures may be necessary to avoid indirect impacts to this species. Although MCCCD is not signatory to the Oceanside Subarea Plan, Appendix A of the Oceanside Subarea Plan contains the following condition of coverage for the least Bell's vireo related to construction noise. Construction noise levels at the riparian canopy edge shall be kept below 60 dBA L_{eq} (Measured as Equivalent Sound Level) from 5 a.m. to 11 a.m. during the peak nesting period of March 15 to July 15. For the balance of the day/season, the noise levels shall not exceed 60 decibels, averaged over a 1-hour period on an A-weighted decibel (dBA) (i.e., 1 hour L_{eq}/dBA). Noise levels shall be monitored and monitoring reports shall be provided to the jurisdictional city, the USFWS, and the CDFW. Noise levels in excess of this threshold shall require written concurrence from the USFWS and CDFW and may require additional minimization/mitigation measures. **MM-BIO-4** To prevent inadvertent disturbance to areas outside the limits of grading, orange environmental fencing shall be installed to delineate the limits of grading, and all grading shall be monitored by a qualified biologist. A biologist shall be contracted to perform biological monitoring during clearing and grubbing. The project biologist also shall perform the following duties: 1. Attend the preconstruction meeting/training with the contractor and other key construction personnel prior to clearing and grubbing to reduce conflict between the timing and location of	

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		construction activities with other mitigation requirements (e.g., seasonal surveys for nesting birds). At a minimum, the training shall include the general provisions of the MHCP and the need to adhere to the provisions of the MHCP. 2. Conduct meetings with the contractor and other key construction personnel describing the importance of restricting work to designated areas prior to clearing and grubbing. 3. Discuss procedures for minimizing harm to or harassment of wildlife encountered during construction with the contractor and other key construction personnel prior to clearing and grubbing. 4. Review and/or designate the construction area in the field with the contractor in accordance with the final grading plan prior to clearing, grubbing, or grading. 5. Conduct a field review of the staking to be set by the surveyor, and the subsequent installation of orange environmental fencing designating the limits of all construction activity prior to clearing, grubbing, or grading. 6. Be present during initial vegetation clearing and grubbing. 7. Flush special-status species (i.e., avian or other mobile species) from occupied habitat areas immediately prior to ground-disturbing activities. The project site shall be kept as clean of debris as possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from the site. Pets of project personnel shall not be allowed on site. 8. The biologist shall prepare construction monitoring reports and a post-construction report to document compliance. If dead or injured listed species are located, initial notification must be made in writing within 3 working days to the applicable jurisdiction. Any native, special-status habitat, including wetlands and non-wetland waters, destroyed that is not in the identified	

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		project footprint shall be disclosed immediately to the City of Oceanside and shall be compensated at a minimum ratio of 5:1. **MM-BIO-5** The lighting shall be designed to minimize light pollution within native habitat areas, while enhancing safety, security, and functionality. All artificial outdoor light fixtures shall be installed so they are directed away from the undeveloped canyon. Light fixtures shall be installed in conformance with the County Light Pollution Code, the Building Code, the Electrical Code, and any other related state and federal regulations such as California Title 24.	
2. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Less than significant	N/A	Less than significant
3. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Less than significant	N/A	Less than significant
4. Would the project interfere substantially with the movement of any native	Less than significant	N/A	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			
5. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Less than significant	N/A	Less than significant
6. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	Less than significant	N/A	Less than significant
7. Would the project have a cumulative biological resources impact?	Less than significant	N/A	Less than significant
Cultural Resources			
1. Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines?	Less than significant	N/A	Less than significant
2. Would the project cause a substantial adverse change in	Potentially significant	**MM-CUL-1** In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation		Mitigation Measure(s)	Level of Significance After Mitigation
the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines?			project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. Depending on the significance of the find under the California Environmental Quality Act (CEQA), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. Construction contractors would be required to attend a Worker Environmental Awareness Program prior to the beginning of construction.	
3. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Potentially significant	**MM-CUL-2**	Prior to commencement of any grading activity on-site, the applicant shall retain a qualified paleontologist. The qualified paleontologist shall attend the preconstruction meeting and be on-site during all rough grading and other significant ground-disturbing activities in previously undisturbed Santiago Formation, if encountered. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontology monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow grading to recommence in the area of the find. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed project. The PRIMP shall be consistent with the guidelines of the Society of Vertebrate Paleontology (SVP) (2010).	Less than significant
4. Would the project disturb any human remains, including those interred outside of formal cemeteries?	Potentially significant	**MM-CUL-3**	In the event of discovery of unanticipated human remains, personnel shall comply with Public Resources Code Section 5097.98, CEQA Section 15064.5 and Health & Safety Code Section 7050.5 during earth-disturbing activities. If any human remains are discovered, the	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		construction personnel or the appropriate representative shall contact the County Coroner. Upon identification of human remains, no further disturbance shall occur in the area of the find until the County Coroner has made the necessary findings as to origin. If the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted by the property owner or their representative in order to determine proper treatment and disposition of the remains. The immediate vicinity where the Native American human remains are located is not to be damaged or disturbed by further development activity until consultation with the Most Likely Descendant regarding their recommendations as required by California Public Resources Code Section 5097.98 has been conducted. Public Resources Code Section 5097.98, CEQA Section 15064.5 and Health & Safety Code Section 7050.5 shall be followed.	
5. Would the project affect a resource listed or eligible for listing in the California Register of Historical Resources (CRHR), or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	Less than significant	N/A	Less than significant
6. Would the project affect a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section	Less than significant	N/A	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
5024.1. In applying the criteria set forth in subdivision (c) of the Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			
7. Would the project have a cumulative cultural resources impact?	Less than significant	N/A	Less than significant
Geology and Soils			
1. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:			
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	Less than significant	N/A	Less than significant
ii. Strong seismic ground shaking?	Less than significant	N/A	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
iii. Seismic-related ground failure, including liquefaction?	Less than significant	N/A	Less than significant
iv. Landslides?	Less than significant	N/A	Less than significant
2. Would the project result in soil erosion or the loss of topsoil?	Less than significant	N/A	Less than significant
3. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Less than significant	N/A	Less than significant
4. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	Less than significant	N/A	Less than significant
5. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	No impact	N/A	No impact
6. Would the project have a cumulative geological impact?	Less than significant	N/A	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		Greenhouse Gas Emissions	
1. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than significant	N/A	Less than significant
2. Would the project conflict with a plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	No impact	N/A	No impact
3. Would the project have a cumulative impact on greenhouse gas emissions?	Less than significant	N/A	Less than significant
		Hazards and Hazardous Materials	
1. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Construction: Potentially significant Operation: Less than significant	Construction: **MM-HAZ-1** Prior to demolition of the Gym Complex, Tennis Court Support Building, Athletics Storage Shed, and Temporary Buildings, a lead-based paint and asbestos survey shall be conducted by a California Department of Health Services-certified lead-based paint assessor and California Occupational Safety and Health Administration-certified asbestos assessor. The survey shall determine whether any on-site abatement of lead-based paint or asbestos containing materials is necessary. In addition, the survey shall include an abatement work plan prepared in compliance with local, state, and federal regulations for any necessary removal of such materials. The work plan shall include a monitoring plan to be conducted by a qualified consultant during abatement activities to ensure compliance with the work plan requirements and abatement contractor specifications. Demolition plans and contract specifications shall	Construction: Less than significant Operation: Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		incorporate any necessary abatement measures for the removal of materials containing lead-based paint and asbestos to the satisfaction of the San Diego County Air Pollution Control District and San Diego County Department of Environmental Health. The measures shall be consistent with the abatement work plan prepared for the project and conducted by a licensed lead/asbestos abatement contractor. If the survey and abatement plans have already been conducted/prepared, these documents shall be reviewed and implemented prior to demolition of any buildings. **MM-HAZ-2** A qualified environmental specialist shall inspect the site buildings for the presence of polychlorinated biphenyls (PCBs), mercury, and other hazardous building materials prior to demolition of all buildings planned for demolition. If found, these materials shall be managed in accordance with the Metallic Discards Act of 1991 (Public Resources Code, Sections 42160–42185) and other state and federal guidelines and regulations. Demolition plans and contract specifications shall incorporate any necessary abatement measures in compliance with the Metallic Discards Act, particularly Section 42175, Materials Requiring Special Handling, for the removal of mercury switches, PCB-containing ballasts, and refrigerants. Operation: N/A	
2. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Construction: Potentially significant Operation: Less than significant	Construction: Refer to **MM-HAZ-1** and **MM-HAZ-2** Operation: N/A	Construction: Less than significant Operation: Less than significant
3. Would the project emit hazardous emissions or	Construction: Less than significant	Construction: N/A	Construction: Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Operation: Less than significant	Operation: N/A	Operation: Less than significant
4. Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Less than significant	N/A	Less than significant
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	No impact	N/A	No impact
6. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	No impact	N/A	No impact
7. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Potentially significant	**MM-HAZ-3** As part of the MCCCD Emergency Response Plan, prior to occupancy of any newly constructed or renovated structure, the District shall post an Emergency Evacuation Plan. These plans shall conform to provisions of the California Standardized Management System and the National Incident Management	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		System. The Emergency Evacuation Plan shall provide a standardized response to emergencies involving multiple jurisdictions or multiple agencies, while also incorporating specific physical features, plans, and programs of the MCCCD campus.	
8. Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	Less than significant	N/A	Less than significant
9. Would the project have a cumulative hazards or hazardous materials impact?	Less than significant	N/A	Less than significant
Hydrology/Water Quality			
1. Would the project violate any water quality standards or waste discharge requirements?	Potentially significant	Refer to **MM-HAZ-1** and **MM-HAZ-2.** **MM-HYD-1** The District shall employ the following Best Management Practices (BMPs) during construction, as applicable, based on types of construction activities, the characteristics of a site, and existing impairments to receiving waters. Applicable project-specific features shall appear as notes on final construction drawings and plans. ○ Silt fences installed along limits of work and/or the project construction site; ○ Stockpile containment (e.g., Visqueen plastic sheeting, fiber rolls, gravel bags); ○ Exposed soil stabilization structures (e.g., fiber matrix on slopes and construction access stabilization mechanisms); ○ Street sweeping;	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		○ Tire washes for equipment; ○ Runoff control devices (e.g., drainage swales, gravel bag barriers, velocity check dams) during construction phases conducted during the rainy season; ○ Storm drain inlet protection; ○ Wind erosion (dust) controls; ○ Tracking controls; ○ Prevention of fluid leaks (inspections and drip pans) from vehicles; ○ Dewatering operations best practices; ○ Materials pollution management; ○ Proper waste management; and ○ Regular inspections and maintenance of BMPs.	
2. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	Less than significant	N/A	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
3. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	Construction: Less than significant Operation: Potentially significant	Construction: N/A Operation: **MM-HYD-2** Prior to final project design of Phase I, a project-specific drainage analysis shall be completed, incorporating proposed development associated with Phases I, II, and III. The District shall demonstrate that post-construction runoff will be equal to or less than existing conditions, for the 2-year, 5-year, and 10-year storm event, with respect to both intensity and volume. The District shall include velocity inhibiting features into the project design, including bioswales, permeable pavers, gravel parking areas, and retention basins with permeable bases. **MM-HYD-3** Prior to final project design of Phase I, the District shall redesign the System 700 drainage area to accommodate a 2-year, 5-year, and 10-year storm event, with respect to both intensity and volume. The necessary improvements shall be done in coordination with the City of Oceanside and private property owners across whose property the drainage easement and facility traverse. The drainage design shall incorporate the conclusions and recommendations provided in the NV5, Inc. 2017 drainage memo (*System 700 Drainage Analysis Results*, dated November 16, 2017, included as Appendix F[of the Draft EIR]) and shall include, but not be limited to: • Determine the depth of ponding and whether the berm would be overtopped during 2-year, 10-year, and 50-year storm events along Track Loop Road. In the event that modelling shows that the berm would be overtopped, solutions shall include additional inlet capacity along Track Loop Road at the curb inlet and/or additional inlets shall be installed upstream of the curb inlet. At a minimum, it shall be anticipated that a large inlet will be required. The berm shall also be enlarged or replaced with a	Construction: Less than significant Operation: Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		concrete curb sufficient to control any anticipated ponding. • Redesign and repair the main outflow pipe down the slope (i.e., downdrain) to accommodate any increases in flow associated with remediation of ponding along Track Loop Road. • Further investigate the existing damage to the slope, downdrain, and brow ditch. Based on the investigation, redesign and reconstruct these slope features to adequately accommodate a 2-year, 5-year, and 10-year storm event, with respect to both intensity and volume. • Maintain the existing and redesigned storm drain systems, including the brow ditches and downdrain. Maintenance shall include, but not be limited to the removal of overgrown vegetation, removal of rocks and soil from the brow ditches, and periodic televising of the downdrain. If the District is designated the party responsible for implementing the necessary improvements included in this measure, the District shall do the following prior to commencement of construction activities associated with the System 700 facility improvements: 1) Prepare a Public Improvement Plan for review and approval by the City of Oceanside. 2) Obtain an Encroachment Permit from the City of Oceanside. 3) Enter into a Construction Easement Agreement with the private property owners across whose property the easement and facility traverse. If it is determined that implementation of the System 700 facility improvements are a shared responsibility between the District and the City of Oceanside, the District shall pay a fair share contribution toward the necessary improvements. The fair share contribution shall	

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		be determined prior to commencement of construction activities associated with the System 700 facility improvements.	
4. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	Construction: Less than significant Operation: Potentially significant	Construction: N/A Operation: Refer to **MM-HYD-1, MM-HYD-2 and MM-HYD-3**	Construction: Less than significant Operation: Less than significant
5. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	Less than significant	N/A	Less than significant
6. Would the project otherwise substantially degrade water quality?	Potentially significant	Refer to **MM-HAZ-1, MM-HAZ-2, MM-HYD-1, MM-HYD-2, MM-HYD-3**	Less than significant
7. Would the project place housing within a 100-year flood hazard area?	No impact	N/A	No impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
8. Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	No impact	N/A	No impact
9. Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	Less than significant	N/A	Less than significant
10. Would the project expose people or structures to a significant risk of seiche, tsunami, or mudflow?	Less than significant	N/A	Less than significant
11. Would the project have a cumulative hydrology or water quality impact?	Less than significant	N/A	Less than significant
Land Use and Planning			
1. Would the project physically divide an established community?	Less than significant	N/A	Less than significant
2. Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan,	Less than significant	N/A	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			
3. Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?	Less than significant	N/A	Less than significant
4. Would the project have a cumulative land use and/or planning impact?	Less than significant	N/A	Less than significant
		Noise	
1. Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Construction: Potentially significant Operation: Potentially significant	Construction: **MM-NOI-1:** The MiraCosta Community College District (MCCCD) shall adhere to the following measures: • All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. Enforcement shall be accomplished by random field inspections by MCCCD personnel during construction activities. • During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors. • During construction, stockpiling and vehicle staging areas shall be located as far as practical from noise sensitive receptors. • Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners to contact the job superintendent if necessary. In the event that MCCCD receives a	Construction: Less than significant Operation: Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		complaint, appropriate corrective actions shall be implemented and a report of the action provided to the reporting party. Operation: **MM-NOI-2** Parking Lot 9 shall setback between the parking lot boundary and off-campus residential land uses on Johnson Drive to a minimum of 60 feet. Within the increased setback, a landscape screen shall be installed to enhance screening of Parking Lot 9 components (primarily vehicles and parking canopies) from view of residences on Johnson Drive. Landscape screens shall break-up the mass and scale of parking canopies. MCCCD shall also be responsible for continued maintenance of the landscape screens, including installation and maintenance of an irrigation system and implementation of, and consistency with, plant installation and maintenance standards including installation of plants in spring months, weed control, and pruning, thinning. Periodic monitoring and reporting to observe and assess the maintenance regime and implementation of appropriate measures to promote plant survival, growth, overall health, and vigor shall also be required. If necessary, adaptive measures shall be implemented in the subsequent spring season to address project deficiencies as they relate to the desired landscape screening effect. The landscape screens shall be designed by a licensed landscape architect or landscape designer and shall include trees and plants compatible with the climate zone of the Oceanside Campus. Selected trees shall include drought-tolerant species that would display an estimated height of between 5 to 8 feet at planting and approximately 10 to 15 feet at 5 years post-installation. Larger nursery container sizes are recommended in recognition of the need to establish a beneficial visual screen at the time of installation.	

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		MM-NOI-3 To ensure that the solar panel operations comply with the City of Oceanside's nighttime noise ordinance standard of 45 dBA L_{eq}, the solar inverters selected for the solar facility shall each produce a free-field noise level of 65 dBA or less at 3 meters, and they shall be located 200 feet or more from the nearest residential property line. Alternatively, a noise barrier or enclosure shall be constructed between the inverters and nearby noise-sensitive receivers such that noise levels from the equipment is less than 45 dBA L_{eq}.	
2. Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	Less than significant	N/A	Less than significant
3. Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	Potentially significant	Refer to **MM-NOI-2 and MM-NOI-3**	Less than significant
4. Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	Potentially significant	Refer to **MM-NOI-1**	Less than significant
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or	No impact	N/A	No impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
working in the project area to excessive noise levels?			
6. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	No impact	N/A	No impact
7. Would the project have a cumulative noise impact?			
Population and Housing			
1. Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads of other infrastructure)?	Less than significant	N/A	Less than significant
2. Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	No impact	N/A	No impact
3. Would the project ddisplace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	No impact	N/A	No impact

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4. Would the project have a cumulative impact on population and housing?	Less than significant	N/A	Less than significant
Public Services			
1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	Less than significant	N/A	Less than significant
a. Fire protection?	Less than significant	N/A	Less than significant
b. Police protection?	Less than significant	N/A	Less than significant
c. Schools?	Less than significant	N/A	Less than significant
d. Parks?	Less than significant	N/A	Less than significant
e. Other public facilities?	Less than significant	N/A	Less than significant
2. Would the project have cumulative public services impacts?	Less than significant	N/A	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		Recreation	
1. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Less than significant	N/A	Less than significant
2. Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	Potentially significant	Refer to mitigation measures provided in other sections of this EIR.	Less than significant
3. Would the project have a cumulative impact on recreation?	Potentially significant	Refer to mitigation measures provided in other sections of this EIR.	Less than significant
		Transportation and Traffic	
1. Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation	Less than significant	N/A	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			
2. Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	Less than significant	N/A	Less than significant
3. Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	No impact	N/A	No impact
4. Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	No impact	N/A	No impact
5. Would the project result in inadequate emergency	Less than significant	N/A	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
access?			
6. Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	Less than significant	N/A	Less than significant
7. Would the project have cumulative impacts on transportation and traffic?	Less than significant	N/A	Less than significant
Utilities and Service Systems			
1. Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	Less than significant	N/A	Less than significant
2. Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	Construction: Less than significant Operation: Potentially significant	Construction: N/A Operation: **MM-UTL-1** Upon review of the final site engineering and design plans, the MiraCosta Community College District will coordinate with the City of Oceanside (City) to update the current water service agreement. Coordination with the City would also occur to determine if payment of impact fees would be required prior to initiating new water service connections. **MM-UTL-2** Upon review of the final site engineering and design plans, the MiraCosta Community College District (MCCCD) will coordinate with the City of Oceanside (City) to determine whether the existing sewer lines have the capacity and are in good enough condition to	Construction: Less than significant Operation: Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		handle the increase in wastewater flow. Prior to occupancy, the MCCCD shall pay applicable City sewer infrastructure connection fees and applicable fair-share capital facilities fees to the extent the payment of such fees is made necessary by projects under the Facilities Master Plan.	
3. Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	Construction: Less than significant Operation: Potentially significant	Construction: N/A Operation: Refer to **MM-HYD-1, MM-HYD-2 and MM-HYD-3**	Construction: Less than significant Operation: Less than significant
4. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	Less than significant	N/A	Less than significant
5. Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Less than significant	N/A	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Environmental Topic	Impact Before Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
6. Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	Less than significant	N/A	Less than significant
7. Would the project comply with federal, state, and local statutes and regulations related to solid waste?	Less than significant	N/A	Less than significant
8. Would the project have cumulative public services and/or utilities impacts?	Potentially significant	Refer to **MM-HY-1, MM-UTL-1,** and **MM-UTL-2**	Less than significant

ES.10 ALTERNATIVES TO THE PROPOSED PROJECT

CEQA Guidelines Section 15126.6 requires consideration and discussion of alternatives to the proposed project in an EIR. Three alternatives are reviewed in Chapter 8 of the Draft EIR and are summarized as follows.

Alternatives Considered but Eliminated

Alternative Location

Section 15126.6(b) of the CEQA Guidelines requires that an alternatives discussion focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects on the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. Only locations that would avoid or substantially lessen the significant effects of the project need be considered for inclusion in the EIR (14 CCR 15126(f)(2)). The key question and first step in the analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location, or in this case, either the MCCCD San Elijo Campus in Cardiff or the Community Learning Center (CLC) in Oceanside.

The San Elijo Campus is located on approximately 28 acres in southeast Cardiff, just north of the San Elijo Lagoon. The San Elijo Campus is close to full build-out. The minimal amount of developable space is generally located along the perimeter of campus. Due its proximity to the Pacific Ocean, the San Elijo Campus is located within the coastal zone, and thus, campus development activities are subject to California Coastal Commission oversight. The San Elijo Campus currently operates under a Coastal Development Permit (CDP No. 6-84-578), which limits campus development to 80,000 square feet. As such, relocating the proposed construction and improvements described in the Facilities Master Plan from the Oceanside Campus to the San Elijo Campus would exceed the 80,000 square-foot development cap as described in the CDP. Exceeding this development cap would require MCCCD to apply for a new CDP. Additionally, the San Elijo Campus has more restrictive environmental constraints due to its location within the coastal zone and location adjacent to the San Elijo Lagoon, which supports sensitive habitat and wildlife. Therefore, in addition to not having the physical space available to accommodate level of expansions and improvements planned under the Facilities Master Plan, it would be more environmentally impactful to develop these improvements on the San Elijo Campus, even if the space were available. For these reasons, the San Elijo Campus is not an eligible alternate location for construction and improvements currently proposed for the Oceanside Campus.

MCCCD's third campus location, the CLC, is located on approximately 6 acres on Mission Avenue in central Oceanside, a quarter of a mile west east of the I-5 Freeway. Similar to the San

Elijo Campus, the CLC is close to full build-out, with little to no space for development. Relocating the proposed improvements from the Oceanside Campus to the CLC would not only be spatially infeasible, but the CLC's programming intent is not consistent with that of the Oceanside Campus. The CLC's primary function is to provide continuing educational programs and adult education. Conversely, the existing facilities and proposed improvements on the Oceanside Campus are intended to support the traditional 2-year academic curriculum programs. As such, it would be inappropriate and inconsistent with MCCCD's programming goals to implement the facility improvements proposed for the Oceanside Campus at the CLC Campus.

In conclusion, moving the proposed project to another MCCCD campus would not be feasible due to spatial, environmental, and other constraints. As a result, alternative development areas were rejected and are not analyzed in this EIR.

Expansion of Online Programs Only

Under the Expansion of Online Programs Only Alternative, no new construction, demolition, renovations or modifications would occur (i.e., no bricks-and-mortar improvements). Instead, to facilitate student growth, improvements and expansions would occur to the existing online platform. By transitioning courses and services to the online platform, vehicle trips to and from the Oceanside Campus would be reduced, thus reducing air quality emissions, greenhouse gas emissions and noise impacts associated with increases in traffic that would result from an increase in Full Time Equivalent (FTE) students, faculty, and staff driving to campus. Additionally, all other impacts identified in the EIR that would result from construction and operation of new and expanded facilities would not occur under this alternative. Moreover, by expanding the online programs, construction of new learning and student service facilities would not be warranted. With no construction, demolition, renovations, or modification, all associated environmental effects identified for the proposed project would be avoided.

However, as discussed in the MCCCD Facilities Master Plan, instructional spaces that require in-person training and education are not only necessary, but have high utilizations (i.e., they are at or exceeding the targeted utilization standards). In fact, the Facilities Master Plan data suggest that the current stock of instructional environments does not meet the current student demand and thus does not have the ability to meet future campus growth demands. For example, the current Allied Health Building 4400 lacks the space and proper layout/organization to support 21st century health instruction. Proposed facilities like the Allied Health Building, Gym Complex, and Chemistry and Biology Buildings not only provide essential hands-on training and education, but also require substantial facility upgrades to accommodate growth in these academic disciplines and provide the technological improvements necessary to advance student learning in these fields.

Although the Expansion of Online Programs Only Alternative would partially satisfy the project objective to plan for future growth with sensitivity to the surrounding residential neighborhoods, it would not plan for future growth that requires brick-and-mortar instructional space. This alternative would not satisfy any of the remaining project objects; therefore, this alternative was eliminated from further analysis.

Alternatives Selected for Further Analysis

No Project/No Development Alternative

Section 15126.6(e) of the CEQA Guidelines requires that an EIR evaluate and analyze the impacts of the No Project Alternative. When the project is the revision of an existing land use or regulatory plan, policy, or ongoing operation, the no project alternative will be the continuation of the plan, policy, or operation into the future. Therefore, the No Project/No Development Alternative assumes no further buildout of the current conditions of site and the campus would stay in its existing state.

The No Project/No Development Alternative would be considered environmentally superior in most resource areas. It would be environmentally inferior in two areas (Aesthetics, and Hydrology and Water Quality). It would be environmentally neutral in five areas (Hazards and Hazardous Materials, Land Use, Population and Housing, Public Services, and Traffic and Circulation). The adoption of the No Project/No Development Alternative would not meet the project objectives identified by MCCCD for modernization of learning facilities and for campus growth. The No Project/No Development Alternative does not extend the functional lifespan of existing buildings; does not create a welcoming, visually appealing campus that strongly supports student learning and environmental sustainability; does not provide quality facilities that accommodate the identified spatial deficits; does not promote increased student–faculty interaction, collaborative learning and building efficiency; does not create academic hubs throughout campus; does not enhance and provide better access to recreational opportunities and facilities on campus; does not plan for future growth with sensitivity to the surrounding residential neighborhoods; and does not alleviate existing parking shortages on campus. Although the No Project/No Development Alternative would be considered environmentally superior to the proposed project, it does not meet MCCCD's project objectives.

No Growth Alternative

Under the No Growth Alternative, all proposed new construction, modernization, and renovation projects that would result in an increase of FTE students, faculty, and staff would be excluded. As such, no growth-generating buildings would be constructed, or receive modernizations or renovations. For example, construction of the Allied Health Building, the Chemistry and Biology Building, the Arts and Media Building, and Student Services would be excluded from this

Alternative because these facilities would allow a substantial increase in instructional space that would accommodate more students and educational programming. Utility improvements would be included under the No Growth Alternative. Under the No Growth Alternative, the anticipated increase in FTE students, faculty, and staff would not be recognized as it is in this EIR; thus, no increase in FTE would be planned for in this alternative. (See Table 3-3 in Chapter 3 for student, faculty, and staff headcounts and FTE projections.) With no increase in FTE students, there would be no change from the campus's current state in regards to traffic, noise, air quality, and greenhouse gases from mobile sources.

The No Growth Alternative would be considered environmentally superior in most resource areas, and in no area would it be environmentally inferior. It would be environmentally neutral in seven areas (Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use, Population and Housing, Public Services, and Utilities and Service Systems). The adoption of the No Growth Alternative would not meet most project objectives identified by MCCCD for modernization of learning facilities and for campus growth. The No Growth Alternative does not extend the functional lifespan of existing buildings, does not provide quality facilities that accommodate the identified spatial deficits, does not enhance and provide better access to recreational opportunities and facilities on campus, does not plan for future growth with sensitivity to the surrounding residential neighborhoods, and does not alleviate existing parking shortages on campus.

The No Growth Alternative would, however, partially meet some project objectives. For example, this alternative may create a welcoming, visually appealing campus that strongly supports student learning and environmental sustainability; may promote increased student–faculty interaction, collaborative learning and building efficiency; and may create academic hubs throughout campus, as these are objectives that are accomplishable without the proposed new construction and the modernization or renovation of growth-generating buildings.

Although the No Growth Alternative would partially meet some project objectives, as stated in Chapter 7, Growth Inducement, an estimate of 442,123 people will live in the MiraCosta College service area in 2030, which is a 14% increase from the 2010 MiraCosta College services area population of 379,648 (SANDAG 2016). Additionally, considering the Oceanside Campus enrollments have increase 3% since 2010, it would be reasonable to anticipate growth in FTE students, staff, and faculty. Therefore, the No Growth Alternative was not selected as the proposed project.

Environmentally Superior Alternative

CEQA Guidelines Section 15126.6(e)(2) requires identification of an environmentally superior project alternative. The environmentally superior alternative under CEQA is the No Project/No

Development Alternative. However, as stated in the CEQA Guidelines, when the No Project Alternative is environmentally superior, CEQA mandates another alternative be identified (14 CCR 15126.6(e)(2)). Thus, the environmentally superior alternative is the No Growth Alternative. Because the proposed project does not have any significant and unavoidable environmental impacts, the No Project/No Development and No Growth alternatives analyzed in Section 8.3, would avoid any significant and unavoidable impacts. Therefore, to determine an environmentally superior alternative, the number of potentially significant environmental impacts that could be mitigated were evaluated in conjunction with the number of project objectives achieved. Thus, the No Growth Alternative was determined to be the environmentally superior alternative under CEQA, because it reduces the severity of identified significant impacts, while partially accomplishing or successfully accomplishing multiple project objectives.

ES.11 REFERENCES CITED

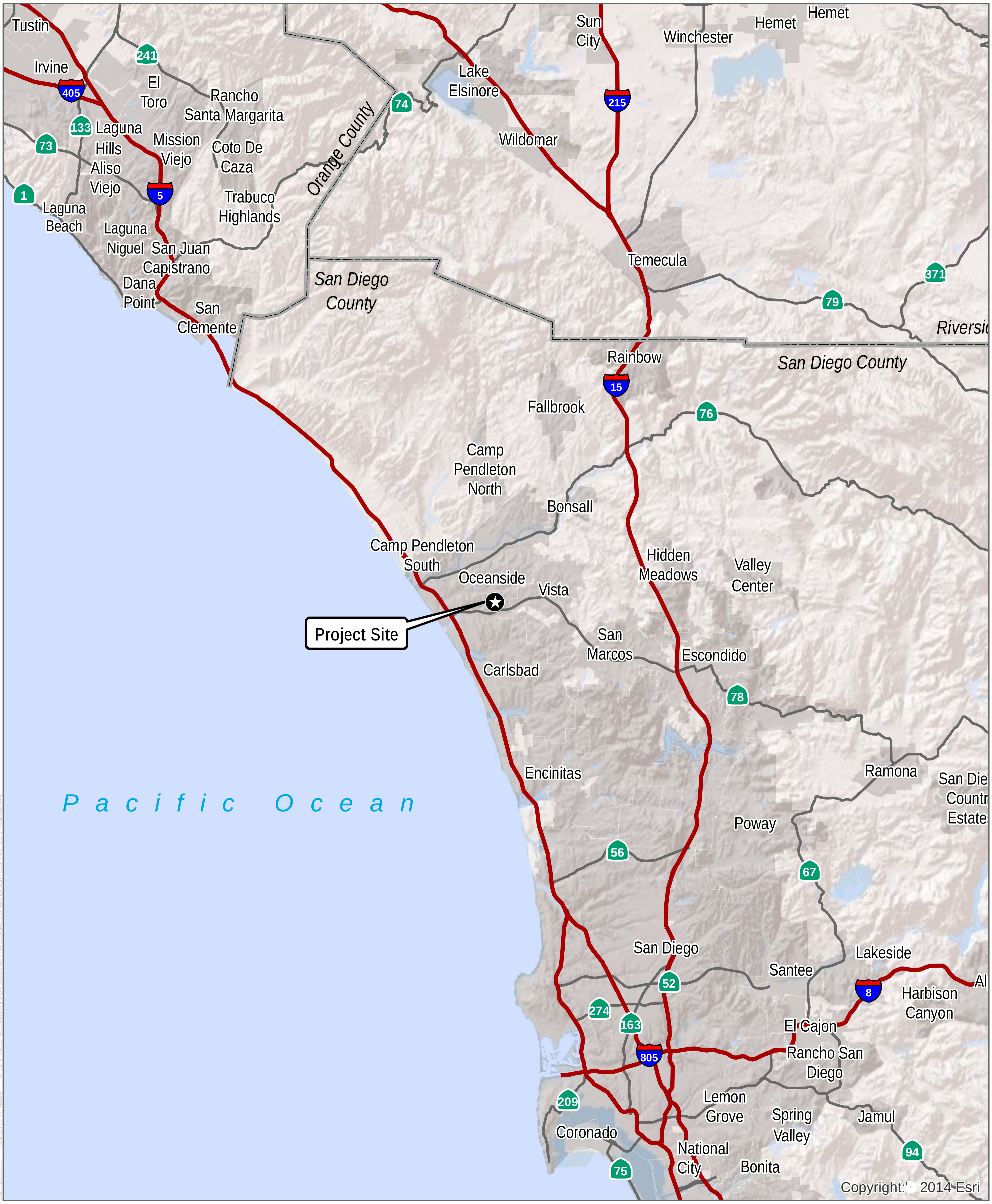
14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

MCCCD (MiraCosta Community College District). 2015. *Campus Master Plan Educational Plan Addendum*. December 2015.

SANDAG (San Diego Association of Governments). 2016. Series 13 Regional Growth Forecast. http://datasurfer.sandag.org/.

SVP (Society of Vertebrate Paleontology). 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. 11 p. Available at: http://vertpaleo.org/PDFS/68/68c554bb-86f1-442f-a0dc-25299762d36c.pdf.

USFWS (U.S. Fish and Wildlife Service). 2001. Least Bell’s Vireo Survey Guidelines. January 19, 2001. https://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/LBVireo.2001.protocol.pdf.



SOURCE: ESRI, 2017

DUDEK

0 5 10 Miles

FIGURE ES-1

Regional Map

MiraCosta Community College District Oceanside Campus Facilities Master Plan EIR

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SOURCE: Aerial: National Agriculture Imagery Program,2016; Project Boundary:MiraCosta College Facilities Master Plan Update 2016

FIGURE ES-2

Vicinity Map

MiraCosta Community College District Oceanside Campus Facilities Master Plan EIR

DUDEK

0 500 1,000 Feet

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SOURCE: Aerial: National Agriculture Imagery Program, 2016; Project Boundary:MiraCosta College Facilities Master Plan Update 2016; Land Use: SANGIS, 2017

DUDEK

0 500 1,000 Feet

FIGURE ES-3

Surrounding Land Uses

MiraCosta Community College District Oceanside Campus Facilities Master Plan Project

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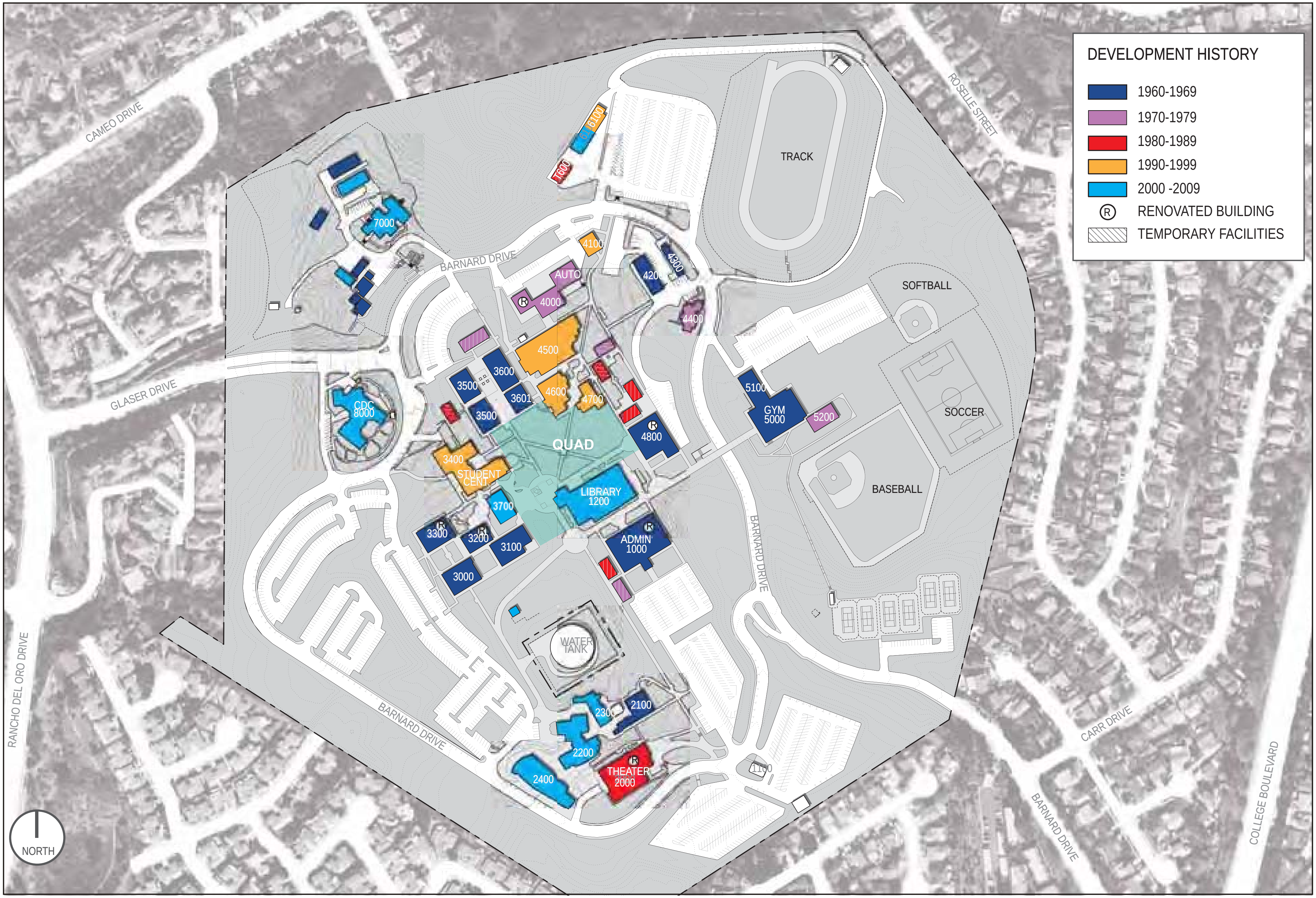

SOURCE: MiraCosta Community College District 2011 Comprehensive Master Plan

DUDEK

FIGURE ES-4

Development History

MiraCosta Community College District Oceanside Campus Facilities Master Plan EIR

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SOURCE: MiraCosta College Facilities Master Plan Update 2016, Vol. I

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FIGURE ES-5

Facilities Condition Index

MiraCosta Community College District Oceanside Campus Facilities Master Plan EIR

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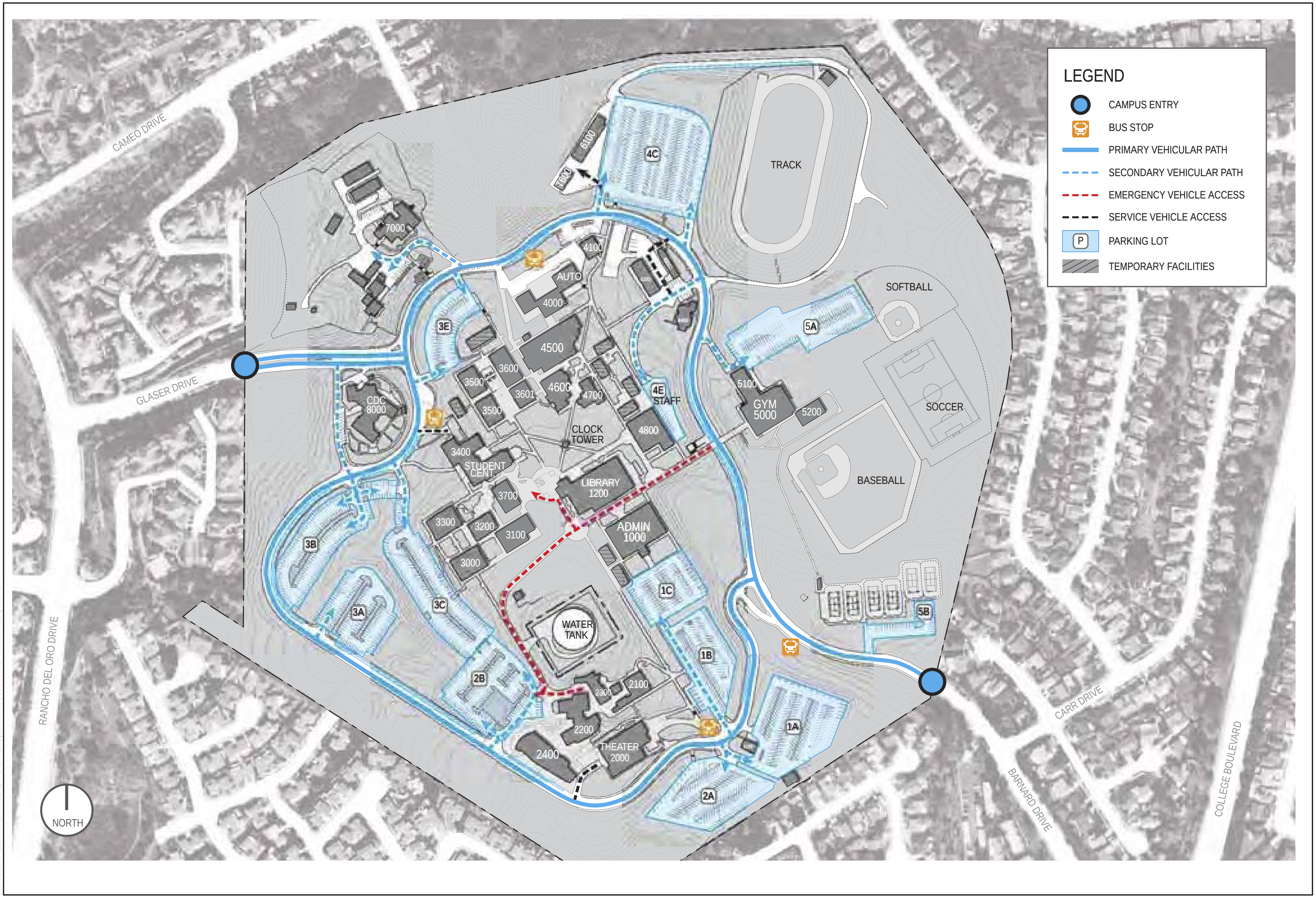

SOURCE: MiraCosta Community College District 2011 Comprehensive Master Plan

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FIGURE ES-6

Vehicular Circulation

MiraCosta Community College District Oceanside Campus Facilities Master Plan EIR

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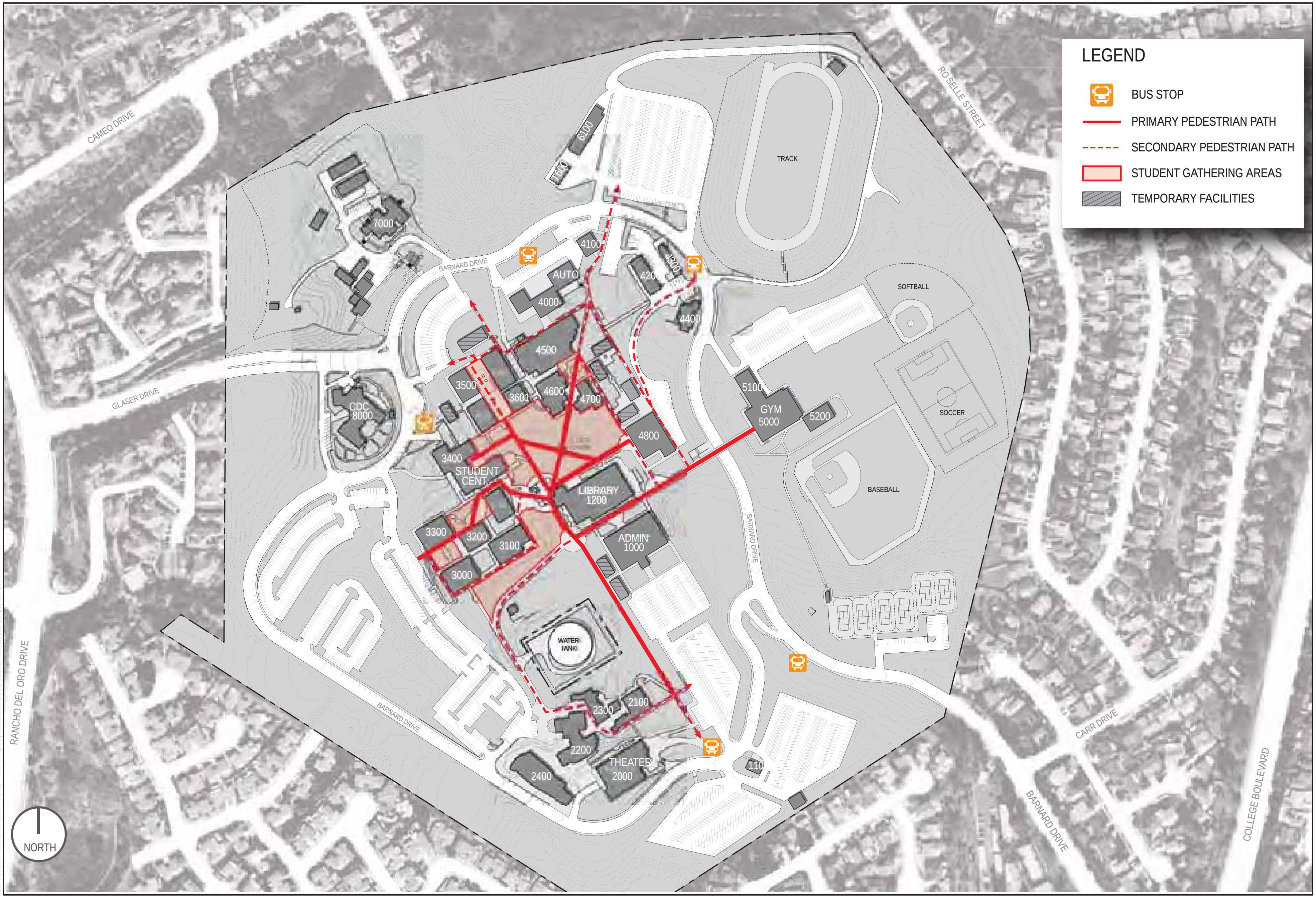

SOURCE: MiraCosta Community College District 2011 Comprehensive Master Plan

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FIGURE ES-7

Pedestrian Circulation

MiraCosta Community College District Oceanside Campus Facilities Master Plan EIR

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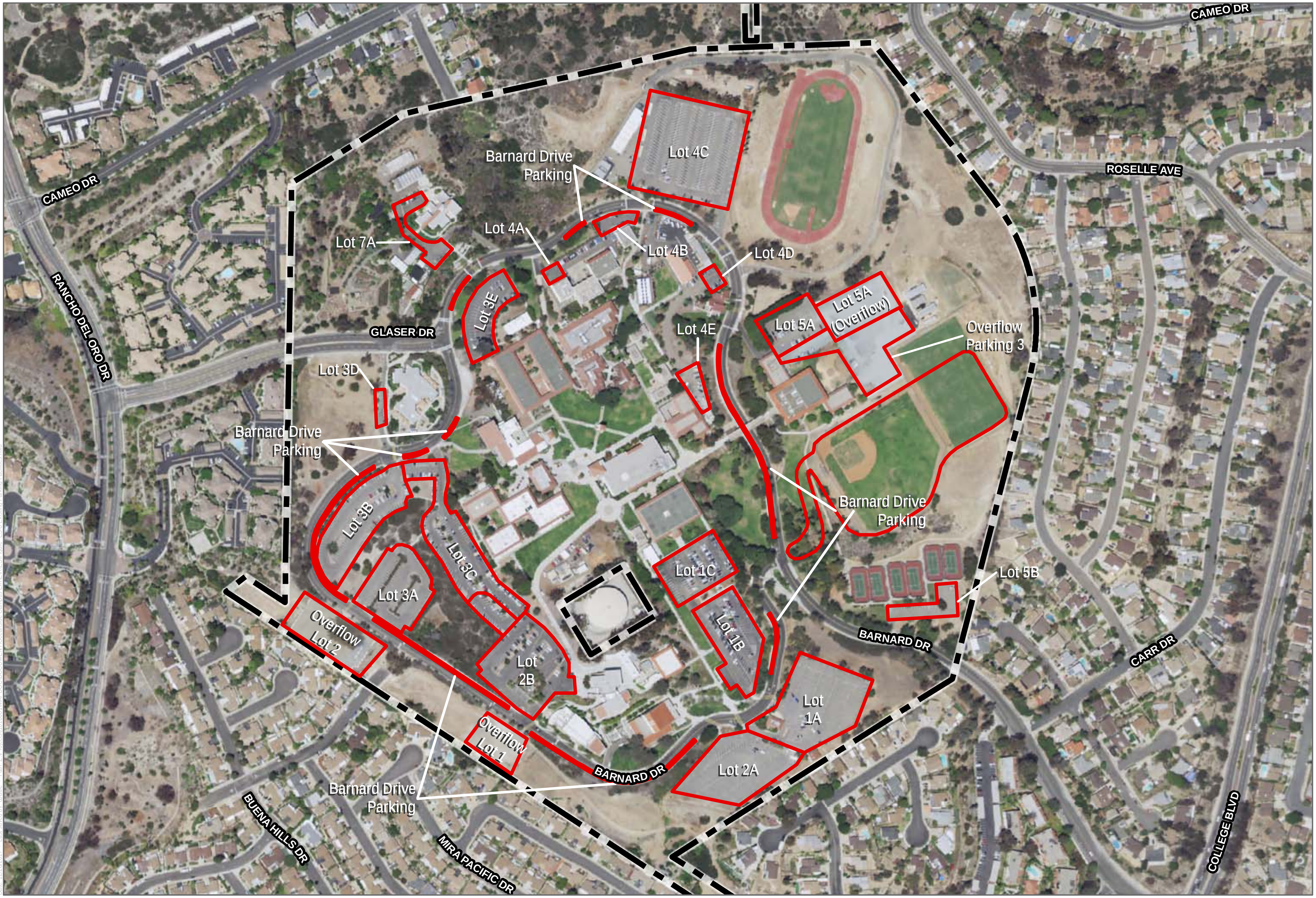

SOURCE: Aerial: National Agriculture Imagery Program, 2016; Project Boundary: MiraCosta College Facilities Master Plan Update 2016

FIGURE ES-8

Existing Parking Facilities

DUDEK

MiraCosta Community College District Oceanside Campus Facilities Master Plan EIR

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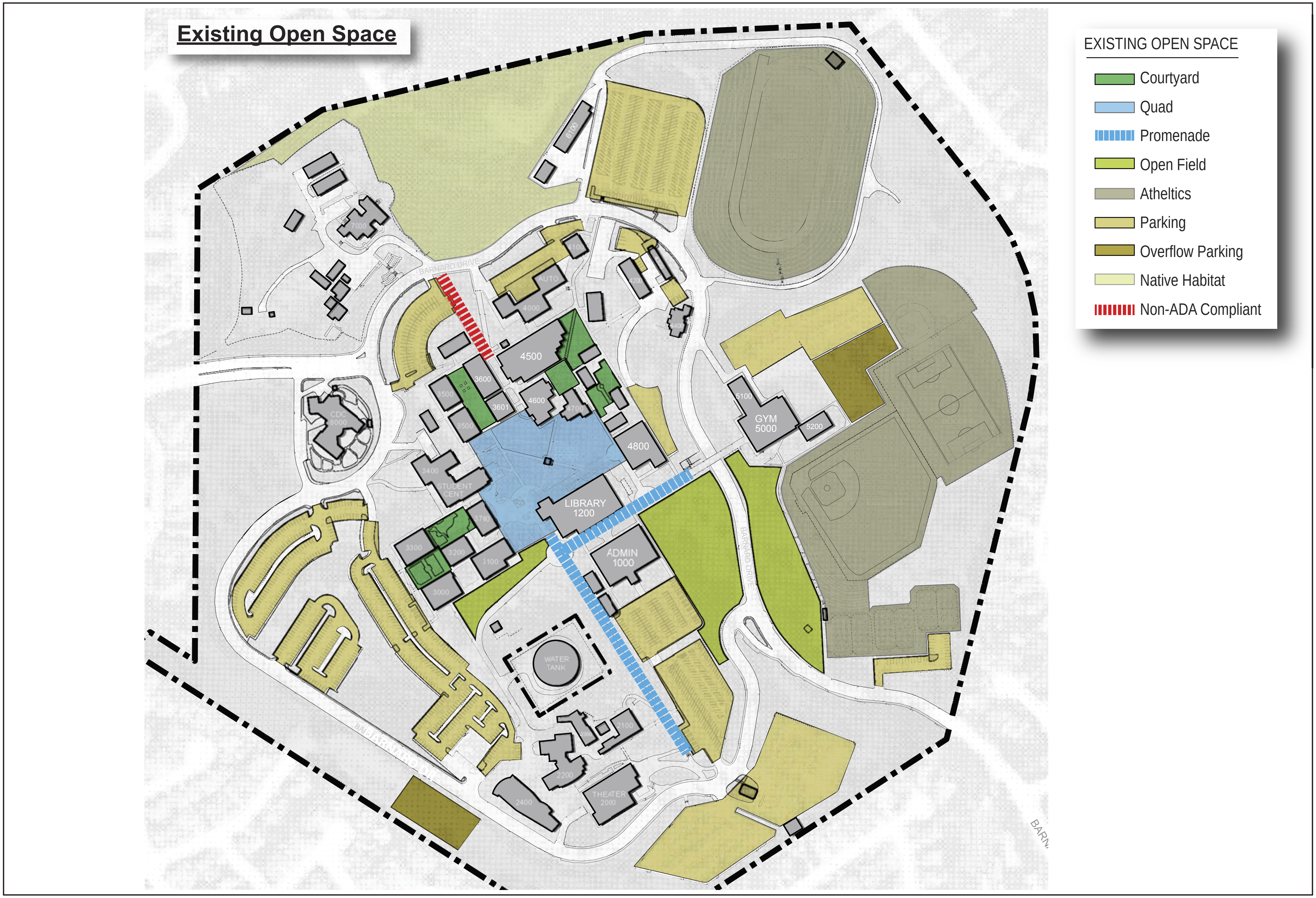

SOURCE: MiraCosta College Facilities Master Plan Update 2016, Vol. I

DUDEK

FIGURE ES-9

Existing Open Space and Rec Facilities

MiraCosta Community College District Oceanside Campus Facilities Master Plan EIR

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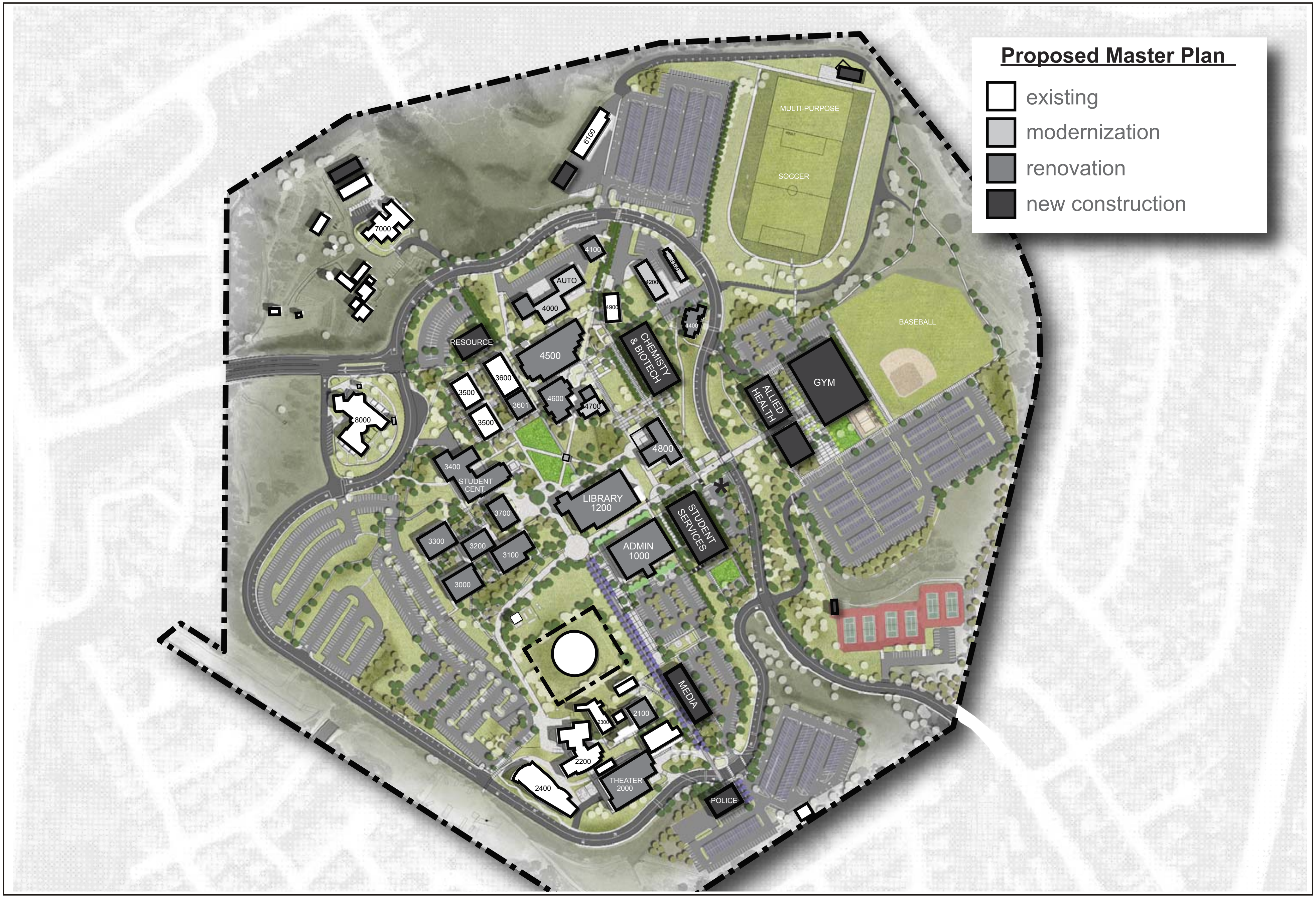

SOURCE: MiraCosta College Facilities Master Plan Update 2016, Vol. I

DUDEK

FIGURE ES-10

Proposed Master Plan

MiraCosta Community College District Oceanside Campus Facilities Master Plan EIR

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CHAPTER 1
RESPONSES TO COMMENTS RECEIVED

1.1 RESPONSES TO COMMENTS

This chapter of the Final Environmental Impact Report (EIR) for the MiraCosta Community College District (MCCCD) Oceanside Campus Facilities Master Plan (project or proposed project) includes copies of all comment letters that were submitted during the 45-day public review period for the Draft EIR, along with MCCCD's responses to comments in accordance with the California Environmental Quality Act (CEQA) Guidelines, Section 15088. Under Section 15088 of the CEQA Guidelines, MCCCD is required to evaluate and provide written responses to comments received on the Draft EIR.

All written comments received on the Draft EIR have been coded to facilitate identification and tracking. Each comment letter received during the public review period was assigned an identification letter designator (Table 1-1). Each designated comment letter is the submittal of a single individual, agency, or organization. These comment letters were reviewed and divided into individual comments, with each comment containing a single theme, issue, or concern. Individual comments were bracketed and numbered, and the responses were assigned corresponding numbers. To aid the readers and commenters, comments have been reproduced in this chapter together with the corresponding responses. Table 1-1 contains a listing of comment letters received from interested parties during the 45-day public review period for the Draft EIR, which began on January 5, 2018, and ended on February 18, 2018.

Table 1-1
Comments Received on the Draft Environmental Impact Report

Comment Letter Designation	Commenter	Date
Agencies		
A	Jamul Indian Village of California	February 8, 2018
B	Dave Clark	February 4, 2018
C	Pauma Band of Luiseño Indians	February 7, 2018
D	San Diego County Archaeological Society Inc.	February 17, 2018
E	Rincon Band of Luiseño Indians	February 16, 2018
F	San Diego Association of Governments	February 16, 2018
G	City of Oceanside	February 16, 2018
H	San Luis Rey Band of Mission Indians (Voicemail)	February 15, 2018
I	Office of Planning and Research, State Clearinghouse	February 21, 2018

To finalize the Draft EIR for the proposed project, the following responses have been prepared for comments that were received during the public review period. In accordance with the requirements of the CEQA Guidelines Section 15088(b), MCCCD will provide a written response for comments submitted by these public agencies to each respective agency at least 10 days prior to certifying the Final EIR.

Comment Letter A

Oceanside Campus
1 Barnard Drive
Oceanside, CA 92056
P 760.795.6691
F 760.757.8185
tmacias@miracosta.edu
miracosta.edu
facebook.com/miracostacc

From: lcumper@jamulindianvillage.com [mailto:lcumper@jamulindianvillage.com] **On Behalf Of** Lisa Cumper
Sent: Thursday, February 08, 2018 2:17 PM
To: Macias, Tom <tmacias@miracosta.edu>
Cc: Erica Pinto <epinto@jiv-nsn.gov>
Subject: MCCCD

Hi Tom,

I've research the MCCCD project, In the letter you are saying that you can reduce to a less than significant impact. Jamul Indian Village would like to ask what resources are being mitigated. A-1

Jamul Indian Village requests that a Kumeyaay monitor be present at this project. A-2

Thanks,
Lisa

Respectfully,

Lisa K. Cumper
Tribal Office Assistant/
Cultural Resource Manager / Tribal Liaison
Jamul Indian Village of California

P.O. Box 612, Jamul CA 91935
desk: 619.669.4855
cell: 619.928.8689
fax: 619.669.4817

email: lcumper@jiv-nsn.gov
web: www.jamulindianvillage.com

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Response to Comment Letter A

Lisa K. Cumper, Tribal Office Assistant/Cultural Resource Manager/Tribal Liaison
Jamul Indian Village of California
February 8, 2018

A-1 Thank you for your letter pursuant to the proposed project at the MiraCosta Community College District (MCCCD) Oceanside Campus. For environmental topics that would receive mitigation upon implementation of the proposed project, please refer to portions of Section 4.1, Aesthetics; Section 4.3, Biological Resources; Section 4.4, Cultural Resources; Section 4.7, Hazards and Hazardous Materials; Section 4.8, Hydrology and Water Quality; Section 4.9, Noise; and Section 4.14, Utilities and Service Systems, of the Draft Environmental Impact Report (EIR). As discussed in Section 4.4 of the Draft EIR, mitigation measures are required to reduce significant impacts to the unanticipated discovery of archaeological resources, paleontological resources, and human remains during construction activities (Mitigation Measure (MM)-CUL-1 through MM-CUL-3).

A-2 Assembly Bill (AB) 52 efforts and Native American coordination are discussed in Section 4.4, Cultural Resources, page 4.4-18 through 4.4-19, of the Draft EIR.

As described in Section 4.4 and Appendix D of the Draft EIR, the Native American Heritage Commission (NAHC) was contacted to request a review of the Sacred Lands File. The NAHC emailed a response on June 14, 2017, which stated that the Sacred Lands File search was completed with negative results. Because the Sacred Lands File search does not include an exhaustive list of Native American cultural resources, the NAHC suggested contacting Native American individuals and/or Tribal organizations who may have direct knowledge of cultural resources in or near the project site. The NAHC provided the contact list along with the Sacred Lands File search results. Documents related to the NAHC Sacred Lands File search are included in Appendix D of the Draft EIR.

On behalf of MCCCD, letters were prepared and sent to each of the 35 persons and entities on the contact list requesting information about cultural sites and resources in or near the project site, the Jamul Indian Village being one of the recipients. These letters, mailed on June 22, 2017, contained a brief description of the proposed project, a summary of the Sacred Lands File and South Central Coastal Information Center (SCCIC) search results and survey results, and a reference map. Recipients were asked to reply within 15 days of receipt of the letter should they have any knowledge of cultural resources in the area.

Four Tribes responded to the AB 52 notification letter and requested consultation: Rincon Band of Luiseno Indians (Rincon), Pala Band of Mission Indians (Pala), Viejas Band of Kumeyaay Indians (Viejas), and Pauma Band of Luiseño Indians (Pauma). Destiny Colocho, the cultural resource manager for Rincon, sent a response letter on July 26, 2017, requesting consultation on the proposed project. She did not indicate the presence of any Tribal Cultural Resources (TCRs) but would like Rincon to receive copies of any cultural resources studies concerning the project and a copy of the Draft EIR. Shasta Gaughen, PhD, the Tribal historic preservation officer for Pala, sent a response letter on July 7, 2017, requesting consultation on the proposed project. After a phone conversation with Dr. Gaughen on July 13, 2017, Dudek confirmed that Pala does not have any concerns or information concerning TCRs in the proposed project area. Dr. Gaughen requested a copy of the cultural resources report and the Draft EIR. Ray Teran, resource manager for Viejas, sent an AB 52 response letter on July 3, 2017. The letter did not indicate the presence of any known TCRs but did request that Viejas be notified of any cultural resource discoveries associated with the proposed project.

Chris Devers, cultural liaison for Pauma, sent an email on July 13, 2017, requested a meeting with Dudek archaeologist Matthew DeCarlo. On August 14, 2017, Mr. Devers and Mr. DeCarlo met on the Oceanside Campus to tour the proposed project area and discuss its cultural sensitivity. After touring the campus, Mr. Devers did not indicate any specific concerns but did request data regarding the original topography of the area and adjacent known sites. Mr. DeCarlo emailed this information to Mr. Devers on August 23, 2017. Mr. Devers responded on August 31, 2017, stating that he had shared the information with the Pauma Cultural Committee and would share their concerns with Dudek. Having received no response, Mr. DeCarlo sent a follow-up email to Mr. Devers on October 3, 2017. Pauma has not responded to Mr. DeCarlo's email.

A complete record of all previously described Native American consultation is provided in Appendix B of the Cultural Resources Report (Appendix D of the Draft EIR). Because it is always possible that intact archaeological deposits are present at subsurface levels and could be uncovered during ground-disturbing activities, MM-CUL-1 (Section 4.4.5 of the Draft Program EIR) is included to reduce impacts to archaeological resources that are significant under the California Environmental Quality Act (CEQA; California Public Resources Code, Section 21082), as specified in the CEQA Guidelines (14 CCR 15064.5(f)) to a less than significant level.

The commenter has requested that a Kumeyaay monitor be present at this project. However, given that the Kumeyaay did not identify any TCRs during AB 52 consultation, and no archaeological resources were identified on or adjacent to the project site as a result of the South Central Coastal Information Center (SCCIC) records search or the pedestrian survey, the developed nature of the campus, and the extent of previous ground disturbance, MCCCD has determined that tribal cultural monitoring is not warranted. However, MM-CUL-1 has been clarified to state that construction contractors would be required to attend a Worker Environmental Awareness Program prior to the beginning of construction. MCCCD therefore considers consultation to be concluded.

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Comment Letter B

Feb 4, 2018

To: Tom Macias

From: Dave Clark

Re: Mira Costa EIR

Dear Mr. Macias

Thank you for the opportunity to review the Draft EIS.

I generally support the overall project of enhancing the Oceanside Mira Costa Campus. B-1

I have two concerns regarding the project relative to the ultimate goal of increasing the student body size over time: Resources and Traffic.

1) Potable and recycled water – Sec 4.14.1.2: primarily irrigation water for landscaping. Increased landscaping of some sort will clearly be needed for both aesthetics and fire control. New landscaping typically accompanies development as well as increased water use. This section does not appear to pay much attention to this topic. B-2

Due to the size of the campus, I encourage the College to coordinate with the City of Oceanside to develop plans for supplying reclaimed water to the campus. Brining reclaimed water to the Mira Costa Campus would not only help reduce potable water demand for the campus, but could also serve to support the Del Oro Hills Landscape district which is managed by the City of Oceanside. B-3

This could be a win-win situation as Mira Costa College demonstrates it's forward thinking views on future development, while helping the City of Oceanside take another step forward in realizing reclaimed water use goals.

2) Traffic – Section 4.13 – both auto and foot. The EIR should first assume that the Mission Del Oro/SR78 interchange will NOT be built. That intersection would be a poorly located intersection, way too close to the El Camino Real intersection. B-4 Aggressive support of public transit should be pursued. A bus line/shuttle should be re-established from the campus to the Rancho Del Oro Sprinter station. Increased frequency of route 302 should also be considered to support student access to public transit. B-5

Something not considered in the report is the concept that with the increased campus size and parking issues, come increased foot traffic. This increases an existing issue with trespassing at B-6

Mission Del Oro Condominiums. We currently have an issue of students cutting through the community by jumping the rear fence near the SDG&E power lines. They also cut up the Glaser Drive slope through our community and down Rancho del Oro Road. The opposite path is traveled as well from Rancho del Oro through to Mira Costa. I would encourage evaluation of options to help prevent an increasing trend in trespassing. Options could include enhanced landscape options along Glaser Drive and/or enhanced fencing options.

Thank you for taking these comments into consideration. Look forward to the improvements at Mira Costa in the coming years.

Regards,

Dave Clark
2355 Rancho Del Oro Rd., Unit 52
Oceanside, CA 92056

B-6
Cont.

Response to Comment Letter B

Dave Clark
February 4, 2018

B-1 Thank you for your letter pursuant to the proposed project at the MiraCosta Community College District (MCCCD) Oceanside Campus. This comment establishes the Draft Environmental Impact Report (EIR) topics that will be covered in the following paragraphs.

B-2 As stated in Section 4.8, Hydrology and Water Quality, of the Draft EIR, on page 4.8-20, according to the City's Urban Water Management Plan, the campus's recycled (non-potable) water demand is expected to increase from 0.4% of the total water demand for the campus in 2015 to 5.2% in 2025. An additional 10% of the Oceanside Campus water demand in 2025 will consist of advanced treated (potable reuse) water. Existing sod will be replaced with native vegetation in the campus quad and in other locations, which will reduce landscape irrigation.

Page 4.8-21, states that the proposed new Chemistry/Biotechnology Building, Student Services Building, and Parking Lots 2B and 4C would be constructed over existing landscaping, reducing the overall landscaping square-footage. However, implementation of the proposed project would establish new landscaping adjacent to proposed buildings, which would offset the reduction of landscaped areas removed with construction. As such, the overall increase in landscaped areas would be incremental and would not substantially increase water demands, as new landscaping would require less irrigation and would partially use recycled (non-potable) water. Therefore, no new mitigation is required.

MCCCD does not agree that this issue was not addressed in the Draft EIR. Water demand associated with the proposed project was addressed per the CEQA Guidelines, Appendix G. MCCCD will include the comment as part of the Final EIR for review and consideration by the decision makers prior to a final decision on the project.

B-3 Please see the response to comment B-2. The Oceanside Campus's recycled (non-potable) water demand is expected to increase from 0.4% of the total water demand for the campus in 2015 to 5.2% in 2025. An additional 10% of the Oceanside Campus water demand in 2025 will consist of advanced treated (potable reuse) water. MCCCD will include the comment as part of the Final EIR for review and consideration by the decision makers prior to a final decision on the project.

B-4 As described in Section 4.13, Traffic and Circulation, of the Draft EIR, two alternatives were considered to analyze the year 2030 conditions. The first alternative assumes that the Rancho Del Oro Drive/State Route 78 interchange is not included, and Alternative 2 assumes the Rancho Del Oro Drive/State Route 78 interchange is included. It was determined that impacts under year 2030 plus project without Rancho Del Oro Drive interchange conditions and impacts under year 2030 plus project with Rancho Del Oro Drive interchange conditions would be less than significant. Because it is uncertain if the interchange would be constructed, both scenarios were considered in the traffic impact analysis.

B-5 As described in Section 4.13 of the Draft EIR, transit service in the vicinity of the project site is provided by North County Transit District. North County Transit District BREEZE bus lines 302 and 325 stop at several points on Barnard Drive and circle the campus core. The project proposes a new transit center located adjacent to the proposed Student Services Building to help consolidate access to buses on campus. As described in Section 4.15, Energy Conservation, of the Draft EIR, MCCCD has partnered with the North County Transit District to offer discounted transportation passes for MCCCD students. The pass provides unlimited use of the SPRINTER, a light rail train that runs from Oceanside to Escondido, and the BREEZE buses with routes throughout North County. Therefore, by constructing a new transit center on campus and providing discounted transportation passes for students, MCCCD is encouraging the use of public transportation for the Oceanside Campus students.

B-6 During the public review of the Initial Study and Notice of Preparation, MCCCD received comments regarding foot traffic and an existing condition issue with students trespassing the eastern half of campus. Because trespassing issues are not addressed in the CEQA Guidelines, Appendix G, this issue is not analyzed in the EIR. However, to address this issue, MCCCD proposed a design feature to reduce trespassing issues on the eastern half of campus, as discussed in Table 3-6 of Chapter 3, Project Description, of the Draft EIR, which is as follows:

- To reduce potential light trespass and provide filtering of campus lighting to surrounding residential neighborhoods, a transitional landscape buffer along certain portions of the eastern boundary is proposed and would be planted upon project implementation.

Such design features were not proposed on the western half of the Oceanside Campus, because public comments were focused on other portions of the campus during public scoping. Much of the trespass issues noted in this comment letter occur on land owned by private landowners and/or Home Owner’s Associations. Additionally, there is fencing located between the Mission Del Oro Apartments and the Oceanside Campus. MCCCD will post signage on the western edges of MCCCD-owned property encouraging students, faculty and staff to remain on designated sidewalks and pathways when traveling to and from campus. Further, MCCCD is supportive and encourages private landowners and/or Home Owner's Associations from fencing property that they do wish to have accessed.

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Comment Letter C

From: Cultural Pauma [mailto:cultural@pauma-nsn.gov]
Sent: Wednesday, February 07, 2018 11:50 AM
To: Macias, Tom <tmacias@miracosta.edu>
Cc: pdixon@palomar.edu; Jeremy Zagarella <jeremyzagarella@hotmail.com>; Matthew DeCarlo <mdecarlo@dudek.com>
Subject: MCCCD Campus Improvement Project

Mr. Macias,

The Cultural Office of the Pauma Band of Luiseno Indians has received your Notice of Availability of a Draft Environmental Impact Report for the Mira Costa Campus. We agree that the impacts to Cultural Resources is minimal, we do have a couple of comments. Due to the age of some of the buildings on the campus, who will be designated to observe changes in profiles and texture of the soil during ground disturbance to determine if fill or native soils are being disturbed? Also, do you have a "draft" treatment plan that could be implemented quickly if there is a find during construction? C-1 C-2 C-3

I have visited the campus with Mr. DeCarlo and believe in being cautious. If there are any questions please contact us. C-4

Thank you,

Mr. Chris Devers
Cultural Liaison
Pauma Band of Luiseno Indians

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Response to Comment Letter C

Chris Devers, Cultural Liaison
Pauma Band of Luiseño Indians
February 7, 2018

C-1 Thank you for your letter pursuant to the proposed project at the MiraCosta Community College District (MCCCD) Oceanside Campus. This comment confirms that the Pauma Band of Luiseño Indians received the Notice of Availability to the Draft Environmental Impact Report (EIR). The comment explains that the Pauma Band of Luiseño Indians is in agreement that the impacts to cultural resources is minimal, but there are additional comments, which are described as follows.

C-2 The construction crew would observe if fill or native soils would be disturbed during project construction.

C-3 As described in Mitigation Measure (MM)-CUL-1, if an archaeological resource is discovered during project construction, a qualified archaeologist may simply record the find and allow work to continue or, if the discovery proves significant, may prepare an archaeological treatment plan, testing, or data recovery. Therefore, a draft treatment plan has not yet been drafted, because a treatment plan would be drafted on a case-by-case basis depending on the nature of the find.

C-4 As discussed in Section 4.4, Cultural Resources, page 4.4-18 through 4.4-19, of the Draft EIR, Chris Devers, cultural liaison for Pauma, sent an email on July 13, 2017, requested a meeting with Dudek archaeologist Matthew DeCarlo. On August 14, 2017, Mr. Devers and Mr. DeCarlo met on Oceanside Campus to tour the proposed project area and discuss its cultural sensitivity. After touring the campus, Mr. Devers did not indicate any specific concerns but did request data regarding the original topography of the area and adjacent know sites. Mr. DeCarlo emailed this information to Mr. Devers on August 23, 2017. Mr. Devers responded on August 31, 2017, stating that he had shared the information with the Pauma Cultural Committee and would share their concerns with Dudek. Having received no response, Mr. DeCarlo sent a follow-up email to Mr. Devers on October 3, 2017. Pauma has not responded to Mr. DeCarlo's email.

MCCCD understands that the Pauma Band of Luiseño Indians has not identified any Tribal Cultural Resources (TCRs) on the Oceanside Campus; however, they desire to be cautious. Because it is always possible that intact archaeological deposits are present at subsurface levels and could be uncovered during ground-disturbing activities, Mitigation Measure (MM)-CUL-1 is proposed. MM-CUL-1 has been clarified to state that construction contractors would be required to attend a Worker Environmental Awareness Program prior to the beginning of construction.

Comment Letter D

SAN DIEGO COUNTY ARCHAEOLOGICAL SOCIETY

San Diego County Archaeological Society, Inc.

Environmental Review Committee

17 February 2018

To: Mr. Tom Macias, Director of Facilities
Mira Costa Community College District
1 Barnard Drive
Oceanside, California 92056

Subject: Draft Environmental Impact Report
Oceanside Campus Facilities Master Plan

Dear Mr. Macias:

I have reviewed the cultural resources aspects of the subject DEIR on behalf of this committee of the San Diego County Archaeological Society. D-1

Based on the information contained in the DEIR and its cultural resources appendix, we have the following comments:

As we understand has been noted by others, the District should have an archaeologist listed by the Register of Professional Archaeologists (RPA) review the previous landform modifications on the campus to identify any areas where the disturbance may not have disturbed any cultural deposits. D-2 Recommendations should then be made to provide archaeological and Native American monitoring in those areas. D-3 Detailed procedures for that monitoring program, including analysis of recovered material and report generation, and curation. If any human remains and/or associated burial items are encountered, they should be repatriated to the appropriate tribal representative. If any other material is not, for any reason, to be curated, the project archaeologist should be permitted to select items for 3D scanning and those scans, plus prints (to verify the quality of the scan) should be curated. D-4

Thank you for the opportunity to participate in the public review of this DEIR.

Sincerely,

James W. Royle, Jr., Chairperson
Environmental Review Committee

cc: Dudek
SDCAS President
File

P.O. Box 81106 San Diego, CA 92138-1106 (858) 538-0935

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Response to Comment Letter D

James W. Royle, Jr., Chairperson, Environmental Review Committee
San Diego County Archaeological Society Inc.
February 17, 2018

D-1 Thank you for your letter pursuant to the proposed project at the MiraCosta Community College District (MCCCD) Oceanside Campus. This comment confirms that the San Diego County Archaeological Society Inc. received the Notice of Availability to the Draft Environmental Impact Report (EIR) and reviewed the cultural resources analysis of the Draft EIR. The comment explains that the San Diego County Archaeological Society Inc. has comments based on this review.

D-2 As discussed in Section 4.4, Cultural Resources, page 4.4-16 through 4.4-17, of the Draft EIR, a records search was conducted of the California Historic Resources Information System (CHRIS) files obtained from South Central Coastal Information Center (SCCIC) for the proposed project area and a surrounding 1-mile buffer on June 13, 2017. The records search identified no previously recorded cultural resources within the project site; however, 29 resources have been identified within a 1-mile radius of the project site. The vast majority (27) of these resources are prehistoric, suggesting that the surrounding landscape within the Buena Vista Creek Watershed is especially sensitive for prehistoric resources. Sites P-37-004979 and P-37-004981 are the nearest recorded sites, located 430 feet and 230 feet north of the project site, respectively. These resources consist of fire-cracked rock and prehistoric artifact and shell scatter.

No archaeological resources were identified within the project site as a result of the records search. The project site has already been highly disturbed by past modifications to the campus, and it is unlikely that construction during each phase of the project would encounter intact archaeological deposits at subsurface levels. However, the Draft EIR noted that the potential could remain for the inadvertent discovery of archaeological resources during ground-disturbing activities. Therefore, implementation of Mitigation Measure (MM)-CUL-1 is required and would mitigate impacts to archaeological resources to a less-than-significant level.

D-3 Because no archaeological resources were identified within the project site as a result of the records search, an archaeological monitor is not warranted during project construction. Likewise, because Assembly Bill (AB) 52 consultation did not result in the identification of Tribal Cultural Resources (TCRs) on the Oceanside Campus by any Tribal entities, a Native American monitor is not warranted during project construction.

D-4 As discussed in Section 4.4 of the Draft EIR, MM-CUL-3 is proposed to mitigate potential impacts associated with the discovery of human remains. As described in MM-CUL-3, if human remains are discovered and are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted by the property owner or their representative to determine proper treatment and disposition of the remains. The immediate vicinity where the Native American human remains are located is not to be damaged or disturbed by further development activity until consultation has been conducted with the Most Likely Descendant regarding their recommendations as required by California Public Resources Code Section 5097.98. Public Resources Code Section 5097.98, California Environmental Quality Act (CEQA) Section 15064.5 and Health and Safety Code Section 7050.5 shall be followed.

Comment Letter E

From: Erica Martinez <emartinez@RinconTribe.org>
Date: February 16, 2018 at 9:39:34 AM PST
To: "tmacias@miracosta.edu" <tmacias@miracosta.edu>
Cc: Destiny Colocho <DColocho@RinconTribe.org>
Subject: Campus Facilities Master Plan Project

Dear Mr. Macias:

This letter is written on behalf of the Rincon Band of Luiseño Indians. We have received your notification regarding the Campus Facilities Master Plan Project and we thank you for the opportunity to consult on this project. The identified location is within the Territory of the Luiseño people, and is also within Rincon's specific area of Historic interest. E-1

Embedded in the Luiseño territory are Rincon's history, culture and identity. Thank you for providing Rincon with the Draft EIR for the above referenced project. we have reviewed the document and are not in agreement with MM-CUL-1 which states that a qualified archaeologist that meets the Secretary of the Interior Standards would be called upon discoveries of archaeological features. Instead, Rincon recommends that archaeological and Luiseño tribal monitors be present during ground disturbing activities for two reasons: E-2

1. Due to the close proximity of cultural resources to the project site, including two only 430 and 230 feet away.

2. Construction crew/operators are not trained in artifact or cultural resources identification such as lithics, midden soil and milling implements.

We look forward to hearing from you. If you have additional questions or concerns please do not hesitate to contact our office at your convenience at (760) 297-2635. E-3

Thank you for the opportunity to protect and preserve our cultural assets.

Sincerely,

Erica A. Ortiz-Martinez
Administrative Assistant

For Destiny Colocho, Manager
Cultural Resources Department
Rincon Band of Luiseño Indians
1 West Tribal Road | Valley Center, CA 92082
Office: 760-297-2635
Fax: 760-692-1498
Email: emartinez@rincontribe.org

Rincon Band of Luiseño Indians
www.rincontribe.org

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Response to Comment Letter E

Rincon Band of Luiseño Indians
February 16, 2018

E-1 Thank you for your letter pursuant to the proposed project at the MiraCosta Community College District (MCCCD) Oceanside Campus. This comment confirms that the Rincon Band of Luiseño Indians received the Notice of Availability to the Draft Environmental Impact Report (EIR). The comment explains that the project is located in the territory of the Luiseño people and within the Rincon's specific area of historic interest.

E-2 As discussed in Section 4.4, Cultural Resources, page 4.4-16 through 4.4-17, of the Draft EIR, a records search was conducted of the California Historic Resources Information System (CHRIS) files obtained from South Central Coastal Information Center (SCCIC) for the project area and a surrounding 1-mile buffer on June 13, 2017. The records search identified no previously recorded cultural resources within the proposed project site. The Native American Heritage Commission (NAHC) was contacted to request a review of the Sacred Lands File. The search did not identify any Tribal Cultural Resources (TCRs) within the project area nor within a 1-mile buffer. The NAHC provided a list of Native American contacts with the Sacred Lands File search results. Documents related to the NAHC Sacred Lands File search are included in Appendix D of the Draft EIR. On behalf of MCCCD, letters were prepared and sent to each of the 35 persons and entities on the contact list requesting information about cultural sites and resources in or near the project site. Four Tribes responded to the Assembly Bill (AB) 52 notification letter and requested consultation, but no Tribal representative provided information to MCCCD concerning the presence of cultural resources within the project area. Pedestrian survey of the project area by a qualified archaeologist and Native American monitor also identified no cultural resources.

As noted, sites P-37-004979 and P-37-004981 are the nearest recorded sites, located 430 feet and 230 feet north of the project site, respectively. These resources consist of fire-cracked rock and prehistoric artifact and shell scatter that were identified prior to the residential development of the valley north of the project area. These resources, though only hundreds of feet outside of the project area, were identified at a lower elevation than the proposed construction activities. Historic aerials show that prior to the construction of the campus, the project area consisted of knoll with many drainages. The knoll was leveled, and the drainages were filled in to create the terrace on which the campus is now located.

Considering that the SCCIC records search, the NAHC Sacred Lands File search, AB 52 consultation, and Native American monitored pedestrian survey could not demonstrate the current or past presence of cultural resources within the project area, and considering the highly disturbed context of the project area, it is unlikely that construction during each phase of the proposed project would encounter intact archaeological deposits at subsurface levels. Due to this low sensitivity, the District has determined that archaeological and Native American monitoring will not be necessary during project-related ground-disturbing activities. However, MM-CUL-1 has been clarified to state that construction contractors would be required to attend a Worker Environmental Awareness Program prior to the beginning of construction.

E-3 Thank you for your letter pursuant to the proposed project at MCCCD Oceanside Campus.

Comment Letter F

SANDAG

401 B Street, Suite 800
San Diego, CA 92101-4231
(619) 699-1900
Fax (619) 699-1905
sandag.org

February 16, 2018

File Number 3300300

Mr. Tom Macias
MiraCosta Community College District
1 Barnard Drive, Building 4200
Oceanside, CA 92056

Dear Mr. Macias:

SUBJECT: MiraCosta Community College District Oceanside Campus Facilities Master Plan Draft Environmental Impact Report

Thank you for the opportunity to comment on the MiraCosta Community College District (MCCCD) Oceanside Campus Facilities Master Plan Draft Environmental Impact Report (EIR). The San Diego Association of Governments (SANDAG) is submitting comments based on the policies included in San Diego Forward: The Regional Plan (Regional Plan). These policies will help to provide people with more travel and housing choices, protect the environment, create healthy communities, and stimulate economic growth. SANDAG comments are submitted from a regional perspective emphasizing the need for better land use and transportation coordination. F-1

San Diego Forward: The Regional Plan

On page 2-5 of the Draft EIR, please reference San Diego Forward: The Regional Plan, adopted in October 2015, as opposed to the 2050 Regional Transportation Plan. Suggested language is included below:

> "San Diego Forward: The Regional Plan combines the region's two most important existing planning documents: The Regional Comprehensive Plan (RCP) and the Regional Transportation Plan and its Sustainable Communities Strategy (RTP/SCS). The RCP, adopted in 2004, laid out key principles for managing the region's growth while preserving natural resources and limiting urban sprawl. The plan covered eight policy areas including urban form, transportation, housing, healthy environment, economic prosperity, public facilities, our borders, and social equity. These policy areas were addressed in the 2050 RTP/SCS and are now fully integrated into the Regional Plan. F-2
>
> On April 24, 2015, SANDAG released the Draft Regional Plan for public comment, with a closing date of July 15, 2015. A final plan was adopted by the SANDAG Board of Directors on October 9, 2015."

Congestion Management Plan

On page 2-5, the Draft EIR mentions the Congestion Management Plan (CMP). In October 2009, the San Diego region elected to be exempt from the State CMP. Since this decision, SANDAG has been abiding by 23 Code of Federal Regulations §450.320 to ensure the region's continued compliance with the federal congestion management process. If you plan to seek federal funding assistance for arterial and street enhancements in the project area, please consider a multimodal alternative and non-single occupancy vehicle analysis during the planning process. F-3

Long-Range Transportation

Please consider both existing and planned transportation projects outlined in the region's long-range transportation and land use document, the Regional Plan. These projects are highlighted in Appendix A of the Regional Plan, which is available at sdforward.com. One such project is *Rapid* Route 477 from Camp Pendleton to Carlsbad Village via College Boulevard, Plaza Camino Real. F-4

Transportation Demand Management

Please consider incorporating Transportation Demand Management (TDM) strategies to help reduce the drive-alone rate and parking demand at the MiraCosta Community College campuses. Based on experience with other college campuses, parking demand and traffic congestion are best mitigated when alternative transportation choices are paired with competitively priced parking. Monetary incentives, such as pairing the cost of parking to the cost of public transportation and providing a parking cash-out option for staff and employees that use transportation alternatives, also may make alternatives to driving alone more attractive. F-5 Please consider providing priority parking for carpools and vanpools. F-6 Additional TDM strategies to consider include:

- Promoting the use of shared mobility services to help reduce the demand for private vehicles and on-site parking. MCCCD could partner with on-demand rideshare provides (e.g., Uber, Lyft, Waze Carpool) to incentivize ridesharing as a flexible and cost-effective transportation alternative for students F-7
- Provision of enhanced bicycle and pedestrian facilities that connect students and employees to nearby campus destinations, bikeways, and the campus transit center F-8
- Provision of secure bicycle parking and bike amenities, such as showers, lockers, and repair stands at convenient locations throughout campus F-9
- Interactive transportation kiosks or real-time displays at the new transit center that convey information about regional transit services and other available transportation options F-10

Please continue to partner with the SANDAG TDM Program, iCommute, to take advantage of regional TDM programs and services. These programs and services include the SANDAG Vanpool Program, Guaranteed Ride Home service, multimodal trip planning, and bike encouragement programs. More information on available regional TDM programs can be accessed through iCommuteSD.com. F-11

2

Other Considerations

SANDAG provides access to additional resources that can be used for added information or clarification on topics discussed in this letter. The following can be found at sandag.org:

- SANDAG Regional Parking Management Toolbox
- Planning and Designing for Pedestrians, Model Guidelines for the San Diego Region
- Integrating Transportation Demand Management into the Planning and Development Process – A Reference for Cities

When available, please send any additional environmental documents related to this project to:

Intergovernmental Review
c/o SANDAG
401 B Street, Suite 800
San Diego, CA 92101

We appreciate the opportunity to comment on the MCCCD's Oceanside Campus Facilities Master Plan Draft EIR. If you have any questions, please contact me at (619) 699-1943 or seth.litchney@sandag.org.

F-12

Sincerely,

SETH LITCHNEY
Senior Regional Planner

SLI/KHE/kwa

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Response to Comment Letter F

Seth Litchney, Senior Regional Planner
San Diego Association of Governments
February 16, 2018

F-1 Thank you for your letter pursuant to the proposed project at the MiraCosta Community College District (MCCCD) Oceanside Campus. This comment confirms that the San Diego Association of Governments (SANDAG) received the Notice of Availability to the Draft Environmental Impact Report (EIR). The comment explains that SANDAG is submitting comments based on the policies included in SANDAG's *San Diego Forward: The Regional Plan*, and comments are provided from a regional perspective emphasizing the need for better land use and transportation coordination.

F-2 MCCCD agrees with the proposed revisions and will include the *San Diego Forward: The Regional Plan* language on page 2-5 of the Draft EIR, as described. Please refer the Chapter 2, Changes to the Draft EIR, of this Final EIR for a description of the proposed revisions.

F-3 MCCCD appreciates the background information but does not plan to seek federal funding assistance for arterial and street enhancements for the proposed project. MCCCD will include the comment as part of the Final EIR for review and consideration by the decision makers prior to a final decision on the project.

F-4 As described in Section 4.15, Energy Conservation, of the Draft EIR, MCCCD has partnered with the North County Transit District to offer discounted transportation passes for MCCCD students. The pass provides unlimited use of the SPRINTER, a light rail train that runs from Oceanside to Escondido, and the BREEZE buses with routes throughout North County. Upon implementation of the project, MCCCD would continue to offer discounted passes for MCCCD students and will encourage students' use of Route 477 from Camp Pendleton to Carlsbad Village via College Boulevard, Plaza Camino Real when implemented.

F-5 Please see response to comment F-4. As described in Section 4.13, Traffic and Circulation, of the Draft EIR, transit service in the vicinity of the project site is provided by North County Transit District. North County Transit District BREEZE bus lines 302 and 325 stop at several points on Barnard Drive and circle the campus core. The project proposes a new transit center located adjacent to the proposed Student Services Building that would help consolidate access to buses on campus. Therefore, by constructing a new transit center on campus and providing discounted transportation passes for students, MCCCD is encouraging the use of public transportation for the Oceanside Campus students.

F-6 The Oceanside Campus does not currently provide priority parking spots for carpools and vanpools because there are not enough parking spots to set aside for priority parking. Although the proposed project would involve the construction of new parking lots, these would be constructed to address an existing parking deficit. Therefore, the Oceanside Campus would not be able to set aside priority carpool or vanpool parking as part of the proposed project.

F-7 MCCCD does not currently partner with on-demand rideshare providers (e.g. Uber, Lyft, and Waze Carpool) to incentivize ridesharing transportation alternatives for students. MCCCD understands that students currently utilize these rideshare transportation alternatives. Although the proposed project would not involve an incentive program or partnership with rideshare providers, MCCCD would continue to encourage alternative modes of transportation by providing discounted North County Transit District transportation passes for MCCCD students.

F-8 As discussed in Table 3-6, of Chapter 3, Project Description, of the Draft EIR, the proposed project would include the following design features, which would enhance campus pedestrian circulation:

- The existing on-campus pedestrian circulation system would be enhanced with clearly defined pedestrian pathways, extended pedestrian connections beyond the campus core, and expanded open spaces to enhance the interconnectedness of campus components. A more pedestrian-oriented campus would provide safer, more direct links for students and visitors to travel.

Also, as shown in the Draft EIR, existing pedestrian pathways (Figure 3-7, Pedestrian Circulation) would be enhanced with a new pedestrian bridge at the center of campus, a new transit center at the center of campus, and a sidewalk along the northern portion of Barnard Drive on campus (Figure 3-21, Site Improvements).

F-9 Bike racks are currently provided throughout the Oceanside Campus and would continue to be provided upon implementation of the proposed project.

F-10 The design of the proposed Oceanside Campus transit center is still in the preliminary stages; however, MCCCD will consider the option of providing interactive transportation kiosks or real-time displays at the proposed transit center.

F-11 MCCCD does not currently partner with the SANDAG Transportation Demand Management Program, iCommute. However, MCCCD would continue to encourage alternative modes of transportation by constructing a new transit center located adjacent to the proposed Student Services Building that would help consolidate access to buses on campus and by providing discounted North County Transit District transportation passes for MCCCD students.

F-12 Thank you for your letter pursuant to the proposed project at MCCCD Oceanside Campus.

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Comment Letter G

CITY OF OCEANSIDE

DEVELOPMENT SERVICES DEPARTMENT / PLANNING DIVISION

February 16, 2018

Mr. Tom Macias, Director of Facilities
Mira Costa Community College District
1 Barnard Drive
Oceanside, CA 92056

Subject: MCCCD Draft Environmental Impact Report (DEIR) RE: Oceanside Campus Facilities Master Plan

Dear Mr. Macias: **VIA E-MAIL- tmacias@miracosta.edu**

The City of Oceanside has conducted a review of the DEIR for the MCCCD Facilities Master Plan for the campus here in Oceanside and provides the following comments to be addressed in the EIR: G-1

MCCCD Oceanside Campus Facilities Master Plan Traffic Impact Analysis Review and Comments: Appendix H

1. Figure 3-1- Intersection Geometry: College at Vista Way – on the northbound approach, there are dual left turn lanes and dual right turn lanes. On the westbound approach there is only one thru lane and one dedicated right turn lane with dual lefts with RTOL. G-2
2. Figure 3-2: provide a copy of traffic counts data collection sheets for intersections and road segments for verification that counts reflect historical averages while Mira Costa College is in session. G-3
3. Table 6-1, Existing Intersection Operations: Provide copies of the LOS detail sheets used in intersection analyses for review and verification of assumed signal phasing and traffic volumes. G-4
4. Table 8-1, Trip Generation: It's impossible to verify the amount of FTES based on a simple discussion in the report narrative. The City needs to have some empirical basis to determine if the project MP is fully represented in the traffic report. Provide a table that shows existing buildings and square footage compared to proposed buildings and square footage in order to properly reveal the net increase in new building square footage. Also provide any historical student growth projections referenced in the Project Description on page 2. G-5 G-6

300 N. COAST HIGHWAY OCEANSIDE, CA 92054 TEL: 760-435-3520 FAX: 760-754-2958 WEB: CI.OCEANSIDE.CA.US

Mr. Tom Macias
Re: MCCCD DEIR
February 16, 2018
Page 2

Without the ability to properly verify the data collection and assumptions used under Existing Conditions, the Near-Term and Build-Out analyses will remain questionable. G-6 Cont.

5. Analysis of Near-Term Scenarios: Revise Near-Term intersection and segment analyses With and Without Project based upon comments above. G-7

6. Analysis of Long-Term Scenarios: Revise the Long-Term scenario intersection and segment analyses With and Without Project With and Without RDO based upon comments above. G-8

   a. Provide a figure showing trip distribution for the Without RDO Interchange scenario. G-9
   b. Provide a figure that illustrates the changed intersection and roadway segment geometry per the City's 2012 Circulation Element so that the City can verify if these changes are reflected in the traffic analyses. For example, there will be different geometry at the intersection of RDO at Vista Way With and Without the interchange. G-10
   c. Figure 10-5 With RDO Interchange volumes do not match the future volumes in Figure 3.7, page 38 in the 2012 Circulation Element. G-11

Please have your traffic consultant work with John Amberson, Transportation Planner at 760-435-5091 or JAmberson @ci.oceanside.ca.us. G-12

Sincerely,

Richard Greenbauer, Principal Planner
Development Services Department, Planning Division

Response to Comment Letter G

Richard Greenbauer, Principal Planner
Development Services Department, Planning Division, City of Oceanside
February 16, 2018

G-1 Thank you for your letter pursuant to the proposed project at the MiraCosta Community College District (MCCCD) Oceanside Campus. This comment confirms that the City of Oceanside received the Notice of Availability to the Draft Environmental Impact Report (EIR).

G-2 Figure 3-1 has been revised to show the correct intersection geometry, and the analysis was corrected as a result of these changes. No changes to the conclusions of the traffic study resulted. Please refer the Chapter 2, Changes to the Draft EIR, of this Final EIR for the revised figure.

G-3 Please refer to Appendix A to the Traffic Impact Analysis (Appendix H of the Draft EIR) for the traffic count data.

G-4 Please refer to Appendix B to the Traffic Impact Analysis (Appendix H of the Draft EIR) for the Level of Service Analysis sheets.

G-5 The increase in full-time equivalent students (FTES) is discussed in greater detail in Chapter 3, Project Description, of the Draft EIR. Specifically, Section 3.6.1, Campus Growth, provides the Fall 2014 and the Fall 2020 student FTES estimates of 3,167.93 and 3,473.47, respectively. The increase in anticipated student FTES would be 306, as analyzed in the Traffic Impact Analysis.

The FTES projections used in the Draft EIR were based on the MCCCD 2016–2020 Educational Plan Addendum. Enrollment projections were created by comparing the growth/decline in FTES between Fall 2011 and Fall 2014. An annualized rate of change was then calculated out to the year 2020, based on the 3-year rate of change for each program and assuming that (a) no major changes occur to the existing course offerings and (b) enrollment growth continues (MCCCD 2015).

A table with the existing building areas and the proposed building areas (in units of square feet) are also provided in Chapter 3 of the Draft EIR. Table 3-4 in Section 3.6.2.1, Building Improvements, provides existing and proposed facilities on campus, provides the gross square footage of these facilities, and describes the planned project activity for each building (i.e., new construction, demolition, modernization, and renovation).

It is recommended that the City review Chapter 3 of the Draft EIR for a detailed description of the project, which could not be included in such detail in the Traffic Impact Analysis.

G-6 As described in response to comment G-5, select historical FTES values are provided in Chapter 3, specifically Section 3.6.1, of the Draft EIR. It is recommended that the City review Chapter 3 of the Draft EIR for a detailed description of the project, which could not be included in such detail in the Traffic Impact Analysis.

G-7 The project trip generation used in the analysis is accurate, and therefore, no changes to the near-term or long-term analysis are needed. However, based on the error in geometry of the College/Vista Way intersection, the near-term and long-term analysis was revised accordingly. No changes to the results of the traffic study occurred.

G-8 Please see response to comment G-7.

G-9 Please refer to Figure 8-1 in the Traffic Impact Analysis (Appendix H of the Draft EIR), which contains the "without RDO [Rancho Del Oro] interchange" trip distribution.

G-10 Appendix I in the Traffic Impact Analysis (Appendix H of the Draft EIR) contains figures showing the intersection and segment geometry per the City 2012 Circulation Element. This geometry was utilized in the analysis, unless it was less than the existing on-the-ground geometry.

G-11 The traffic volumes on Figure 10-5 and Table 10-4 in the Traffic Impact Analysis (Appendix H of the Draft EIR) have been corrected per the 2012 Circulation Element. No changes to the conclusions of the traffic study resulted. Please refer the Section Chapter 2, Changes to the Draft EIR, of this Final EIR for the revised figure.

G-12 MCCCD has noted to contact John Amberson, transportation planner at the City of Oceanside, for further coordination.

Comment Letter H

DUDEK

MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 T 800.450.1818 F 760.632.0164

PERSONAL COMMUNICATION RECORD

Communication With:	Mary Lopez-Keifer
District Recipient:	Tom Macias
Caller's Phone Number	925.457.3395
Communication Date:	February 15, 2018
Communication Time:	11:52 AM
Communication Type:	Voicemail
Subject:	AB 52 consultation with San Luis Rey Band of Mission Indians

VOICEMAIL MESSAGE

Hello Mr. Macias. This is Mary Lopez-Keifer again with the San Luis Rey Band of Mission Indians. I tried to call the number you left for your cell phone, but the voicemail was a bit garbled. So I don't think I wrote it down correct. If you can give me a call back, it'd appreciate it. I was able to gather from the email from your voicemail that you wanted me to send you a letter. H-1

I just need clarification as to what you need from us, because our records we never received an AB 52 notice of your project. We gave you notice and request for notice, back in July of 2015. So if you could give me a call back I'd appreciate it. My phone number is (925)457-3395. I will go ahead and shoot you an email with the same information being requested if that helps. I do hope to actually be able to speak to you. So if you could give me a call back I'd appreciate it. Thanks you so much. H-2

WWW.DUDEK.COM

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Response to Comment Letter H

Merri Lopez-Keifer
San Luis Rey Band of Mission Indians
February 15, 2018 (Voicemail)

H-1 Thank you for your voicemail pursuant to the proposed project at MiraCosta Community College District (MCCCD) Oceanside Campus. A Notice of Availability to the Draft Environmental Impact Report (EIR) was sent to the San Luis Rey Band of Mission Indians during the public review period of the Draft EIR. A letter is not required from the San Luis Rey Band of Mission Indians; however, if there are comments on the Draft EIR, the public review period would be the opportunity to provide such comment.

H-2 As described in Section 4.4, Cultural Resources, and Appendix D of the Draft EIR, the Native American Heritage Commission (NAHC) was contacted to request a review of the Sacred Lands File. The NAHC emailed a response on June 14, 2017, which stated that the Sacred Lands File search was completed with negative results. Because the Sacred Lands File search does not include an exhaustive list of Native American cultural resources, the NAHC suggested contacting Native American individuals and/or Tribal organizations who may have direct knowledge of cultural resources in or near the project site. The NAHC provided the contact list along with the Sacred Lands File search results. Documents related to the NAHC Sacred Lands File search are included in Appendix D of the Draft EIR.

On behalf of MCCCD, letters were prepared and sent to each of the 35 persons and entities on the contact list requesting information about cultural sites and resources in or near the project site, the San Luis Rey Band of Mission Indians being one of the recipients. These letters, mailed on June 22, 2017, contained a brief description of the proposed project, a summary of the Sacred Lands File and South Central Coastal Information Center (SCCIC) search results and survey results, and a reference map. Recipients were asked to reply within 15 days of receipt of the letter should they have any knowledge of cultural resources in the area. Four Tribes responded to the Assembly Bill (AB) 52 notification letter and requested consultation: Rincon Band of Luiseno Indians (Rincon), Pala Band of Mission Indians (Pala), Viejas Band of Kumeyaay Indians (Viejas), and Pauma Band of Luiseño Indians (Pauma). No response was received from the San Luis Rey Band of Mission Indians.

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Comment Letter I

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

February 21, 2018

Tom Macias
Miracosta Community College District
1 Barnard Dr
Oceanside, CA 92056

Subject: MiraCosta Community College District Oceanside Campus Facilities Master Plan
SCH#: 2017061039

Dear Tom Macias:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. The review period closed on February 20, 2018, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. I-1

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL 1-916-445-0613 FAX 1-916-558-3164 www.opr.ca.gov

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Response to Comment Letter I

Scott Morgan, Director
Office of Planning and Research, State Clearinghouse
February 21, 2018

I-1 Thank you for your letter pursuant to the proposed project at the MiraCosta Community College District (MCCCD) Oceanside Campus. The comment confirms that the State Clearinghouse received the Draft Environmental Impact Report (EIR) and that the Draft EIR was circulated to states agencies, but no comments from state agencies were received. The comment confirms that MCCCD complied with the State Clearinghouse review requirements for draft environmental documents per California Environmental Quality Act (CEQA). MCCCD will include the comment as part of the Final EIR for review and consideration by the decision makers prior to a final decision on the project. No further response is required or necessary.

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1.2 REFERENCES CITED

14 CCR 15000–15387 and Appendices A–L. *Guidelines for Implementation of the California Environmental Quality Act*, as amended.

MiraCosta Community College District (MCCCD). 2015. *Addendum to the 2016–2020 Education Plan.* December 2015. http://www.miracosta.edu/officeofthepresident/accreditation/wasc2016/ev7.pdf

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CHAPTER 2
CHANGES TO THE DRAFT EIR

2.1 INTRODUCTION

As provided in Section 15088(d) of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), responses to comments may take the form of a revision to a draft environmental impact report (EIR) or may be a separate section in the Final EIR. This section complies with the latter and provides changes to the Draft Supplemental EIR presented in strikethrough text (~~strikethrough~~) signifying deletions and underlined text (<u>underline</u>) signifying additions. These notations are meant to provide clarification, corrections, or minor revisions as needed as a result of public comments or because of changes in the Oceanside Campus Facilities Master Plan (project or proposed project) since the release of the Draft EIR, as required by Section 15132 of the CEQA Guidelines. None of the corrections and additions constitute significant new information or substantial project changes requiring recirculation as defined by Section 15088.5 of the CEQA Guidelines.

2.2 CHANGES TO THE DRAFT EIR

Changes to the Draft EIR are provided in this section. Page numbers correspond to the Draft EIR. After the location or locations of the changes (by page number), a brief explanation of the nature of the change is provided, followed by the text from the Draft EIR with changes shown in ~~strikethrough~~/<u>underline</u>.

Chapter 2, Environmental Setting, page 2-5.

Regional Transportation Plan and Sustainable Communities Strategy

~~The 2050 San Diego Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) were adopted by the San Diego Association of Governments (SANDAG) on October 28, 2011. The 2050 RTP is a guide for the San Diego Region to provide a more sustainable future by integrating land use, housing, and transportation planning to create communities that are more sustainable, walkable, transit-oriented, compact, and planned for future patterns of density and modes of transportation. The 2050 RTP promotes sustainability, offers more mobility options for people and goods, and outlines projects for transit, rail and bus services, express or managed lanes, highways, local streets, bicycling, and walking.~~

<u>The San Diego Association of Governments' (SANDAG's) *San Diego Forward: The Regional Plan* combines the region's two most important existing planning documents—the Regional Comprehensive Plan (RCP) and the Regional Transportation Plan and its Sustainable Communities Strategy (RTP/SCS). The RCP, adopted in 2004, laid out key principles for</u>

managing the region's growth while preserving natural resources and limiting urban sprawl. The plan covered eight policy areas, including urban form, transportation, housing, healthy environment, economic prosperity, public facilities, our borders, and social equity. These policy areas were addressed in the 2050 RTP/SCS and are now fully integrated into the Regional Plan.

On April 25, 2015, SANDAG released the Draft Regional Plan for public comment, with a closing date of July 15, 2015. A final plan was adopted by the SANDAG Board of Directors on October 9, 2015.

The ~~SCS~~ RCP details how the region will reduce greenhouse gas emissions to state-mandated levels over time. The ~~SCS~~ RCP is required by Senate Bill 375 and demonstrates how the region will meet its goals for reducing greenhouse gas emissions from automobiles and light trucks.

Chapter 3, Project Description, page 3-32.

Table 3-6
Summary of Standard Construction Measures

Subject Area	Design Feature or Construction Measure
Aesthetics	• The project design is architecturally compatible with surrounding development and the aesthetic character of the area, including residential neighborhoods in the City of Oceanside. • To reduce potential light trespass and provide filtering of campus lighting to surrounding residential neighborhoods, a transitional landscape buffer along certain portions of the eastern boundary is proposed and would be planted upon project implementation. • MCCCD will post signage on the western edges of MCCCD-owned property encouraging students, faculty and staff to remain on designated sidewalks and pathways when traveling to and from campus. • The solar photovoltaic (PV) component of the project will be compliant with FAA regulations regarding glare.
Air Quality	• Energy Efficiency: Energy-efficient building design is a key strategy for achieving a high-performing campus. MCCCD would comply with California Title 24 Energy Code. California's Building Energy Efficiency Standards are updated on an approximate 3-year cycle. The 2013 standards improve upon the 2008 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The California Title 24 Energy Code requires use of energy-efficient design principals such as orienting building alignment to minimize solar heating, and use of efficient glazing, insulation, and thermal mass.
Geology and Soils	• Symmetrical, concrete and steel-framed buildings are particularly earthquake-resistant forms of non-residential construction and shall be encouraged. • Irregularly shaped buildings are more difficult to design to withstand strong ground motions, and are therefore more susceptible to damage during an earthquake. Irregularly shaped buildings shall be discouraged. • Buildings with adverse discontinuities in strength between major structural elements are susceptible to earthquake damage and shall be discouraged. • Nonstructural elements must not block exit routes or constrain rescue operations if damaged or overturned during a tremor. • Non-residential, precast tilt-up construction must have adequate diaphragms (horizontal bracing system that transmits horizontal forces to vertical resisting components), and adequate tie-ins or

Table 3-6
Summary of Standard Construction Measures

Subject Area	Design Feature or Construction Measure
	connections between structural components to prevent roof collapse. • Stairways and elevators shall be adequately strengthened, and nonstructural components such as emergency generators, computers, and cabinets shall be anchored.
Greenhouse Gases and Climate Change	• Drought-Tolerant Landscaping/Xeriscape: The landscape plan for the project includes drought-tolerant and native plant materials, and incorporates systems to increase on-site stormwater retention. In addition to using less water per unit area than traditional ornamental landscaping, the landscaping proposed for the project would also filter, decelerate, and/or retain stormwater runoff, which would help to reduce the project's contribution to the local and regional storm drain systems. • Water-Efficient Appliance and Plumbing Systems: In compliance with the current version of the California Building Code and California Water Code, plumbing fixtures would be water efficient, employing low-flow design. • Energy Efficiency: Energy-efficient building design is a key strategy for achieving a high-performing campus. MCCCD would comply with California Title 24 Energy Code. California's Building Energy Efficiency Standards are updated on an approximate 3-year cycle. The 2013 standards improve upon the 2008 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The California Title 24 Energy Code requires use of energy-efficient design principals such as orienting building alignment to minimize solar heating, and use of efficient glazing, insulation, and thermal mass.
Hydrology and Water Quality	• Drought-Tolerant Landscaping/Xeriscape: The landscape plan for the campus includes drought-tolerant and native plant materials, and incorporates systems to increase on-site retention of stormwater. In addition to using less water per unit area than traditional ornamental landscaping, the landscaping proposed under the Master Plan would also filter, decelerate, and/or retain stormwater runoff, which would help to reduce the campus's contribution to the local and regional storm drain systems. • ~~Synthetic Turf: New and renovated athletic fields will consist of synthetic turf. Synthetic turf requires neither irrigation nor application of fertilizers and pesticides, saving water and reducing potential pollutant loads in stormwater runoff.~~ • Parking Lot Designs: Permeable parking lots consisting of gravel, permeable pavement, or interlocking pavers are proposed to minimize the traditional hydrologic impacts of parking lots, which, when improperly designed, can concentrate runoff into channels with erosive velocities. Additional mitigating features include covered stalls (to minimize vehicle contact with stormwater) and bioswales between rows of parking stalls.
Noise	• Construction activities would generally occur Monday through Saturday from 7:00 a.m. to 7:00 p.m., consistent with the City's Municipal Code. • A traffic control plan would include provisions for coordinating with school hours and emergency service providers regarding construction times.
Transportation and Traffic	• The existing on-campus pedestrian circulation system would be enhanced with clearly defined pedestrian pathways, extended pedestrian connections beyond the campus core, and expanded open spaces to enhance the interconnectedness of campus components. A more pedestrian-oriented campus would provide safer, more direct links for students and visitors to travel.
Utilities and Service Systems	• Drought-Tolerant Landscaping/Xeriscape: The landscape plan for the project includes drought-tolerant and native plant materials, and incorporates systems to increase on-site retention of stormwater. In addition to using less water per unit area than traditional ornamental landscaping, the landscaping proposed for the project would also filter, decelerate, and/or retain stormwater runoff, which would help to reduce the project's contribution to the local and regional storm drain systems. • ~~Synthetic Turf: The renovated athletic/soccer field will consist of synthetic turf. Synthetic turf requires~~

Table 3-6
Summary of Standard Construction Measures

Subject Area	Design Feature or Construction Measure
	~~neither irrigation nor application of fertilizers and pesticides, saving water and reducing potential pollutant loads in stormwater runoff.~~ • Water-Efficient Appliance and Plumbing Systems: In compliance with the current version of the California Building Code and California Water Code, plumbing fixtures would be water efficient, employing low-flow design. • Energy Efficiency**:** Energy-efficient building design is a key strategy for achieving a high-performing campus. MCCCD would comply with California Title 24 Energy Code. California's Building Energy Efficiency Standards are updated on an approximate 3-year cycle. The 2013 standards improve upon the 2008 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The California Title 24 Energy Code requires use of energy-efficient design principals such as orienting building alignment to minimize solar heating, and use of efficient glazing, insulation, and thermal mass.

Section 4.4, Cultural Resources, page 4.4-19 through 4.4-19.

MM-CUL-1 In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. Depending on the significance of the find under the California Environmental Quality Act (CEQA), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. <u>Construction contractors would be required to attend a Worker Environmental Awareness Program prior to the beginning of construction.</u>

Section 0, Executive Summary, page ES-16.

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Cultural Resources				
2. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5	Potentially significant	**MM-CUL-1**	In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the	Less than significant

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Cultural Resources			
of the CEQA Guidelines?		Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. Depending on the significance of the find under the California Environmental Quality Act (CEQA), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. <u>Construction contractors would be required to attend a Worker Environmental Awareness Program prior to the beginning of construction.</u>	

Appendix H, Traffic Impact Analysis, Figures 3-1, 10-5, and 10-6.

Section 4.13, Traffic and Circulation, Figures 4.13-1, 4.13-14, and 4.13-15.

Refer to Appendix A of this Final EIR for the revised figures.

Appendix H, Traffic Impact Analysis, page iii.

Appendix

A Intersection & Segment Manual Count Sheets <u>and Signal Timing Plans</u>

B Peak Hour Intersection Analysis Worksheets – Existing

C Cumulative Projects Data

D Peak Hour Intersection Analysis Worksheets – Existing + Project

E Peak Hour Intersection Analysis Worksheets – Existing + Cumulative Projects

F Peak Hour Intersection Analysis Worksheets – Existing + Cumulative Projects + Project

G <u>Pages from the *City of Oceanside Master Transportation Plan*, 2012 and</u> Peak Hour Intersection Analysis Worksheets – Year 2030 (Without Rancho Del Oro Interchange)

H Peak Hour Intersection Analysis Worksheets – Year 2030 (Without Rancho Del Oro Interchange) + Project

I Peak Hour Intersection Analysis Worksheets – Year 2030 (With Rancho Del Oro Interchange)

J Peak Hour Intersection Analysis Worksheets – Year 2030 (With Rancho Del Oro Interchange) + Project

Appendix H, Traffic Impact Analysis, Table 6-1, page 18.

Section 4.13, Traffic and Circulation, Table 4.13-1, page 4.13-5.

Table 6-1
Existing Intersection Operations

Intersection	Control Type	Peak Hour	Delay [a]	LOS [b]
Oceanside Blvd / Rancho Del Oro Rd	Signal	AM	22.9	C
		PM	29.0	C
Glaser Dr / Rancho Del Oro Rd	Signal	AM	9.3	A
		PM	11.3	B
Vista Wy / Rancho Del Oro Rd	Signal	AM	25.8	C
		PM	32.7	C
Barnard Dr / College Blvd	Signal	AM	37.5	D
		PM	50.2	D
Vista Wy / College Blvd	Signal	AM	~~41.1~~ 39.4	D
		PM	~~46.9~~ 37.4	D
SR-78 EB Off-Ramp / College Blvd	Signal	AM	10.1	B
		PM	12.1	B
Vista Wy / SR-78 WB Ramps	Signal	AM	30.5	C
		PM	31.4	C
Plaza Dr / College Blvd	Signal	AM	25.7	C
		PM	100.5	F
Plaza Dr / SR-78 EB Ramps	Signal	AM	22.5	C
		PM	32.6	C

Footnotes:
Average delay expressed in seconds per vehicle.
Level of Service.

Appendix H, Traffic Impact Analysis, Table 9-1, pages 32 and 33.

Section 4.13, Traffic and Circulation, Table 4.13-9, page 4.13-19.

Table 9-1
Existing + Project Intersection Operations

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Δ Delay	Significant?
			Delay [a]	*LOS* [b]	*Delay*	*LOS*		
1. Oceanside Blvd / Rancho Del Oro	Signal	AM	22.9	C	23.0	C	0.1	No
		PM	29.0	C	29.2	C	0.2	No
2. Glaser Dr / Rancho Del Oro	Signal	AM	9.3	A	9.4	A	0.1	No
		PM	11.3	B	11.5	B	0.2	No
3. Vista Way / Rancho Del Oro	Signal	AM	25.8	C	26.0	C	0.2	No
		PM	32.7	C	33.1	C	0.4	No
4. Barnard Dr / College Blvd	Signal	AM	37.5	D	38.8	D	1.3	No
		PM	50.2	D	50.4	D	0.2	No
5. Vista Way / College Blvd	Signal	AM	~~41.1~~ 39.4	D	~~41.1~~ 39.4	D	0.0	No
		PM	~~46.9~~ 37.4	D	~~47.5~~ 37.9	D	~~0.6~~ 0.5	No
6. SR-78 EB Off-Ramp / College Blvd	Signal	AM	10.1	B	10.2	B	0.1	No
		PM	12.1	B	12.1	B	0.0	No
7. Vista Way / SR-78 WB Ramps	Signal	AM	30.5	C	30.7	C	0.2	No
		PM	31.4	C	31.6	C	0.2	No
8. College Blvd / Plaza Dr	Signal	AM	25.7	C	25.8	C	0.1	No
		PM	100.5	F	101.0	F	0.5	No
9. Plaza Dr / SR-78 EB Ramps	Signal	AM	22.5	C	22.5	C	0.0	No
		PM	32.6	C	32.7	C	0.1	No

Footnotes:
[a] Average delay expressed in seconds per vehicle.
[b] Level of Service.

SIGNALIZED DELAY/LOS THRESHOLDS	
Delay	*LOS*
0.0 10.0	A
10.1 to 20.0	B
20.1 to 35.0	C
35.1 to 55.0	D
55.1 to 80.0	E
≥80.1	F

Appendix H, Traffic Impact Analysis, page 35.

Section 4.13, Traffic and Circulation, page 4.13-14.

9.3 EXISTING + CUMULATIVE PROJECTS

9.3.1 Intersection Analysis

Table 9-3 summarizes the Existing + Cumulative projects peak hour intersection operations. As seen in Table 9-3, with the addition of Cumulative projects traffic, the following intersections are calculated to operate at LOS E or worse:

- Vista Way / Rancho Del Oro – LOS E during the AM peak hour and LOS F during the PM peak hour
- Bernard Drive / College Boulevard – LOS E during the PM peak hour
- Vista Way / College Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- Plaza Drive / College Boulevard – LOS F during the PM peak hour

The Existing + Cumulative projects peak hour intersection analysis worksheets are included in Appendix E.

9.4 DAILY STREET SEGMENT LEVELS OF SERVICE

Table 9-4 summarizes the Existing + Cumulative projects segment operations. As seen in Table 9-4, with the addition of Cumulative projects traffic, the following segments are calculated to operate at LOS E or worse:

- College Boulevard: Oceanside Boulevard to Barnard Drive – LOS F
- College Boulevard: Barnard Drive to SR-78 WB Ramps – LOS F

9.5 EXISTING + CUMULATIVE PROJECTS + PROJECT

9.5.1 Intersection Analysis

Table 9-3 summarizes the Existing + Cumulative projects + Project peak hour intersection operations. As seen in Table 9-3, with the addition of Project traffic, the following are calculated to operate at LOS E or worse:

- Vista Way / Rancho Del Oro – LOS E during the AM peak hour and LOS F during the PM peak hour

- Bernard Drive / College Boulevard – LOS E during the PM peak hour
- Vista Way / College Boulevard – LOS E ~~during the AM peak hour and LOS F~~ during the PM peak hour
- Plaza Drive / College Boulevard – LOS F during the PM peak hour

Based on City of Oceanside significance criteria, with the addition of Project traffic, the increase in delay at the above intersections is less than the allowable threshold of 2.0 seconds and hence no significant impacts are calculated.

The Existing + Cumulative projects + Project peak hour intersection analysis worksheets are included in Appendix F.

Appendix H, Traffic Impact Analysis, Table 9-3, pages 37 and 38.

Section 4.13, Traffic and Circulation, Table 4.13-11, page 4.13-21.

Table 9-3
Existing + Cumulative Projects + Project Intersection Operations

Intersection	Control Type	Peak Hour	Existing + Cumulative Projects		Existing + Cumulative Projects + Project		∆ Delay	Significant?
			Delay [a]	*LOS [b]*	*Delay*	*LOS*		
1. Oceanside Blvd / Rancho Del Oro	Signal	AM	36.6	D	36.6	D	0.0	No
		PM	49.4	D	49.5	D	0.1	No
2. Glaser Dr / Rancho Del Oro	Signal	AM	10.4	B	10.6	B	0.2	No
		PM	11.1	B	11.3	B	0.2	No
3. Vista Way / Rancho Del Oro	Signal	AM	58.4	E	59.1	E	0.7	No
		PM	81.3	F	81.9	F	0.6	No
4. Barnard Dr / College Blvd	Signal	AM	41.9	D	43.7	D	1.8	No
		PM	78.9	E	79.7	E	0.8	No
5. Vista Way / College Blvd	Signal	AM	~~57.0~~ 43.4	~~E~~ D	~~58.1~~ 43.5	~~E~~ D	~~1.1~~ 0.1	No
		PM	~~89.2~~ 68.9	~~F~~ E	~~90.5~~ 69.8	~~F~~ E	~~1.3~~ 0.9	No
6. SR-78 EB Off-Ramp / College Blvd	Signal	AM	11.8	B	11.9	B	0.1	No
		PM	15.3	B	15.4	B	0.1	No
7. Vista Way / SR-78 WB Ramps	Signal	AM	40.9	D	41.5	D	0.6	No
		PM	43.2	D	43.6	D	0.4	No
8. College Blvd / Plaza Dr	Signal	AM	42.0	D	42.2	D	0.2	No
		PM	133.3	F	133.8	F	0.5	No
9. Plaza Dr / SR-78 EB Ramps	Signal	AM	25.3	C	25.4	C	0.1	No
		PM	37.4	D	37.5	D	0.1	No

Footnotes:
[a] Average delay expressed in seconds per vehicle.
[b] Level of Service.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		*DELAY/LOS THRESHOLDS*	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

Appendix H, Traffic Impact Analysis, pages 40 and 41.

Section 4.13, Traffic and Circulation, pages 4.13-16 and 4.13-17.

10.0 ANALYSIS OF LONG-TERM SCENARIOS

Two network alternatives were analyzed in the Long-Term. The first alternative assumes that the Rancho Del Oro Road/SR78 Interchange is not included and Alternative 2 assumes the Rancho Del Oro Road/SR78 interchange is included.

10.1 YEAR 2030 TRAFFIC VOLUMES

Long-Term Year 2030 volumes for both alternatives were obtained from the *City of Oceanside Master Transportation Plan,* April 2012. The Project traffic was added to the 2030 Without Rancho Del Oro interchange volumes to obtain the Year 2030 + Project Without Rancho Del Oro interchange volumes.

<u>Intersection geometry provided in the April 2012 report was used in the analysis. The intersection geometry for the base condition without and with the Rancho del Oro interchange is also included in Appendix G. The following figures from the *Oceanside Circulation Element Update*, *Traffic Impact Analysis Report*, April 2012 are included in Appendix G:</u>

- <u>Figure 9-2: Year 2030 without Rancho Del Oro Interchange Segment Traffic Volumes</u>
- <u>Figure 9-4: Year 2030 without Rancho Del Oro Interchange Intersection Geometry</u>
- <u>Figure 9-5: Year 2030 without Rancho Del Oro Interchange, Peak Hour Intersection Traffic Volumes</u>
- <u>Figure 7-2: Year 2030 with Rancho Del Oro Interchange Segment Traffic Volumes</u>
- <u>Figure 7-4: Year 2030 with Rancho Del Oro Interchange Intersection Geometry</u>
- <u>Figure 7-5: Year 2030 with Rancho Del Oro Interchange, Peak Hour Intersection Traffic Volumes</u>

Figure 10-1 depicts the Year 2030 Without Rancho Del Oro Interchange Traffic volumes, while Figure 10-2 depicts the Year 2030 Without Rancho Del Oro Interchange and with Project Traffic volumes.

Project traffic distribution With Rancho Del Oro interchange was developed with appropriate reassignment of Project traffic to account for the new Rancho Del Oro interchange at SR 78. Traffic oriented to and from the west was assumed to utilize this new interchange. The Project traffic was distributed and assigned using the distribution percentages on Figure 10-3. The Project traffic With

Rancho Del Oro interchange was added to the 2030 With Rancho Del Oro interchange volumes to obtain the Year 2030 + Project With Rancho Del Oro interchange volumes.

Figure 10-3 depicts the Project traffic distribution with Rancho Del Oro Interchange. Figure 10-4 depicts the Project traffic assignment with Rancho Del Oro Interchange. Figure 10-5 depicts the Year 2030 With Rancho Del Oro Interchange Traffic volumes, while Figure 10-6 depicts the Year 2030 With Rancho Del Oro Interchange and with Project Traffic volumes.

10.2 YEAR 2030 WITHOUT RANCHO DEL ORO INTERCHANGE

10.2.1 Intersection Analysis

Table 10-1 summarizes the Year 2030 Without Rancho del Oro interchange peak hour intersection operations. As seen in Table 10-1, Without Rancho del Oro interchange, the following intersections are calculated to operate at LOS E or worse:

- Bernard Drive / College Boulevard – LOS E during the PM peak hour
- ~~Vista Way / College Boulevard intersection – LOS F during the AM and PM peak hours~~
- Plaza Drive / College Boulevard intersection – LOS E during the PM peak hour
- Plaza Drive / SR 78 EB Ramps – LOS E during the PM peak hour

The Year 2030 Without Rancho del Oro interchange peak hour intersection analysis worksheets are included in Appendix G.

10.2.2 Daily Street Segment Levels of Service

Table 10-2 summarizes the Year 2030 Without Rancho del Oro interchange segment operations. As seen in Table 10-2, the following segment is calculated to operate at LOS F:

- College Boulevard: Barnard Drive to SR-78 WB Ramps – LOS F

10.3 YEAR 2030 + PROJECT WITHOUT RANCHO DEL ORO INTERCHANGE

10.3.1 Intersection Analysis

Table 10-1 summarizes the Year 2030 + Project Without Rancho del Oro interchange peak hour intersection operations. As seen in Table 10-1, Without Rancho del Oro interchange, and with the addition of Project traffic, the following intersections are calculated to operate at LOS E or worse:

- Bernard Drive / College Boulevard – LOS E during the PM peak hour

- ~~Vista Way / College Boulevard intersection – LOS F during the AM and PM peak hours~~
- Plaza Drive / College Boulevard intersection – LOS E during the PM peak hour
- Plaza Drive / SR 78 EB Ramps – LOS E during the PM peak hour

Based on City of Oceanside significance criteria, with the addition of Project traffic, the increase in delay at the above intersections is less than the allowable threshold of 2.0 seconds and hence no significant impacts are calculated.

The Year 2030 + Project Without Rancho del Oro interchange peak hour intersection analysis worksheets are included in Appendix H.

Appendix H, Traffic Impact Analysis, Table 10-1, pages 43 and 44.

Section 4.13, Traffic and Circulation, Table 4.13-13, page 4.13-23.

Table 10-1
Year 2030 Intersection Operations (Without Rancho Del Oro Interchange)

Intersection	Control Type	Peak Hour	Year 2030		Year 2030 + Project		Δ Delay [c]	Significant?
			Delay [a]	*LOS [b]*	*Delay*	*LOS*		
1. Oceanside Blvd / Rancho Del Oro	Signal	AM	26.7	C	26.8	C	0.1	No
		PM	34.9	C	35.0	C	0.1	No
2. Glaser Dr / Rancho Del Oro	Signal	AM	11.2	B	11.4	B	0.2	No
		PM	14.0	B	14.2	B	0.2	No
3. Vista Way / Rancho Del Oro	Signal	AM	~~13.8~~ 26.8	~~B~~ C	~~13.9~~ 27.0	~~B~~ C	~~0.1~~ 0.2	No
		PM	~~18.0~~ 50.8	~~B~~ D	~~18.1~~ 51.5	~~B~~ D	~~0.1~~ 0.7	No
4. Barnard Dr / College Blvd	Signal	AM	50.2	D	52.1	D	1.9	No
		PM	66.7	E	67.4	E	0.7	No
5. Vista Way / College Blvd	Signal	AM	~~88.0~~ 45.9	~~F~~ D	~~89.4~~ 46.0	~~F~~ D	~~0.4~~ 0.1	No
		PM	~~81.7~~ 48.1	~~F~~ D	~~83.1~~ 48.9	~~F~~ D	~~1.4~~ 0.8	No
6. SR-78 EB Off-Ramp / College Blvd	Signal	AM	45.9	D	~~45.9~~ 46.1	D	~~0.0~~ 0.2	No
		PM	50.0	D	50.1	D	0.1	No
7. Vista Way / SR-78 WB Ramps	Signal	AM	31.5	C	31.7	C	0.2	No
		PM	42.3	D	42.8	D	0.5	No
8. College Blvd / Plaza Dr	Signal	AM	32.1	C	32.1	C	0.0	No
		PM	62.2	E	62.5	E	0.3	No
9. Plaza Dr / SR-78 EB Ramps	Signal	AM	48.5	D	48.7	D	0.2	No
		PM	55.9	E	56.3	E	0.4	No

Footnotes:
a Average delay expressed in seconds per vehicle.
b Level of Service.
c Increase in Delay due to project traffic.

SIGNALIZED DELAY/LOS THRESHOLDS	
Delay	*LOS*
1.0 10.0	A
10.1 to 20.0	B
20.1 to 35.0	C
35.1 to 55.0	D
55.1 to 80.0	E
≥80.1	F

Appendix H, Traffic Impact Analysis, pages 46 and 47.

Section 4.13, Traffic and Circulation, pages 4.13-17 and 4.13-18.

10.4 YEAR 2030 WITH RANCHO DEL ORO INTERCHANGE

10.4.1 Intersection Analysis

Table 10-3 summarizes the Year 2030 With Rancho del Oro interchange peak hour intersection operations. As seen in Table 10-3, With Rancho del Oro interchange, the following intersections are calculated to operate at LOS E or worse:

- Vista Way / Rancho Del Oro intersection – LOS F during the PM peak hour
- Bernard Drive / College Boulevard – LOS E during the PM peak hour

The Year 2030 With Rancho del Oro interchange peak hour intersection analysis worksheets are included in Appendix I.

10.4.2 Daily Street Segment Levels of Service

Table 10-4 summarizes the Year 2030 With Rancho del Oro interchange segment operations. As seen in Table 10-4, the following segments are calculated to operate at LOS E or worse.

- College Boulevard: Oceanside Boulevard to Barnard Drive – LOS E
- College Boulevard: Barnard Drive to SR-78 WB Ramps – LOS E

10.5 YEAR 2030 + PROJECT WITH RANCHO DEL ORO INTERCHANGE

10.5.1 Intersection Analysis

Table 10-3 summarizes the Year 2030 + Project With Rancho del Oro interchange peak hour intersection operations. As seen in Table 10-3, all intersections are calculated to operate at LOS D or better, except the following:

- Vista Way / Rancho Del Oro intersection – LOS F during the PM peak hour
- Bernard Drive / College Boulevard – LOS E during the PM peak hour

Based on City of Oceanside significance criteria, with the addition of Project traffic, the increase in delay at the above intersections is less than the allowable threshold of 2.0 seconds and hence no significant impacts are calculated.

The Year 2030 With Rancho del Oro interchange peak hour intersection analysis worksheets are included in Appendix J.

10.5.2 Daily Street Segment Levels of Service

Table 10-4 summarizes the Year 2030 + Project, With Rancho del Oro interchange segment operations. As seen in Table 10-4, the following segments are calculated to operate at LOS E or worse.

- College Boulevard: Oceanside Boulevard to Barnard Drive – LOS E
- College Boulevard: Barnard Drive to SR-78 WB Ramps – LOS E

Based on City of Oceanside significance criteria, with the addition of Project traffic, the increase in v/c ratio along the above segments is less than the allowable threshold of 0.02 and hence no significant impacts are calculated.

Appendix H, Traffic Impact Analysis, Table 10-3, pages 49 and 50.

Section 4.13, Traffic and Circulation, Table 4.13-15, page 4.13-25.

Table 10-3
Year 2030 Intersection Operations (With Rancho Del Oro Interchange)

Intersection	Control Type	Peak Hour	Year 2030		Year 2030 + Project		Δ Delay [c]	Significant?
			Delay [a]	*LOS* [b]	*Delay*	*LOS*		
1. Oceanside Blvd / Rancho Del Oro	Signal	AM	28.9	C	29.0	C	0.1	No
		PM	39.9	D	40.0	D	0.1	No
2. Glaser Dr / Rancho Del Oro	Signal	AM	10.0	A	10.2	B	0.2	No
		PM	12.7	B	12.9	B	0.2	No
3. Vista Way / Rancho Del Oro	Signal	AM	51.7	D	51.8	D	0.1	No
		PM	243.2	F	243.9	F	0.7	No
4. Barnard Dr / College Blvd	Signal	AM	50.2	D	51.6	D	1.4	No
		PM	59.9	E	60.1	E	0.2	No
5. Vista Way / College Blvd	Signal	AM	~~35.8~~ 24.5	~~D~~ C	~~36.1~~ 24.6	~~D~~ C	~~0.3~~ 0.1	No
		PM	~~44.4~~ 29.0	~~D~~ C	~~45.1~~ 29.4	~~D~~ C	~~0.7~~ 0.4	No
6. SR-78 EB Off-Ramp / College Blvd	Signal	AM	12.6	B	12.6	B	0	No
		PM	22.4	C	22.5	C	0.1	No
7. Vista Way / SR-78 WB Ramps	Signal	AM	26.6	C	26.8	C	0.2	No
		PM	29.4	C	29.6	C	0.2	No
8. College Blvd / Plaza Dr	Signal	AM	27.8	C	27.8	C	0.0	No
		PM	42.4	D	42.5	D	0.1	No
9. Plaza Dr / SR-78 EB Ramps	Signal	AM	24.4	C	24.4	C	0.0	No
		PM	45.7	D	46.3	D	0.6	No

Footnotes:

[a] Average delay expressed in seconds per vehicle.

[b] Level of Service.

SIGNALIZED DELAY/LOS THRESHOLDS	
Delay	*LOS*
2.0 10.0	A
10.1 to 20.0	B
20.1 to 35.0	C
35.1 to 55.0	D
55.1 to 80.0	E
≥80.1	F

Appendix H, Traffic Impact Analysis, Table 10-4, page 51.

Section 4.13, Traffic and Circulation, Table 4.13-16, page 4.13-26.

Table 10-4

Year 2030 Street Segment Operations (With Rancho Del Oro Interchange)

Street Segment	Functional Classification[a]	Capacity (LOS E)[b]	Year 2030			Year 2030 + Project			Δ[f] Delay	Significant?
			ADT[c]	*LOS*[d]	*V/C*[e]	*ADT*	*LOS*	*V/C*		
Rancho Del Oro Road										
Oceanside Blvd to Glaser Dr	4-Ln Maj Art	40,000	~~32,700~~ 32,400	D	~~0.818~~ 0.810	~~32,790~~ 32,490	D	~~0.820~~ 0.812	0.002	No
Glaser Dr to Vista Wy	4-Ln Maj Art	40,000	~~31,100~~ 30,800	D	~~0.778~~ 0.770	~~31,210~~ 30,910	D	~~0.780~~ 0.773	0.003	No
College Boulevard										
Oceanside Blvd to Barnard Dr	4-Ln Maj Art	40,000	~~32,600~~ 35,400	~~D~~ E	~~0.815~~ 0.885	~~32,620~~ 35,420	~~D~~ E	~~0.816~~ 0.886	0.001	No
Barnard Dr to SR-78 WB Ramps	6-Ln Maj Art	50,000	~~43,900~~ 45,800	~~D~~ E	~~0.878~~ 0.916	~~44,050~~ 45,950	~~D~~ E	~~0.881~~ 0.919	0.003	No
Oceanside Boulevard										
El Camino Real to Rancho Del Oro Rd	Prime Art	60,000	37,100	C	0.618	37,140	C	0.619	0.001	No
Glaser Drive										
Rancho Del Oro Rd to Barnard Dr	4-Ln Collector	25,000	9,500	B	0.380	9,700	B	0.388	0.008	No
Barnard Drive										
College Blvd to Carr Dr	3-Ln Collector[g]	22,500	10,800	C	0.480	10,970	C	0.488	0.008	No

Footnotes:

a The City of Oceanside roadway classification at which the roadway currently functions.
b Capacities based on City of Oceanside Roadway Classification Table.
c Average Daily Traffic Volumes.
d Level of Service.
e Volume to Capacity.
f Increase in V/C due to project traffic
g 75% Capacity of a Secondary Collector since this roadway segment has three lanes.

Appendix H, Traffic Impact Analysis, Appendices A through J.

Refer to Appendix B of this Final EIR for the revised appendices.

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CHAPTER 3
FINDINGS OF FACT IN SUPPORT OF THE PROPOSED PROJECT

3.1 FINDINGS ON SIGNIFICANT IMPACTS OF THE PROPOSED PROJECT

The California Environmental Quality Act (CEQA) requires the lead agency, the MiraCosta Community College District (MCCCD), to make written findings when deciding to approve a project for which an environmental impact report (EIR) was certified (California Public Resources Code, Section 21081). Specifically, Section 15091 of the CEQA Guidelines (14 CCR 15091) states that:

> (a) No public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. The possible findings are:
>
> (1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.
>
> (2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
>
> (3) Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.
>
> (b) The findings required by subsection (a) shall be supported by substantial evidence in the record.

Section 15092 of the CEQA Guidelines (14 CCR 15092) further stipulates that:

> (b) A public agency shall not decide to approve or carry out a project for which an EIR was prepared unless either:
>
> (1) The project as approved will not have a significant effect on the environment, or
>
> (2) The agency has:
>
> (A) Eliminated or substantially lessened all significant effects on the environment where feasible as shown in findings under Section 15091, and

(B) Determined that any remaining significant effects on the environment found to be unavoidable under Section 15091 are acceptable due to overriding concerns as described in Section 15093.

A Draft EIR for the Oceanside Campus Facilities Master Plan (project or proposed project) was prepared. The Draft EIR identifies certain significant impacts that may occur as a result of the implementation of the proposed project, either alone or on a cumulative basis in conjunction with other past, present, and reasonably foreseeable projects. MCCCD is the proposed project's lead agency pursuant to the CEQA Guidelines Section 15367. As the lead agency, MCCCD is required by CEQA to make findings with respect to each significant effect of the proposed project. The following sections make detailed findings of the proposed project's potential effects and refer, where appropriate, to the mitigation measures set forth in the Draft EIR.

The Final EIR provides additional facts in support of the findings herein. Changes to the Draft EIR are shown in ~~strikethrough~~/underline in Chapter 2, Changes to the Draft EIR, of this Final EIR. Furthermore, the mitigation measures from the Draft EIR and the Mitigation Monitoring and Reporting Program (which was developed in compliance with California Public Resources Code Section 21081.6) are incorporated by reference in these findings and provided in full in Chapter 4, Mitigation Monitoring and Reporting Program, of this Final EIR.

3.1.1 Impacts Related to Aesthetics

3.1.1.1 Potentially Significant Impacts Related to Aesthetics

Proposed project components would not be visible from an officially designated or eligible state scenic highway. No impact to a state scenic highway would occur.

Potential impacts to scenic vistas/views resulting from implementation of the Oceanside Campus Facilities Master Plan and proposed demolition and removal, renovation, new facility construction, modernization and other project components would be less than significant.

Implementation of the mitigation would reduce potential impacts to existing visual character and quality of the site and surrounding area, and existing nighttime views to less-than-significant levels. Implementation of Mitigation Measure (MM)-AES-1 would increase proposed setbacks and landscaping between proposed new Parking Lot 9 and nearby residential land uses on Johnson Drive in efforts to better screen the parking lot from view and enhance the quality of proposed views from private residences.

Implementation of MM-AES-1, MM-AES-2, and MM-AES-3 would entail increased setbacks to move proposed lighting sources further away from residential property lines, installation of motion control sensors to ensure new lighting at Parking Lot 9 does not result in unnecessary nighttime lighting conditions, and preparation of a photometric study (and potentially, additional measures screen or cutoff lighting received at adjacent properties) to ensure that proposed lighting levels are less than 0.2 foot-candles as measured 5 feet onto residential properties. This would ensure less-than-significant impacts related to lighting.

3.1.1.2 Mitigation

MM-AES-1 Parking Lot 9 shall setback between the parking lot boundary and off-campus residential land uses on Johnson Drive to a minimum of 60 feet. Within the increased setback, a landscape screen shall be installed to enhance screening of Parking Lot 9 components (primarily vehicles and parking canopies) from view of residences on Johnson Drive. Landscape screens shall break-up the mass and scale of parking canopies and screen nighttime vehicular lights.

MCCCD shall also be responsible for continued maintenance of the landscape screens, including installation and maintenance of an irrigation system and implementation of, and consistency with, plant installation and maintenance standards including installation of plants in spring months, weed control, and pruning, thinning. Periodic monitoring and reporting to observe and assess the maintenance regime and implementation of appropriate measures to promote plant survival, growth, overall health, and vigor shall also be required. If necessary, adaptive measures shall be implemented in the subsequent spring season to address project deficiencies as they relate to the desired landscape screening effect.

The landscape screens shall be designed by a licensed landscape architect or landscape designer and shall include trees and plants compatible with the climate zone of the Oceanside Campus. Selected trees shall include drought-tolerant species that would display an estimated height of between 5 to 8 feet at planting and approximately 10 to 15 feet at 5 years post-installation. Larger nursery container sizes are recommended in recognition of the need to establish a beneficial visual screen at the time of installation.

MM-AES-2 To minimize potential for unnecessary nighttime lighting associated new Parking Lot 9, motion control sensor lighting shall be installed. Motion control sensors would ensure that parking lot lights operate at sufficient levels when occupants are detected and are dimmed or off when unused areas of the parking lot are vacant during evening and late evening hours. The network control system for parking lot lighting shall allow the authorized administrator to adjust lighting schedules and levels for heavy and lightly used areas of the parking lot during nighttime hours to ensure students and faculty are provided adequate lighting and minimize unnecessary lighting of off-site properties. Light fixtures shall be installed in conformance with the County Light Pollution Code, the Building Code, the Electrical Code, and any other related state and federal regulations such as California Title 24.

MM-AES-3 Once a lighting plan has been developed for new Parking Lot 9, a photometric study shall be prepared to demonstrate that existing nighttime views in the surrounding area would not be adversely affected and that light trespass at adjacent residential properties would less than 0.2 foot-candles as measured five-feet onto the adjacent property. A qualified lighting vendor or a qualified lighting, mechanical, or electrical engineer shall prepare the photometric study. The photometric study shall include an equipment list/lighting schedule for the new parking lot and provide an illumination summary depicting the maintained horizontal foot-candles at 5 feet onto adjacent residential property lines. If the photometric study reveals light trespass in excess of 0.2-foot-candles at five feet onto adjacent residential properties, additional measures to reduce light trespass will be included so that light trespass will not exceed the 0.2-foot-candle limit. If necessary, additional measures may include enhanced landscaping screening (see MM-AES-1) to increase density and scale of landscape materials and/or installation of an opaque fence or wall along the parking lot perimeter to improve light cutoff.

3.1.1.3 Findings per CEQA Guidelines

Consistent with the CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts previously described. The feasible measures are listed in the previous section and consist of MM-AES-1, MM-AES-2, and MM-AES-3.

MCCCD finds that the previously outlined mitigation measures are feasible, are adopted, and will reduce the potential aesthetic impacts of the proposed project to less-than-significant levels. Accordingly, MCCCD finds that, pursuant to California Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in or incorporated into the proposed project that will mitigate or avoid any potentially significant impacts that were identified in the Draft EIR.

3.1.1.4 Facts in Support of the Findings Related to Aesthetics

Implementation of MM-AES-1 through MM-AES-3 would reduce potentially significant project impacts related to aesthetics to a less-than-significant level. There would be no significant, unavoidable impacts to aesthetics after implementation of these mitigation measures.

3.1.2 Impacts Related to Agriculture and Forestry Resources

Implementation of the proposed project would not have an adverse effect on agriculture and forestry resources. Therefore, no mitigation would be required, and no significant, unavoidable adverse impacts would occur.

3.1.3 Impacts Related to Air Quality

As described in Section 4.2, Air Quality, of the Draft EIR, the project site is entirely within the existing Oceanside Campus, which has a land use designation of Civic Institutional (CI) and zoned as Public and Semipublic (PS). The project would not require a new land use designation or re-zoning of the campus and therefore would be consistent with the City's land use plans, which the State Implementation Plan and Regional Air Quality Strategy (RAQS) rely on for projecting population, employment, and housing growth in the region. Additionally, the project would be consistent with the San Diego Association of Government's goals to focus growth in already urbanized areas with established transportation infrastructure. Because the proposed project is anticipated in local air quality plans, the project would be consistent at a regional level with the underlying growth forecasts in the RAQS. Impacts associated with the obstruction of an applicable air quality plan would be less than significant.

The project would not exceed the County of San Diego Air Pollution Control District's daily or annual emissions thresholds for volatile organic compounds, nitrogen oxides (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), particulate matter less than or equivalent to 10 microns in diameter (PM_{10}), or particulate matter less than or equivalent to 10 microns in diameter ($PM_{2.5}$) during project construction. Additionally, the maximum daily and annual operational emissions would not exceed the County of San Diego Air Pollution Control District's thresholds for volatile organic compounds, CO, NO_x, SO_x, PM_{10}, or $PM_{2.5}$ during the operation of the project. Because the project does not exceed the daily or annual County of San Diego Air Pollution Control District's thresholds of significance for construction or operation, the project would have a less-than-significant impact associated with the violation of an air quality standard or a substantial contribution to an existing or projected air quality violation.

The San Diego Air Basin has been designated as a federal nonattainment area for ozone (O_3) and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ emissions associated with construction generally result in near-field impacts. The nonattainment status is the result of cumulative emissions from all sources of these air pollutants and their precursors within the San Diego Air Basin. As previously discussed, the emissions of all criteria pollutants would be below the significance levels. As discussed under the evaluation if the project would conflict with or obstruct implementation of the applicable air quality plans, regarding long-term cumulative operational emissions in relation to consistency with local air quality plans, the State Implementation Plan and RAQS serve as the primary air quality planning documents for the state and San Diego Air Basin, respectively. Projects that propose development that is consistent with the growth anticipated by local plans would be consistent with the State Implementation Plan and RAQS and would not be considered to result in cumulatively considerable impacts from operational emissions. The proposed project is consistent with the existing land use designations and zoning in the City's General Plan; thus, it would be consistent at a regional level with the underlying growth forecasts in the State Implementation Plan and RAQS. As a result, the proposed project would not result in a cumulatively considerable contribution to regional O_3 concentrations or other criteria pollutant emissions. Cumulative impacts would be less than significant.

The project would not result in exposure of sensitive receptors to localized high concentrations of CO. As such, impacts would be less than significant to sensitive receptors with regard to potential CO hotspots resulting from project contribution to cumulative traffic-related air quality impacts, and no mitigation is required. Implementation of the proposed project would not generate any major operational sources of toxic air contaminant or diesel particulate matter. As such, the proposed project would not result in substantial toxic air contaminant emissions that may affect nearby receptors. The volatile organic compound and NO_x emissions would minimally contribute to regional O_3 concentrations and the associated health effects. In addition to O_3, NO_x emissions would not contribute to potential exceedances of the National Ambient Air Quality Standards and California Ambient Air Quality Standards for nitrogen dioxide (NO_2). As discussed under the potential for the project violate any air quality standard or contribute substantially to an existing or projected air quality violation, the existing NO_2 concentrations in the area are well below the National Ambient Air Quality Standards and California Ambient Air Quality Standards. Thus, it is not expected that the project's operational NO_x emissions would result in exceedances of the NO_2 standards or contribute to the associated health effects. CO tends to be a localized impact associated with congested intersections. The associated CO hotspots were discussed previously as a less-than-significant impact. Thus, the project's CO emissions would not contribute to significant health effects associated with this pollutant. PM_{10} and $PM_{2.5}$ would not contribute to potential exceedances of the National Ambient Air Quality Standards and California Ambient Air Quality Standards for particulate matter and would not obstruct the San Diego Air Basin from coming into attainment for these pollutants and would not contribute to significant health effects associated with particulates. Therefore, health impacts associated with criteria air pollutants would be considered less than significant.

Examples of land uses and industrial operations that are commonly associated with odor complaints include agricultural uses, wastewater treatment plants, food processing facilities, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The project would not include any land use types that generate odors as previously described; therefore, impacts related to odor caused by the project would be less than significant.

Because impacts related to agriculture and forestry resources would be less than significant, no mitigation would be required, and no significant, unavoidable adverse impacts would occur.

3.1.4 Impacts Related to Biological Resources

3.1.4.1 Potentially Significant Impacts Related to Biological Resources

No suitable habitat for coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), or yellow-breasted chat (*Icteria virens*) is present within the project site, and therefore, no direct impacts to these species resulting from habitat disturbance are anticipated. However, indirect impacts to these species resulting from project activities are possible if construction occurs near suitable habitat during the breeding season. Suitable habitat for western bluebird (*Sialia Mexicana*), Cooper's hawk (*Accipiter cooperii*), and Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) is located within the proposed project site, and direct impacts to these special-status bird species are possible if vegetation removal or other vegetation- or ground-disturbing activities associated with construction occur during the breeding season (typically March 1 through September 15, starting January 1 for raptors). Additionally, other nesting birds protected under the Migratory Bird Treaty Act (MBTA) could be directly impacted. Vegetation removal or other disturbances in or adjacent to active nesting habitat during the breeding season could cause direct injury or mortality, or the loss of nests, eggs, and fledglings of species protected under the MBTA. As such, direct construction impacts to special-status wildlife species and more specifically, to nesting birds protected under the MBTA, would be potentially significant (Impact BIO-1); therefore, MM-BIO-1, MM-BIO-2, MM-BIO-3, and MM-BIO-4 are required.

Direct impacts to Diegan coastal sage scrub, a Group C habitat type, are not anticipated to occur. Impacts to 1.54 acres of non-native grassland, a Group E habitat type, would occur as a result of implementation of the proposed project. MCCCD is not signatory to the Oceanside Subarea Plan, and therefore, impacts to non-native grassland would not require mitigation. Impacts to vegetation communities and land covers as a result of the proposed project would be less than significant. No impacts to special-status vegetation communities are anticipated to occur due to operation of the project.

No jurisdictional wetlands or non-wetland waters of the United States were identified during the surveys conducted for proposed project, including a formal jurisdictional delineation (Appendix C of the Draft EIR). As such, no impacts to wetlands would occur. Stormwater run-off from the proposed project has the potential to enter the storm drain system and could convey construction-generated run-off into regional waterways. However, it is anticipated that each phase of the proposed project will comply with the State Water Resources Control Board National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, NPDES No.

CAS000002 to authorize stormwater discharges related to construction. In the long term, any improvements to drainage features associated with the project are anticipated to conform to the local stormwater management program. Therefore, no impacts to federally protected wetlands/waters are anticipated to occur as a result of project operations.

Implementation of the proposed project is not expected to preclude or alter the movement of any native resident or migratory fish or wildlife species due to the location of the proposed project within the urban/developed part of the Oceanside Subarea Plan area and outside of any of the City's pre-approved mitigation areas, softline preserve areas, hardline preserve areas, and wildlife corridor planning zone (Figure 4-1 in City of Oceanside 2010). Additionally, long-term operation of the project is not anticipated to appreciably increase the human use of the site or significantly alter the vegetation communities and land covers from what is currently present. As such, wildlife use of the site and surrounding area is not anticipated to change due to project operation. Therefore, impacts would be less than significant.

Long-term operation of the project is not anticipated to result in conflicts with local policies or ordinances. Therefore, no impacts related to conflicts with local policies or ordinances are anticipated to occur as a result of project operations.

Suitable habitat for special-status wildlife species is present within and in the vicinity of the Oceanside Campus and a 100-foot buffer (Biological Study Area (BSA)), and species previously identified are either known to occur or have potential to occur in these areas. The proposed project is situated largely within a currently built setting, and operation of the project is not anticipated to appreciably increase human activity; however, there is potential for impacts to occur related to excess lighting from new buildings and sports fields, which could potentially alter the suitability of the habitat present within and in the vicinity of the BSA, as well as modify species behavior in these habitats. These impacts would be potentially significant (Impact BIO-2); therefore, MM-BIO-5 is required.

The MCCCD is not signatory to the Oceanside Subarea Plan; however, the project area is located within the urban/developed part of the Oceanside Subarea Plan area and includes, but is not limited to, the following designated land uses: education, single-family residential, and multifamily residential. According to the Oceanside Subarea Plan, the proposed project site is not located within any of the City's pre-approved mitigation areas, softline preserve areas, or hardline preserve areas (Figure 4-1 in City of Oceanside 2010). Impacts to special-status wildlife previously detailed would be potentially significant; however, MM-BIO-1 through MM-BIO-4 would fulfill the requirements of the Multiple Habitat Conservation Program (MHCP) (SANDAG 2003) and City Subarea Plan (City of Oceanside 2010) and would fully comply with these regional planning documents. As such, the proposed project would not conflict with the Oceanside Subarea Plan, and no impacts would occur.

The proposed project, when combined with existing and probable future projects within the City could contribute to cumulative impacts on biological resources. The proposed project has potentially significant impacts to special-status wildlife as well as birds protected under the MBTA. Absent mitigation, these impacts would make a cumulatively considerable contribution to a significant cumulative effect on these species. MCCCD will reduce impacts associated with the proposed project to less than significant through implementation of mitigation measures. Direct impacts to special-status wildife would be mitigated through MM-BIO-1 (nesting bird survey), MM-BIO-2 (coastal California gnatcatcher survey), MM-BIO-3 (least Bell's vireo survey), MM-BIO-4 (construction monitoring and reporting), and MM-BIO-5 (lighting plan). These measures will reduce cumulative impacts to less than significant.

3.1.4.2 Mitigation

MM-BIO-1 If construction activity occurs during the breeding season (typically February 1 through September 15), a biological survey for nesting bird species shall be conducted within the proposed impact area and a 300-foot buffer shall be delineated within 72 hours prior to construction. Any suitable raptor nesting areas will be surveyed within 500 feet of the construction limits. The number of surveys required for covering this area will be commensurate with the schedule for construction and the acreage that will be covered. Multiple surveys for nesting birds, if needed, will be separated by at least 48 hours in order to be confident that nesting is detected but the survey will be no more than 72 hours prior to the onset of construction. The survey is necessary to assure avoidance of impacts to nesting raptors (e.g., Cooper's hawk and red-tailed hawk) and/or birds protected by the federal Migratory Bird Treaty Act. If any active nests are detected, the area shall be flagged and mapped on the construction plans along with a buffer for native passerine species and raptors, as determined by the project biologist, and will be avoided until the nesting cycle is complete. Nest buffers will be determined based on the criteria outlined in an Avian Monitoring Plan, which will be submitted to, and receive approval from, the Wildlife Agencies when the Final EIR is certified. The Avian Monitoring Plan will outline criteria for the buffer determinations, including species type, tolerance for human activities, topography, vegetation, screening, adjoining habitat, type of work proposed, and duration of proposed work. In accordance with this mitigation measure, nest buffers shall be implemented to ensure compliance with the MBTA and Fish and Game Code Sections 3503, 3503.5, and 3513. The results of the nesting bird surveys and buffers, including any determinations to reduce buffers, shall be included in the monitoring report.

MM-BIO-2 Due to the presence of coastal California gnatcatcher in the vicinity of the BSA and the presence of suitable habitat within and adjacent to the proposed project site, focused protocol-level surveys for coastal California gnatcatcher shall be conducted if project activities are planned to take place during the breeding season (February 1 through September 15) and in the vicinity of suitable habitat for this species. The surveys shall be conducted in accordance with the 1997 U.S. Fish and Wildlife Service (USFWS) guidelines for non-enrolled NCCP [natural community conservation plan] areas, which states that a minimum 6 survey visits shall be conducted between March 15 through June 30, and at least one week apart between survey visits. The survey area for the coastal California gnatcatcher shall encompass all gnatcatcher-suitable habitat within the impact area, as well as within a 300-foot buffer. The surveys will be conducted at rates pursuant to the USFWS survey protocol (i.e., less than 80 acres surveyed per biologist per day) and will focus efforts within all suitable habitat (i.e., coastal sage scrub (CSS) habitat and CSS sub-associations). Should coastal California gnatcatcher be identified during the focused surveys, a 300-foot impact avoidance buffer will be established until the nest is vacant and the young have fledged.

MM-BIO-3 Although direct impacts to suitable habitat for least Bell's vireo are not proposed, focused protocol-level surveys for least Bell's vireo following the currently accepted USFWS protocol (USFWS 2001) shall be conducted if project activities are planned to take place during the breeding season (February 1 through September 15) and in the vicinity of suitable habitat for this species. The survey area for the least Bell's vireo shall encompass all habitats within the impact area, as well as within a 300-foot buffer. Should least Bell's vireo be identified as nesting in the vicinity of the proposed project site, noise attenuation measures may be necessary to avoid indirect impacts to this species.

Although MCCCD is not signatory to the Oceanside Subarea Plan, Appendix A of the Oceanside Subarea Plan contains the following condition of coverage for the least Bell's vireo related to construction noise. Construction noise levels at the riparian canopy edge shall be kept below 60 dBA L_{eq} (Measured as Equivalent Sound Level) from 5 a.m. to 11 a.m. during the peak nesting period of March 15 to July 15. For the balance of the day/season, the noise levels shall not exceed 60 decibels, averaged over a 1-hour period on an A-weighted decibel (dBA) (i.e., 1 hour L_{eq}/dBA). Noise levels shall be monitored and monitoring reports shall be provided to the jurisdictional city, the USFWS, and the CDFW [California Department of Fish and Wildlife]. Noise levels in excess of this threshold shall require written concurrence from the USFWS and CDFW and may require additional minimization/mitigation measures.

MM-BIO-4 To prevent inadvertent disturbance to areas outside the limits of grading, orange environmental fencing shall be installed to delineate the limits of grading, and all grading shall be monitored by a qualified biologist. A biologist shall be contracted to perform biological monitoring during clearing and grubbing.

The project biologist also shall perform the following duties:

1. Attend the preconstruction meeting/training with the contractor and other key construction personnel prior to clearing and grubbing to reduce conflict between the timing and location of construction activities with other mitigation requirements (e.g., seasonal surveys for nesting birds). At a minimum, the training shall include the general provisions of the MHCP and the need to adhere to the provisions of the MHCP.
2. Conduct meetings with the contractor and other key construction personnel describing the importance of restricting work to designated areas prior to clearing and grubbing.
3. Discuss procedures for minimizing harm to or harassment of wildlife encountered during construction with the contractor and other key construction personnel prior to clearing and grubbing.
4. Review and/or designate the construction area in the field with the contractor in accordance with the final grading plan prior to clearing, grubbing, or grading.
5. Conduct a field review of the staking to be set by the surveyor, and the subsequent installation of orange environmental fencing designating the limits of all construction activity prior to clearing, grubbing, or grading.
6. Be present during initial vegetation clearing and grubbing.
7. Flush special-status species (i.e., avian or other mobile species) from occupied habitat areas immediately prior to ground-disturbing activities. The project site shall be kept as clean of debris as possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from the site. Pets of project personnel shall not be allowed on site.
8. The biologist shall prepare construction monitoring reports and a post-construction report to document compliance. If dead or injured listed species are located, initial notification must be made in writing within 3 working days to the applicable jurisdiction. Any native, special-status habitat, including wetlands and non-wetland waters, destroyed that is not in the identified project footprint shall be disclosed immediately to the City of Oceanside and shall be compensated at a minimum ratio of 5:1.

MM-BIO-5 The lighting shall be designed to minimize light pollution within native habitat areas, while enhancing safety, security, and functionality. All artificial outdoor light fixtures shall be installed so they are directed away from the undeveloped canyon. Light fixtures shall be installed in conformance with the County Light Pollution Code, the Building Code, the Electrical Code, and any other related state and federal regulations such as California Title 24.

3.1.4.3 Findings per CEQA Guidelines

Consistent with the CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts previously described. The feasible measures are listed in the previous section and consist of MM-BIO-1, MM-BIO-2, MM-BIO-3, MM-BIO-4, and MM-BIO-5.

MCCCD finds that the previously listed mitigation measures are feasible, are adopted, and will reduce the potential biological resource impacts of the proposed project to less-than-significant levels. Accordingly, MCCCD finds that, pursuant to California Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in or incorporated into the proposed project that will mitigate or avoid any potentially significant impacts on MCCCD that were identified in the Draft EIR.

3.1.4.4 Facts in Support of the Findings Related to Biological Resources

Implementation of MM-BIO-1 through MM-BIO-5 would reduce potentially significant project impacts related to biological resources to a less-than-significant level. There would be no significant, unavoidable impacts to biological resources after implementation of these mitigation measures.

3.1.5 Impacts Related to Cultural Resources

3.1.5.1 Potentially Significant Impacts Related to Cultural Resources

In consideration of the California Register of Historical Resources and the City's evaluation criteria and integrity requirements, it has been determined that the original 1960s MiraCosta College buildings are found not eligible under any criterion. As a result of these findings, MiraCosta College is not considered an historical resource. As such, no historical resources were identified within the proposed project site, and the proposed project would have less than significant impacts to historical resources.

No archaeological resources were identified within the project site as a result of the records search. The project site has already been highly disturbed by past modifications to the campus and it is unlikely that construction during each phase of the project would encounter intact archaeological deposits at subsurface levels. However, the potential remains for the inadvertent discovery of archaeological resources during ground disturbing activities. Therefore, impacts would be potentially significant, and MM-CUL-1 is provided.

It is not anticipated that paleontological resources will be impacted during shallow excavation within previously disturbed sediments on the existing campus. However, intact paleontological resources may be encountered at depth, or along the periphery of the project, for improvements, including, but not limited to, excavation into previously undisturbed sedimentary deposits of the Santiago Formation such as construction of retaining walls. Given the proximity of past fossil discoveries in the area and the underlying paleontologically sensitive deposits, the project site has the potential to yield significant paleontological resources. In the event that intact paleontological resources are located on the project site, ground-disturbing activities associated with construction of the proposed project, such as grading during site preparation, have the potential to destroy a unique paleontological resource or site. Therefore, impacts would be potentially significant, and MM-CUL-2 is provided.

There is no evidence of human remains on the project site, and the potential for the inadvertent discovery of human remains on the project site is very low because there is no evidence of any historical camps or human settlement on the site. However, the possibility exists that human remains may be discovered during project grading and construction. Any disturbance of human remains that may occur during project grading or construction would be significant. Therefore, impacts would be potentially significant, and MM-CUL-3 is provided.

The project site is not listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources as defined in Public Resources Code Section 5020. The area has been substantially disturbed, and is unlikely to contain intact cultural resources. Construction related to the project will not have an impact to California Register of Historical Resources-listed or eligible cultural resources. Impacts would be less than significant, and no mitigation is required.

As previously stated, the project site has been previously disturbed and is considered to have a low probability for encountering tribal cultural resources. Further, no information regarding the presence of tribal cultural resources has been provided by the contacted tribes. Therefore, impacts would be less than significant, and no mitigation measures are proposed.

3.1.5.2 Mitigation

MM-CUL-1 In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior’s Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. Depending on the significance of the find under the California Environmental Quality Act (CEQA), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. Construction contractors would be required to attend a Worker Environmental Awareness Program prior to the beginning of construction.

MM-CUL-2 Prior to commencement of any grading activity on site, the applicant shall retain a qualified paleontologist. The qualified paleontologist shall attend the preconstruction meeting and be on-site during all rough grading and other significant ground-disturbing activities in previously undisturbed Santiago Formation, if encountered. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontology monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow grading to recommence in the area of the find. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed project. The PRIMP shall be consistent with the guidelines of the Society of Vertebrate Paleontology (SVP) (2010).

MM-CUL-3 In the event of discovery of unanticipated human remains, personnel shall comply with Public Resources Code Section 5097.98, CEQA Section 15064.5 and Health and Safety Code Section 7050.5 during earth-disturbing activities. If any human remains are discovered, the construction personnel or the appropriate representative shall contact the County Coroner. Upon identification of human remains, no further disturbance shall occur in the area of the find until the County Coroner has made the necessary findings as to origin. If the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted by the property owner or their representative in order to determine proper treatment and disposition of the remains. The immediate vicinity where the Native American human remains are located is not to be damaged or disturbed by further development activity until consultation with the Most Likely Descendant regarding their recommendations as required by California Public Resources Code Section 5097.98 has been conducted. Public Resources Code Section 5097.98, CEQA Section 15064.5 and Health and Safety Code Section 7050.5 shall be followed.

3.1.5.3 Findings per CEQA Guidelines

Consistent with the CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts previously described. The feasible measures are listed in the previous section and consist of MM-CUL-1, MM-CUL-2, and MM-CUL-3.

MCCCD finds that the previously listed mitigation measures are feasible, are adopted, and will reduce the potential cultural resource impacts of the proposed project to less-than-significant levels. Accordingly, MCCCD finds that, pursuant to California Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in or incorporated into the proposed project that will mitigate or avoid any potentially significant impacts on MCCCD that were identified in the Draft EIR.

3.1.5.4 Facts in Support of the Findings Related to Cultural Resources

Implementation of MM-CUL-1 through MM-CUL-3 would reduce potentially significant project impacts related to cultural resources to a less-than-significant level. There would be no significant, unavoidable impacts to cultural resources after implementation of these mitigation measures.

3.1.6 Impacts Related to Geology and Soils

Implementation of the proposed project would not have an adverse effect related to location on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. The proposed project would also not expose people or structures to potential substantial adverse effects related to rupture of a known earthquake fault, strong seismic ground shaking, or seismic-related ground failure, including liquefaction, or landslides. The proposed project would not result in substantial soil erosion, would not be located on expansive soil creating substantial risks to life or property, and would not use alternative wastewater disposal systems. Because impacts related to geology and soils would be less than significant, as described in Section 4.5, Geology and Soils, of the Draft EIR, no mitigation would be required, and no significant, unavoidable adverse impacts would occur.

3.1.7 Impacts Related to Greenhouse Gas Emissions

Implementation of the proposed project would not result in an adverse effect related to generation of greenhouse gases, either directly or indirectly, or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing greenhouse gas emissions, as described in Section 4.6, Greenhouse Gas Emissions, of the Draft EIR. Therefore, no mitigation would be required, and no significant, unavoidable adverse impacts would occur.

3.1.8 Impacts Related to Hazards and Hazardous Materials

3.1.8.1 Potentially Significant Impacts Related to Hazards and Hazardous Materials

Phase 1 would include demolition of the Gym Complex, Athletics Storage Shed, and Tennis Storage Shed, which were constructed in 1965, 1967, and 1976, respectively. Demolition for Phases 2 and 3 would include the Campus Police Building (1100), Art Building (2100), Business Building (4800) (partial demolition), Green House (Building 61), and multiple temporary buildings. These buildings were built in 1987, 1967, 1965, 2006, and 1976–1982, respectively. The federal government banned consumer use of lead-based paint in 1978. Therefore, lead-based paint may be encountered during demolition activities. Similarly, many types of asbestos-containing materials were banned in construction products beginning in 1989. As a result, asbestos-containing materials may be encountered during demolition activities. Improper handling and disposal of these materials could potentially create a significant hazard to demolition personnel or the environment. Impacts would be potentially significant. Therefore, MM-HAZ-1 and MM-HAZ-2 are provided.

Any hazardous waste on campus would be transported to a central location until a licensed hazardous waste contractor prepares the waste for segregation, packaging, and transport to an authorized hazardous waste disposal site. While the proposed project may result in an incremental increase in routine transport, use, and disposal of hazardous materials and/or wastes generated by building/landscape maintenance activities and Chemistry and Biotechnology Building lab operations, all hazardous materials would be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (22 CCR 4.5). With compliance with these regulations, the transport, use, and disposal of these materials would not pose a significant hazard to the public or the environment. Thus, operations impacts would be less than significant.

No K–12 schools would be located within 0.25 miles of the project site. The closest school to the project site is McAuliffe Elementary School, located approximately 0.75 miles from the project site. Martin Luther King Middle School is located approximately 1.8 miles from the project site, and Ocean Shores High School is located about 1.75 miles from the project site. The proposed project would occur within the Oceanside Campus. As previously discussed, the proposed project would handle relatively small amounts of hazardous materials during construction of the proposed project, including lubricants, solvents, and fuel, used in construction equipment and vehicles. These materials would be handled in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. In addition, construction would be completed in accordance with the State Water Resources Control Board NPDES General Permit, which requires a stormwater pollution prevention plan and development of best management practices (BMPs) for all phases of construction and potential pollutants generated by the construction activities. Therefore, impacts would be less than significant. As previously discussed, day-to-day operation of the proposed project would include the use of chemical reagents, solvents, fuels, paints, cleansers, and miscellaneous organics and inorganics that are used as part of building and grounds maintenance as well as vehicle maintenance. All maintenance chemicals used on site would be required to be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (22 CCR 4.5). Therefore, because all materials would be transported, handled, and contained in accordance with all federal, state, and District Environmental Health and Safety rules and regulations managing use of hazardous materials, impacts would be less than significant.

A total of 21 sites within the American Society for Testing and Materials-specified search distances of the project site were listed in regulatory agency databases. Information provided did not indicate that the project site has been impacted by contamination from any of these nearby sites. Provided that applicable and appropriate local, regional, state, and/or federal rules and regulations are followed regarding hazardous materials and waste management, it is not anticipated that the project site will be listed on the Cortese list in the future. Therefore, impacts would be less than significant.

To date, an Emergency Response Plan has been prepared for the Oceanside Campus (MCCCD 2015). However, the plan is generalized and specifies numerous measures that must be implemented in preparation of a complete Emergency Response Plan. In the absence of such specifics, impacts would be potentially significant. Therefore, MM-HAZ-3 is provided.

As adequate fire suppression services are available to support the project site, and the project site would primarily consist of developed, irrigated land, impacts associated with wildland fires would be less than significant.

Prior to demolition of any building, an asbestos and lead-based paint survey would be prepared to document any potential contaminants. Should any materials be noted on site, they would be demolished and disposed of in accordance with all federal, state, and local laws to avoid contribution of potential hazardous materials to the environment. Cumulative projects would be subject to the same federal, state, and local laws to avoid contribution of potential hazardous materials to the environment. Therefore, the proposed project in combination with other cumulative projects in the area would not result in significant cumulative impacts relative to hazards and hazardous materials; impacts would be less than significant.

3.1.8.2 Mitigation

MM-HAZ-1 Prior to demolition of the Gym Complex, Tennis Court Support Building, Athletics Storage Shed, and Temporary Buildings, a lead-based paint and asbestos survey shall be conducted by a California Department of Health Services-certified lead-based paint assessor and California Occupational Safety and Health Administration-certified asbestos assessor. The survey shall determine whether any on-site abatement of lead-based paint or asbestos containing materials is necessary. In addition, the survey shall include an abatement work plan prepared in compliance with local, state, and federal regulations for any necessary removal of such materials. The work plan shall include a monitoring plan to be conducted by a qualified consultant during abatement activities to ensure compliance with the work plan requirements and abatement contractor specifications. Demolition plans and contract specifications shall incorporate any necessary abatement measures for the removal of materials containing lead-based paint and asbestos to the satisfaction of the San Diego County Air Pollution Control District and San Diego County Department of Environmental Health. The measures shall be consistent with the abatement work plan prepared for the project and conducted by a licensed lead/asbestos abatement contractor. If the survey and abatement plans have already been conducted/prepared, these documents shall be reviewed and implemented prior to demolition of any buildings.

MM-HAZ-2 A qualified environmental specialist shall inspect the site buildings for the presence of polychlorinated biphenyls (PCBs), mercury, and other hazardous building materials prior to demolition of all buildings planned for demolition. If found, these materials shall be managed in accordance with the Metallic Discards Act of 1991 (Public Resources Code, Sections 42160–42185) and other state and federal guidelines and regulations. Demolition plans and contract specifications shall incorporate any necessary abatement measures in compliance with the Metallic Discards Act, particularly Section 42175, Materials Requiring Special Handling, for the removal of mercury switches, PCB-containing ballasts, and refrigerants.

MM-HAZ-3 As part of the MCCCD Emergency Response Plan, prior to occupancy of any newly-constructed or renovated structure, the District shall post an Emergency Evacuation Plan inside the structure, describing the emergency evacuation route and process for that structure. These plans shall conform to provisions of the California Standardized Management System and the National Incident Management System. The Emergency Evacuation Plan shall provide a standardized response to emergencies involving multiple jurisdictions or multiple agencies, while also incorporating specific physical features, plans, and programs of the MCCCD campus.

3.1.8.3 Findings per CEQA Guidelines

Consistent with the CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts previously described. The feasible measures are listed in the previous section and consist of MM-HAZ-1, MM-HAZ-2, and MM-HAZ-3.

MCCCD finds that the previously listed mitigation measures are feasible, are adopted, and will reduce the potential hazards and hazardous materials impacts of the proposed project to less-than-significant levels. Accordingly, MCCCD finds that, pursuant to California Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in or incorporated into the proposed project that will mitigate or avoid any potentially significant impacts on MCCCD that were identified in the Draft EIR.

3.1.8.4 Facts in Support of the Findings Related to Hazards and Hazardous Materials

Implementation of MM-HAZ-1 through MM-HAZ-3 would reduce potentially significant project impacts related to hazards and hazardous materials to a less-than-significant level. There would be no significant, unavoidable impacts to hazards and hazardous materials after implementation of these mitigation measures.

3.1.9 Impacts Related to Hydrology and Water Quality

3.1.9.1 Potentially Significant Impacts Related to Hydrology and Water Quality

Project construction would potentially result in short-term erosion induced siltation of downstream waterbodies, as well as potential incidental spills of hazardous substances and petroleum products into local drainages. Incorporation of an NPDES-mandated stormwater pollution prevention plan, including implementation of BMPs listed in MM-HYD-1, would reduce potentially significant water quality impacts by preventing and controlling sediments and contaminants from entering these drainages. Project development would result in an increase in stormwater runoff across the site; however, incorporation of MM-HYD-2 and MM-HYD-3 would reduce potentially significant impacts associated with increased runoff (i.e., erosion and flooding) by reducing post-construction stormwater flows to equal or less than existing conditions and redesigning and repairing the northeastern drainage (700 System). In addition, MM-HAZ-1 and MM-HAZ-2 would reduce potential water quality impacts related to hazardous substances by preventing exposure of asbestos-containing materials, lead-based paint, PCBs, mercury, and other hazardous building materials to precipitation and stormwater runoff, by completing demolition abatement work in compliance with local, state, and federal regulations. See Section 4.7, Hazards and Hazardous Materials, of the Draft EIR.

3.1.9.2 Mitigation

MM-HYD-1 The District shall employ the following Best Management Practices (BMPs) during construction, as applicable, based on types of construction activities, the characteristics of a site, and existing impairments to receiving waters. Applicable project-specific features shall appear as notes on final construction drawings and plans.

- Silt fences installed along limits of work and/or the project construction site;
- Stockpile containment (e.g., Visqueen plastic sheeting, fiber rolls, gravel bags);
- Exposed soil stabilization structures (e.g., fiber matrix on slopes and construction access stabilization mechanisms);
- Street sweeping;
- Tire washes for equipment;
- Runoff control devices (e.g., drainage swales, gravel bag barriers, velocity check dams) during construction phases conducted during the rainy season;
- Storm drain inlet protection;
- Wind erosion (dust) controls;
- Tracking controls;
- Prevention of fluid leaks (inspections and drip pans) from vehicles;
- Dewatering operations best practices;
- Materials pollution management;
- Proper waste management; and
- Regular inspections and maintenance of BMPs.

MM-HYD-2 Prior to final project design of Phase I, a project-specific drainage analysis shall be completed, incorporating proposed development associated with Phases I, II, and III. The District shall demonstrate that post-construction runoff will be equal to or less than existing conditions, for the 2-year, 5-year, and 10-year storm event, with respect to both intensity and volume. The District shall include velocity inhibiting features into the project design, including bioswales, permeable pavers, gravel parking areas, and retention basins with permeable bases.

MM-HYD-3 Prior to final project design of Phase I, the District shall redesign the System 700 drainage area to accommodate a 2-year, 5-year, and 10-year storm event, with respect to both intensity and volume. The necessary improvements shall be done in coordination with the City of Oceanside and private property owners across whose property the drainage easement and facility traverse. The drainage design shall incorporate the conclusions and recommendations provided in the NV5, Inc. 2017 drainage memo (*System 700 Drainage Analysis Results*, dated November 16, 2017, included as Appendix F [of the Draft EIR]) and shall include, but not be limited to:

- Determine the depth of ponding and whether the berm would be overtopped during 2-year, 10-year, and 50-year storm events along Track Loop Road. In the event that modelling shows that the berm would be overtopped, solutions shall include additional inlet capacity along Track Loop Road at the curb inlet and/or additional inlets shall be installed upstream of the curb inlet. At a minimum, it shall be anticipated that a large inlet will be required. The berm shall also be enlarged or replaced with a concrete curb sufficient to control any anticipated ponding.
- Redesign and repair the main outflow pipe down the slope (i.e., downdrain) to accommodate any increases in flow associated with remediation of ponding along Track Loop Road.
- Further investigate the existing damage to the slope, downdrain, and brow ditch. Based on the investigation, redesign and reconstruct these slope features to adequately accommodate a 2-year, 5-year, and 10-year storm event, with respect to both intensity and volume.
- Maintain the existing and redesigned storm drain systems, including the brow ditches and downdrain. Maintenance shall include, but not be limited to the removal of overgrown vegetation, removal of rocks and soil from the brow ditches, and periodic televising of the downdrain.

If the District is designated the party responsible for implementing the necessary improvements included in this measure, the District shall do the following prior to commencement of construction activities associated with the System 700 facility improvements:

1. Prepare a Public Improvement Plan for review and approval by the City of Oceanside.
2. Obtain an Encroachment Permit from the City of Oceanside.
3. Enter into a Construction Easement Agreement with the private property owners across whose property the easement and facility traverse.

If it is determined that implementation of the System 700 facility improvements are a shared responsibility between the District and the City of Oceanside, the District shall pay a fair share contribution toward the necessary improvements. The fair share contribution shall be determined prior to commencement of construction activities associated with the System 700 facility improvements.

3.1.9.3 Findings per CEQA Guidelines

Consistent with the CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts previously described. The feasible measures are listed in the previous section and consist of MM-HYD-1, MM-HYD-2, and MM-HYD-3.

MCCCD finds that the previously listed mitigation measures are feasible, are adopted, and will reduce the potential hydrology and water quality impacts of the proposed project to less-than-significant levels. Accordingly, MCCCD finds that, pursuant to California Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in or incorporated into the proposed project that will mitigate or avoid any potentially significant impacts on MCCCD that were identified in the Draft EIR.

3.1.9.4 Facts in Support of the Findings Related to Hydrology and Water Quality

Implementation of MM-HYD-1 through MM-HYD-3 would reduce potentially significant project impacts related to hydrology and water quality to a less-than-significant level. There would be no significant, unavoidable impacts to hydrology and water quality after implementation of these mitigation measures.

3.1.10 Impacts Related to Land Use and Planning

Implementation of the proposed project would not divide an established community or conflict with any applicable land use plan, policy, or regulation of any agency with jurisdiction over the project or conflict with any applicable habitat conservation plan or natural communities conservation plan, as described in Section 4.11, Land Use and Planning, of the Draft EIR. Therefore, no mitigation would be required, and no significant, unavoidable adverse impacts would occur.

3.1.11 Impacts Related to Mineral Resources

Implementation of the proposed program would not result in the loss of availability of a known mineral resource of value to the region and residents of the state or loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Therefore, no mitigation would be required, and no significant, unavoidable adverse impacts would occur.

3.1.12 Impacts Related to Noise

3.1.12.1 Potentially Significant Impacts Related to Noise

The proposed project would result in temporary noise increases during the planned 6-year construction period. The temporary increases in ambient noise levels would vary depending on the location of the construction activities and the type of equipment being used. The estimated construction noise levels at nearby noise-sensitive land uses are summarized in Table 4.9-6 of the Draft EIR. As discussed, temporary noise impacts from construction activities would be potentially significant at adjacent noise-sensitive land uses (residences); however, with implementation of MM-NOI-1, temporary noise impacts from construction activities would be potentially significant.

Long-term operational noise would result from the college campus operations, vehicular circulation and surface parking lot areas, and other permanent on-site noise sources (e.g., heating, ventilation, and air conditioning equipment and solar facility). Noise from on-site sources would be less than significant with implementation of MM-NOI-3.

Long-term operational noise also includes project-generated traffic and overall traffic noise at the site. The proposed project would generate traffic along adjacent roads, including College Boulevard, Rancho del Oro Drive, Glaser Drive, and Barnard Drive. Based on the anticipated trip generation rates and traffic volumes, buildout (Year 2030) with project traffic noise would not generate a significant increase in noise level along the studied roads in the vicinity of the site. The noise level increases associated with the additional traffic volume for existing (2017), existing (2017) with project, buildout (2030) without project, and buildout (2030) with project are depicted in Table 4.9-7 of the Draft EIR. Increases would be below the significance threshold of 5 dBA. The additional traffic volume along the adjacent roads would not substantially increase the existing noise level in the project vicinity, and operational traffic-related noise impacts would be less than significant.

Construction activities are not anticipated to result in continuous vibration levels that typically annoy people, and the vibration impacts to nearby sensitive receptors would be less than significant.

The proposed project would not be cumulatively considerable, with mitigation incorporated.

3.1.12.2 Mitigation

MM-NOI-1 The MiraCosta Community College District (MCCCD) shall adhere to the following measures:

- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. Enforcement shall be accomplished by random field inspections by MCCCD personnel during construction activities.

- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors.
- During construction, stockpiling and vehicle staging areas shall be located as far as practical from noise sensitive receptors.
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners to contact the job superintendent if necessary. In the event that MCCCD receives a complaint, appropriate corrective actions shall be implemented and a report of the action provided to the reporting party.

MM-NOI-2 Parking Lot 9 shall setback between the parking lot boundary and off-campus residential land uses on Johnson Drive to a minimum of 60 feet. Within the increased setback, a landscape screen shall be installed to enhance screening of Parking Lot 9 components (primarily vehicles and parking canopies) from view of residences on Johnson Drive. Landscape screens shall break-up the mass and scale of parking canopies.

MCCCD shall also be responsible for continued maintenance of the landscape screens, including installation and maintenance of an irrigation system and implementation of, and consistency with, plant installation and maintenance standards including installation of plants in spring months, weed control, and pruning, thinning. Periodic monitoring and reporting to observe and assess the maintenance regime and implementation of appropriate measures to promote plant survival, growth, overall health, and vigor shall also be required. If necessary, adaptive measures shall be implemented in the subsequent spring season to address project deficiencies as they relate to the desired landscape screening effect.

The landscape screens shall be designed by a licensed landscape architect or landscape designer and shall include trees and plants compatible with the climate zone of the Oceanside Campus. Selected trees shall include drought-tolerant species that would display an estimated height of between 5 to 8 feet at planting and approximately 10 to 15 feet at 5 years post-installation. Larger nursery container sizes are recommended in recognition of the need to establish a beneficial visual screen at the time of installation.

MM-NOI-3 To ensure that the solar panel operations comply with the City of Oceanside's nighttime noise ordinance standard of 45 dBA $L_{eq,}$ the solar inverters selected for the solar facility shall each produce a free-field noise level of 65 dBA or less at 3 meters, and they shall be located 200 feet or more from the nearest residential property line. Alternatively, a noise barrier or enclosure shall be constructed between the inverters and nearby noise-sensitive receivers such that noise levels from the equipment is less than 45 dBA L_{eq}.

3.1.12.3 Findings per CEQA Guidelines

Consistent with the CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts previously described. The feasible measures are listed the previous section and consist of MM-NOI-1, MM-NOI -2, and MM- NOI -3.

MCCCD finds that the previously listed mitigation measures are feasible, are adopted, and will reduce the potential noise impacts of the proposed project to less-than-significant levels. Accordingly, MCCCD finds that, pursuant to California Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in or incorporated into the proposed project that will mitigate or avoid any potentially significant impacts on MCCCD that were identified in the Draft EIR.

3.1.12.4 Facts in Support of the Findings Related to Noise

Implementation of MM-NOI-1 through MM- NOI-3 would reduce potentially significant project impacts related to noise to a less-than-significant level. There would be no significant, unavoidable impacts to noise after implementation of these mitigation measures.

3.1.13 Impacts Related to Population and Housing

Implementation of the proposed project would not induce population growth, either directly or indirectly, or require the construction of replacement housing due to displacement of substantial groups of people. Therefore, no mitigation would be required, and no significant, unavoidable adverse impacts would occur.

3.1.14 Impacts Related to Public Services

Implementation of the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities. Because no impacts related to public services would occur, as described in Section 4.12, Public Services, of the Draft EIR, no mitigation would be required, and no significant, unavoidable adverse impacts would occur.

3.1.15 Impacts Related to Recreation

3.1.15.1 Potentially Significant Impacts Related to Recreation

Implementation of the proposed project would not result in an increase of existing neighborhood and regional parks or other recreation facilities such that substantial physical deterioration of the facility would occur or be accelerated. The construction and operation of new recreational facilities would be potentially significant. However, impacts would be less then significant, upon implementation of MM-BIO-1 through MM-BIO-5, MM-CUL-1 through MM-CUL-3, MM-HYD-1, and MM-NOI-1.

3.1.15.2 Mitigation

Refer to MM-BIO-1 through MM-BIO-5, MM-CUL-1 through MM-CUL-3, MM-HAZ-1 through MM-HAZ-2, MM-HYD-1, and MM-NOI-1.

3.1.15.3 Findings per CEQA Guidelines

Consistent with the CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts previously described. The feasible measures are listed in the previous section and consist of MM-BIO-1 through MM-BIO-5, MM-CUL-1 through MM-CUL-3, MM-HAZ-1 through MM-HAZ-2, MM-HYD-1, and MM-NOI-1.

MCCCD finds that the previously listed mitigation measures are feasible, are adopted, and will reduce the potential recreational impacts of the proposed project to less-than-significant levels. Accordingly, MCCCD finds that, pursuant to California Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in or incorporated into the proposed project that will mitigate or avoid any potentially significant impacts on MCCCD that were identified in the Draft EIR.

3.1.15.4 Facts in Support of the Findings Related to Recreation

Implementation of MM-BIO-1 through MM-BIO-5, MM-CUL-1 through MM-CUL-3, MM-HAZ-1 through MM-HAZ-2, MM-HYD-1, and MM-NOI-1would reduce potentially significant project impacts related to recreation to a less-than-significant level. There would be no significant, unavoidable impacts to recreation after implementation of these mitigation measures.

3.1.16 Impacts Related to Traffic and Circulation

Implementation of the proposed project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system or conflict with an applicable congestion management program. The proposed project also would not increase hazards due to a design feature, result in inadequate emergency access, or conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. Because no impacts related to traffic and circulation would occur, as described in Section 4.13, Traffic and Circulation, of the Draft EIR, no mitigation would be required, and no significant, unavoidable adverse impacts would occur.

3.1.17 Impacts Related to Utilities and Service Systems

3.1.17.1 Potentially Significant Impacts Related to Utilities and Service Systems

Upon connection to City wastewater facilities, the proposed project would be in compliance with the wastewater treatment requirements of the Regional Water Quality Control Board. Therefore, the proposed project would not exceed the wastewater treatment requirements of the applicable Regional Water Quality Control Board, and impacts would be less than significant.

A water service agreement, and if applicable, payment of impact fees to the City would be required prior to initiating new water connections. Because the proposed project is a master plan and building- or facility-specific site plans are not available, a hydraulic analysis at the EIR stage of analysis is premature. Impacts would be potentially significant; however, when specific building site plans are available, a hydraulic analysis will be conducted to assess impacts to the City's water lines prior to Division of the State Architect approval as specified in MM-UTL-1. Implementation of MM-UTL-1 would ensure that impacts relating to the construction of new water treatment facilities or expansion of existing facilities would be less than significant with mitigation.

Sanitary sewer improvements involve repairing underground pipework and fittings, creating new connections and connecting to existing services. New connection pipework will correct issues dealing with failures due to site slopes and root infiltrations. Improvements also include spot repairs, root removal, and replacing cleanout caps and frames. New manholes would also be included to facilitate better maintenance access in the future (Figure 3-17 of the Draft EIR) (MCCCD 2016). Repair and improvements of the private sewer lines on campus to address the issue areas previously identified are proposed as part of the project.

Impacts would be potentially significant; therefore, to ensure the existing City sewer lines have the capacity and are in good enough condition to handle the increase in wastewater flow, MM-UTL-2 shall be implemented. Implementation of MM-UTL-2 would minimize potentially significant impacts to the existing sewer systems to a level that is less than significant.

Phase 1 new construction in the northeast part of the site that would be located partially or completely on existing permeable ground includes the proposed Gym Complex, Chemistry and Biotechnology Building, and Parking Lot 4C. In addition, the Athletic Field would be replaced with impermeable artificial turf. Replacement of existing permeable ground with impermeable surfaces would increase stormwater runoff in this area, which drains off site down a steep slope and into a residential neighborhood. Because a project-specific drainage analysis has not been completed, drainage impacts related to this northeastern outfall are potentially significant. Upon implementation of MM-HYD-1, impacts would be less than significant.

The project design includes features that would reduce potential runoff at the site. However, because many of the facilities as part of the project are in the initial planning stages (i.e., no detailed layout or designs are available), the specifics of the storm drain system have not been completed. Impacts would be potentially significant. Therefore, MM-HYD-1 is provided. Upon implementation of MM-HYD-1, impacts would be less than significant.

Sufficient water supplies are available to serve the project from existing entitlements and resources and impacts would be less than significant.

Provided that the San Luis Rey wastewater treatment plant has the capacity to process 15.4 million gallons per day, the increase in demand created by the proposed project would be relatively minor in the context of the overall treatment capacity of the San Luis Rey wastewater treatment plant. Therefore, impacts are less than significant.

The amount of solid waste generated and disposed of in nearby landfills during operation of the proposed project is expected to be within the permitted capacity of the landfills. Given these considerations, impacts would be less than significant.

Solid waste generated from construction and operation of the proposed project would be consistent with the campus's ongoing recycling programs, which historically have been successful at diverting at 75% of on-campus-generated solid waste from a landfill to an appropriate recycling facility. Maintaining the existing diversion rate would comply with Assembly Bill 341, which requires all large state facilities to divert at least 75% of solid waste from landfills by 2020. Given these considerations, impacts associated with solid waste statutes and regulations would be less than significant.

3.1.17.2 Mitigation

MM-UTL-1 Upon review of the final site engineering and design plans, the MiraCosta Community College District will coordinate with the City of Oceanside (City) to update the current water service agreement. Coordination with the City would also occur to determine if payment of impact fees would be required prior to initiating new water service connections.

MM-UTL-2 Upon review of the final site engineering and design plans, the MiraCosta Community College District (MCCCD) will coordinate with the City of

Oceanside (City) to determine whether the existing sewer lines would adequately accommodate the increase in wastewater flow. Prior to occupancy, the MCCCD shall pay applicable City sewer infrastructure connection fees and applicable fair-share capital facilities fees to the extent the payment of such fees is made necessary by projects under the Facilities Master Plan.

3.1.17.3 Findings per CEQA Guidelines

Consistent with the CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts previously described. The feasible measures are listed in the previous section and consist of MM-UTL-1 and MM-UTL-2.

MCCCD finds that the previously listed mitigation measures are feasible, are adopted, and will reduce the potential utilities and service systems impacts of the proposed project to less-than-significant levels. Accordingly, MCCCD finds that, pursuant to California Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in or incorporated into the proposed project that will mitigate or avoid any potentially significant impacts on MCCCD that were identified in the Draft EIR.

3.1.17.4 Facts in Support of the Findings Related to Utilities and Service Systems

Implementation of MM-UTL-1 and MM-UTL-2 would reduce potentially significant project impacts related to utilities and service systems to a less-than-significant level. There would be no significant, unavoidable impacts to utilities and service systems after implementation of these mitigation measures.

3.2 GENERAL FINDINGS

1. The plans for the proposed project have been prepared and analyzed so as to provide for public involvement in the planning and the CEQA processes.
2. The proposed project would result in direct and/or indirect potentially significant impacts to the following issues: aesthetics, biological resources, cultural resources, hazards and hazardous materials, hydrology and water quality, noise, recreation, and utilities and service systems. Impacts to these resources would be reduced to a less-than-significant level through the adoption of feasible mitigation measures set forth in the Draft EIR.
3. Comments regarding the Draft EIR received during the public review period have been adequately addressed in the Responses to Comments included in the Final EIR. Any significant effects described in such comments were avoided or substantially lessened by the mitigation measures described in the Draft and Final EIR.

4. Consistent with CEQA Guidelines Section 15090 (a)(1), the Final EIR has been completed in compliance with CEQA.
5. Consistent with CEQA Guidelines Section 15090 (a)(2), the Final EIR was presented to the decision-making body of the lead agency, and the decision-making body reviewed and considered the information contained in the Final EIR prior to approving the project.

3.3 LEGAL EFFECTS OF FINDINGS

To the extent that these findings conclude that the proposed mitigation measures outlined in this Final EIR are feasible and have not been modified, superseded, or withdrawn, MCCCD hereby commits to implementing these measures. These findings, in other words, are not merely informational, but rather constitute a binding set of obligations that will come into effect when MCCCD approves the proposed project.

The mitigation measures that are referenced in the Mitigation Monitoring and Reporting Program and adopted concurrently with these findings will be effectuated through the process of construction and implementation of the proposed project.

3.4 STATEMENT OF OVERRIDING CONSIDERATIONS

The proposed project would not result in significant and unavoidable impacts.

3.5 INDEPENDENT REVIEW AND ANALYSIS

Under CEQA, the lead agency must (1) independently review and analyze the EIR; (2) circulate draft documents that reflect its independent judgment; (3) as part of the certification of an EIR, find that the report or declaration reflects the independent judgment of the lead agency; and (4) submit copies of the documents to the State Clearinghouse if there is state agency involvement or if the project is of statewide, regional, or area-wide significance (California Public Resources Code, Section 21082.1(c)).

MCCCD independently reviewed and analyzed the Draft EIR and determined that it reflects its independent judgment. Moreover, upon completing this review and making this determination, MCCCD circulated the Draft EIR for public review as described in the Final Executive Summary of this Final EIR. With the preparation of these findings for submittal to MCCCD's Board of Trustees for adoption, MCCCD finds that this Final EIR reflects its independent judgment.

3.6 CUSTODIAN AND LOCATION OF RECORDS

The documents and other materials that constitute the Record of Proceedings for MCCCD's actions related to the project are located at the MCCCD Oceanside campus at 1 Barnard Street, Oceanside, California, 92056. MCCCD is the custodian of the Record of Proceedings for the project.

3.7 REFERENCES CITED

14 CCR 15000–15387 and Appendices A–L. *Guidelines for Implementation of the California Environmental Quality Act Guidelines*, as amended.

California Public Resources Code, Sections 21000–21177. *California Environmental Quality Act (CEQA)*, as amended.

California Public Resources Code, Sections 42160–42185. *Metallic Discards*. Accessed at https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=3.5.&article=1.

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MCCCD. 2016. *Facilities Master Plan Update*. http://www.miracosta.edu/administrative/facilities/facilities-master-plan.html. SANDAG (San Diego Association of Governments). 2003. *Final Multiple Habitat Conservation Program Plan for the Cities of Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista*. March 2003.

SVP (Society of Vertebrate Paleontology). 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. 11 p. Available at: http://vertpaleo.org/PDFS/68/68c554bb-86f1-442f-a0dc-25299762d36c.pdf.

USFWS (U.S. Fish and Wildlife Service). 2001. Least Bell's Vireo Survey Guidelines. January 19, 2001. https://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/LBVireo.2001.protocol.pdf.

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CHAPTER 4
MITIGATION MONITORING AND REPORTING PROGRAM

4.1 MITIGATION MONITORING AND REPORTING PROGRAM

California Public Resources Code, Section 21081.6, requires that, upon certification of an environmental impact report (EIR), "the public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation" (California Public Resources Code, Section 21000 et seq.).

A mitigation monitoring and reporting program (MMRP) is required to ensure that adopted mitigation measures (MMs) are successfully implemented for the MiraCosta Community College District (MCCCD) Oceanside Campus Facilities Master Plan (project or proposed project). The MCCCD is the lead agency for the proposed project and is responsible for implementation of the MMRP. The MMRP will be active through all phases of the project, including design, construction, and operation. MCCCD must adopt this MMRP, or an equally effective program, if it approves the proposed project with the mitigation measures that were adopted or made conditions of project approval. This MMRP has been developed in compliance with California Public Resources Code, Section 21081.6, and Section 15097 of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.).

Table 4-1 identifies the mitigation program to be implemented by MCCCD for the proposed project. Table 4-1 includes the following information:

- A list of mitigation measures
- The responsible party who must ensure that each mitigation measure is implemented and that monitoring and reporting activities occur
- The timing for implementation of the mitigation measures relative to construction
- The entity responsible for implementing each mitigation measure

As part of the MMRP, monitoring compliance forms for each mitigation measure or supplemental mitigation measure will be developed for the activities under the proposed project. These forms will be completed to document implementation of all measures. Once all measures have been completed, the compliance monitor will sign off on the measure to indicate that the required mitigation measure or supplemental mitigation measure has been completed.

Table 4-1
Mitigation Monitoring and Reporting Program for the MiraCosta Community College District Oceanside Campus Facilities Master Plan

Mitigation Measures/Supplemental Mitigation Measures		Responsible Party	Timing of Implementation	Implementing Party
Aesthetics				
MM-AES-1	Parking Lot 9 shall setback between the parking lot boundary and off-campus residential land uses on Johnson Drive to a minimum of 60 feet. Within the increased setback, a landscape screen shall be installed to enhance screening of Parking Lot 9 components (primarily vehicles and parking canopies) from view of residences on Johnson Drive. Landscape screens shall break-up the mass and scale of parking canopies and screen nighttime vehicular lights. MCCCD shall also be responsible for continued maintenance of the landscape screens, including installation and maintenance of an irrigation system and implementation of, and consistency with, plant installation and maintenance standards including installation of plants in spring months, weed control, and pruning, thinning. Periodic monitoring and reporting to observe and assess the maintenance regime and implementation of appropriate measures to promote plant survival, growth, overall health, and vigor shall also be required. If necessary, adaptive measures shall be implemented in the subsequent spring season to address project deficiencies as they relate to the desired landscape screening effect. The landscape screens shall be designed by a licensed landscape architect or landscape designer and shall include trees and plants compatible with the climate zone of the Oceanside Campus. Selected trees shall include drought-tolerant species that would display an estimated height of between 5 to 8 feet at planting and approximately 10 to 15 feet at 5 years post-installation. Larger nursery container sizes are recommended in recognition of the need to establish a beneficial visual screen at the time of installation.	MCCCD	Pre-construction, during construction, and post-construction	MCCCD
MM-AES-2	To minimize potential for unnecessary nighttime lighting associated new Parking Lot 9, motion control sensor lighting shall be installed. Motion control sensors would ensure that parking lot lights operate at sufficient levels when occupants are detected and are dimmed or off when unused areas of the parking lot are vacant during evening and late evening hours. The network control system for parking lot lighting shall allow the authorized administrator to adjust lighting schedules and levels for heavy and lightly used areas of the parking lot during nighttime hours to ensure	MCCCD	During construction	MCCCD

Table 4-1
Mitigation Monitoring and Reporting Program for the MiraCosta Community College District Oceanside Campus Facilities Master Plan

Mitigation Measures/Supplemental Mitigation Measures		Responsible Party	Timing of Implementation	Implementing Party
	students and faculty are provided adequate lighting and minimize unnecessary lighting of off-site properties. Light fixtures shall be installed in conformance with the County Light Pollution Code, the Building Code, the Electrical Code, and any other related state and federal regulations such as California Title 24.			
MM-AES-3	Once a lighting plan has been developed for new Parking Lot 9, a photometric study shall be prepared to demonstrate that existing nighttime views in the surrounding area would not be adversely affected and that light trespass at adjacent residential properties would less than 0.2 foot-candles as measured five-feet onto the adjacent property. A qualified lighting vendor or a qualified lighting, mechanical, or electrical engineer shall prepare the photometric study. The photometric study shall include an equipment list/lighting schedule for the new parking lot and provide an illumination summary depicting the maintained horizontal foot-candles at 5 feet onto adjacent residential property lines. If the photometric study reveals light trespass in excess of 0.2-foot-candles at five feet onto adjacent residential properties, additional measures to reduce light trespass will be included so that light trespass will not exceed the 0.2-foot-candle limit. If necessary, additional measures may include enhanced landscaping screening (see MM-AES-1) to increase density and scale of landscape materials and/or installation of an opaque fence or wall along the parking lot perimeter to improve light cutoff.	MCCCD	Pre-construction	MCCCD
	Biological Resources			
MM-BIO-1	If construction activity occurs during the breeding season (typically February 1 through September 15), a biological survey for nesting bird species shall be conducted within the proposed impact area and a 300-foot buffer shall be delineated within 72 hours prior to construction. Any suitable raptor nesting areas will be surveyed within 500 feet of the construction limits. The number of surveys required for covering this area will be commensurate with the schedule for construction and the acreage that will be covered. Multiple surveys for nesting birds, if needed, will be separated by at least 48 hours in order to be confident that nesting is detected but the survey will be no more than 72 hours prior to the onset of construction. The survey is necessary to assure avoidance of impacts to nesting raptors (e.g., Cooper's hawk and red-tailed hawk) and/or birds protected by the	MCCCD	Pre-construction and during construction	MCCCD Project Biologist

Table 4-1
Mitigation Monitoring and Reporting Program for the MiraCosta Community College District Oceanside Campus Facilities Master Plan

Mitigation Measures/Supplemental Mitigation Measures		Responsible Party	Timing of Implementation	Implementing Party
	federal Migratory Bird Treaty Act. If any active nests are detected, the area shall be flagged and mapped on the construction plans along with a buffer for native passerine species and raptors, as determined by the project biologist, and will be avoided until the nesting cycle is complete. Nest buffers will be determined based on the criteria outlined in an Avian Monitoring Plan, which will be submitted to, and receive approval from, the Wildlife Agencies when the Final EIR is certified. The Avian Monitoring Plan will outline criteria for the buffer determinations, including species type, tolerance for human activities, topography, vegetation, screening, adjoining habitat, type of work proposed, and duration of proposed work. In accordance with this mitigation measure, nest buffers shall be implemented to ensure compliance with the MBTA and Fish and Game Code Sections 3503, 3503.5, and 3513. The results of the nesting bird surveys and buffers, including any determinations to reduce buffers, shall be included in the monitoring report.			
MM-BIO-2	Due to the presence of coastal California gnatcatcher in the vicinity of the BSA and the presence of suitable habitat within and adjacent to the proposed project site, focused protocol-level surveys for coastal California gnatcatcher shall be conducted if project activities are planned to take place during the breeding season (February 1 through September 15) and in the vicinity of suitable habitat for this species. The surveys shall be conducted in accordance with the 1997 U.S. Fish and Wildlife Service (USFWS) guidelines for non-enrolled NCCP [natural community conservation plan] areas which states that a minimum 6 survey visits shall be conducted between March 15 through June 30, and at least one week apart between survey visits. The survey area for the coastal California gnatcatcher shall encompass all gnatcatcher-suitable habitat within the impact area, as well as within a 300-foot buffer. The surveys will be conducted at rates pursuant to the USFWS survey protocol (i.e., less than 80 acres surveyed per biologist per day) and will focus efforts within all suitable habitat (i.e., coastal sage scrub (CSS) habitat and CSS sub-associations). Should coastal California gnatcatcher be identified during the focused surveys, a 300-foot impact avoidance buffer will be established until the nest is vacant and the young have fledged.	MCCCD	Pre-construction and during construction	MCCCD Project Biologist
MM-BIO-3	Although direct impacts to suitable habitat for least Bell's vireo are not proposed, focused protocol-level surveys for least Bell's vireo following the currently accepted USFWS	MCCCD	Pre-construction and during construction	MCCCD

Table 4-1
Mitigation Monitoring and Reporting Program for the MiraCosta Community College District Oceanside Campus Facilities Master Plan

	Mitigation Measures/Supplemental Mitigation Measures	Responsible Party	Timing of Implementation	Implementing Party
	protocol (USFWS 2001) shall be conducted if project activities are planned to take place during the breeding season (February 1 through September 15) and in the vicinity of suitable habitat for this species. The survey area for the least Bell's vireo shall encompass all habitats within the impact area, as well as within a 300-foot buffer. Should least Bell's vireo be identified as nesting in the vicinity of the proposed project site, noise attenuation measures may be necessary to avoid indirect impacts to this species. Although MCCCD is not signatory to the Oceanside Subarea Plan, Appendix A of the Oceanside Subarea Plan contains the following condition of coverage for the least Bell's vireo related to construction noise. Construction noise levels at the riparian canopy edge shall be kept below 60 dBA L_{eq} (Measured as Equivalent Sound Level) from 5 a.m. to 11 a.m. during the peak nesting period of March 15 to July 15. For the balance of the day/season, the noise levels shall not exceed 60 decibels, averaged over a 1-hour period on an A-weighted decibel (dBA) (i.e., 1 hour L_{eq}/dBA). Noise levels shall be monitored and monitoring reports shall be provided to the jurisdictional city, the USFWS, and the CDFW. Noise levels in excess of this threshold shall require written concurrence from the USFWS and CDFW and may require additional minimization/mitigation measures.			Project Biologist
MM-BIO-4	To prevent inadvertent disturbance to areas outside the limits of grading, orange environmental fencing shall be installed to delineate the limits of grading, and all grading shall be monitored by a qualified biologist. A biologist shall be contracted to perform biological monitoring during clearing and grubbing. The project biologist also shall perform the following duties: 1. Attend the preconstruction meeting/training with the contractor and other key construction personnel prior to clearing and grubbing to reduce conflict between the timing and location of construction activities with other mitigation requirements (e.g., seasonal surveys for nesting birds). At a minimum, the training shall include the general provisions of the MHCP [Multiple Habitat Conservation Program] and the need to adhere to the provisions of the MHCP. 2. Conduct meetings with the contractor and other key construction personnel describing the importance of restricting work to designated areas prior to clearing and grubbing.	MCCCD	Pre-construction and during construction	MCCCD Project Biologist

Table 4-1
Mitigation Monitoring and Reporting Program for the MiraCosta Community College District Oceanside Campus Facilities Master Plan

	Mitigation Measures/Supplemental Mitigation Measures	Responsible Party	Timing of Implementation	Implementing Party
	3. Discuss procedures for minimizing harm to or harassment of wildlife encountered during construction with the contractor and other key construction personnel prior to clearing and grubbing. 4. Review and/or designate the construction area in the field with the contractor in accordance with the final grading plan prior to clearing, grubbing, or grading. 5. Conduct a field review of the staking to be set by the surveyor, and the subsequent installation of orange environmental fencing designating the limits of all construction activity prior to clearing, grubbing, or grading. 6. Be present during initial vegetation clearing and grubbing. 7. Flush special-status species (i.e., avian or other mobile species) from occupied habitat areas immediately prior to ground-disturbing activities. The project site shall be kept as clean of debris as possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from the site. Pets of project personnel shall not be allowed on site. 8. The biologist shall prepare construction monitoring reports and a post-construction report to document compliance. If dead or injured listed species are located, initial notification must be made in writing within 3 working days to the applicable jurisdiction. Any native, special-status habitat, including wetlands and non-wetland waters, destroyed that is not in the identified project footprint shall be disclosed immediately to the City of Oceanside and shall be compensated at a minimum ratio of 5:1.			
MM-BIO-5	The lighting shall be designed to minimize light pollution within native habitat areas, while enhancing safety, security, and functionality. All artificial outdoor light fixtures shall be installed so they are directed away from the undeveloped canyon. Light fixtures shall be installed in conformance with the County Light Pollution Code, the Building Code, the Electrical Code, and any other related state and federal regulations such as California Title 24.	MCCCD	Pre-construction	MCCCD

Table 4-1
Mitigation Monitoring and Reporting Program for the MiraCosta Community College District Oceanside Campus Facilities Master Plan

	Mitigation Measures/Supplemental Mitigation Measures	Responsible Party	Timing of Implementation	Implementing Party
	Cultural Resources			
MM-CUL-1	In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. Depending on the significance of the find under the California Environmental Quality Act (CEQA), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. Construction contractors would be required to attend a Worker Environmental Awareness Program prior to the beginning of construction.	MCCCD	During construction	MCCCD Qualified Archaeologist
MM-CUL-2	Prior to commencement of any grading activity on-site, the applicant shall retain a qualified paleontologist. The qualified paleontologist shall attend the preconstruction meeting and be on-site during all rough grading and other significant ground-disturbing activities in previously undisturbed Santiago Formation, if encountered. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontology monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow grading to recommence in the area of the find. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed project. The PRIMP shall be consistent with the guidelines of the Society of Vertebrate Paleontology (SVP) (2010).	MCCCD	Pre-construction and during construction	MCCCD Qualified Paleontologist
MM-CUL-3	In the event of discovery of unanticipated human remains, personnel shall comply with Public Resources Code Section 5097.98, CEQA Section 15064.5 and Health & Safety Code Section 7050.5 during earth-disturbing activities. If any human remains are discovered, the construction personnel or the appropriate representative shall contact the County Coroner. Upon identification of human remains, no further disturbance shall occur in the area of the find until the County Coroner has made the necessary findings	MCCCD	During construction	MCCCD

Table 4-1
Mitigation Monitoring and Reporting Program for the MiraCosta Community College District Oceanside Campus Facilities Master Plan

	Mitigation Measures/Supplemental Mitigation Measures	Responsible Party	Timing of Implementation	Implementing Party
	as to origin. If the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted by the property owner or their representative in order to determine proper treatment and disposition of the remains. The immediate vicinity where the Native American human remains are located is not to be damaged or disturbed by further development activity until consultation with the Most Likely Descendant regarding their recommendations as required by California Public Resources Code Section 5097.98 has been conducted. Public Resources Code Section 5097.98, CEQA Section 15064.5 and Health & Safety Code Section 7050.5 shall be followed.			
	Hazards and Hazardous Materials			
MM-HAZ-1	Prior to demolition of the Gym Complex, Tennis Court Support Building, Athletics Storage Shed, and Temporary Buildings, a lead-based paint and asbestos survey shall be conducted by a California Department of Health Services-certified lead-based paint assessor and California Occupational Safety and Health Administration-certified asbestos assessor. The survey shall determine whether any on-site abatement of lead-based paint or asbestos containing materials is necessary. In addition, the survey shall include an abatement work plan prepared in compliance with local, state, and federal regulations for any necessary removal of such materials. The work plan shall include a monitoring plan to be conducted by a qualified consultant during abatement activities to ensure compliance with the work plan requirements and abatement contractor specifications. Demolition plans and contract specifications shall incorporate any necessary abatement measures for the removal of materials containing lead-based paint and asbestos to the satisfaction of the San Diego County Air Pollution Control District and San Diego County Department of Environmental Health. The measures shall be consistent with the abatement work plan prepared for the project and conducted by a licensed lead/asbestos abatement contractor. If the survey and abatement plans have already been conducted/prepared, these documents shall be reviewed and implemented prior to demolition of any buildings.	MCCCD	Pre-construction and during construction	MCCCD

Table 4-1
Mitigation Monitoring and Reporting Program for the MiraCosta Community College District Oceanside Campus Facilities Master Plan

Mitigation Measures/Supplemental Mitigation Measures		Responsible Party	Timing of Implementation	Implementing Party
MM-HAZ-2	A qualified environmental specialist shall inspect the site buildings for the presence of polychlorinated biphenyls (PCBs), mercury, and other hazardous building materials prior to demolition of all buildings planned for demolition. If found, these materials shall be managed in accordance with the Metallic Discards Act of 1991 (Public Resources Code, Sections 42160–42185) and other state and federal guidelines and regulations. Demolition plans and contract specifications shall incorporate any necessary abatement measures in compliance with the Metallic Discards Act, particularly Section 42175, Materials Requiring Special Handling, for the removal of mercury switches, PCB-containing ballasts, and refrigerants.	MCCCD	Pre-construction and during construction	MCCCD Environmental Specialist
MM-HAZ-3	As part of the MCCCD Emergency Response Plan, prior to occupancy of any newly constructed or renovated structure, the District shall post an Emergency Evacuation Plan. These plans shall conform to provisions of the California Standardized Management System and the National Incident Management System. The Emergency Evacuation Plan shall provide a standardized response to emergencies involving multiple jurisdictions or multiple agencies, while also incorporating specific physical features, plans, and programs of the MCCCD campus.	MCCCD	Pre-construction	MCCCD
Hydrology/Water Quality				
MM-HYD-1	The District shall employ the following Best Management Practices (BMPs) during construction, as applicable, based on types of construction activities, the characteristics of a site, and existing impairments to receiving waters. Applicable project-specific features shall appear as notes on final construction drawings and plans. • Silt fences installed along limits of work and/or the project construction site; • Stockpile containment (e.g., Visqueen plastic sheeting, fiber rolls, gravel bags); • Exposed soil stabilization structures (e.g., fiber matrix on slopes and construction access stabilization mechanisms); • Street sweeping; • Tire washes for equipment; • Runoff control devices (e.g., drainage swales, gravel bag barriers, velocity check dams) during construction phases conducted during the rainy season;	MCCCD	During construction	MCCCD

Table 4-1
Mitigation Monitoring and Reporting Program for the MiraCosta Community College District Oceanside Campus Facilities Master Plan

Mitigation Measures/Supplemental Mitigation Measures	Responsible Party	Timing of Implementation	Implementing Party
• Storm drain inlet protection; • Wind erosion (dust) controls; • Tracking controls; • Prevention of fluid leaks (inspections and drip pans) from vehicles; • Dewatering operations best practices; • Materials pollution management; • Proper waste management; and • Regular inspections and maintenance of BMPs.			
MM-HYD-2 Prior to final project design of Phase I, a project-specific drainage analysis shall be completed, incorporating proposed development associated with Phases I, II, and III. The District shall demonstrate that post-construction runoff will be equal to or less than existing conditions, for the 2-year, 5-year, and 10-year storm event, with respect to both intensity and volume. The District shall include velocity inhibiting features into the project design, including bioswales, permeable pavers, gravel parking areas, and retention basins with permeable bases.	MCCCD	Pre-construction	MCCCD
MM-HYD-3 Prior to final project design of Phase I, the District shall redesign the System 700 drainage area to accommodate a 2-year, 5-year, and 10-year storm event, with respect to both intensity and volume. The necessary improvements shall be done in coordination with the City of Oceanside and private property owners across whose property the drainage easement and facility traverse. The drainage design shall incorporate the conclusions and recommendations provided in the NV5, Inc. 2017 drainage memo (*System 700 Drainage Analysis Results*, dated November 16, 2017, included as Appendix F [of the Draft EIR]) and shall include, but not be limited to: • Determine the depth of ponding and whether the berm would be overtopped during 2-year, 10-year, and 50-year storm events along Track Loop Road. In the event that modelling shows that the berm would be overtopped, solutions shall include additional inlet capacity along Track Loop Road at the curb inlet and/or additional inlets shall be installed upstream of the curb inlet. At a minimum, it shall be anticipated that a large inlet will be required. The berm shall also be enlarged or	MCCCD City of Oceanside	Pre-construction	MCCCD

Table 4-1
Mitigation Monitoring and Reporting Program for the MiraCosta Community College District Oceanside Campus Facilities Master Plan

Mitigation Measures/Supplemental Mitigation Measures	Responsible Party	Timing of Implementation	Implementing Party
replaced with a concrete curb sufficient to control any anticipated ponding. • Redesign and repair the main outflow pipe down the slope (i.e., downdrain) to accommodate any increases in flow associated with remediation of ponding along Track Loop Road. • Further investigate the existing damage to the slope, downdrain, and brow ditch. Based on the investigation, redesign and reconstruct these slope features to adequately accommodate a 2-year, 5-year, and 10-year storm event, with respect to both intensity and volume. • Maintain the existing and redesigned storm drain systems, including the brow ditches and downdrain. Maintenance shall include, but not be limited to the removal of overgrown vegetation, removal of rocks and soil from the brow ditches, and periodic televising of the downdrain. If the District is designated the party responsible for implementing the necessary improvements included in this measure, the District shall do the following prior to commencement of construction activities associated with the System 700 facility improvements: 1. Prepare a Public Improvement Plan for review and approval by the City of Oceanside. 2. Obtain an Encroachment Permit from the City of Oceanside. 3. Enter into a Construction Easement Agreement with the private property owners across whose property the easement and facility traverse. If it is determined that implementation of the System 700 facility improvements are a shared responsibility between the District and the City of Oceanside, the District shall pay a fair share contribution toward the necessary improvements. The fair share contribution shall be determined prior to commencement of construction activities associated with the System 700 facility improvements.			

Table 4-1
Mitigation Monitoring and Reporting Program for the MiraCosta Community College District Oceanside Campus Facilities Master Plan

Mitigation Measures/Supplemental Mitigation Measures		Responsible Party	Timing of Implementation	Implementing Party
Noise				
MM-NOI-1	The MiraCosta Community College District (MCCCD) shall adhere to the following measures: • All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. Enforcement shall be accomplished by random field inspections by MCCCD personnel during construction activities. • During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors. • During construction, stockpiling and vehicle staging areas shall be located as far as practical from noise sensitive receptors. • Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners to contact the job superintendent if necessary. In the event that MCCCD receives a complaint, appropriate corrective actions shall be implemented and a report of the action provided to the reporting party.	MCCCD	During construction	MCCCD
MM-NOI-2	Parking Lot 9 shall setback between the parking lot boundary and off-campus residential land uses on Johnson Drive to a minimum of 60 feet. Within the increased setback, a landscape screen shall be installed to enhance screening of Parking Lot 9 components (primarily vehicles and parking canopies) from view of residences on Johnson Drive. Landscape screens shall break-up the mass and scale of parking canopies. MCCCD shall also be responsible for continued maintenance of the landscape screens, including installation and maintenance of an irrigation system and implementation of, and consistency with, plant installation and maintenance standards including installation of plants in spring months, weed control, and pruning, thinning. Periodic monitoring and reporting to observe and assess the maintenance regime and implementation of appropriate measures to promote plant survival, growth, overall health, and vigor shall also be required. If necessary, adaptive measures shall be implemented in the subsequent spring season to address project deficiencies as they relate to the desired landscape screening effect.	MCCCD	Pre-construction, during construction, and post-construction	MCCCD Landscape Architect

Table 4-1
Mitigation Monitoring and Reporting Program for the MiraCosta Community College District Oceanside Campus Facilities Master Plan

	Mitigation Measures/Supplemental Mitigation Measures	Responsible Party	Timing of Implementation	Implementing Party
	The landscape screens shall be designed by a licensed landscape architect or landscape designer and shall include trees and plants compatible with the climate zone of the Oceanside Campus. Selected trees shall include drought-tolerant species that would display an estimated height of between 5 to 8 feet at planting and approximately 10 to 15 feet at 5 years post-installation. Larger nursery container sizes are recommended in recognition of the need to establish a beneficial visual screen at the time of installation.			
MM-NOI-3	To ensure that the solar panel operations comply with the City of Oceanside's nighttime noise ordinance standard of 45 dBA Leq, the solar inverters selected for the solar facility shall each produce a free-field noise level of 65 dBA or less at 3 meters, and they shall be located 200 feet or more from the nearest residential property line. Alternatively, a noise barrier or enclosure shall be constructed between the inverters and nearby noise-sensitive receivers such that noise levels from the equipment is less than 45 dBA Leq.	MCCCD	Pre-construction	MCCCD
	Utilities and Service Systems			
MM-UTL-1	Upon review of the final site engineering and design plans, the MiraCosta Community College District will coordinate with the City of Oceanside (City) to update the current water service agreement. Coordination with the City would also occur to determine if payment of impact fees would be required prior to initiating new water service connections.	MCCCD City of Oceanside	Pre-construction	MCCCD
MM-UTL-2	Upon review of the final site engineering and design plans, the MiraCosta Community College District (MCCCD) will coordinate with the City of Oceanside (City) to determine whether the existing sewer lines have the capacity and are in good enough condition to handle the increase in wastewater flow. Prior to occupancy, the MCCCD shall pay applicable City sewer infrastructure connection fees and applicable fair-share capital facilities fees to the extent the payment of such fees is made necessary by projects under the Facilities Master Plan.	MCCCD City of Oceanside	Pre-construction	MCCCD

MM = Mitigation Measure; CDFW = California Department of Fish and Wildlife; USFWS = U.S. Fish and Wildlife Service.

4.2 REFERENCES CITED

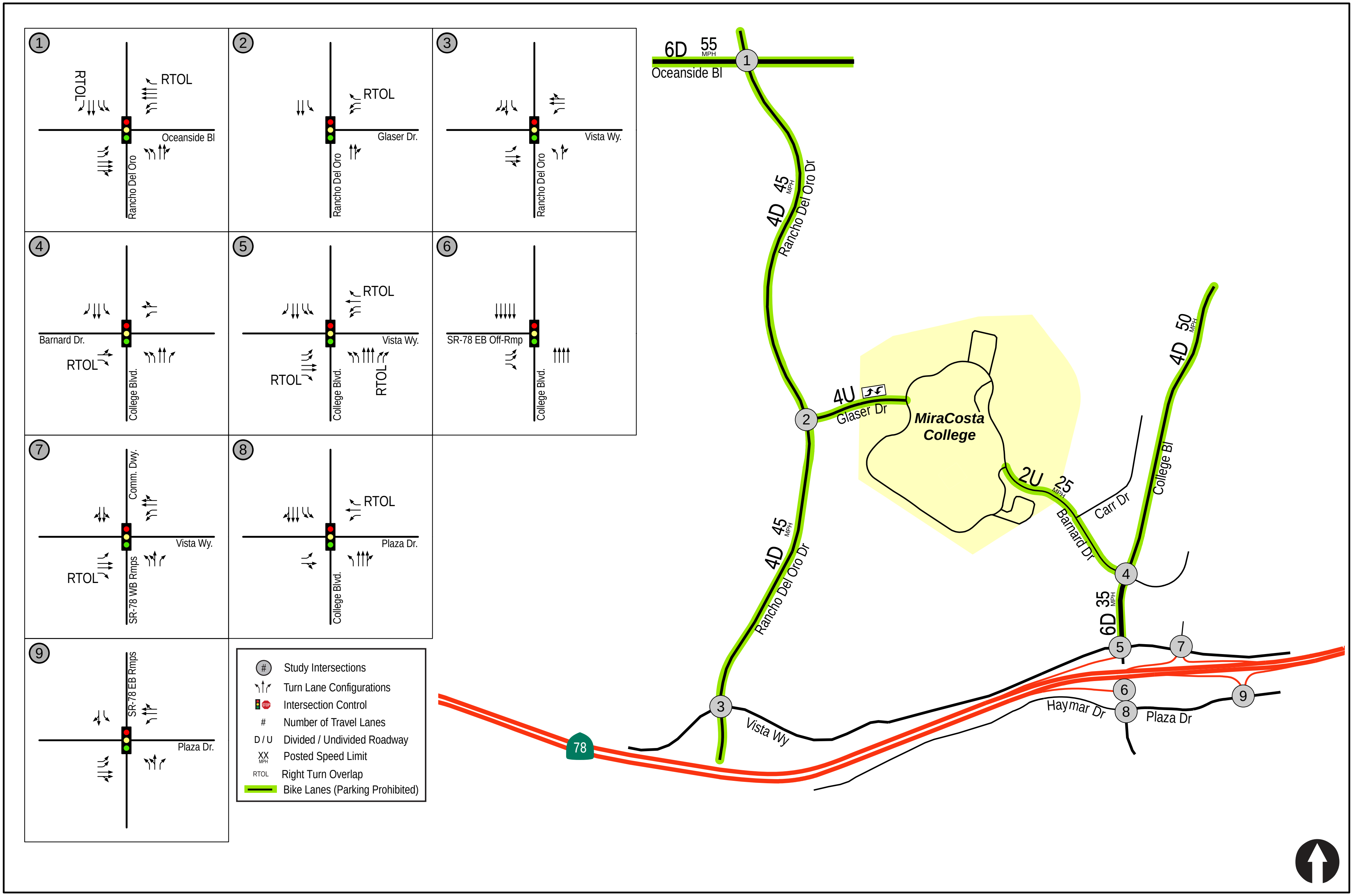
14 CCR 15000–15387 and Appendices A–L. *Guidelines for the Implementation of the California Environmental Quality Act*, as amended.

California Public Resources Code, Sections 21000–21177. *California Environmental Quality Act (CEQA)*, as amended.

SVP (Society of Vertebrate Paleontology). 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. 11 p. Available at: http://vertpaleo.org/PDFS/68/68c554bb-86f1-442f-a0dc-25299762d36c.pdf. USFWS (U.S. Fish and Wildlife Service). 2001. Least Bell's Vireo Survey Guidelines. January 19, 2001. https://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/LBVireo.2001.protocol.pdf

APPENDIX A

Revised Figures



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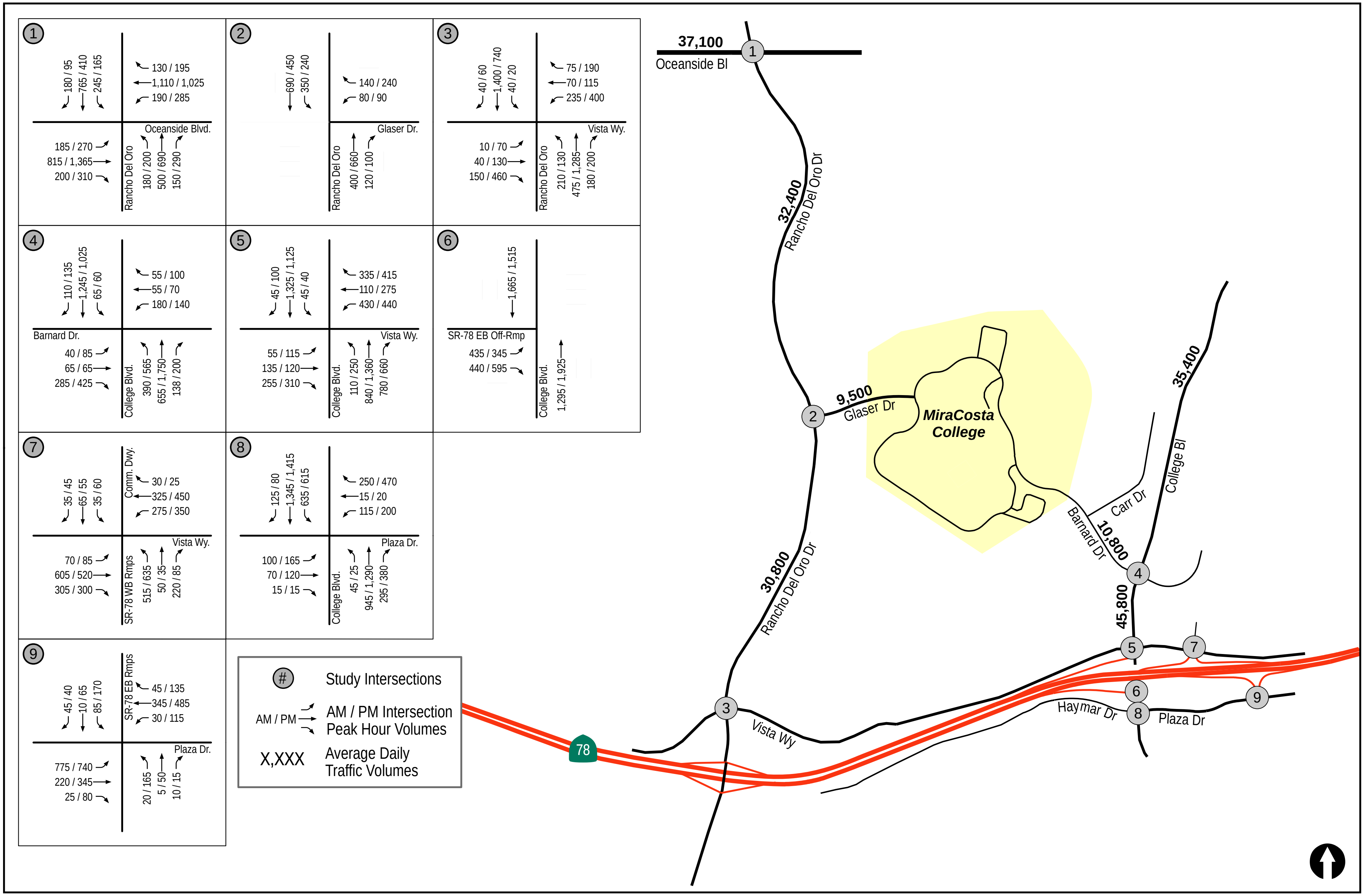
Date: 03/07/18

LINSCOTT LAW & GREENSPAN engineers

Figure 3-1

Existing Conditions Diagram

MIRACOSTA COLLEGE



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Date: 10/20/17

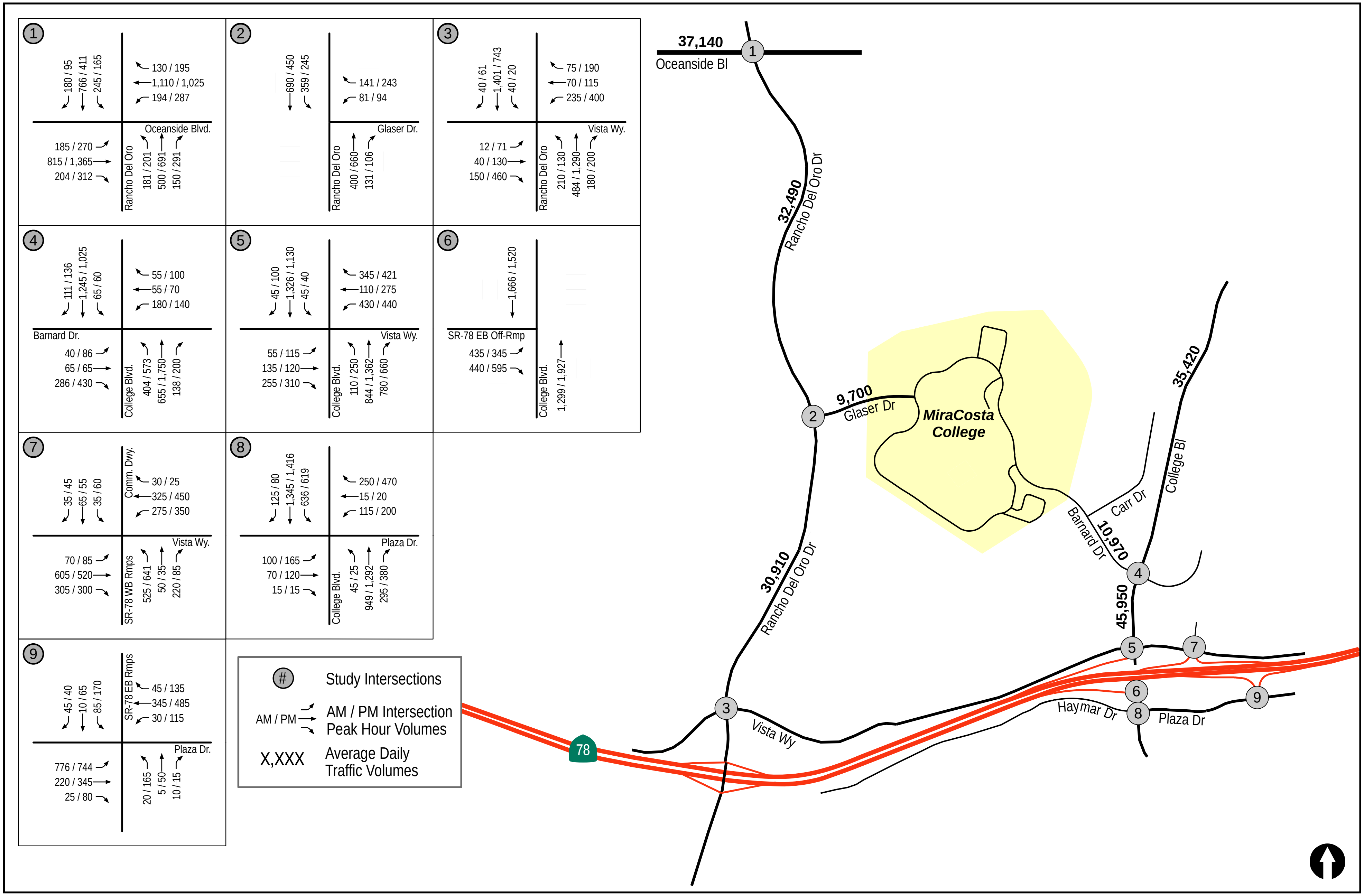
LINSCOTT LAW & GREENSPAN engineers

Figure 10-5

Year 2035 Traffic Volumes

With Rancho Del Oro Interchange

MIRACOSTA COLLEGE



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Date: 10/20/17

Figure 10-6
Year 2035 + Project Traffic Volumes
With Rancho Del Oro Interchange

APPENDIX B

Revised Technical Appendices

LINSCOTT LAW & GREENSPAN engineers

TECHNICAL APPENDICES

MIRA COSTA COLLEGE

Oceanside, California
October 27, 2017

LLG Ref. 3-17-2753

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APPENDIX A

INTERSECTION & SEGMENT MANUAL COUNT SHEETS

INTERSECTION MANUAL COUNT SHEETS

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

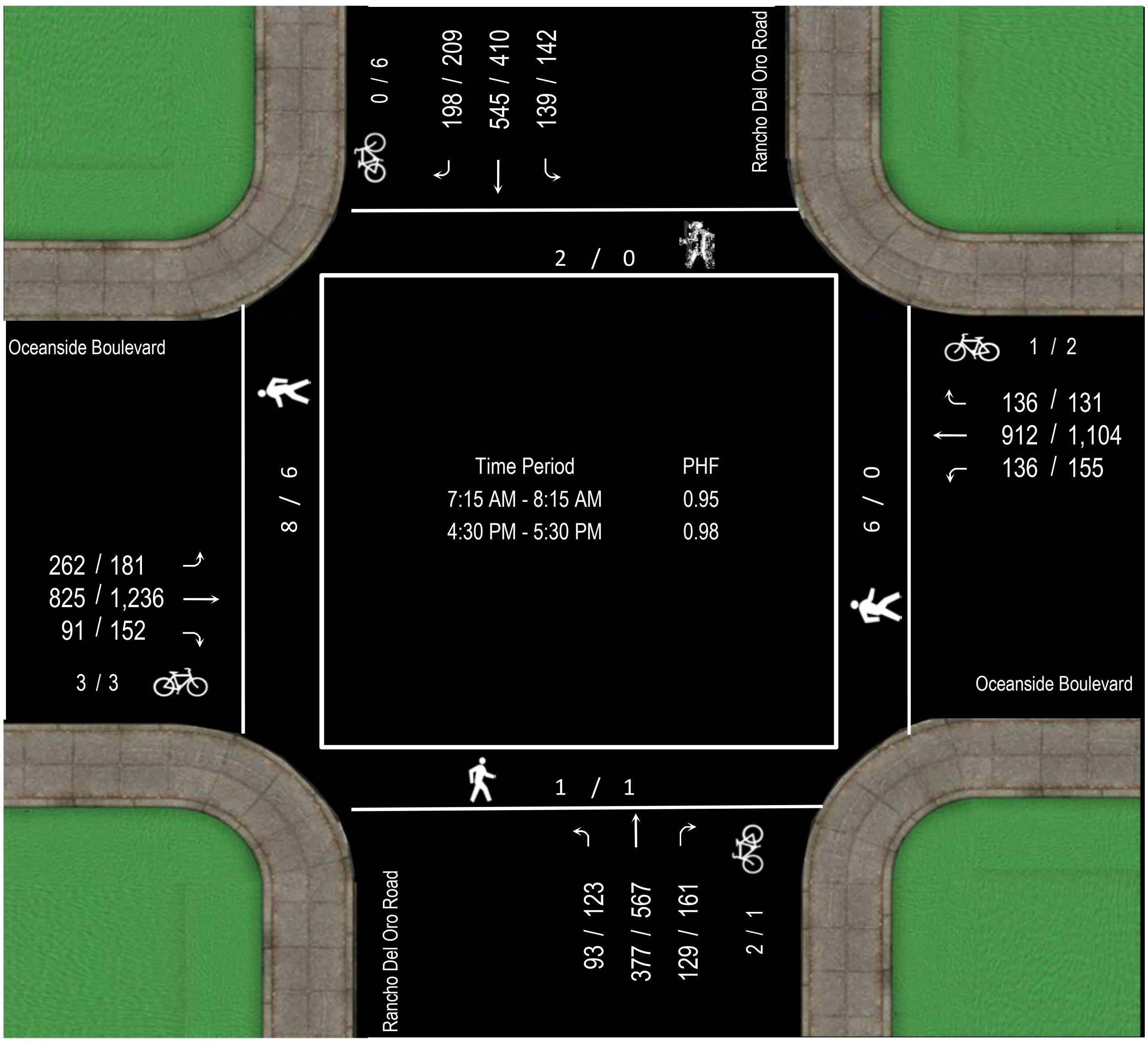
Location: Oceanside Boulevard @ Rancho Del Oro Road

Date of Count: *Tuesday, May 02, 2017*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *17-0663*



Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Oceanside Boulevard @ Rancho Del Oro Road

AM Period (7:00 AM - 9:00 AM)

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 AM	37	111	25	52	163	19	15	160	17	24	124	48	795
7:15 AM	61	166	56	37	177	32	21	133	21	23	176	69	972
7:30 AM	57	142	31	30	235	41	28	70	23	16	207	55	935
7:45 AM	25	132	31	46	244	31	44	98	23	23	243	69	1,009
8:00 AM	55	105	21	23	256	32	36	76	26	29	199	69	927
8:15 AM	25	128	27	28	192	35	22	65	26	33	164	58	803
8:30 AM	31	189	29	28	183	29	23	76	38	64	203	41	934
8:45 AM	31	157	41	28	205	39	47	95	44	41	216	50	994
Total	322	1,130	261	272	1,655	258	236	773	218	253	1,532	459	7,369

AM Intersection Peak Hour : **7:15 AM - 8:15 AM** Intersection PHF : **0.95**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	198	545	139	136	912	136	129	377	93	91	825	262	3,843
PHF	0.81	0.82	0.62	0.74	0.89	0.83	0.73	0.71	0.89	0.78	0.85	0.95	0.95
Movement PHF		0.78			0.92			0.86			0.88		0.95

PM Period (4:00 PM - 6:00 PM)

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
4:00 PM	43	78	43	39	283	35	29	130	25	34	303	46	1,088
4:15 PM	49	104	31	26	241	40	41	137	31	31	312	45	1,088
4:30 PM	65	100	51	39	297	29	35	145	41	27	297	44	1,170
4:45 PM	41	88	28	34	297	42	42	148	28	43	317	51	1,159
5:00 PM	62	104	31	35	279	37	42	110	29	47	328	47	1,151
5:15 PM	41	118	32	23	231	47	42	164	25	35	294	39	1,091
5:30 PM	37	112	38	17	234	24	41	137	23	43	302	41	1,049
5:45 PM	44	91	34	35	221	28	49	158	37	35	312	54	1,098
Total	382	795	288	248	2,083	282	321	1,129	239	295	2,465	367	8,894

PM Intersection Peak Hour : **4:30 PM - 5:30 PM** Intersection PHF : **0.98**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	209	410	142	131	1104	155	161	567	123	152	1236	181	4571
PHF	0.80	0.869	0.696	0.84	0.929	0.824	0.958	0.864	0.75	0.809	0.942	0.887	0.98
Movement PHF		0.88			0.93			0.92			0.93		0.98

LINSCOTT LAW & GREENSPAN engineers

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

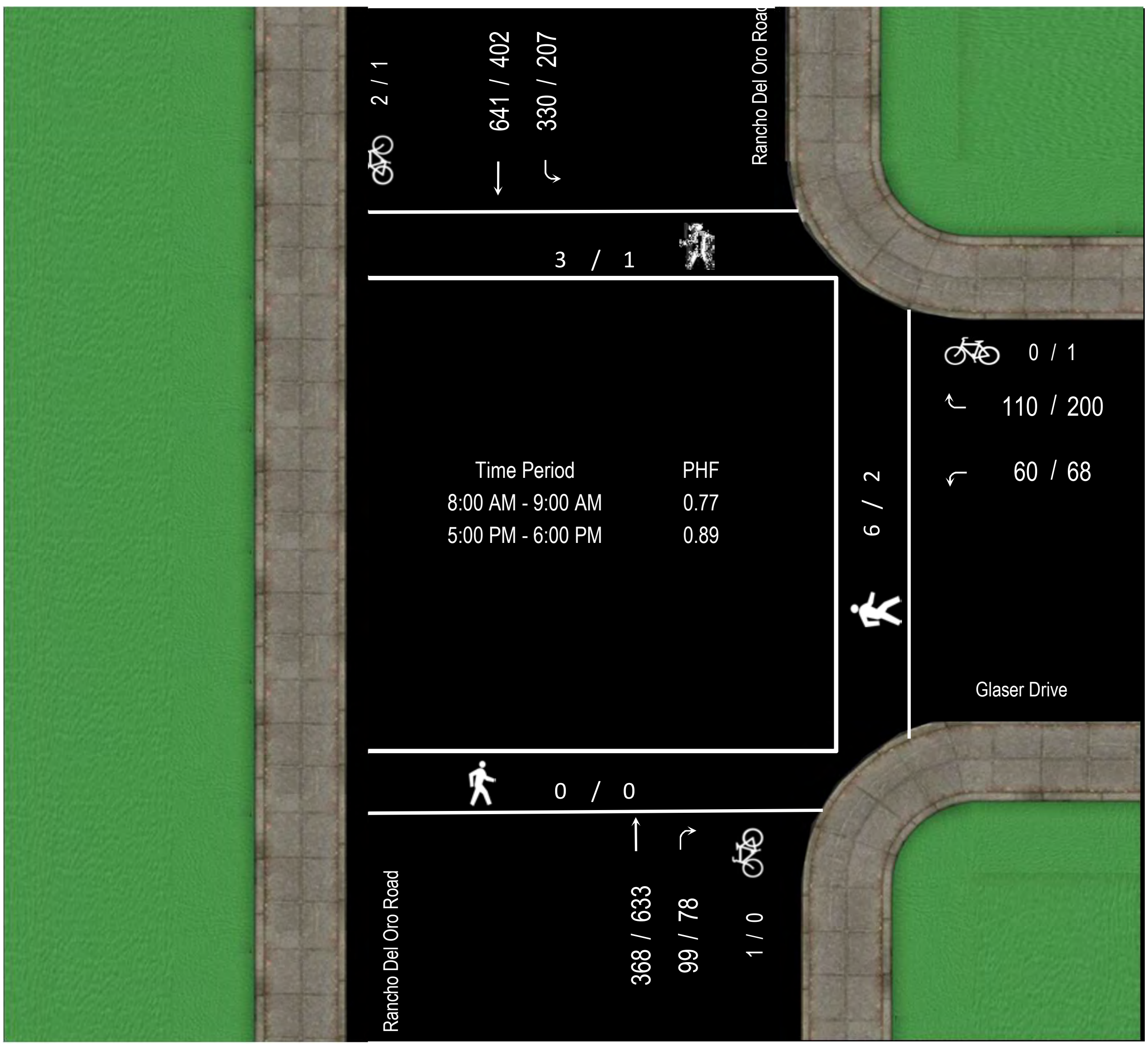
Location: Glaser Drive @ Rancho Del Oro Road

Date of Count: *Tuesday, May 02, 2017*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *17-0663*



Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Glaser Drive @ Rancho Del Oro Road

AM Period (7:00 AM - 9:00 AM)								
	Southbound		Westbound		Northbound			
	Thru	Left	Right	Left	Right	Thru		TOTAL
7:00 AM	123	49	14	2	12	94		294
7:15 AM	159	55	7	4	14	83		322
7:30 AM	173	55	6	2	10	80		326
7:45 AM	157	54	10	6	9	91		327
8:00 AM	140	42	15	5	14	94		310
8:15 AM	168	73	10	5	24	87		367
8:30 AM	154	85	24	24	22	98		407
8:45 AM	179	130	61	26	39	89		524
Total	1,253	543	147	74	144	716		2,877

AM Intersection Peak Hour : **8:00 AM - 9:00 AM** Intersection PHF : **0.77**

	Southbound		Westbound		Northbound			TOTAL
	Thru	Left	Right	Left	Right	Thru		
Volume	641	330	110	60	99	368		1,608
PHF	0.90	0.63	0.45	0.58	0.63	0.94		0.77
Movement PHF	0.79		0.49		0.91			0.77

PM Period (4:00 PM - 6:00 PM)								
	Southbound		Westbound		Northbound			
	Thru	Left	Right	Left	Right	Thru		TOTAL
4:00 PM	120	20	39	20	11	146		356
4:15 PM	114	38	55	27	14	149		397
4:30 PM	103	21	52	17	12	148		353
4:45 PM	110	28	31	13	12	143		337
5:00 PM	110	31	47	19	17	159		383
5:15 PM	120	65	57	17	22	166		447
5:30 PM	89	63	42	18	15	159		386
5:45 PM	83	48	54	14	24	149		372
Total	849	314	377	145	127	1,219		3,031

PM Intersection Peak Hour : **5:00 PM - 6:00 PM** Intersection PHF : **0.89**

	Southbound		Westbound		Northbound			TOTAL
	Thru	Left	Right	Left	Right	Thru		
Volume	402	207	200	68	78	633		1588
PHF	0.838	0.796	0.877	0.895	0.813	0.953		0.89
Movement PHF	0.82		0.91		0.95			0.89

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location:	Vista Way	@	Rancho Del Oro Road
Date of Count:	*Tuesday, May 02, 2017*		
Analysts:	*LV/CD*		
Weather:	*Sunny*		
AVC Proj No:	*17-0663*		

LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Vista Way @ Rancho Del Oro Road

AM Period (7:00 AM - 9:00 AM)	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 AM	70	2	80	55	37	14	1	1	0	3	31	35	329
7:15 AM	78	9	96	43	37	14	0	0	3	6	34	33	353
7:30 AM	102	14	106	58	29	27	2	3	1	18	38	30	428
7:45 AM	84	17	98	60	57	38	1	2	3	24	49	43	476
8:00 AM	78	11	73	54	65	25	0	2	3	19	35	38	403
8:15 AM	81	16	71	61	40	35	6	3	1	17	33	46	410
8:30 AM	108	13	84	50	57	32	8	3	9	20	35	62	481
8:45 AM	110	21	78	42	77	22	9	1	6	19	40	66	491
Total	711	103	686	423	399	207	27	15	26	126	295	353	3,371

AM Intersection Peak Hour : **8:00 AM - 9:00 AM** Intersection PHF : **0.91**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	377	61	306	207	239	114	23	9	19	75	143	212	1,785
PHF	0.86	0.73	0.91	0.85	0.78	0.81	0.64	0.75	0.53	0.94	0.89	0.80	0.91
Movement PHF		0.89			0.97			0.64			0.86		0.91

PM Period (4:00 PM - 6:00 PM)	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
4:00 PM	70	8	67	89	71	13	10	11	18	13	93	79	542
4:15 PM	78	7	69	76	83	20	17	12	17	8	61	98	546
4:30 PM	51	2	70	65	74	7	6	14	12	9	84	86	480
4:45 PM	83	3	55	79	102	10	6	9	15	4	90	99	555
5:00 PM	63	7	67	64	62	6	18	23	26	2	92	109	539
5:15 PM	67	2	72	88	72	10	9	13	12	3	74	109	531
5:30 PM	69	1	51	96	60	4	4	8	8	1	63	100	465
5:45 PM	58	2	56	78	76	11	11	8	4	1	58	101	464
Total	539	32	507	635	600	81	81	98	112	41	615	781	4,122

PM Intersection Peak Hour : **4:00 PM - 5:00 PM** Intersection PHF : **0.96**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	282	20	261	309	330	50	39	46	62	34	328	362	2123
PHF	0.85	0.625	0.932	0.868	0.809	0.625	0.574	0.821	0.861	0.654	0.882	0.914	0.96
Movement PHF		0.91			0.90			0.80			0.94		0.96

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Barnard Drive @ College Boulevard

Date of Count: *Tuesday, May 02, 2017*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *17-0663*

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Barnard Drive @ College Boulevard

AM Period (7:00 AM - 9:00 AM)	Southbound			Westbound			Northbound			Eastbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	TOTAL
7:00 AM	21	322	13	7	6	45	20	145	74	52	5	9	719
7:15 AM	33	292	10	7	10	35	25	157	127	81	10	11	798
7:30 AM	8	281	13	12	11	34	27	157	90	70	14	4	721
7:45 AM	27	297	12	14	11	35	44	164	68	56	14	2	744
8:00 AM	11	257	25	9	7	29	30	130	88	53	10	7	656
8:15 AM	18	251	19	18	11	27	31	166	68	38	8	3	658
8:30 AM	25	272	26	10	9	23	39	169	106	56	11	6	752
8:45 AM	43	250	13	7	17	26	28	196	147	93	8	31	859
Total	186	2,222	131	84	82	254	244	1,284	768	499	80	73	5,907

AM Intersection Peak Hour : **7:00 AM - 8:00 AM** Intersection PHF : **0.93**

	Southbound			Westbound			Northbound			Eastbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	TOTAL
Volume	89	1,192	48	40	38	149	116	623	359	259	43	26	2,982
PHF	0.67	0.93	0.92	0.71	0.86	0.83	0.66	0.95	0.71	0.80	0.77	0.59	0.93
Movement PHF		0.93			0.95			0.89			0.80		0.93

PM Period (4:00 PM - 6:00 PM)	Southbound			Westbound			Northbound			Eastbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	TOTAL
4:00 PM	15	227	11	26	13	27	52	410	77	85	8	29	980
4:15 PM	15	249	11	35	9	32	54	444	97	111	18	25	1,100
4:30 PM	15	235	15	24	12	42	50	403	111	130	14	27	1,078
4:45 PM	12	244	10	31	10	22	66	468	118	86	9	13	1,089
5:00 PM	20	209	6	26	13	34	46	397	101	89	14	15	970
5:15 PM	23	256	10	22	16	33	56	459	107	90	10	17	1,099
5:30 PM	32	235	12	25	12	27	33	413	185	107	7	20	1,108
5:45 PM	33	276	12	16	13	23	41	435	134	104	12	18	1,117
Total	165	1931	87	205	98	240	398	3,429	930	802	92	164	8,541

PM Intersection Peak Hour : **5:00 PM - 6:00 PM** Intersection PHF : **0.96**

	Southbound			Westbound			Northbound			Eastbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	TOTAL
Volume	108	976	40	89	54	117	176	1704	527	390	43	70	4294
PHF	0.82	0.884	0.833	0.856	0.844	0.86	0.786	0.928	0.712	0.911	0.768	0.875	0.96
Movement PHF		0.88			0.89			0.95			0.94		0.96

LINSCOTT LAW & GREENSPAN engineers

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location:	Vista Way	@	College Boulevard
Date of Count:	*Tuesday, May 02, 2017*		
Analysts:	*LV/CD*		
Weather:	*Sunny*		
AVC Proj No:	*17-0663*		

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Vista Way @ College Boulevard

AM Period (7:00 AM - 9:00 AM)

	Southbound			Westbound			Northbound			Eastbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	TOTAL
7:00 AM	114	301	4	70	57	85	131	185	22	100	27	13	1,109
7:15 AM	113	293	2	81	34	115	144	178	30	118	29	13	1,150
7:30 AM	81	300	4	83	58	111	177	148	48	116	33	2	1,161
7:45 AM	115	266	7	74	93	111	245	167	50	127	46	7	1,308
8:00 AM	97	235	7	50	90	98	231	170	47	95	30	8	1,158
8:15 AM	87	223	6	76	94	116	189	149	48	76	26	17	1,107
8:30 AM	92	253	6	103	56	91	182	215	36	100	25	14	1,173
8:45 AM	112	242	15	121	71	106	185	202	42	68	42	10	1,216
Total	811	2,113	51	658	553	833	1,484	1,414	323	800	258	84	9,382

AM Intersection Peak Hour : **7:15 AM - 8:15 AM** Intersection PHF : **0.91**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	406	1,094	20	288	275	435	797	663	175	456	138	30	4,777
PHF	0.88	0.91	0.71	0.87	0.74	0.95	0.81	0.93	0.88	0.90	0.75	0.58	0.91
Movement PHF		0.93			0.90			0.88			0.87		0.91

PM Period (4:00 PM - 6:00 PM)

	Southbound			Westbound			Northbound			Eastbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	TOTAL
4:00 PM	84	235	20	86	142	81	223	403	81	95	64	30	1,544
4:15 PM	96	274	22	93	131	112	138	391	90	91	66	31	1,535
4:30 PM	118	275	14	67	119	107	155	375	66	89	57	22	1,464
4:45 PM	83	255	14	85	105	100	126	410	72	88	50	28	1,416
5:00 PM	92	227	13	78	88	91	196	367	82	104	45	31	1,414
5:15 PM	107	259	13	91	128	110	178	379	98	126	38	26	1,553
5:30 PM	107	245	17	83	143	81	173	364	80	111	40	10	1,454
5:45 PM	105	288	10	92	110	92	161	350	97	87	38	24	1,454
Total	792	2058	123	675	966	774	1,350	3,039	666	791	398	202	11,834

PM Intersection Peak Hour : **4:00 PM - 5:00 PM** Intersection PHF : **0.96**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	381	1039	70	331	497	400	642	1579	309	363	237	111	5959
PHF	0.81	0.945	0.795	0.89	0.875	0.893	0.72	0.963	0.858	0.955	0.898	0.895	0.96
Movement PHF		0.92			0.91			0.89			0.94		0.96

Linscott Law & Greenspan engineers

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: SR-78 EB Off-Ramp @ College Boulevard

Date of Count: *Tuesday, May 02, 2017*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *17-0663*

LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: SR-78 EB Off-Ramp @ College Boulevard

AM Period (7:00 AM - 9:00 AM)

	Southbound			Northbound		Eastbound		
	Right	Thru		Thru	Left	Right	Left	TOTAL
7:00 AM	0	340		227	0	32	111	710
7:15 AM	0	401		205	0	31	147	784
7:30 AM	0	416		258	0	61	115	850
7:45 AM	0	419		300	0	73	162	954
8:00 AM	0	355		289	0	59	159	862
8:15 AM	0	346		241	0	55	145	787
8:30 AM	0	386		258	0	37	175	856
8:45 AM	0	351		246	0	55	183	835
Total	0	3,014		2,024	0	403	1,197	6,638

AM Intersection Peak Hour : **7:45 AM - 8:45 AM** Intersection PHF : **0.91**

	Southbound			Northbound		Eastbound		
	Right	Thru		Thru	Left	Right	Left	TOTAL
Volume	0	1,506		1,088	0	224	641	3,459
PHF	#####	0.90		0.91	#####	0.77	0.92	0.91
Movement PHF		0.90		0.91		0.92		0.91

PM Period (4:00 PM - 6:00 PM)

	Southbound			Northbound		Eastbound		
	Right	Thru		Thru	Left	Right	Left	TOTAL
4:00 PM	0	337		561	0	100	146	1,144
4:15 PM	0	383		442	0	79	177	1,081
4:30 PM	0	392		460	0	84	136	1,072
4:45 PM	0	391		418	0	86	190	1,085
5:00 PM	0	361		492	0	64	153	1,070
5:15 PM	0	444		502	0	90	153	1,189
5:30 PM	0	377		459	0	97	158	1,091
5:45 PM	0	407		433	0	66	175	1,081
Total	0	3092		3,767	0	666	1,288	8,813

PM Intersection Peak Hour : **4:45 PM - 5:45 PM** Intersection PHF : **0.93**

	Southbound			Northbound		Eastbound		
	Right	Thru		Thru	Left	Right	Left	TOTAL
Volume	0	1573		1871	0	337	654	4435
PHF	#####	0.886		0.932	#####	0.869	0.861	0.93
Movement PHF		0.89		0.93		0.90		0.93

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

LINSCOTT LAW & GREENSPAN engineers

AVC

Location: Vista Way @ SR-78 WB Ramps

Date of Count: *Tuesday, May 02, 2017*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *17-0663*

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Vista Way @ SR-78 WB Ramps

AM Period (7:00 AM - 9:00 AM)

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 AM	17	15	5	4	61	58	30	18	134	63	77	22	504
7:15 AM	9	9	8	6	66	59	38	22	155	59	85	31	547
7:30 AM	13	28	13	6	92	86	40	17	147	46	127	41	656
7:45 AM	18	22	7	5	84	80	73	27	176	83	167	48	790
8:00 AM	15	18	12	9	110	89	53	19	113	96	138	34	706
8:15 AM	13	15	16	14	101	89	46	16	172	70	118	33	703
8:30 AM	12	36	20	5	75	67	35	38	163	74	104	35	664
8:45 AM	19	17	19	8	97	51	35	18	182	60	134	48	688
Total	116	160	100	57	686	579	350	175	1,242	551	950	292	5,258

AM Intersection Peak Hour : **7:45 AM - 8:45 AM** Intersection PHF : **0.91**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	58	91	55	33	370	325	207	100	624	323	527	150	2,863
PHF	0.81	0.63	0.69	0.59	0.84	0.91	0.71	0.66	0.89	0.84	0.79	0.78	0.91
Movement PHF		0.75			0.88			0.84			0.84		0.91

PM Period (4:00 PM - 6:00 PM)

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
4:00 PM	15	17	22	10	116	73	18	16	178	118	149	40	772
4:15 PM	19	22	18	5	106	63	13	18	211	82	115	29	701
4:30 PM	15	19	16	3	120	90	20	19	158	75	107	44	686
4:45 PM	22	18	13	4	94	76	17	10	174	63	97	30	618
5:00 PM	14	12	26	4	89	89	12	15	154	91	129	34	669
5:15 PM	29	17	10	4	112	64	14	7	188	103	98	28	674
5:30 PM	13	11	14	7	101	68	12	19	193	67	139	24	668
5:45 PM	17	12	14	4	72	61	20	10	205	75	101	33	624
Total	144	128	133	41	810	584	126	114	1,461	674	935	262	5,412

PM Intersection Peak Hour : **4:00 PM - 5:00 PM** Intersection PHF : **0.90**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	71	76	69	22	436	302	68	63	721	338	468	143	2777
PHF	0.81	0.864	0.784	0.55	0.908	0.839	0.85	0.829	0.854	0.716	0.785	0.813	0.90
Movement PHF		0.92			0.89			0.88			0.77		0.90

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

LINSCOTT LAW & GREENSPAN engineers

AVC

Location:	Plaza Drive	@	College Boulevard
Date of Count:	*Thursday, September 07, 2017*		
Analysts:	*LV/CD*		
Weather:	*Sunny*		
AVC Proj No:	*17-0746*		

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Plaza Drive @ College Boulevard

AM Period (7:00 AM - 9:00 AM)

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 AM	14	354	177	36	1	21	72	208	5	1	3	5	897
7:15 AM	7	406	202	43	2	33	72	243	10	5	8	9	1,040
7:30 AM	14	439	194	44	4	52	56	214	12	0	5	5	1,039
7:45 AM	19	399	175	46	2	32	48	257	10	0	4	4	996
8:00 AM	13	405	198	49	1	23	76	247	8	0	3	10	1,033
8:15 AM	15	377	178	71	3	45	59	229	14	1	6	13	1,011
8:30 AM	16	324	160	68	2	37	60	242	15	4	9	9	946
8:45 AM	28	355	192	67	4	40	67	229	6	4	11	13	1,016
Total	126	3,059	1,476	424	19	283	510	1,869	80	15	49	68	7,978

AM Intersection Peak Hour : **7:15 AM - 8:15 AM** Intersection PHF : **0.99**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	53	1,649	769	182	9	140	252	961	40	5	20	28	4,108
PHF	0.70	0.94	0.95	0.93	0.56	0.67	0.83	0.93	0.83	0.25	0.63	0.70	0.99
Movement PHF		0.95			0.83			0.95			0.60		0.99

PM Period (4:00 PM - 6:00 PM)

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
4:00 PM	4	324	170	127	8	48	62	323	5	7	17	16	1,111
4:15 PM	9	345	205	119	2	39	63	342	2	4	12	11	1,153
4:30 PM	16	442	229	192	4	49	71	442	5	3	6	13	1,472
4:45 PM	10	383	255	180	4	53	84	385	6	3	13	22	1,398
5:00 PM	10	459	239	193	2	36	99	477	4	4	17	13	1,553
5:15 PM	6	441	263	122	0	52	74	394	4	5	6	15	1,382
5:30 PM	4	416	215	165	3	47	110	478	3	1	15	6	1,463
5:45 PM	8	378	218	188	2	44	59	379	4	1	10	9	1,300
Total	67	3188	1794	1,286	25	368	622	3,220	33	28	96	105	10,832

PM Intersection Peak Hour : **4:30 PM - 5:30 PM** Intersection PHF : **0.93**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	42	1725	986	687	10	190	328	1698	19	15	42	63	5805
PHF	0.66	0.94	0.937	0.89	0.625	0.896	0.828	0.89	0.792	0.75	0.618	0.716	0.93
Movement PHF		0.97			0.91			0.88			0.79		0.93

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Plaza Drive @ SR-78 EB Ramps

Date of Count: *Tuesday, May 02, 2017*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *17-0663*

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Plaza Drive @ SR-78 EB Ramps

AM Period (7:00 AM - 9:00 AM)													
	Southbound			Westbound			Northbound			Eastbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	TOTAL
7:00 AM	6	2	13	4	43	4	0	0	5	0	21	153	251
7:15 AM	11	2	17	12	45	2	2	1	2	0	40	200	334
7:30 AM	5	1	18	18	64	4	2	1	5	3	35	175	331
7:45 AM	2	4	23	8	64	7	2	1	9	4	44	162	330
8:00 AM	9	3	22	8	70	4	2	1	6	1	46	173	345
8:15 AM	6	0	26	8	69	11	7	0	6	5	50	167	355
8:30 AM	11	4	20	9	80	8	2	1	16	5	49	160	365
8:45 AM	6	9	25	8	59	17	1	6	10	8	40	160	349
Total	56	25	164	75	494	57	18	11	59	26	325	1,350	2,660

AM Intersection Peak Hour : **8:00 AM - 9:00 AM** Intersection PHF : **0.97**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	32	16	93	33	278	40	12	8	38	19	185	660	1,414
PHF	0.73	0.44	0.89	0.92	0.87	0.59	0.43	0.33	0.59	0.59	0.93	0.95	0.97
Movement PHF		0.88			0.90			0.76			0.97		0.97

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	TOTAL
4:00 PM	7	7	36	24	126	48	17	12	49	22	92	205	645
4:15 PM	10	19	34	17	106	30	13	16	49	22	88	169	573
4:30 PM	7	10	40	11	110	23	23	16	45	16	78	159	538
4:45 PM	7	14	35	13	94	30	13	12	38	10	79	172	517
5:00 PM	3	8	27	25	137	32	16	16	39	19	100	168	590
5:15 PM	15	11	30	27	117	39	18	18	48	13	99	161	596
5:30 PM	9	8	33	16	126	53	24	10	41	29	89	194	632
5:45 PM	11	9	26	11	110	45	20	11	44	23	79	138	527
Total	69	86	261	144	926	300	144	111	353	154	704	1,366	4,618

PM Intersection Peak Hour : **5:00 PM - 6:00 PM** Intersection PHF : **0.93**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	38	36	116	79	490	169	78	55	172	84	367	661	2345
PHF	0.63	0.818	0.879	0.731	0.894	0.797	0.813	0.764	0.896	0.724	0.918	0.852	0.93
Movement PHF		0.85			0.95			0.91			0.89		0.93

SEGMENT COUNT SHEETS

Linscott Law & Greenspan engineers

24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

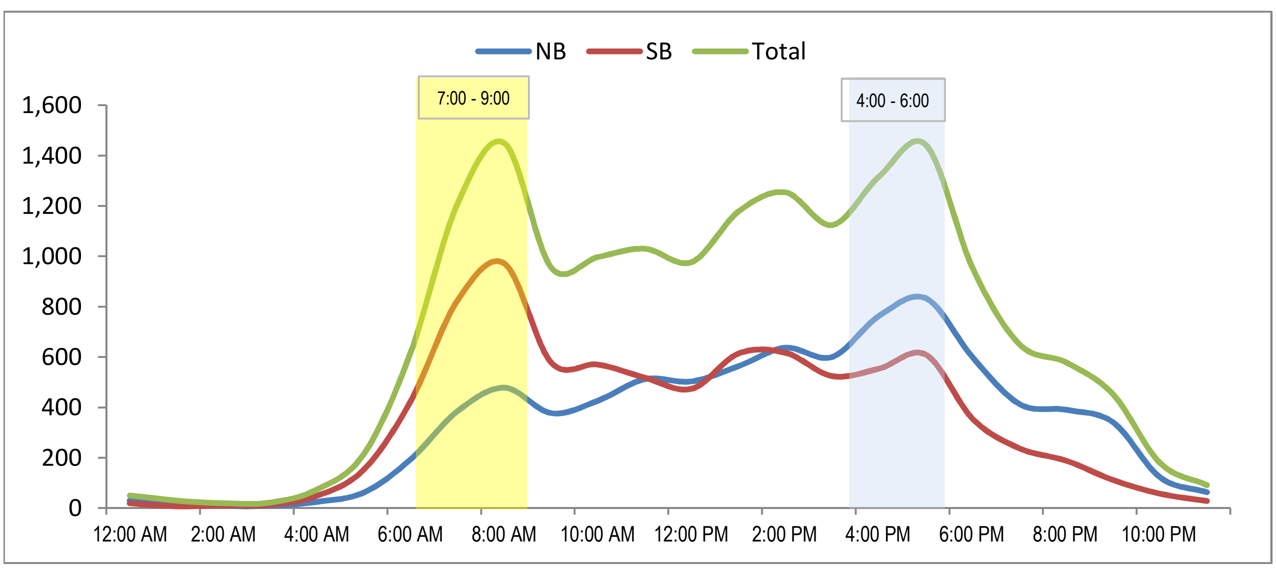
AVC

Location:	1. Rancho Del Oro Road btw Oceanside Boulevard to Glaser Drive
Orientation:	*North-South*
Date of Count:	*Tuesday, May 02, 2017*
Analysts:	*DASH*
Weather:	*Sunny*
AVC Proj. No:	*17-0663*

24 Hour Segment Volume **16,863**

Time	Hourly Volume			Time	Hourly Volume		
	NB	SB	Total		NB	SB	Total
12:00 AM - 1:00 AM	31	19	50	12:00 PM - 1:00 PM	503	474	977
1:00 AM - 2:00 AM	23	7	30	1:00 PM - 2:00 PM	564	614	1,178
2:00 AM - 3:00 AM	9	10	19	2:00 PM - 3:00 PM	637	617	1,254
3:00 AM - 4:00 AM	9	13	22	3:00 PM - 4:00 PM	600	524	1,124
4:00 AM - 5:00 AM	25	49	74	4:00 PM - 5:00 PM	763	554	1,317
5:00 AM - 6:00 AM	62	153	215	5:00 PM - 6:00 PM	833	609	1,442
6:00 AM - 7:00 AM	194	425	619	6:00 PM - 7:00 PM	598	354	952
7:00 AM - 8:00 AM	385	825	1,210	7:00 PM - 8:00 PM	413	237	650
8:00 AM - 9:00 AM	478	971	1,449	8:00 PM - 9:00 PM	390	188	578
9:00 AM - 10:00 AM	377	578	955	9:00 PM - 10:00 PM	340	111	451
10:00 AM - 11:00 AM	427	570	997	10:00 PM - 11:00 PM	122	57	179
11:00 AM - 12:00 PM	512	518	1030	11:00 PM - 12:00 AM	63	28	91
Total	**2,532**	**4,138**	**6,670**	**Total**	**5,826**	**4,367**	**10,193**

24-Hour	***NB***	***Volume***	***8,358***	***24-Hour***	***SB***	***Volume***	***8,505***



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

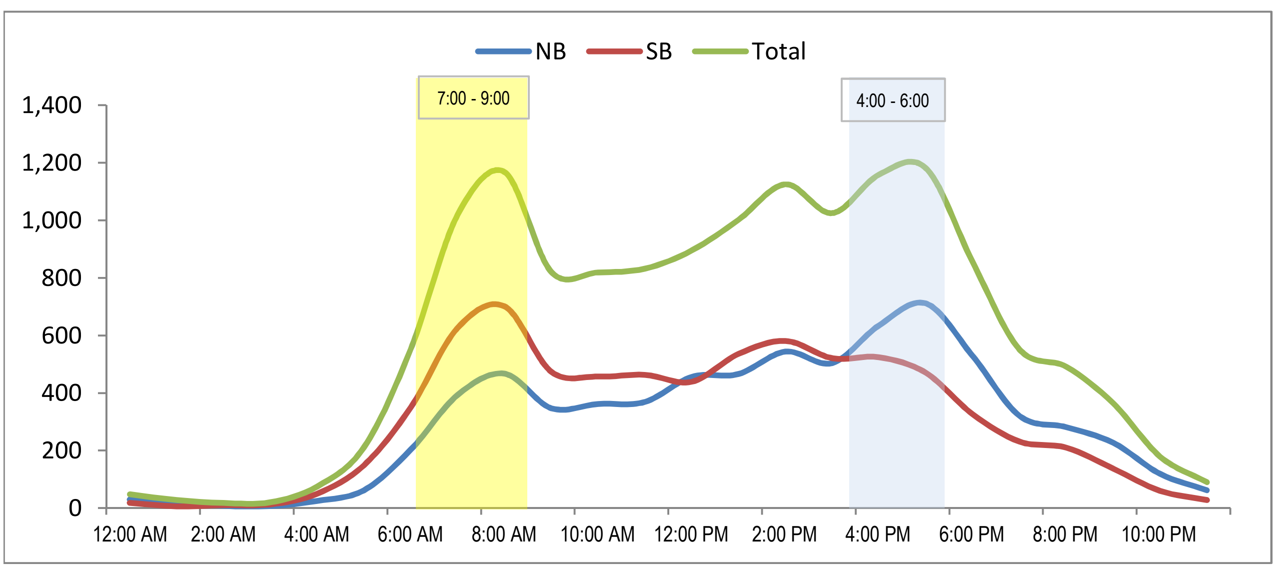
LINSCOTT LAW & GREENSPAN engineers

AVC

Location:	2. Rancho Del Oro Road btw Glaser Drive to Vista Way
Orientation:	North-South
Date of Count:	Tuesday, May 02, 2017
Analysts:	DASH
Weather:	Sunny
AVC Proj. No:	17-0663

24 Hour Segment Volume								14,528
Time	Hourly Volume				Time	Hourly Volume		
	NB	SB	Total			NB	SB	Total
12:00 AM - 1:00 AM	30	18	48		12:00 PM - 1:00 PM	456	439	895
1:00 AM - 2:00 AM	22	6	28		1:00 PM - 2:00 PM	466	536	1,002
2:00 AM - 3:00 AM	8	10	18		2:00 PM - 3:00 PM	544	581	1,125
3:00 AM - 4:00 AM	7	13	20		3:00 PM - 4:00 PM	504	521	1,025
4:00 AM - 5:00 AM	25	50	75		4:00 PM - 5:00 PM	635	524	1,159
5:00 AM - 6:00 AM	62	149	211		5:00 PM - 6:00 PM	711	470	1,181
6:00 AM - 7:00 AM	203	350	553		6:00 PM - 7:00 PM	528	326	854
7:00 AM - 8:00 AM	393	626	1,019		7:00 PM - 8:00 PM	320	231	551
8:00 AM - 9:00 AM	467	701	1,168		8:00 PM - 9:00 PM	281	210	491
9:00 AM - 10:00 AM	347	474	821		9:00 PM - 10:00 PM	227	137	364
10:00 AM - 11:00 AM	362	457	819		10:00 PM - 11:00 PM	119	60	179
11:00 AM - 12:00 PM	369	463	832		11:00 PM - 12:00 AM	62	28	90
Total	**2,295**	**3,317**	**5,612**		**Total**	**4,853**	**4,063**	**8,916**

24-Hour	NB	Volume	7,148	24-Hour	SB	Volume	7,380



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

LINSCOTT LAW & GREENSPAN engineers

Location: 3. College Boulevard btw Oceanside Boulevard to Barnard Drive

Orientation: *North-South*

Date of Count: *Tuesday, May 02, 2017*

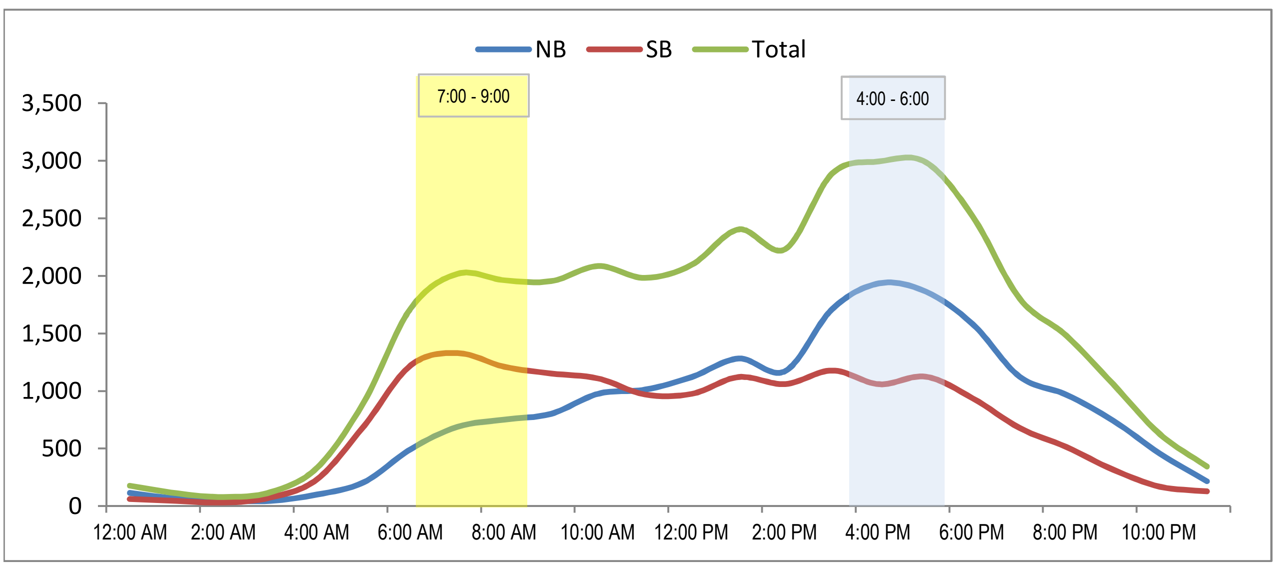
Analysts: *DASH*

Weather: *Sunny*

AVC Proj. No: *17-0663*

24 Hour Segment Volume					36,871			
Time	Hourly Volume				Time	Hourly Volume		
	NB	SB	Total			NB	SB	Total
12:00 AM - 1:00 AM	115	62	177		12:00 PM - 1:00 PM	1,121	975	2,096
1:00 AM - 2:00 AM	65	46	111		1:00 PM - 2:00 PM	1,282	1,121	2,403
2:00 AM - 3:00 AM	48	31	79		2:00 PM - 3:00 PM	1,174	1,060	2,234
3:00 AM - 4:00 AM	46	74	120		3:00 PM - 4:00 PM	1,712	1,178	2,890
4:00 AM - 5:00 AM	100	233	333		4:00 PM - 5:00 PM	1,935	1,059	2,994
5:00 AM - 6:00 AM	208	696	904		5:00 PM - 6:00 PM	1,863	1,124	2,987
6:00 AM - 7:00 AM	495	1,223	1,718		6:00 PM - 7:00 PM	1,580	936	2,516
7:00 AM - 8:00 AM	689	1,329	2,018		7:00 PM - 8:00 PM	1,125	678	1,803
8:00 AM - 9:00 AM	752	1,210	1,962		8:00 PM - 9:00 PM	967	513	1,480
9:00 AM - 10:00 AM	802	1,152	1,954		9:00 PM - 10:00 PM	742	316	1,058
10:00 AM - 11:00 AM	976	1,109	2,085		10:00 PM - 11:00 PM	455	168	623
11:00 AM - 12:00 PM	1,012	970	1982		11:00 PM - 12:00 AM	216	128	344
Total	**5,308**	**8,135**	**13,443**		**Total**	**14,172**	**9,256**	**23,428**

24-Hour NB Volume	19,480	24-Hour SB Volume	17,391



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 4. College Boulevard btw Barnard Drive to SR-78 WB Ramps

Orientation: *North-South*

Date of Count: *Tuesday, May 02, 2017*

Analysts: *DASH*

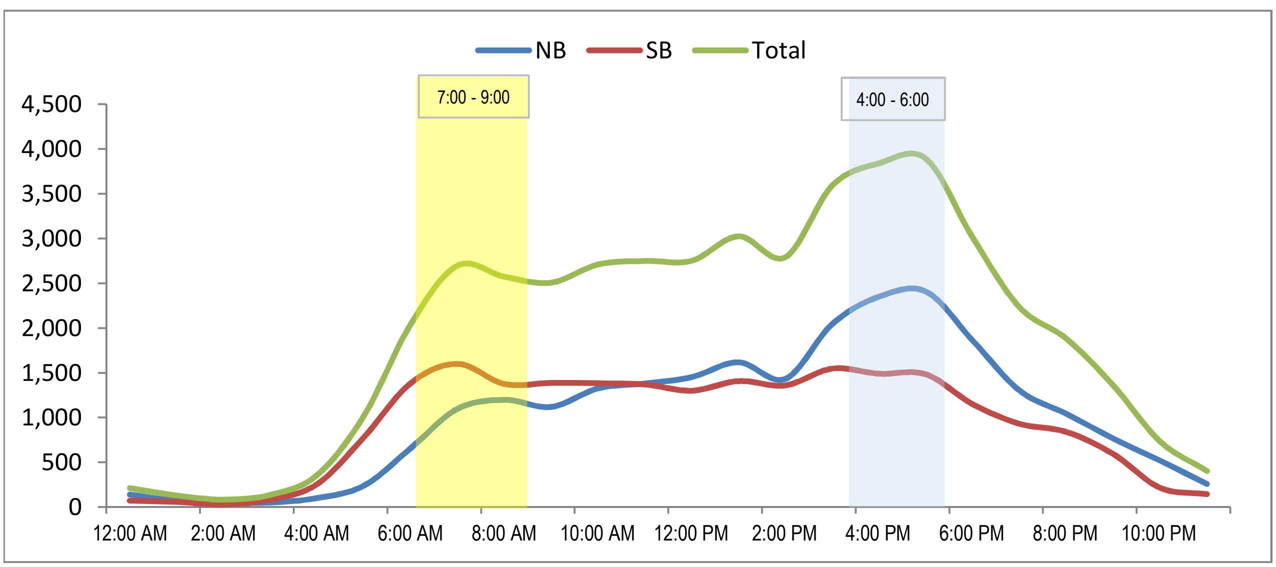
Weather: *Sunny*

AVC Proj. No: *17-0663*

24 Hour Segment Volume 46,727

Time	Hourly Volume			Time	Hourly Volume		
	NB	SB	Total		NB	SB	Total
12:00 AM - 1:00 AM	140	72	212	12:00 PM - 1:00 PM	1,452	1,300	2,752
1:00 AM - 2:00 AM	72	58	130	1:00 PM - 2:00 PM	1,618	1,407	3,025
2:00 AM - 3:00 AM	54	30	84	2:00 PM - 3:00 PM	1,432	1,360	2,792
3:00 AM - 4:00 AM	52	84	136	3:00 PM - 4:00 PM	2,045	1,547	3,592
4:00 AM - 5:00 AM	101	256	357	4:00 PM - 5:00 PM	2,350	1,490	3,840
5:00 AM - 6:00 AM	239	781	1,020	5:00 PM - 6:00 PM	2,407	1,483	3,890
6:00 AM - 7:00 AM	659	1,385	2,044	6:00 PM - 7:00 PM	1,860	1,149	3,009
7:00 AM - 8:00 AM	1,098	1,600	2,698	7:00 PM - 8:00 PM	1,301	930	2,231
8:00 AM - 9:00 AM	1,198	1,375	2,573	8:00 PM - 9:00 PM	1,042	839	1,881
9:00 AM - 10:00 AM	1,119	1,388	2,507	9:00 PM - 10:00 PM	766	593	1,359
10:00 AM - 11:00 AM	1,326	1,384	2,710	10:00 PM - 11:00 PM	518	215	733
11:00 AM - 12:00 PM	1,380	1,369	2749	11:00 PM - 12:00 AM	258	145	403
Total	**7,438**	**9,782**	**17,220**	**Total**	**17,049**	**12,458**	**29,507**

24-Hour NB Volume 24,487 **24-Hour SB Volume 22,240**



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

LINSCOTT LAW & GREENSPAN engineers

Location: 5. Oceanside Boulevard btw El Camino Real to Rancho Del Oro Road

Orientation: *East-West*

Date of Count: *Wednesday, May 03, 2017*

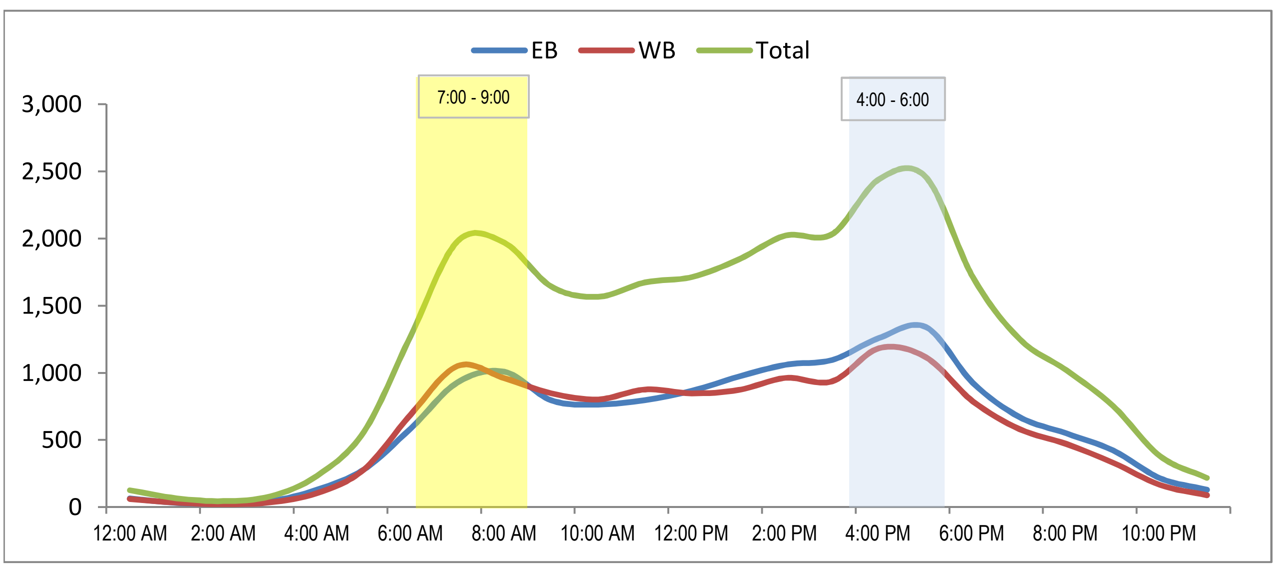
Analysts: *DASH*

Weather: *Sunny*

AVC Proj. No: *17-0663*

24 Hour Segment Volume								29,063
Time	Hourly Volume EB	WB	Total		Time	Hourly Volume EB	WB	Total
12:00 AM - 1:00 AM	65	61	126		12:00 PM - 1:00 PM	866	847	1,713
1:00 AM - 2:00 AM	32	34	66		1:00 PM - 2:00 PM	972	872	1,844
2:00 AM - 3:00 AM	24	21	45		2:00 PM - 3:00 PM	1,060	962	2,022
3:00 AM - 4:00 AM	44	36	80		3:00 PM - 4:00 PM	1,096	937	2,033
4:00 AM - 5:00 AM	130	104	234		4:00 PM - 5:00 PM	1,259	1,183	2,442
5:00 AM - 6:00 AM	281	280	561		5:00 PM - 6:00 PM	1,341	1,116	2,457
6:00 AM - 7:00 AM	586	690	1,276		6:00 PM - 7:00 PM	926	788	1,714
7:00 AM - 8:00 AM	929	1,051	1,980		7:00 PM - 8:00 PM	670	581	1,251
8:00 AM - 9:00 AM	1,008	960	1,968		8:00 PM - 9:00 PM	549	470	1,019
9:00 AM - 10:00 AM	795	848	1,643		9:00 PM - 10:00 PM	422	330	752
10:00 AM - 11:00 AM	764	802	1,566		10:00 PM - 11:00 PM	215	165	380
11:00 AM - 12:00 PM	797	876	1673		11:00 PM - 12:00 AM	129	89	218
Total	**5,455**	**5,763**	**11,218**		**Total**	**9,505**	**8,340**	**17,845**

24-Hour EB Volume	14,960	24-Hour WB Volume	14,103



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 6. Glaser Drive btw Rancho Del Oro Road to Barnard Drive

Orientation: *East-West*

Date of Count: *Tuesday, May 02, 2017*

Analysts: *DASH*

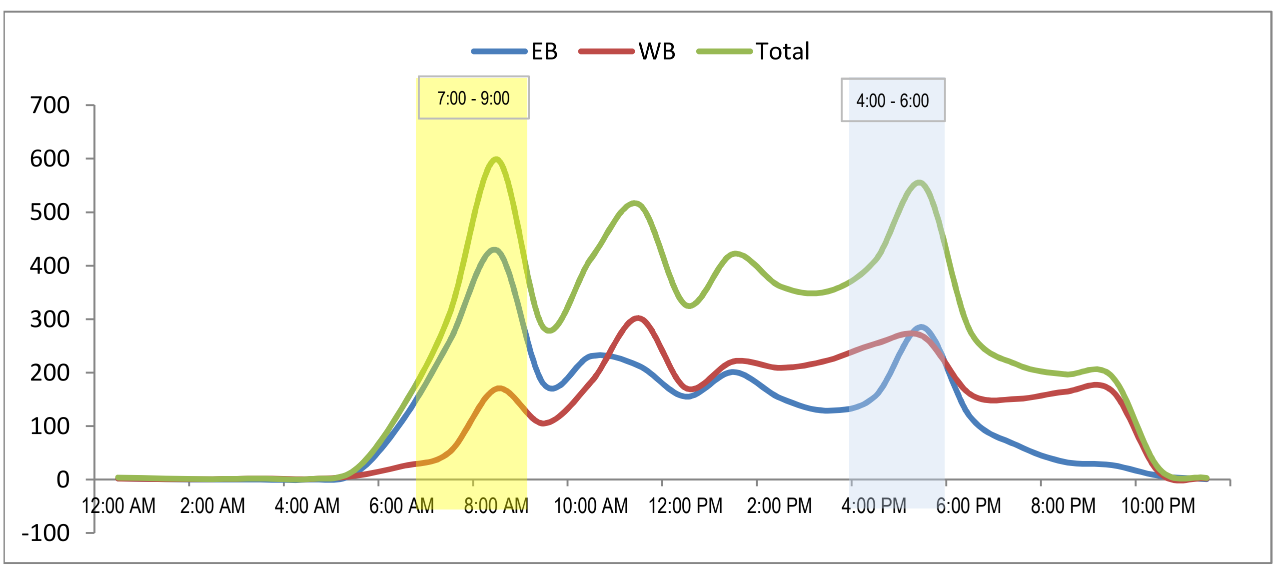
Weather: *Sunny*

AVC Proj. No: *17-0663*

24 Hour Segment Volume: 5,612

Time			Hourly Volume EB	WB	Total	Time			Hourly Volume EB	WB	Total
12:00 AM	-	1:00 AM	2	2	4	12:00 PM	-	1:00 PM	155	171	326
1:00 AM	-	2:00 AM	1	1	2	1:00 PM	-	2:00 PM	201	221	422
2:00 AM	-	3:00 AM	0	1	1	2:00 PM	-	3:00 PM	152	209	361
3:00 AM	-	4:00 AM	0	2	2	3:00 PM	-	4:00 PM	129	223	352
4:00 AM	-	5:00 AM	0	1	1	4:00 PM	-	5:00 PM	156	254	410
5:00 AM	-	6:00 AM	11	7	18	5:00 PM	-	6:00 PM	285	268	553
6:00 AM	-	7:00 AM	109	25	134	6:00 PM	-	7:00 PM	118	160	278
7:00 AM	-	8:00 AM	258	51	309	7:00 PM	-	8:00 PM	64	151	215
8:00 AM	-	9:00 AM	429	170	599	8:00 PM	-	9:00 PM	33	164	197
9:00 AM	-	10:00 AM	178	105	283	9:00 PM	-	10:00 PM	27	166	193
10:00 AM	-	11:00 AM	231	183	414	10:00 PM	-	11:00 PM	7	13	20
11:00 AM	-	12:00 PM	213	302	515	11:00 PM	-	12:00 AM	1	2	3
Total			1,432	850	2,282	Total			1,328	2,002	3,330

24-Hour	EB	Volume	2,760	24-Hour	WB	Volume	2,852



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 7. Barnard Drive btw College Boulevard to Carr Drive

Orientation: *East-West*

Date of Count: *Tuesday, May 02, 2017*

Analysts: *DASH*

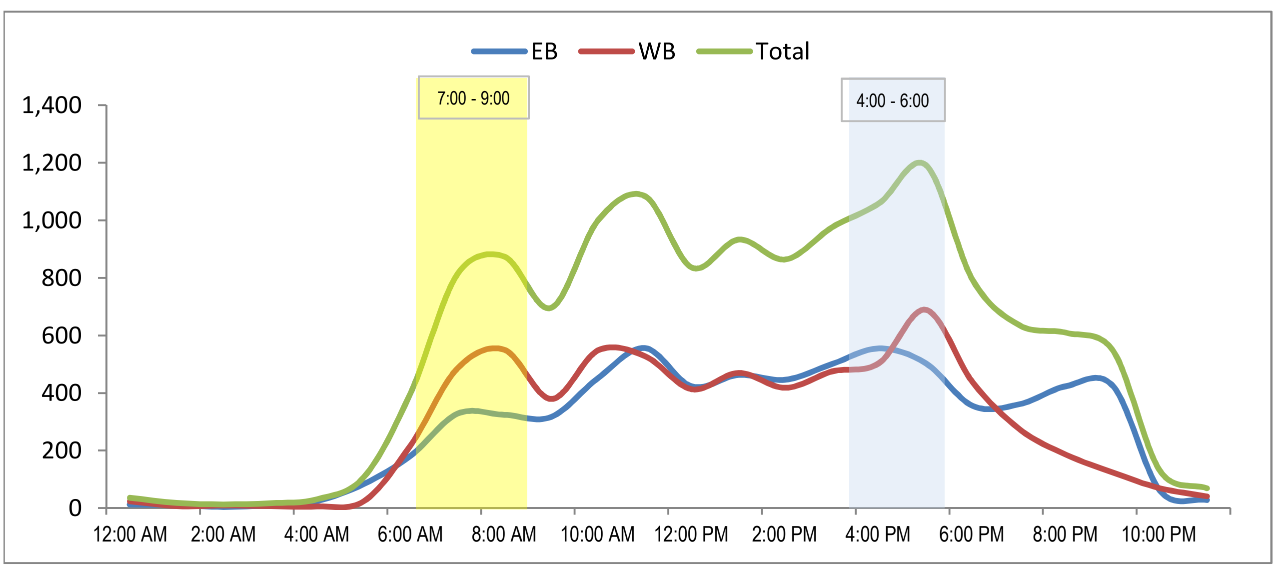
Weather: *Sunny*

AVC Proj. No: *17-0663*

24 Hour Segment Volume — 13,732

Time	Hourly Volume EB	Hourly Volume WB	Hourly Volume Total	Time	Hourly Volume EB	Hourly Volume WB	Hourly Volume Total
12:00 AM - 1:00 AM	12	24	36	12:00 PM - 1:00 PM	423	413	836
1:00 AM - 2:00 AM	11	7	18	1:00 PM - 2:00 PM	463	470	933
2:00 AM - 3:00 AM	4	9	13	2:00 PM - 3:00 PM	446	418	864
3:00 AM - 4:00 AM	10	7	17	3:00 PM - 4:00 PM	501	475	976
4:00 AM - 5:00 AM	25	6	31	4:00 PM - 5:00 PM	555	504	1,059
5:00 AM - 6:00 AM	84	24	108	5:00 PM - 6:00 PM	503	689	1,192
6:00 AM - 7:00 AM	182	219	401	6:00 PM - 7:00 PM	355	437	792
7:00 AM - 8:00 AM	328	486	814	7:00 PM - 8:00 PM	361	274	635
8:00 AM - 9:00 AM	324	550	874	8:00 PM - 9:00 PM	424	185	609
9:00 AM - 10:00 AM	317	379	696	9:00 PM - 10:00 PM	423	123	546
10:00 AM - 11:00 AM	452	548	1,000	10:00 PM - 11:00 PM	60	69	129
11:00 AM - 12:00 PM	556	528	1084	11:00 PM - 12:00 AM	28	41	69
Total	**2,305**	**2,787**	**5,092**	**Total**	**4,542**	**4,098**	**8,640**

24-Hour EB Volume	6,847	24-Hour WB Volume	6,885



APPENDIX B

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	262	825	91	136	912	136	93	377	129	139	545	198
Future Volume (veh/h)	262	825	91	136	912	136	93	377	129	139	545	198
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	285	897	99	148	991	148	101	410	140	151	592	215
Adj No. of Lanes	2	3	0	2	3	1	2	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	405	1616	178	238	1522	578	213	655	221	241	927	597
Arrive On Green	0.12	0.35	0.35	0.07	0.30	0.30	0.06	0.25	0.25	0.07	0.26	0.26
Sat Flow, veh/h	3442	4643	510	3442	5085	1560	3442	2585	872	3442	3539	1569
Grp Volume(v), veh/h	285	654	342	148	991	148	101	279	271	151	592	215
Grp Sat Flow(s),veh/h/ln	1721	1695	1764	1721	1695	1560	1721	1770	1687	1721	1770	1569
Q Serve(g_s), s	5.5	10.8	10.9	2.9	11.8	4.6	2.0	9.7	9.9	3.0	10.3	6.8
Cycle Q Clear(g_c), s	5.5	10.8	10.9	2.9	11.8	4.6	2.0	9.7	9.9	3.0	10.3	6.8
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	405	1180	614	238	1522	578	213	449	428	241	927	597
V/C Ratio(X)	0.70	0.55	0.56	0.62	0.65	0.26	0.48	0.62	0.63	0.63	0.64	0.36
Avail Cap(c_a), veh/h	917	2174	1131	521	2674	931	719	931	887	521	1657	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.5	18.3	18.3	31.4	21.2	15.2	31.5	23.0	23.0	31.4	22.7	15.5
Incr Delay (d2), s/veh	2.2	0.4	0.8	2.7	0.5	0.2	1.6	1.4	1.6	2.6	0.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	5.1	5.4	1.5	5.6	2.0	1.0	4.9	4.8	1.5	5.1	3.0
LnGrp Delay(d),s/veh	31.7	18.7	19.1	34.1	21.6	15.5	33.1	24.4	24.6	34.0	23.4	15.8
LnGrp LOS	C	B	B	C	C	B	C	C	C	C	C	B
Approach Vol, veh/h		1281			1287			651			958	
Approach Delay, s/veh		21.7			22.4			25.8			23.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	28.7	8.8	22.7	12.7	25.3	9.4	22.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	44.5	14.5	32.5	18.5	36.5	10.5	36.5
Max Q Clear Time (g_c+I1), s	4.9	12.9	4.0	12.3	7.5	13.8	5.0	11.9
Green Ext Time (p_c), s	0.2	6.4	0.2	4.1	0.7	6.8	0.2	3.1

Intersection Summary			
HCM 2010 Ctrl Delay			22.9
HCM 2010 LOS			C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	60	110	368	99	330	641
Future Volume (veh/h)	60	110	368	99	330	641
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	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	1900	1863	1863
Adj Flow Rate, veh/h	65	120	400	108	359	697
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	396	597	706	188	465	2270
Arrive On Green	0.12	0.12	0.26	0.26	0.26	0.64
Sat Flow, veh/h	3442	1583	2836	731	1774	3632
Grp Volume(v), veh/h	65	120	256	252	359	697
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1704	1774	1770
Q Serve(g_s), s	0.6	1.9	4.6	4.8	6.9	3.2
Cycle Q Clear(g_c), s	0.6	1.9	4.6	4.8	6.9	3.2
Prop In Lane	1.00	1.00		0.43	1.00	
Lane Grp Cap(c), veh/h	396	597	456	439	465	2270
V/C Ratio(X)	0.16	0.20	0.56	0.57	0.77	0.31
Avail Cap(c_a), veh/h	2142	1400	1054	1015	1512	5556
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	7.8	11.9	11.9	12.6	3.0
Incr Delay (d2), s/veh	0.2	0.2	1.1	1.2	2.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.8	2.3	2.4	3.6	1.6
LnGrp Delay(d),s/veh	14.9	7.9	13.0	13.1	15.4	3.0
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	185		508			1056
Approach Delay, s/veh	10.4		13.1			7.2
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.2	14.0				28.2		8.8
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	31.5	22.0				58.0		23.0
Max Q Clear Time (g_c+I1), s	8.9	6.8				5.2		3.9
Green Ext Time (p_c), s	1.0	2.4				5.0		0.5

Intersection Summary			
HCM 2010 Ctrl Delay			9.3
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	143	75	114	239	207	19	9	23	306	61	377
Future Volume (veh/h)	212	143	75	114	239	207	19	9	23	306	61	377
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	230	155	82	124	260	225	21	10	25	333	0	454
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	661	333	162	407	339	44	44	109	386	0	902
Arrive On Green	0.16	0.29	0.29	0.09	0.22	0.22	0.02	0.09	0.09	0.22	0.00	0.29
Sat Flow, veh/h	1774	2279	1146	1774	1819	1512	1774	471	1179	1774	0	3160
Grp Volume(v), veh/h	230	119	118	124	253	232	21	0	35	333	0	454
Grp Sat Flow(s),veh/h/ln	1774	1770	1656	1774	1770	1562	1774	0	1650	1774	0	1580
Q Serve(g_s), s	7.3	3.0	3.2	4.0	7.5	7.9	0.7	0.0	1.1	10.5	0.0	7.0
Cycle Q Clear(g_c), s	7.3	3.0	3.2	4.0	7.5	7.9	0.7	0.0	1.1	10.5	0.0	7.0
Prop In Lane	1.00		0.69	1.00		0.97	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	279	514	480	162	396	350	44	0	153	386	0	902
V/C Ratio(X)	0.82	0.23	0.25	0.77	0.64	0.66	0.48	0.00	0.23	0.86	0.00	0.50
Avail Cap(c_a), veh/h	319	719	673	389	789	696	161	0	594	441	0	1636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.8	15.7	15.8	25.9	20.5	20.6	28.1	0.0	24.5	22.0	0.0	17.4
Incr Delay (d2), s/veh	14.4	0.2	0.3	7.4	1.7	2.2	7.9	0.0	0.8	14.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	1.5	1.5	2.3	3.8	3.6	0.4	0.0	0.6	6.7	0.0	3.1
LnGrp Delay(d),s/veh	38.2	16.0	16.1	33.3	22.2	22.8	36.0	0.0	25.3	36.5	0.0	17.8
LnGrp LOS	D	B	B	C	C	C	D		C	D		B
Approach Vol, veh/h		467			609			56			787	
Approach Delay, s/veh		26.9			24.7			29.3			25.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	21.4	5.9	21.1	13.7	17.6	17.2	9.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.8	23.7	5.3	30.2	10.5	26.0	14.5	21.0
Max Q Clear Time (g_c+I1), s	6.0	5.2	2.7	9.0	9.3	9.9	12.5	3.1
Green Ext Time (p_c), s	0.1	1.1	0.0	1.7	0.1	2.8	0.2	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	25.8
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	43	259	149	38	40	359	623	116	48	1192	89
Future Volume (veh/h)	26	43	259	149	38	40	359	623	116	48	1192	89
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		0.99	1.00		0.98	1.00		0.98	1.00		0.98
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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	28	47	282	162	41	43	390	677	126	52	1296	97
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	217	500	201	93	98	444	1727	754	67	1404	618
Arrive On Green	0.19	0.19	0.19	0.11	0.11	0.11	0.13	0.49	0.49	0.04	0.40	0.40
Sat Flow, veh/h	683	1146	1566	1774	826	867	3442	3539	1544	1774	3539	1558
Grp Volume(v), veh/h	75	0	282	162	0	84	390	677	126	52	1296	97
Grp Sat Flow(s),veh/h/ln	1829	0	1566	1774	0	1693	1721	1770	1544	1774	1770	1558
Q Serve(g_s), s	3.6	0.0	15.7	9.3	0.0	4.8	11.6	12.7	4.8	3.0	36.5	4.2
Cycle Q Clear(g_c), s	3.6	0.0	15.7	9.3	0.0	4.8	11.6	12.7	4.8	3.0	36.5	4.2
Prop In Lane	0.37		1.00	1.00		0.51	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	346	0	500	201	0	191	444	1727	754	67	1404	618
V/C Ratio(X)	0.22	0.00	0.56	0.81	0.00	0.44	0.88	0.39	0.17	0.78	0.92	0.16
Avail Cap(c_a), veh/h	507	0	638	305	0	291	444	1727	754	154	1404	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	0.0	29.7	45.3	0.0	43.3	44.7	17.0	14.9	49.9	30.0	20.3
Incr Delay (d2), s/veh	0.3	0.0	1.0	9.0	0.0	1.6	17.8	0.7	0.5	17.3	11.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	6.9	5.1	0.0	2.3	6.6	6.4	2.1	1.8	20.1	1.9
LnGrp Delay(d),s/veh	36.2	0.0	30.7	54.3	0.0	44.9	62.6	17.6	15.4	67.2	41.6	20.8
LnGrp LOS	D		C	D		D	E	B	B	E	D	C
Approach Vol, veh/h		357			246			1193			1445	
Approach Delay, s/veh		31.8			51.1			32.1			41.1	
Approach LOS		C			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.4	55.6		24.3	18.0	46.0		16.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.1	45.9		29.0	13.5	41.5		18.0
Max Q Clear Time (g_c+I1), s	5.0	14.7		17.7	13.6	38.5		11.3
Green Ext Time (p_c), s	0.0	5.5		1.1	0.0	2.2		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	37.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	138	456	435	275	288	175	663	797	20	1094	406
Future Volume (veh/h)	30	138	456	435	275	288	175	663	797	20	1094	406
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		0.98	1.00		0.98
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	150	496	473	299	313	190	721	866	22	1189	441
Adj No. of Lanes	2	2	1	2	1	1	2	3	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	103	640	410	555	581	523	269	2310	1692	79	1413	622
Arrive On Green	0.03	0.18	0.18	0.16	0.31	0.31	0.08	0.45	0.45	0.02	0.40	0.40
Sat Flow, veh/h	3442	3539	1583	3442	1863	1562	3442	5085	2736	3442	3539	1558
Grp Volume(v), veh/h	33	150	496	473	299	313	190	721	866	22	1189	441
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1863	1562	1721	1695	1368	1721	1770	1558
Q Serve(g_s), s	0.9	3.6	18.0	13.3	13.1	16.6	5.4	9.0	17.7	0.6	30.3	23.6
Cycle Q Clear(g_c), s	0.9	3.6	18.0	13.3	13.1	16.6	5.4	9.0	17.7	0.6	30.3	23.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	103	640	410	555	581	523	269	2310	1692	79	1413	622
V/C Ratio(X)	0.32	0.23	1.21	0.85	0.51	0.60	0.71	0.31	0.51	0.28	0.84	0.71
Avail Cap(c_a), veh/h	173	640	410	674	608	546	674	2518	1804	525	1600	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.3	34.9	36.9	40.6	28.1	27.5	44.8	17.3	10.8	47.8	27.1	25.1
Incr Delay (d2), s/veh	1.8	0.2	115.2	8.8	0.7	1.7	3.4	0.1	0.2	1.9	3.8	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.8	24.4	7.0	6.8	7.4	2.7	4.2	6.7	0.3	15.5	10.6
LnGrp Delay(d),s/veh	49.0	35.1	152.1	49.4	28.8	29.2	48.2	17.3	11.0	49.7	30.9	27.9
LnGrp LOS	D	D	F	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		679			1085			1777			1652	
Approach Delay, s/veh		121.3			37.9			17.6			30.4	
Approach LOS		F			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	49.7	20.5	22.5	12.3	44.2	7.5	35.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.2	49.3	19.5	18.0	19.5	45.0	5.0	32.5
Max Q Clear Time (g_c+I1), s	2.6	19.7	15.3	20.0	7.4	32.3	2.9	18.6
Green Ext Time (p_c), s	0.0	10.7	0.7	0.0	0.5	7.5	0.0	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	39.4
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	641	224	0	1088	1506	0
Future Volume (veh/h)	641	224	0	1088	1506	0
Number	7	14	5	2	6	16
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	0	1863	1863	0
Adj Flow Rate, veh/h	697	243	0	1183	1637	0
Adj No. of Lanes	2	1	0	4	5	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	961	442	0	2510	2955	0
Arrive On Green	0.28	0.28	0.00	0.39	0.39	0.00
Sat Flow, veh/h	3442	1583	0	6929	8252	0
Grp Volume(v), veh/h	697	243	0	1183	1637	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0
Q Serve(g_s), s	7.2	5.1	0.0	5.4	6.6	0.0
Cycle Q Clear(g_c), s	7.2	5.1	0.0	5.4	6.6	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	961	442	0	2510	2955	0
V/C Ratio(X)	0.73	0.55	0.00	0.47	0.55	0.00
Avail Cap(c_a), veh/h	2099	965	0	3793	4465	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.8	12.0	0.0	8.9	9.3	0.0
Incr Delay (d2), s/veh	0.4	0.4	0.0	0.1	0.1	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	3.4	2.3	0.0	2.4	2.7	0.0
LnGrp Delay(d),s/veh	13.2	12.4	0.0	8.9	9.3	0.0
LnGrp LOS	B	B		A	A	
Approach Vol, veh/h	940			1183	1637	
Approach Delay, s/veh	13.0			8.9	9.3	
Approach LOS	B			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		22.2		17.0		22.2		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		23.2		23.9		23.2		
Max Q Clear Time (g_c+I1), s		7.4		9.2		8.6		
Green Ext Time (p_c), s		5.3		1.8		6.7		

Intersection Summary		
HCM 2010 Ctrl Delay		10.1
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	527	323	325	370	33	624	100	207	55	91	58
Future Volume (veh/h)	150	527	323	325	370	33	624	100	207	55	91	58
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	163	573	351	353	402	36	756	0	225	60	99	63
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	242	744	714	437	660	59	874	0	390	140	237	155
Arrive On Green	0.14	0.21	0.21	0.13	0.20	0.20	0.25	0.00	0.25	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1541	3442	3287	293	3548	0	1583	924	1556	1019
Grp Volume(v), veh/h	163	573	351	353	216	222	756	0	225	118	0	104
Grp Sat Flow(s),veh/h/ln	1774	1770	1541	1721	1770	1811	1774	0	1583	1817	0	1683
Q Serve(g_s), s	6.8	11.9	12.5	7.8	8.7	8.8	16.0	0.0	9.8	4.6	0.0	4.4
Cycle Q Clear(g_c), s	6.8	11.9	12.5	7.8	8.7	8.8	16.0	0.0	9.8	4.6	0.0	4.4
Prop In Lane	1.00		1.00	1.00		0.16	1.00		1.00	0.51		0.61
Lane Grp Cap(c), veh/h	242	744	714	437	355	363	874	0	390	276	0	256
V/C Ratio(X)	0.67	0.77	0.49	0.81	0.61	0.61	0.86	0.00	0.58	0.43	0.00	0.41
Avail Cap(c_a), veh/h	256	963	809	532	499	511	1083	0	483	278	0	258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.2	29.1	15.0	33.3	28.5	28.5	28.3	0.0	25.9	30.1	0.0	30.0
Incr Delay (d2), s/veh	4.9	2.0	0.2	6.2	0.6	0.6	5.4	0.0	0.5	0.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	6.0	7.5	4.1	4.3	4.4	8.4	0.0	4.3	2.3	0.0	2.0
LnGrp Delay(d),s/veh	37.1	31.2	15.2	39.4	29.1	29.1	33.6	0.0	26.4	30.5	0.0	30.4
LnGrp LOS	D	C	B	D	C	C	C		C	C		C
Approach Vol, veh/h		1087			791			981			222	
Approach Delay, s/veh		26.9			33.7			32.0			30.4	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.6	22.3		17.0	15.4	21.5		24.4				
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1				
Max Green Setting (Gmax), s	* 12	21.3		12.0	* 11	22.1		23.9				
Max Q Clear Time (g_c+I1), s	9.8	14.5		6.6	8.8	10.8		18.0				
Green Ext Time (p_c), s	0.1	1.9		0.4	0.0	1.2		1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			30.5									
HCM 2010 LOS			C									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	20	5	140	9	182	40	961	252	769	1649	53
Future Volume (veh/h)	28	20	5	140	9	182	40	961	252	769	1649	53
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		0.99	1.00		1.00	1.00		1.00	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	30	22	5	152	10	198	43	1045	274	836	1792	58
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	96	22	186	261	653	67	1385	363	938	2933	95
Arrive On Green	0.03	0.07	0.07	0.10	0.14	0.14	0.04	0.35	0.35	0.27	0.58	0.58
Sat Flow, veh/h	1774	1467	333	1774	1863	1583	1774	4011	1051	3442	5056	163
Grp Volume(v), veh/h	30	0	27	152	10	198	43	883	436	836	1201	649
Grp Sat Flow(s),veh/h/ln	1774	0	1800	1774	1863	1583	1774	1695	1672	1721	1695	1829
Q Serve(g_s), s	1.4	0.0	1.2	7.1	0.4	7.1	2.0	19.6	19.6	19.8	19.5	19.6
Cycle Q Clear(g_c), s	1.4	0.0	1.2	7.1	0.4	7.1	2.0	19.6	19.6	19.8	19.5	19.6
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.63	1.00		0.09
Lane Grp Cap(c), veh/h	53	0	118	186	261	653	67	1170	577	938	1967	1061
V/C Ratio(X)	0.57	0.00	0.23	0.82	0.04	0.30	0.65	0.75	0.76	0.89	0.61	0.61
Avail Cap(c_a), veh/h	128	0	594	203	694	1021	107	1170	577	1035	1967	1061
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	37.6	37.2	31.5	16.7	40.3	24.6	24.6	29.6	11.6	11.6
Incr Delay (d2), s/veh	9.1	0.0	1.0	21.0	0.1	0.3	10.0	4.5	8.9	9.3	1.4	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.6	4.6	0.2	3.1	1.2	9.8	10.4	10.6	9.4	10.5
LnGrp Delay(d),s/veh	49.7	0.0	38.6	58.2	31.6	17.0	50.3	29.1	33.5	38.9	13.0	14.2
LnGrp LOS	D		D	E	C	B	D	C	C	D	B	B
Approach Vol, veh/h		57			360			1362			2686	
Approach Delay, s/veh		44.5			34.8			31.2			21.4	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.6	33.8	13.4	10.0	7.7	53.7	7.0	16.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	28.8	9.7	28.0	5.1	49.2	6.1	31.6
Max Q Clear Time (g_c+I1), s	21.8	21.6	9.1	3.2	4.0	21.6	3.4	9.1
Green Ext Time (p_c), s	1.3	4.6	0.0	0.1	0.0	16.5	0.0	0.7

Intersection Summary		
HCM 2010 Ctrl Delay		25.7
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	660	185	19	40	278	33	38	8	12	93	16	32
Future Volume (veh/h)	660	185	19	40	278	33	38	8	12	93	16	32
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	717	201	21	43	302	36	47	0	13	101	17	35
Adj No. of Lanes	2	2	0	1	2	0	2	0	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	858	1201	124	137	637	75	416	0	185	154	47	97
Arrive On Green	0.25	0.37	0.37	0.08	0.20	0.20	0.12	0.00	0.12	0.09	0.09	0.09
Sat Flow, veh/h	3442	3230	333	1774	3187	377	3548	0	1583	1774	544	1121
Grp Volume(v), veh/h	717	109	113	43	166	172	47	0	13	101	0	52
Grp Sat Flow(s),veh/h/ln	1721	1770	1793	1774	1770	1794	1774	0	1583	1774	0	1665
Q Serve(g_s), s	11.6	2.4	2.5	1.3	4.9	4.9	0.7	0.0	0.4	3.2	0.0	1.7
Cycle Q Clear(g_c), s	11.6	2.4	2.5	1.3	4.9	4.9	0.7	0.0	0.4	3.2	0.0	1.7
Prop In Lane	1.00		0.19	1.00		0.21	1.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	858	658	667	137	354	359	416	0	185	154	0	144
V/C Ratio(X)	0.84	0.17	0.17	0.31	0.47	0.48	0.11	0.00	0.07	0.66	0.00	0.36
Avail Cap(c_a), veh/h	1195	1110	1125	273	769	779	1517	0	677	880	0	826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.8	12.3	12.3	25.5	20.7	20.7	23.1	0.0	23.0	25.9	0.0	25.2
Incr Delay (d2), s/veh	2.7	0.4	0.4	0.5	3.5	3.6	0.0	0.0	0.1	1.8	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	1.3	1.3	0.7	2.7	2.8	0.3	0.0	0.2	1.6	0.0	0.8
LnGrp Delay(d),s/veh	23.5	12.7	12.7	26.0	24.2	24.3	23.1	0.0	23.0	27.7	0.0	25.8
LnGrp LOS	C	B	B	C	C	C	C		C	C		C
Approach Vol, veh/h		939			381			60			153	
Approach Delay, s/veh		21.0			24.4			23.1			27.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.2	27.1		10.2	19.3	17.1		11.9
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 9	36.7		29.0	* 20	25.4		25.0
Max Q Clear Time (g_c+I1), s	3.3	4.5		5.2	13.6	6.9		2.7
Green Ext Time (p_c), s	0.0	3.3		0.3	1.0	4.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	1236	152	155	1104	131	123	567	161	142	410	209
Future Volume (veh/h)	181	1236	152	155	1104	131	123	567	161	142	410	209
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	197	1343	165	168	1200	142	134	616	175	154	446	227
Adj No. of Lanes	2	3	0	2	3	1	2	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	276	1751	215	243	1894	686	209	768	218	227	1020	573
Arrive On Green	0.08	0.38	0.38	0.07	0.37	0.37	0.06	0.28	0.28	0.07	0.29	0.29
Sat Flow, veh/h	3442	4581	563	3442	5085	1562	3442	2715	770	3442	3539	1547
Grp Volume(v), veh/h	197	994	514	168	1200	142	134	401	390	154	446	227
Grp Sat Flow(s),veh/h/ln	1721	1695	1754	1721	1695	1562	1721	1770	1715	1721	1770	1547
Q Serve(g_s), s	5.1	23.2	23.2	4.3	17.6	5.1	3.5	19.1	19.1	4.0	9.3	9.8
Cycle Q Clear(g_c), s	5.1	23.2	23.2	4.3	17.6	5.1	3.5	19.1	19.1	4.0	9.3	9.8
Prop In Lane	1.00		0.32	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	276	1295	670	243	1894	686	209	501	485	227	1020	573
V/C Ratio(X)	0.71	0.77	0.77	0.69	0.63	0.21	0.64	0.80	0.80	0.68	0.44	0.40
Avail Cap(c_a), veh/h	478	1716	887	398	2456	859	588	704	683	360	1175	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	24.5	24.5	41.2	23.4	15.7	41.6	30.2	30.2	41.4	26.3	21.2
Incr Delay (d2), s/veh	3.4	1.5	2.9	3.5	0.4	0.1	3.3	4.5	4.7	3.5	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	11.0	11.7	2.2	8.3	2.2	1.7	9.9	9.6	2.0	4.6	4.3
LnGrp Delay(d),s/veh	44.1	26.0	27.4	44.7	23.7	15.9	44.9	34.6	34.9	45.0	26.6	21.6
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		1705			1510			925			827	
Approach Delay, s/veh		28.5			25.3			36.2			28.7	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	39.2	10.0	30.6	11.8	38.3	10.5	30.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	45.9	15.5	30.1	12.6	43.8	9.5	36.1
Max Q Clear Time (g_c+I1), s	6.3	25.2	5.5	11.8	7.1	19.6	6.0	21.1
Green Ext Time (p_c), s	0.2	9.4	0.2	3.2	0.3	8.6	0.1	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.0
HCM 2010 LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	68	200	633	78	207	402
Future Volume (veh/h)	68	200	633	78	207	402
Number	3	18	2	12	1	6
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	1900	1863	1863
Adj Flow Rate, veh/h	74	217	688	85	225	437
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	580	532	1077	133	297	2178
Arrive On Green	0.17	0.17	0.34	0.34	0.17	0.62
Sat Flow, veh/h	3442	1583	3264	391	1774	3632
Grp Volume(v), veh/h	74	217	384	389	225	437
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1792	1774	1770
Q Serve(g_s), s	0.8	4.4	7.6	7.6	5.0	2.3
Cycle Q Clear(g_c), s	0.8	4.4	7.6	7.6	5.0	2.3
Prop In Lane	1.00	1.00		0.22	1.00	
Lane Grp Cap(c), veh/h	580	532	601	609	297	2178
V/C Ratio(X)	0.13	0.41	0.64	0.64	0.76	0.20
Avail Cap(c_a), veh/h	1910	1144	1356	1374	917	4924
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	10.6	11.6	11.6	16.5	3.5
Incr Delay (d2), s/veh	0.1	0.5	1.1	1.1	3.9	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	0.4	2.0	3.8	3.9	2.8	1.1
LnGrp Delay(d),s/veh	14.8	11.1	12.7	12.7	20.4	3.6
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	291		773			662
Approach Delay, s/veh	12.1		12.7			9.3
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.5	18.6				30.1		11.5
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	21.5	31.9				57.9		23.1
Max Q Clear Time (g_c+I1), s	7.0	9.6				4.3		6.4
Green Ext Time (p_c), s	0.5	4.4				2.9		0.9

Intersection Summary			
HCM 2010 Ctrl Delay			11.3
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	362	328	34	50	330	309	62	46	39	261	20	282
Future Volume (veh/h)	362	328	34	50	330	309	62	46	39	261	20	282
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	393	357	37	54	359	336	67	50	42	284	0	322
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	443	1513	156	77	463	408	86	75	63	330	0	692
Arrive On Green	0.25	0.47	0.47	0.04	0.26	0.26	0.05	0.08	0.08	0.19	0.00	0.22
Sat Flow, veh/h	1774	3232	333	1774	1770	1558	1774	926	778	1774	0	3167
Grp Volume(v), veh/h	393	194	200	54	359	336	67	0	92	284	0	322
Grp Sat Flow(s),veh/h/ln	1774	1770	1795	1774	1770	1558	1774	0	1704	1774	0	1583
Q Serve(g_s), s	17.4	5.3	5.4	2.4	15.3	16.5	3.0	0.0	4.3	12.6	0.0	7.2
Cycle Q Clear(g_c), s	17.4	5.3	5.4	2.4	15.3	16.5	3.0	0.0	4.3	12.6	0.0	7.2
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	443	828	840	77	463	408	86	0	138	330	0	692
V/C Ratio(X)	0.89	0.23	0.24	0.70	0.78	0.82	0.77	0.00	0.66	0.86	0.00	0.47
Avail Cap(c_a), veh/h	687	1051	1067	201	566	498	220	0	440	513	0	1340
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.4	12.9	12.9	38.4	27.8	28.3	38.2	0.0	36.3	32.1	0.0	27.6
Incr Delay (d2), s/veh	8.9	0.1	0.1	11.0	5.4	9.1	13.6	0.0	5.4	8.9	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	2.6	2.7	1.4	8.2	8.1	1.8	0.0	2.2	7.0	0.0	3.2
LnGrp Delay(d),s/veh	38.3	13.1	13.1	49.4	33.2	37.3	51.9	0.0	41.7	40.9	0.0	28.1
LnGrp LOS	D	B	B	D	C	D	D		D	D		C
Approach Vol, veh/h		787			749			159			606	
Approach Delay, s/veh		25.7			36.2			46.0			34.1	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	42.5	8.5	22.3	24.8	25.8	19.6	11.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.2	48.3	10.1	34.4	31.5	26.0	23.5	21.0
Max Q Clear Time (g_c+I1), s	4.4	7.4	5.0	9.2	19.4	18.5	14.6	6.3
Green Ext Time (p_c), s	0.0	2.2	0.0	1.2	0.9	2.7	0.5	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	32.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	43	390	117	54	89	527	1704	176	40	976	108
Future Volume (veh/h)	70	43	390	117	54	89	527	1704	176	40	976	108
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		1.00	1.00		0.98	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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	76	47	424	127	59	97	573	1852	191	43	1061	117
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	136	589	190	68	112	626	1921	840	55	1388	612
Arrive On Green	0.20	0.20	0.20	0.11	0.11	0.11	0.18	0.54	0.54	0.03	0.39	0.39
Sat Flow, veh/h	1116	690	1532	1774	635	1044	3442	3539	1547	1774	3539	1560
Grp Volume(v), veh/h	123	0	424	127	0	156	573	1852	191	43	1061	117
Grp Sat Flow(s),veh/h/ln	1807	0	1532	1774	0	1679	1721	1770	1547	1774	1770	1560
Q Serve(g_s), s	8.6	0.0	29.0	10.1	0.0	13.5	24.1	74.0	9.5	3.5	38.4	7.3
Cycle Q Clear(g_c), s	8.6	0.0	29.0	10.1	0.0	13.5	24.1	74.0	9.5	3.5	38.4	7.3
Prop In Lane	0.62		1.00	1.00		0.62	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	356	0	589	190	0	180	626	1921	840	55	1388	612
V/C Ratio(X)	0.35	0.00	0.72	0.67	0.00	0.87	0.92	0.96	0.23	0.78	0.76	0.19
Avail Cap(c_a), veh/h	356	0	589	217	0	205	679	1921	840	60	1388	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	0.0	39.3	63.3	0.0	64.8	59.2	32.3	17.6	70.9	38.9	29.4
Incr Delay (d2), s/veh	0.6	0.0	4.2	6.4	0.0	27.8	16.4	13.6	0.6	43.8	4.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	15.5	5.3	0.0	7.6	12.9	39.7	4.2	2.4	19.5	3.2
LnGrp Delay(d),s/veh	51.6	0.0	43.6	69.7	0.0	92.6	75.6	46.0	18.2	114.7	43.0	30.1
LnGrp LOS	D		D	E		F	E	D	B	F	D	C
Approach Vol, veh/h		547			283			2616			1221	
Approach Delay, s/veh		45.4			82.3			50.4			44.3	
Approach LOS		D			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.1	84.5		33.5	31.3	62.3		20.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	80.0		29.0	29.1	55.9		18.0
Max Q Clear Time (g_c+I1), s	5.5	76.0		31.0	26.1	40.4		15.5
Green Ext Time (p_c), s	0.0	3.6		0.0	0.7	6.4		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	50.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	237	363	400	497	331	309	1579	642	70	1039	381
Future Volume (veh/h)	111	237	363	400	497	331	309	1579	642	70	1039	381
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		0.98	1.00		0.98	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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	121	258	395	435	540	360	336	1716	698	76	1129	414
Adj No. of Lanes	2	2	1	2	1	2	2	3	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	762	522	513	589	974	393	2224	1614	138	1285	567
Arrive On Green	0.05	0.22	0.22	0.15	0.32	0.32	0.11	0.44	0.44	0.04	0.36	0.36
Sat Flow, veh/h	3442	3539	1583	3442	1863	2731	3442	5085	2741	3442	3539	1560
Grp Volume(v), veh/h	121	258	395	435	540	360	336	1716	698	76	1129	414
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1863	1365	1721	1695	1371	1721	1770	1560
Q Serve(g_s), s	3.9	7.0	24.5	14.0	31.7	11.1	10.9	32.6	16.1	2.5	33.9	26.1
Cycle Q Clear(g_c), s	3.9	7.0	24.5	14.0	31.7	11.1	10.9	32.6	16.1	2.5	33.9	26.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	167	762	522	513	589	974	393	2224	1614	138	1285	567
V/C Ratio(X)	0.73	0.34	0.76	0.85	0.92	0.37	0.86	0.77	0.43	0.55	0.88	0.73
Avail Cap(c_a), veh/h	167	762	522	687	631	1036	409	2358	1686	160	1386	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.3	37.7	34.0	47.1	37.4	27.2	49.4	27.2	13.1	53.6	33.9	31.4
Incr Delay (d2), s/veh	14.7	0.3	6.3	7.5	17.8	0.2	15.7	1.5	0.2	3.4	6.4	4.1
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	2.2	3.5	11.9	7.2	19.3	4.2	6.0	15.6	6.1	1.2	17.6	11.8
LnGrp Delay(d),s/veh	68.0	38.0	40.3	54.6	55.2	27.4	65.1	28.7	13.2	57.0	40.3	35.5
LnGrp LOS	E	D	D	D	E	C	E	C	B	E	D	D
Approach Vol, veh/h		774			1335			2750			1619	
Approach Delay, s/veh		43.9			47.5			29.2			39.8	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	54.2	21.4	29.0	17.5	45.8	10.0	40.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.3	52.7	22.7	21.3	13.5	44.5	5.5	38.5
Max Q Clear Time (g_c+I1), s	4.5	34.6	16.0	26.5	12.9	35.9	5.9	33.7
Green Ext Time (p_c), s	0.0	13.9	0.9	0.0	0.1	5.4	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	37.4
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	654	337	0	1871	1573	0
Future Volume (veh/h)	654	337	0	1871	1573	0
Number	7	14	5	2	6	16
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	0	1863	1863	0
Adj Flow Rate, veh/h	711	366	0	2034	1710	0
Adj No. of Lanes	2	1	0	4	5	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	993	457	0	2894	3407	0
Arrive On Green	0.29	0.29	0.00	0.45	0.45	0.00
Sat Flow, veh/h	3442	1583	0	6929	8252	0
Grp Volume(v), veh/h	711	366	0	2034	1710	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0
Q Serve(g_s), s	9.2	10.6	0.0	12.7	8.0	0.0
Cycle Q Clear(g_c), s	9.2	10.6	0.0	12.7	8.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	993	457	0	2894	3407	0
V/C Ratio(X)	0.72	0.80	0.00	0.70	0.50	0.00
Avail Cap(c_a), veh/h	1448	666	0	3381	3980	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.8	16.3	0.0	10.9	9.7	0.0
Incr Delay (d2), s/veh	0.4	2.6	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	4.9	0.0	5.6	3.3	0.0
LnGrp Delay(d),s/veh	16.2	19.0	0.0	11.3	9.7	0.0
LnGrp LOS	B	B		B	A	
Approach Vol, veh/h	1077			2034	1710	
Approach Delay, s/veh	17.1			11.3	9.7	
Approach LOS	B			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		29.2		20.4		29.2		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		26.2		20.9		26.2		
Max Q Clear Time (g_c+I1), s		14.7		12.6		10.0		
Green Ext Time (p_c), s		7.8		1.7		7.5		

Intersection Summary			
HCM 2010 Ctrl Delay			12.1
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	468	338	302	436	22	721	63	68	69	76	71
Future Volume (veh/h)	143	468	338	302	436	22	721	63	68	69	76	71
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	155	509	367	328	474	24	833	0	74	75	83	77
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	237	735	743	410	662	33	939	0	419	162	182	174
Arrive On Green	0.13	0.21	0.21	0.12	0.19	0.19	0.26	0.00	0.26	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1563	3442	3426	173	3548	0	1583	1083	1220	1163
Grp Volume(v), veh/h	155	509	367	328	244	254	833	0	74	125	0	110
Grp Sat Flow(s),veh/h/ln	1774	1770	1563	1721	1770	1829	1774	0	1583	1809	0	1657
Q Serve(g_s), s	6.6	10.6	12.9	7.4	10.3	10.4	18.0	0.0	2.9	5.1	0.0	4.8
Cycle Q Clear(g_c), s	6.6	10.6	12.9	7.4	10.3	10.4	18.0	0.0	2.9	5.1	0.0	4.8
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	0.60		0.70
Lane Grp Cap(c), veh/h	237	735	743	410	342	354	939	0	419	270	0	248
V/C Ratio(X)	0.66	0.69	0.49	0.80	0.71	0.72	0.89	0.00	0.18	0.46	0.00	0.44
Avail Cap(c_a), veh/h	244	931	830	491	474	490	1107	0	494	272	0	249
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.9	29.3	14.5	34.2	30.1	30.2	28.2	0.0	22.7	31.0	0.0	30.9
Incr Delay (d2), s/veh	4.6	0.9	0.2	6.4	1.4	1.4	7.2	0.0	0.1	0.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	5.3	8.0	3.9	5.2	5.4	9.7	0.0	1.3	2.5	0.0	2.2
LnGrp Delay(d),s/veh	37.4	30.2	14.7	40.6	31.5	31.6	35.4	0.0	22.7	31.5	0.0	31.4
LnGrp LOS	D	C	B	D	C	C	D		C	C		C
Approach Vol, veh/h		1031			826			907			235	
Approach Delay, s/veh		25.8			35.2			34.4			31.4	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.2	22.4		17.0	15.3	21.2		26.2
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 11	21.0		12.0	* 11	21.4		24.9
Max Q Clear Time (g_c+I1), s	9.4	14.9		7.1	8.6	12.4		20.0
Green Ext Time (p_c), s	0.1	1.6		0.4	0.0	1.2		1.1

Intersection Summary		
HCM 2010 Ctrl Delay		31.4
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	42	15	190	10	687	19	1698	328	986	1725	42
Future Volume (veh/h)	63	42	15	190	10	687	19	1698	328	986	1725	42
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		0.98	1.00		0.99	1.00		0.98	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	68	46	16	207	11	747	21	1846	357	1072	1875	46
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	86	207	72	178	389	714	35	1595	303	844	3054	75
Arrive On Green	0.05	0.16	0.16	0.10	0.21	0.21	0.02	0.37	0.37	0.25	0.60	0.60
Sat Flow, veh/h	1774	1316	458	1774	1863	1563	1774	4274	811	3442	5102	125
Grp Volume(v), veh/h	68	0	62	207	11	747	21	1457	746	1072	1245	676
Grp Sat Flow(s),veh/h/ln	1774	0	1774	1774	1863	1563	1774	1695	1696	1721	1695	1837
Q Serve(g_s), s	5.5	0.0	4.4	14.5	0.7	30.2	1.7	54.0	54.0	35.5	33.7	33.8
Cycle Q Clear(g_c), s	5.5	0.0	4.4	14.5	0.7	30.2	1.7	54.0	54.0	35.5	33.7	33.8
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.48	1.00		0.07
Lane Grp Cap(c), veh/h	86	0	279	178	389	714	35	1265	633	844	2029	1100
V/C Ratio(X)	0.79	0.00	0.22	1.16	0.03	1.05	0.60	1.15	1.18	1.27	0.61	0.61
Avail Cap(c_a), veh/h	151	0	343	178	389	714	74	1265	633	844	2029	1100
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.1	0.0	53.3	65.1	45.6	39.6	70.4	45.4	45.4	54.6	18.4	18.4
Incr Delay (d2), s/veh	14.5	0.0	0.4	118.8	0.0	46.2	15.4	77.8	96.4	130.8	0.6	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	2.2	12.9	0.4	37.6	1.0	38.8	42.1	32.1	15.9	17.4
LnGrp Delay(d),s/veh	82.6	0.0	53.7	183.9	45.6	85.8	85.8	123.2	141.8	185.4	19.0	19.5
LnGrp LOS	F		D	F	D	F	F	F	F	F	B	B
Approach Vol, veh/h		130			965			2224			2993	
Approach Delay, s/veh		68.8			106.4			129.1			78.7	
Approach LOS		E			F			F			E	

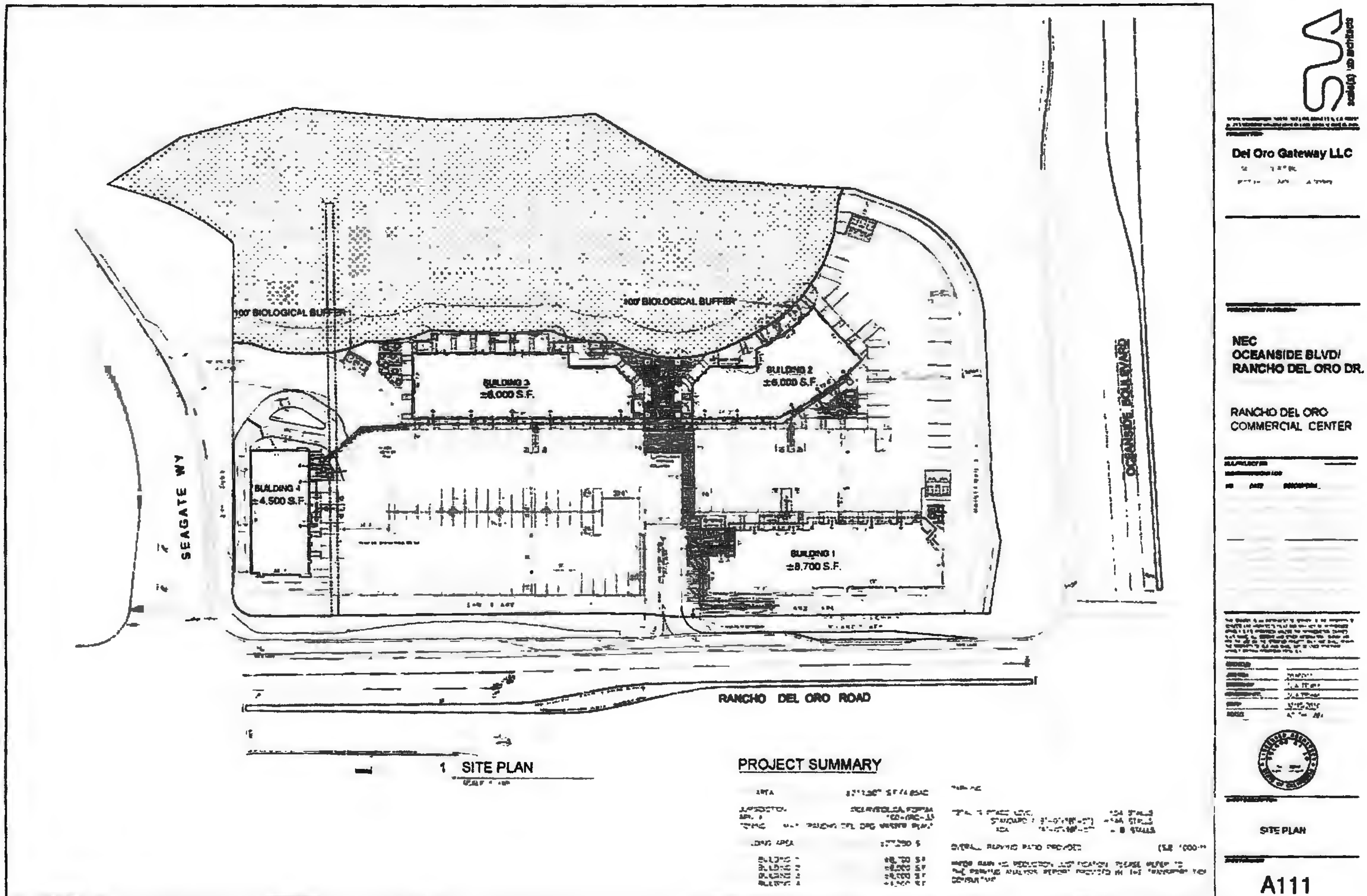
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	40.0	58.5	19.0	27.2	7.4	91.1	11.5	34.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	35.5	54.0	14.5	28.0	6.0	83.5	12.3	30.2
Max Q Clear Time (g_c+I1), s	37.5	56.0	16.5	6.4	3.7	35.8	7.5	32.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.0	23.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	100.5
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	661	367	84	169	490	79	172	55	78	116	36	38
Future Volume (veh/h)	661	367	84	169	490	79	172	55	78	116	36	38
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	718	399	91	184	533	86	124	149	85	126	39	41
Adj No. of Lanes	2	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	804	1036	234	223	777	125	267	281	232	185	86	91
Arrive On Green	0.23	0.36	0.36	0.13	0.25	0.25	0.15	0.15	0.15	0.10	0.10	0.10
Sat Flow, veh/h	3442	2856	644	1774	3046	490	1774	1863	1541	1774	830	873
Grp Volume(v), veh/h	718	246	244	184	309	310	124	149	85	126	0	80
Grp Sat Flow(s),veh/h/ln	1721	1770	1731	1774	1770	1766	1774	1863	1541	1774	0	1703
Q Serve(g_s), s	16.0	8.1	8.3	8.0	12.4	12.6	5.0	5.8	3.9	5.4	0.0	3.5
Cycle Q Clear(g_c), s	16.0	8.1	8.3	8.0	12.4	12.6	5.0	5.8	3.9	5.4	0.0	3.5
Prop In Lane	1.00		0.37	1.00		0.28	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	804	642	628	223	451	450	267	281	232	185	0	177
V/C Ratio(X)	0.89	0.38	0.39	0.82	0.68	0.69	0.46	0.53	0.37	0.68	0.00	0.45
Avail Cap(c_a), veh/h	884	656	642	368	569	567	561	589	487	651	0	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.3	18.6	18.7	33.7	26.6	26.6	30.7	31.0	30.2	34.2	0.0	33.3
Incr Delay (d2), s/veh	10.1	1.4	1.4	2.9	6.6	6.8	0.5	0.6	0.4	1.7	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	4.2	4.2	4.1	6.9	7.0	2.5	3.0	1.7	2.7	0.0	1.7
LnGrp Delay(d),s/veh	39.5	20.0	20.1	36.6	33.2	33.4	31.1	31.6	30.5	35.8	0.0	34.0
LnGrp LOS	D	C	C	D	C	C	C	C	C	D		C
Approach Vol, veh/h		1208			803			358			206	
Approach Delay, s/veh		31.6			34.1			31.2			35.1	
Approach LOS		C			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.7	34.1		13.3	23.2	25.6		17.0				
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1				
Max Green Setting (Gmax), s	* 16	29.3		29.0	* 20	25.4		25.0				
Max Q Clear Time (g_c+I1), s	10.0	10.3		7.4	18.0	14.6		7.8				
Green Ext Time (p_c), s	0.1	6.3		0.4	0.5	5.5		0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			32.6									
HCM 2010 LOS			C									
Notes												

APPENDIX C

CUMULATIVE PROJECTS DATA



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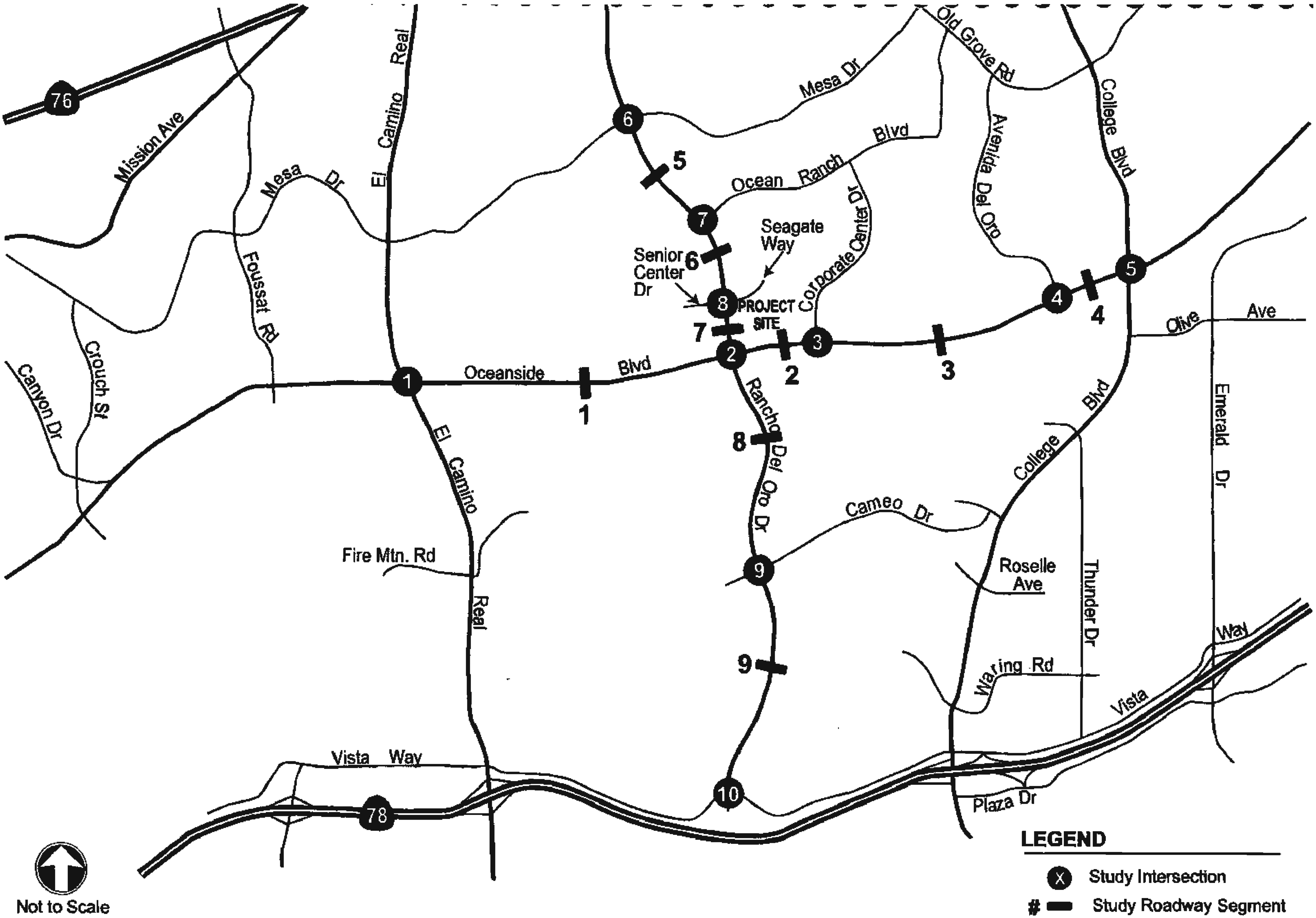
PROJECT SITE PLAN

EXHIBIT 2



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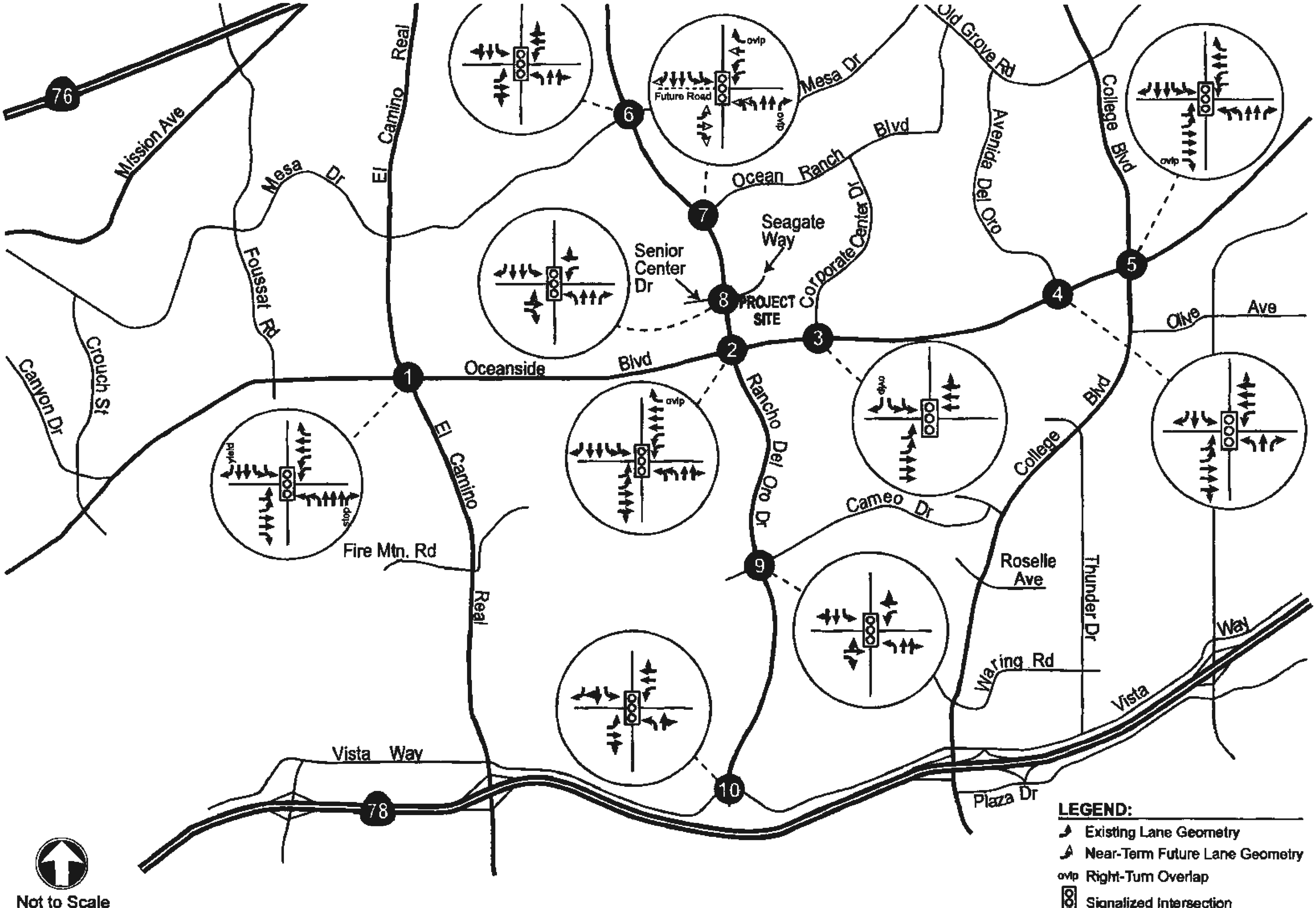
PROJECT STUDY AREA

EXHIBIT 3



LEGEND:

- Existing Lane Geometry
- Near-Term Future Lane Geometry
- ovlp Right-Turn Overlap
- Signalized Intersection

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EXISTING AND EXISTING PLUS CUMULATIVE INTERSECTION LANE GEOMETRY

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EXHIBIT 4

PROPOSED PROJECT

The project is located on a vacant 4.85-acre site on the northeast corner of Oceanside Boulevard and Rancho Del Oro Drive in the City of Oceanside. The proposed project will consist of four (4) retail commercial buildings with a combined size of 27,200 square-feet. The project will take access from Seagate Way, and a right-in / right-out only driveway with a dedicated right-turn lane provided on northbound Rancho Del Oro Drive between Seagate Way and Oceanside Boulevard.

The four (4) commercial buildings assumed in this study includes the following mix of land uses:

- 6,900 SF Specialty Retail
- 4,000 SF Walk-In Bank
- 3,900 SF Fast Food (Without Drive-Through)
- 4,500 SF Fast Food (With Drive-Through)
- 7,900 SF High Turnover Sit-Down Restaurant

Project Trip Generation

To determine the trips forecast to be generated by the proposed project, *April 2002 SANDAG Trip Generation* rates were utilized in accordance with the City of Oceanside and SANTEC/ITE Traffic Study Guidelines. The SANDAG *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) showing the trip generation rate for the proposed land use is provided in Appendix D.

Table 5 summarizes the project trip generation. As summarized in **Table 5**, the proposed project without any pass-by or transit trip reductions will generate 7,795 average daily trips, which includes 475 a.m. (257 inbound and 218 outbound) peak hour trips and 570 p.m. (290 inbound and 280 outbound) peak hour trips. Due to the project's close proximity (less than 1,500 feet) to the Sprinter Transit Station, a 5% trip reduction has been applied to the daily and peak hour trips. In addition, pass-by trip reductions per SANDAG's trip generation table have been applied to the retail and restaurant uses proposed within the project. After the transit and pass-by reductions are applied, the net new trips generated by the project include approximately 4,713 average daily trips, which includes approximately 368 a.m. (202 inbound and 166 outbound) peak hour trips and approximately 348 p.m. (179 inbound and 170 outbound) peak hour trips.

Table 5
Proposed Project Trip Generation
SANDAG Trip Generation Rates

Land Use	Unit	Daily (per unit)	AM Peak Hour			PM Peak Hour		
			Total (of daily)	Inbound (%AM)	Outbound (%AM)	Total (of daily)	Inbound (%PM)	Outbound (%PM)
Specialty Retail	TSF	40	3%	60%	40%	9%	50%	50%
Bank (Walk-In Only)	TSF	150	4%	70%	30%	8%	40%	60%
Fast Food (Without Drive-Through)	TSF	700	5%	60%	40%	7%	50%	50%
Fast Food (With Drive-Through)	TSF	650	7%	50%	50%	7%	50%	50%
Restaurant (Sit-down, High Turnover)	TSF	160	8%	50%	50%	8%	60%	40%

Forecast Project Generated Trips

Land Use	Size	Unit	Daily Trips	AM Peak Hour			PM Peak Hour		
				Total	Inbound	Outbound	Total	Inbound	Outbound
Specialty Retail	6.9	TSF	276	8	5	3	25	12	13
Bank (Walk-In Only)	4.0	TSF	600	24	17	7	48	19	29
Fast Food (Without Drive-Through)	3.9	TSF	2,730	137	82	55	191	96	96
Restaurant (Sit-down, High Turnover)	7.9	TSF	1,264	101	50	51	101	61	40
Fast Food (With Drive-Through)	4.5	TSF	2,925	205	103	102	205	102	103
DRIVEWAY SUBTOTAL			**7,795**	**475**	**257**	**218**	**570**	**290**	**280**
Transit Access Trip Reduction (5% - Daily & AM/PM)			*-390*	*-24*	*-13*	*-11*	*-29*	*-14*	*-14*
DRIVEWAY SUBTOTAL WITH TRANSIT CREDIT			***7,405***	***451***	***244***	***207***	***541***	**276**	**266**
Specialty Retail Pass-By Trip Reduction (10% - Daily & AM/PM)			*-28*	*-1*	*-1*	*0*	*-3*	*-1*	*-2*
Bank Pass-By Trip Reduction (25% - Daily & PM only) [(a)]			*-150*	*0*	*0*	*0*	*-12*	*-5*	*-7*
Restaurant Pass-By Trip Reduction (20% - Daily & PM only) [(a)]			*-253*	*0*	*0*	*0*	*-20*	*-12*	*-8*
Fast Food (Without Drive-Through) Pass-By Trip Reduction (40% - Daily & PM only) [(a)]			*-1,092*	*0*	*0*	*0*	*-76*	*-38*	*-38*
Fast Food (With Drive-Through) Pass-By Trip Reduction (40% - Daily & AM/PM)			*-1,170*	*-82*	*-41*	*-41*	*-82*	*-41*	*-41*
PASS-BY TRIPS SUBTOTAL			***-2,692***	***-83***	***-42***	***-41***	***-193***	***-97***	***-96***
NET PROJECT TRIPS			**4,713**	**368**	**202**	**166**	**348**	**179**	**170**

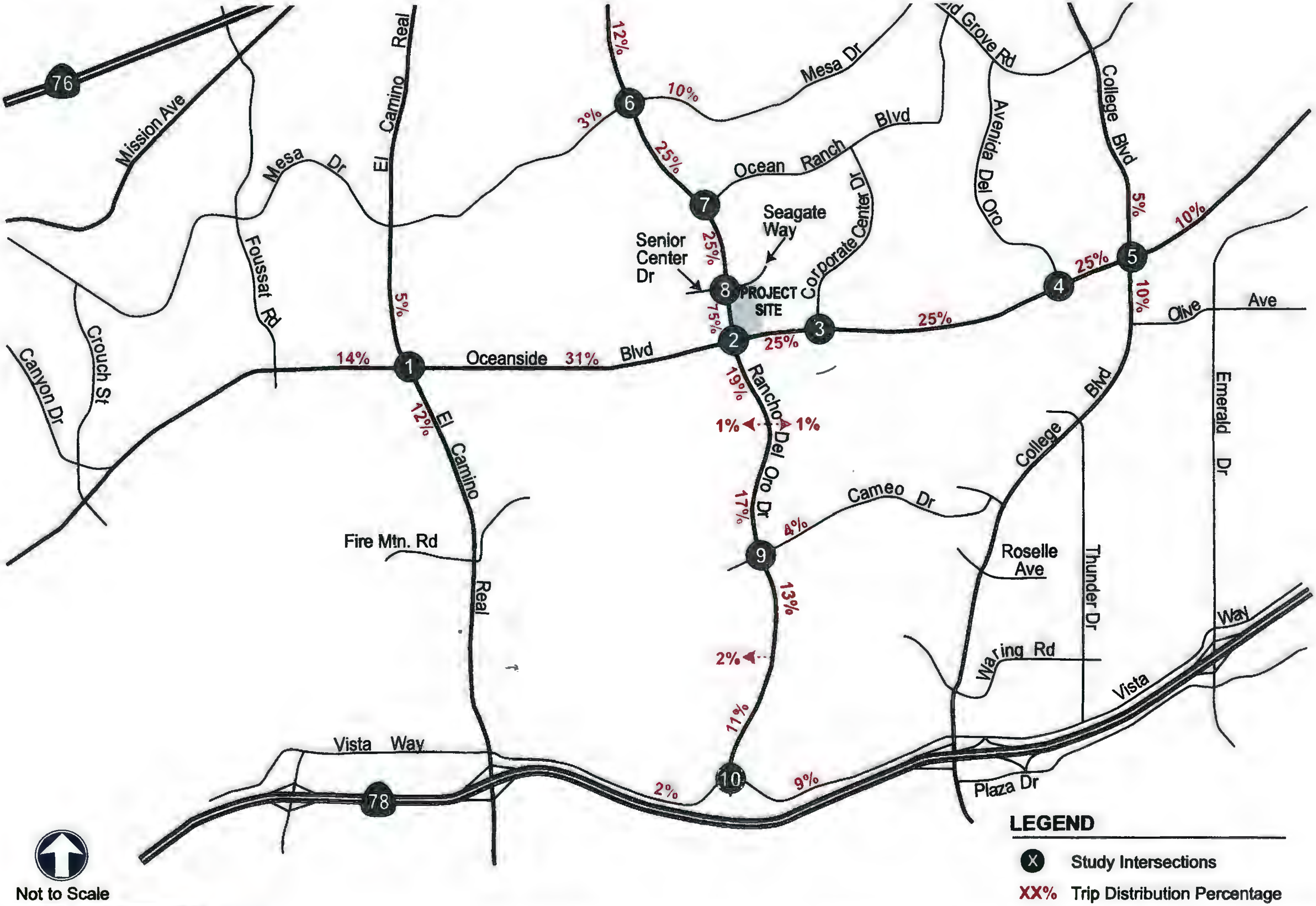
TSF = Thousand Square-Feet

(a) = Trip reductions in the AM peak hour were not assumed for the Bank, Restaurant and Fast Food (without a drive-through) land uses since traffic during the AM peak would primarily consist of employees only.

Project Trip Distribution and Assignment

The project trip distribution was developed based on the existing roadway network and surrounding land uses, existing traffic patterns and access to SR-78, SR-76 and Interstate 5. The El Camino Real / SR-78 and the College Blvd / SR-78 interchanges provide access between the project site and SR-78. Rancho Del Oro Drive connects with SR-76 to the north and Oceanside Blvd. connects with Interstate 5 to the west.

Exhibit 7 illustrates the project trip distribution under existing and near-term future (existing plus cumulative), and Horizon Year 2030 conditions assuming the SR-78 / RDO interchange is not



LEGEND

X Study Intersections

XX% Trip Distribution Percentage

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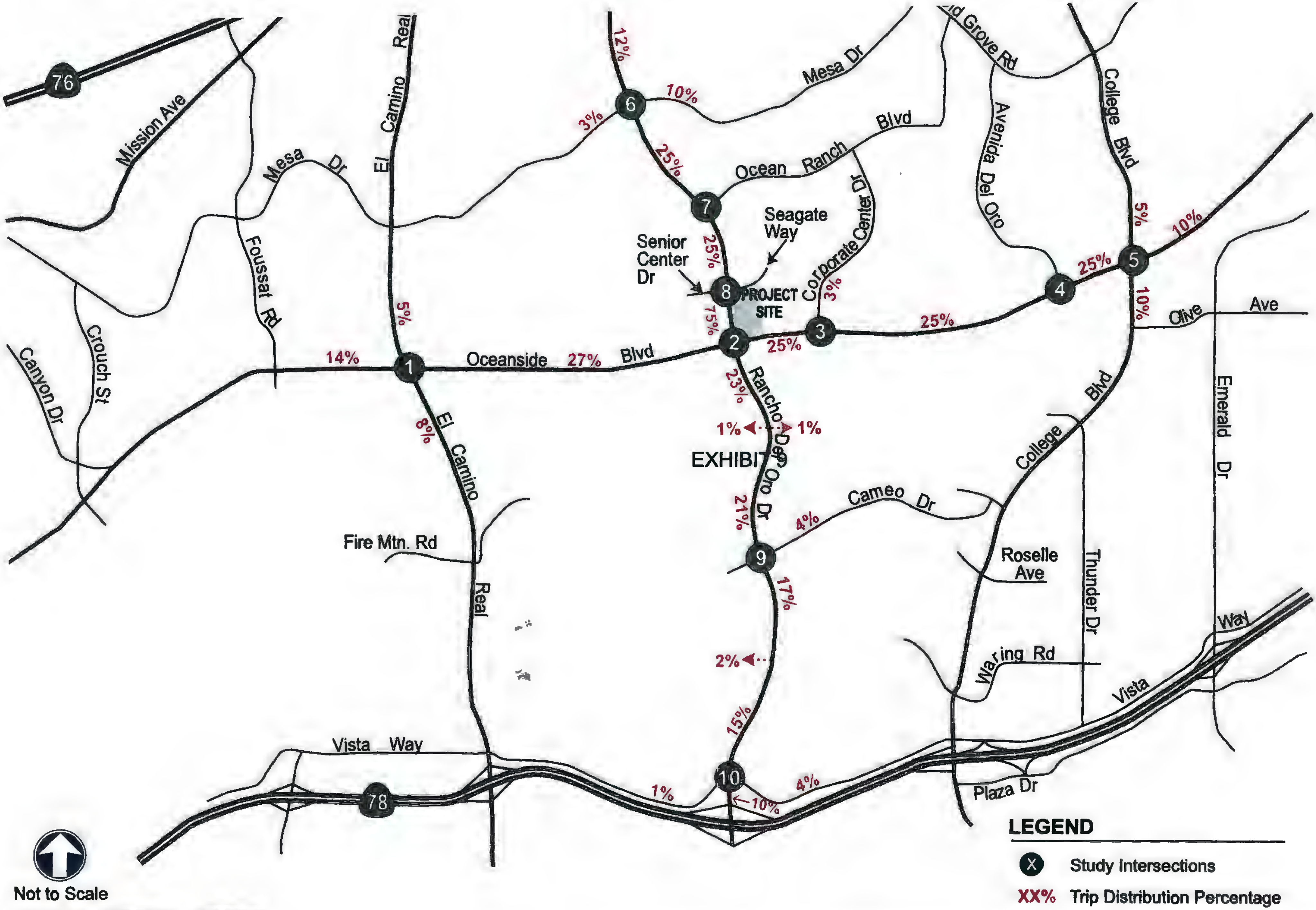
PROJECT TRIP DISTRIBUTION WITHOUT RDO/SR-78 INTERCHANGE

JN 144233 January 2017

EXHIBIT 7



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PROJECT TRIP DISTRIBUTION WITH RDO/SR-78 INTERCHANGE

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EXHIBIT 8

Not to Scale

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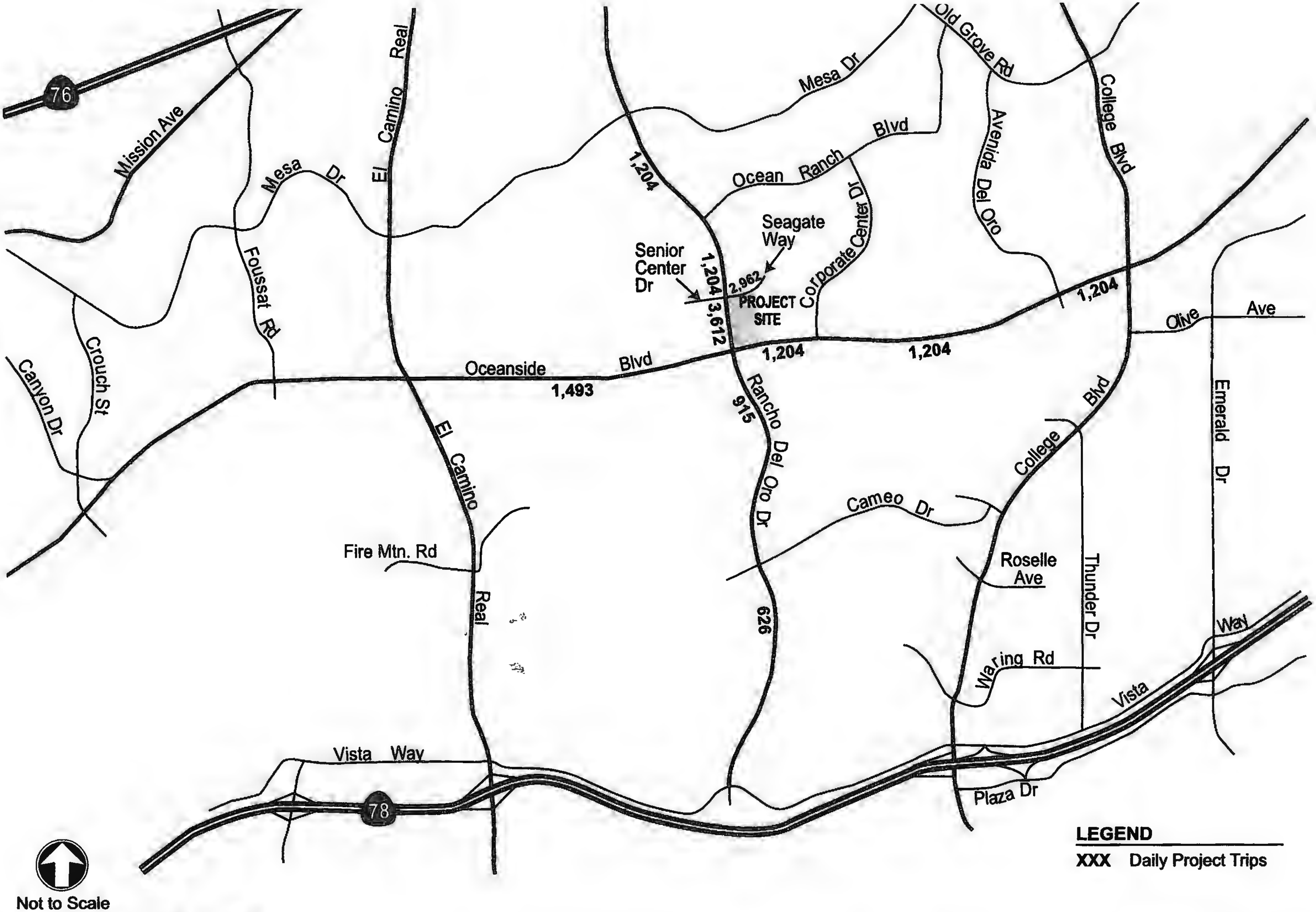
Total Project Trips (AM/PM)

Exhibit 10



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DAILY PROJECT TRIP ASSIGNMENT-WITHOUT RDO/SR-78 INTERCHANGE

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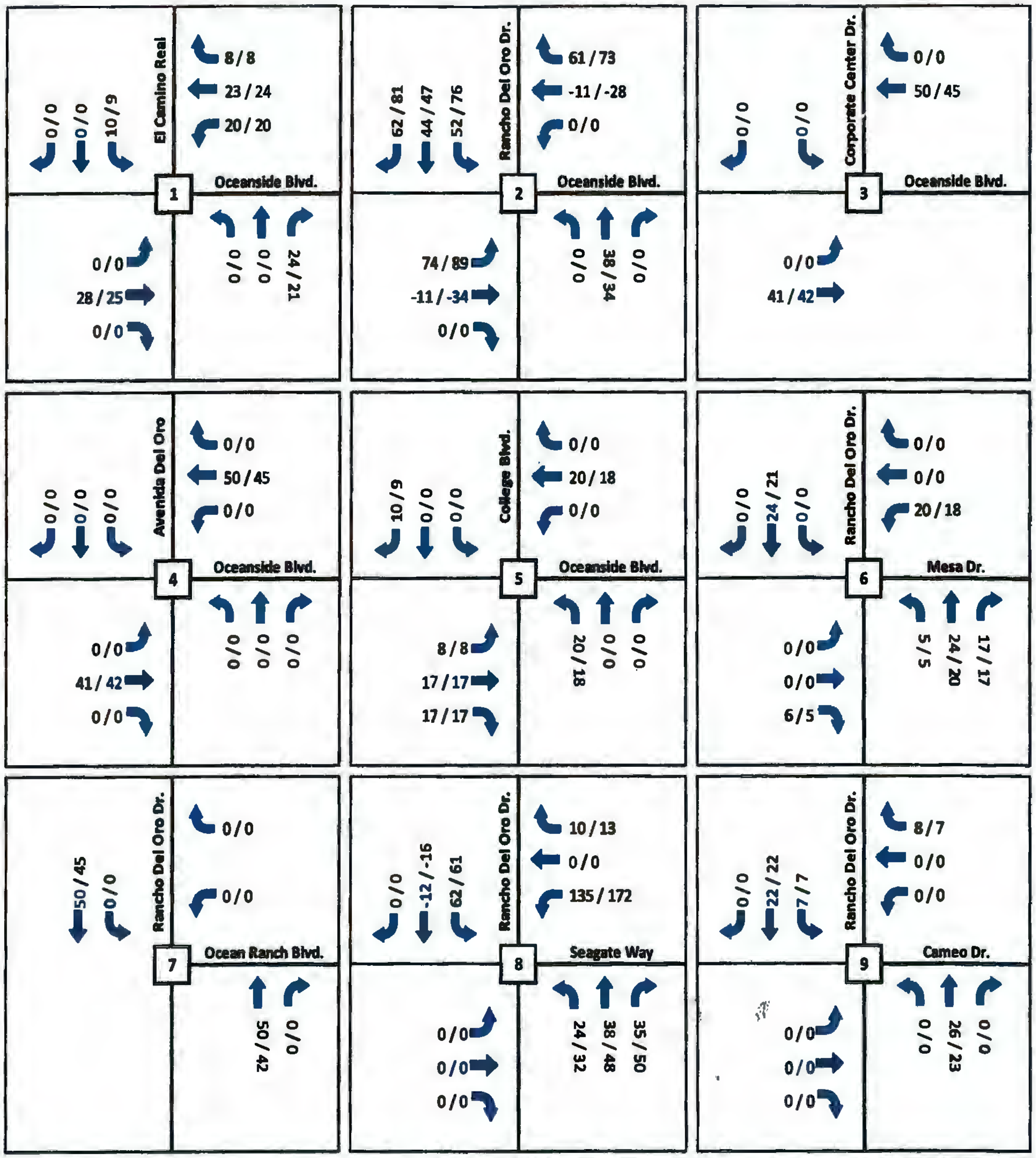
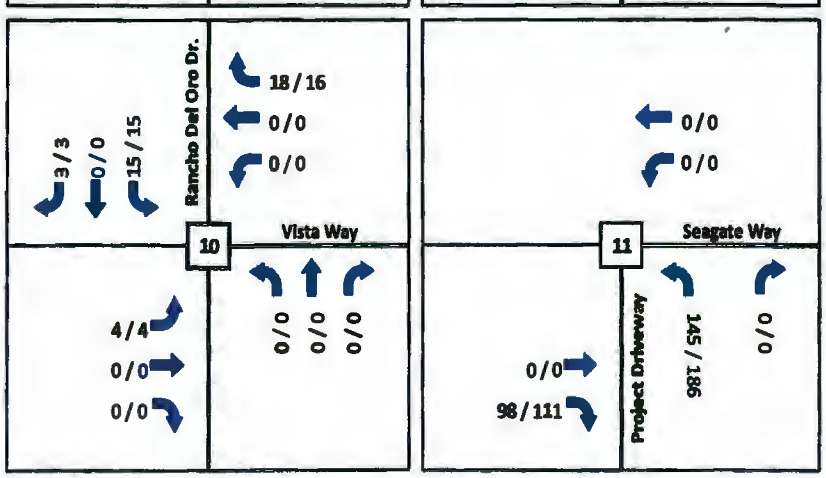
EXHIBIT 11



Notes:

XX / XX = AM / PM Peak Hour Volumes



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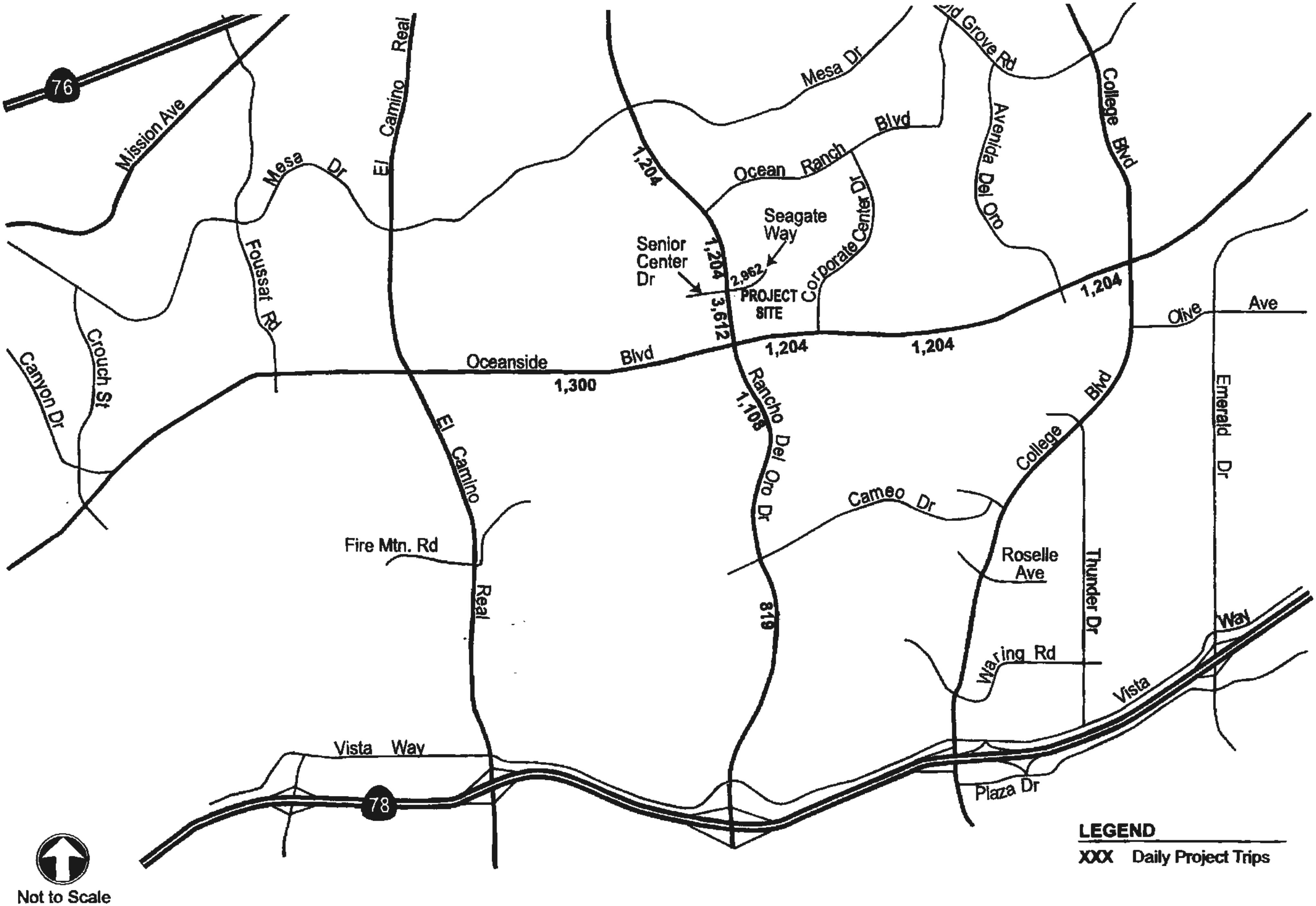
AM/PM Peak Hour Project Trip Assignment- Without RDO Interchange

EXHIBIT 12



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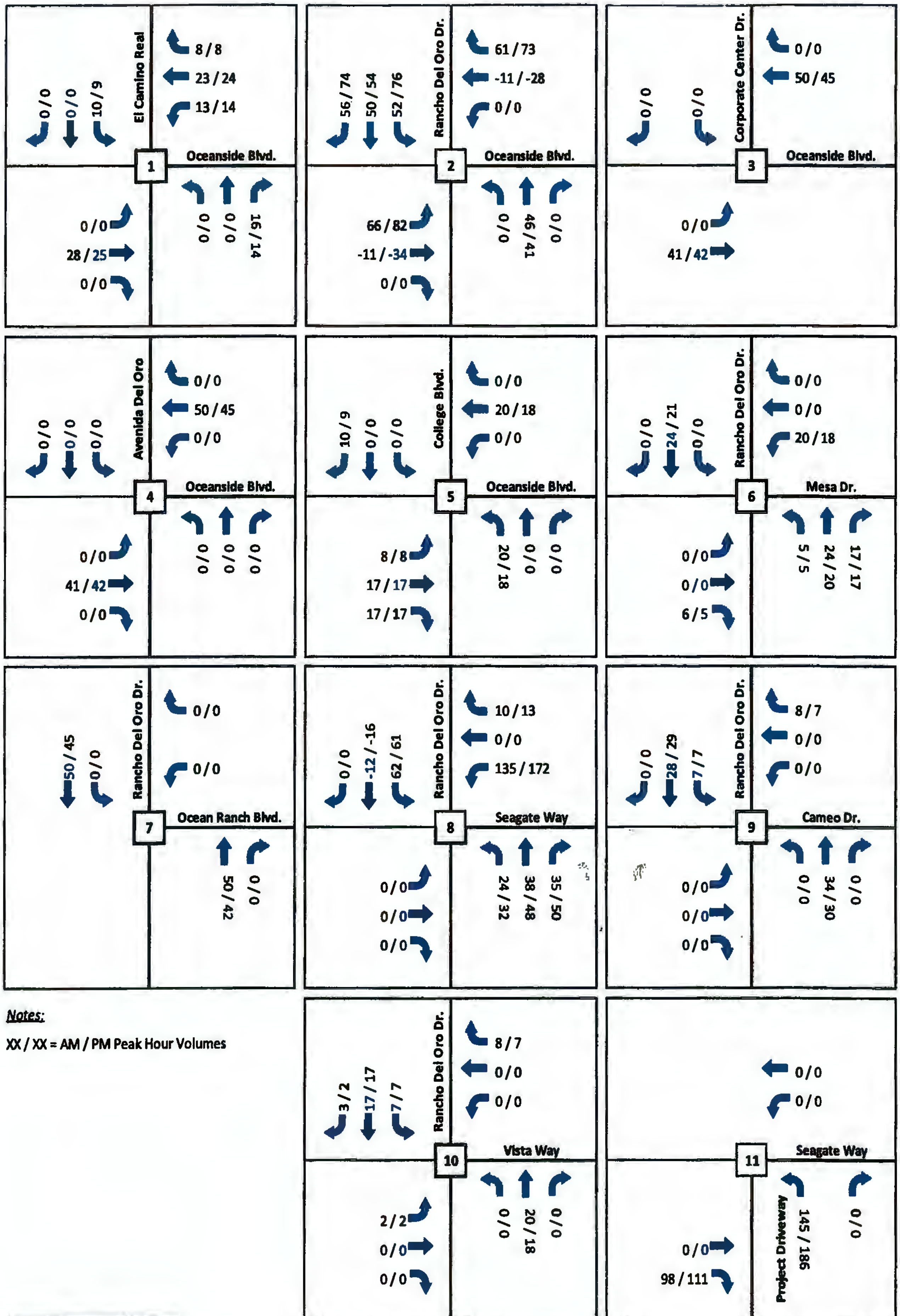
DAILY PROJECT TRIP ASSIGNMENT-WITH RDO/SR-78 INTERCHANGE

JN 144233 January 2017

EXHIBIT 13



Notes:

XX / XX = AM / PM Peak Hour Volumes

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AM/PM Peak Hour Project Trip Assignment- With RDO Interchange

EXHIBIT 14

EXISTING PLUS CUMULATIVE CONDITIONS – WITHOUT AND WITH PROJECT

To determine the Existing Plus Cumulative conditions in the project study area, forecast project traffic associated with City of Oceanside, City of Carlsbad and City of Vista approved or pending projects were added to existing traffic volumes. City staff identified the list of projects that would generate traffic into the study area by the projects opening year (approximately 2018). Cumulative project traffic data through the study area is based on information from traffic impact studies prepared for the cumulative projects where available. The list of cumulative projects and the trips generated by each project are presented in **Table 8.**

As presented in **Table 8**, the cumulative projects are forecast to generate approximately 65,805 average daily trips, which includes approximately 5,430 a.m. peak hour trips and approximately 6,988 p.m. peak hour trips.

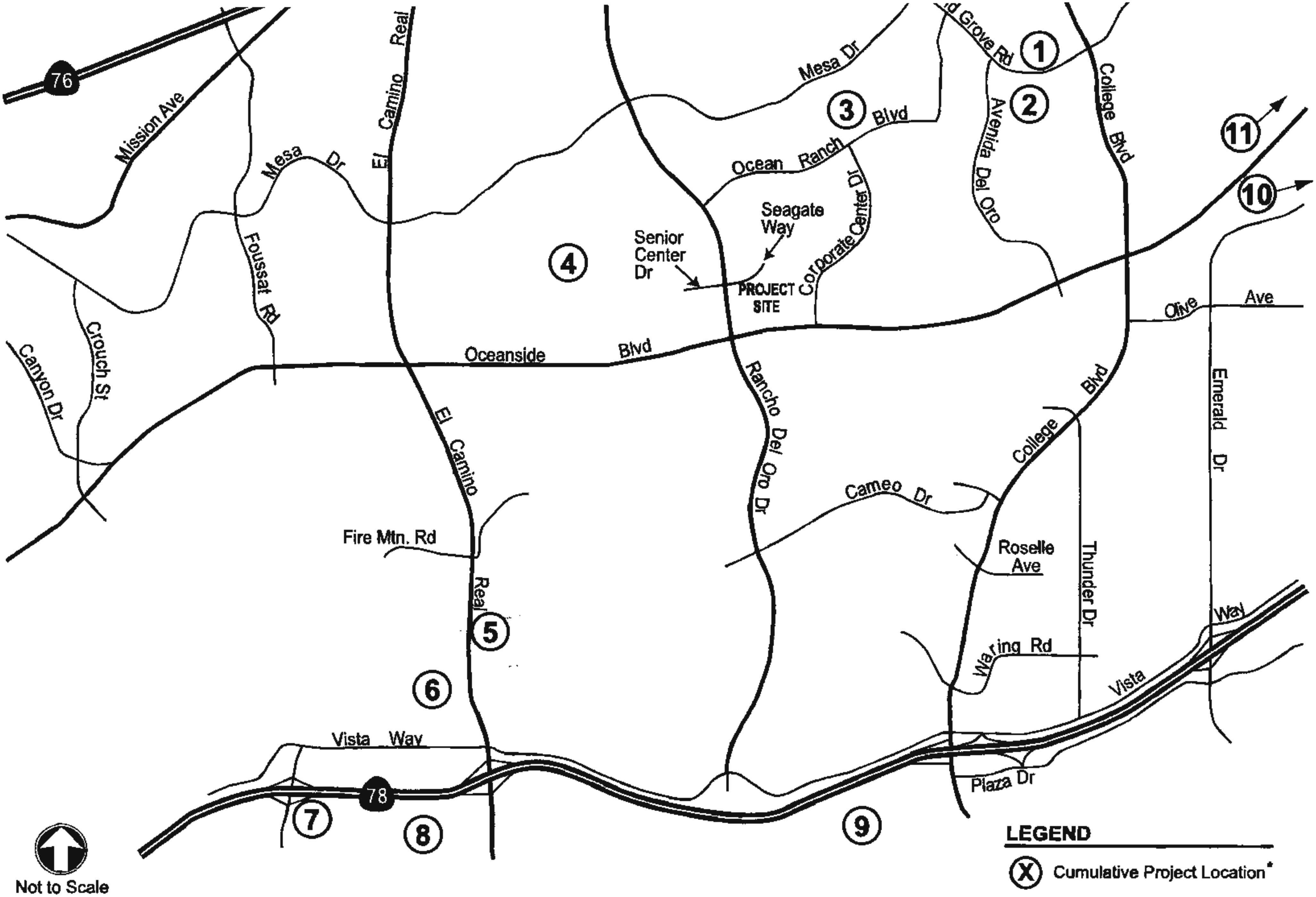
The locations of the cumulative projects are provided in **Exhibit 17. Exhibit 18** illustrates the daily trips generated by the cumulative projects. The a.m. and p.m. peak hour trips generated by the cumulative projects are shown in **Exhibit 19.**

To determine the Existing Plus Cumulative operating conditions, the cumulative project trips were added to the existing traffic volumes at the intersections and roadway segments within the project study area.

Table 8
Cumulative Projects Trip Generation

ID No.	Project	Land Use	Size	Unit	Status	Daily Trips	AM Peak Hour			PM Peak Hour		
							Total	Inbound	Outbound	Total	Inbound	Outbound
City of Oceanside Cumulative Projects												
1	Terraza at RDO Village XII	Multi-Family DU (6-20 DU per acre)	338	DU	Approved, not yet built	2,704	216	43	173	270	189	81
2	Pacific Coast Business Park	Office/Industrial	1,200	TSF	80% unoccupied	17,278	1,988	1,770	218	2,124	460	1,664
3	Ocean Ranch	Office/Industrial	1,881.79	TSF	40% unoccupied	14,302	1,581	1,412	169	1,675	339	1,336
4	El Corazon Master Plan (Phases One and Two)	Hotel	5	acres	Approved, not yet built	1,500	90	54	36	120	72	48
		Village Commercial	19	acres		7,600	228	137	91	684	342	342
		Condominiums	80	DU		640	51	10	41	64	45	19
		Soccer Fields	80	acres	Built	-	-	-	-	-	-	-
					Total Trips	9,740	369	201	168	868	459	409
5	ECR Medical Office	Medical Office	32.6	TSF	Approved, not yet built	1,630	98	78	20	179	54	125
6	Camino Town and Country Shopping Center - North Expansion	Community Commercial / Discount Supermarket	89.148	TSF	Approval pending	6,271	179	106	73	578	289	289
7	Inns at Buena Vista Creek	Hotel	426	rooms	Approval pending	4,260	256	153	102	341	204	136
Total City of Oceanside Cumulative Project Trips						**56,185**	**4,687**	**3,763**	**923**	**6,035**	**1,994**	**4,040**
City of Carlsbad Cumulative Projects												
8	Westfield Mall Revitalization Project	Mall Expansion Project	35.417	TSF	Approved, not yet built	1,240	49	35	14	124	62	62
9	Quarry Creek Master Plan	Single-Family Detached	119	DU	Approved, not yet built	1,190	95	30	67	119	83	36
		Condominiums	438	DU		3,504	280	54	224	351	246	105
		Apartments	99	DU		594	48	10	38	53	37	16
		Community Facilities	1.5	acre		150	26	13	13	28	14	14
		Park and Ride	28	spaces		140	20	14	6	21	6	15
					Total Trips	5,578	469	121	348	572	386	186
					5% Transit Reduction	-155	-12	-2	-10	-15	-11	-4
					Net Project Trips	5,423	457	119	338	557	375	182
Total City of Carlsbad Cumulative Project Trips						**6,663**	**506**	**154**	**352**	**681**	**437**	**244**
City of Vista Cumulative Projects												
10	Alexan Melrose	Apartments	410	DU	Under Construction	2,460	197	39	157	221	155	66
					5% Transit Reduction	-123	-10	-2	-8	-11	-8	-3
					Net Project Trips	2,337	187	37	150	210	147	63
11	Laurel Pointe (Adobe Estates)	Single-Family Detached	62	DU	62 DU Unbuilt or Unoccupied (35%)	620	50	15	35	62	43	19
Total City of Vista Cumulative Project Trips						**2,957**	**237**	**52**	**184**	**272**	**191**	**82**
TOTAL CUMULATIVE PROJECT TRIPS						**65,805**	**5,430**	**3,969**	**1,459**	**6,988**	**2,622**	**4,365**

(1) Only the unoccupied project square-footage or dwelling units are shown in this table and included in the trip generation calculations.



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*See Table 8 for list of cumulative projects.

CUMULATIVE PROJECTS LOCATION MAP

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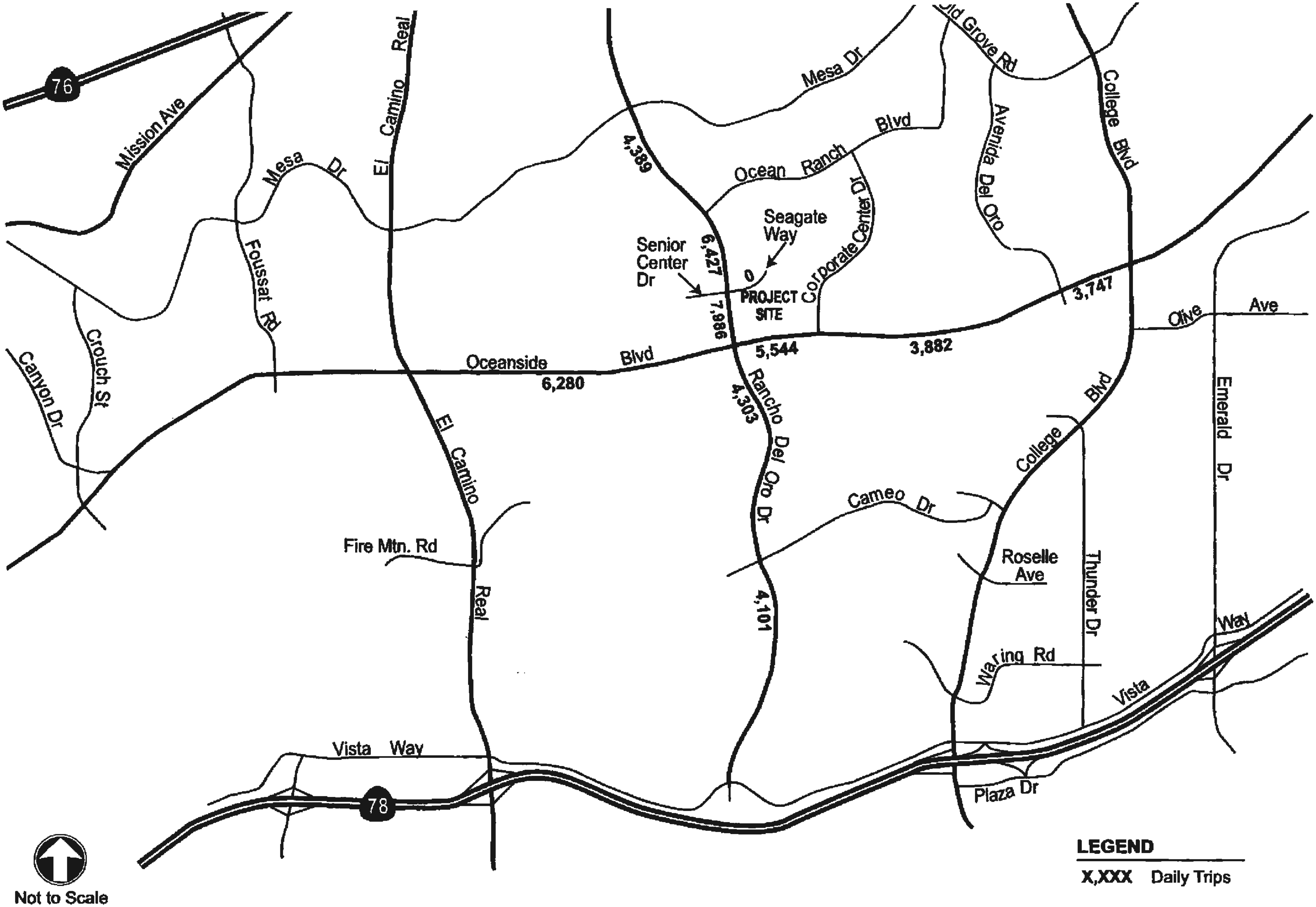
EXHIBIT 17



CUMULATIVE PROJECTS DAILY TRIPS

EXHIBIT 18

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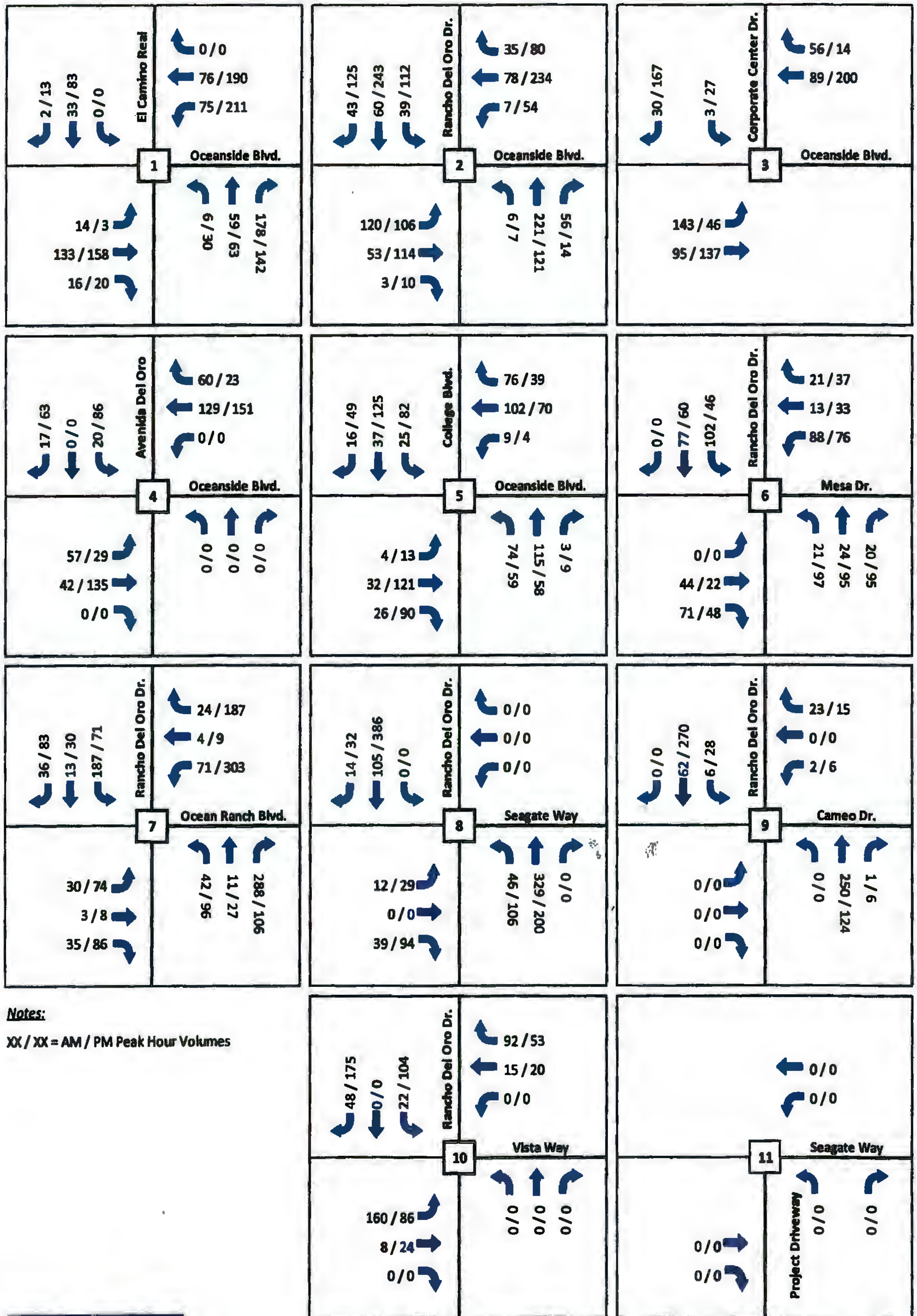

Notes:

XX / XX = AM / PM Peak Hour Volumes

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Cumulative Project Only AM/PM Turn Movement Volumes

EXHIBIT 19

4.0 PROJECT DESCRIPTION

The Quarry Creek Master Plan consists of 656 dwelling units, 88 detached units, 460 attached, and 108 apartments. The Master Plan also includes 1.3 acres for community facilities that might include a day-care, and 0.9 acres for a park-and-ride lot. **Figure 4-1** shows the Quarry Creek Master Plan Site Plan.

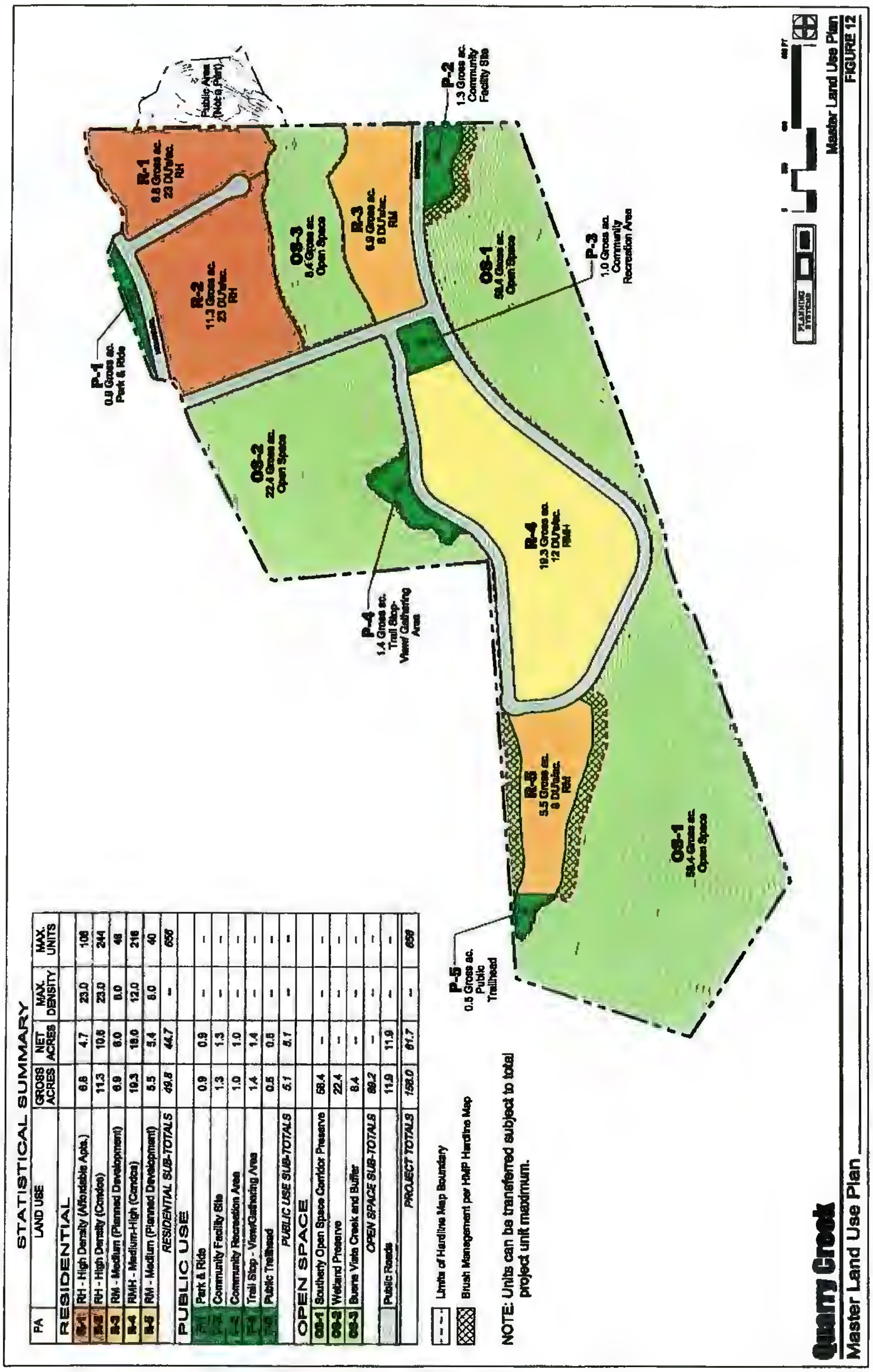
Table 4-1 includes the vehicle trip generation for the Quarry Creek Master Plan. As shown in this table, the project is expected to generate 5,878 average daily vehicle trips, 515 AM peak hour trips (154 inbound; 361 outbound), and 620 PM peak hour trips (398 inbound: 222 outbound).

Marron Road will extend into the site from the east, and Haymar Drive will also be extended into the site from the east.

Four roadway network alternatives are evaluated in this report.

Alternative 1 – This street network assumes all roadways that are included in the City of Carlsbad and City of Oceanside General Plan Circulation Plans. This street network assumes the extension of Marron Road from the existing east end at the Quarry Creek Shopping Center property line, to the existing west end approximately 1,000 feet east of El Camino Real, all within the City of Carlsbad, and through a designated open space area.

Alternative 2 – This street network assumes the Rancho Del Oro Road interchange at SR-78 is constructed, but the Marron Road extension is not included, nor is the Rancho Del Oro Road extension to Marron Road.



STATISTICAL SUMMARY

PA	LAND USE	GROSS ACRES	NET ACRES	MAX. DENSITY	MAX. UNITS
RESIDENTIAL					
R-1	RH - High Density (Affordable Apts.)	6.8	4.7	23.0	108
R-2	RH - High Density (Condos)	11.3	10.8	23.0	244
R-3	RM - Medium (Planned Development)	6.9	6.0	8.0	48
R-4	RMH - Medium-High (Condos)	19.3	18.0	12.0	216
R-5	RM - Medium (Planned Development)	5.5	5.4	8.0	40
	RESIDENTIAL SUB-TOTALS	*49.8*	*44.7*	–	*656*
PUBLIC USE					
P-1	Park & Ride	0.9	0.9	–	–
P-2	Community Facility Site	1.3	1.3	–	–
P-3	Community Recreation Area	1.0	1.0	–	–
P-4	Trail Stop - View/Gathering Area	1.4	1.4	–	–
P-5	Public Trailhead	0.5	0.5	–	–
	PUBLIC USE SUB-TOTALS	*5.1*	*5.1*	–	–
OPEN SPACE					
OS-1	Southerly Open Space Corridor Preserve	58.4	–	–	–
OS-2	Wetland Preserve	22.4	–	–	–
OS-3	Buena Vista Creek and Buffer	8.4	–	–	–
	OPEN SPACE SUB-TOTALS	*89.2*	–	–	–
	Public Roads	11.9	11.9	–	–
	PROJECT TOTALS	*156.0*	*61.7*	–	*656*

FIGURE 4-1

Quarry Creek Master Plan Site Plan

TABLE 4-1

Project Trip Generation

				AM PEAK HOUR					PM PEAK HOUR				
Use	**Amount**	**Trip Rate***	**ADT**	**%***	**#**	**In/Out ***	**In**	**Out**	**%***	**#**	**In/Out ***	**In**	**Out**
Apartments	108 DU	6 / DU	648	8	52	2 : 8	10	42	9	58	7 : 3	41	17
Attached	460 DU	8 / DU	3,680	8	294	2 : 8	59	235	10	368	7 : 3	258	110
Lots	88 DU	10 / DU	880	8	70	3 : 7	21	49	10	88	7 : 3	62	26
Community Facilities	1.5 AC.	100 / AC.**	150	17	26	5 : 5	13	13	18	28	5 : 5	14	14
Park and Ride	1.3 AC.	400 / AC.	520	14	73	7 : 3	51	22	15	78	3 : 7	23	55
Total			**5,878**		**515**		**154**	**361**		**620**		**398**	**222**

***Source: SANDAG Brief Guide Vehicular Traffic Generation Rates For the San Diego Region, April 2002.**
****Note: Trip rate adjusted to account for possible 30 child day-care facility (5 trips / child x 30 = 150ADT).**

1. The project only traffic volumes used in the analysis are slightly higher than shown above, since they were based on a previous land use plan. A slight downward adjustment to project only trip generation would not change the conclusions of this report.

2. This analysis does not reflect any Mixed-Use, Tenant, or Park-and-Ride reductions that may apply.

Alternative 3 – This alternative street network assumes only the extension of Marron Road to complete the connection between College Boulevard and El Camino Real extending through designated open space, and does not include the SR-78 / Rancho Del Oro interchange or the Rancho Del Oro Road extension to Marron Road.

Alternative 4 – This alternative street network assumes existing roadways within the study area, with no Rancho Del Oro interchange or extension and Marron Road extends into the Quarry Creek Master Plan from the east only with no westerly connection to El Camino Real, and avoiding constructing Marron Road through the designated open space.

The SANDAG Series 11 Combined North County Model was used to determine Buildout average daily traffic volumes for each street network and are included in the following evaluation of project traffic impacts.

The Quarry Creek site is identified by SANDAG as a Smart Growth Community Center on the Smart Growth Concept Map for the San Diego Region. The project site is located in close proximity to other uses, including retail, employment and educational uses. In addition, the site is served by transit and the project proposes a park and ride lot on the north side of Haymar Drive just west of College Boulevard. The mixed use environment of the area, the availability of transit services and park and ride facilities and the walkable nature of the planned development will reduce traffic generation from the site by promoting alternative forms of transportation (walking, biking and transit) and by facilitating multiple destinations in a single vehicle trip. While it is realistic to expect some reductions in trips, the analysis in this report does not include any mixed use or transit trip credits and therefore represents a worst-case scenario in terms of vehicular trip generation from the proposed project.

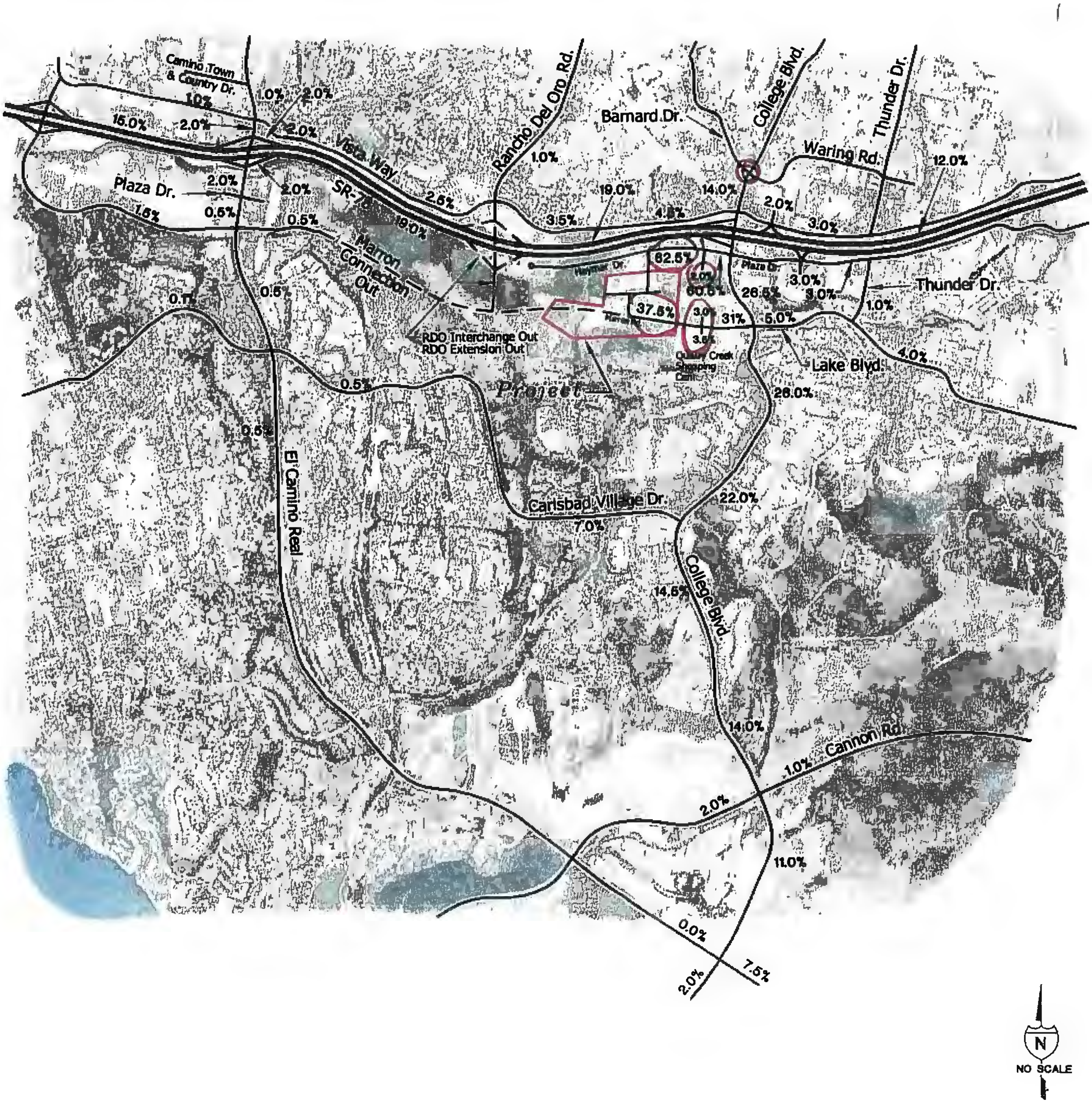


FIGURE 5-1
Project Trip Distribution Percentages - Alternative 4
No RDO Interchange / No RDO Extension / No Marron Road

LEGEND

XXX = ADT

FIGURE 5-2

Project Only Average Daily Traffic Volumes - For Existing Conditions
No RDO Interchange / No RDO Extension / No Marron Road

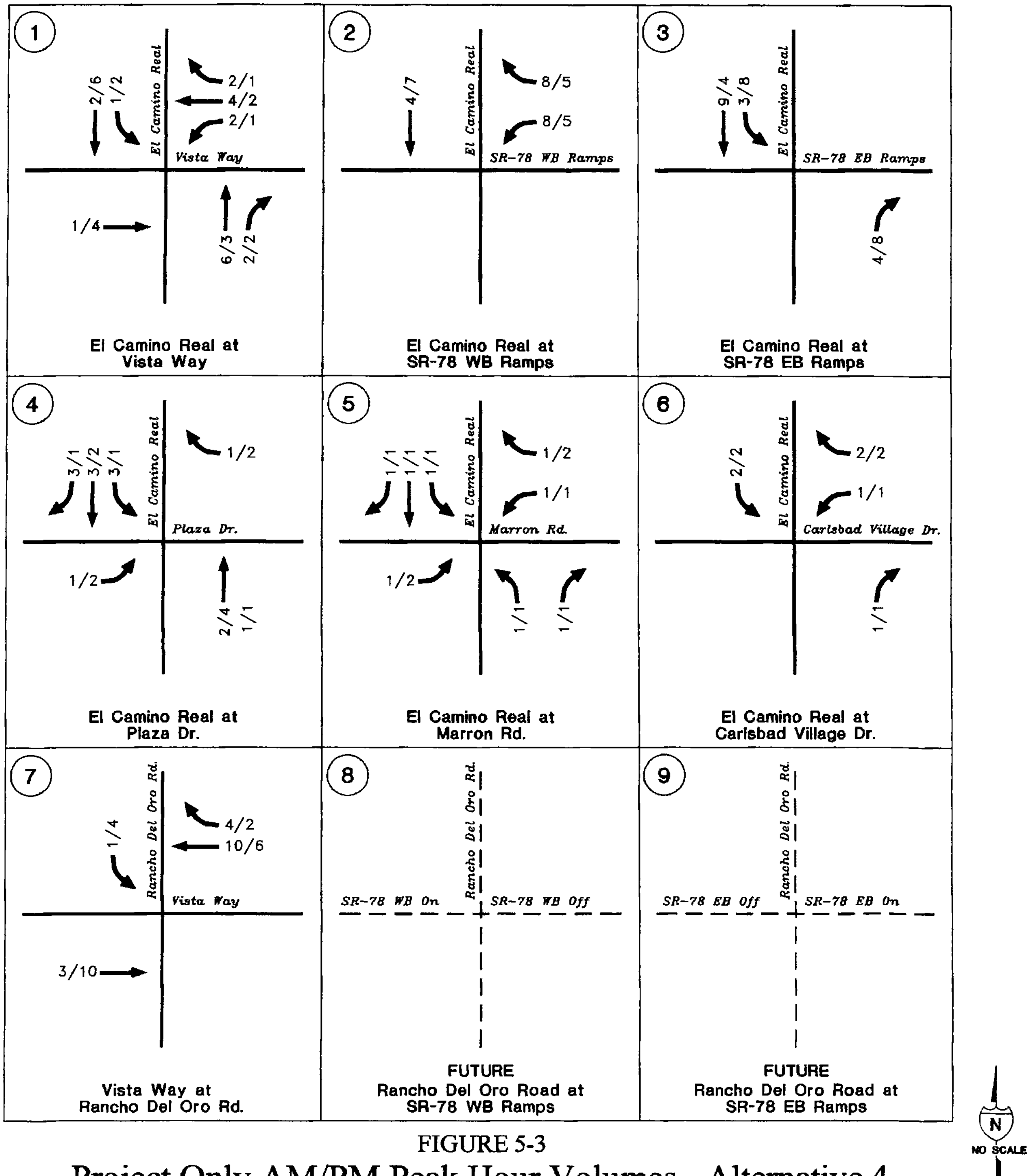
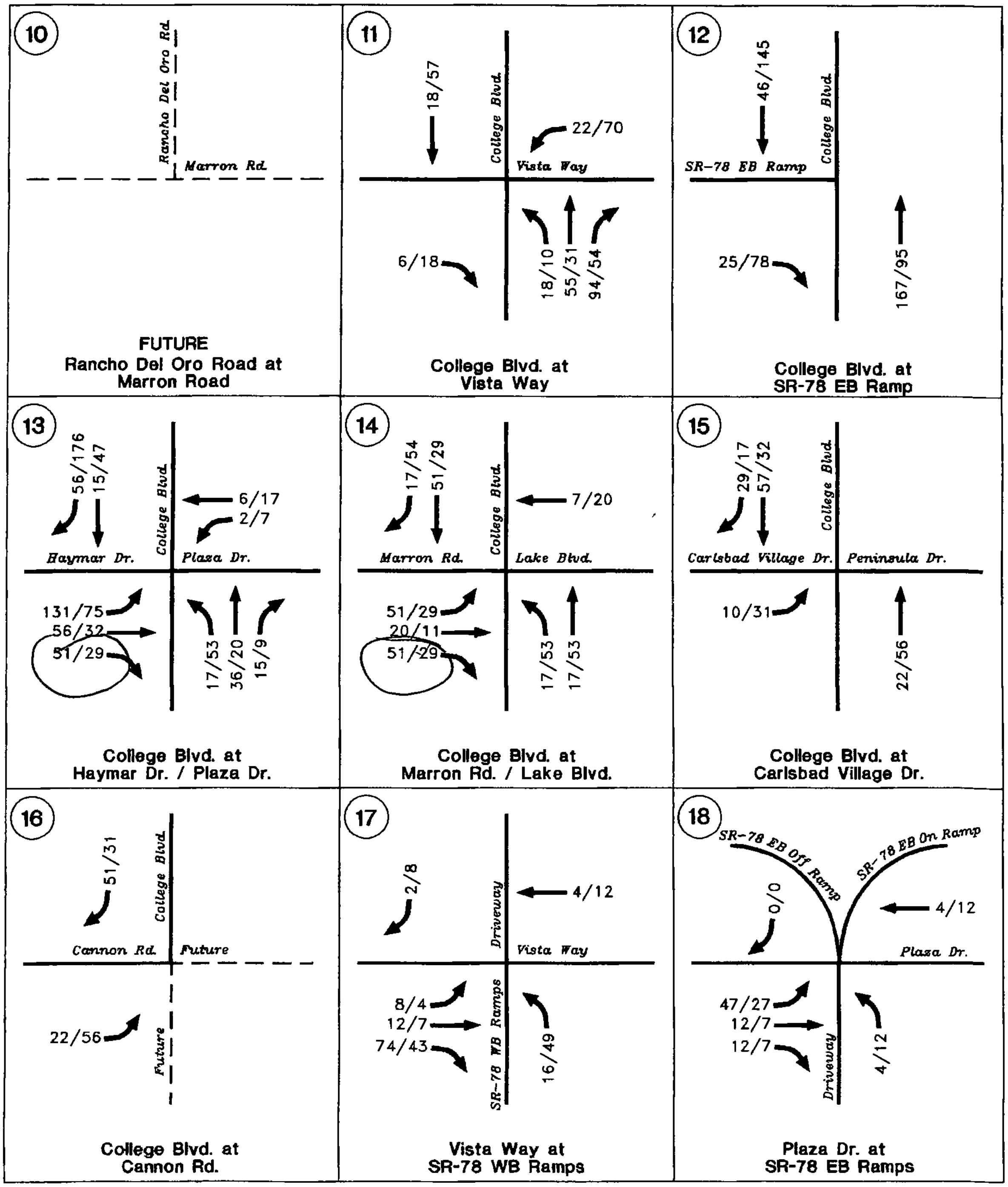


FIGURE 5-3

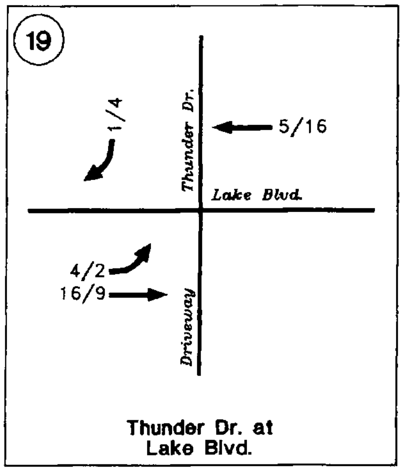
Project Only AM/PM Peak Hour Volumes - Alternative 4
No RDO Interchange / No RDO Extension / No Marron Road



N
NO SCALE

FIGURE 5-3

Project Only AM/PM Peak Hour Volumes - Alternative 4
No RDO Interchange / No RDO Extension / No Marron Road



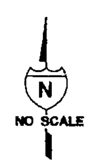


FIGURE 5-3
Project Only AM/PM Peak Hour Volumes - Alternative 4
No RDO Interchange / No RDO Extension / No Marron Road

8.0 BUILDOUT ALTERNATIVE 1

The land use for the Quarry Creek Master Plan remains the same for each of the four street network alternatives.

The base street network for Alternative 1 assumes all roadways that are included in the City of Carlsbad and City of Oceanside General Plan Circulation Plans. The Alternative 1 street network assumes the extension of Marron Road from the existing east end at the Quarry Creek Shopping Center property line, to the existing west end approximately 1,000 feet east of El Camino Real within the City of Carlsbad. This alternative includes the Rancho Del Oro interchange with State Route 78 and the extension to the south to connect with Marron Road.

The SANDAG Series 11 Combined North County Traffic Model was used for each alternative to predict Buildout average daily traffic volumes. A select zone plot of project only traffic distribution was also prepared to provide an indication of project only traffic distribution percentages.

Figure 8-1 shows the project only vehicle trip distribution percentages for Alternative 1.

Figure 8-2 includes the project only average daily traffic volumes based on the select zone trip distribution.

Figure 8-3 shows the study area street network with average daily traffic volumes for Alternative 1 without project traffic.

Figure 8-4 includes the Alternative 1 full Buildout average daily traffic volumes with project traffic.

FIGURE 8-1
Project Trip Distribution Percentages - Alternative 1
Circulation Element Roadways (All In)

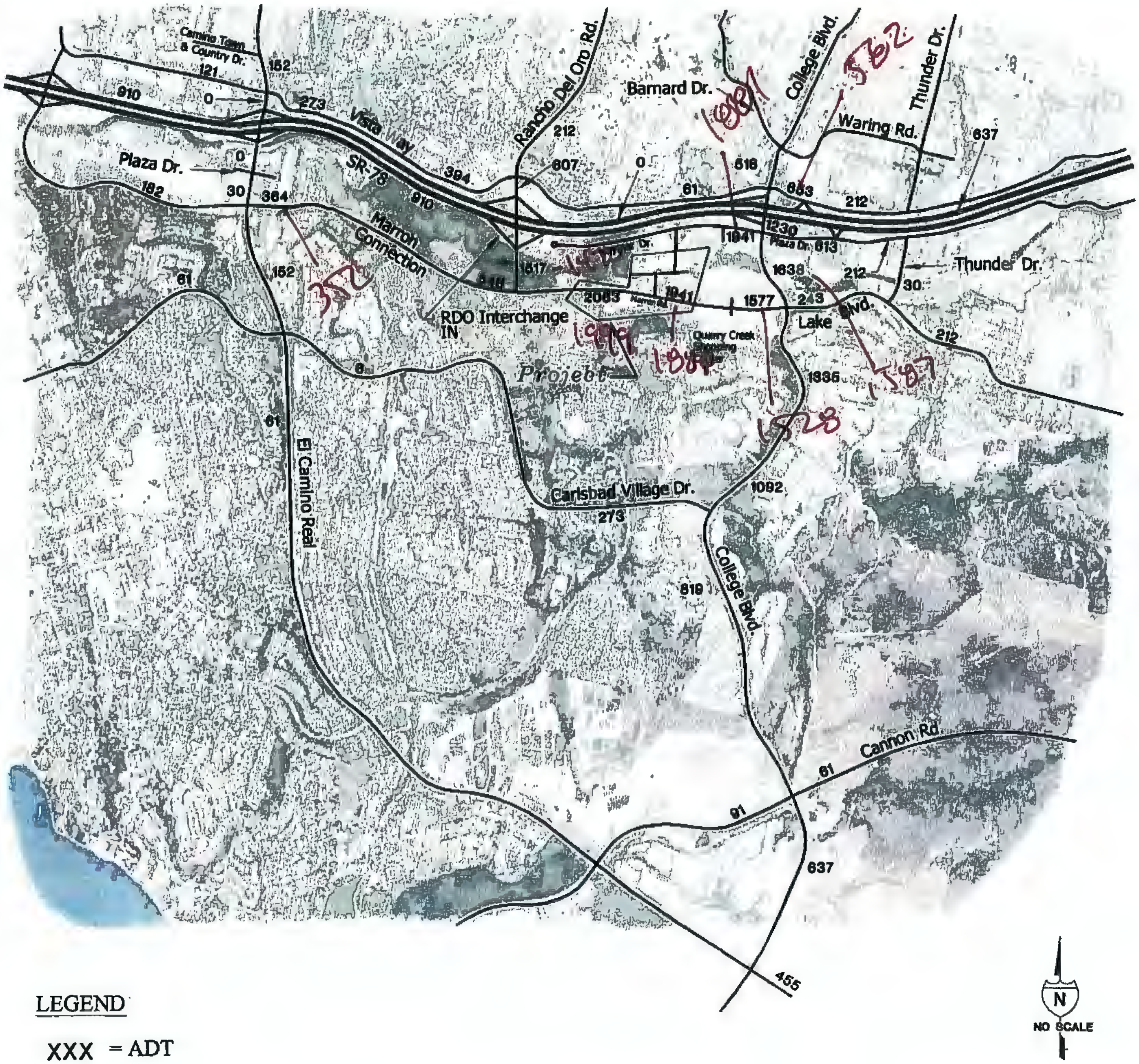


FIGURE 8-2
Buildout ADT Volumes - Alternative 1
Project Only

5878

LEGEND

XXX = ADT in Thousands

FIGURE 8-3
Buildout ADT Volumes - Alternative 1
Without Project

LEGEND

XX.X = ADT in Thousands

McMillin-1 (4-25-11)

FIGURE 8-4

Buildout ADT Volumes - Alternative 1
With Project

Page 1 of 3

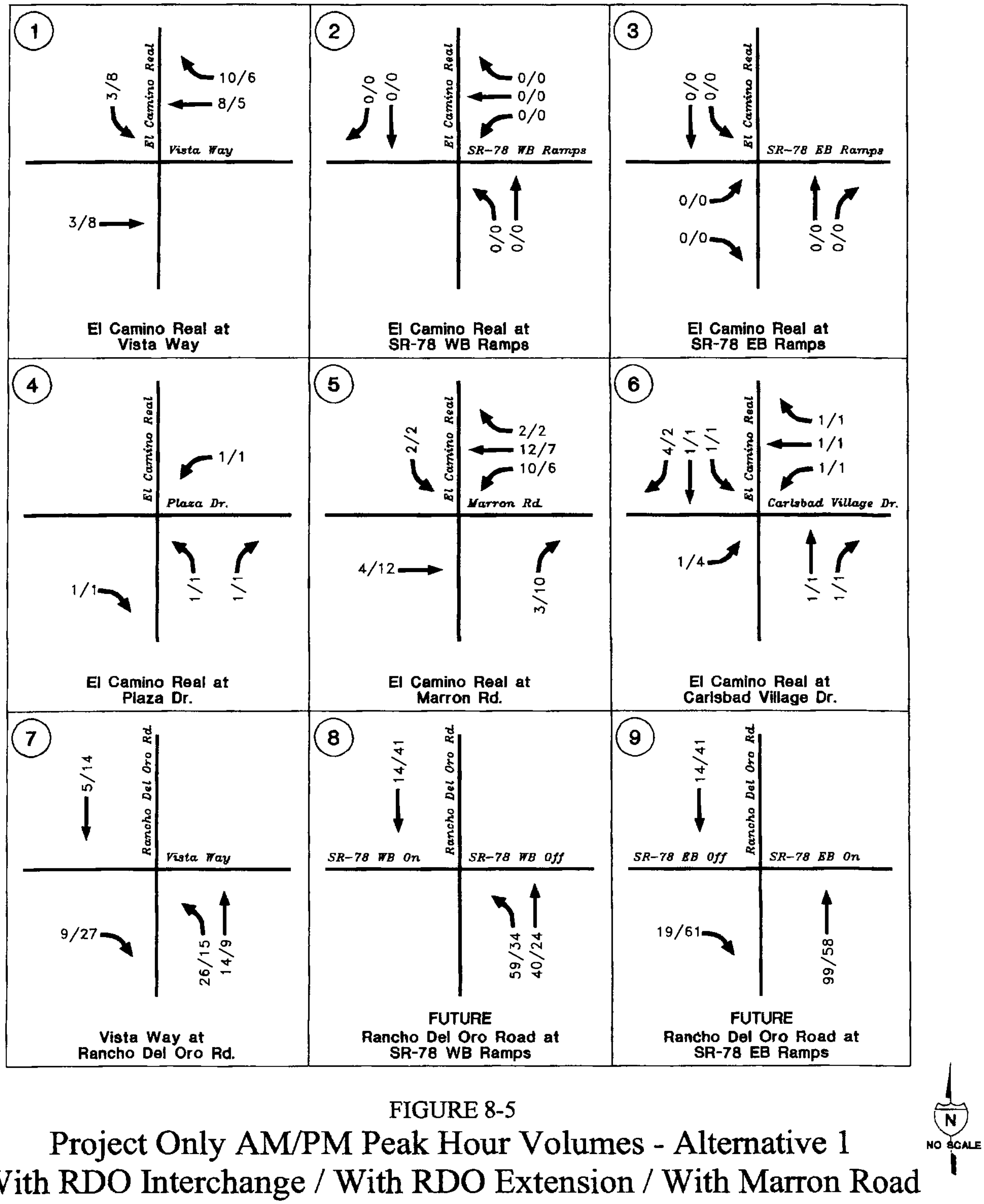


FIGURE 8-5
Project Only AM/PM Peak Hour Volumes - Alternative 1
With RDO Interchange / With RDO Extension / With Marron Road

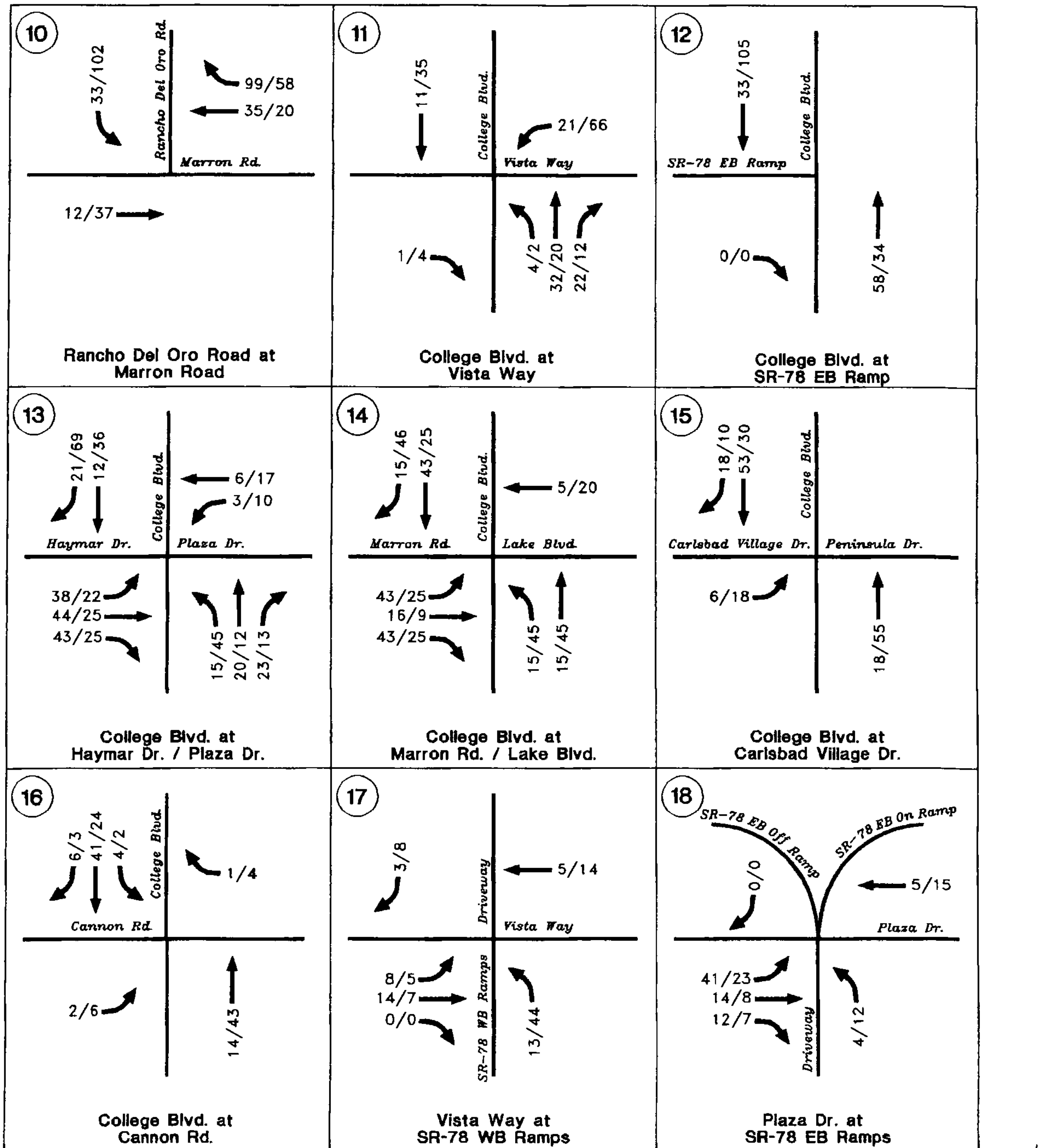


FIGURE 8-5

Project Only AM/PM Peak Hour Volumes - Alternative 1
With RDO Interchange / With RDO Extension / With Marron Road

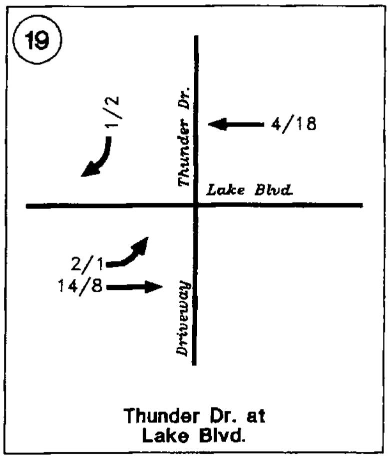


FIGURE 8-5
Project Only AM/PM Peak Hour Volumes - Alternative 1
With RDO Interchange / With RDO Extension / With Marron Road

9.0 BUILDOUT ALTERNATIVE 2

The land uses for the Quarry Creek Master Plan remain the same for Alternative 2 as was used for Alternative 1.

The street network for Alternative 2 is the same as Alternative 1, except for the deletion of Marron Road between the Quarry Creek Master Plan west boundary and the existing extension east of El Camino Real in Carlsbad. The Rancho Del Oro / SR-78 interchange is included, but the Rancho Del Oro extension to the south of the interchange is deleted.

The SANDAG Series 11 Combined North County Traffic Model was used for this alternative, with the street network change described above. A select zone plot was prepared to show project only traffic volumes and to establish the project only trip distribution percentages.

Figure 9-1 shows the project only vehicle trip distribution percentages for Alternative 2.

Figure 9-2 includes the project only average daily traffic volumes based on the select zone trip distribution.

Figure 9-3 shows the study area street network with average daily traffic volumes for Alternative 2 without project traffic.

Figure 9-4 includes the Alternative 2 full Buildout average daily traffic volumes with project traffic included.

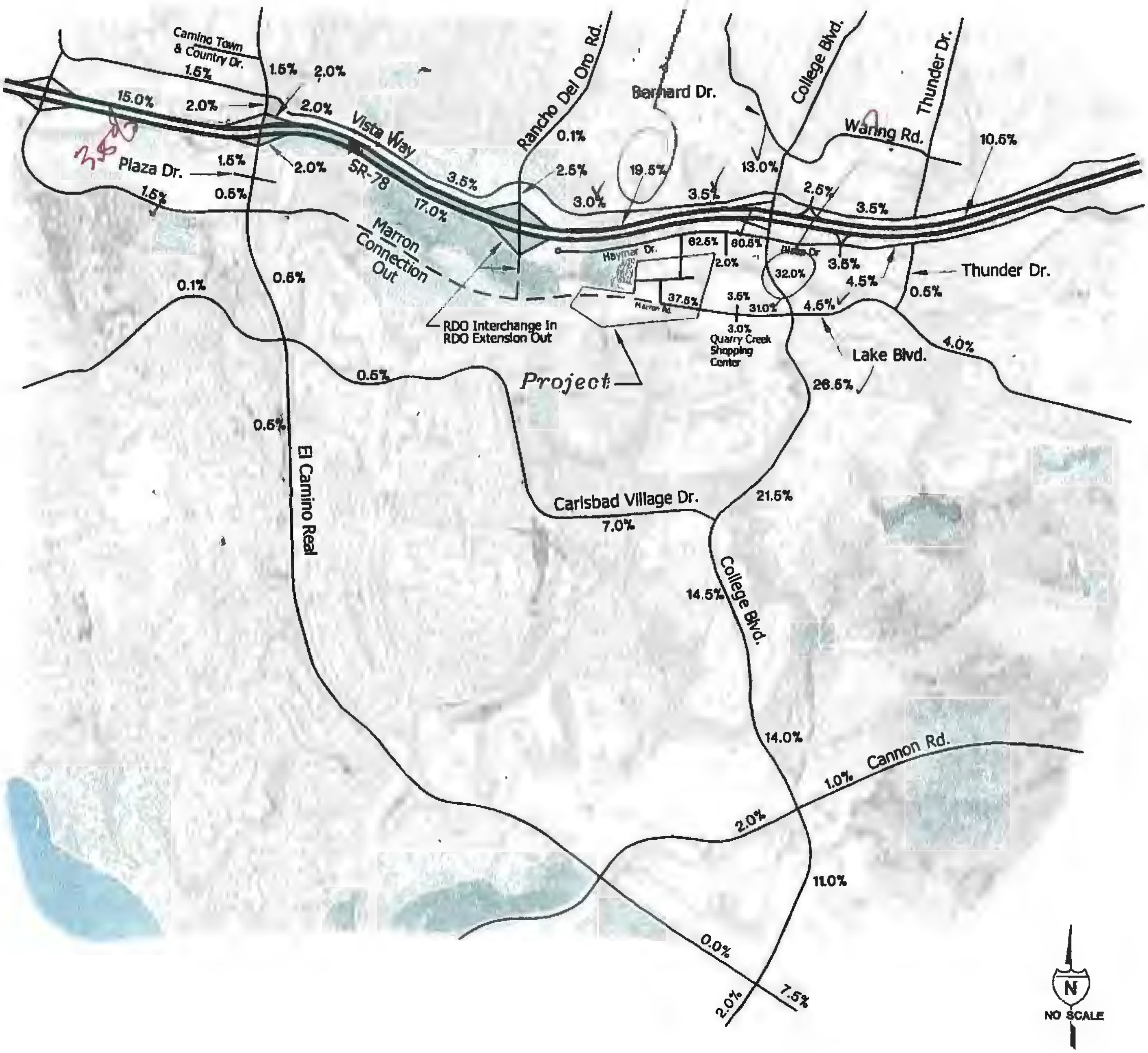
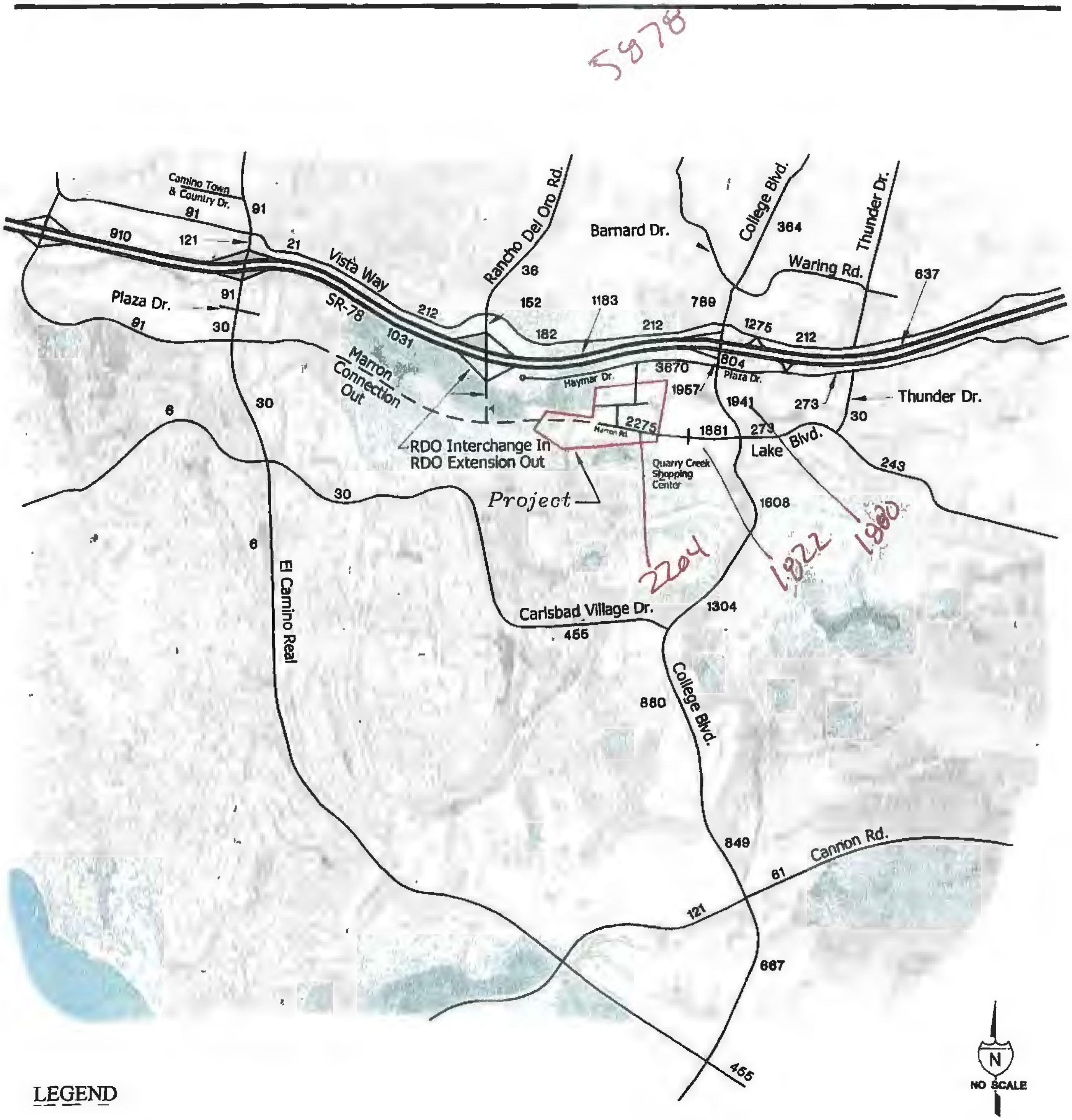


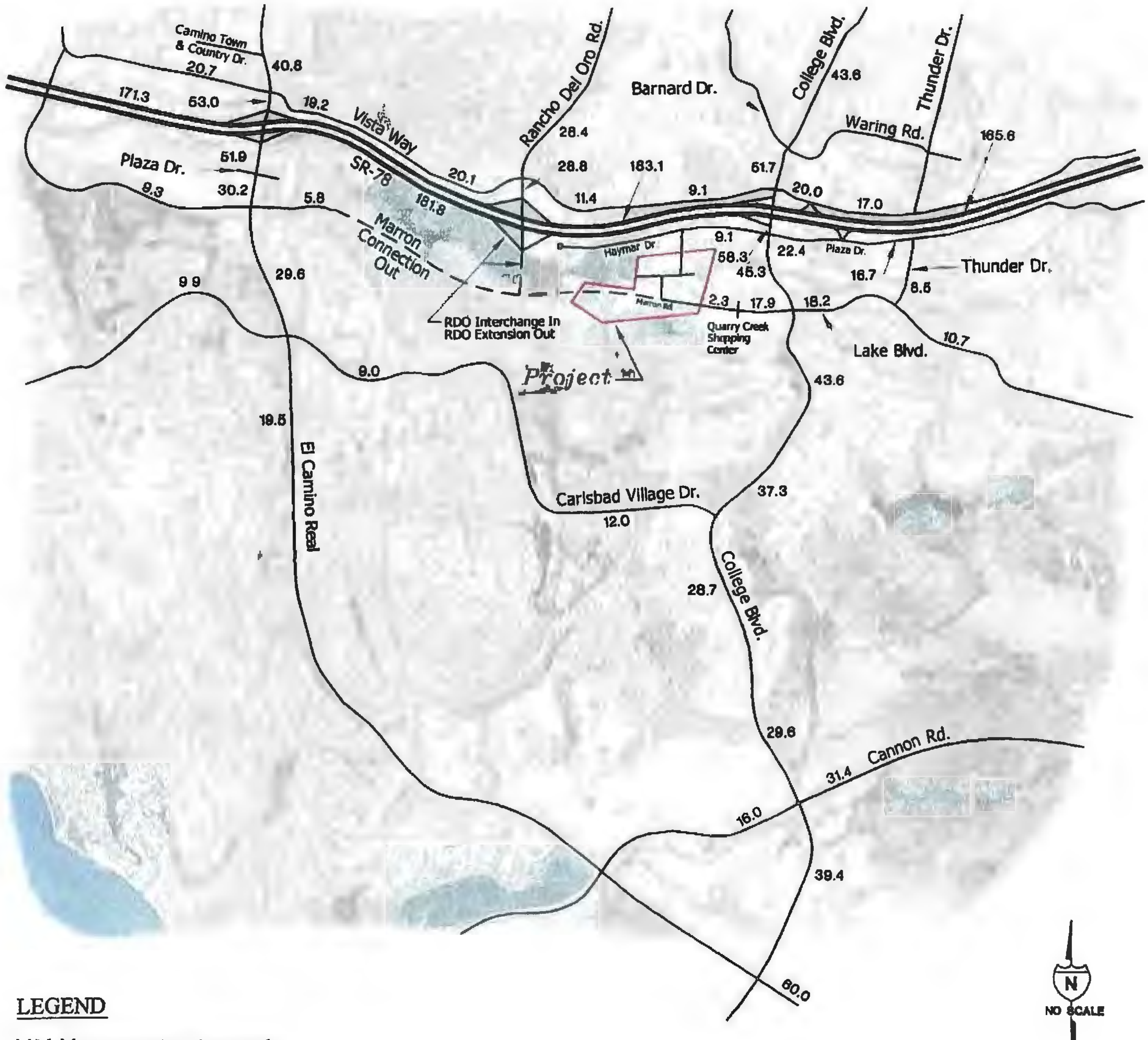
FIGURE 9-1
Project Trip Distribution Percentages - Alternative 2
With RDO Interchange / No RDO Extension / No Marron Road



LEGEND

XXX = ADT

FIGURE 9-2
Buildout ADT Volumes - Alternative 2
Project Only



LEGEND

XX.X = ADT in Thousands

McMillin-2 (4-26-11)

FIGURE 9-4
Buildout ADT Volumes - Alternative 2
With Project

LEGEND

XXX = ADT in Thousands

FIGURE 9-3

Buildout ADT Volumes - Alternative 2
Without Project

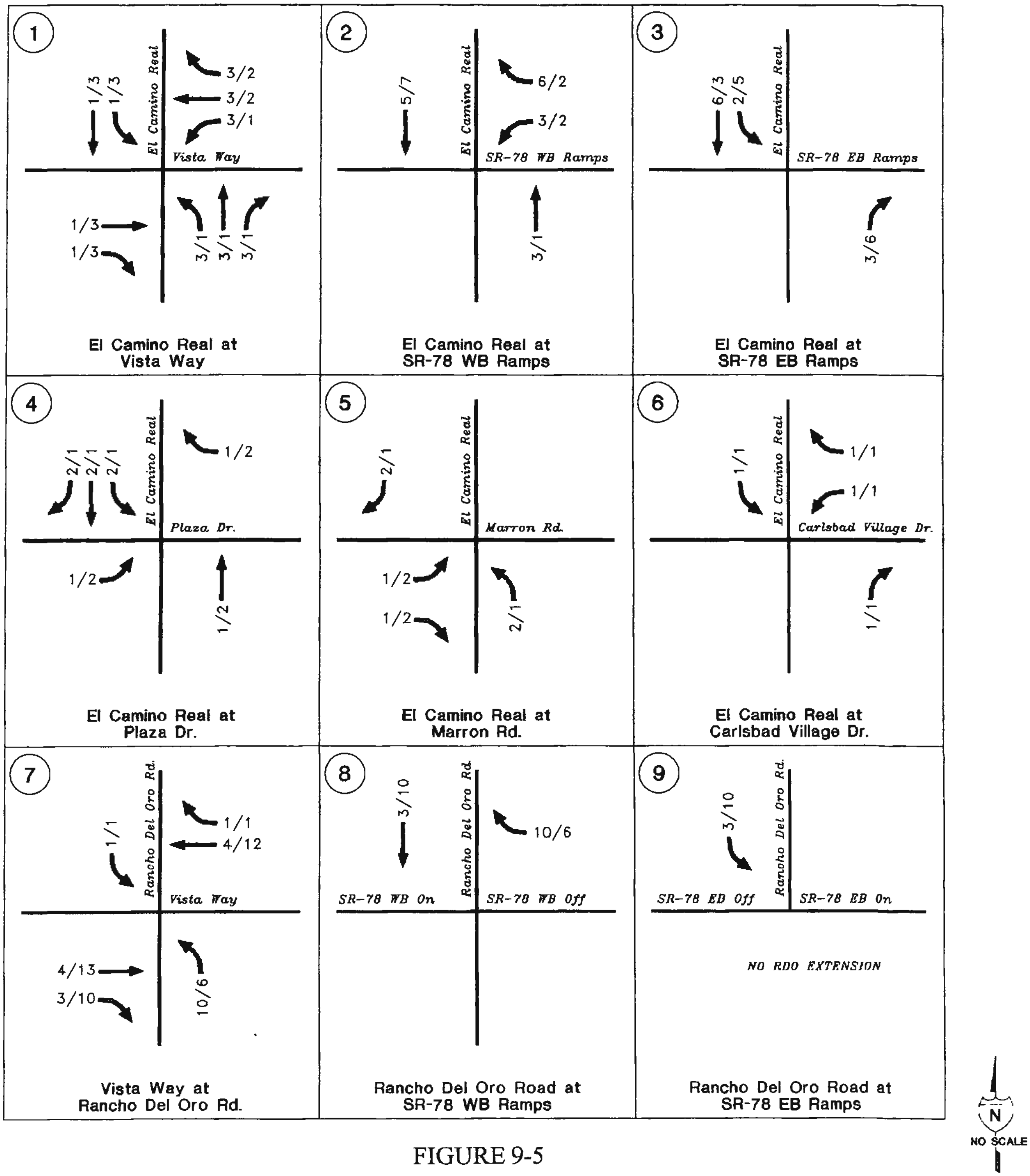


FIGURE 9-5

Project Only AM/PM Peak Hour Volumes - Alternative 2
With RDO Interchange / No RDO Extension / No Marron Road

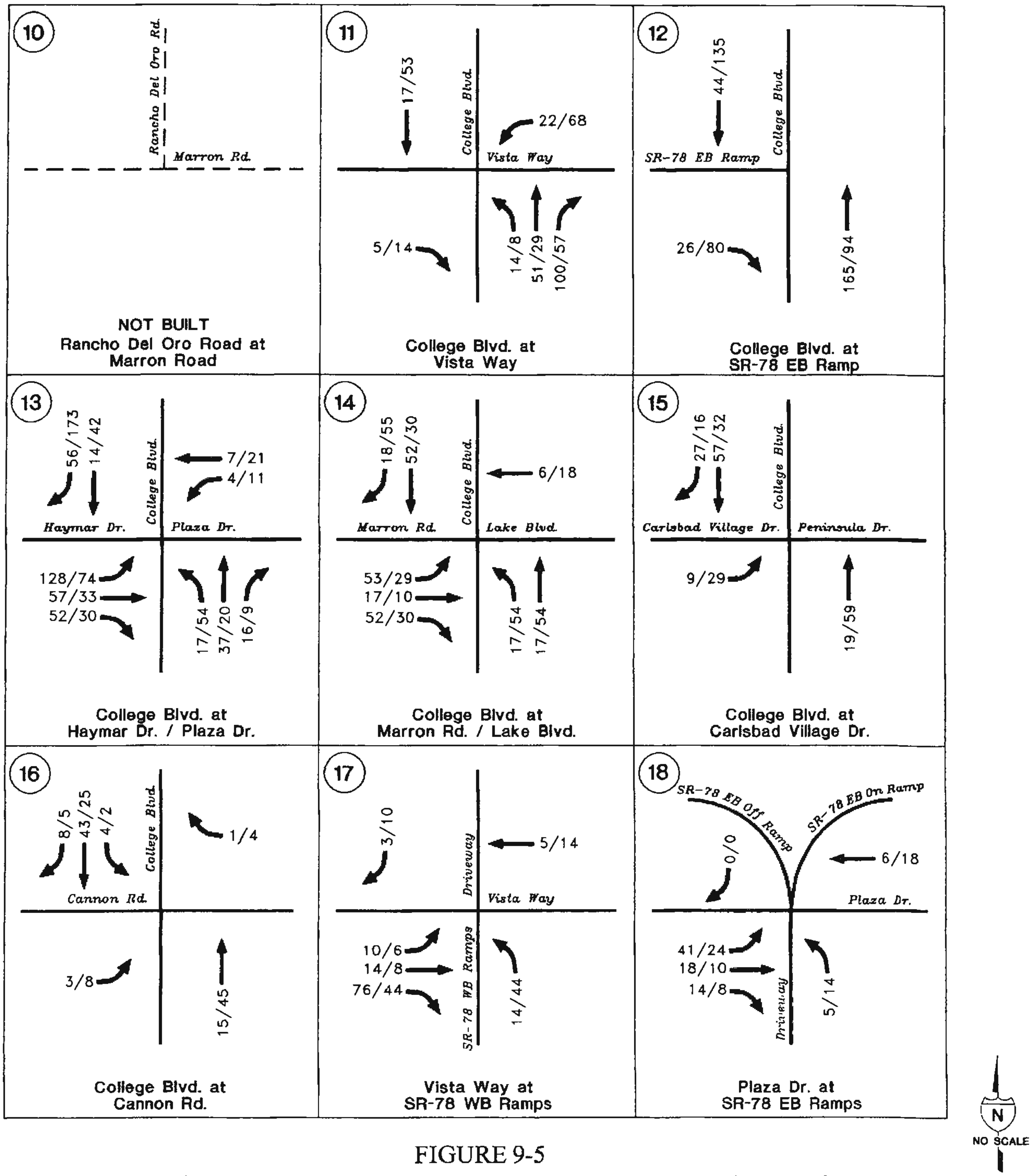


FIGURE 9-5

Project Only AM/PM Peak Hour Volumes - Alternative 2
With RDO Interchange / No RDO Extension / No Marron Road

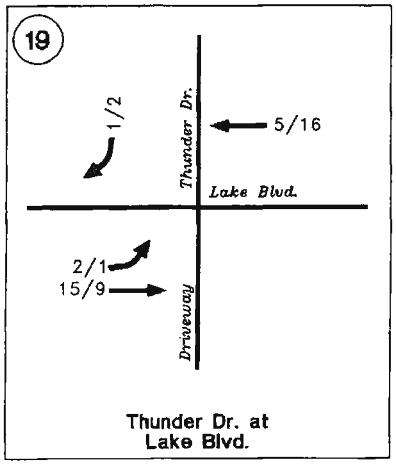
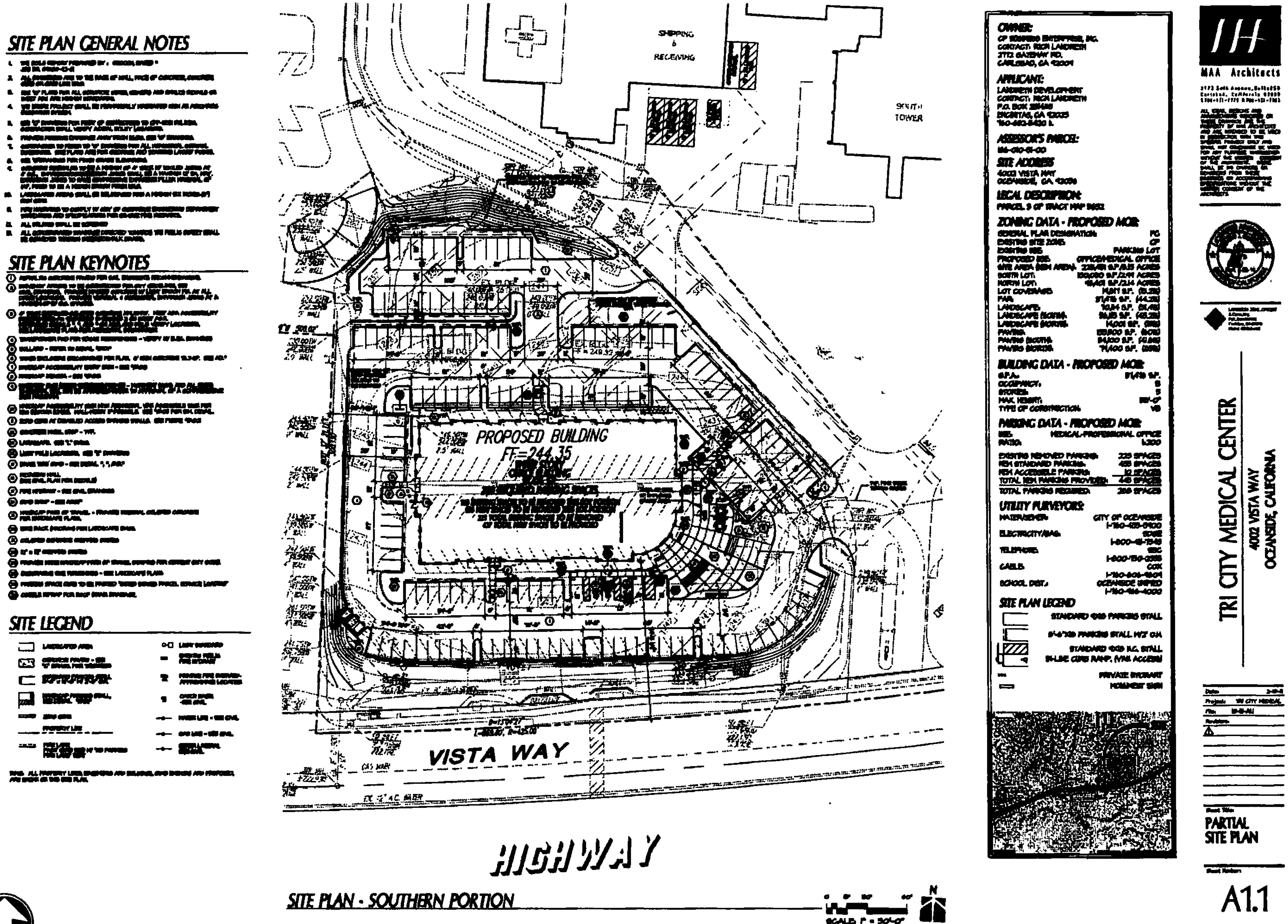


FIGURE 9-5

Project Only AM/PM Peak Hour Volumes - Alternative 2
With RDO Interchange / No RDO Extension / No Marron Road



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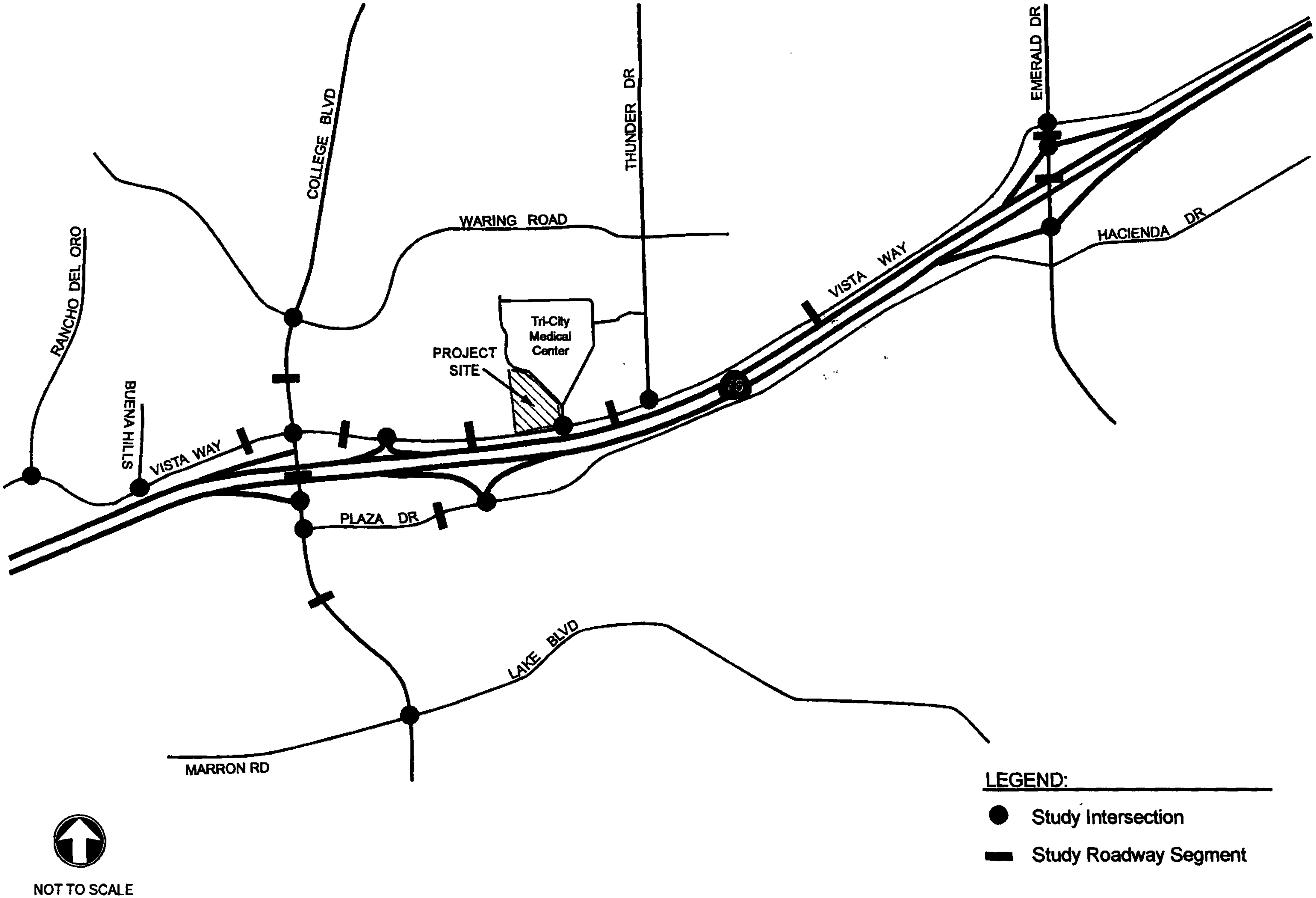
PROJECT SITE PLAN

55-100702.003 MAY 2011

EXHIBIT 2



PROJECT STUDY AREA

EXHIBIT 3

55-100702.003 MAY 2011

Table 5
Existing Roadway ADT Volumes and LOS

Roadway	Location	Class (# Lanes)	Capacity	Existing ADT	V/C	LOS
College Blvd	Waring Road to Vista Way	Major (6)	50,000	**40,187**	**0.804**	**D**
	Vista Way to Plaza Drive	Major (6)	50,000	**45,669**	**0.914**	**E**
	Plaza Drive to Lake Blvd	Major (6)	50,000	39,075	0.782	C
Emerald Dr	Vista Way to SR-78 WB Ramps (1)	Urban Major (6)	50,000	40,251	0.805	D
	SR-78 WB Ramps to Hacienda Dr (1)	Urban Major (6)	50,000	27,372	0.547	A
Vista Way	West of College Blvd	Secondary (4)	30,000	15,810	0.527	A
	College Blvd to SR-78 WB Ramps	Major (4) (2)	40,000 (2)	28,929	0.723	C
	SR-78 WB Ramps to Tri City Access	Secondary (4)	30,000	16,639	0.555	A
	Tri City Access to Thunder Drive	Secondary (4)	30,000	14,170	0.472	A
	Thunder Drive to Emerald Drive (1)	Collector (2)	8,800	**14,323**	**1.628**	**F**
Plaza Dr	College Blvd to SR-78 EB Ramps	Secondary (4)	30,000	23,589	0.786	C

Note: Deficient roadway segment operation shown in **bold**.
(1) City of Vista allows LOS D or better
(2) This segment of Vista Way was analyzed using the daily capacity for a four-lane Major, based on the findings shown in Table C-3 of the current City of Oceanside Circulation Element. However, due to the short length of the segment (approximately 500 feet), segment capacity is determined by the operations of the intersections during the peak hours at either end of the segment. This segment primarily serves traffic entering and exiting SR-78 rather than carrying through traffic on Vista Way. Actual daily capacity may be less than 40,000 because there is not a balanced utilization of the lanes, due to more traffic turning left or right instead of traveling through the intersections on either end of the segment.

As shown in Table 5, all of the roadway segments currently operate at acceptable levels of service based on daily capacity thresholds (LOS C or better), except for the following segments:

- College Boulevard – Waring Road to Vista Way;
- College Boulevard – Vista Way to Plaza Drive; and
- Vista Way – Thunder Drive to Emerald Drive.

PROPOSED PROJECT

The proposed Tri City Medical Office project consists of 60,000 square feet of medical office space. The project site is located within the Tri-City Medical Center along Vista Way between College Boulevard and Thunder Drive in the City of Oceanside.

As shown in the project site plan (Exhibit 2), the project would take access from an unsignalized full access driveway located on Vista Way.

Project Trip Generation

To determine the trips forecast to be generated by the proposed project, *April 2002 SANDAG Trip Generation* rates were utilized in accordance with the City of Oceanside and SANTEC/ITE Traffic Study Guidelines. The SANDAG *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) showing the trip generation rate for the proposed land use is provided in **Appendix D.** **Table 6** summarizes the project trip generation rates.

Table 6
Proposed Project Trip Generation Rates

Land Use	Daily Rate	AM Peak Hour			PM Peak Hour		
		Total (% of Daily)	In (% AM)	Out (% AM)	Total (% of Daily)	In (% PM)	Out (% PM)
Medical Office	50/KSF	6%	80%	20%	11%	30%	70%

Source: SANDAG, "Not So Brief Guide", April 2002.
Note: KSF = 1000 square feet.

Table 7 summarizes the forecast project-generated trips based on the trip generation rates contained in Table 6. As summarized in Table 7, the proposed project is forecast to generate approximately 3,000 trips per day, which includes approximately 180 a.m. peak hour trips and approximately 330 p.m. peak hour trips.

Table 7
Proposed Project Trip Generation

Land Use	Intensity	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			Total	In	Out	Total	In	Out
Medical Office	60 KSF	3,000	180	144	36	330	99	231

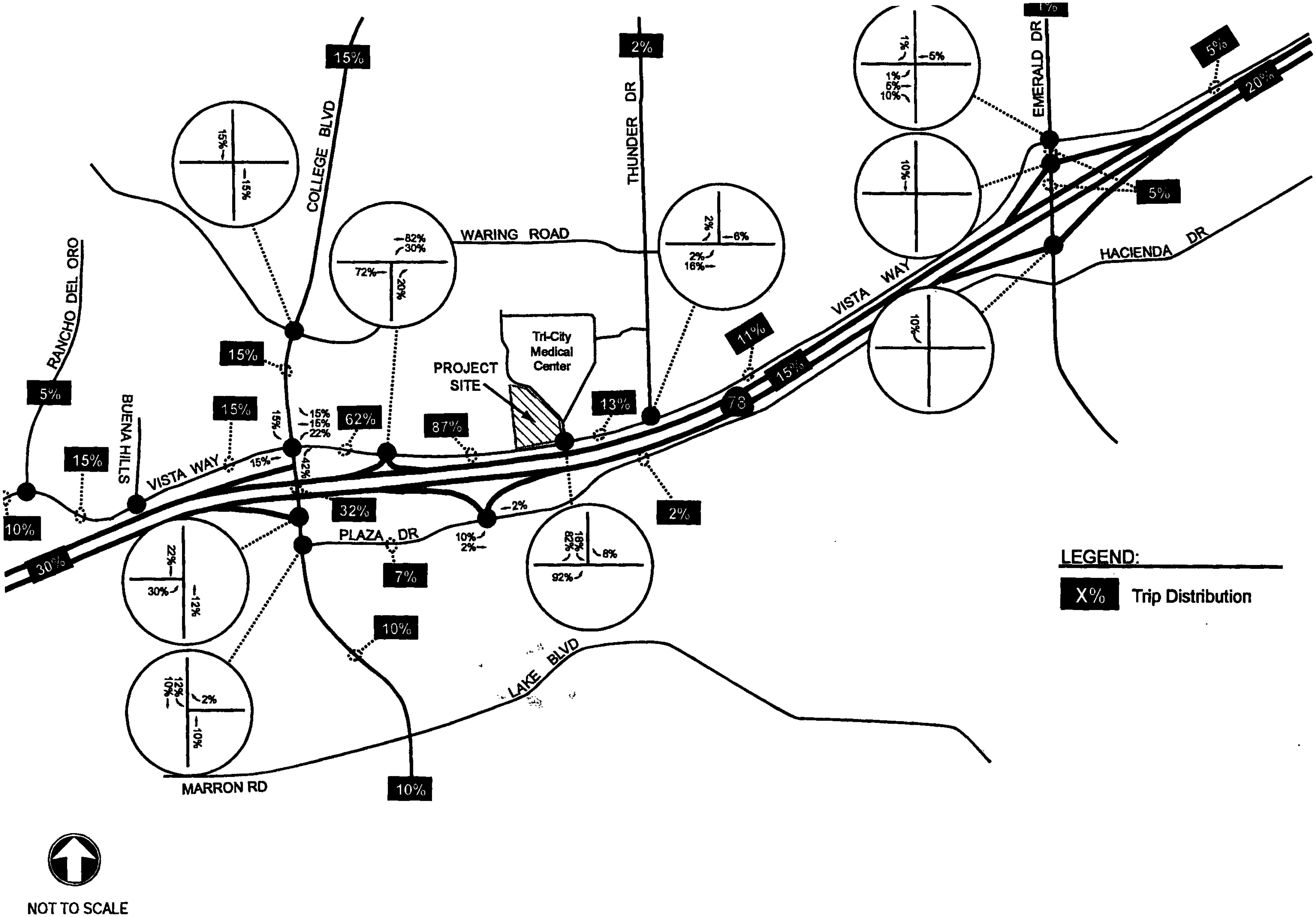
Note: KSF = 1000 square feet.

Project Trip Distribution

Project traffic was distributed on the roadway network based on the trip distribution that was approved for the approved Ambulatory Care Facility project, which is located on a site adjacent to the northwest corner of the Tri-City Hospital. The Ambulatory Care Facility Project would take access from Waring Road, so the distribution of trips was adjusted for the proposed Tri-City Medical Office project to reflect the access from the Tri-City Hospital Entrance on Vista Way. **Exhibit 7** illustrates the trip distribution for the proposed project.

Project Trip Assignment

Utilizing the project trip distribution shown in Exhibit 7, the forecast project-generated trips were assigned to the roadway network. **Exhibit 8** illustrates the forecast assignment of project-generated a.m. and p.m. peak hour volumes at the study intersections. Project-generated ADT volumes are illustrated in **Exhibit 9**.



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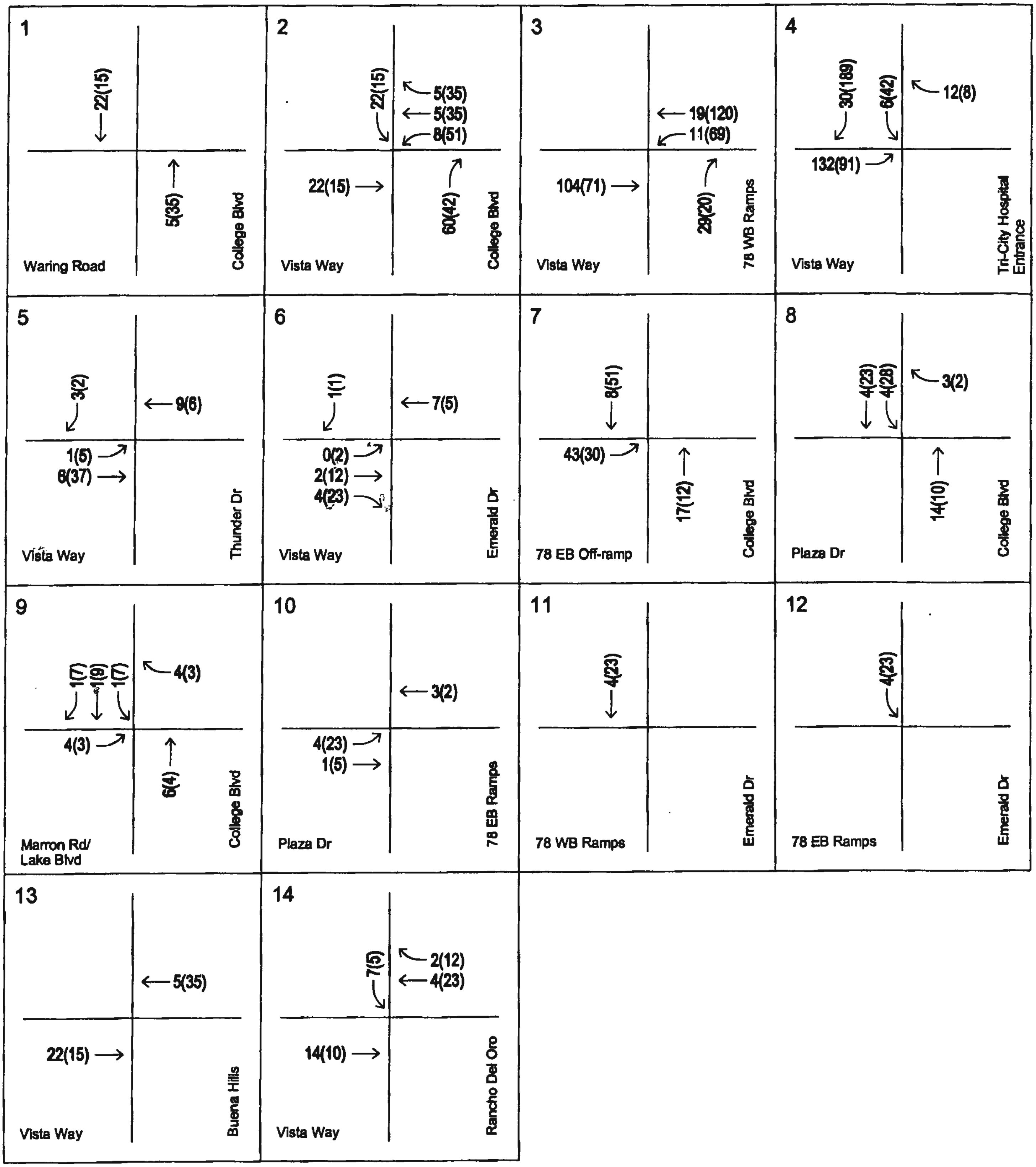
PROJECT TRIP DISTRIBUTION

EXHIBIT 7



LEGEND

XX(XX) AM/PM PEAK HOUR VOLUME

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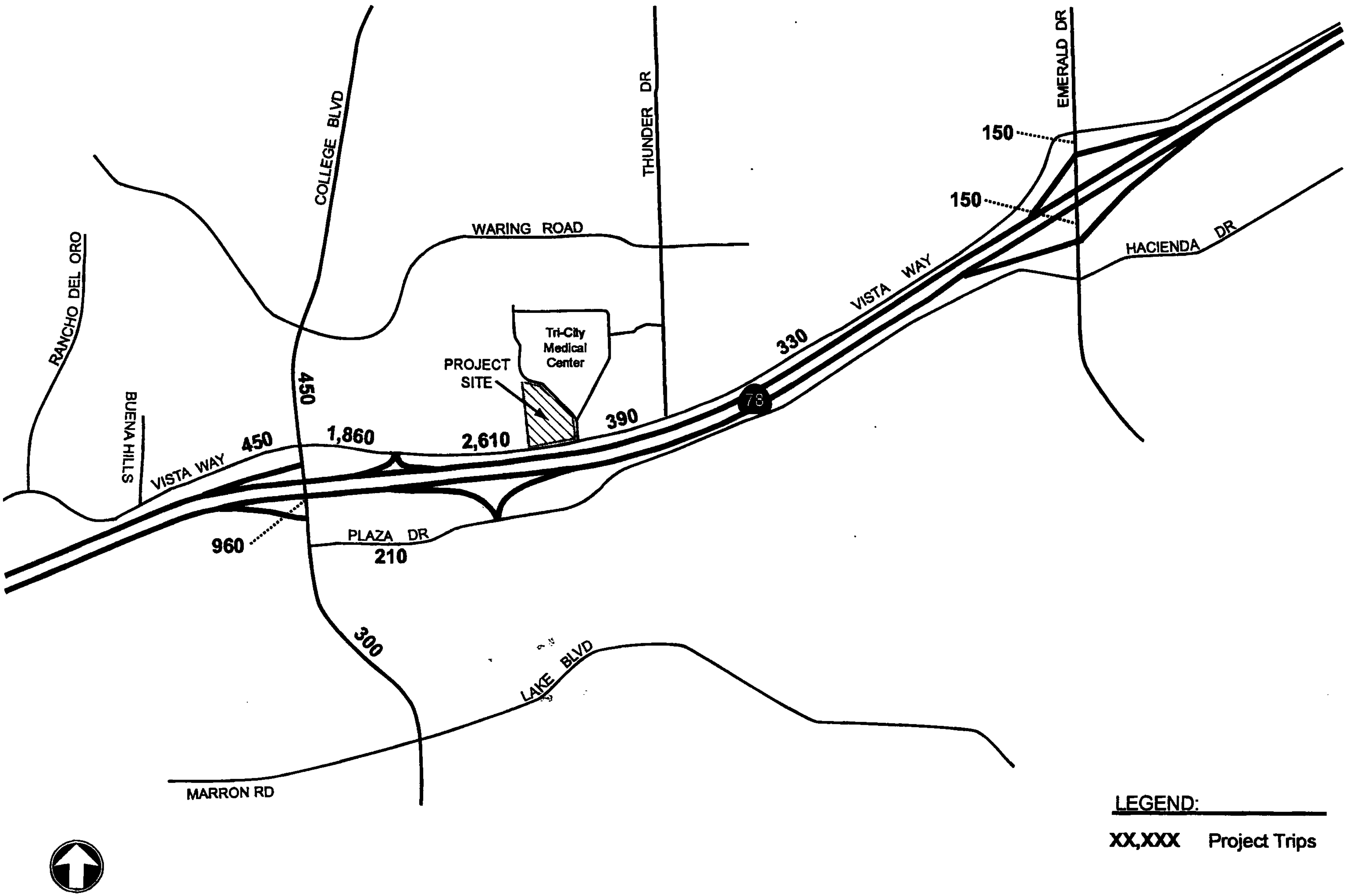
PROJECT TRIP ASSIGNMENT

EXHIBIT 8



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DAILY PROJECT TRIPS

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EXHIBIT 9

CUMULATIVE PROJECTS

To determine the cumulative impacts on the roadway system associated with City approved or pending projects within the study area, the City of Oceanside provided a list of eight (8) cumulative projects. The location of each cumulative project is shown in **Exhibit 12.** Cumulative peak hour and daily project trips are shown in **Exhibits 13 and 14,** respectively. City staff provided cumulative project trip assignments through the study area based on information from the traffic impact reports prepared for each of the cumulative projects. The forecasted daily and peak hour trip generations for the cumulative projects are shown in **Table 11.**

As presented in Table 11, the cumulative projects are forecast to generate approximately 57,110 ADT, which includes approximately 5,103 a.m. peak hour trips and approximately 6,482 p.m. peak hour trips.

Table 11
Cumulative Projects Trip Generation

Project	Daily Trips	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
1) Ocean Ranch [1]	21,452	2,371	2,118	254	2,512	509	2,004
2) Seagate Corporate Center [2]	3,080	184	131	53	297	123	174
3) El Corazon Master Plan (Phase One)	13,275	403	234	169	1,349	687	662
4) Ocean Terrace [3]	1,333	90	74	16	149	43	106
5) Vista Pacific Condos	170	14	4	10	17	12	5
6) Pacific Coast Business Park [4]	15,120	1,879	1,691	188	1,886	377	1,509
7) Ambulatory Care Facility	1,629	105	81	24	176	56	120
8) Oceanside Marketplace [5]	1,051	57	39	18	96	48	48
TOTAL:	**57,110**	**5,103**	**4,371**	**732**	**6,482**	**1,855**	**4,627**

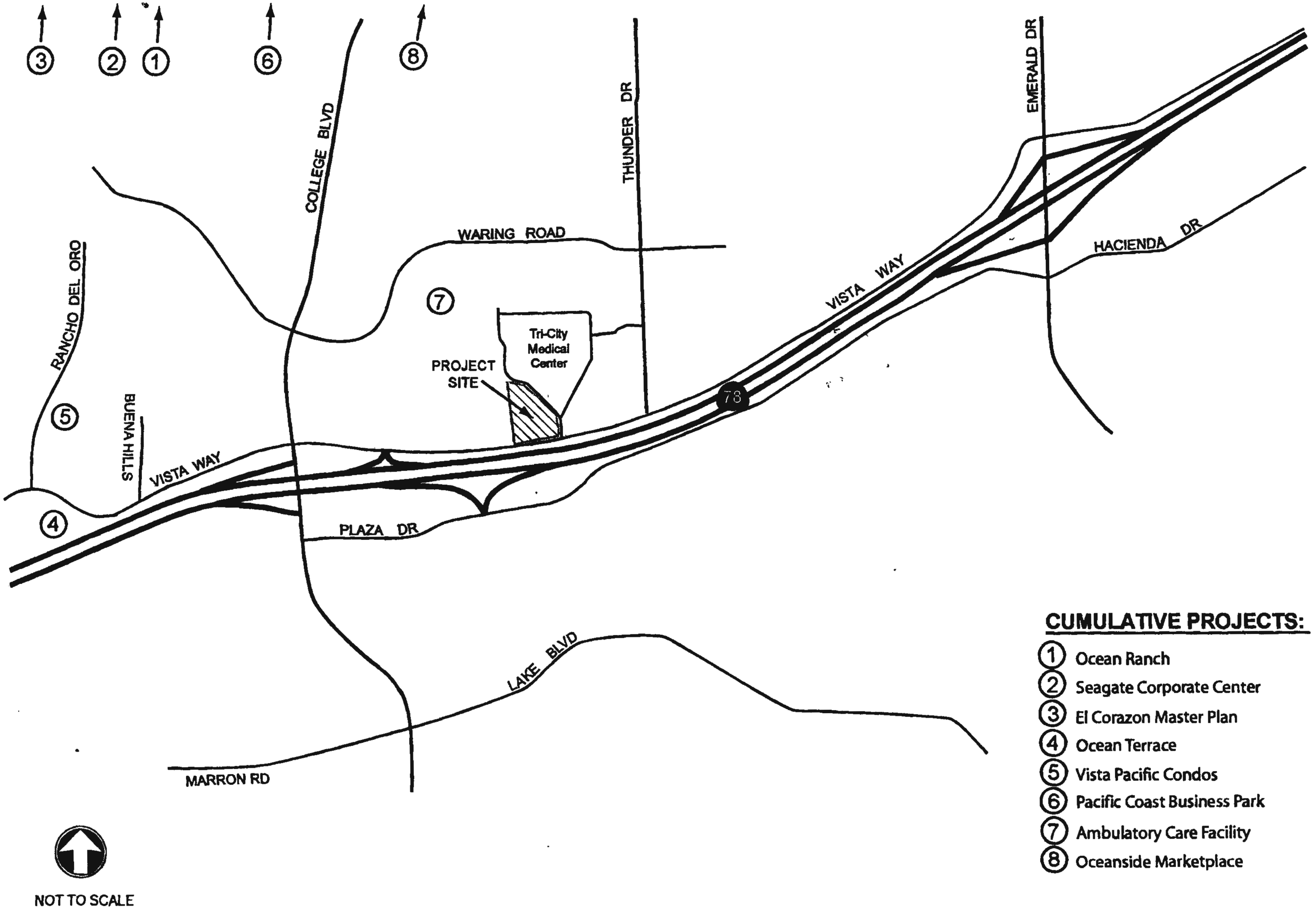
[1] Ocean Ranch is approximately 40-percent built, therefore 60-percent of the total project daily trips were included per City direction.

[2] Seagate is approximately 90% occupied, including office, R&D, and a new VA medical clinic. The hotel use is approved but not yet built.

[3] Ocean Terrace is built and is approximately 70-percent occupied, therefore 30-percent of the total project daily trips were included per City direction.

[4] Pacific Coast Business Park is approximately 10-percent built, therefore 90-percent of the total project daily trips were included per City direction.

[5] Oceanside Marketplace is built and is approximately 50-percent occupied, therefore 50-percent of the total project daily trips were included per City direction.



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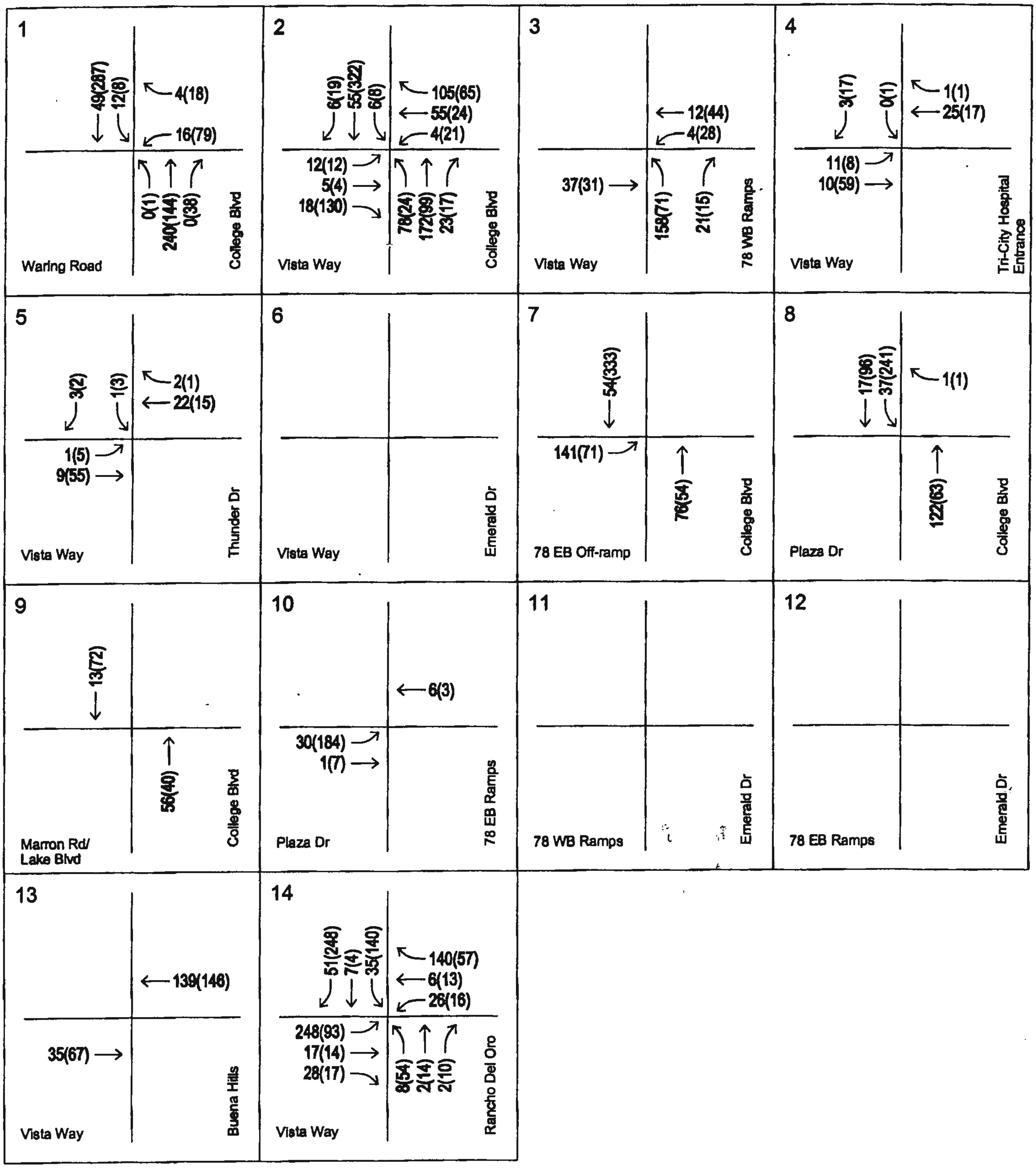
CUMULATIVE PROJECT LOCATION MAP

55-100702.003 MAY 2011

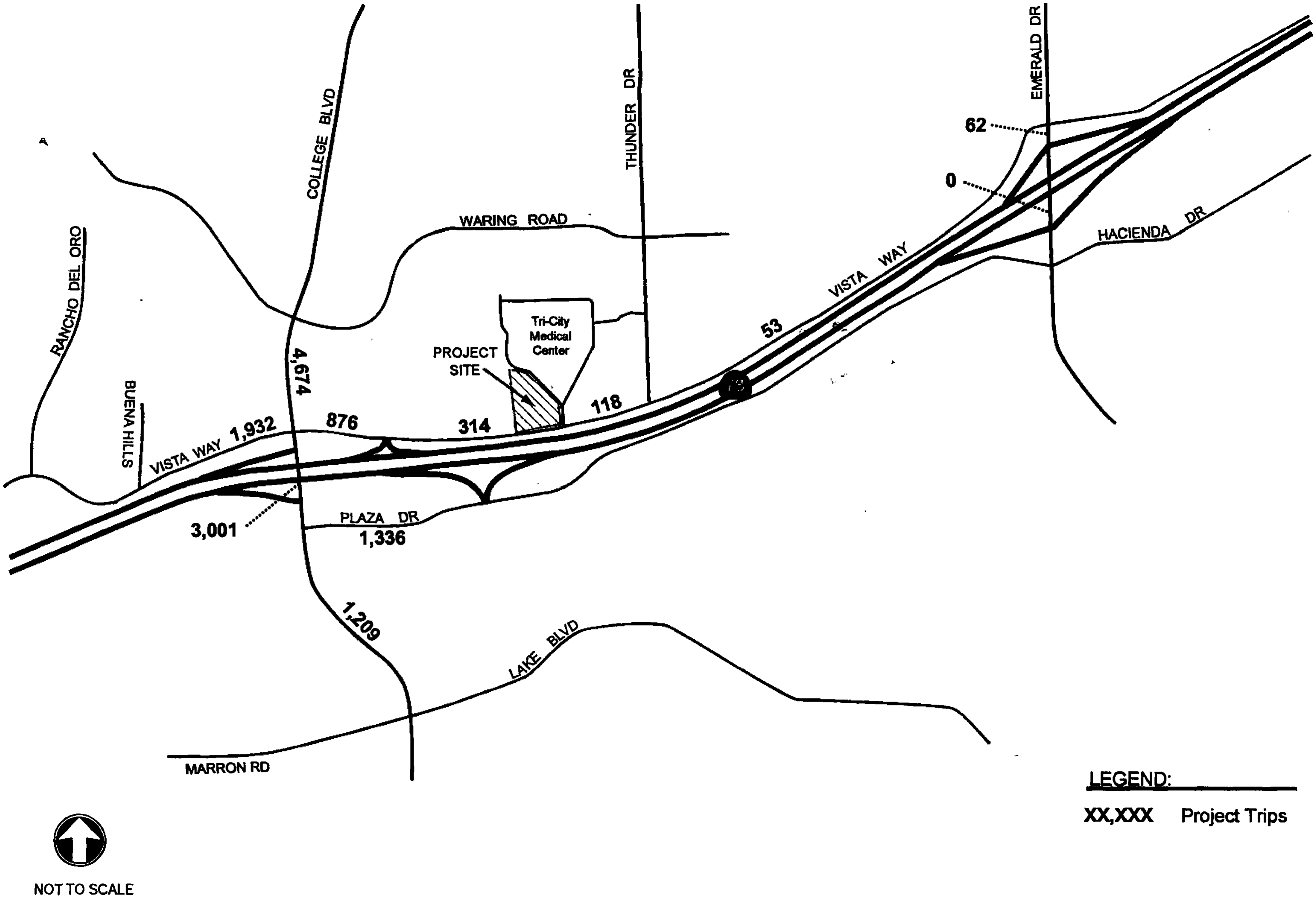
EXHIBIT 12



LEGEND

XX(XX) AM/PM PEAK HOUR VOLUME

CUMULATIVE PROJECT TRIPS



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CUMULATIVE DAILY PROJECT TRIPS

55-100702.003 MAY 2011

EXHIBIT 14

APPENDIX D

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
– EXISTING + PROJECT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	262	825	95	140	912	136	94	377	129	139	546	198
Future Volume (veh/h)	262	825	95	140	912	136	94	377	129	139	546	198
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	285	897	103	152	991	148	102	410	140	151	593	215
Adj No. of Lanes	2	3	0	2	3	1	2	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	405	1601	183	242	1521	578	213	656	221	241	928	598
Arrive On Green	0.12	0.35	0.35	0.07	0.30	0.30	0.06	0.25	0.25	0.07	0.26	0.26
Sat Flow, veh/h	3442	4622	529	3442	5085	1560	3442	2585	872	3442	3539	1569
Grp Volume(v), veh/h	285	657	343	152	991	148	102	279	271	151	593	215
Grp Sat Flow(s),veh/h/ln	1721	1695	1760	1721	1695	1560	1721	1770	1687	1721	1770	1569
Q Serve(g_s), s	5.5	10.9	11.0	3.0	11.8	4.6	2.0	9.7	9.9	3.0	10.3	6.8
Cycle Q Clear(g_c), s	5.5	10.9	11.0	3.0	11.8	4.6	2.0	9.7	9.9	3.0	10.3	6.8
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	405	1174	610	242	1521	578	213	449	428	241	928	598
V/C Ratio(X)	0.70	0.56	0.56	0.63	0.65	0.26	0.48	0.62	0.63	0.63	0.64	0.36
Avail Cap(c_a), veh/h	917	2172	1128	520	2672	931	718	930	887	520	1656	920
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.5	18.4	18.4	31.4	21.2	15.3	31.5	23.0	23.0	31.4	22.7	15.5
Incr Delay (d2), s/veh	2.2	0.4	0.8	2.7	0.5	0.2	1.7	1.4	1.5	2.7	0.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	5.2	5.5	1.5	5.6	2.0	1.0	4.9	4.8	1.5	5.1	3.0
LnGrp Delay(d),s/veh	31.7	18.8	19.2	34.1	21.7	15.5	33.2	24.4	24.6	34.1	23.5	15.8
LnGrp LOS	C	B	B	C	C	B	C	C	C	C	C	B
Approach Vol, veh/h		1285			1291			652			959	
Approach Delay, s/veh		21.8			22.4			25.8			23.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	28.6	8.8	22.7	12.7	25.3	9.4	22.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	44.5	14.5	32.5	18.5	36.5	10.5	36.5
Max Q Clear Time (g_c+I1), s	5.0	13.0	4.0	12.3	7.5	13.8	5.0	11.9
Green Ext Time (p_c), s	0.2	6.4	0.2	4.1	0.7	6.8	0.2	3.1

Intersection Summary			
HCM 2010 Ctrl Delay			23.0
HCM 2010 LOS			C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	60	111	368	104	339	641
Future Volume (veh/h)	60	111	368	104	339	641
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	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	1900	1863	1863
Adj Flow Rate, veh/h	65	121	400	113	368	697
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	393	604	700	195	474	2284
Arrive On Green	0.11	0.11	0.26	0.26	0.27	0.65
Sat Flow, veh/h	3442	1583	2805	756	1774	3632
Grp Volume(v), veh/h	65	121	259	254	368	697
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1699	1774	1770
Q Serve(g_s), s	0.6	1.9	4.8	4.9	7.2	3.3
Cycle Q Clear(g_c), s	0.6	1.9	4.8	4.9	7.2	3.3
Prop In Lane	1.00	1.00		0.45	1.00	
Lane Grp Cap(c), veh/h	393	604	457	439	474	2284
V/C Ratio(X)	0.17	0.20	0.57	0.58	0.78	0.31
Avail Cap(c_a), veh/h	2114	1396	1040	998	1492	5482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	7.8	12.1	12.1	12.7	2.9
Incr Delay (d2), s/veh	0.2	0.2	1.1	1.2	2.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.8	2.4	2.4	3.8	1.6
LnGrp Delay(d),s/veh	15.2	7.9	13.2	13.3	15.5	3.0
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	186		513			1065
Approach Delay, s/veh	10.5		13.3			7.3
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.5	14.2				28.7		8.8
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	31.5	22.0				58.0		23.0
Max Q Clear Time (g_c+I1), s	9.2	6.9				5.3		3.9
Green Ext Time (p_c), s	1.0	2.5				5.0		0.5

Intersection Summary		
HCM 2010 Ctrl Delay		9.4
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	213	143	75	114	239	211	19	9	23	306	61	377
Future Volume (veh/h)	213	143	75	114	239	211	19	9	23	306	61	377
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	232	155	82	124	260	229	21	10	25	333	0	454
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	281	666	335	162	406	343	44	43	108	386	0	900
Arrive On Green	0.16	0.29	0.29	0.09	0.23	0.23	0.02	0.09	0.09	0.22	0.00	0.28
Sat Flow, veh/h	1774	2279	1146	1774	1803	1526	1774	471	1179	1774	0	3160
Grp Volume(v), veh/h	232	119	118	124	255	234	21	0	35	333	0	454
Grp Sat Flow(s),veh/h/ln	1774	1770	1656	1774	1770	1560	1774	0	1650	1774	0	1580
Q Serve(g_s), s	7.4	3.0	3.2	4.0	7.6	8.0	0.7	0.0	1.2	10.6	0.0	7.0
Cycle Q Clear(g_c), s	7.4	3.0	3.2	4.0	7.6	8.0	0.7	0.0	1.2	10.6	0.0	7.0
Prop In Lane	1.00		0.69	1.00		0.98	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	281	517	484	162	398	351	44	0	152	386	0	900
V/C Ratio(X)	0.83	0.23	0.24	0.77	0.64	0.67	0.48	0.00	0.23	0.86	0.00	0.50
Avail Cap(c_a), veh/h	318	716	670	387	785	692	160	0	591	439	0	1628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.9	15.7	15.8	26.0	20.6	20.7	28.2	0.0	24.7	22.1	0.0	17.5
Incr Delay (d2), s/veh	14.8	0.2	0.3	7.4	1.7	2.2	7.9	0.0	0.8	14.7	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	1.5	1.5	2.3	3.9	3.7	0.4	0.0	0.6	6.8	0.0	3.1
LnGrp Delay(d),s/veh	38.7	16.0	16.1	33.5	22.3	22.9	36.1	0.0	25.4	36.8	0.0	17.9
LnGrp LOS	D	B	B	C	C	C	D		C	D		B
Approach Vol, veh/h		469			613			56			787	
Approach Delay, s/veh		27.2			24.8			29.4			25.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	21.6	5.9	21.2	13.8	17.7	17.2	9.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.8	23.7	5.3	30.2	10.5	26.0	14.5	21.0
Max Q Clear Time (g_c+I1), s	6.0	5.2	2.7	9.0	9.4	10.0	12.6	3.2
Green Ext Time (p_c), s	0.1	1.1	0.0	1.7	0.1	2.8	0.2	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	26.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	43	261	149	38	40	378	623	116	48	1192	91
Future Volume (veh/h)	26	43	261	149	38	40	378	623	116	48	1192	91
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		0.99	1.00		0.98	1.00		0.98	1.00		0.98
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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	28	47	284	162	41	43	411	677	126	52	1296	99
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	218	502	200	93	98	444	1725	753	67	1402	617
Arrive On Green	0.19	0.19	0.19	0.11	0.11	0.11	0.13	0.49	0.49	0.04	0.40	0.40
Sat Flow, veh/h	683	1146	1566	1774	826	867	3442	3539	1544	1774	3539	1558
Grp Volume(v), veh/h	75	0	284	162	0	84	411	677	126	52	1296	99
Grp Sat Flow(s),veh/h/ln	1829	0	1566	1774	0	1693	1721	1770	1544	1774	1770	1558
Q Serve(g_s), s	3.6	0.0	15.8	9.3	0.0	4.8	12.4	12.7	4.8	3.0	36.5	4.3
Cycle Q Clear(g_c), s	3.6	0.0	15.8	9.3	0.0	4.8	12.4	12.7	4.8	3.0	36.5	4.3
Prop In Lane	0.37		1.00	1.00		0.51	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	348	0	502	200	0	191	444	1725	753	67	1402	617
V/C Ratio(X)	0.22	0.00	0.57	0.81	0.00	0.44	0.93	0.39	0.17	0.78	0.92	0.16
Avail Cap(c_a), veh/h	506	0	638	305	0	291	444	1725	753	154	1402	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	0.0	29.7	45.3	0.0	43.4	45.1	17.0	15.0	50.0	30.1	20.4
Incr Delay (d2), s/veh	0.3	0.0	1.0	9.1	0.0	1.6	25.5	0.7	0.5	17.3	11.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	7.0	5.1	0.0	2.3	7.5	6.4	2.1	1.8	20.1	1.9
LnGrp Delay(d),s/veh	36.1	0.0	30.7	54.4	0.0	44.9	70.7	17.7	15.5	67.2	41.8	20.9
LnGrp LOS	D		C	D		D	E	B	B	E	D	C
Approach Vol, veh/h		359			246			1214			1447	
Approach Delay, s/veh		31.8			51.2			35.4			41.3	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	55.5		24.4	18.0	46.0		16.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.1	45.9		29.0	13.5	41.5		18.0
Max Q Clear Time (g_c+I1), s	5.0	14.7		17.8	14.4	38.5		11.3
Green Ext Time (p_c), s	0.0	5.5		1.1	0.0	2.1		0.5

Intersection Summary		
HCM 2010 Ctrl Delay		38.8
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	138	456	435	275	298	179	672	797	20	1096	406
Future Volume (veh/h)	30	138	456	435	275	298	179	672	797	20	1096	406
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		0.98	1.00		0.98
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	150	496	473	299	324	195	730	866	22	1191	441
Adj No. of Lanes	2	2	1	2	1	1	2	3	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	103	638	411	554	580	522	274	2317	1696	79	1412	622
Arrive On Green	0.03	0.18	0.18	0.16	0.31	0.31	0.08	0.46	0.46	0.02	0.40	0.40
Sat Flow, veh/h	3442	3539	1583	3442	1863	1562	3442	5085	2736	3442	3539	1558
Grp Volume(v), veh/h	33	150	496	473	299	324	195	730	866	22	1191	441
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1863	1562	1721	1695	1368	1721	1770	1558
Q Serve(g_s), s	0.9	3.6	18.0	13.4	13.2	17.4	5.5	9.1	17.7	0.6	30.5	23.7
Cycle Q Clear(g_c), s	0.9	3.6	18.0	13.4	13.2	17.4	5.5	9.1	17.7	0.6	30.5	23.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	103	638	411	554	580	522	274	2317	1696	79	1412	622
V/C Ratio(X)	0.32	0.24	1.21	0.85	0.52	0.62	0.71	0.32	0.51	0.28	0.84	0.71
Avail Cap(c_a), veh/h	172	638	411	672	606	544	672	2509	1799	524	1594	702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	35.1	37.0	40.8	28.2	27.9	44.9	17.3	10.7	48.0	27.2	25.2
Incr Delay (d2), s/veh	1.8	0.2	113.5	8.9	0.7	2.0	3.4	0.1	0.2	1.9	3.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.8	24.3	7.1	6.8	7.8	2.8	4.3	6.7	0.3	15.7	10.7
LnGrp Delay(d),s/veh	49.2	35.2	150.5	49.7	28.9	30.0	48.3	17.4	11.0	49.9	31.1	28.1
LnGrp LOS	D	D	F	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		679			1096			1791			1654	
Approach Delay, s/veh		120.1			38.2			17.6			30.6	
Approach LOS		F			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	50.0	20.6	22.5	12.5	44.4	7.5	35.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.2	49.3	19.5	18.0	19.5	45.0	5.0	32.5
Max Q Clear Time (g_c+I1), s	2.6	19.7	15.4	20.0	7.5	32.5	2.9	19.4
Green Ext Time (p_c), s	0.0	10.8	0.7	0.0	0.5	7.4	0.0	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	39.4
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	650	224	0	1092	1507	0		
Future Volume (veh/h)	650	224	0	1092	1507	0		
Number	7	14	5	2	6	16		
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	0	1863	1863	0		
Adj Flow Rate, veh/h	707	243	0	1187	1638	0		
Adj No. of Lanes	2	1	0	4	5	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	0	2	2	0		
Cap, veh/h	970	446	0	2504	2948	0		
Arrive On Green	0.28	0.28	0.00	0.39	0.39	0.00		
Sat Flow, veh/h	3442	1583	0	6929	8252	0		
Grp Volume(v), veh/h	707	243	0	1187	1638	0		
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0		
Q Serve(g_s), s	7.3	5.1	0.0	5.5	6.7	0.0		
Cycle Q Clear(g_c), s	7.3	5.1	0.0	5.5	6.7	0.0		
Prop In Lane	1.00	1.00	0.00			0.00		
Lane Grp Cap(c), veh/h	970	446	0	2504	2948	0		
V/C Ratio(X)	0.73	0.54	0.00	0.47	0.56	0.00		
Avail Cap(c_a), veh/h	2088	960	0	3773	4442	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	12.8	12.0	0.0	9.0	9.3	0.0		
Incr Delay (d2), s/veh	0.4	0.4	0.0	0.1	0.1	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	3.5	2.3	0.0	2.4	2.7	0.0		
LnGrp Delay(d),s/veh	13.2	12.4	0.0	9.0	9.4	0.0		
LnGrp LOS	B	B		A	A			
Approach Vol, veh/h	950			1187	1638			
Approach Delay, s/veh	13.0			9.0	9.4			
Approach LOS	B			A	A			
Timer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		22.2		17.2		22.2		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		23.2		23.9		23.2		
Max Q Clear Time (g_c+I1), s		7.5		9.3		8.7		
Green Ext Time (p_c), s		5.3		1.8		6.7		

Intersection Summary			
HCM 2010 Ctrl Delay			10.2
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	527	323	325	370	33	634	100	207	55	91	58
Future Volume (veh/h)	150	527	323	325	370	33	634	100	207	55	91	58
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	163	573	351	353	402	36	767	0	225	60	99	63
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	741	717	436	659	59	884	0	394	140	236	154
Arrive On Green	0.14	0.21	0.21	0.13	0.20	0.20	0.25	0.00	0.25	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1541	3442	3287	293	3548	0	1583	924	1556	1019
Grp Volume(v), veh/h	163	573	351	353	216	222	767	0	225	118	0	104
Grp Sat Flow(s),veh/h/ln	1774	1770	1541	1721	1770	1811	1774	0	1583	1817	0	1683
Q Serve(g_s), s	6.9	12.0	12.6	7.8	8.7	8.8	16.3	0.0	9.8	4.6	0.0	4.4
Cycle Q Clear(g_c), s	6.9	12.0	12.6	7.8	8.7	8.8	16.3	0.0	9.8	4.6	0.0	4.4
Prop In Lane	1.00		1.00	1.00		0.16	1.00		1.00	0.51		0.61
Lane Grp Cap(c), veh/h	241	741	717	436	355	363	884	0	394	275	0	255
V/C Ratio(X)	0.68	0.77	0.49	0.81	0.61	0.61	0.87	0.00	0.57	0.43	0.00	0.41
Avail Cap(c_a), veh/h	255	959	812	530	497	509	1078	0	481	277	0	257
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.3	29.3	14.9	33.4	28.6	28.7	28.3	0.0	25.8	30.3	0.0	30.2
Incr Delay (d2), s/veh	5.1	2.1	0.2	6.3	0.6	0.6	5.7	0.0	0.5	0.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	6.1	7.5	4.1	4.3	4.5	8.7	0.0	4.3	2.4	0.0	2.1
LnGrp Delay(d),s/veh	37.4	31.4	15.1	39.7	29.3	29.3	34.0	0.0	26.3	30.7	0.0	30.6
LnGrp LOS	D	C	B	D	C	C	C		C	C		C
Approach Vol, veh/h		1087			791			992			222	
Approach Delay, s/veh		27.1			33.9			32.3			30.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.7	22.3		17.0	15.4	21.6		24.7
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 12	21.3		12.0	* 11	22.1		23.9
Max Q Clear Time (g_c+I1), s	9.8	14.6		6.6	8.9	10.8		18.3
Green Ext Time (p_c), s	0.1	1.9		0.4	0.0	1.2		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	30.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	20	5	140	9	182	40	965	252	770	1649	53
Future Volume (veh/h)	28	20	5	140	9	182	40	965	252	770	1649	53
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		0.99	1.00		1.00	1.00		1.00	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	30	22	5	152	10	198	43	1049	274	837	1792	58
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	96	22	186	261	654	67	1385	362	938	2933	95
Arrive On Green	0.03	0.07	0.07	0.10	0.14	0.14	0.04	0.35	0.35	0.27	0.58	0.58
Sat Flow, veh/h	1774	1467	333	1774	1863	1583	1774	4015	1048	3442	5056	163
Grp Volume(v), veh/h	30	0	27	152	10	198	43	886	437	837	1201	649
Grp Sat Flow(s),veh/h/ln	1774	0	1800	1774	1863	1583	1774	1695	1672	1721	1695	1829
Q Serve(g_s), s	1.4	0.0	1.2	7.1	0.4	7.1	2.0	19.6	19.7	19.8	19.5	19.6
Cycle Q Clear(g_c), s	1.4	0.0	1.2	7.1	0.4	7.1	2.0	19.6	19.7	19.8	19.5	19.6
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.63	1.00		0.09
Lane Grp Cap(c), veh/h	53	0	118	186	261	654	67	1170	577	938	1967	1061
V/C Ratio(X)	0.57	0.00	0.23	0.82	0.04	0.30	0.65	0.76	0.76	0.89	0.61	0.61
Avail Cap(c_a), veh/h	128	0	594	203	694	1022	107	1170	577	1035	1967	1061
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	37.6	37.2	31.5	16.7	40.3	24.6	24.6	29.6	11.6	11.6
Incr Delay (d2), s/veh	9.1	0.0	1.0	21.0	0.1	0.3	10.0	4.6	9.0	9.3	1.4	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.6	4.6	0.2	3.1	1.2	9.9	10.4	10.6	9.4	10.5
LnGrp Delay(d),s/veh	49.7	0.0	38.6	58.2	31.6	17.0	50.3	29.2	33.6	38.9	13.0	14.2
LnGrp LOS	D		D	E	C	B	D	C	C	D	B	B
Approach Vol, veh/h		57			360			1366			2687	
Approach Delay, s/veh		44.5			34.8			31.3			21.4	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.6	33.8	13.4	10.0	7.7	53.7	7.0	16.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	28.8	9.7	28.0	5.1	49.2	6.1	31.6
Max Q Clear Time (g_c+I1), s	21.8	21.7	9.1	3.2	4.0	21.6	3.4	9.1
Green Ext Time (p_c), s	1.3	4.5	0.0	0.1	0.0	16.5	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	25.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	661	185	19	40	278	33	38	8	12	93	16	32
Future Volume (veh/h)	661	185	19	40	278	33	38	8	12	93	16	32
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	718	201	21	43	302	36	47	0	13	101	17	35
Adj No. of Lanes	2	2	0	1	2	0	2	0	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	859	1202	124	137	637	75	415	0	185	154	47	97
Arrive On Green	0.25	0.37	0.37	0.08	0.20	0.20	0.12	0.00	0.12	0.09	0.09	0.09
Sat Flow, veh/h	3442	3230	333	1774	3187	377	3548	0	1583	1774	544	1121
Grp Volume(v), veh/h	718	109	113	43	166	172	47	0	13	101	0	52
Grp Sat Flow(s),veh/h/ln	1721	1770	1793	1774	1770	1794	1774	0	1583	1774	0	1665
Q Serve(g_s), s	11.6	2.4	2.5	1.3	4.9	4.9	0.7	0.0	0.4	3.2	0.0	1.7
Cycle Q Clear(g_c), s	11.6	2.4	2.5	1.3	4.9	4.9	0.7	0.0	0.4	3.2	0.0	1.7
Prop In Lane	1.00		0.19	1.00		0.21	1.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	859	658	667	137	354	359	415	0	185	154	0	144
V/C Ratio(X)	0.84	0.17	0.17	0.31	0.47	0.48	0.11	0.00	0.07	0.66	0.00	0.36
Avail Cap(c_a), veh/h	1194	1110	1125	273	768	779	1516	0	676	879	0	825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.8	12.3	12.3	25.5	20.7	20.7	23.1	0.0	23.0	25.9	0.0	25.2
Incr Delay (d2), s/veh	2.7	0.4	0.4	0.5	3.5	3.6	0.0	0.0	0.1	1.8	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	1.3	1.3	0.7	2.7	2.8	0.3	0.0	0.2	1.6	0.0	0.8
LnGrp Delay(d),s/veh	23.6	12.7	12.7	26.0	24.2	24.3	23.2	0.0	23.1	27.7	0.0	25.8
LnGrp LOS	C	B	B	C	C	C	C		C	C		C
Approach Vol, veh/h		940			381			60			153	
Approach Delay, s/veh		21.0			24.4			23.1			27.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.2	27.2		10.2	19.3	17.1		12.0
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 9	36.7		29.0	* 20	25.4		25.0
Max Q Clear Time (g_c+I1), s	3.3	4.5		5.2	13.6	6.9		2.7
Green Ext Time (p_c), s	0.0	3.3		0.3	1.0	4.1		0.1

Intersection Summary		
HCM 2010 Ctrl Delay		22.5
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	1236	154	157	1104	131	124	568	162	142	411	209
Future Volume (veh/h)	181	1236	154	157	1104	131	124	568	162	142	411	209
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	197	1343	167	171	1200	142	135	617	176	154	447	227
Adj No. of Lanes	2	3	0	2	3	1	2	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	276	1747	217	246	1898	687	210	768	219	226	1019	573
Arrive On Green	0.08	0.38	0.38	0.07	0.37	0.37	0.06	0.28	0.28	0.07	0.29	0.29
Sat Flow, veh/h	3442	4574	569	3442	5085	1562	3442	2712	772	3442	3539	1547
Grp Volume(v), veh/h	197	995	515	171	1200	142	135	402	391	154	447	227
Grp Sat Flow(s),veh/h/ln	1721	1695	1753	1721	1695	1562	1721	1770	1715	1721	1770	1547
Q Serve(g_s), s	5.1	23.4	23.4	4.4	17.6	5.1	3.5	19.2	19.3	4.0	9.4	9.9
Cycle Q Clear(g_c), s	5.1	23.4	23.4	4.4	17.6	5.1	3.5	19.2	19.3	4.0	9.4	9.9
Prop In Lane	1.00		0.32	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	276	1295	669	246	1898	687	210	501	486	226	1019	573
V/C Ratio(X)	0.71	0.77	0.77	0.70	0.63	0.21	0.64	0.80	0.80	0.68	0.44	0.40
Avail Cap(c_a), veh/h	476	1708	883	397	2445	855	586	701	680	359	1169	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	24.6	24.6	41.3	23.4	15.8	41.8	30.3	30.3	41.6	26.4	21.3
Incr Delay (d2), s/veh	3.4	1.6	3.0	3.5	0.4	0.1	3.3	4.6	4.8	3.6	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	11.2	11.9	2.2	8.3	2.2	1.8	10.0	9.8	2.0	4.6	4.3
LnGrp Delay(d),s/veh	44.3	26.2	27.6	44.8	23.8	15.9	45.1	34.9	35.2	45.2	26.7	21.8
LnGrp LOS	D	C	C	D	C	B	D	C	D	D	C	C
Approach Vol, veh/h		1707			1513			928			828	
Approach Delay, s/veh		28.7			25.4			36.5			28.8	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	39.3	10.1	30.7	11.8	38.5	10.5	30.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	45.9	15.5	30.1	12.6	43.8	9.5	36.1
Max Q Clear Time (g_c+I1), s	6.4	25.4	5.5	11.9	7.1	19.6	6.0	21.3
Green Ext Time (p_c), s	0.2	9.4	0.2	3.2	0.3	8.6	0.1	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	70	203	633	81	212	402
Future Volume (veh/h)	70	203	633	81	212	402
Number	3	18	2	12	1	6
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	1900	1863	1863
Adj Flow Rate, veh/h	76	221	688	88	230	437
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	585	540	1070	137	303	2182
Arrive On Green	0.17	0.17	0.34	0.34	0.17	0.62
Sat Flow, veh/h	3442	1583	3250	403	1774	3632
Grp Volume(v), veh/h	76	221	385	391	230	437
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1790	1774	1770
Q Serve(g_s), s	0.8	4.5	7.8	7.8	5.2	2.3
Cycle Q Clear(g_c), s	0.8	4.5	7.8	7.8	5.2	2.3
Prop In Lane	1.00	1.00		0.23	1.00	
Lane Grp Cap(c), veh/h	585	540	600	607	303	2182
V/C Ratio(X)	0.13	0.41	0.64	0.64	0.76	0.20
Avail Cap(c_a), veh/h	1885	1138	1339	1354	904	4859
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	10.6	11.8	11.8	16.7	3.5
Incr Delay (d2), s/veh	0.1	0.5	1.2	1.1	3.9	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	0.4	2.0	3.9	4.0	2.9	1.1
LnGrp Delay(d),s/veh	14.9	11.1	12.9	12.9	20.6	3.6
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	297		776			667
Approach Delay, s/veh	12.1		12.9			9.4
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.7	18.8				30.5		11.7
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	21.5	31.9				57.9		23.1
Max Q Clear Time (g_c+I1), s	7.2	9.8				4.3		6.5
Green Ext Time (p_c), s	0.5	4.4				2.9		0.9

Intersection Summary		
HCM 2010 Ctrl Delay		11.5
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	363	328	34	50	330	311	62	46	39	262	20	283
Future Volume (veh/h)	363	328	34	50	330	311	62	46	39	262	20	283
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	395	357	37	54	359	338	67	50	42	285	0	323
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	1517	156	77	464	408	86	75	63	331	0	692
Arrive On Green	0.25	0.47	0.47	0.04	0.26	0.26	0.05	0.08	0.08	0.19	0.00	0.22
Sat Flow, veh/h	1774	3232	333	1774	1770	1558	1774	926	778	1774	0	3167
Grp Volume(v), veh/h	395	194	200	54	359	338	67	0	92	285	0	323
Grp Sat Flow(s),veh/h/ln	1774	1770	1795	1774	1770	1558	1774	0	1704	1774	0	1583
Q Serve(g_s), s	17.6	5.4	5.4	2.5	15.4	16.7	3.1	0.0	4.3	12.7	0.0	7.3
Cycle Q Clear(g_c), s	17.6	5.4	5.4	2.5	15.4	16.7	3.1	0.0	4.3	12.7	0.0	7.3
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	445	831	843	77	464	408	86	0	138	331	0	692
V/C Ratio(X)	0.89	0.23	0.24	0.70	0.77	0.83	0.77	0.00	0.67	0.86	0.00	0.47
Avail Cap(c_a), veh/h	683	1044	1060	199	562	495	219	0	437	509	0	1331
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.6	12.9	13.0	38.6	28.0	28.5	38.5	0.0	36.5	32.3	0.0	27.8
Incr Delay (d2), s/veh	9.2	0.1	0.1	11.2	5.5	9.5	13.6	0.0	5.4	9.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	2.6	2.7	1.4	8.2	8.2	1.8	0.0	2.2	7.1	0.0	3.2
LnGrp Delay(d),s/veh	38.8	13.1	13.1	49.8	33.4	38.0	52.1	0.0	42.0	41.4	0.0	28.3
LnGrp LOS	D	B	B	D	C	D	D		D	D		C
Approach Vol, veh/h		789			751			159			608	
Approach Delay, s/veh		26.0			36.6			46.2			34.5	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	42.9	8.5	22.4	25.0	25.9	19.8	11.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.2	48.3	10.1	34.4	31.5	26.0	23.5	21.0
Max Q Clear Time (g_c+I1), s	4.5	7.4	5.1	9.3	19.6	18.7	14.7	6.3
Green Ext Time (p_c), s	0.0	2.2	0.0	1.2	0.9	2.6	0.5	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	33.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	43	397	117	54	89	538	1704	176	40	976	109
Future Volume (veh/h)	71	43	397	117	54	89	538	1704	176	40	976	109
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		1.00	1.00		0.98	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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	77	47	432	127	59	97	585	1852	191	43	1061	118
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	221	135	594	190	68	112	636	1921	840	55	1377	607
Arrive On Green	0.20	0.20	0.20	0.11	0.11	0.11	0.18	0.54	0.54	0.03	0.39	0.39
Sat Flow, veh/h	1122	685	1532	1774	635	1044	3442	3539	1547	1774	3539	1560
Grp Volume(v), veh/h	124	0	432	127	0	156	585	1852	191	43	1061	118
Grp Sat Flow(s),veh/h/ln	1807	0	1532	1774	0	1679	1721	1770	1547	1774	1770	1560
Q Serve(g_s), s	8.7	0.0	29.0	10.1	0.0	13.5	24.6	74.0	9.5	3.5	38.5	7.4
Cycle Q Clear(g_c), s	8.7	0.0	29.0	10.1	0.0	13.5	24.6	74.0	9.5	3.5	38.5	7.4
Prop In Lane	0.62		1.00	1.00		0.62	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	0	594	190	0	180	636	1921	840	55	1377	607
V/C Ratio(X)	0.35	0.00	0.73	0.67	0.00	0.87	0.92	0.96	0.23	0.78	0.77	0.19
Avail Cap(c_a), veh/h	355	0	594	217	0	205	679	1921	840	60	1377	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.1	0.0	39.2	63.3	0.0	64.8	59.0	32.3	17.6	70.9	39.3	29.7
Incr Delay (d2), s/veh	0.6	0.0	4.5	6.4	0.0	27.8	17.2	13.6	0.6	43.8	4.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	15.9	5.3	0.0	7.6	13.2	39.7	4.2	2.4	19.7	3.3
LnGrp Delay(d),s/veh	51.6	0.0	43.7	69.7	0.0	92.6	76.2	46.0	18.2	114.7	43.5	30.5
LnGrp LOS	D		D	E		F	E	D	B	F	D	C
Approach Vol, veh/h		556			283			2628			1222	
Approach Delay, s/veh		45.5			82.3			50.7			44.7	
Approach LOS		D			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.1	84.5		33.5	31.7	61.9		20.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	80.0		29.0	29.1	55.9		18.0
Max Q Clear Time (g_c+I1), s	5.5	76.0		31.0	26.6	40.5		15.5
Green Ext Time (p_c), s	0.0	3.6		0.0	0.6	6.4		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	50.4
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	237	364	400	497	337	311	1584	642	70	1046	381
Future Volume (veh/h)	111	237	364	400	497	337	311	1584	642	70	1046	381
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		0.98	1.00		0.98	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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	121	258	396	435	540	366	338	1722	698	76	1137	414
Adj No. of Lanes	2	2	1	2	1	1	2	3	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	760	521	512	587	552	394	2231	1617	137	1288	568
Arrive On Green	0.05	0.21	0.21	0.15	0.32	0.32	0.11	0.44	0.44	0.04	0.36	0.36
Sat Flow, veh/h	3442	3539	1583	3442	1863	1551	3442	5085	2741	3442	3539	1560
Grp Volume(v), veh/h	121	258	396	435	540	366	338	1722	698	76	1137	414
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1863	1551	1721	1695	1371	1721	1770	1560
Q Serve(g_s), s	4.0	7.0	24.5	14.0	31.9	22.7	11.0	32.8	16.1	2.5	34.3	26.2
Cycle Q Clear(g_c), s	4.0	7.0	24.5	14.0	31.9	22.7	11.0	32.8	16.1	2.5	34.3	26.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	166	760	521	512	587	552	394	2231	1617	137	1288	568
V/C Ratio(X)	0.73	0.34	0.76	0.85	0.92	0.66	0.86	0.77	0.43	0.55	0.88	0.73
Avail Cap(c_a), veh/h	166	760	521	685	629	587	407	2350	1681	160	1381	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	37.9	34.2	47.3	37.6	31.0	49.6	27.2	13.0	53.7	34.0	31.4
Incr Delay (d2), s/veh	14.9	0.3	6.4	7.6	18.1	2.6	16.1	1.6	0.2	3.5	6.7	4.1
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	2.2	3.5	12.1	7.2	19.3	10.1	6.1	15.6	6.1	1.2	17.9	11.9
LnGrp Delay(d),s/veh	68.5	38.2	40.6	54.9	55.8	33.6	65.6	28.7	13.2	57.2	40.7	35.5
LnGrp LOS	E	D	D	D	E	C	E	C	B	E	D	D
Approach Vol, veh/h		775			1341			2758			1627	
Approach Delay, s/veh		44.2			49.4			29.3			40.2	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	54.5	21.5	29.0	17.6	46.0	10.0	40.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.3	52.7	22.7	21.3	13.5	44.5	5.5	38.5
Max Q Clear Time (g_c+I1), s	4.5	34.8	16.0	26.5	13.0	36.3	6.0	33.9
Green Ext Time (p_c), s	0.0	13.8	0.9	0.0	0.1	5.2	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	37.9
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	659	337	0	1873	1578	0
Future Volume (veh/h)	659	337	0	1873	1578	0
Number	7	14	5	2	6	16
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	0	1863	1863	0
Adj Flow Rate, veh/h	716	366	0	2036	1715	0
Adj No. of Lanes	2	1	0	4	5	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	994	457	0	2894	3408	0
Arrive On Green	0.29	0.29	0.00	0.45	0.45	0.00
Sat Flow, veh/h	3442	1583	0	6929	8252	0
Grp Volume(v), veh/h	716	366	0	2036	1715	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0
Q Serve(g_s), s	9.3	10.6	0.0	12.7	8.0	0.0
Cycle Q Clear(g_c), s	9.3	10.6	0.0	12.7	8.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	994	457	0	2894	3408	0
V/C Ratio(X)	0.72	0.80	0.00	0.70	0.50	0.00
Avail Cap(c_a), veh/h	1447	666	0	3378	3977	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.9	16.3	0.0	10.9	9.7	0.0
Incr Delay (d2), s/veh	0.4	2.6	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	4.9	0.0	5.6	3.3	0.0
LnGrp Delay(d),s/veh	16.2	19.0	0.0	11.3	9.7	0.0
LnGrp LOS	B	B		B	A	
Approach Vol, veh/h	1082			2036	1715	
Approach Delay, s/veh	17.2			11.3	9.7	
Approach LOS	B			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		29.2		20.4		29.2		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		26.2		20.9		26.2		
Max Q Clear Time (g_c+I1), s		14.7		12.6		10.0		
Green Ext Time (p_c), s		7.8		1.7		7.5		

Intersection Summary		
HCM 2010 Ctrl Delay		12.1
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	468	338	302	436	22	727	63	68	69	76	71
Future Volume (veh/h)	143	468	338	302	436	22	727	63	68	69	76	71
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	155	509	367	328	474	24	839	0	74	75	83	77
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	236	733	745	410	662	33	944	0	421	161	182	174
Arrive On Green	0.13	0.21	0.21	0.12	0.19	0.19	0.27	0.00	0.27	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1563	3442	3426	173	3548	0	1583	1083	1220	1163
Grp Volume(v), veh/h	155	509	367	328	244	254	839	0	74	125	0	110
Grp Sat Flow(s),veh/h/ln	1774	1770	1563	1721	1770	1829	1774	0	1583	1809	0	1657
Q Serve(g_s), s	6.6	10.7	12.9	7.4	10.3	10.4	18.2	0.0	2.9	5.1	0.0	4.8
Cycle Q Clear(g_c), s	6.6	10.7	12.9	7.4	10.3	10.4	18.2	0.0	2.9	5.1	0.0	4.8
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	0.60		0.70
Lane Grp Cap(c), veh/h	236	733	745	410	342	353	944	0	421	270	0	247
V/C Ratio(X)	0.66	0.69	0.49	0.80	0.71	0.72	0.89	0.00	0.18	0.46	0.00	0.44
Avail Cap(c_a), veh/h	244	929	831	490	473	489	1104	0	493	271	0	249
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.9	29.4	14.5	34.3	30.2	30.2	28.2	0.0	22.6	31.1	0.0	31.0
Incr Delay (d2), s/veh	4.7	0.9	0.2	6.4	1.4	1.5	7.4	0.0	0.1	0.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	5.3	8.1	3.9	5.2	5.4	9.8	0.0	1.3	2.6	0.0	2.2
LnGrp Delay(d),s/veh	37.6	30.3	14.7	40.8	31.7	31.7	35.7	0.0	22.7	31.6	0.0	31.5
LnGrp LOS	D	C	B	D	C	C	D		C	C		C
Approach Vol, veh/h		1031			826			913			235	
Approach Delay, s/veh		25.8			35.3			34.6			31.5	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.2	22.4		17.0	15.3	21.3		26.4
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 11	21.0		12.0	* 11	21.4		24.9
Max Q Clear Time (g_c+I1), s	9.4	14.9		7.1	8.6	12.4		20.2
Green Ext Time (p_c), s	0.1	1.6		0.4	0.0	1.2		1.1

Intersection Summary		
HCM 2010 Ctrl Delay		31.6
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	42	15	190	10	687	19	1700	328	990	1726	42
Future Volume (veh/h)	63	42	15	190	10	687	19	1700	328	990	1726	42
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		0.98	1.00		0.99	1.00		0.98	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	68	46	16	207	11	747	21	1848	357	1076	1876	46
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	86	207	72	178	389	714	35	1595	302	844	3055	75
Arrive On Green	0.05	0.16	0.16	0.10	0.21	0.21	0.02	0.37	0.37	0.25	0.60	0.60
Sat Flow, veh/h	1774	1316	458	1774	1863	1563	1774	4275	811	3442	5102	125
Grp Volume(v), veh/h	68	0	62	207	11	747	21	1458	747	1076	1246	676
Grp Sat Flow(s),veh/h/ln	1774	0	1774	1774	1863	1563	1774	1695	1696	1721	1695	1837
Q Serve(g_s), s	5.5	0.0	4.4	14.5	0.7	30.2	1.7	54.0	54.0	35.5	33.8	33.8
Cycle Q Clear(g_c), s	5.5	0.0	4.4	14.5	0.7	30.2	1.7	54.0	54.0	35.5	33.8	33.8
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.48	1.00		0.07
Lane Grp Cap(c), veh/h	86	0	279	178	389	714	35	1265	633	844	2029	1100
V/C Ratio(X)	0.79	0.00	0.22	1.16	0.03	1.05	0.60	1.15	1.18	1.27	0.61	0.61
Avail Cap(c_a), veh/h	151	0	343	178	389	714	74	1265	633	844	2029	1100
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.1	0.0	53.3	65.1	45.6	39.6	70.4	45.4	45.4	54.6	18.4	18.4
Incr Delay (d2), s/veh	14.5	0.0	0.4	118.8	0.0	46.2	15.4	78.2	96.8	132.8	0.6	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	2.2	12.9	0.4	37.6	1.0	38.9	42.1	32.3	15.9	17.4
LnGrp Delay(d),s/veh	82.6	0.0	53.7	183.9	45.6	85.8	85.8	123.6	142.2	187.5	19.0	19.5
LnGrp LOS	F		D	F	D	F	F	F	F	F	B	B
Approach Vol, veh/h		130			965			2226			2998	
Approach Delay, s/veh		68.8			106.4			129.5			79.6	
Approach LOS		E			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	40.0	58.5	19.0	27.2	7.4	91.1	11.5	34.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	35.5	54.0	14.5	28.0	6.0	83.5	12.3	30.2
Max Q Clear Time (g_c+I1), s	37.5	56.0	16.5	6.4	3.7	35.8	7.5	32.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.0	23.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	101.0
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	665	367	84	169	490	79	172	55	78	116	36	38
Future Volume (veh/h)	665	367	84	169	490	79	172	55	78	116	36	38
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	723	399	91	184	533	86	124	149	85	126	39	41
Adj No. of Lanes	2	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	808	1038	234	223	776	125	267	280	232	185	86	91
Arrive On Green	0.23	0.36	0.36	0.13	0.25	0.25	0.15	0.15	0.15	0.10	0.10	0.10
Sat Flow, veh/h	3442	2856	644	1774	3046	490	1774	1863	1541	1774	830	873
Grp Volume(v), veh/h	723	246	244	184	309	310	124	149	85	126	0	80
Grp Sat Flow(s),veh/h/ln	1721	1770	1731	1774	1770	1766	1774	1863	1541	1774	0	1703
Q Serve(g_s), s	16.1	8.1	8.3	8.0	12.5	12.6	5.1	5.9	3.9	5.4	0.0	3.5
Cycle Q Clear(g_c), s	16.1	8.1	8.3	8.0	12.5	12.6	5.1	5.9	3.9	5.4	0.0	3.5
Prop In Lane	1.00		0.37	1.00		0.28	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	808	643	629	223	451	450	267	280	232	185	0	177
V/C Ratio(X)	0.89	0.38	0.39	0.82	0.69	0.69	0.46	0.53	0.37	0.68	0.00	0.45
Avail Cap(c_a), veh/h	882	655	640	367	567	566	560	588	486	649	0	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.4	18.6	18.7	33.8	26.7	26.7	30.7	31.1	30.3	34.2	0.0	33.4
Incr Delay (d2), s/veh	10.4	1.4	1.4	3.0	6.7	6.8	0.5	0.6	0.4	1.7	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	4.2	4.2	4.1	6.9	7.0	2.5	3.1	1.7	2.7	0.0	1.7
LnGrp Delay(d),s/veh	39.8	20.0	20.1	36.8	33.3	33.5	31.2	31.7	30.6	35.9	0.0	34.0
LnGrp LOS	D	B	C	D	C	C	C	C	C	D		C
Approach Vol, veh/h		1213			803			358			206	
Approach Delay, s/veh		31.8			34.2			31.3			35.2	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.7	34.2		13.3	23.3	25.6		17.0
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 16	29.3		29.0	* 20	25.4		25.0
Max Q Clear Time (g_c+I1), s	10.0	10.3		7.4	18.1	14.6		7.9
Green Ext Time (p_c), s	0.1	6.3		0.4	0.5	5.5		0.8

Intersection Summary			
HCM 2010 Ctrl Delay			32.7
HCM 2010 LOS			C

Notes

APPENDIX E

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
– EXISTING + CUMULATIVE PROJECTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	456	867	94	143	979	232	99	636	185	230	649	303
Future Volume (veh/h)	456	867	94	143	979	232	99	636	185	230	649	303
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	496	942	102	155	1064	252	108	691	201	250	705	329
Adj No. of Lanes	2	3	0	2	3	1	2	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	564	1734	187	220	1388	570	170	804	234	314	1204	794
Arrive On Green	0.16	0.37	0.37	0.06	0.27	0.27	0.05	0.30	0.30	0.09	0.34	0.34
Sat Flow, veh/h	3442	4653	502	3442	5085	1560	3442	2693	783	3442	3539	1572
Grp Volume(v), veh/h	496	686	358	155	1064	252	108	454	438	250	705	329
Grp Sat Flow(s),veh/h/ln	1721	1695	1765	1721	1695	1560	1721	1770	1706	1721	1770	1572
Q Serve(g_s), s	14.6	16.5	16.6	4.6	20.0	12.7	3.2	25.1	25.1	7.4	17.0	13.6
Cycle Q Clear(g_c), s	14.6	16.5	16.6	4.6	20.0	12.7	3.2	25.1	25.1	7.4	17.0	13.6
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	564	1264	658	220	1388	570	170	528	509	314	1204	794
V/C Ratio(X)	0.88	0.54	0.54	0.70	0.77	0.44	0.63	0.86	0.86	0.80	0.59	0.41
Avail Cap(c_a), veh/h	614	1454	757	348	1789	693	481	623	600	348	1204	794
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.4	25.6	25.6	47.6	34.7	25.0	48.4	34.3	34.4	46.2	28.2	16.1
Incr Delay (d2), s/veh	13.2	0.4	0.7	4.1	1.5	0.5	3.9	10.3	10.7	11.1	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	7.8	8.2	2.3	9.6	5.5	1.6	13.7	13.3	4.0	8.4	6.0
LnGrp Delay(d),s/veh	55.5	25.9	26.3	51.6	36.2	25.5	52.3	44.7	45.1	57.3	28.9	16.5
LnGrp LOS	E	C	C	D	D	C	D	D	D	E	C	B
Approach Vol, veh/h		1540			1471			1000			1284	
Approach Delay, s/veh		35.6			36.0			45.7			31.3	
Approach LOS		D			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	43.2	9.6	39.8	21.5	32.8	14.0	35.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	44.5	14.5	32.5	18.5	36.5	10.5	36.5
Max Q Clear Time (g_c+I1), s	6.6	18.6	5.2	19.0	16.6	22.0	9.4	27.1
Green Ext Time (p_c), s	0.1	6.5	0.2	4.6	0.4	6.4	0.1	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	36.6
HCM 2010 LOS	D

Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	60	110	620	99	330	711		
Future Volume (veh/h)	60	110	620	99	330	711		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	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	1900	1863	1863		
Adj Flow Rate, veh/h	65	120	674	108	359	773		
Adj No. of Lanes	2	1	2	0	1	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	357	569	991	159	453	2429		
Arrive On Green	0.10	0.10	0.33	0.33	0.26	0.69		
Sat Flow, veh/h	3442	1583	3135	487	1774	3632		
Grp Volume(v), veh/h	65	120	392	390	359	773		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1759	1774	1770		
Q Serve(g_s), s	0.7	2.3	8.2	8.2	8.1	3.8		
Cycle Q Clear(g_c), s	0.7	2.3	8.2	8.2	8.1	3.8		
Prop In Lane	1.00	1.00		0.28	1.00			
Lane Grp Cap(c), veh/h	357	569	577	573	453	2429		
V/C Ratio(X)	0.18	0.21	0.68	0.68	0.79	0.32		
Avail Cap(c_a), veh/h	1847	1254	909	903	1304	4790		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	17.5	9.5	12.5	12.5	14.9	2.7		
Incr Delay (d2), s/veh	0.2	0.2	1.4	1.4	3.2	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.4	1.0	4.1	4.1	4.3	1.7		
LnGrp Delay(d),s/veh	17.8	9.7	13.9	14.0	18.1	2.8		
LnGrp LOS	B	A	B	B	B	A		
Approach Vol, veh/h	185		782			1132		
Approach Delay, s/veh	12.5		13.9			7.6		
Approach LOS	B		B			A		
Timer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.4	18.5				33.9		8.9
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	31.5	22.0				58.0		23.0
Max Q Clear Time (g_c+I1), s	10.1	10.2				5.8		4.3
Green Ext Time (p_c), s	1.0	3.5				5.7		0.5
Intersection Summary								
HCM 2010 Ctrl Delay			10.4					
HCM 2010 LOS			B					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	580	182	103	140	264	288	27	11	25	339	68	469
Future Volume (veh/h)	580	182	103	140	264	288	27	11	25	339	68	469
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	630	198	112	152	287	313	29	12	27	368	0	559
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	1026	556	185	406	356	49	28	64	356	0	723
Arrive On Green	0.34	0.46	0.46	0.10	0.23	0.23	0.03	0.06	0.06	0.20	0.00	0.23
Sat Flow, veh/h	1774	2217	1200	1774	1770	1554	1774	509	1145	1774	0	3158
Grp Volume(v), veh/h	630	156	154	152	287	313	29	0	39	368	0	559
Grp Sat Flow(s),veh/h/ln	1774	1770	1648	1774	1770	1554	1774	0	1653	1774	0	1579
Q Serve(g_s), s	34.5	5.3	5.6	8.6	15.2	19.8	1.6	0.0	2.3	20.5	0.0	16.9
Cycle Q Clear(g_c), s	34.5	5.3	5.6	8.6	15.2	19.8	1.6	0.0	2.3	20.5	0.0	16.9
Prop In Lane	1.00		0.73	1.00		1.00	1.00		0.69	1.00		1.00
Lane Grp Cap(c), veh/h	600	819	763	185	406	356	49	0	92	356	0	723
V/C Ratio(X)	1.05	0.19	0.20	0.82	0.71	0.88	0.60	0.00	0.42	1.03	0.00	0.77
Avail Cap(c_a), veh/h	600	819	763	322	451	396	108	0	340	356	0	1092
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.8	16.1	16.2	44.8	36.2	38.0	49.1	0.0	46.6	40.8	0.0	36.9
Incr Delay (d2), s/veh	50.8	0.1	0.1	8.7	4.5	18.4	11.1	0.0	3.1	56.4	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.3	2.6	2.6	4.6	7.9	10.3	1.0	0.0	1.1	15.6	0.0	7.5
LnGrp Delay(d),s/veh	84.6	16.3	16.4	53.5	40.7	56.3	60.2	0.0	49.7	97.2	0.0	38.8
LnGrp LOS	F	B	B	D	D	E	E		D	F		D
Approach Vol, veh/h		940			752			68			927	
Approach Delay, s/veh		62.1			49.8			54.2			62.0	
Approach LOS		E			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.1	51.8	7.3	27.9	39.0	27.9	25.0	10.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	42.0	6.2	35.3	34.5	26.0	20.5	21.0
Max Q Clear Time (g_c+I1), s	10.6	7.6	3.6	18.9	36.5	21.8	22.5	4.3
Green Ext Time (p_c), s	0.2	1.7	0.0	2.1	0.0	1.5	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	58.4
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	43	259	149	38	40	359	972	116	48	1299	89
Future Volume (veh/h)	26	43	259	149	38	40	359	972	116	48	1299	89
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		0.99	1.00		0.98	1.00		0.98	1.00		0.98
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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	28	47	282	162	41	43	390	1057	126	52	1412	97
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	218	487	200	93	98	410	1724	752	67	1435	632
Arrive On Green	0.19	0.19	0.19	0.11	0.11	0.11	0.12	0.49	0.49	0.04	0.41	0.41
Sat Flow, veh/h	683	1146	1566	1774	826	867	3442	3539	1544	1774	3539	1558
Grp Volume(v), veh/h	75	0	282	162	0	84	390	1057	126	52	1412	97
Grp Sat Flow(s),veh/h/ln	1829	0	1566	1774	0	1693	1721	1770	1544	1774	1770	1558
Q Serve(g_s), s	3.6	0.0	15.9	9.3	0.0	4.9	11.8	22.9	4.8	3.0	41.4	4.1
Cycle Q Clear(g_c), s	3.6	0.0	15.9	9.3	0.0	4.9	11.8	22.9	4.8	3.0	41.4	4.1
Prop In Lane	0.37		1.00	1.00		0.51	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	348	0	487	200	0	191	410	1724	752	67	1435	632
V/C Ratio(X)	0.22	0.00	0.58	0.81	0.00	0.44	0.95	0.61	0.17	0.78	0.98	0.15
Avail Cap(c_a), veh/h	506	0	622	305	0	291	410	1724	752	105	1435	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	0.0	30.4	45.4	0.0	43.4	45.8	19.7	15.0	50.0	30.8	19.8
Incr Delay (d2), s/veh	0.3	0.0	1.1	9.1	0.0	1.6	31.9	1.6	0.5	17.5	20.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	7.0	5.1	0.0	2.3	7.4	11.5	2.1	1.8	24.2	1.9
LnGrp Delay(d),s/veh	36.1	0.0	31.5	54.5	0.0	45.0	77.7	21.3	15.5	67.5	51.1	20.3
LnGrp LOS	D		C	D		D	E	C	B	E	D	C
Approach Vol, veh/h		357			246			1573			1561	
Approach Delay, s/veh		32.5			51.2			34.8			49.7	
Approach LOS		C			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.4	55.6		24.5	17.0	47.0		16.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	6.2	48.8		29.0	12.5	42.5		18.0
Max Q Clear Time (g_c+I1), s	5.0	24.9		17.9	13.8	43.4		11.3
Green Ext Time (p_c), s	0.0	8.6		1.1	0.0	0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	41.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	165	480	469	335	398	271	890	974	48	1167	412
Future Volume (veh/h)	42	165	480	469	335	398	271	890	974	48	1167	412
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		0.98	1.00		0.98
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	46	179	522	510	364	433	295	967	1059	52	1268	448
Adj No. of Lanes	2	2	1	2	1	1	2	3	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	583	431	574	553	521	371	2378	1744	125	1402	617
Arrive On Green	0.03	0.16	0.16	0.17	0.30	0.30	0.11	0.47	0.47	0.04	0.40	0.40
Sat Flow, veh/h	3442	3539	1583	3442	1863	1562	3442	5085	2736	3442	3539	1558
Grp Volume(v), veh/h	46	179	522	510	364	433	295	967	1059	52	1268	448
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1863	1562	1721	1695	1368	1721	1770	1558
Q Serve(g_s), s	1.4	4.9	18.0	15.8	18.7	28.0	9.1	13.7	25.2	1.6	36.9	26.6
Cycle Q Clear(g_c), s	1.4	4.9	18.0	15.8	18.7	28.0	9.1	13.7	25.2	1.6	36.9	26.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	118	583	431	574	553	521	371	2378	1744	125	1402	617
V/C Ratio(X)	0.39	0.31	1.21	0.89	0.66	0.83	0.79	0.41	0.61	0.42	0.90	0.73
Avail Cap(c_a), veh/h	157	583	431	614	554	522	614	2378	1744	479	1457	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	40.2	39.8	44.6	33.6	33.6	47.6	19.1	11.9	51.5	31.1	28.0
Incr Delay (d2), s/veh	2.1	0.3	114.3	14.3	2.8	10.9	3.9	0.1	0.6	2.2	8.1	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.4	26.7	8.7	10.0	13.6	4.5	6.4	9.6	0.8	19.5	12.1
LnGrp Delay(d),s/veh	53.7	40.5	154.1	58.9	36.4	44.5	51.5	19.2	12.5	53.7	39.2	31.9
LnGrp LOS	D	D	F	E	D	D	D	B	B	D	D	C
Approach Vol, veh/h		747			1307			2321			1768	
Approach Delay, s/veh		120.7			47.9			20.3			37.8	
Approach LOS		F			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.5	55.6	22.7	22.5	16.3	47.8	8.3	37.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.2	49.3	19.5	18.0	19.5	45.0	5.0	32.5				
Max Q Clear Time (g_c+I1), s	3.6	27.2	17.8	20.0	11.1	38.9	3.4	30.0				
Green Ext Time (p_c), s	0.1	12.7	0.4	0.0	0.6	4.5	0.0	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			43.4									
HCM 2010 LOS			D									

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	825	249	0	1348	1614	0		
Future Volume (veh/h)	825	249	0	1348	1614	0		
Number	7	14	5	2	6	16		
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	0	1863	1863	0		
Adj Flow Rate, veh/h	897	271	0	1465	1754	0		
Adj No. of Lanes	2	1	0	4	5	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	0	2	2	0		
Cap, veh/h	1138	524	0	2425	2855	0		
Arrive On Green	0.33	0.33	0.00	0.38	0.38	0.00		
Sat Flow, veh/h	3442	1583	0	6929	8252	0		
Grp Volume(v), veh/h	897	271	0	1465	1754	0		
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0		
Q Serve(g_s), s	10.5	6.1	0.0	8.2	8.4	0.0		
Cycle Q Clear(g_c), s	10.5	6.1	0.0	8.2	8.4	0.0		
Prop In Lane	1.00	1.00	0.00			0.00		
Lane Grp Cap(c), veh/h	1138	524	0	2425	2855	0		
V/C Ratio(X)	0.79	0.52	0.00	0.60	0.61	0.00		
Avail Cap(c_a), veh/h	1932	889	0	3207	3776	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	13.4	12.0	0.0	11.1	11.2	0.0		
Incr Delay (d2), s/veh	0.5	0.3	0.0	0.1	0.1	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	4.9	2.7	0.0	3.6	3.4	0.0		
LnGrp Delay(d),s/veh	13.9	12.3	0.0	11.2	11.2	0.0		
LnGrp LOS	B	B		B	B			
Approach Vol, veh/h	1168			1465	1754			
Approach Delay, s/veh	13.5			11.2	11.2			
Approach LOS	B			B	B			
Timer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		23.6		20.8		23.6		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		22.2		24.9		22.2		
Max Q Clear Time (g_c+I1), s		10.2		12.5		10.4		
Green Ext Time (p_c), s		5.8		2.2		6.4		
Intersection Summary								
HCM 2010 Ctrl Delay			11.8					
HCM 2010 LOS			B					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	680	397	340	405	33	798	100	257	55	91	60
Future Volume (veh/h)	158	680	397	340	405	33	798	100	257	55	91	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	172	739	432	370	440	36	945	0	279	60	99	65
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	828	804	413	770	63	992	0	442	123	207	140
Arrive On Green	0.12	0.23	0.23	0.12	0.23	0.23	0.28	0.00	0.28	0.13	0.13	0.13
Sat Flow, veh/h	1774	3539	1543	3442	3314	270	3548	0	1583	915	1540	1041
Grp Volume(v), veh/h	172	739	432	370	234	242	945	0	279	119	0	105
Grp Sat Flow(s),veh/h/ln	1774	1770	1543	1721	1770	1815	1774	0	1583	1817	0	1679
Q Serve(g_s), s	8.4	18.0	16.9	9.4	10.4	10.5	23.3	0.0	13.7	5.4	0.0	5.1
Cycle Q Clear(g_c), s	8.4	18.0	16.9	9.4	10.4	10.5	23.3	0.0	13.7	5.4	0.0	5.1
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	0.50		0.62
Lane Grp Cap(c), veh/h	216	828	804	413	411	422	992	0	442	244	0	225
V/C Ratio(X)	0.80	0.89	0.54	0.90	0.57	0.57	0.95	0.00	0.63	0.49	0.00	0.47
Avail Cap(c_a), veh/h	219	862	818	413	425	436	992	0	442	245	0	226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.1	33.0	14.6	38.6	30.3	30.3	31.5	0.0	28.1	35.7	0.0	35.6
Incr Delay (d2), s/veh	16.7	10.9	0.3	20.8	1.0	1.0	18.1	0.0	2.2	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	10.1	10.6	5.7	5.2	5.4	13.9	0.0	6.3	2.8	0.0	2.4
LnGrp Delay(d),s/veh	54.8	43.9	15.0	59.5	31.3	31.3	49.6	0.0	30.3	36.3	0.0	36.2
LnGrp LOS	D	D	B	E	C	C	D		C	D		D
Approach Vol, veh/h		1343			846			1224			224	
Approach Delay, s/veh		36.0			43.6			45.2			36.2	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.4	26.6		17.1	15.5	26.5		30.0
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 11	21.7		12.0	* 11	21.4		24.9
Max Q Clear Time (g_c+I1), s	11.4	20.0		7.4	10.4	12.5		25.3
Green Ext Time (p_c), s	0.0	0.8		0.3	0.0	1.2		0.0

Intersection Summary			
HCM 2010 Ctrl Delay			40.9
HCM 2010 LOS			D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	159	76	56	142	15	186	57	1133	267	810	1685	109
Future Volume (veh/h)	159	76	56	142	15	186	57	1133	267	810	1685	109
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		0.97
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	173	83	61	154	16	202	62	1232	290	880	1832	118
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	146	107	157	220	591	80	1327	312	878	2599	167
Arrive On Green	0.12	0.15	0.15	0.09	0.12	0.12	0.04	0.32	0.32	0.26	0.53	0.53
Sat Flow, veh/h	1774	997	733	1774	1863	1583	1774	4110	967	3442	4875	313
Grp Volume(v), veh/h	173	0	144	154	16	202	62	1016	506	880	1272	678
Grp Sat Flow(s),veh/h/ln	1774	0	1730	1774	1863	1583	1774	1695	1687	1721	1695	1798
Q Serve(g_s), s	9.2	0.0	7.4	8.3	0.7	8.8	3.3	27.8	27.8	24.5	26.9	27.1
Cycle Q Clear(g_c), s	9.2	0.0	7.4	8.3	0.7	8.8	3.3	27.8	27.8	24.5	26.9	27.1
Prop In Lane	1.00		0.42	1.00		1.00	1.00		0.57	1.00		0.17
Lane Grp Cap(c), veh/h	207	0	253	157	220	591	80	1094	545	878	1807	958
V/C Ratio(X)	0.84	0.00	0.57	0.98	0.07	0.34	0.78	0.93	0.93	1.00	0.70	0.71
Avail Cap(c_a), veh/h	272	0	504	157	423	763	102	1094	545	878	1807	958
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	0.0	38.2	43.7	37.7	21.6	45.4	31.4	31.4	35.8	16.8	16.8
Incr Delay (d2), s/veh	15.8	0.0	2.0	65.8	0.1	0.3	24.9	14.7	24.5	30.9	2.3	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	3.7	6.9	0.4	3.9	2.2	15.2	16.6	15.4	13.1	14.5
LnGrp Delay(d),s/veh	57.3	0.0	40.2	109.5	37.8	22.0	70.3	46.1	55.9	66.7	19.1	21.2
LnGrp LOS	E		D	F	D	C	E	D	E	F	B	C
Approach Vol, veh/h		317			372			1584			2830	
Approach Delay, s/veh		49.5			58.9			50.2			34.4	
Approach LOS		D			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.0	35.5	13.0	18.5	8.8	55.7	15.7	15.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	24.5	31.0	8.5	28.0	5.5	50.0	14.7	21.8
Max Q Clear Time (g_c+I1), s	26.5	29.8	10.3	9.4	5.3	29.1	11.2	10.8
Green Ext Time (p_c), s	0.0	0.9	0.0	0.7	0.0	14.5	0.1	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	42.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	741	199	31	40	291	33	42	8	12	93	16	32
Future Volume (veh/h)	741	199	31	40	291	33	42	8	12	93	16	32
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	805	216	34	43	316	36	52	0	13	101	17	35
Adj No. of Lanes	2	2	0	1	2	0	2	0	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	922	1202	186	135	643	73	423	0	189	152	47	96
Arrive On Green	0.27	0.39	0.39	0.08	0.20	0.20	0.12	0.00	0.12	0.09	0.09	0.09
Sat Flow, veh/h	3442	3060	474	1774	3204	362	3548	0	1583	1774	544	1121
Grp Volume(v), veh/h	805	123	127	43	173	179	52	0	13	101	0	52
Grp Sat Flow(s),veh/h/ln	1721	1770	1765	1774	1770	1797	1774	0	1583	1774	0	1665
Q Serve(g_s), s	13.9	2.8	2.9	1.4	5.4	5.5	0.8	0.0	0.5	3.4	0.0	1.8
Cycle Q Clear(g_c), s	13.9	2.8	2.9	1.4	5.4	5.5	0.8	0.0	0.5	3.4	0.0	1.8
Prop In Lane	1.00		0.27	1.00		0.20	1.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	922	695	693	135	355	361	423	0	189	152	0	142
V/C Ratio(X)	0.87	0.18	0.18	0.32	0.49	0.50	0.12	0.00	0.07	0.67	0.00	0.37
Avail Cap(c_a), veh/h	1068	1044	1041	257	751	763	1426	0	637	827	0	776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	12.3	12.4	27.2	22.0	22.1	24.5	0.0	24.3	27.6	0.0	26.8
Incr Delay (d2), s/veh	6.6	0.4	0.5	0.5	3.7	3.8	0.0	0.0	0.1	1.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	1.5	1.5	0.7	3.0	3.1	0.4	0.0	0.2	1.8	0.0	0.9
LnGrp Delay(d),s/veh	28.3	12.8	12.8	27.7	25.8	25.8	24.5	0.0	24.4	29.4	0.0	27.4
LnGrp LOS	C	B	B	C	C	C	C		C	C		C
Approach Vol, veh/h		1055			395			65			153	
Approach Delay, s/veh		24.6			26.0			24.5			28.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.4	29.8		10.4	21.4	17.9		12.5
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 9	36.7		29.0	* 19	26.4		25.0
Max Q Clear Time (g_c+I1), s	3.4	4.9		5.4	15.9	7.5		2.8
Green Ext Time (p_c), s	0.0	3.7		0.3	0.8	4.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	25.3
HCM 2010 LOS	C

Notes

APPENDIX F

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING + CUMULATIVE PROJECTS + PROJECT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	456	867	98	147	979	232	100	636	185	230	650	303
Future Volume (veh/h)	456	867	98	147	979	232	100	636	185	230	650	303
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	496	942	107	160	1064	252	109	691	201	250	707	329
Adj No. of Lanes	2	3	0	2	3	1	2	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	564	1718	195	226	1388	570	171	804	234	314	1203	794
Arrive On Green	0.16	0.37	0.37	0.07	0.27	0.27	0.05	0.30	0.30	0.09	0.34	0.34
Sat Flow, veh/h	3442	4627	524	3442	5085	1560	3442	2693	783	3442	3539	1572
Grp Volume(v), veh/h	496	689	360	160	1064	252	109	454	438	250	707	329
Grp Sat Flow(s),veh/h/ln	1721	1695	1761	1721	1695	1560	1721	1770	1706	1721	1770	1572
Q Serve(g_s), s	14.6	16.7	16.7	4.7	20.0	12.7	3.2	25.1	25.1	7.4	17.1	13.6
Cycle Q Clear(g_c), s	14.6	16.7	16.7	4.7	20.0	12.7	3.2	25.1	25.1	7.4	17.1	13.6
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	564	1259	654	226	1388	570	171	528	509	314	1203	794
V/C Ratio(X)	0.88	0.55	0.55	0.71	0.77	0.44	0.64	0.86	0.86	0.80	0.59	0.41
Avail Cap(c_a), veh/h	614	1454	755	348	1789	693	481	623	600	348	1203	794
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.4	25.7	25.8	47.5	34.7	25.0	48.4	34.3	34.4	46.2	28.2	16.2
Incr Delay (d2), s/veh	13.2	0.4	0.7	4.1	1.5	0.5	3.9	10.3	10.7	11.1	0.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	7.8	8.2	2.4	9.6	5.5	1.6	13.7	13.3	4.0	8.5	6.0
LnGrp Delay(d),s/veh	55.5	26.1	26.5	51.6	36.2	25.5	52.2	44.7	45.1	57.3	29.0	16.5
LnGrp LOS	E	C	C	D	D	C	D	D	D	E	C	B
Approach Vol, veh/h		1545			1476			1001			1286	
Approach Delay, s/veh		35.7			36.0			45.7			31.3	
Approach LOS		D			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	43.0	9.7	39.8	21.5	32.8	14.0	35.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	44.5	14.5	32.5	18.5	36.5	10.5	36.5
Max Q Clear Time (g_c+I1), s	6.7	18.7	5.2	19.1	16.6	22.0	9.4	27.1
Green Ext Time (p_c), s	0.1	6.5	0.2	4.6	0.4	6.4	0.1	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	36.6
HCM 2010 LOS	D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	60	111	620	104	339	711
Future Volume (veh/h)	60	111	620	104	339	711
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	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	1900	1863	1863
Adj Flow Rate, veh/h	65	121	674	113	368	773
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	354	575	984	165	462	2441
Arrive On Green	0.10	0.10	0.33	0.33	0.26	0.69
Sat Flow, veh/h	3442	1583	3112	506	1774	3632
Grp Volume(v), veh/h	65	121	395	392	368	773
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1755	1774	1770
Q Serve(g_s), s	0.7	2.3	8.4	8.4	8.4	3.8
Cycle Q Clear(g_c), s	0.7	2.3	8.4	8.4	8.4	3.8
Prop In Lane	1.00	1.00		0.29	1.00	
Lane Grp Cap(c), veh/h	354	575	577	572	462	2441
V/C Ratio(X)	0.18	0.21	0.68	0.69	0.80	0.32
Avail Cap(c_a), veh/h	1823	1251	897	889	1287	4728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	9.5	12.7	12.7	15.0	2.7
Incr Delay (d2), s/veh	0.2	0.2	1.4	1.5	3.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.0	4.3	4.3	4.5	1.7
LnGrp Delay(d),s/veh	18.0	9.7	14.1	14.2	18.2	2.7
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	186		787			1141
Approach Delay, s/veh	12.6		14.2			7.7
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.8	18.6				34.4		9.0
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	31.5	22.0				58.0		23.0
Max Q Clear Time (g_c+I1), s	10.4	10.4				5.8		4.3
Green Ext Time (p_c), s	1.0	3.5				5.7		0.5

Intersection Summary		
HCM 2010 Ctrl Delay		10.6
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	581	182	103	140	264	292	27	11	25	339	68	469
Future Volume (veh/h)	581	182	103	140	264	292	27	11	25	339	68	469
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	632	198	112	152	287	317	29	12	27	368	0	559
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	598	1028	557	185	409	359	49	28	64	355	0	722
Arrive On Green	0.34	0.46	0.46	0.10	0.23	0.23	0.03	0.06	0.06	0.20	0.00	0.23
Sat Flow, veh/h	1774	2217	1200	1774	1770	1554	1774	509	1145	1774	0	3158
Grp Volume(v), veh/h	632	156	154	152	287	317	29	0	39	368	0	559
Grp Sat Flow(s),veh/h/ln	1774	1770	1648	1774	1770	1554	1774	0	1653	1774	0	1579
Q Serve(g_s), s	34.5	5.3	5.6	8.6	15.2	20.2	1.7	0.0	2.3	20.5	0.0	17.0
Cycle Q Clear(g_c), s	34.5	5.3	5.6	8.6	15.2	20.2	1.7	0.0	2.3	20.5	0.0	17.0
Prop In Lane	1.00		0.73	1.00		1.00	1.00		0.69	1.00		1.00
Lane Grp Cap(c), veh/h	598	821	764	185	409	359	49	0	92	355	0	722
V/C Ratio(X)	1.06	0.19	0.20	0.82	0.70	0.88	0.60	0.00	0.42	1.04	0.00	0.77
Avail Cap(c_a), veh/h	598	821	764	321	450	395	108	0	339	355	0	1090
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.9	16.1	16.2	44.9	36.1	38.0	49.2	0.0	46.7	40.9	0.0	37.0
Incr Delay (d2), s/veh	52.6	0.1	0.1	8.7	4.4	19.2	11.1	0.0	3.1	57.1	0.0	2.0
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	25.5	2.6	2.6	4.7	7.9	10.5	1.0	0.0	1.2	15.6	0.0	7.6
LnGrp Delay(d),s/veh	86.5	16.2	16.3	53.6	40.5	57.2	60.3	0.0	49.8	98.0	0.0	39.0
LnGrp LOS	F	B	B	D	D	E	E		D	F		D
Approach Vol, veh/h		942			756			68			927	
Approach Delay, s/veh		63.4			50.1			54.3			62.4	
Approach LOS		E			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.2	52.0	7.3	27.9	39.0	28.1	25.0	10.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	42.0	6.2	35.3	34.5	26.0	20.5	21.0
Max Q Clear Time (g_c+I1), s	10.6	7.6	3.7	19.0	36.5	22.2	22.5	4.3
Green Ext Time (p_c), s	0.2	1.7	0.0	2.1	0.0	1.4	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	59.1
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	43	261	149	38	40	378	972	116	48	1299	91
Future Volume (veh/h)	26	43	261	149	38	40	378	972	116	48	1299	91
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		0.99	1.00		0.98	1.00		0.98	1.00		0.98
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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	28	47	284	162	41	43	411	1057	126	52	1412	99
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	219	489	200	93	98	410	1722	751	67	1433	631
Arrive On Green	0.19	0.19	0.19	0.11	0.11	0.11	0.12	0.49	0.49	0.04	0.40	0.40
Sat Flow, veh/h	683	1146	1566	1774	826	867	3442	3539	1544	1774	3539	1558
Grp Volume(v), veh/h	75	0	284	162	0	84	411	1057	126	52	1412	99
Grp Sat Flow(s),veh/h/ln	1829	0	1566	1774	0	1693	1721	1770	1544	1774	1770	1558
Q Serve(g_s), s	3.6	0.0	16.0	9.4	0.0	4.9	12.5	23.0	4.8	3.1	41.5	4.2
Cycle Q Clear(g_c), s	3.6	0.0	16.0	9.4	0.0	4.9	12.5	23.0	4.8	3.1	41.5	4.2
Prop In Lane	0.37		1.00	1.00		0.51	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	0	489	200	0	191	410	1722	751	67	1433	631
V/C Ratio(X)	0.21	0.00	0.58	0.81	0.00	0.44	1.00	0.61	0.17	0.78	0.99	0.16
Avail Cap(c_a), veh/h	505	0	621	304	0	290	410	1722	751	105	1433	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	0.0	30.5	45.4	0.0	43.4	46.2	19.7	15.1	50.1	30.9	19.8
Incr Delay (d2), s/veh	0.3	0.0	1.1	9.2	0.0	1.6	45.1	1.6	0.5	17.5	20.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	7.0	5.1	0.0	2.4	8.5	11.6	2.1	1.8	24.3	1.9
LnGrp Delay(d),s/veh	36.1	0.0	31.6	54.6	0.0	45.0	91.4	21.4	15.6	67.6	51.4	20.4
LnGrp LOS	D		C	D		D	F	C	B	E	D	C
Approach Vol, veh/h		359			246			1594			1563	
Approach Delay, s/veh		32.5			51.3			39.0			50.0	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.4	55.6		24.6	17.0	47.0		16.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	6.2	48.8		29.0	12.5	42.5		18.0
Max Q Clear Time (g_c+I1), s	5.1	25.0		18.0	14.5	43.5		11.4
Green Ext Time (p_c), s	0.0	8.6		1.1	0.0	0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	43.7
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	165	480	469	335	408	275	899	974	48	1169	412
Future Volume (veh/h)	42	165	480	469	335	408	275	899	974	48	1169	412
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		0.98	1.00		0.98
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	46	179	522	510	364	443	299	977	1059	52	1271	448
Adj No. of Lanes	2	2	1	2	1	1	2	3	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	581	433	573	552	520	375	2384	1747	125	1402	617
Arrive On Green	0.03	0.16	0.16	0.17	0.30	0.30	0.11	0.47	0.47	0.04	0.40	0.40
Sat Flow, veh/h	3442	3539	1583	3442	1863	1562	3442	5085	2736	3442	3539	1558
Grp Volume(v), veh/h	46	179	522	510	364	443	299	977	1059	52	1271	448
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1863	1562	1721	1695	1368	1721	1770	1558
Q Serve(g_s), s	1.4	4.9	18.0	15.9	18.7	29.0	9.3	13.8	25.2	1.6	37.1	26.7
Cycle Q Clear(g_c), s	1.4	4.9	18.0	15.9	18.7	29.0	9.3	13.8	25.2	1.6	37.1	26.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	118	581	433	573	552	520	375	2384	1747	125	1402	617
V/C Ratio(X)	0.39	0.31	1.21	0.89	0.66	0.85	0.80	0.41	0.61	0.42	0.91	0.73
Avail Cap(c_a), veh/h	157	581	433	612	552	520	612	2384	1747	477	1453	640
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	40.3	39.8	44.7	33.7	34.1	47.7	19.1	11.9	51.7	31.2	28.1
Incr Delay (d2), s/veh	2.1	0.3	113.1	14.5	2.9	12.8	3.9	0.1	0.6	2.2	8.4	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.4	26.6	8.7	10.0	14.3	4.6	6.4	9.6	0.8	19.6	12.2
LnGrp Delay(d),s/veh	53.9	40.6	152.9	59.2	36.6	46.8	51.6	19.3	12.5	53.9	39.6	32.0
LnGrp LOS	D	D	F	E	D	D	D	B	B	D	D	C
Approach Vol, veh/h		747			1317			2335			1771	
Approach Delay, s/veh		119.9			48.8			20.3			38.1	
Approach LOS		F			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	55.9	22.8	22.5	16.4	47.9	8.3	37.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.2	49.3	19.5	18.0	19.5	45.0	5.0	32.5
Max Q Clear Time (g_c+I1), s	3.6	27.2	17.9	20.0	11.3	39.1	3.4	31.0
Green Ext Time (p_c), s	0.1	12.7	0.4	0.0	0.7	4.3	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	43.5
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	834	249	0	1352	1615	0		
Future Volume (veh/h)	834	249	0	1352	1615	0		
Number	7	14	5	2	6	16		
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	0	1863	1863	0		
Adj Flow Rate, veh/h	907	271	0	1470	1755	0		
Adj No. of Lanes	2	1	0	4	5	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	0	2	2	0		
Cap, veh/h	1147	528	0	2419	2848	0		
Arrive On Green	0.33	0.33	0.00	0.38	0.38	0.00		
Sat Flow, veh/h	3442	1583	0	6929	8252	0		
Grp Volume(v), veh/h	907	271	0	1470	1755	0		
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0		
Q Serve(g_s), s	10.6	6.1	0.0	8.3	8.4	0.0		
Cycle Q Clear(g_c), s	10.6	6.1	0.0	8.3	8.4	0.0		
Prop In Lane	1.00	1.00	0.00			0.00		
Lane Grp Cap(c), veh/h	1147	528	0	2419	2848	0		
V/C Ratio(X)	0.79	0.51	0.00	0.61	0.62	0.00		
Avail Cap(c_a), veh/h	1922	884	0	3190	3756	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	13.5	12.0	0.0	11.2	11.3	0.0		
Incr Delay (d2), s/veh	0.5	0.3	0.0	0.1	0.1	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	5.1	2.7	0.0	3.6	3.4	0.0		
LnGrp Delay(d),s/veh	13.9	12.2	0.0	11.3	11.3	0.0		
LnGrp LOS	B	B		B	B			
Approach Vol, veh/h	1178			1470	1755			
Approach Delay, s/veh	13.5			11.3	11.3			
Approach LOS	B			B	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		23.6		21.0		23.6		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		22.2		24.9		22.2		
Max Q Clear Time (g_c+I1), s		10.3		12.6		10.4		
Green Ext Time (p_c), s		5.8		2.2		6.4		
Intersection Summary								
HCM 2010 Ctrl Delay			11.9					
HCM 2010 LOS			B					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	680	397	340	405	33	808	100	257	55	91	60
Future Volume (veh/h)	158	680	397	340	405	33	808	100	257	55	91	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	172	739	432	370	440	36	956	0	279	60	99	65
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	828	804	413	770	63	992	0	442	123	207	140
Arrive On Green	0.12	0.23	0.23	0.12	0.23	0.23	0.28	0.00	0.28	0.13	0.13	0.13
Sat Flow, veh/h	1774	3539	1543	3442	3314	270	3548	0	1583	915	1540	1041
Grp Volume(v), veh/h	172	739	432	370	234	242	956	0	279	119	0	105
Grp Sat Flow(s),veh/h/ln	1774	1770	1543	1721	1770	1815	1774	0	1583	1817	0	1679
Q Serve(g_s), s	8.4	18.0	16.9	9.4	10.4	10.5	23.7	0.0	13.7	5.4	0.0	5.1
Cycle Q Clear(g_c), s	8.4	18.0	16.9	9.4	10.4	10.5	23.7	0.0	13.7	5.4	0.0	5.1
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	0.50		0.62
Lane Grp Cap(c), veh/h	216	828	804	413	411	422	992	0	442	244	0	225
V/C Ratio(X)	0.80	0.89	0.54	0.90	0.57	0.57	0.96	0.00	0.63	0.49	0.00	0.47
Avail Cap(c_a), veh/h	219	862	818	413	425	436	992	0	442	245	0	226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.1	33.0	14.6	38.6	30.3	30.3	31.7	0.0	28.1	35.7	0.0	35.6
Incr Delay (d2), s/veh	16.7	10.9	0.3	20.8	1.0	1.0	20.2	0.0	2.2	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	10.1	10.6	5.7	5.2	5.4	14.3	0.0	6.3	2.8	0.0	2.4
LnGrp Delay(d),s/veh	54.8	43.9	15.0	59.5	31.3	31.3	51.9	0.0	30.3	36.3	0.0	36.2
LnGrp LOS	D	D	B	E	C	C	D		C	D		D
Approach Vol, veh/h		1343			846			1235			224	
Approach Delay, s/veh		36.0			43.6			47.0			36.2	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.4	26.6		17.1	15.5	26.5		30.0
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 11	21.7		12.0	* 11	21.4		24.9
Max Q Clear Time (g_c+I1), s	11.4	20.0		7.4	10.4	12.5		25.7
Green Ext Time (p_c), s	0.0	0.8		0.3	0.0	1.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	159	76	56	142	15	186	57	1137	267	811	1685	109
Future Volume (veh/h)	159	76	56	142	15	186	57	1137	267	811	1685	109
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		0.97
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	173	83	61	154	16	202	62	1236	290	882	1832	118
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	146	107	157	220	591	80	1328	311	878	2599	167
Arrive On Green	0.12	0.15	0.15	0.09	0.12	0.12	0.04	0.32	0.32	0.26	0.53	0.53
Sat Flow, veh/h	1774	997	733	1774	1863	1583	1774	4113	965	3442	4875	313
Grp Volume(v), veh/h	173	0	144	154	16	202	62	1019	507	882	1272	678
Grp Sat Flow(s),veh/h/ln	1774	0	1730	1774	1863	1583	1774	1695	1687	1721	1695	1798
Q Serve(g_s), s	9.2	0.0	7.4	8.3	0.7	8.8	3.3	27.9	27.9	24.5	26.9	27.1
Cycle Q Clear(g_c), s	9.2	0.0	7.4	8.3	0.7	8.8	3.3	27.9	27.9	24.5	26.9	27.1
Prop In Lane	1.00		0.42	1.00		1.00	1.00		0.57	1.00		0.17
Lane Grp Cap(c), veh/h	207	0	253	157	220	591	80	1094	545	878	1807	958
V/C Ratio(X)	0.84	0.00	0.57	0.98	0.07	0.34	0.78	0.93	0.93	1.00	0.70	0.71
Avail Cap(c_a), veh/h	272	0	504	157	423	763	102	1094	545	878	1807	958
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	0.0	38.2	43.7	37.7	21.6	45.4	31.5	31.5	35.8	16.8	16.8
Incr Delay (d2), s/veh	15.8	0.0	2.0	65.8	0.1	0.3	24.9	15.0	24.8	31.5	2.3	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	3.7	6.9	0.4	3.9	2.2	15.3	16.7	15.4	13.1	14.5
LnGrp Delay(d),s/veh	57.3	0.0	40.2	109.5	37.8	22.0	70.3	46.4	56.3	67.2	19.1	21.2
LnGrp LOS	E		D	F	D	C	E	D	E	F	B	C
Approach Vol, veh/h		317			372			1588			2832	
Approach Delay, s/veh		49.5			58.9			50.5			34.6	
Approach LOS		D			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.0	35.5	13.0	18.5	8.8	55.7	15.7	15.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	24.5	31.0	8.5	28.0	5.5	50.0	14.7	21.8
Max Q Clear Time (g_c+I1), s	26.5	29.9	10.3	9.4	5.3	29.1	11.2	10.8
Green Ext Time (p_c), s	0.0	0.9	0.0	0.7	0.0	14.5	0.1	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	42.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	742	199	31	40	291	33	42	8	12	93	16	32
Future Volume (veh/h)	742	199	31	40	291	33	42	8	12	93	16	32
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	807	216	34	43	316	36	52	0	13	101	17	35
Adj No. of Lanes	2	2	0	1	2	0	2	0	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	924	1203	186	135	643	73	423	0	189	152	47	96
Arrive On Green	0.27	0.39	0.39	0.08	0.20	0.20	0.12	0.00	0.12	0.09	0.09	0.09
Sat Flow, veh/h	3442	3060	474	1774	3204	362	3548	0	1583	1774	544	1121
Grp Volume(v), veh/h	807	123	127	43	173	179	52	0	13	101	0	52
Grp Sat Flow(s),veh/h/ln	1721	1770	1765	1774	1770	1797	1774	0	1583	1774	0	1665
Q Serve(g_s), s	13.9	2.8	2.9	1.4	5.4	5.5	0.8	0.0	0.5	3.4	0.0	1.8
Cycle Q Clear(g_c), s	13.9	2.8	2.9	1.4	5.4	5.5	0.8	0.0	0.5	3.4	0.0	1.8
Prop In Lane	1.00		0.27	1.00		0.20	1.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	924	696	694	135	355	361	423	0	189	152	0	142
V/C Ratio(X)	0.87	0.18	0.18	0.32	0.49	0.50	0.12	0.00	0.07	0.67	0.00	0.37
Avail Cap(c_a), veh/h	1067	1043	1040	257	751	762	1425	0	636	827	0	776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	12.3	12.3	27.2	22.0	22.1	24.5	0.0	24.3	27.6	0.0	26.9
Incr Delay (d2), s/veh	6.7	0.4	0.5	0.5	3.7	3.8	0.0	0.0	0.1	1.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	1.5	1.5	0.7	3.0	3.1	0.4	0.0	0.2	1.8	0.0	0.9
LnGrp Delay(d),s/veh	28.4	12.8	12.8	27.7	25.8	25.9	24.5	0.0	24.4	29.5	0.0	27.4
LnGrp LOS	C	B	B	C	C	C	C		C	C		C
Approach Vol, veh/h		1057			395			65			153	
Approach Delay, s/veh		24.7			26.0			24.5			28.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.4	29.9		10.4	21.4	17.9		12.5
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 9	36.7		29.0	* 19	26.4		25.0
Max Q Clear Time (g_c+I1), s	3.4	4.9		5.4	15.9	7.5		2.8
Green Ext Time (p_c), s	0.0	3.7		0.3	0.8	4.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	25.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	376	1316	164	211	1310	284	131	723	176	330	701	415
Future Volume (veh/h)	376	1316	164	211	1310	284	131	723	176	330	701	415
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	409	1430	178	229	1424	309	142	786	191	359	762	451
Adj No. of Lanes	2	3	0	2	3	1	2	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	452	1667	207	275	1593	669	201	818	199	391	1223	744
Arrive On Green	0.13	0.36	0.36	0.08	0.31	0.31	0.06	0.29	0.29	0.11	0.35	0.35
Sat Flow, veh/h	3442	4574	569	3442	5085	1562	3442	2817	684	3442	3539	1550
Grp Volume(v), veh/h	409	1060	548	229	1424	309	142	494	483	359	762	451
Grp Sat Flow(s),veh/h/ln	1721	1695	1752	1721	1695	1562	1721	1770	1732	1721	1770	1550
Q Serve(g_s), s	13.9	34.3	34.4	7.8	31.7	16.8	4.8	32.6	32.6	12.3	21.3	25.5
Cycle Q Clear(g_c), s	13.9	34.3	34.4	7.8	31.7	16.8	4.8	32.6	32.6	12.3	21.3	25.5
Prop In Lane	1.00		0.32	1.00		1.00	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	452	1236	639	275	1593	669	201	514	503	391	1223	744
V/C Ratio(X)	0.91	0.86	0.86	0.83	0.89	0.46	0.71	0.96	0.96	0.92	0.62	0.61
Avail Cap(c_a), veh/h	452	1270	656	275	1644	685	385	514	503	391	1223	744
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.9	34.9	34.9	53.9	38.9	24.3	54.9	41.5	41.5	52.1	32.4	22.9
Incr Delay (d2), s/veh	21.5	5.9	10.8	19.1	6.6	0.5	4.5	29.9	30.3	26.2	1.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	17.1	18.5	4.5	15.7	7.3	2.4	20.2	19.8	7.3	10.5	11.2
LnGrp Delay(d),s/veh	72.4	40.8	45.7	72.9	45.5	24.8	59.4	71.4	71.8	78.4	33.4	24.3
LnGrp LOS	E	D	D	E	D	C	E	E	E	E	C	C
Approach Vol, veh/h		2017			1962			1119			1572	
Approach Delay, s/veh		48.6			45.5			70.1			41.1	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	47.8	11.4	45.6	20.1	41.7	18.0	39.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	44.5	13.3	34.7	15.6	38.4	13.5	34.5
Max Q Clear Time (g_c+I1), s	9.8	36.4	6.8	27.5	15.9	33.7	14.3	34.6
Green Ext Time (p_c), s	0.0	5.4	0.2	3.6	0.0	3.5	0.0	0.0

Intersection Summary			
HCM 2010 Ctrl Delay			49.5
HCM 2010 LOS			D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	70	203	772	81	212	681
Future Volume (veh/h)	70	203	772	81	212	681
Number	3	18	2	12	1	6
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	1900	1863	1863
Adj Flow Rate, veh/h	76	221	839	88	230	740
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	571	529	1219	128	298	2271
Arrive On Green	0.17	0.17	0.38	0.38	0.17	0.64
Sat Flow, veh/h	3442	1583	3326	339	1774	3632
Grp Volume(v), veh/h	76	221	459	468	230	740
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1802	1774	1770
Q Serve(g_s), s	0.9	5.1	10.2	10.2	5.8	4.4
Cycle Q Clear(g_c), s	0.9	5.1	10.2	10.2	5.8	4.4
Prop In Lane	1.00	1.00		0.19	1.00	
Lane Grp Cap(c), veh/h	571	529	668	680	298	2271
V/C Ratio(X)	0.13	0.42	0.69	0.69	0.77	0.33
Avail Cap(c_a), veh/h	1699	1048	1237	1259	785	4379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	12.1	12.3	12.3	18.6	3.8
Incr Delay (d2), s/veh	0.1	0.5	1.3	1.3	4.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.2	5.2	5.3	3.2	2.1
LnGrp Delay(d),s/veh	16.7	12.6	13.5	13.5	22.8	3.9
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	297		927			970
Approach Delay, s/veh	13.6		13.5			8.4
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.4	22.2				34.5		12.3
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	20.7	32.7				57.9		23.1
Max Q Clear Time (g_c+I1), s	7.8	12.2				6.4		7.1
Green Ext Time (p_c), s	0.5	5.4				5.3		0.9

Intersection Summary		
HCM 2010 Ctrl Delay		11.3
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	518	376	51	66	386	338	116	60	49	325	24	658
Future Volume (veh/h)	518	376	51	66	386	338	116	60	49	325	24	658
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	563	409	55	72	420	367	126	65	53	353	0	732
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	510	1436	192	92	397	345	153	142	115	327	0	788
Arrive On Green	0.29	0.46	0.46	0.05	0.22	0.22	0.09	0.15	0.15	0.18	0.00	0.25
Sat Flow, veh/h	1774	3130	418	1774	1781	1547	1774	942	768	1774	0	3167
Grp Volume(v), veh/h	563	230	234	72	417	370	126	0	118	353	0	732
Grp Sat Flow(s),veh/h/ln	1774	1770	1778	1774	1770	1559	1774	0	1711	1774	0	1583
Q Serve(g_s), s	33.5	9.4	9.6	4.7	26.0	26.0	8.1	0.0	7.3	21.5	0.0	26.3
Cycle Q Clear(g_c), s	33.5	9.4	9.6	4.7	26.0	26.0	8.1	0.0	7.3	21.5	0.0	26.3
Prop In Lane	1.00		0.24	1.00		0.99	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	510	812	816	92	395	348	153	0	257	327	0	788
V/C Ratio(X)	1.10	0.28	0.29	0.78	1.06	1.06	0.83	0.00	0.46	1.08	0.00	0.93
Avail Cap(c_a), veh/h	510	812	816	158	395	348	187	0	308	327	0	821
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.5	19.6	19.7	54.6	45.3	45.3	52.4	0.0	45.2	47.5	0.0	42.8
Incr Delay (d2), s/veh	71.3	0.2	0.2	13.2	61.0	65.9	21.3	0.0	1.3	72.2	0.0	16.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.4	4.6	4.7	2.6	19.3	17.5	4.9	0.0	3.6	17.0	0.0	13.3
LnGrp Delay(d),s/veh	112.8	19.8	19.8	67.8	106.2	111.1	73.7	0.0	46.5	119.7	0.0	59.2
LnGrp LOS	F	B	B	E	F	F	E		D	F		E
Approach Vol, veh/h		1027			859			244			1085	
Approach Delay, s/veh		70.8			105.1			60.5			78.9	
Approach LOS		E			F			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	57.9	14.5	33.5	38.0	30.5	26.0	22.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.4	49.1	12.3	30.2	33.5	26.0	21.5	21.0
Max Q Clear Time (g_c+I1), s	6.7	11.6	10.1	28.3	35.5	28.0	23.5	9.3
Green Ext Time (p_c), s	0.0	2.6	0.1	0.7	0.0	0.0	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	81.9
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	43	397	117	54	89	538	1946	176	40	1397	109
Future Volume (veh/h)	71	43	397	117	54	89	538	1946	176	40	1397	109
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		1.00	1.00		0.98	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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	77	47	432	127	59	97	585	2115	191	43	1518	118
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	134	552	190	68	112	547	1925	841	55	1472	649
Arrive On Green	0.20	0.20	0.20	0.11	0.11	0.11	0.16	0.54	0.54	0.03	0.42	0.42
Sat Flow, veh/h	1122	685	1532	1774	635	1044	3442	3539	1547	1774	3539	1560
Grp Volume(v), veh/h	124	0	432	127	0	156	585	2115	191	43	1518	118
Grp Sat Flow(s),veh/h/ln	1807	0	1532	1774	0	1679	1721	1770	1547	1774	1770	1560
Q Serve(g_s), s	8.8	0.0	29.0	10.2	0.0	13.5	23.5	80.4	9.5	3.6	61.5	7.1
Cycle Q Clear(g_c), s	8.8	0.0	29.0	10.2	0.0	13.5	23.5	80.4	9.5	3.6	61.5	7.1
Prop In Lane	0.62		1.00	1.00		0.62	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	354	0	552	190	0	180	547	1925	841	55	1472	649
V/C Ratio(X)	0.35	0.00	0.78	0.67	0.00	0.87	1.07	1.10	0.23	0.78	1.03	0.18
Avail Cap(c_a), veh/h	354	0	552	216	0	204	547	1925	841	60	1472	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	0.0	42.8	63.5	0.0	65.0	62.2	33.7	17.6	71.1	43.2	27.3
Incr Delay (d2), s/veh	0.6	0.0	7.2	6.5	0.0	28.0	58.3	53.2	0.6	44.0	31.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	16.9	5.4	0.0	7.7	15.5	53.3	4.2	2.4	36.4	3.2
LnGrp Delay(d),s/veh	51.9	0.0	50.0	69.9	0.0	93.0	120.5	86.9	18.2	115.1	75.0	27.9
LnGrp LOS	D		D	E		F	F	F	B	F	F	C
Approach Vol, veh/h		556			283			2891			1679	
Approach Delay, s/veh		50.4			82.6			89.2			72.7	
Approach LOS		D			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.1	84.9		33.5	28.0	66.0		20.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	80.0		29.0	23.5	61.5		18.0
Max Q Clear Time (g_c+I1), s	5.6	82.4		31.0	25.5	63.5		15.5
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	79.7
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	256	512	542	556	437	345	1714	755	93	1425	400
Future Volume (veh/h)	123	256	512	542	556	437	345	1714	755	93	1425	400
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		0.98	1.00		0.98	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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	134	278	557	589	604	475	375	1863	821	101	1549	435
Adj No. of Lanes	2	2	1	2	1	1	2	3	2	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	639	464	640	598	567	387	2234	1723	151	1312	579
Arrive On Green	0.05	0.18	0.18	0.19	0.32	0.32	0.11	0.44	0.44	0.04	0.37	0.37
Sat Flow, veh/h	3442	3539	1583	3442	1863	1552	3442	5085	2741	3442	3539	1561
Grp Volume(v), veh/h	134	278	557	589	604	475	375	1863	821	101	1549	435
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1863	1552	1721	1695	1371	1721	1770	1561
Q Serve(g_s), s	4.6	8.4	21.7	20.2	38.5	33.6	13.0	38.9	19.2	3.5	44.5	29.2
Cycle Q Clear(g_c), s	4.6	8.4	21.7	20.2	38.5	33.6	13.0	38.9	19.2	3.5	44.5	29.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	639	464	640	598	567	387	2234	1723	151	1312	579
V/C Ratio(X)	0.85	0.43	1.20	0.92	1.01	0.84	0.97	0.83	0.48	0.67	1.18	0.75
Avail Cap(c_a), veh/h	158	639	464	651	598	567	387	2234	1723	152	1312	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.8	43.7	42.4	48.0	40.8	34.9	53.0	29.8	12.0	56.5	37.8	32.9
Incr Delay (d2), s/veh	33.1	0.5	109.2	18.3	39.5	10.6	37.4	2.9	0.2	10.5	89.3	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	4.1	29.4	11.2	26.3	16.1	8.2	18.7	7.2	1.9	38.0	13.4
LnGrp Delay(d),s/veh	89.9	44.2	151.6	66.2	80.3	45.5	90.4	32.6	12.2	67.0	127.0	38.4
LnGrp LOS	F	D	F	E	F	D	F	C	B	E	F	D
Approach Vol, veh/h		969			1668			3059			2085	
Approach Delay, s/veh		112.3			65.4			34.2			105.6	
Approach LOS		F			E			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	57.2	26.8	26.2	18.0	49.0	10.0	43.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.3	52.7	22.7	21.3	13.5	44.5	5.5	38.5
Max Q Clear Time (g_c+I1), s	5.5	40.9	22.2	23.7	15.0	46.5	6.6	40.5
Green Ext Time (p_c), s	0.0	10.3	0.2	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	69.8
HCM 2010 LOS	E

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	760	415	0	2034	2107	0		
Future Volume (veh/h)	760	415	0	2034	2107	0		
Number	7	14	5	2	6	16		
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	0	1863	1863	0		
Adj Flow Rate, veh/h	826	451	0	2211	2290	0		
Adj No. of Lanes	2	1	0	4	5	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	0	2	2	0		
Cap, veh/h	1143	526	0	2774	3266	0		
Arrive On Green	0.33	0.33	0.00	0.43	0.43	0.00		
Sat Flow, veh/h	3442	1583	0	6929	8252	0		
Grp Volume(v), veh/h	826	451	0	2211	2290	0		
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0		
Q Serve(g_s), s	11.6	14.6	0.0	16.4	13.6	0.0		
Cycle Q Clear(g_c), s	11.6	14.6	0.0	16.4	13.6	0.0		
Prop In Lane	1.00	1.00	0.00			0.00		
Lane Grp Cap(c), veh/h	1143	526	0	2774	3266	0		
V/C Ratio(X)	0.72	0.86	0.00	0.80	0.70	0.00		
Avail Cap(c_a), veh/h	1372	631	0	2939	3460	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	16.1	17.1	0.0	13.5	12.7	0.0		
Incr Delay (d2), s/veh	1.1	8.6	0.0	1.4	0.5	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	5.6	7.5	0.0	7.5	5.7	0.0		
LnGrp Delay(d),s/veh	17.2	25.7	0.0	14.9	13.2	0.0		
LnGrp LOS	B	C		B	B			
Approach Vol, veh/h	1277			2211	2290			
Approach Delay, s/veh	20.2			14.9	13.2			
Approach LOS	C			B	B			
Timer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		30.6		24.4		30.6		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		25.2		21.9		25.2		
Max Q Clear Time (g_c+I1), s		18.4		16.6		15.6		
Green Ext Time (p_c), s		5.4		1.6		7.1		
Intersection Summary								
HCM 2010 Ctrl Delay			15.4					
HCM 2010 LOS			B					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	577	381	399	612	22	847	63	103	69	76	79
Future Volume (veh/h)	147	577	381	399	612	22	847	63	103	69	76	79
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	160	627	414	434	665	24	970	0	112	75	83	86
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	756	777	480	807	29	993	0	443	140	157	167
Arrive On Green	0.12	0.21	0.21	0.14	0.23	0.23	0.28	0.00	0.28	0.13	0.13	0.13
Sat Flow, veh/h	1774	3539	1563	3442	3483	126	3548	0	1583	1041	1168	1244
Grp Volume(v), veh/h	160	627	414	434	338	351	970	0	112	130	0	114
Grp Sat Flow(s),veh/h/ln	1774	1770	1563	1721	1770	1839	1774	0	1583	1811	0	1643
Q Serve(g_s), s	7.8	15.1	16.2	11.0	16.1	16.1	24.1	0.0	4.9	6.0	0.0	5.7
Cycle Q Clear(g_c), s	7.8	15.1	16.2	11.0	16.1	16.1	24.1	0.0	4.9	6.0	0.0	5.7
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	0.57		0.76
Lane Grp Cap(c), veh/h	215	756	777	480	410	426	993	0	443	244	0	221
V/C Ratio(X)	0.74	0.83	0.53	0.90	0.82	0.82	0.98	0.00	0.25	0.54	0.00	0.51
Avail Cap(c_a), veh/h	219	796	794	480	426	442	993	0	443	244	0	222
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.8	33.4	15.5	37.7	32.5	32.5	31.8	0.0	24.8	35.9	0.0	35.8
Incr Delay (d2), s/veh	11.1	6.5	0.3	20.0	11.2	10.9	22.9	0.0	0.1	1.2	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	8.0	10.2	6.6	9.2	9.5	14.9	0.0	2.1	3.1	0.0	2.6
LnGrp Delay(d),s/veh	48.9	40.0	15.8	57.8	43.6	43.3	54.7	0.0	24.9	37.1	0.0	36.7
LnGrp LOS	D	D	B	E	D	D	D		C	D		D
Approach Vol, veh/h		1201			1123			1082			244	
Approach Delay, s/veh		32.8			49.0			51.6			36.9	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.1	24.8		17.1	15.5	26.4		30.0
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 12	20.0		12.0	* 11	21.4		24.9
Max Q Clear Time (g_c+I1), s	13.0	18.2		8.0	9.8	18.1		26.1
Green Ext Time (p_c), s	0.0	0.8		0.3	0.0	0.9		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		43.6
HCM 2010 LOS		D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	74	44	197	27	690	72	1793	337	1259	1892	218
Future Volume (veh/h)	138	74	44	197	27	690	72	1793	337	1259	1892	218
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		0.98	1.00		0.99	1.00		0.97	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	150	80	48	214	29	750	78	1949	366	1368	2057	237
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	156	94	168	261	658	98	1539	282	954	2679	304
Arrive On Green	0.10	0.14	0.14	0.09	0.14	0.14	0.06	0.36	0.36	0.28	0.58	0.58
Sat Flow, veh/h	1774	1085	651	1774	1863	1562	1774	4301	789	3442	4621	525
Grp Volume(v), veh/h	150	0	128	214	29	750	78	1526	789	1368	1502	792
Grp Sat Flow(s),veh/h/ln	1774	0	1736	1774	1863	1562	1774	1695	1700	1721	1695	1756
Q Serve(g_s), s	11.9	0.0	9.7	13.5	1.9	20.0	6.2	51.0	51.0	39.5	47.6	49.3
Cycle Q Clear(g_c), s	11.9	0.0	9.7	13.5	1.9	20.0	6.2	51.0	51.0	39.5	47.6	49.3
Prop In Lane	1.00		0.38	1.00		1.00	1.00		0.46	1.00		0.30
Lane Grp Cap(c), veh/h	175	0	250	168	261	658	98	1213	608	954	1966	1018
V/C Ratio(X)	0.86	0.00	0.51	1.27	0.11	1.14	0.80	1.26	1.30	1.43	0.76	0.78
Avail Cap(c_a), veh/h	268	0	341	168	261	658	123	1213	608	954	1966	1018
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.3	0.0	56.4	64.5	53.5	41.6	66.6	45.8	45.8	51.5	22.6	22.9
Incr Delay (d2), s/veh	15.6	0.0	1.6	161.3	0.2	80.5	24.5	123.0	145.6	201.5	1.8	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	0.0	4.8	14.1	1.0	40.5	3.7	44.5	48.4	45.4	22.6	24.9
LnGrp Delay(d),s/veh	78.8	0.0	58.0	225.8	53.7	122.1	91.1	168.8	191.4	253.1	24.4	26.8
LnGrp LOS	E		E	F	D	F	F	F	F	F	C	C
Approach Vol, veh/h		278			993			2393			3662	
Approach Delay, s/veh		69.2			142.4			173.7			110.4	
Approach LOS		E			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	44.0	55.5	18.0	25.0	12.3	87.2	18.5	24.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	39.5	51.0	13.5	28.0	9.9	80.6	21.5	20.0
Max Q Clear Time (g_c+I1), s	41.5	53.0	15.5	11.7	8.2	51.3	13.9	22.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.6	0.0	21.9	0.2	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	133.8
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	899	386	91	169	507	79	184	55	78	116	36	38
Future Volume (veh/h)	899	386	91	169	507	79	184	55	78	116	36	38
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	977	420	99	184	551	86	130	158	85	126	39	41
Adj No. of Lanes	2	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1055	1196	279	220	732	114	234	245	203	178	83	88
Arrive On Green	0.31	0.42	0.42	0.12	0.24	0.24	0.13	0.13	0.13	0.10	0.10	0.10
Sat Flow, veh/h	3442	2836	662	1774	3062	476	1774	1863	1538	1774	830	873
Grp Volume(v), veh/h	977	261	258	184	318	319	130	158	85	126	0	80
Grp Sat Flow(s),veh/h/ln	1721	1770	1728	1774	1770	1769	1774	1863	1538	1774	0	1703
Q Serve(g_s), s	25.1	9.1	9.3	9.3	15.2	15.3	6.3	7.4	4.6	6.3	0.0	4.1
Cycle Q Clear(g_c), s	25.1	9.1	9.3	9.3	15.2	15.3	6.3	7.4	4.6	6.3	0.0	4.1
Prop In Lane	1.00		0.38	1.00		0.27	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	1055	746	729	220	423	423	234	245	203	178	0	171
V/C Ratio(X)	0.93	0.35	0.35	0.84	0.75	0.76	0.56	0.64	0.42	0.71	0.00	0.47
Avail Cap(c_a), veh/h	1141	746	729	446	492	491	485	509	421	563	0	540
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.7	17.9	18.0	39.1	32.3	32.3	37.2	37.7	36.5	39.8	0.0	38.8
Incr Delay (d2), s/veh	11.6	1.0	1.1	3.2	10.0	10.2	0.8	1.1	0.5	1.9	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.6	4.6	4.7	4.7	8.6	8.7	3.1	3.8	2.0	3.2	0.0	1.9
LnGrp Delay(d),s/veh	42.3	18.9	19.0	42.3	42.2	42.5	38.0	38.7	37.0	41.7	0.0	39.6
LnGrp LOS	D	B	B	D	D	D	D	D	D	D		D
Approach Vol, veh/h		1496			821			373			206	
Approach Delay, s/veh		34.2			42.4			38.1			40.9	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.1	43.9		14.3	32.7	27.3		17.1
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 23	32.7		29.0	* 30	25.4		25.0
Max Q Clear Time (g_c+I1), s	11.3	11.3		8.3	27.1	17.3		9.4
Green Ext Time (p_c), s	0.2	7.2		0.4	0.9	4.4		0.8

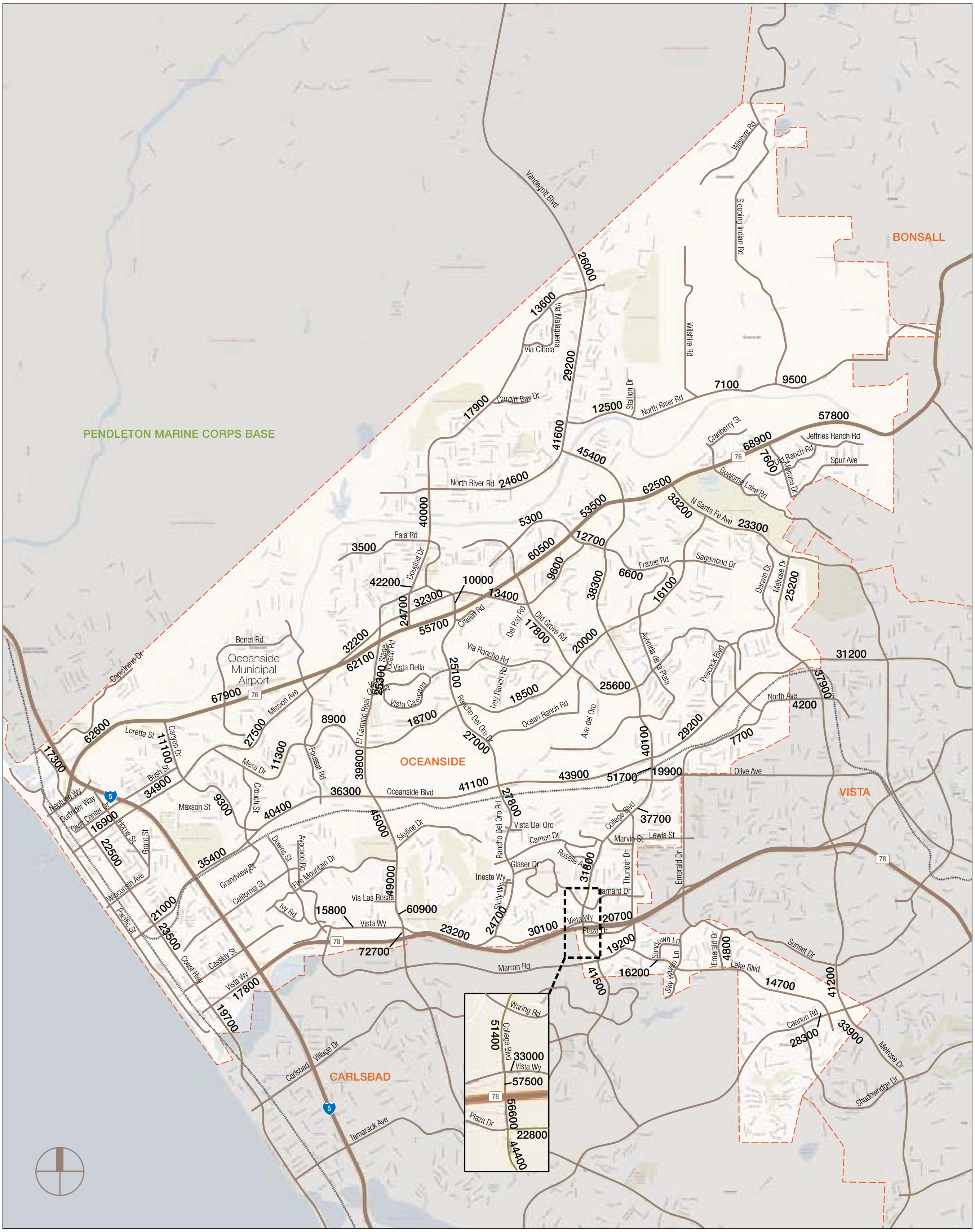
Intersection Summary		
HCM 2010 Ctrl Delay		37.5
HCM 2010 LOS		D

Notes

APPENDIX G

PAGES FROM THE CITY OF OCEANSIDE MASTER TRANSPORTATION PLAN (2012) AND PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – YEAR 2030 (WITHOUT RANCHO DEL ORO INTERCHANGE)

PAGES FROM THE CITY OF OCEANSIDE MASTER TRANSPORTATION PLAN (2012)



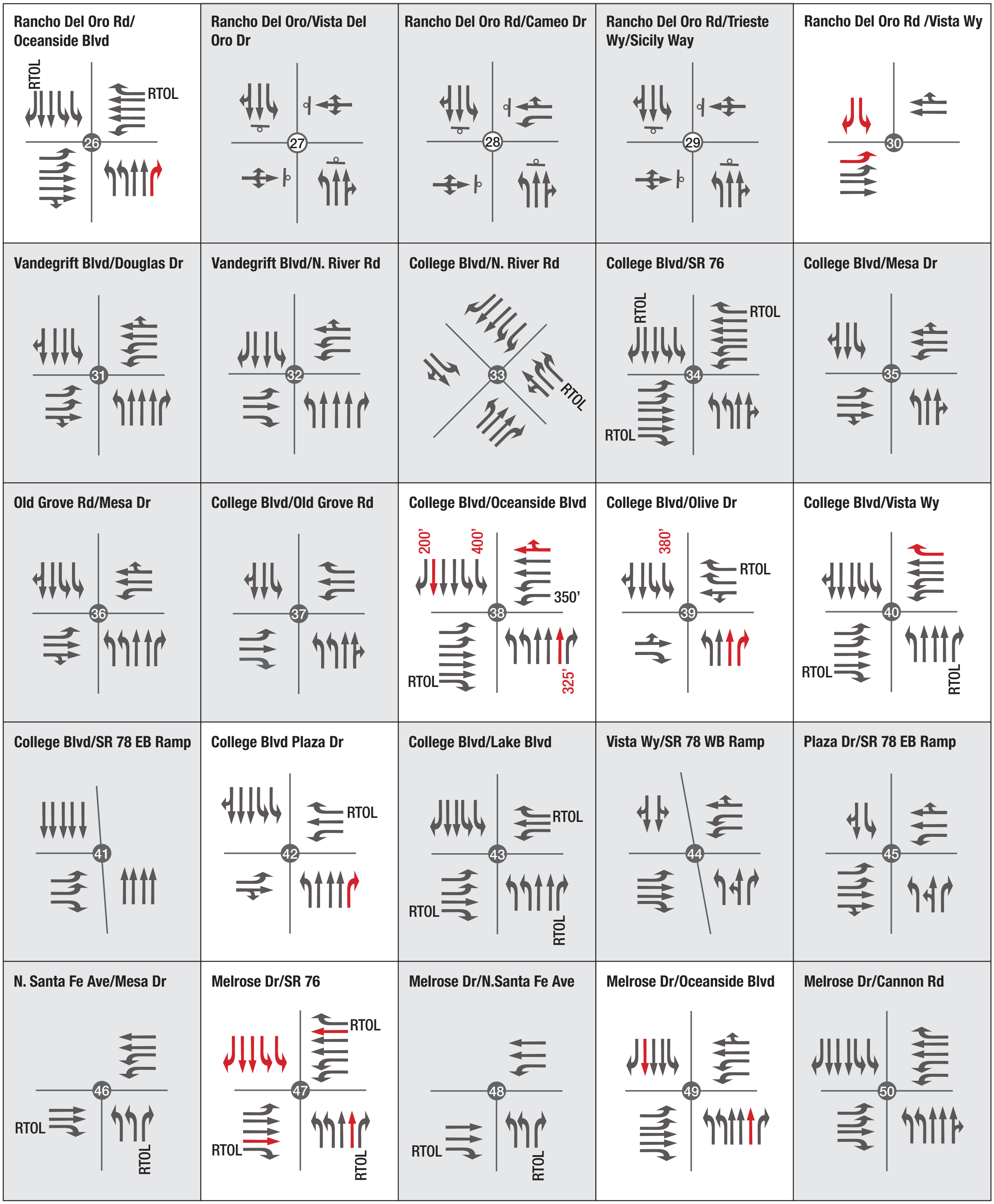
Note: Please refer to Table 9-1 for a complete listing of ADT volumes.

IBI GROUP

City of Oceanside Circulation Element

Alternative 2 Year 2030 Roadway Traffic Volumes

Figure 9.2



LEGEND

NS Street/EW Street

EW

NS

● Study Intersection - Signalized

○ Study Intersection - Unsignalized

\# Study Intersection Number

RTOL Right-turn overlap

Lane Geometry

Stop Sign Control

Unshaded intersection and red coloring indicates a geometric change from the Existing intersection geometry

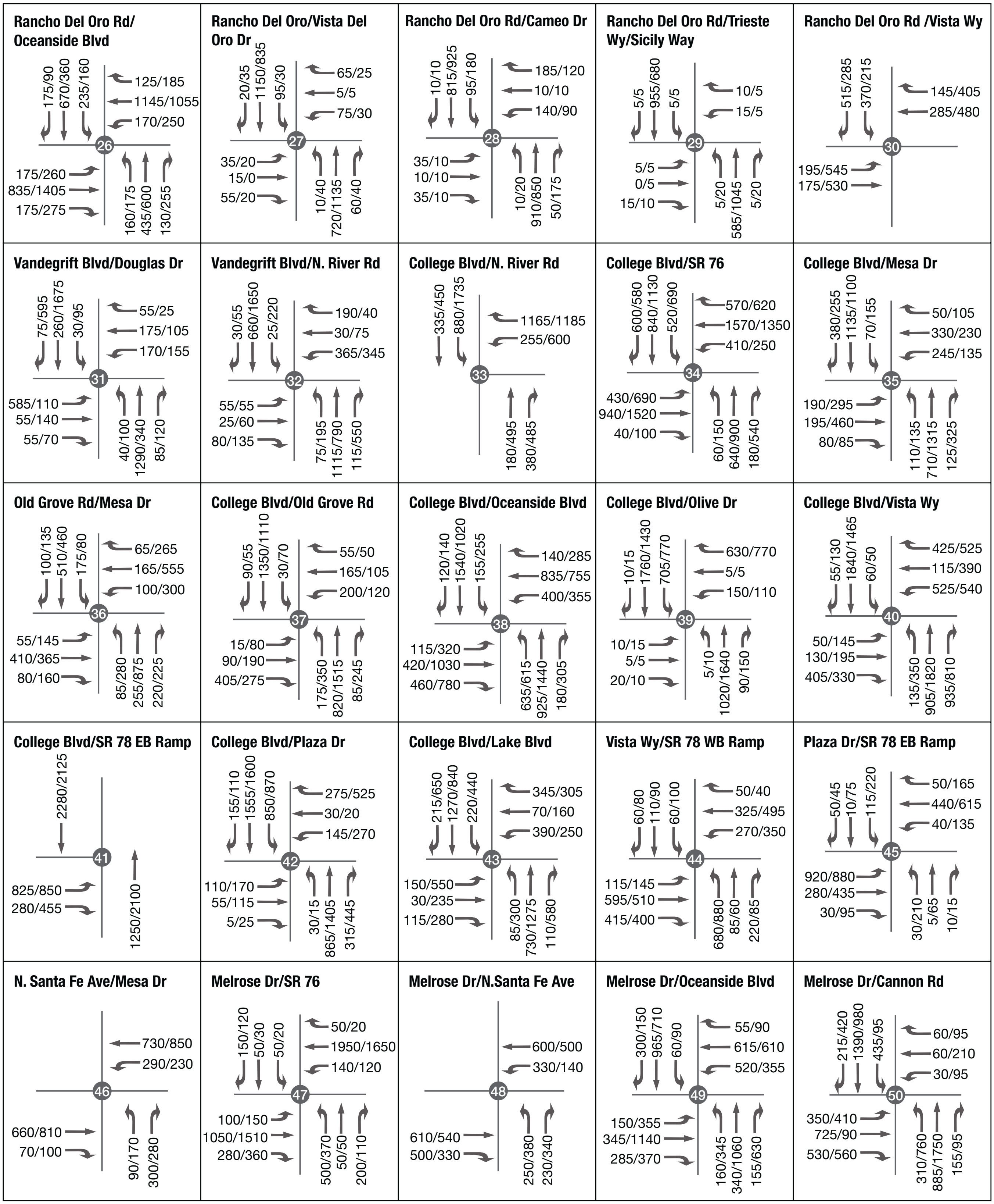
xxx’ Additional feet added to the turn pocket length

IBI GROUP

City of Oceanside Circulation Element

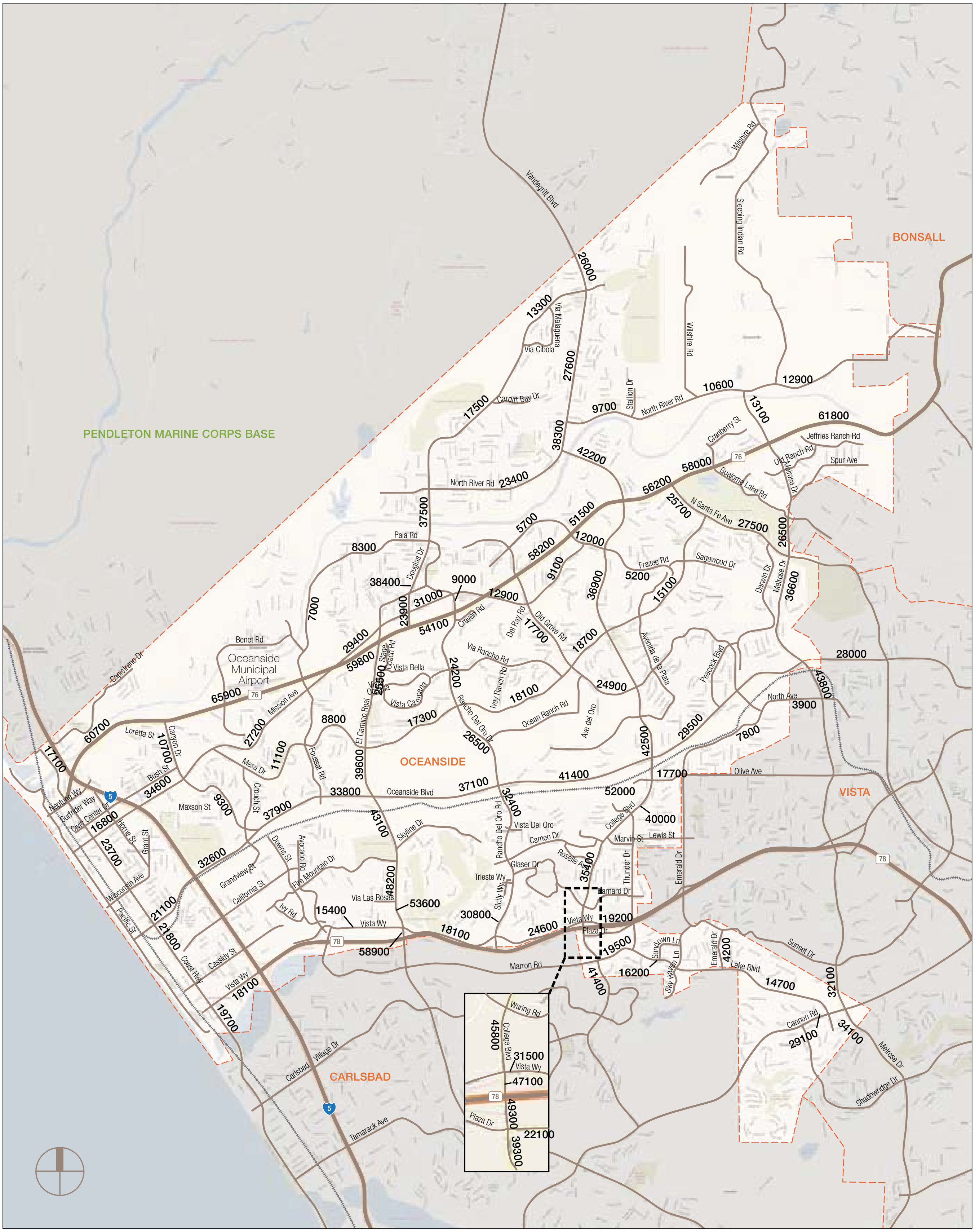
Alternative 2 Year 2030 Intersection Geometry

Figure 9.4



LEGEND: NS Street/EW Street #/# AM/PM Peak Hour Volume
#s Rounded to the Nearest 5th

EW
NS



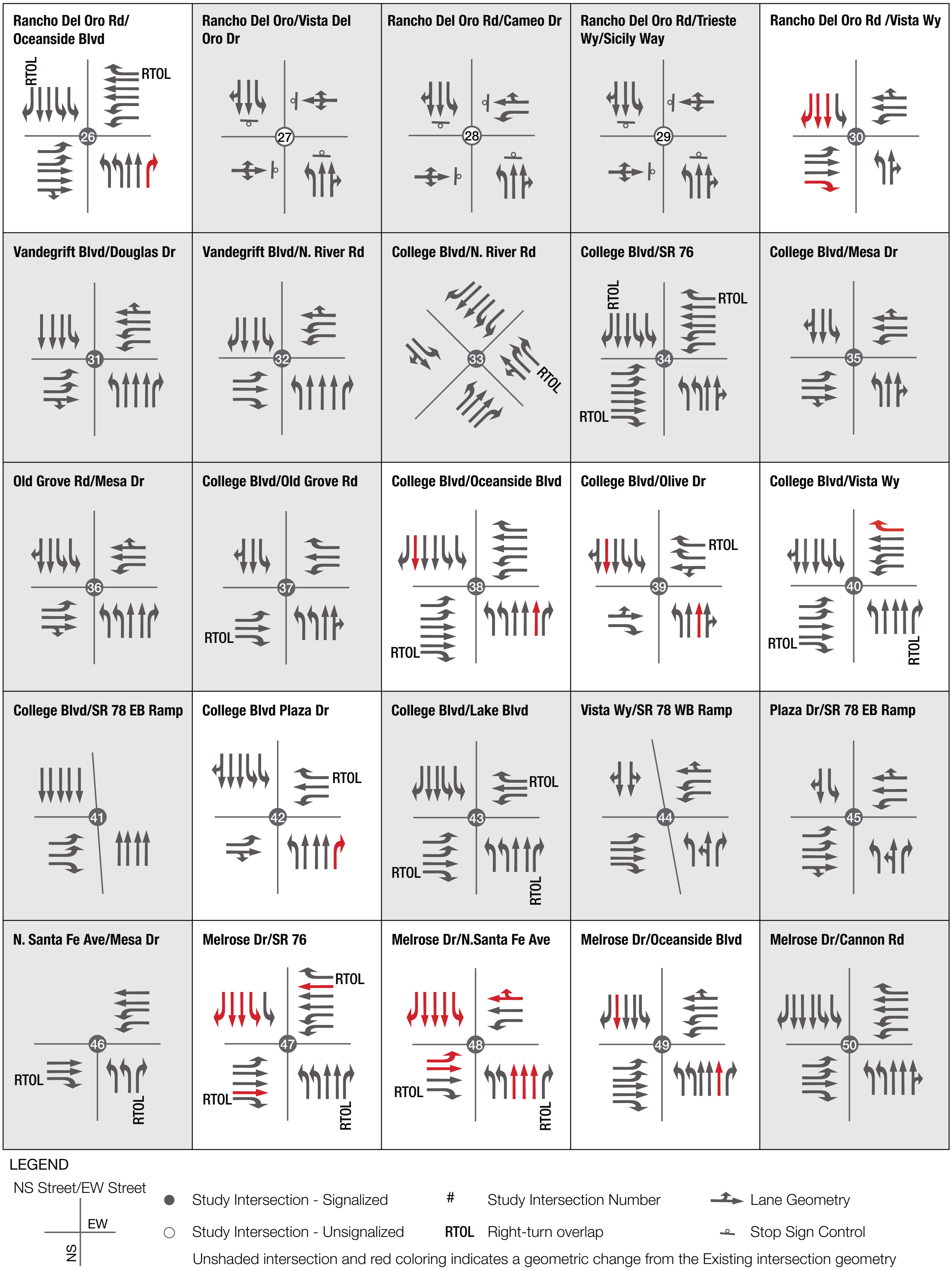
Note: Please refer to Table 7-1 for a complete listing of ADT volumes.

IBI GROUP

City of Oceanside Circulation Element

Modified 1995 CE Year 2030 Roadway Traffic Volumes

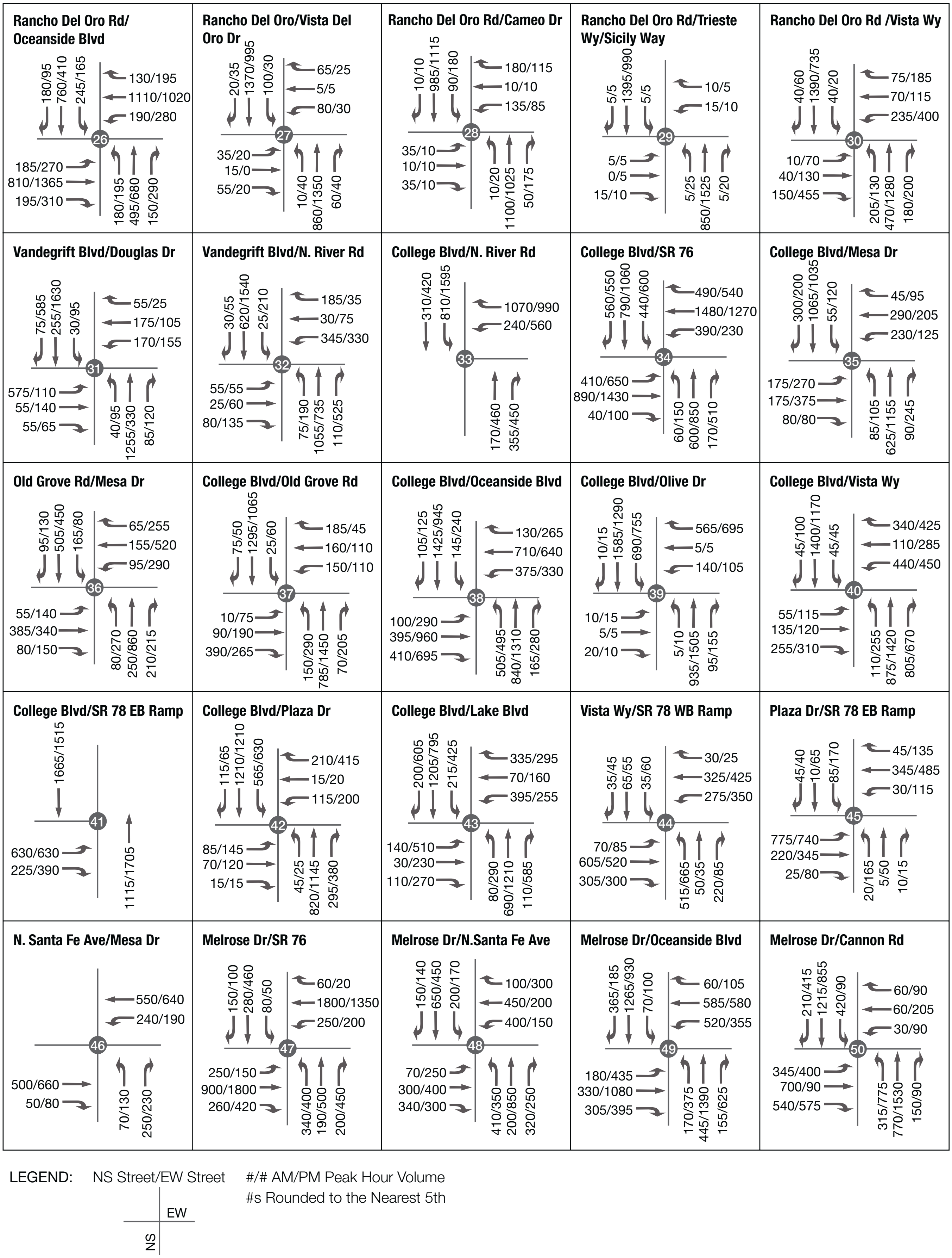
Figure 7.2



City of Oceanside Circulation Element

Modified 1995 CE Year 2030 Intersection Geometry

Figure 7.4



IBI GROUP

City of Oceanside Circulation Element

Modified 1995 CE Volumes Year 2030 AM/PM Peak Hour Volumes

Figure 7.5

INTERSECTION ANALYSIS WORKSHEETS – YEAR 2030 (WITHOUT RANCHO DEL ORO INTERCHANGE)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	835	175	170	1145	125	160	435	130	235	670	175
Future Volume (veh/h)	175	835	175	170	1145	125	160	435	130	235	670	175
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	190	908	190	185	1245	136	174	473	141	255	728	190
Adj No. of Lanes	2	3	0	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	274	1443	301	270	1738	694	265	907	397	350	994	567
Arrive On Green	0.08	0.34	0.34	0.08	0.34	0.34	0.08	0.26	0.26	0.10	0.28	0.28
Sat Flow, veh/h	3442	4207	876	3442	5085	1561	3442	3539	1551	3442	3539	1570
Grp Volume(v), veh/h	190	731	367	185	1245	136	174	473	141	255	728	190
Grp Sat Flow(s),veh/h/ln	1721	1695	1693	1721	1695	1561	1721	1770	1551	1721	1770	1570
Q Serve(g_s), s	4.4	14.7	14.8	4.3	17.4	4.3	4.0	9.4	6.1	5.9	15.2	7.2
Cycle Q Clear(g_c), s	4.4	14.7	14.8	4.3	17.4	4.3	4.0	9.4	6.1	5.9	15.2	7.2
Prop In Lane	1.00		0.52	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	274	1163	581	270	1738	694	265	907	397	350	994	567
V/C Ratio(X)	0.69	0.63	0.63	0.69	0.72	0.20	0.66	0.52	0.35	0.73	0.73	0.33
Avail Cap(c_a), veh/h	443	1649	823	476	2523	935	780	1565	686	628	1409	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	22.5	22.5	36.6	23.4	13.8	36.6	26.1	24.8	35.6	26.6	19.0
Incr Delay (d2), s/veh	3.1	0.6	1.1	3.1	0.6	0.1	2.8	0.5	0.5	2.9	1.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	7.0	7.1	2.1	8.2	1.9	2.0	4.7	2.6	2.9	7.5	3.2
LnGrp Delay(d),s/veh	39.7	23.0	23.6	39.7	24.0	14.0	39.4	26.5	25.4	38.5	27.7	19.3
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	C	B
Approach Vol, veh/h		1288			1566			788			1173	
Approach Delay, s/veh		25.7			25.0			29.2			28.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	32.5	10.8	27.4	11.0	32.4	12.8	25.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.3	39.7	18.5	32.5	10.5	40.5	14.9	36.1
Max Q Clear Time (g_c+I1), s	6.3	16.8	6.0	17.2	6.4	19.4	7.9	11.4
Green Ext Time (p_c), s	0.2	6.7	0.4	4.5	0.2	8.5	0.5	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	26.7
HCM 2010 LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	90	150	550	120	350	700
Future Volume (veh/h)	90	150	550	120	350	700
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	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	1900	1863	1863
Adj Flow Rate, veh/h	98	163	598	130	380	761
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	435	619	898	195	469	2391
Arrive On Green	0.13	0.13	0.31	0.31	0.26	0.68
Sat Flow, veh/h	3442	1583	2969	623	1774	3632
Grp Volume(v), veh/h	98	163	367	361	380	761
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1730	1774	1770
Q Serve(g_s), s	1.2	3.2	8.2	8.2	9.1	4.0
Cycle Q Clear(g_c), s	1.2	3.2	8.2	8.2	9.1	4.0
Prop In Lane	1.00	1.00		0.36	1.00	
Lane Grp Cap(c), veh/h	435	619	552	540	469	2391
V/C Ratio(X)	0.23	0.26	0.67	0.67	0.81	0.32
Avail Cap(c_a), veh/h	1742	1220	1012	990	1074	4517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	9.4	13.6	13.6	15.6	3.0
Incr Delay (d2), s/veh	0.3	0.2	1.4	1.4	3.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.4	4.2	4.1	4.9	1.9
LnGrp Delay(d),s/veh	18.1	9.6	15.0	15.0	19.0	3.1
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	261		728			1141
Approach Delay, s/veh	12.8		15.0			8.4
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.5	18.7				35.2		10.2
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	27.5	26.0				58.0		23.0
Max Q Clear Time (g_c+I1), s	11.1	10.2				6.0		5.2
Green Ext Time (p_c), s	1.0	3.7				5.5		0.8

Intersection Summary		
HCM 2010 Ctrl Delay		11.2
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	175	0	0	285	145	0	0	0	370	0	515
Future Volume (veh/h)	195	175	0	0	285	145	0	0	0	370	0	515
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	212	190	0	0	310	158	0	0	0	402	0	560
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	1571	703	3	496	247	3	111	0	455	1402	626
Arrive On Green	0.15	0.44	0.00	0.00	0.22	0.22	0.00	0.00	0.00	0.26	0.00	0.40
Sat Flow, veh/h	1774	3539	1583	1774	2276	1131	1774	1863	0	1774	3539	1581
Grp Volume(v), veh/h	212	190	0	0	239	229	0	0	0	402	0	560
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1638	1774	1863	0	1774	1770	1581
Q Serve(g_s), s	6.5	1.8	0.0	0.0	6.9	7.1	0.0	0.0	0.0	12.3	0.0	18.6
Cycle Q Clear(g_c), s	6.5	1.8	0.0	0.0	6.9	7.1	0.0	0.0	0.0	12.3	0.0	18.6
Prop In Lane	1.00		1.00	1.00		0.69	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	259	1571	703	3	386	357	3	111	0	455	1402	626
V/C Ratio(X)	0.82	0.12	0.00	0.00	0.62	0.64	0.00	0.00	0.00	0.88	0.00	0.89
Avail Cap(c_a), veh/h	268	1919	859	158	849	786	158	695	0	489	1982	885
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	9.2	0.0	0.0	19.9	20.0	0.0	0.0	0.0	20.1	0.0	15.9
Incr Delay (d2), s/veh	17.4	0.0	0.0	0.0	1.6	1.9	0.0	0.0	0.0	16.6	0.0	8.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.9	0.0	0.0	3.5	3.4	0.0	0.0	0.0	8.0	0.0	9.6
LnGrp Delay(d),s/veh	40.7	9.2	0.0	0.0	21.5	21.9	0.0	0.0	0.0	36.7	0.0	24.6
LnGrp LOS	D	A			C	C				D		C
Approach Vol, veh/h		402			468			0			962	
Approach Delay, s/veh		25.8			21.7			0.0			29.6	
Approach LOS		C			C						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	29.5	0.0	26.8	12.7	16.8	18.9	7.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	30.5	5.0	31.5	8.5	27.0	15.5	21.0
Max Q Clear Time (g_c+I1), s	0.0	3.8	0.0	20.6	8.5	9.1	14.3	0.0
Green Ext Time (p_c), s	0.0	1.0	0.0	1.6	0.0	2.7	0.2	0.0

Intersection Summary			
HCM 2010 Ctrl Delay			26.8
HCM 2010 LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	60	300	180	45	60	390	700	130	60	1300	100
Future Volume (veh/h)	55	60	300	180	45	60	390	700	130	60	1300	100
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		0.99	1.00		0.98	1.00		0.98	1.00		0.98
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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	60	65	326	196	49	65	424	761	141	65	1413	109
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	187	513	221	90	119	442	1764	770	83	1476	650
Arrive On Green	0.20	0.20	0.20	0.12	0.12	0.12	0.13	0.50	0.50	0.05	0.42	0.42
Sat Flow, veh/h	873	946	1567	1774	721	956	3442	3539	1544	1774	3539	1558
Grp Volume(v), veh/h	125	0	326	196	0	114	424	761	141	65	1413	109
Grp Sat Flow(s),veh/h/ln	1819	0	1567	1774	0	1676	1721	1770	1544	1774	1770	1558
Q Serve(g_s), s	8.1	0.0	24.1	14.8	0.0	8.7	16.7	18.7	6.9	4.9	52.8	6.0
Cycle Q Clear(g_c), s	8.1	0.0	24.1	14.8	0.0	8.7	16.7	18.7	6.9	4.9	52.8	6.0
Prop In Lane	0.48		1.00	1.00		0.57	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	360	0	513	221	0	209	442	1764	770	83	1476	650
V/C Ratio(X)	0.35	0.00	0.63	0.89	0.00	0.55	0.96	0.43	0.18	0.78	0.96	0.17
Avail Cap(c_a), veh/h	387	0	536	234	0	221	442	1764	770	152	1492	657
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	0.0	39.1	58.7	0.0	56.1	59.1	21.8	18.9	64.3	38.6	24.9
Incr Delay (d2), s/veh	0.6	0.0	2.3	29.9	0.0	2.5	32.6	0.2	0.1	14.6	14.4	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	4.1	0.0	10.7	9.1	0.0	4.2	10.0	9.1	3.0	2.8	28.7	2.6
LnGrp Delay(d),s/veh	47.7	0.0	41.4	88.7	0.0	58.5	91.7	22.0	19.0	78.9	52.9	25.0
LnGrp LOS	D		D	F		E	F	C	B	E	D	C
Approach Vol, veh/h		451			310			1326			1587	
Approach Delay, s/veh		43.1			77.6			44.0			52.1	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.9	72.5		31.5	22.0	61.4		21.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	11.7	63.3		29.0	17.5	57.5		18.0
Max Q Clear Time (g_c+I1), s	6.9	20.7		26.1	18.7	54.8		16.8
Green Ext Time (p_c), s	0.0	6.6		0.6	0.0	2.0		0.2

Intersection Summary		
HCM 2010 Ctrl Delay		50.2
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	130	405	525	115	425	135	905	935	60	1840	55
Future Volume (veh/h)	50	130	405	525	115	425	135	905	935	60	1840	55
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		0.98	1.00		0.98
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	54	141	440	571	125	462	147	984	1016	65	2000	60
Adj No. of Lanes	2	2	1	2	2	1	2	3	2	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	546	341	636	1075	534	210	2385	1798	130	2260	68
Arrive On Green	0.04	0.15	0.15	0.18	0.30	0.30	0.06	0.47	0.47	0.04	0.45	0.45
Sat Flow, veh/h	3442	3539	1583	3442	3539	1562	3442	5085	2736	3442	5071	152
Grp Volume(v), veh/h	54	141	440	571	125	462	147	984	1016	65	1336	724
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1562	1721	1695	1368	1721	1695	1833
Q Serve(g_s), s	1.8	4.1	18.0	18.9	3.0	32.3	4.9	14.9	23.9	2.2	42.0	42.2
Cycle Q Clear(g_c), s	1.8	4.1	18.0	18.9	3.0	32.3	4.9	14.9	23.9	2.2	42.0	42.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	122	546	341	636	1075	534	210	2385	1798	130	1511	817
V/C Ratio(X)	0.44	0.26	1.29	0.90	0.12	0.87	0.70	0.41	0.57	0.50	0.88	0.89
Avail Cap(c_a), veh/h	159	546	341	694	1096	543	487	2385	1798	758	1570	849
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.1	43.4	45.8	46.5	29.3	35.9	53.7	20.4	11.1	55.0	29.6	29.6
Incr Delay (d2), s/veh	2.5	0.2	151.2	13.8	0.0	13.6	4.2	0.1	0.4	3.0	6.2	10.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.0	25.3	10.2	1.5	15.8	2.5	6.9	9.0	1.1	21.0	23.8
LnGrp Delay(d),s/veh	57.6	43.7	196.9	60.3	29.4	49.5	57.9	20.5	11.5	58.0	35.8	40.5
LnGrp LOS	E	D	F	E	C	D	E	C	B	E	D	D
Approach Vol, veh/h		635			1158			2147			2125	
Approach Delay, s/veh		151.1			52.7			18.8			38.1	
Approach LOS		F			D			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	59.2	26.0	22.5	11.6	56.5	8.6	39.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.7	44.8	23.5	18.0	16.5	54.0	5.4	36.1
Max Q Clear Time (g_c+I1), s	4.2	25.9	20.9	20.0	6.9	44.2	3.8	34.3
Green Ext Time (p_c), s	0.1	11.4	0.6	0.0	0.3	7.7	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	45.9
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	280	825	0	1250	2280	0
Future Volume (veh/h)	280	825	0	1250	2280	0
Number	7	14	5	2	6	16
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	0	1863	1863	0
Adj Flow Rate, veh/h	304	897	0	1359	2478	0
Adj No. of Lanes	2	1	0	4	5	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	1832	843	0	2079	2448	0
Arrive On Green	0.53	0.53	0.00	0.32	0.32	0.00
Sat Flow, veh/h	3442	1583	0	6929	8252	0
Grp Volume(v), veh/h	304	897	0	1359	2478	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0
Q Serve(g_s), s	4.1	47.9	0.0	16.4	29.2	0.0
Cycle Q Clear(g_c), s	4.1	47.9	0.0	16.4	29.2	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	1832	843	0	2079	2448	0
V/C Ratio(X)	0.17	1.06	0.00	0.65	1.01	0.00
Avail Cap(c_a), veh/h	1832	843	0	2079	2448	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.8	21.1	0.0	26.1	30.4	0.0
Incr Delay (d2), s/veh	0.0	49.6	0.0	0.6	21.3	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	1.9	32.2	0.0	7.3	15.0	0.0
LnGrp Delay(d),s/veh	10.8	70.7	0.0	26.7	51.7	0.0
LnGrp LOS	B	F		C	F	
Approach Vol, veh/h	1201			1359	2478	
Approach Delay, s/veh	55.5			26.7	51.7	
Approach LOS	E			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		36.0		54.0		36.0		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		29.2		47.9		29.2		
Max Q Clear Time (g_c+I1), s		18.4		49.9		31.2		
Green Ext Time (p_c), s		5.0		0.0		0.0		

Intersection Summary		
HCM 2010 Ctrl Delay		45.9
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	595	415	270	325	50	680	85	220	60	110	60
Future Volume (veh/h)	115	595	415	270	325	50	680	85	220	60	110	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	125	647	451	293	353	54	805	0	239	65	120	65
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	221	865	784	370	702	106	911	0	407	127	241	135
Arrive On Green	0.12	0.24	0.24	0.11	0.23	0.23	0.26	0.00	0.26	0.14	0.14	0.14
Sat Flow, veh/h	1774	3539	1544	3442	3082	467	3548	0	1583	889	1684	942
Grp Volume(v), veh/h	125	647	451	293	201	206	805	0	239	133	0	117
Grp Sat Flow(s),veh/h/ln	1774	1770	1544	1721	1770	1780	1774	0	1583	1818	0	1697
Q Serve(g_s), s	5.5	14.1	17.2	6.9	8.3	8.4	18.2	0.0	11.0	5.6	0.0	5.3
Cycle Q Clear(g_c), s	5.5	14.1	17.2	6.9	8.3	8.4	18.2	0.0	11.0	5.6	0.0	5.3
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	0.49		0.56
Lane Grp Cap(c), veh/h	221	865	784	370	403	405	911	0	407	260	0	243
V/C Ratio(X)	0.57	0.75	0.58	0.79	0.50	0.51	0.88	0.00	0.59	0.51	0.00	0.48
Avail Cap(c_a), veh/h	234	937	815	424	453	456	1058	0	472	261	0	244
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.4	29.2	14.7	36.3	28.1	28.2	29.8	0.0	27.2	33.1	0.0	32.9
Incr Delay (d2), s/veh	1.5	2.6	0.6	7.3	0.4	0.4	7.4	0.0	0.6	0.7	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	7.1	10.4	3.7	4.1	4.2	9.9	0.0	4.8	2.9	0.0	2.5
LnGrp Delay(d),s/veh	36.0	31.8	15.2	43.7	28.5	28.5	37.2	0.0	27.7	33.8	0.0	33.5
LnGrp LOS	D	C	B	D	C	C	D		C	C		C
Approach Vol, veh/h		1223			700			1044			250	
Approach Delay, s/veh		26.1			34.9			35.0			33.6	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.7	26.2		17.1	15.1	24.8		26.5
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 10	22.1		12.0	* 11	21.4		24.9
Max Q Clear Time (g_c+I1), s	8.9	19.2		7.6	7.5	10.4		20.2
Green Ext Time (p_c), s	0.1	1.2		0.4	0.0	1.1		1.2

Intersection Summary		
HCM 2010 Ctrl Delay		31.5
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	55	5	145	30	275	30	865	315	850	1555	155
Future Volume (veh/h)	110	55	5	145	30	275	30	865	315	850	1555	155
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		0.99	1.00		0.97
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	120	60	5	158	33	299	33	940	342	924	1690	168
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	236	20	185	295	706	54	1418	439	989	2512	249
Arrive On Green	0.09	0.14	0.14	0.10	0.16	0.16	0.03	0.28	0.28	0.29	0.54	0.54
Sat Flow, veh/h	1774	1696	141	1774	1863	1583	1774	5085	1575	3442	4692	465
Grp Volume(v), veh/h	120	0	65	158	33	299	33	940	342	924	1220	638
Grp Sat Flow(s),veh/h/ln	1774	0	1837	1774	1863	1583	1774	1695	1575	1721	1695	1766
Q Serve(g_s), s	6.3	0.0	3.0	8.3	1.4	12.2	1.7	15.5	18.9	24.8	24.7	24.9
Cycle Q Clear(g_c), s	6.3	0.0	3.0	8.3	1.4	12.2	1.7	15.5	18.9	24.8	24.7	24.9
Prop In Lane	1.00		0.08	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	151	0	256	185	295	706	54	1418	439	989	1815	946
V/C Ratio(X)	0.79	0.00	0.25	0.85	0.11	0.42	0.61	0.66	0.78	0.93	0.67	0.67
Avail Cap(c_a), veh/h	281	0	543	185	451	838	96	1418	439	1007	1815	946
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	0.0	36.4	41.7	34.1	17.9	45.3	30.2	31.5	32.9	16.0	16.0
Incr Delay (d2), s/veh	9.0	0.0	0.5	29.6	0.2	0.4	10.4	2.5	12.8	15.0	2.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	1.6	5.6	0.8	5.4	1.0	7.5	9.8	13.7	12.0	13.1
LnGrp Delay(d),s/veh	51.5	0.0	36.9	71.3	34.3	18.3	55.8	32.7	44.2	47.9	18.0	19.8
LnGrp LOS	D		D	E	C	B	E	C	D	D	B	B
Approach Vol, veh/h		185			490			1315			2782	
Approach Delay, s/veh		46.4			36.5			36.3			28.3	
Approach LOS		D			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.7	30.9	14.4	17.7	7.4	55.2	12.6	19.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	27.7	26.4	9.9	28.0	5.1	49.0	15.0	22.9
Max Q Clear Time (g_c+I1), s	26.8	20.9	10.3	5.0	3.7	26.9	8.3	14.2
Green Ext Time (p_c), s	0.4	3.3	0.0	0.3	0.0	14.5	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	32.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	920	280	30	40	440	50	30	5	10	115	10	50
Future Volume (veh/h)	920	280	30	40	440	50	30	5	10	115	10	50
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	1000	304	33	43	478	54	37	0	11	125	11	54
Adj No. of Lanes	2	2	0	1	2	0	2	0	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	934	1441	155	128	799	90	336	0	150	176	27	134
Arrive On Green	0.27	0.45	0.45	0.07	0.25	0.25	0.09	0.00	0.09	0.10	0.10	0.10
Sat Flow, veh/h	3442	3215	346	1774	3206	361	3548	0	1583	1774	275	1350
Grp Volume(v), veh/h	1000	166	171	43	263	269	37	0	11	125	0	65
Grp Sat Flow(s),veh/h/ln	1721	1770	1791	1774	1770	1798	1774	0	1583	1774	0	1625
Q Serve(g_s), s	19.3	4.1	4.1	1.6	9.3	9.4	0.7	0.0	0.5	4.9	0.0	2.7
Cycle Q Clear(g_c), s	19.3	4.1	4.1	1.6	9.3	9.4	0.7	0.0	0.5	4.9	0.0	2.7
Prop In Lane	1.00		0.19	1.00		0.20	1.00		1.00	1.00		0.83
Lane Grp Cap(c), veh/h	934	793	803	128	441	448	336	0	150	176	0	161
V/C Ratio(X)	1.07	0.21	0.21	0.33	0.60	0.60	0.11	0.00	0.07	0.71	0.00	0.40
Avail Cap(c_a), veh/h	934	913	924	224	657	667	1247	0	557	723	0	662
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.9	12.0	12.0	31.4	23.5	23.6	29.4	0.0	29.3	31.0	0.0	30.0
Incr Delay (d2), s/veh	50.3	0.5	0.5	0.6	4.6	4.6	0.1	0.0	0.1	2.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.6	2.1	2.1	0.8	5.1	5.2	0.3	0.0	0.2	2.5	0.0	1.2
LnGrp Delay(d),s/veh	76.2	12.4	12.5	31.9	28.2	28.2	29.5	0.0	29.4	33.0	0.0	30.7
LnGrp LOS	F	B	B	C	C	C	C		C	C		C
Approach Vol, veh/h		1337			575			48			190	
Approach Delay, s/veh		60.1			28.5			29.5			32.2	
Approach LOS		E			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.9	37.3		12.2	24.0	23.1		11.8
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 9	36.7		29.0	* 19	26.4		25.0
Max Q Clear Time (g_c+I1), s	3.6	6.1		6.9	21.3	11.4		2.7
Green Ext Time (p_c), s	0.0	5.1		0.4	0.0	5.9		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	48.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	1405	275	250	1055	185	175	600	255	160	360	90
Future Volume (veh/h)	260	1405	275	250	1055	185	175	600	255	160	360	90
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.97
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	283	1527	299	272	1147	201	190	652	277	174	391	98
Adj No. of Lanes	2	3	0	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	357	1805	352	339	2128	763	254	836	369	238	820	522
Arrive On Green	0.10	0.42	0.42	0.10	0.42	0.42	0.07	0.24	0.24	0.07	0.23	0.23
Sat Flow, veh/h	3442	4261	831	3442	5085	1563	3442	3539	1563	3442	3539	1543
Grp Volume(v), veh/h	283	1213	613	272	1147	201	190	652	277	174	391	98
Grp Sat Flow(s),veh/h/ln	1721	1695	1702	1721	1695	1563	1721	1770	1563	1721	1770	1543
Q Serve(g_s), s	8.4	33.6	33.8	8.1	17.7	7.9	5.7	18.0	17.2	5.2	10.0	4.7
Cycle Q Clear(g_c), s	8.4	33.6	33.8	8.1	17.7	7.9	5.7	18.0	17.2	5.2	10.0	4.7
Prop In Lane	1.00		0.49	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	357	1436	721	339	2128	763	254	836	369	238	820	522
V/C Ratio(X)	0.79	0.84	0.85	0.80	0.54	0.26	0.75	0.78	0.75	0.73	0.48	0.19
Avail Cap(c_a), veh/h	524	1568	787	412	2187	781	307	1088	480	300	1081	636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	27.0	27.1	46.1	22.8	15.7	47.4	37.3	37.0	47.6	34.7	24.6
Incr Delay (d2), s/veh	5.1	4.2	8.2	9.1	0.3	0.2	7.9	2.8	4.7	6.7	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	16.5	17.5	4.3	8.3	3.4	3.0	9.1	7.9	2.7	4.9	2.0
LnGrp Delay(d),s/veh	50.8	31.2	35.3	55.2	23.0	15.9	55.3	40.1	41.7	54.3	35.1	24.8
LnGrp LOS	D	C	D	E	C	B	E	D	D	D	D	C
Approach Vol, veh/h		2109			1620			1119			663	
Approach Delay, s/veh		35.0			27.6			43.1			38.6	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	48.7	12.2	28.7	15.3	48.2	11.7	29.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	48.3	9.3	31.9	15.9	44.9	9.1	32.1
Max Q Clear Time (g_c+I1), s	10.1	35.8	7.7	12.0	10.4	19.7	7.2	20.0
Green Ext Time (p_c), s	0.2	8.4	0.1	2.4	0.4	8.6	0.1	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	34.9
HCM 2010 LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	95	250	750	100	270	500
Future Volume (veh/h)	95	250	750	100	270	500
Number	3	18	2	12	1	6
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	1900	1863	1863
Adj Flow Rate, veh/h	103	272	815	109	293	543
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	635	615	1126	151	362	2290
Arrive On Green	0.18	0.18	0.36	0.36	0.20	0.65
Sat Flow, veh/h	3442	1583	3230	420	1774	3632
Grp Volume(v), veh/h	103	272	460	464	293	543
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1787	1774	1770
Q Serve(g_s), s	1.3	6.8	12.0	12.0	8.4	3.4
Cycle Q Clear(g_c), s	1.3	6.8	12.0	12.0	8.4	3.4
Prop In Lane	1.00	1.00		0.23	1.00	
Lane Grp Cap(c), veh/h	635	615	635	641	362	2290
V/C Ratio(X)	0.16	0.44	0.72	0.72	0.81	0.24
Avail Cap(c_a), veh/h	1488	1008	1057	1067	714	3836
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	12.1	14.8	14.8	20.3	3.9
Incr Delay (d2), s/veh	0.1	0.5	1.6	1.6	4.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.0	6.0	6.1	4.5	1.7
LnGrp Delay(d),s/veh	18.4	12.6	16.4	16.4	24.6	4.0
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	375		924			836
Approach Delay, s/veh	14.2		16.4			11.2
Approach LOS	B		B			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.4	23.7				39.1		14.4
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	21.5	31.9				57.9		23.1
Max Q Clear Time (g_c+I1), s	10.4	14.0				5.4		8.8
Green Ext Time (p_c), s	0.6	5.1				3.7		1.1

Intersection Summary		
HCM 2010 Ctrl Delay		14.0
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	545	530	0	0	480	405	0	0	0	215	0	285
Future Volume (veh/h)	545	530	0	0	480	405	0	0	0	215	0	285
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	592	576	0	0	522	440	0	0	0	234	0	310
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	626	2440	1092	2	526	443	2	42	0	266	773	346
Arrive On Green	0.35	0.69	0.00	0.00	0.29	0.29	0.00	0.00	0.00	0.15	0.00	0.22
Sat Flow, veh/h	1774	3539	1583	1774	1810	1525	1774	1863	0	1774	3539	1583
Grp Volume(v), veh/h	592	576	0	0	510	452	0	0	0	234	0	310
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1565	1774	1863	0	1774	1770	1583
Q Serve(g_s), s	31.7	5.9	0.0	0.0	28.1	28.1	0.0	0.0	0.0	12.6	0.0	18.6
Cycle Q Clear(g_c), s	31.7	5.9	0.0	0.0	28.1	28.1	0.0	0.0	0.0	12.6	0.0	18.6
Prop In Lane	1.00		1.00	1.00		0.97	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	626	2440	1092	2	514	455	2	42	0	266	773	346
V/C Ratio(X)	0.95	0.24	0.00	0.00	0.99	0.99	0.00	0.00	0.00	0.88	0.00	0.90
Avail Cap(c_a), veh/h	677	2440	1092	91	514	455	91	400	0	278	1134	507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.7	5.6	0.0	0.0	34.5	34.5	0.0	0.0	0.0	40.7	0.0	37.1
Incr Delay (d2), s/veh	21.5	0.0	0.0	0.0	37.6	40.1	0.0	0.0	0.0	25.4	0.0	13.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.2	2.9	0.0	0.0	19.0	17.1	0.0	0.0	0.0	8.1	0.0	9.4
LnGrp Delay(d),s/veh	52.2	5.7	0.0	0.0	72.1	74.6	0.0	0.0	0.0	66.1	0.0	50.7
LnGrp LOS	D	A			E	E				E		D
Approach Vol, veh/h		1168			962			0			544	
Approach Delay, s/veh		29.3			73.3			0.0			57.3	
Approach LOS		C			E						E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	71.9	0.0	25.8	39.0	32.9	19.1	6.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	60.7	5.0	31.3	37.3	28.4	15.3	21.0
Max Q Clear Time (g_c+I1), s	0.0	7.9	0.0	20.6	33.7	30.1	14.6	0.0
Green Ext Time (p_c), s	0.0	3.9	0.0	0.8	0.8	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	50.8
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	60	440	130	60	100	550	1850	200	55	1100	120
Future Volume (veh/h)	85	60	440	130	60	100	550	1850	200	55	1100	120
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		1.00	1.00		0.98	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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	92	65	478	141	65	109	598	2011	217	60	1196	130
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	145	584	207	73	122	624	1881	822	66	1372	605
Arrive On Green	0.19	0.19	0.19	0.12	0.12	0.12	0.18	0.53	0.53	0.04	0.39	0.39
Sat Flow, veh/h	1060	749	1531	1774	627	1051	3442	3539	1547	1774	3539	1560
Grp Volume(v), veh/h	157	0	478	141	0	174	598	2011	217	60	1196	130
Grp Sat Flow(s),veh/h/ln	1810	0	1531	1774	0	1677	1721	1770	1547	1774	1770	1560
Q Serve(g_s), s	11.4	0.0	29.0	11.4	0.0	15.3	25.7	79.4	11.4	5.0	46.7	8.3
Cycle Q Clear(g_c), s	11.4	0.0	29.0	11.4	0.0	15.3	25.7	79.4	11.4	5.0	46.7	8.3
Prop In Lane	0.59		1.00	1.00		0.63	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	351	0	584	207	0	195	624	1881	822	66	1372	605
V/C Ratio(X)	0.45	0.00	0.82	0.68	0.00	0.89	0.96	1.07	0.26	0.90	0.87	0.22
Avail Cap(c_a), veh/h	351	0	584	214	0	202	624	1881	822	66	1372	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	0.0	42.3	63.4	0.0	65.1	60.6	35.0	19.1	71.6	42.3	30.6
Incr Delay (d2), s/veh	0.9	0.0	8.9	8.3	0.0	34.6	25.9	42.0	0.8	77.0	7.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	19.3	6.1	0.0	9.0	14.5	49.6	5.1	3.9	24.3	3.7
LnGrp Delay(d),s/veh	54.0	0.0	51.2	71.6	0.0	99.6	86.5	77.0	19.9	148.6	50.2	31.4
LnGrp LOS	D		D	E		F	F	F	B	F	D	C
Approach Vol, veh/h		635			315			2826			1386	
Approach Delay, s/veh		51.9			87.1			74.6			52.7	
Approach LOS		D			F			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	83.9		33.5	31.6	62.4		21.9
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.6	79.4		29.0	27.1	57.9		18.0
Max Q Clear Time (g_c+I1), s	7.0	81.4		31.0	27.7	48.7		17.3
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	5.2		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	66.7
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	195	330	540	390	525	350	1820	810	50	1465	130
Future Volume (veh/h)	145	195	330	540	390	525	350	1820	810	50	1465	130
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		0.98	1.00		0.98	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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	158	212	359	587	424	571	380	1978	880	54	1592	141
Adj No. of Lanes	2	2	1	2	2	1	2	3	2	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	499	426	640	939	464	440	2536	1886	115	1920	170
Arrive On Green	0.06	0.14	0.14	0.19	0.27	0.27	0.13	0.50	0.50	0.03	0.40	0.40
Sat Flow, veh/h	3442	3539	1583	3442	3539	1549	3442	5085	2743	3442	4751	420
Grp Volume(v), veh/h	158	212	359	587	424	571	380	1978	880	54	1135	598
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1549	1721	1695	1371	1721	1695	1781
Q Serve(g_s), s	5.8	7.0	18.0	21.4	12.8	33.9	13.8	40.8	19.0	2.0	38.3	38.4
Cycle Q Clear(g_c), s	5.8	7.0	18.0	21.4	12.8	33.9	13.8	40.8	19.0	2.0	38.3	38.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	213	499	426	640	939	464	440	2536	1886	115	1370	720
V/C Ratio(X)	0.74	0.42	0.84	0.92	0.45	1.23	0.86	0.78	0.47	0.47	0.83	0.83
Avail Cap(c_a), veh/h	310	499	426	668	939	464	526	2536	1886	596	1585	833
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.9	50.1	44.1	51.0	39.2	44.8	54.6	26.3	9.3	60.6	34.1	34.1
Incr Delay (d2), s/veh	5.4	0.6	14.3	17.2	0.3	121.7	12.2	1.6	0.2	3.0	3.4	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	3.5	13.7	11.7	6.3	32.0	7.3	19.4	7.2	1.0	18.5	20.2
LnGrp Delay(d),s/veh	64.3	50.7	58.4	68.1	39.5	166.6	66.8	27.9	9.5	63.6	37.5	40.4
LnGrp LOS	E	D	E	E	D	F	E	C	A	E	D	D
Approach Vol, veh/h		729			1582			3238			1787	
Approach Delay, s/veh		57.5			96.0			27.5			39.2	
Approach LOS		E			F			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	68.2	28.3	22.5	20.8	56.1	12.4	38.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.1	57.1	24.8	18.0	19.5	59.7	11.5	31.3
Max Q Clear Time (g_c+I1), s	4.0	42.8	23.4	20.0	15.8	40.4	7.8	35.9
Green Ext Time (p_c), s	0.1	12.6	0.4	0.0	0.5	11.2	0.2	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	48.1
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	455	850	0	2100	2125	0
Future Volume (veh/h)	455	850	0	2100	2125	0
Number	7	14	5	2	6	16
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	0	1863	1863	0
Adj Flow Rate, veh/h	495	924	0	2283	2310	0
Adj No. of Lanes	2	1	0	4	5	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	1755	808	0	2221	2615	0
Arrive On Green	0.51	0.51	0.00	0.35	0.35	0.00
Sat Flow, veh/h	3442	1583	0	6929	8252	0
Grp Volume(v), veh/h	495	924	0	2283	2310	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0
Q Serve(g_s), s	7.4	45.9	0.0	31.2	26.0	0.0
Cycle Q Clear(g_c), s	7.4	45.9	0.0	31.2	26.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	1755	808	0	2221	2615	0
V/C Ratio(X)	0.28	1.14	0.00	1.03	0.88	0.00
Avail Cap(c_a), veh/h	1755	808	0	2221	2615	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.6	22.0	0.0	29.4	27.7	0.0
Incr Delay (d2), s/veh	0.0	79.4	0.0	26.6	3.8	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	3.5	37.5	0.0	17.8	11.3	0.0
LnGrp Delay(d),s/veh	12.7	101.4	0.0	56.0	31.5	0.0
LnGrp LOS	B	F		F	C	
Approach Vol, veh/h	1419			2283	2310	
Approach Delay, s/veh	70.5			56.0	31.5	
Approach LOS	E			E	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		38.0		52.0		38.0		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		31.2		45.9		31.2		
Max Q Clear Time (g_c+I1), s		33.2		47.9		28.0		
Green Ext Time (p_c), s		0.0		0.0		2.7		

Intersection Summary		
HCM 2010 Ctrl Delay		50.0
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	510	400	350	495	40	880	60	85	100	90	80
Future Volume (veh/h)	145	510	400	350	495	40	880	60	85	100	90	80
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	158	554	435	380	538	43	1003	0	92	109	98	87
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	770	785	453	753	60	999	0	446	170	157	144
Arrive On Green	0.12	0.22	0.22	0.13	0.23	0.23	0.28	0.00	0.28	0.14	0.14	0.14
Sat Flow, veh/h	1774	3539	1563	3442	3317	264	3548	0	1583	1252	1162	1062
Grp Volume(v), veh/h	158	554	435	380	286	295	1003	0	92	157	0	137
Grp Sat Flow(s),veh/h/ln	1774	1770	1563	1721	1770	1812	1774	0	1583	1800	0	1675
Q Serve(g_s), s	7.6	12.8	17.1	9.5	13.2	13.3	24.9	0.0	3.9	7.3	0.0	6.8
Cycle Q Clear(g_c), s	7.6	12.8	17.1	9.5	13.2	13.3	24.9	0.0	3.9	7.3	0.0	6.8
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	0.70		0.63
Lane Grp Cap(c), veh/h	216	770	785	453	402	412	999	0	446	244	0	227
V/C Ratio(X)	0.73	0.72	0.55	0.84	0.71	0.72	1.00	0.00	0.21	0.64	0.00	0.60
Avail Cap(c_a), veh/h	221	776	788	506	428	438	999	0	446	244	0	227
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.4	32.1	15.4	37.5	31.5	31.5	31.8	0.0	24.2	36.2	0.0	36.0
Incr Delay (d2), s/veh	10.0	2.8	0.5	9.9	4.2	4.2	29.5	0.0	0.1	4.4	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	6.5	10.6	5.2	6.9	7.1	16.2	0.0	1.7	3.9	0.0	3.4
LnGrp Delay(d),s/veh	47.5	34.9	15.9	47.4	35.7	35.8	61.3	0.0	24.3	40.6	0.0	39.2
LnGrp LOS	D	C	B	D	D	D	F		C	D		D
Approach Vol, veh/h		1147			961			1095			294	
Approach Delay, s/veh		29.4			40.4			58.2			40.0	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.3	25.0		17.1	15.5	25.9		30.0
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 13	19.4		12.0	* 11	21.4		24.9
Max Q Clear Time (g_c+I1), s	11.5	19.1		9.3	9.6	15.3		26.9
Green Ext Time (p_c), s	0.1	0.1		0.3	0.0	1.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	42.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	115	25	270	20	525	15	1405	445	870	1600	110
Future Volume (veh/h)	170	115	25	270	20	525	15	1405	445	870	1600	110
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		0.98	1.00		0.99	1.00		0.97	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	185	125	27	293	22	571	16	1527	484	946	1739	120
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	200	43	250	292	616	29	1828	555	807	2801	193
Arrive On Green	0.12	0.14	0.14	0.14	0.16	0.16	0.02	0.36	0.36	0.23	0.58	0.58
Sat Flow, veh/h	1774	1480	320	1774	1863	1562	1774	5085	1544	3442	4851	334
Grp Volume(v), veh/h	185	0	152	293	22	571	16	1527	484	946	1214	645
Grp Sat Flow(s),veh/h/ln	1774	0	1800	1774	1863	1562	1774	1695	1544	1721	1695	1795
Q Serve(g_s), s	14.2	0.0	11.0	19.5	1.4	21.7	1.2	38.1	40.5	32.5	32.7	32.8
Cycle Q Clear(g_c), s	14.2	0.0	11.0	19.5	1.4	21.7	1.2	38.1	40.5	32.5	32.7	32.8
Prop In Lane	1.00		0.18	1.00		1.00	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	212	0	243	250	292	616	29	1828	555	807	1958	1036
V/C Ratio(X)	0.87	0.00	0.62	1.17	0.08	0.93	0.54	0.84	0.87	1.17	0.62	0.62
Avail Cap(c_a), veh/h	330	0	364	250	292	616	72	1909	579	807	1958	1036
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	0.0	56.6	59.5	49.9	40.4	67.6	40.6	41.4	53.0	19.3	19.3
Incr Delay (d2), s/veh	14.6	0.0	2.6	112.0	0.1	20.3	14.7	3.3	13.3	90.3	0.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	5.7	17.3	0.7	24.3	0.7	18.4	19.4	25.5	15.3	16.4
LnGrp Delay(d),s/veh	74.6	0.0	59.2	171.5	50.0	60.6	82.3	43.9	54.7	143.3	19.9	20.4
LnGrp LOS	E		E	F	D	E	F	D	D	F	B	C
Approach Vol, veh/h		337			886			2027			2805	
Approach Delay, s/veh		67.6			97.0			46.8			61.6	
Approach LOS		E			F			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	37.0	54.3	24.0	23.2	6.8	84.5	21.0	26.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	32.5	52.0	19.5	28.0	5.6	78.9	25.8	21.7
Max Q Clear Time (g_c+I1), s	34.5	42.5	21.5	13.0	3.2	34.8	16.2	23.7
Green Ext Time (p_c), s	0.0	7.3	0.0	0.6	0.0	21.5	0.3	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	62.2
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	880	435	95	135	615	165	210	65	15	220	75	45
Future Volume (veh/h)	880	435	95	135	615	165	210	65	15	220	75	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	957	473	103	147	668	179	150	181	16	239	82	49
Adj No. of Lanes	2	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	963	1293	280	175	736	197	223	234	193	278	171	102
Arrive On Green	0.28	0.45	0.45	0.10	0.27	0.27	0.13	0.13	0.13	0.16	0.16	0.16
Sat Flow, veh/h	3442	2882	623	1774	2751	737	1774	1863	1537	1774	1092	653
Grp Volume(v), veh/h	957	289	287	147	430	417	150	181	16	239	0	131
Grp Sat Flow(s),veh/h/ln	1721	1770	1736	1774	1770	1718	1774	1863	1537	1774	0	1745
Q Serve(g_s), s	33.0	12.8	13.0	9.7	28.0	28.0	9.6	11.2	1.1	15.6	0.0	8.2
Cycle Q Clear(g_c), s	33.0	12.8	13.0	9.7	28.0	28.0	9.6	11.2	1.1	15.6	0.0	8.2
Prop In Lane	1.00		0.36	1.00		0.43	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	963	794	779	175	473	459	223	234	193	278	0	273
V/C Ratio(X)	0.99	0.36	0.37	0.84	0.91	0.91	0.67	0.77	0.08	0.86	0.00	0.48
Avail Cap(c_a), veh/h	963	794	779	305	482	467	373	391	323	432	0	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.8	21.6	21.7	52.8	42.2	42.2	49.7	50.4	46.0	48.9	0.0	45.8
Incr Delay (d2), s/veh	27.5	1.0	1.1	4.1	23.0	23.7	1.3	2.1	0.1	6.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.4	6.5	6.4	5.0	16.6	16.4	4.8	5.9	0.5	8.1	0.0	4.0
LnGrp Delay(d),s/veh	70.3	22.7	22.7	56.9	65.2	65.9	51.0	52.4	46.0	55.4	0.0	46.3
LnGrp LOS	E	C	C	E	E	E	D	D	D	E		D
Approach Vol, veh/h		1533			994			347			370	
Approach Delay, s/veh		52.4			64.2			51.5			52.1	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.4	58.8		23.7	38.0	37.2		20.1
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 21	45.2		29.0	* 33	32.4		25.0
Max Q Clear Time (g_c+I1), s	11.7	15.0		17.6	35.0	30.0		13.2
Green Ext Time (p_c), s	0.1	9.5		0.7	0.0	1.8		0.7

Intersection Summary		
HCM 2010 Ctrl Delay		55.9
HCM 2010 LOS		E

Notes

APPENDIX H

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
– YEAR 2030 (WITHOUT RANCHO DEL ORO INTERCHANGE) + PROJECT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	835	179	174	1145	125	161	435	130	235	671	175
Future Volume (veh/h)	175	835	179	174	1145	125	161	435	130	235	671	175
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	190	908	195	189	1245	136	175	473	141	255	729	190
Adj No. of Lanes	2	3	0	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	274	1430	306	274	1737	694	266	909	398	350	995	567
Arrive On Green	0.08	0.34	0.34	0.08	0.34	0.34	0.08	0.26	0.26	0.10	0.28	0.28
Sat Flow, veh/h	3442	4185	895	3442	5085	1561	3442	3539	1551	3442	3539	1570
Grp Volume(v), veh/h	190	735	368	189	1245	136	175	473	141	255	729	190
Grp Sat Flow(s),veh/h/ln	1721	1695	1689	1721	1695	1561	1721	1770	1551	1721	1770	1570
Q Serve(g_s), s	4.4	14.9	15.0	4.4	17.4	4.3	4.0	9.4	6.1	5.9	15.2	7.2
Cycle Q Clear(g_c), s	4.4	14.9	15.0	4.4	17.4	4.3	4.0	9.4	6.1	5.9	15.2	7.2
Prop In Lane	1.00		0.53	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	274	1158	577	274	1737	694	266	909	398	350	995	567
V/C Ratio(X)	0.69	0.63	0.64	0.69	0.72	0.20	0.66	0.52	0.35	0.73	0.73	0.33
Avail Cap(c_a), veh/h	442	1647	821	476	2520	934	779	1564	685	628	1408	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	22.6	22.6	36.6	23.4	13.9	36.6	26.1	24.8	35.6	26.6	19.0
Incr Delay (d2), s/veh	3.1	0.6	1.2	3.1	0.6	0.1	2.8	0.5	0.5	2.9	1.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	7.0	7.1	2.2	8.2	1.9	2.0	4.7	2.6	2.9	7.6	3.2
LnGrp Delay(d),s/veh	39.8	23.2	23.8	39.7	24.0	14.0	39.4	26.5	25.4	38.5	27.8	19.3
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	C	B
Approach Vol, veh/h		1293			1570			789			1174	
Approach Delay, s/veh		25.8			25.0			29.2			28.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	32.4	10.8	27.5	11.0	32.4	12.8	25.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.3	39.7	18.5	32.5	10.5	40.5	14.9	36.1
Max Q Clear Time (g_c+I1), s	6.4	17.0	6.0	17.2	6.4	19.4	7.9	11.4
Green Ext Time (p_c), s	0.2	6.7	0.4	4.5	0.2	8.5	0.5	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	26.8
HCM 2010 LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	90	151	550	125	359	700
Future Volume (veh/h)	90	151	550	125	359	700
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	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	1900	1863	1863
Adj Flow Rate, veh/h	98	164	598	136	390	761
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	432	626	890	202	478	2405
Arrive On Green	0.13	0.13	0.31	0.31	0.27	0.68
Sat Flow, veh/h	3442	1583	2942	646	1774	3632
Grp Volume(v), veh/h	98	164	371	363	390	761
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1725	1774	1770
Q Serve(g_s), s	1.2	3.2	8.4	8.5	9.5	4.1
Cycle Q Clear(g_c), s	1.2	3.2	8.4	8.5	9.5	4.1
Prop In Lane	1.00	1.00		0.37	1.00	
Lane Grp Cap(c), veh/h	432	626	553	539	478	2405
V/C Ratio(X)	0.23	0.26	0.67	0.67	0.82	0.32
Avail Cap(c_a), veh/h	1714	1215	996	971	1056	4444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	9.4	13.8	13.8	15.8	3.0
Incr Delay (d2), s/veh	0.3	0.2	1.4	1.5	3.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.4	4.2	4.3	5.1	1.9
LnGrp Delay(d),s/veh	18.4	9.6	15.2	15.3	19.2	3.1
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	262		734			1151
Approach Delay, s/veh	12.9		15.3			8.6
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	17.0	18.9				35.9		10.3
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	27.5	26.0				58.0		23.0
Max Q Clear Time (g_c+I1), s	11.5	10.5				6.1		5.2
Green Ext Time (p_c), s	1.0	3.7				5.5		0.8

Intersection Summary		
HCM 2010 Ctrl Delay		11.4
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	175	0	0	285	149	0	0	0	370	0	515
Future Volume (veh/h)	196	175	0	0	285	149	0	0	0	370	0	515
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	213	190	0	0	310	162	0	0	0	402	0	560
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	1575	705	3	494	252	3	112	0	454	1401	626
Arrive On Green	0.15	0.45	0.00	0.00	0.22	0.22	0.00	0.00	0.00	0.26	0.00	0.40
Sat Flow, veh/h	1774	3539	1583	1774	2255	1149	1774	1863	0	1774	3539	1581
Grp Volume(v), veh/h	213	190	0	0	241	231	0	0	0	402	0	560
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1634	1774	1863	0	1774	1770	1581
Q Serve(g_s), s	6.6	1.8	0.0	0.0	7.0	7.3	0.0	0.0	0.0	12.3	0.0	18.7
Cycle Q Clear(g_c), s	6.6	1.8	0.0	0.0	7.0	7.3	0.0	0.0	0.0	12.3	0.0	18.7
Prop In Lane	1.00		1.00	1.00		0.70	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	260	1575	705	3	388	358	3	112	0	454	1401	626
V/C Ratio(X)	0.82	0.12	0.00	0.00	0.62	0.64	0.00	0.00	0.00	0.89	0.00	0.90
Avail Cap(c_a), veh/h	267	1909	854	157	845	780	157	692	0	486	1971	881
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.4	9.2	0.0	0.0	20.0	20.1	0.0	0.0	0.0	20.2	0.0	16.0
Incr Delay (d2), s/veh	17.7	0.0	0.0	0.0	1.6	1.9	0.0	0.0	0.0	16.8	0.0	8.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.9	0.0	0.0	3.6	3.5	0.0	0.0	0.0	8.1	0.0	9.7
LnGrp Delay(d),s/veh	41.1	9.2	0.0	0.0	21.6	22.0	0.0	0.0	0.0	37.0	0.0	24.9
LnGrp LOS	D	A			C	C				D		C
Approach Vol, veh/h		403			472			0			962	
Approach Delay, s/veh		26.1			21.8			0.0			30.0	
Approach LOS		C			C						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	29.7	0.0	26.9	12.8	16.9	19.0	7.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	30.5	5.0	31.5	8.5	27.0	15.5	21.0
Max Q Clear Time (g_c+I1), s	0.0	3.8	0.0	20.7	8.6	9.3	14.3	0.0
Green Ext Time (p_c), s	0.0	1.0	0.0	1.6	0.0	2.7	0.2	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	60	302	180	45	60	409	700	130	60	1300	102
Future Volume (veh/h)	55	60	302	180	45	60	409	700	130	60	1300	102
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		0.99	1.00		0.98	1.00		0.98	1.00		0.98
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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	60	65	328	196	49	65	445	761	141	65	1413	111
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	188	514	221	90	119	441	1762	769	83	1475	649
Arrive On Green	0.20	0.20	0.20	0.12	0.12	0.12	0.13	0.50	0.50	0.05	0.42	0.42
Sat Flow, veh/h	873	946	1567	1774	721	956	3442	3539	1544	1774	3539	1558
Grp Volume(v), veh/h	125	0	328	196	0	114	445	761	141	65	1413	111
Grp Sat Flow(s),veh/h/ln	1819	0	1567	1774	0	1676	1721	1770	1544	1774	1770	1558
Q Serve(g_s), s	8.1	0.0	24.3	14.9	0.0	8.7	17.5	18.8	6.9	5.0	52.9	6.1
Cycle Q Clear(g_c), s	8.1	0.0	24.3	14.9	0.0	8.7	17.5	18.8	6.9	5.0	52.9	6.1
Prop In Lane	0.48		1.00	1.00		0.57	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	362	0	514	221	0	209	441	1762	769	83	1475	649
V/C Ratio(X)	0.35	0.00	0.64	0.89	0.00	0.55	1.01	0.43	0.18	0.78	0.96	0.17
Avail Cap(c_a), veh/h	386	0	536	234	0	221	441	1762	769	152	1490	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	0.0	39.1	58.8	0.0	56.2	59.5	21.9	18.9	64.4	38.7	25.0
Incr Delay (d2), s/veh	0.6	0.0	2.4	30.0	0.0	2.5	45.2	0.2	0.1	14.6	14.5	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	4.1	0.0	10.9	9.1	0.0	4.2	11.0	9.2	3.0	2.8	28.7	2.6
LnGrp Delay(d),s/veh	47.6	0.0	41.5	88.9	0.0	58.6	104.7	22.1	19.1	79.0	53.2	25.1
LnGrp LOS	D		D	F		E	F	C	B	E	D	C
Approach Vol, veh/h		453			310			1347			1589	
Approach Delay, s/veh		43.2			77.8			49.1			52.3	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.9	72.5		31.7	22.0	61.4		21.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	11.7	63.3		29.0	17.5	57.5		18.0
Max Q Clear Time (g_c+I1), s	7.0	20.8		26.3	19.5	54.9		16.9
Green Ext Time (p_c), s	0.0	6.6		0.6	0.0	2.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	52.1
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	130	405	525	115	435	139	914	935	60	1842	55
Future Volume (veh/h)	50	130	405	525	115	435	139	914	935	60	1842	55
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		0.98	1.00		0.98
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	54	141	440	571	125	473	151	993	1016	65	2002	60
Adj No. of Lanes	2	2	1	2	2	1	2	3	2	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	550	344	635	1078	535	214	2385	1798	129	2254	67
Arrive On Green	0.04	0.16	0.16	0.18	0.30	0.30	0.06	0.47	0.47	0.04	0.44	0.44
Sat Flow, veh/h	3442	3539	1583	3442	3539	1562	3442	5085	2736	3442	5072	152
Grp Volume(v), veh/h	54	141	440	571	125	473	151	993	1016	65	1337	725
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1562	1721	1695	1368	1721	1695	1833
Q Serve(g_s), s	1.8	4.1	18.2	19.0	3.0	33.5	5.0	15.1	24.0	2.2	42.4	42.6
Cycle Q Clear(g_c), s	1.8	4.1	18.2	19.0	3.0	33.5	5.0	15.1	24.0	2.2	42.4	42.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	122	550	344	635	1078	535	214	2385	1798	129	1507	815
V/C Ratio(X)	0.44	0.26	1.28	0.90	0.12	0.88	0.71	0.42	0.57	0.50	0.89	0.89
Avail Cap(c_a), veh/h	159	550	344	690	1090	540	485	2385	1798	755	1562	845
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	43.5	45.9	46.7	29.4	36.4	53.9	20.5	11.2	55.3	29.9	29.9
Incr Delay (d2), s/veh	2.5	0.2	145.7	14.1	0.0	15.8	4.2	0.1	0.4	3.0	6.5	11.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.0	25.1	10.3	1.5	16.8	2.5	7.1	9.1	1.1	21.2	24.1
LnGrp Delay(d),s/veh	57.9	43.8	191.6	60.8	29.4	52.2	58.2	20.6	11.6	58.3	36.3	41.2
LnGrp LOS	E	D	F	E	C	D	E	C	B	E	D	D
Approach Vol, veh/h		635			1169			2160			2127	
Approach Delay, s/veh		147.4			54.0			19.0			38.7	
Approach LOS		F			D			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	59.5	26.1	22.7	11.8	56.6	8.6	40.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.7	44.8	23.5	18.0	16.5	54.0	5.4	36.1
Max Q Clear Time (g_c+I1), s	4.2	26.0	21.0	20.2	7.0	44.6	3.8	35.5
Green Ext Time (p_c), s	0.1	11.4	0.6	0.0	0.3	7.5	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	46.0
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	289	825	0	1254	2281	0		
Future Volume (veh/h)	289	825	0	1254	2281	0		
Number	7	14	5	2	6	16		
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	0	1863	1863	0		
Adj Flow Rate, veh/h	314	897	0	1363	2479	0		
Adj No. of Lanes	2	1	0	4	5	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	0	2	2	0		
Cap, veh/h	1832	843	0	2079	2448	0		
Arrive On Green	0.53	0.53	0.00	0.32	0.32	0.00		
Sat Flow, veh/h	3442	1583	0	6929	8252	0		
Grp Volume(v), veh/h	314	897	0	1363	2479	0		
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0		
Q Serve(g_s), s	4.2	47.9	0.0	16.4	29.2	0.0		
Cycle Q Clear(g_c), s	4.2	47.9	0.0	16.4	29.2	0.0		
Prop In Lane	1.00	1.00	0.00			0.00		
Lane Grp Cap(c), veh/h	1832	843	0	2079	2448	0		
V/C Ratio(X)	0.17	1.06	0.00	0.66	1.01	0.00		
Avail Cap(c_a), veh/h	1832	843	0	2079	2448	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	10.8	21.1	0.0	26.1	30.4	0.0		
Incr Delay (d2), s/veh	0.0	49.6	0.0	1.6	21.4	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	2.0	32.2	0.0	7.4	15.0	0.0		
LnGrp Delay(d),s/veh	10.9	70.7	0.0	27.7	51.8	0.0		
LnGrp LOS	B	F		C	F			
Approach Vol, veh/h	1211			1363	2479			
Approach Delay, s/veh	55.2			27.7	51.8			
Approach LOS	E			C	D			
Timer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		36.0		54.0		36.0		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		29.2		47.9		29.2		
Max Q Clear Time (g_c+I1), s		18.4		49.9		31.2		
Green Ext Time (p_c), s		5.0		0.0		0.0		
Intersection Summary								
HCM 2010 Ctrl Delay			46.1					
HCM 2010 LOS			D					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	595	415	270	325	50	690	85	220	60	110	60
Future Volume (veh/h)	115	595	415	270	325	50	690	85	220	60	110	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	125	647	451	293	353	54	816	0	239	65	120	65
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	862	787	370	700	106	920	0	410	127	240	134
Arrive On Green	0.12	0.24	0.24	0.11	0.23	0.23	0.26	0.00	0.26	0.14	0.14	0.14
Sat Flow, veh/h	1774	3539	1544	3442	3082	467	3548	0	1583	889	1684	942
Grp Volume(v), veh/h	125	647	451	293	201	206	816	0	239	133	0	117
Grp Sat Flow(s),veh/h/ln	1774	1770	1544	1721	1770	1780	1774	0	1583	1818	0	1697
Q Serve(g_s), s	5.6	14.2	17.2	7.0	8.3	8.5	18.5	0.0	11.0	5.7	0.0	5.3
Cycle Q Clear(g_c), s	5.6	14.2	17.2	7.0	8.3	8.5	18.5	0.0	11.0	5.7	0.0	5.3
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	0.49		0.56
Lane Grp Cap(c), veh/h	220	862	787	370	402	404	920	0	410	259	0	242
V/C Ratio(X)	0.57	0.75	0.57	0.79	0.50	0.51	0.89	0.00	0.58	0.51	0.00	0.48
Avail Cap(c_a), veh/h	233	933	818	423	452	454	1054	0	470	260	0	243
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.6	29.3	14.6	36.5	28.3	28.3	29.9	0.0	27.1	33.2	0.0	33.1
Incr Delay (d2), s/veh	1.6	2.7	0.5	7.5	0.4	0.4	7.8	0.0	0.6	0.7	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	7.2	10.4	3.7	4.1	4.2	10.1	0.0	4.9	2.9	0.0	2.5
LnGrp Delay(d),s/veh	36.2	32.0	15.2	44.0	28.6	28.7	37.7	0.0	27.7	34.0	0.0	33.7
LnGrp LOS	D	C	B	D	C	C	D		C	C		C
Approach Vol, veh/h		1223			700			1055			250	
Approach Delay, s/veh		26.2			35.1			35.4			33.8	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.7	26.2		17.1	15.1	24.8		26.8
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 10	22.1		12.0	* 11	21.4		24.9
Max Q Clear Time (g_c+I1), s	9.0	19.2		7.7	7.6	10.5		20.5
Green Ext Time (p_c), s	0.1	1.2		0.4	0.0	1.1		1.2

Intersection Summary		
HCM 2010 Ctrl Delay		31.7
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	55	5	145	30	275	30	869	315	851	1555	155
Future Volume (veh/h)	110	55	5	145	30	275	30	869	315	851	1555	155
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		0.99	1.00		0.97
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	120	60	5	158	33	299	33	945	342	925	1690	168
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	236	20	185	295	706	54	1418	439	989	2512	249
Arrive On Green	0.09	0.14	0.14	0.10	0.16	0.16	0.03	0.28	0.28	0.29	0.54	0.54
Sat Flow, veh/h	1774	1696	141	1774	1863	1583	1774	5085	1575	3442	4692	465
Grp Volume(v), veh/h	120	0	65	158	33	299	33	945	342	925	1220	638
Grp Sat Flow(s),veh/h/ln	1774	0	1837	1774	1863	1583	1774	1695	1575	1721	1695	1766
Q Serve(g_s), s	6.3	0.0	3.0	8.3	1.4	12.2	1.7	15.6	18.9	24.8	24.7	24.9
Cycle Q Clear(g_c), s	6.3	0.0	3.0	8.3	1.4	12.2	1.7	15.6	18.9	24.8	24.7	24.9
Prop In Lane	1.00		0.08	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	151	0	256	185	295	706	54	1418	439	989	1816	946
V/C Ratio(X)	0.79	0.00	0.25	0.85	0.11	0.42	0.61	0.67	0.78	0.94	0.67	0.67
Avail Cap(c_a), veh/h	281	0	543	185	450	838	96	1418	439	1007	1816	946
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	0.0	36.4	41.7	34.1	17.9	45.3	30.3	31.5	32.9	16.0	16.0
Incr Delay (d2), s/veh	9.0	0.0	0.5	29.7	0.2	0.4	10.4	2.5	12.8	15.1	2.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	1.6	5.6	0.8	5.4	1.0	7.6	9.8	13.8	12.0	13.1
LnGrp Delay(d),s/veh	51.5	0.0	36.9	71.4	34.3	18.3	55.8	32.8	44.3	48.0	18.0	19.8
LnGrp LOS	D		D	E	C	B	E	C	D	D	B	B
Approach Vol, veh/h		185			490			1320			2783	
Approach Delay, s/veh		46.4			36.5			36.3			28.4	
Approach LOS		D			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.7	30.9	14.4	17.7	7.4	55.2	12.6	19.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	27.7	26.4	9.9	28.0	5.1	49.0	15.0	22.9
Max Q Clear Time (g_c+I1), s	26.8	20.9	10.3	5.0	3.7	26.9	8.3	14.2
Green Ext Time (p_c), s	0.4	3.3	0.0	0.3	0.0	14.4	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	32.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	921	280	30	40	440	50	30	5	10	115	10	50
Future Volume (veh/h)	921	280	30	40	440	50	30	5	10	115	10	50
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	1001	304	33	43	478	54	37	0	11	125	11	54
Adj No. of Lanes	2	2	0	1	2	0	2	0	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	934	1441	155	128	799	90	336	0	150	176	27	134
Arrive On Green	0.27	0.45	0.45	0.07	0.25	0.25	0.09	0.00	0.09	0.10	0.10	0.10
Sat Flow, veh/h	3442	3215	346	1774	3206	361	3548	0	1583	1774	275	1350
Grp Volume(v), veh/h	1001	166	171	43	263	269	37	0	11	125	0	65
Grp Sat Flow(s),veh/h/ln	1721	1770	1791	1774	1770	1798	1774	0	1583	1774	0	1625
Q Serve(g_s), s	19.3	4.1	4.1	1.6	9.3	9.4	0.7	0.0	0.5	4.9	0.0	2.7
Cycle Q Clear(g_c), s	19.3	4.1	4.1	1.6	9.3	9.4	0.7	0.0	0.5	4.9	0.0	2.7
Prop In Lane	1.00		0.19	1.00		0.20	1.00		1.00	1.00		0.83
Lane Grp Cap(c), veh/h	934	793	803	128	441	448	336	0	150	176	0	161
V/C Ratio(X)	1.07	0.21	0.21	0.33	0.60	0.60	0.11	0.00	0.07	0.71	0.00	0.40
Avail Cap(c_a), veh/h	934	913	924	224	657	667	1247	0	557	723	0	662
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.9	12.0	12.0	31.4	23.5	23.6	29.4	0.0	29.3	31.0	0.0	30.0
Incr Delay (d2), s/veh	50.7	0.5	0.5	0.6	4.6	4.6	0.1	0.0	0.1	2.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.7	2.1	2.1	0.8	5.1	5.2	0.3	0.0	0.2	2.5	0.0	1.2
LnGrp Delay(d),s/veh	76.6	12.4	12.5	31.9	28.2	28.2	29.5	0.0	29.4	33.0	0.0	30.7
LnGrp LOS	F	B	B	C	C	C	C		C	C		C
Approach Vol, veh/h		1338			575			48			190	
Approach Delay, s/veh		60.4			28.5			29.5			32.2	
Approach LOS		E			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.9	37.3		12.2	24.0	23.1		11.8
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 9	36.7		29.0	* 19	26.4		25.0
Max Q Clear Time (g_c+I1), s	3.6	6.1		6.9	21.3	11.4		2.7
Green Ext Time (p_c), s	0.0	5.1		0.4	0.0	5.9		0.1

Intersection Summary		
HCM 2010 Ctrl Delay		48.7
HCM 2010 LOS		D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	1405	277	252	1055	185	176	601	256	160	361	90
Future Volume (veh/h)	260	1405	277	252	1055	185	176	601	256	160	361	90
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.97
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	283	1527	301	274	1147	201	191	653	278	174	392	98
Adj No. of Lanes	2	3	0	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	356	1802	354	341	2130	764	255	837	369	238	819	521
Arrive On Green	0.10	0.42	0.42	0.10	0.42	0.42	0.07	0.24	0.24	0.07	0.23	0.23
Sat Flow, veh/h	3442	4256	835	3442	5085	1563	3442	3539	1563	3442	3539	1543
Grp Volume(v), veh/h	283	1215	613	274	1147	201	191	653	278	174	392	98
Grp Sat Flow(s),veh/h/ln	1721	1695	1701	1721	1695	1563	1721	1770	1563	1721	1770	1543
Q Serve(g_s), s	8.4	33.7	34.0	8.2	17.7	7.9	5.7	18.1	17.3	5.2	10.0	4.7
Cycle Q Clear(g_c), s	8.4	33.7	34.0	8.2	17.7	7.9	5.7	18.1	17.3	5.2	10.0	4.7
Prop In Lane	1.00		0.49	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	356	1436	720	341	2130	764	255	837	369	238	819	521
V/C Ratio(X)	0.79	0.85	0.85	0.80	0.54	0.26	0.75	0.78	0.75	0.73	0.48	0.19
Avail Cap(c_a), veh/h	523	1565	785	411	2182	780	306	1086	479	299	1079	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	27.1	27.2	46.2	22.8	15.7	47.5	37.4	37.1	47.8	34.8	24.7
Incr Delay (d2), s/veh	5.2	4.2	8.3	9.3	0.3	0.2	8.1	2.8	4.8	6.7	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	16.5	17.5	4.3	8.3	3.4	3.0	9.1	8.0	2.7	4.9	2.0
LnGrp Delay(d),s/veh	51.0	31.3	35.5	55.5	23.1	15.9	55.6	40.2	42.0	54.5	35.2	24.9
LnGrp LOS	D	C	D	E	C	B	E	D	D	D	D	C
Approach Vol, veh/h		2111			1622			1122			664	
Approach Delay, s/veh		35.2			27.7			43.3			38.7	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.9	48.8	12.3	28.7	15.3	48.3	11.7	29.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	48.3	9.3	31.9	15.9	44.9	9.1	32.1
Max Q Clear Time (g_c+I1), s	10.2	36.0	7.7	12.0	10.4	19.7	7.2	20.1
Green Ext Time (p_c), s	0.2	8.3	0.1	2.4	0.4	8.6	0.1	4.0

Intersection Summary		
HCM 2010 Ctrl Delay		35.0
HCM 2010 LOS		D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	97	253	750	103	275	500
Future Volume (veh/h)	97	253	750	103	275	500
Number	3	18	2	12	1	6
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	1900	1863	1863
Adj Flow Rate, veh/h	105	275	815	112	299	543
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	637	621	1120	154	367	2296
Arrive On Green	0.19	0.19	0.36	0.36	0.21	0.65
Sat Flow, veh/h	3442	1583	3219	430	1774	3632
Grp Volume(v), veh/h	105	275	461	466	299	543
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1786	1774	1770
Q Serve(g_s), s	1.4	6.9	12.2	12.2	8.7	3.4
Cycle Q Clear(g_c), s	1.4	6.9	12.2	12.2	8.7	3.4
Prop In Lane	1.00	1.00		0.24	1.00	
Lane Grp Cap(c), veh/h	637	621	634	640	367	2296
V/C Ratio(X)	0.16	0.44	0.73	0.73	0.81	0.24
Avail Cap(c_a), veh/h	1469	1004	1043	1053	705	3788
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	12.1	15.1	15.1	20.5	3.9
Incr Delay (d2), s/veh	0.1	0.5	1.6	1.6	4.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.1	6.2	6.2	4.7	1.7
LnGrp Delay(d),s/veh	18.7	12.6	16.7	16.7	24.9	4.0
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	380		927			842
Approach Delay, s/veh	14.3		16.7			11.4
Approach LOS	B		B			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.7	23.9				39.6		14.5
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	21.5	31.9				57.9		23.1
Max Q Clear Time (g_c+I1), s	10.7	14.2				5.4		8.9
Green Ext Time (p_c), s	0.6	5.1				3.7		1.1

Intersection Summary		
HCM 2010 Ctrl Delay		14.2
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	546	530	0	0	480	407	0	0	0	216	0	286
Future Volume (veh/h)	546	530	0	0	480	407	0	0	0	216	0	286
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	593	576	0	0	522	442	0	0	0	235	0	311
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	626	2439	1091	2	524	443	2	42	0	267	775	347
Arrive On Green	0.35	0.69	0.00	0.00	0.29	0.29	0.00	0.00	0.00	0.15	0.00	0.22
Sat Flow, veh/h	1774	3539	1583	1774	1805	1529	1774	1863	0	1774	3539	1583
Grp Volume(v), veh/h	593	576	0	0	512	452	0	0	0	235	0	311
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1565	1774	1863	0	1774	1770	1583
Q Serve(g_s), s	31.8	5.9	0.0	0.0	28.3	28.3	0.0	0.0	0.0	12.7	0.0	18.7
Cycle Q Clear(g_c), s	31.8	5.9	0.0	0.0	28.3	28.3	0.0	0.0	0.0	12.7	0.0	18.7
Prop In Lane	1.00		1.00	1.00		0.98	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	626	2439	1091	2	513	454	2	42	0	267	775	347
V/C Ratio(X)	0.95	0.24	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.88	0.00	0.90
Avail Cap(c_a), veh/h	676	2439	1091	91	513	454	91	400	0	277	1131	506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.8	5.7	0.0	0.0	34.7	34.7	0.0	0.0	0.0	40.7	0.0	37.2
Incr Delay (d2), s/veh	21.7	0.0	0.0	0.0	38.8	41.4	0.0	0.0	0.0	25.7	0.0	13.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.3	2.9	0.0	0.0	19.3	17.4	0.0	0.0	0.0	8.1	0.0	9.5
LnGrp Delay(d),s/veh	52.5	5.7	0.0	0.0	73.5	76.1	0.0	0.0	0.0	66.4	0.0	50.9
LnGrp LOS	D	A			E	E				E		D
Approach Vol, veh/h		1169			964			0			546	
Approach Delay, s/veh		29.4			74.7			0.0			57.6	
Approach LOS		C			E						E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	72.0	0.0	25.9	39.1	32.9	19.2	6.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	60.7	5.0	31.3	37.3	28.4	15.3	21.0
Max Q Clear Time (g_c+I1), s	0.0	7.9	0.0	20.7	33.8	30.3	14.7	0.0
Green Ext Time (p_c), s	0.0	3.9	0.0	0.8	0.8	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	60	447	130	60	100	561	1850	200	55	1100	121
Future Volume (veh/h)	86	60	447	130	60	100	561	1850	200	55	1100	121
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		1.00	1.00		0.98	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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	93	65	486	141	65	109	610	2011	217	60	1196	132
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	145	584	207	73	122	624	1881	822	66	1372	605
Arrive On Green	0.19	0.19	0.19	0.12	0.12	0.12	0.18	0.53	0.53	0.04	0.39	0.39
Sat Flow, veh/h	1065	744	1531	1774	627	1051	3442	3539	1547	1774	3539	1560
Grp Volume(v), veh/h	158	0	486	141	0	174	610	2011	217	60	1196	132
Grp Sat Flow(s),veh/h/ln	1809	0	1531	1774	0	1677	1721	1770	1547	1774	1770	1560
Q Serve(g_s), s	11.5	0.0	29.0	11.4	0.0	15.3	26.3	79.4	11.4	5.0	46.7	8.5
Cycle Q Clear(g_c), s	11.5	0.0	29.0	11.4	0.0	15.3	26.3	79.4	11.4	5.0	46.7	8.5
Prop In Lane	0.59		1.00	1.00		0.63	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	351	0	584	207	0	195	624	1881	822	66	1372	605
V/C Ratio(X)	0.45	0.00	0.83	0.68	0.00	0.89	0.98	1.07	0.26	0.90	0.87	0.22
Avail Cap(c_a), veh/h	351	0	584	214	0	202	624	1881	822	66	1372	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	0.0	42.6	63.4	0.0	65.1	60.8	35.0	19.1	71.6	42.3	30.6
Incr Delay (d2), s/veh	0.9	0.0	9.9	8.3	0.0	34.6	30.2	42.0	0.8	77.0	7.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	19.9	6.1	0.0	9.0	15.2	49.6	5.1	3.9	24.3	3.8
LnGrp Delay(d),s/veh	54.1	0.0	52.5	71.6	0.0	99.6	91.0	77.0	19.9	148.6	50.2	31.4
LnGrp LOS	D		D	E		F	F	F	B	F	D	C
Approach Vol, veh/h		644			315			2838			1388	
Approach Delay, s/veh		52.9			87.1			75.7			52.6	
Approach LOS		D			F			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	83.9		33.5	31.6	62.4		21.9
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.6	79.4		29.0	27.1	57.9		18.0
Max Q Clear Time (g_c+I1), s	7.0	81.4		31.0	28.3	48.7		17.3
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	5.2		0.1

Intersection Summary		
HCM 2010 Ctrl Delay		67.4
HCM 2010 LOS		E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	195	331	540	390	531	352	1825	810	50	1472	130
Future Volume (veh/h)	145	195	331	540	390	531	352	1825	810	50	1472	130
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		0.98	1.00		0.98	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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	158	212	360	587	424	577	383	1984	880	54	1600	141
Adj No. of Lanes	2	2	1	2	2	1	2	3	2	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	497	426	640	936	462	442	2543	1889	115	1924	169
Arrive On Green	0.06	0.14	0.14	0.19	0.26	0.26	0.13	0.50	0.50	0.03	0.40	0.40
Sat Flow, veh/h	3442	3539	1583	3442	3539	1549	3442	5085	2743	3442	4754	418
Grp Volume(v), veh/h	158	212	360	587	424	577	383	1984	880	54	1141	600
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1549	1721	1695	1371	1721	1695	1782
Q Serve(g_s), s	5.8	7.0	18.0	21.5	12.8	33.9	14.0	41.0	19.0	2.0	38.7	38.8
Cycle Q Clear(g_c), s	5.8	7.0	18.0	21.5	12.8	33.9	14.0	41.0	19.0	2.0	38.7	38.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	212	497	426	640	936	462	442	2543	1889	115	1372	721
V/C Ratio(X)	0.74	0.43	0.85	0.92	0.45	1.25	0.87	0.78	0.47	0.47	0.83	0.83
Avail Cap(c_a), veh/h	309	497	426	666	936	462	523	2543	1889	593	1579	830
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.2	50.4	44.3	51.2	39.4	45.1	54.8	26.3	9.3	60.9	34.2	34.3
Incr Delay (d2), s/veh	5.5	0.6	14.5	17.4	0.3	128.4	12.6	1.6	0.2	3.0	3.5	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	3.5	13.8	11.7	6.3	32.8	7.4	19.5	7.2	1.0	18.7	20.3
LnGrp Delay(d),s/veh	64.7	51.0	58.8	68.6	39.7	173.5	67.4	27.9	9.5	63.8	37.7	40.7
LnGrp LOS	E	D	E	E	D	F	E	C	A	E	D	D
Approach Vol, veh/h		730			1588			3247			1795	
Approach Delay, s/veh		57.8			99.0			27.6			39.5	
Approach LOS		E			F			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	68.6	28.3	22.5	21.0	56.4	12.4	38.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.1	57.1	24.8	18.0	19.5	59.7	11.5	31.3
Max Q Clear Time (g_c+I1), s	4.0	43.0	23.5	20.0	16.0	40.8	7.8	35.9
Green Ext Time (p_c), s	0.1	12.4	0.4	0.0	0.5	11.1	0.2	0.0

Intersection Summary			
HCM 2010 Ctrl Delay			48.9
HCM 2010 LOS			D

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	460	850	0	2102	2130	0		
Future Volume (veh/h)	460	850	0	2102	2130	0		
Number	7	14	5	2	6	16		
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	0	1863	1863	0		
Adj Flow Rate, veh/h	500	924	0	2285	2315	0		
Adj No. of Lanes	2	1	0	4	5	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	0	2	2	0		
Cap, veh/h	1755	808	0	2221	2615	0		
Arrive On Green	0.51	0.51	0.00	0.35	0.35	0.00		
Sat Flow, veh/h	3442	1583	0	6929	8252	0		
Grp Volume(v), veh/h	500	924	0	2285	2315	0		
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0		
Q Serve(g_s), s	7.5	45.9	0.0	31.2	26.0	0.0		
Cycle Q Clear(g_c), s	7.5	45.9	0.0	31.2	26.0	0.0		
Prop In Lane	1.00	1.00	0.00			0.00		
Lane Grp Cap(c), veh/h	1755	808	0	2221	2615	0		
V/C Ratio(X)	0.28	1.14	0.00	1.03	0.89	0.00		
Avail Cap(c_a), veh/h	1755	808	0	2221	2615	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	12.6	22.0	0.0	29.4	27.7	0.0		
Incr Delay (d2), s/veh	0.0	79.4	0.0	26.9	3.9	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	3.5	37.5	0.0	17.9	11.4	0.0		
LnGrp Delay(d),s/veh	12.7	101.4	0.0	56.3	31.6	0.0		
LnGrp LOS	B	F		F	C			
Approach Vol, veh/h	1424			2285	2315			
Approach Delay, s/veh	70.3			56.3	31.6			
Approach LOS	E			E	C			
Timer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		38.0		52.0		38.0		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		31.2		45.9		31.2		
Max Q Clear Time (g_c+I1), s		33.2		47.9		28.0		
Green Ext Time (p_c), s		0.0		0.0		2.7		

Intersection Summary		
HCM 2010 Ctrl Delay		50.1
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	510	400	350	495	40	886	60	85	100	90	80
Future Volume (veh/h)	145	510	400	350	495	40	886	60	85	100	90	80
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	158	554	435	380	538	43	1009	0	92	109	98	87
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	770	785	453	753	60	999	0	446	170	157	144
Arrive On Green	0.12	0.22	0.22	0.13	0.23	0.23	0.28	0.00	0.28	0.14	0.14	0.14
Sat Flow, veh/h	1774	3539	1563	3442	3317	264	3548	0	1583	1252	1162	1062
Grp Volume(v), veh/h	158	554	435	380	286	295	1009	0	92	157	0	137
Grp Sat Flow(s),veh/h/ln	1774	1770	1563	1721	1770	1812	1774	0	1583	1800	0	1675
Q Serve(g_s), s	7.6	12.8	17.1	9.5	13.2	13.3	24.9	0.0	3.9	7.3	0.0	6.8
Cycle Q Clear(g_c), s	7.6	12.8	17.1	9.5	13.2	13.3	24.9	0.0	3.9	7.3	0.0	6.8
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	0.70		0.63
Lane Grp Cap(c), veh/h	216	770	785	453	402	412	999	0	446	244	0	227
V/C Ratio(X)	0.73	0.72	0.55	0.84	0.71	0.72	1.01	0.00	0.21	0.64	0.00	0.60
Avail Cap(c_a), veh/h	221	776	788	506	428	438	999	0	446	244	0	227
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.4	32.1	15.4	37.5	31.5	31.5	31.8	0.0	24.2	36.2	0.0	36.0
Incr Delay (d2), s/veh	10.0	2.8	0.5	9.9	4.2	4.2	31.0	0.0	0.1	4.4	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	6.5	10.6	5.2	6.9	7.1	16.4	0.0	1.7	3.9	0.0	3.4
LnGrp Delay(d),s/veh	47.5	34.9	15.9	47.4	35.7	35.8	62.8	0.0	24.3	40.6	0.0	39.2
LnGrp LOS	D	C	B	D	D	D	F		C	D		D
Approach Vol, veh/h		1147			961			1101			294	
Approach Delay, s/veh		29.4			40.4			59.6			40.0	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.3	25.0		17.1	15.5	25.9		30.0
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 13	19.4		12.0	* 11	21.4		24.9
Max Q Clear Time (g_c+I1), s	11.5	19.1		9.3	9.6	15.3		26.9
Green Ext Time (p_c), s	0.1	0.1		0.3	0.0	1.2		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		42.8
HCM 2010 LOS		D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	115	25	270	20	525	15	1407	445	874	1601	110
Future Volume (veh/h)	170	115	25	270	20	525	15	1407	445	874	1601	110
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		0.98	1.00		0.99	1.00		0.97	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	185	125	27	293	22	571	16	1529	484	950	1740	120
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	200	43	250	292	616	29	1828	555	807	2802	193
Arrive On Green	0.12	0.14	0.14	0.14	0.16	0.16	0.02	0.36	0.36	0.23	0.58	0.58
Sat Flow, veh/h	1774	1480	320	1774	1863	1562	1774	5085	1544	3442	4851	334
Grp Volume(v), veh/h	185	0	152	293	22	571	16	1529	484	950	1215	645
Grp Sat Flow(s),veh/h/ln	1774	0	1800	1774	1863	1562	1774	1695	1544	1721	1695	1795
Q Serve(g_s), s	14.2	0.0	11.0	19.5	1.4	21.7	1.2	38.1	40.5	32.5	32.7	32.8
Cycle Q Clear(g_c), s	14.2	0.0	11.0	19.5	1.4	21.7	1.2	38.1	40.5	32.5	32.7	32.8
Prop In Lane	1.00		0.18	1.00		1.00	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	212	0	243	250	292	616	29	1828	555	807	1958	1037
V/C Ratio(X)	0.87	0.00	0.62	1.17	0.08	0.93	0.54	0.84	0.87	1.18	0.62	0.62
Avail Cap(c_a), veh/h	330	0	364	250	292	616	72	1909	579	807	1958	1037
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	0.0	56.6	59.5	49.9	40.4	67.6	40.6	41.4	53.0	19.3	19.3
Incr Delay (d2), s/veh	14.6	0.0	2.6	112.0	0.1	20.3	14.7	3.3	13.3	92.3	0.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	5.7	17.3	0.7	24.3	0.7	18.4	19.4	25.7	15.4	16.5
LnGrp Delay(d),s/veh	74.6	0.0	59.2	171.5	50.0	60.6	82.3	43.9	54.7	145.3	19.9	20.5
LnGrp LOS	E		E	F	D	E	F	D	D	F	B	C
Approach Vol, veh/h		337			886			2029			2810	
Approach Delay, s/veh		67.6			97.0			46.8			62.4	
Approach LOS		E			F			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	37.0	54.3	24.0	23.2	6.8	84.5	21.0	26.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	32.5	52.0	19.5	28.0	5.6	78.9	25.8	21.7
Max Q Clear Time (g_c+I1), s	34.5	42.5	21.5	13.0	3.2	34.8	16.2	23.7
Green Ext Time (p_c), s	0.0	7.3	0.0	0.6	0.0	21.5	0.3	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	62.5
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	884	435	95	135	615	165	210	65	15	220	75	45
Future Volume (veh/h)	884	435	95	135	615	165	210	65	15	220	75	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	961	473	103	147	668	179	150	181	16	239	82	49
Adj No. of Lanes	2	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	963	1293	280	175	736	197	223	234	193	278	171	102
Arrive On Green	0.28	0.45	0.45	0.10	0.27	0.27	0.13	0.13	0.13	0.16	0.16	0.16
Sat Flow, veh/h	3442	2882	623	1774	2751	737	1774	1863	1537	1774	1092	653
Grp Volume(v), veh/h	961	289	287	147	430	417	150	181	16	239	0	131
Grp Sat Flow(s),veh/h/ln	1721	1770	1736	1774	1770	1718	1774	1863	1537	1774	0	1745
Q Serve(g_s), s	33.2	12.8	13.0	9.7	28.0	28.0	9.6	11.2	1.1	15.6	0.0	8.2
Cycle Q Clear(g_c), s	33.2	12.8	13.0	9.7	28.0	28.0	9.6	11.2	1.1	15.6	0.0	8.2
Prop In Lane	1.00		0.36	1.00		0.43	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	963	794	779	175	473	459	223	234	193	278	0	273
V/C Ratio(X)	1.00	0.36	0.37	0.84	0.91	0.91	0.67	0.77	0.08	0.86	0.00	0.48
Avail Cap(c_a), veh/h	963	794	779	305	482	467	373	391	323	432	0	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.9	21.6	21.7	52.8	42.2	42.2	49.7	50.4	46.0	48.9	0.0	45.8
Incr Delay (d2), s/veh	28.6	1.0	1.1	4.1	23.0	23.7	1.3	2.1	0.1	6.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.6	6.5	6.4	5.0	16.6	16.4	4.8	5.9	0.5	8.1	0.0	4.0
LnGrp Delay(d),s/veh	71.4	22.7	22.7	56.9	65.2	65.9	51.0	52.4	46.0	55.4	0.0	46.3
LnGrp LOS	E	C	C	E	E	E	D	D	D	E		D
Approach Vol, veh/h		1537			994			347			370	
Approach Delay, s/veh		53.2			64.2			51.5			52.1	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.4	58.8		23.7	38.0	37.2		20.1
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 21	45.2		29.0	* 33	32.4		25.0
Max Q Clear Time (g_c+I1), s	11.7	15.0		17.6	35.2	30.0		13.2
Green Ext Time (p_c), s	0.1	9.5		0.7	0.0	1.8		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	56.3
HCM 2010 LOS	E

Notes

APPENDIX I

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
– YEAR 2030 (WITH RANCHO DEL ORO INTERCHANGE)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	815	200	190	1110	130	180	500	150	245	765	180
Future Volume (veh/h)	185	815	200	190	1110	130	180	500	150	245	765	180
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	201	886	217	207	1207	141	196	543	163	266	832	196
Adj No. of Lanes	2	3	0	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	1301	317	288	1636	666	287	1002	439	357	1074	606
Arrive On Green	0.08	0.32	0.32	0.08	0.32	0.32	0.08	0.28	0.28	0.10	0.30	0.30
Sat Flow, veh/h	3442	4069	991	3442	5085	1560	3442	3539	1552	3442	3539	1571
Grp Volume(v), veh/h	201	737	366	207	1207	141	196	543	163	266	832	196
Grp Sat Flow(s),veh/h/ln	1721	1695	1670	1721	1695	1560	1721	1770	1552	1721	1770	1571
Q Serve(g_s), s	4.9	16.2	16.4	5.0	18.1	4.9	4.8	11.2	7.2	6.4	18.4	7.5
Cycle Q Clear(g_c), s	4.9	16.2	16.4	5.0	18.1	4.9	4.8	11.2	7.2	6.4	18.4	7.5
Prop In Lane	1.00		0.59	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	282	1084	534	288	1636	666	287	1002	439	357	1074	606
V/C Ratio(X)	0.71	0.68	0.68	0.72	0.74	0.21	0.68	0.54	0.37	0.75	0.77	0.32
Avail Cap(c_a), veh/h	421	1472	725	429	2220	846	781	1595	699	613	1422	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	25.4	25.4	38.4	25.9	15.6	38.3	26.1	24.7	37.4	27.2	18.5
Incr Delay (d2), s/veh	3.4	0.8	1.6	3.4	0.9	0.2	2.9	0.5	0.5	3.1	2.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	7.7	7.8	2.5	8.6	2.1	2.4	5.5	3.2	3.2	9.3	3.3
LnGrp Delay(d),s/veh	41.8	26.2	27.0	41.7	26.8	15.7	41.1	26.5	25.2	40.5	29.2	18.8
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	C	B
Approach Vol, veh/h		1304			1555			902			1294	
Approach Delay, s/veh		28.8			27.8			29.5			30.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	32.0	11.7	30.6	11.5	32.1	13.4	28.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.7	37.3	19.5	34.5	10.5	37.5	15.3	38.7
Max Q Clear Time (g_c+I1), s	7.0	18.4	6.8	20.4	6.9	20.1	8.4	13.2
Green Ext Time (p_c), s	0.2	6.3	0.5	5.0	0.2	7.5	0.5	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	28.9
HCM 2010 LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	80	140	400	120	350	690
Future Volume (veh/h)	80	140	400	120	350	690
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	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	1900	1863	1863
Adj Flow Rate, veh/h	87	152	435	130	380	750
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	423	624	721	213	481	2311
Arrive On Green	0.12	0.12	0.27	0.27	0.27	0.65
Sat Flow, veh/h	3442	1583	2765	790	1774	3632
Grp Volume(v), veh/h	87	152	287	278	380	750
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1692	1774	1770
Q Serve(g_s), s	0.9	2.6	5.7	5.8	8.0	3.7
Cycle Q Clear(g_c), s	0.9	2.6	5.7	5.8	8.0	3.7
Prop In Lane	1.00	1.00		0.47	1.00	
Lane Grp Cap(c), veh/h	423	624	477	456	481	2311
V/C Ratio(X)	0.21	0.24	0.60	0.61	0.79	0.32
Avail Cap(c_a), veh/h	1973	1337	1001	957	1362	5115
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.8	8.2	12.8	12.8	13.6	3.1
Incr Delay (d2), s/veh	0.2	0.2	1.2	1.3	2.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.1	2.9	2.8	4.3	1.8
LnGrp Delay(d),s/veh	16.1	8.4	14.0	14.1	16.5	3.1
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	239		565			1130
Approach Delay, s/veh	11.2		14.1			7.6
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.4	15.3				30.7		9.4
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	30.8	22.7				58.0		23.0
Max Q Clear Time (g_c+I1), s	10.0	7.8				5.7		4.6
Green Ext Time (p_c), s	1.1	2.7				5.4		0.7

Intersection Summary		
HCM 2010 Ctrl Delay		10.0
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	40	150	235	70	75	210	475	180	40	1400	40
Future Volume (veh/h)	10	40	150	235	70	75	210	475	180	40	1400	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	11	43	163	255	76	82	228	516	196	43	1522	43
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	23	435	194	268	462	406	240	693	263	57	1541	689
Arrive On Green	0.01	0.12	0.12	0.15	0.26	0.26	0.14	0.54	0.54	0.03	0.44	0.44
Sat Flow, veh/h	1774	3539	1576	1774	1770	1555	1774	1287	489	1774	3539	1581
Grp Volume(v), veh/h	11	43	163	255	76	82	228	0	712	43	1522	43
Grp Sat Flow(s),veh/h/ln	1774	1770	1576	1774	1770	1555	1774	0	1776	1774	1770	1581
Q Serve(g_s), s	0.7	1.3	11.7	16.5	3.8	4.8	14.8	0.0	35.8	2.8	49.4	1.8
Cycle Q Clear(g_c), s	0.7	1.3	11.7	16.5	3.8	4.8	14.8	0.0	35.8	2.8	49.4	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	23	435	194	268	462	406	240	0	957	57	1541	689
V/C Ratio(X)	0.48	0.10	0.84	0.95	0.16	0.20	0.95	0.00	0.74	0.75	0.99	0.06
Avail Cap(c_a), veh/h	76	559	249	268	470	413	240	0	957	78	1541	689
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	45.1	49.7	48.8	33.1	33.4	49.7	0.0	20.6	55.6	32.4	19.0
Incr Delay (d2), s/veh	14.9	0.1	18.1	42.0	0.2	0.2	44.1	0.0	3.2	23.1	19.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	6.1	11.2	1.9	2.1	10.2	0.0	18.3	1.7	28.4	0.8
LnGrp Delay(d),s/veh	71.8	45.2	67.8	90.9	33.2	33.7	93.8	0.0	23.8	78.8	52.3	19.0
LnGrp LOS	E	D	E	F	C	C	F		C	E	D	B
Approach Vol, veh/h		217			413			940			1608	
Approach Delay, s/veh		63.5			68.9			40.8			52.2	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	18.8	20.2	55.0	6.0	34.8	8.2	67.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	18.3	15.7	50.5	5.0	30.8	5.1	61.1
Max Q Clear Time (g_c+I1), s	18.5	13.7	16.8	51.4	2.7	6.8	4.8	37.8
Green Ext Time (p_c), s	0.0	0.3	0.0	0.0	0.0	0.9	0.0	5.5

Intersection Summary		
HCM 2010 Ctrl Delay		51.7
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	65	285	180	55	55	390	655	138	65	1245	110
Future Volume (veh/h)	40	65	285	180	55	55	390	655	138	65	1245	110
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		0.99	1.00		0.98	1.00		0.97	1.00		0.98
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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	43	71	310	196	60	60	424	712	150	71	1353	120
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	231	513	232	111	111	424	1595	696	91	1341	590
Arrive On Green	0.20	0.20	0.20	0.13	0.13	0.13	0.12	0.45	0.45	0.05	0.38	0.38
Sat Flow, veh/h	690	1139	1567	1774	849	849	3442	3539	1543	1774	3539	1558
Grp Volume(v), veh/h	114	0	310	196	0	120	424	712	150	71	1353	120
Grp Sat Flow(s),veh/h/ln	1828	0	1567	1774	0	1697	1721	1770	1543	1774	1770	1558
Q Serve(g_s), s	5.8	0.0	18.2	11.8	0.0	7.2	13.5	15.2	6.5	4.3	41.5	5.7
Cycle Q Clear(g_c), s	5.8	0.0	18.2	11.8	0.0	7.2	13.5	15.2	6.5	4.3	41.5	5.7
Prop In Lane	0.38		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	371	0	513	232	0	222	424	1595	696	91	1341	590
V/C Ratio(X)	0.31	0.00	0.60	0.84	0.00	0.54	1.00	0.45	0.22	0.78	1.01	0.20
Avail Cap(c_a), veh/h	484	0	610	291	0	279	424	1595	696	168	1341	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	0.0	31.0	46.5	0.0	44.5	48.0	20.7	18.3	51.3	34.0	22.9
Incr Delay (d2), s/veh	0.5	0.0	1.2	16.6	0.0	2.0	43.6	0.9	0.7	13.2	26.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	8.0	6.9	0.0	3.5	8.9	7.6	2.9	2.5	25.1	2.6
LnGrp Delay(d),s/veh	37.6	0.0	32.2	63.1	0.0	46.6	91.6	21.6	19.0	64.5	60.9	23.7
LnGrp LOS	D		C	E		D	F	C	B	E	F	C
Approach Vol, veh/h		424			316			1286			1544	
Approach Delay, s/veh		33.7			56.8			44.4			58.1	
Approach LOS		C			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	53.9		26.7	18.0	46.0		18.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	10.4	44.6		29.0	13.5	41.5		18.0
Max Q Clear Time (g_c+I1), s	6.3	17.2		20.2	15.5	43.5		13.8
Green Ext Time (p_c), s	0.0	5.8		1.2	0.0	0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	50.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	135	255	430	110	335	110	840	780	45	1325	45
Future Volume (veh/h)	55	135	255	430	110	335	110	840	780	45	1325	45
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		0.98	1.00		0.98
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	60	147	277	467	120	364	120	913	848	49	1440	49
Adj No. of Lanes	2	2	1	2	2	1	2	3	2	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	665	387	579	1106	551	194	2027	1558	137	1928	66
Arrive On Green	0.04	0.19	0.19	0.17	0.31	0.31	0.06	0.40	0.40	0.04	0.38	0.38
Sat Flow, veh/h	3442	3539	1583	3442	3539	1562	3442	5085	2733	3442	5048	172
Grp Volume(v), veh/h	60	147	277	467	120	364	120	913	848	49	967	522
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1562	1721	1695	1367	1721	1695	1829
Q Serve(g_s), s	1.5	3.1	14.0	11.4	2.1	17.2	3.0	11.5	17.1	1.2	21.6	21.6
Cycle Q Clear(g_c), s	1.5	3.1	14.0	11.4	2.1	17.2	3.0	11.5	17.1	1.2	21.6	21.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	151	665	387	579	1106	551	194	2027	1558	137	1295	699
V/C Ratio(X)	0.40	0.22	0.72	0.81	0.11	0.66	0.62	0.45	0.54	0.36	0.75	0.75
Avail Cap(c_a), veh/h	216	731	416	939	1475	714	601	2433	1777	711	1730	934
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	30.1	30.3	35.0	21.4	24.0	40.4	19.3	11.9	41.0	23.4	23.4
Incr Delay (d2), s/veh	1.7	0.2	5.4	2.7	0.0	1.5	3.2	0.2	0.3	1.6	1.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.5	6.7	5.7	1.0	7.6	1.5	5.4	6.4	0.6	10.3	11.3
LnGrp Delay(d),s/veh	42.4	30.3	35.7	37.8	21.5	25.4	43.6	19.5	12.2	42.5	24.7	25.7
LnGrp LOS	D	C	D	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		484			951			1881			1538	
Approach Delay, s/veh		34.9			31.0			17.7			25.6	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	39.4	19.2	21.0	9.4	38.0	8.3	31.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.1	41.9	23.9	18.1	15.3	44.7	5.5	36.5
Max Q Clear Time (g_c+I1), s	3.2	19.1	13.4	16.0	5.0	23.6	3.5	19.2
Green Ext Time (p_c), s	0.1	11.2	1.3	0.4	0.2	9.9	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	24.5
HCM 2010 LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	435	440	0	1295	1665	0		
Future Volume (veh/h)	435	440	0	1295	1665	0		
Number	7	14	5	2	6	16		
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	0	1863	1863	0		
Adj Flow Rate, veh/h	473	478	0	1408	1810	0		
Adj No. of Lanes	2	1	0	4	5	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	0	2	2	0		
Cap, veh/h	1231	566	0	2325	2737	0		
Arrive On Green	0.36	0.36	0.00	0.36	0.36	0.00		
Sat Flow, veh/h	3442	1583	0	6929	8252	0		
Grp Volume(v), veh/h	473	478	0	1408	1810	0		
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0		
Q Serve(g_s), s	4.7	12.8	0.0	8.3	9.3	0.0		
Cycle Q Clear(g_c), s	4.7	12.8	0.0	8.3	9.3	0.0		
Prop In Lane	1.00	1.00	0.00			0.00		
Lane Grp Cap(c), veh/h	1231	566	0	2325	2737	0		
V/C Ratio(X)	0.38	0.84	0.00	0.61	0.66	0.00		
Avail Cap(c_a), veh/h	2006	923	0	2804	3302	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	11.0	13.6	0.0	12.0	12.3	0.0		
Incr Delay (d2), s/veh	0.1	1.9	0.0	0.1	0.2	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	2.2	5.9	0.0	3.6	3.9	0.0		
LnGrp Delay(d),s/veh	11.1	15.5	0.0	12.1	12.5	0.0		
LnGrp LOS	B	B		B	B			
Approach Vol, veh/h	951			1408	1810			
Approach Delay, s/veh	13.3			12.1	12.5			
Approach LOS	B			B	B			
Timer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		23.5		22.6		23.5		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		20.2		26.9		20.2		
Max Q Clear Time (g_c+I1), s		10.3		14.8		11.3		
Green Ext Time (p_c), s		4.9		1.7		5.5		
Intersection Summary								
HCM 2010 Ctrl Delay			12.6					
HCM 2010 LOS			B					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	605	305	275	325	30	515	50	220	35	65	35
Future Volume (veh/h)	70	605	305	275	325	30	515	50	220	35	65	35
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	76	658	332	299	353	33	599	0	239	38	71	38
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	834	692	391	753	70	735	0	328	140	267	146
Arrive On Green	0.12	0.24	0.24	0.11	0.23	0.23	0.21	0.00	0.21	0.16	0.16	0.16
Sat Flow, veh/h	1774	3539	1543	3442	3274	304	3548	0	1583	889	1696	931
Grp Volume(v), veh/h	76	658	332	299	190	196	599	0	239	78	0	69
Grp Sat Flow(s),veh/h/ln	1774	1770	1543	1721	1770	1809	1774	0	1583	1818	0	1698
Q Serve(g_s), s	2.9	12.6	11.0	6.1	6.7	6.8	11.6	0.0	10.2	2.7	0.0	2.6
Cycle Q Clear(g_c), s	2.9	12.6	11.0	6.1	6.7	6.8	11.6	0.0	10.2	2.7	0.0	2.6
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	0.49		0.55
Lane Grp Cap(c), veh/h	211	834	692	391	407	416	735	0	328	286	0	267
V/C Ratio(X)	0.36	0.79	0.48	0.77	0.47	0.47	0.81	0.00	0.73	0.27	0.00	0.26
Avail Cap(c_a), veh/h	270	1131	821	538	573	585	1124	0	501	302	0	282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.3	26.0	14.3	31.1	24.0	24.0	27.3	0.0	26.8	26.8	0.0	26.8
Incr Delay (d2), s/veh	0.4	1.8	0.2	2.7	0.3	0.3	1.5	0.0	1.2	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.3	6.5	3.1	3.3	3.4	5.8	0.0	4.6	1.4	0.0	1.2
LnGrp Delay(d),s/veh	29.7	27.8	14.5	33.8	24.3	24.3	28.8	0.0	27.9	27.0	0.0	27.0
LnGrp LOS	C	C	B	C	C	C	C		C	C		C
Approach Vol, veh/h		1066			685			838			147	
Approach Delay, s/veh		23.8			28.5			28.6			27.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.9	22.8		16.5	13.3	22.4		20.1
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 11	23.1		12.0	* 11	23.4		22.9
Max Q Clear Time (g_c+I1), s	8.1	14.6		4.7	4.9	8.8		13.6
Green Ext Time (p_c), s	0.1	2.4		0.3	0.0	1.1		1.3

Intersection Summary		
HCM 2010 Ctrl Delay		26.6
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	70	15	115	15	250	45	945	295	635	1345	125
Future Volume (veh/h)	100	70	15	115	15	250	45	945	295	635	1345	125
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		0.97
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	109	76	16	125	16	272	49	1027	321	690	1462	136
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	139	221	46	155	293	609	69	1738	539	781	2503	233
Arrive On Green	0.08	0.15	0.15	0.09	0.16	0.16	0.04	0.34	0.34	0.23	0.53	0.53
Sat Flow, veh/h	1774	1492	314	1774	1863	1583	1774	5085	1576	3442	4723	439
Grp Volume(v), veh/h	109	0	92	125	16	272	49	1027	321	690	1049	549
Grp Sat Flow(s),veh/h/ln	1774	0	1806	1774	1863	1583	1774	1695	1576	1721	1695	1772
Q Serve(g_s), s	5.5	0.0	4.2	6.4	0.7	11.7	2.5	15.3	15.5	17.8	19.4	19.4
Cycle Q Clear(g_c), s	5.5	0.0	4.2	6.4	0.7	11.7	2.5	15.3	15.5	17.8	19.4	19.4
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	139	0	267	155	293	609	69	1738	539	781	1796	939
V/C Ratio(X)	0.79	0.00	0.34	0.81	0.05	0.45	0.71	0.59	0.60	0.88	0.58	0.58
Avail Cap(c_a), veh/h	257	0	550	176	482	770	141	1738	539	880	1796	939
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	0.0	35.1	41.2	32.9	21.0	43.7	25.0	25.0	34.3	14.7	14.7
Incr Delay (d2), s/veh	9.4	0.0	0.8	21.3	0.1	0.5	12.7	1.5	4.8	9.7	1.4	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	2.2	4.0	0.4	5.2	1.5	7.4	7.5	9.5	9.4	10.1
LnGrp Delay(d),s/veh	51.0	0.0	35.9	62.4	33.0	21.5	56.3	26.4	29.8	44.0	16.1	17.4
LnGrp LOS	D		D	E	C	C	E	C	C	D	B	B
Approach Vol, veh/h		201			413			1397			2288	
Approach Delay, s/veh		44.1			34.4			28.3			24.8	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.4	35.9	12.5	18.1	8.1	53.2	11.7	19.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	23.5	31.4	9.1	28.0	7.3	47.6	13.3	23.8
Max Q Clear Time (g_c+I1), s	19.8	17.5	8.4	6.2	4.5	21.4	7.5	13.7
Green Ext Time (p_c), s	1.1	6.9	0.0	0.4	0.0	13.5	0.1	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	27.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	775	220	25	30	345	45	20	5	10	85	10	45
Future Volume (veh/h)	775	220	25	30	345	45	20	5	10	85	10	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	842	239	27	33	375	49	26	0	11	92	11	49
Adj No. of Lanes	2	2	0	1	2	0	2	0	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	963	1422	159	112	716	93	297	0	132	144	24	108
Arrive On Green	0.28	0.44	0.44	0.06	0.23	0.23	0.08	0.00	0.08	0.08	0.08	0.08
Sat Flow, veh/h	3442	3201	357	1774	3150	409	3548	0	1583	1774	298	1330
Grp Volume(v), veh/h	842	131	135	33	210	214	26	0	11	92	0	60
Grp Sat Flow(s),veh/h/ln	1721	1770	1789	1774	1770	1789	1774	0	1583	1774	0	1628
Q Serve(g_s), s	14.4	2.7	2.8	1.1	6.4	6.5	0.4	0.0	0.4	3.1	0.0	2.2
Cycle Q Clear(g_c), s	14.4	2.7	2.8	1.1	6.4	6.5	0.4	0.0	0.4	3.1	0.0	2.2
Prop In Lane	1.00		0.20	1.00		0.23	1.00		1.00	1.00		0.82
Lane Grp Cap(c), veh/h	963	786	795	112	403	407	297	0	132	144	0	132
V/C Ratio(X)	0.87	0.17	0.17	0.30	0.52	0.53	0.09	0.00	0.08	0.64	0.00	0.45
Avail Cap(c_a), veh/h	1128	1049	1060	258	726	734	1433	0	639	831	0	763
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.3	10.3	10.3	27.7	21.0	21.0	26.2	0.0	26.2	27.6	0.0	27.1
Incr Delay (d2), s/veh	6.2	0.4	0.4	0.5	3.8	3.8	0.0	0.0	0.1	1.7	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	1.4	1.5	0.6	3.6	3.6	0.2	0.0	0.2	1.6	0.0	1.0
LnGrp Delay(d),s/veh	27.5	10.7	10.7	28.2	24.7	24.8	26.2	0.0	26.3	29.3	0.0	28.0
LnGrp LOS	C	B	B	C	C	C	C		C	C		C
Approach Vol, veh/h		1108			457			37			152	
Approach Delay, s/veh		23.5			25.0			26.2			28.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.6	32.9		10.1	22.0	19.5		10.3
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 9	36.7		29.0	* 20	25.4		25.0
Max Q Clear Time (g_c+I1), s	3.1	4.8		5.1	16.4	8.5		2.4
Green Ext Time (p_c), s	0.0	4.0		0.3	0.9	5.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	24.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	1365	310	285	1025	195	200	690	290	165	410	95
Future Volume (veh/h)	270	1365	310	285	1025	195	200	690	290	165	410	95
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	293	1484	337	310	1114	212	217	750	315	179	446	103
Adj No. of Lanes	2	3	0	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	362	1686	381	371	2086	750	277	899	397	238	859	541
Arrive On Green	0.11	0.41	0.41	0.11	0.41	0.41	0.08	0.25	0.25	0.07	0.24	0.24
Sat Flow, veh/h	3442	4137	935	3442	5085	1563	3442	3539	1563	3442	3539	1544
Grp Volume(v), veh/h	293	1215	606	310	1114	212	217	750	315	179	446	103
Grp Sat Flow(s),veh/h/ln	1721	1695	1682	1721	1695	1563	1721	1770	1563	1721	1770	1544
Q Serve(g_s), s	9.3	36.9	37.2	9.8	18.4	9.1	6.9	22.4	21.0	5.7	12.2	5.2
Cycle Q Clear(g_c), s	9.3	36.9	37.2	9.8	18.4	9.1	6.9	22.4	21.0	5.7	12.2	5.2
Prop In Lane	1.00		0.56	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	362	1382	685	371	2086	750	277	899	397	238	859	541
V/C Ratio(X)	0.81	0.88	0.88	0.83	0.53	0.28	0.78	0.83	0.79	0.75	0.52	0.19
Avail Cap(c_a), veh/h	513	1451	720	417	2086	750	306	1026	453	263	981	595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.8	30.5	30.6	48.7	24.8	17.5	50.3	39.4	38.8	50.9	36.6	25.4
Incr Delay (d2), s/veh	6.4	6.3	12.2	12.5	0.3	0.2	11.5	5.5	8.4	10.5	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	18.4	19.5	5.3	8.6	3.9	3.7	11.6	9.9	3.1	6.0	2.2
LnGrp Delay(d),s/veh	55.2	36.8	42.8	61.3	25.1	17.7	61.8	44.8	47.2	61.4	37.1	25.6
LnGrp LOS	E	D	D	E	C	B	E	D	D	E	D	C
Approach Vol, veh/h		2114			1636			1282			728	
Approach Delay, s/veh		41.1			31.0			48.3			41.4	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.5	49.9	13.5	31.5	16.2	50.2	12.2	32.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	47.7	9.9	30.9	16.6	44.6	8.5	32.3
Max Q Clear Time (g_c+I1), s	11.8	39.2	8.9	14.2	11.3	20.4	7.7	24.4
Green Ext Time (p_c), s	0.2	6.2	0.1	2.6	0.4	8.2	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	39.9
HCM 2010 LOS	D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	90	240	660	100	240	450
Future Volume (veh/h)	90	240	660	100	240	450
Number	3	18	2	12	1	6
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	1900	1863	1863
Adj Flow Rate, veh/h	98	261	717	109	261	489
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	642	594	1048	159	335	2207
Arrive On Green	0.19	0.19	0.34	0.34	0.19	0.62
Sat Flow, veh/h	3442	1583	3173	468	1774	3632
Grp Volume(v), veh/h	98	261	412	414	261	489
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1779	1774	1770
Q Serve(g_s), s	1.1	5.8	9.5	9.5	6.6	2.9
Cycle Q Clear(g_c), s	1.1	5.8	9.5	9.5	6.6	2.9
Prop In Lane	1.00	1.00		0.26	1.00	
Lane Grp Cap(c), veh/h	642	594	602	605	335	2207
V/C Ratio(X)	0.15	0.44	0.68	0.68	0.78	0.22
Avail Cap(c_a), veh/h	1676	1070	1130	1136	864	4320
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	11.1	13.5	13.5	18.3	3.9
Incr Delay (d2), s/veh	0.1	0.5	1.4	1.4	4.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.6	4.8	4.8	3.6	1.4
LnGrp Delay(d),s/veh	16.3	11.6	14.8	14.8	22.3	3.9
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	359		826			750
Approach Delay, s/veh	12.9		14.8			10.3
Approach LOS	B		B			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.4	20.6				34.1		13.4
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	23.1	30.3				57.9		23.1
Max Q Clear Time (g_c+I1), s	8.6	11.5				4.9		7.8
Green Ext Time (p_c), s	0.6	4.6				3.2		1.1

Intersection Summary		
HCM 2010 Ctrl Delay		12.7
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	130	460	400	115	190	130	1285	200	20	740	60
Future Volume (veh/h)	70	130	460	400	115	190	130	1285	200	20	740	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	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	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	76	141	500	435	125	207	141	1397	217	22	804	65
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	554	244	272	453	398	165	861	134	36	1680	752
Arrive On Green	0.05	0.16	0.16	0.15	0.26	0.26	0.09	0.55	0.55	0.02	0.47	0.47
Sat Flow, veh/h	1774	3539	1560	1774	1770	1558	1774	1572	244	1774	3539	1583
Grp Volume(v), veh/h	76	141	500	435	125	207	141	0	1614	22	804	65
Grp Sat Flow(s),veh/h/ln	1774	1770	1560	1774	1770	1558	1774	0	1816	1774	1770	1583
Q Serve(g_s), s	6.2	5.1	23.0	22.5	8.3	16.8	11.5	0.0	80.5	1.8	22.7	3.3
Cycle Q Clear(g_c), s	6.2	5.1	23.0	22.5	8.3	16.8	11.5	0.0	80.5	1.8	22.7	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	96	554	244	272	453	398	165	0	995	36	1680	752
V/C Ratio(X)	0.80	0.25	2.05	1.60	0.28	0.52	0.85	0.00	1.62	0.62	0.48	0.09
Avail Cap(c_a), veh/h	180	554	244	272	453	398	274	0	995	72	1680	752
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.7	54.5	62.0	62.2	43.8	46.9	65.6	0.0	33.2	71.4	26.2	21.1
Incr Delay (d2), s/veh	13.7	0.2	485.7	287.3	0.3	1.2	12.7	0.0	284.9	15.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	2.5	42.8	32.7	4.1	7.4	6.2	0.0	118.8	1.0	11.1	1.5
LnGrp Delay(d),s/veh	82.5	54.7	547.7	349.6	44.1	48.1	78.4	0.0	318.1	87.3	26.4	21.2
LnGrp LOS	F	D	F	F	D	D	E		F	F	C	C
Approach Vol, veh/h		717			767			1755			891	
Approach Delay, s/veh		401.4			218.4			298.9			27.6	
Approach LOS		F			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	27.5	18.2	74.3	12.4	42.1	7.5	85.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.5	23.0	22.7	63.8	14.9	30.6	6.0	80.5
Max Q Clear Time (g_c+I1), s	24.5	25.0	13.5	24.7	8.2	18.8	3.8	82.5
Green Ext Time (p_c), s	0.0	0.0	0.2	6.1	0.1	1.6	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	243.2
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	65	425	140	70	100	565	1750	200	60	1025	135
Future Volume (veh/h)	85	65	425	140	70	100	565	1750	200	60	1025	135
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		1.00	1.00		0.98	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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	92	71	462	152	76	109	614	1902	217	65	1114	147
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	153	602	213	83	119	665	1859	813	73	1322	583
Arrive On Green	0.19	0.19	0.19	0.12	0.12	0.12	0.19	0.53	0.53	0.04	0.37	0.37
Sat Flow, veh/h	1023	789	1531	1774	693	994	3442	3539	1547	1774	3539	1560
Grp Volume(v), veh/h	163	0	462	152	0	185	614	1902	217	65	1114	147
Grp Sat Flow(s),veh/h/ln	1812	0	1531	1774	0	1687	1721	1770	1547	1774	1770	1560
Q Serve(g_s), s	12.0	0.0	29.0	12.4	0.0	16.3	26.3	78.8	11.6	5.5	43.2	9.8
Cycle Q Clear(g_c), s	12.0	0.0	29.0	12.4	0.0	16.3	26.3	78.8	11.6	5.5	43.2	9.8
Prop In Lane	0.56		1.00	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	0	602	213	0	202	665	1859	813	73	1322	583
V/C Ratio(X)	0.47	0.00	0.77	0.71	0.00	0.91	0.92	1.02	0.27	0.89	0.84	0.25
Avail Cap(c_a), veh/h	350	0	602	213	0	202	711	1859	813	73	1322	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	0.0	40.4	63.5	0.0	65.2	59.4	35.6	19.7	71.5	43.0	32.5
Incr Delay (d2), s/veh	1.0	0.0	5.9	10.7	0.0	40.1	17.1	26.9	0.8	67.7	6.7	1.0
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	6.1	0.0	17.7	6.7	0.0	9.9	14.1	45.2	5.1	4.1	22.3	4.4
LnGrp Delay(d),s/veh	54.6	0.0	46.3	74.3	0.0	105.3	76.5	62.5	20.5	139.3	49.6	33.5
LnGrp LOS	D		D	E		F	E	F	C	F	D	C
Approach Vol, veh/h		625			337			2733			1326	
Approach Delay, s/veh		48.5			91.3			62.3			52.3	
Approach LOS		D			F			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.7	83.3		33.5	33.5	60.5		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	6.2	78.8		29.0	31.0	54.0		18.0
Max Q Clear Time (g_c+I1), s	7.5	80.8		31.0	28.3	45.2		18.3
Green Ext Time (p_c), s	0.0	0.0		0.0	0.7	4.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	59.9
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	120	310	440	275	415	250	1360	660	40	1125	100
Future Volume (veh/h)	115	120	310	440	275	415	250	1360	660	40	1125	100
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		0.98	1.00		0.98	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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	125	130	337	478	299	451	272	1478	717	43	1223	109
Adj No. of Lanes	2	2	1	2	2	1	2	3	2	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	695	476	574	1089	534	359	2086	1589	123	1622	145
Arrive On Green	0.06	0.20	0.20	0.17	0.31	0.31	0.10	0.41	0.41	0.04	0.34	0.34
Sat Flow, veh/h	3442	3539	1583	3442	3539	1551	3442	5085	2740	3442	4748	423
Grp Volume(v), veh/h	125	130	337	478	299	451	272	1478	717	43	873	459
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1551	1721	1695	1370	1721	1695	1781
Q Serve(g_s), s	3.4	2.9	17.8	12.7	6.0	25.4	7.2	22.8	14.1	1.2	21.5	21.5
Cycle Q Clear(g_c), s	3.4	2.9	17.8	12.7	6.0	25.4	7.2	22.8	14.1	1.2	21.5	21.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	191	695	476	574	1089	534	359	2086	1589	123	1158	608
V/C Ratio(X)	0.66	0.19	0.71	0.83	0.27	0.84	0.76	0.71	0.45	0.35	0.75	0.75
Avail Cap(c_a), veh/h	281	695	476	785	1194	580	653	2319	1714	712	1603	842
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	31.6	29.3	38.0	24.7	28.6	41.1	23.1	11.4	44.4	27.5	27.5
Incr Delay (d2), s/veh	3.8	0.1	4.8	5.6	0.1	10.4	3.3	0.9	0.2	1.7	1.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.4	8.4	6.5	3.0	12.3	3.6	10.8	5.3	0.6	10.3	11.0
LnGrp Delay(d),s/veh	47.4	31.7	34.1	43.6	24.8	39.0	44.4	24.0	11.6	46.1	28.9	30.1
LnGrp LOS	D	C	C	D	C	D	D	C	B	D	C	C
Approach Vol, veh/h		592			1228			2467			1375	
Approach Delay, s/veh		36.4			37.4			22.7			29.8	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	43.2	20.2	23.0	14.3	36.7	9.7	33.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.5	43.0	21.5	18.0	17.9	44.6	7.7	31.8
Max Q Clear Time (g_c+I1), s	3.2	24.8	14.7	19.8	9.2	23.5	5.4	27.4
Green Ext Time (p_c), s	0.1	12.8	1.1	0.0	0.6	8.7	0.1	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	29.0
HCM 2010 LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	345	595	0	1925	1515	0		
Future Volume (veh/h)	345	595	0	1925	1515	0		
Number	7	14	5	2	6	16		
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	0	1863	1863	0		
Adj Flow Rate, veh/h	375	647	0	2092	1647	0		
Adj No. of Lanes	2	1	0	4	5	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	0	2	2	0		
Cap, veh/h	1445	665	0	2334	2748	0		
Arrive On Green	0.42	0.42	0.00	0.36	0.36	0.00		
Sat Flow, veh/h	3442	1583	0	6929	8252	0		
Grp Volume(v), veh/h	375	647	0	2092	1647	0		
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0		
Q Serve(g_s), s	4.2	24.0	0.0	18.4	10.6	0.0		
Cycle Q Clear(g_c), s	4.2	24.0	0.0	18.4	10.6	0.0		
Prop In Lane	1.00	1.00	0.00			0.00		
Lane Grp Cap(c), veh/h	1445	665	0	2334	2748	0		
V/C Ratio(X)	0.26	0.97	0.00	0.90	0.60	0.00		
Avail Cap(c_a), veh/h	1445	665	0	2358	2777	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	11.3	17.0	0.0	17.9	15.5	0.0		
Incr Delay (d2), s/veh	0.0	28.1	0.0	4.8	0.2	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	2.0	15.4	0.0	8.8	4.4	0.0		
LnGrp Delay(d),s/veh	11.3	45.1	0.0	22.7	15.7	0.0		
LnGrp LOS	B	D		C	B			
Approach Vol, veh/h	1022			2092	1647			
Approach Delay, s/veh	32.7			22.7	15.7			
Approach LOS	C			C	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		28.6		31.2		28.6		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		22.0		25.1		22.0		
Max Q Clear Time (g_c+I1), s		20.4		26.0		12.6		
Green Ext Time (p_c), s		1.4		0.0		5.2		

Intersection Summary			
HCM 2010 Ctrl Delay			22.4
HCM 2010 LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	520	300	350	450	25	635	35	85	60	55	45
Future Volume (veh/h)	85	520	300	350	450	25	635	35	85	60	55	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	92	565	326	380	489	27	717	0	92	65	60	49
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	710	688	468	723	40	839	0	374	196	186	155
Arrive On Green	0.12	0.20	0.20	0.14	0.21	0.21	0.24	0.00	0.24	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1563	3442	3409	188	3548	0	1583	1270	1206	1008
Grp Volume(v), veh/h	92	565	326	380	253	263	717	0	92	92	0	82
Grp Sat Flow(s),veh/h/ln	1774	1770	1563	1721	1770	1827	1774	0	1583	1799	0	1685
Q Serve(g_s), s	3.6	11.5	11.3	8.1	10.0	10.0	14.7	0.0	3.6	3.5	0.0	3.3
Cycle Q Clear(g_c), s	3.6	11.5	11.3	8.1	10.0	10.0	14.7	0.0	3.6	3.5	0.0	3.3
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	0.71		0.60
Lane Grp Cap(c), veh/h	220	710	688	468	376	388	839	0	374	277	0	260
V/C Ratio(X)	0.42	0.80	0.47	0.81	0.67	0.68	0.85	0.00	0.25	0.33	0.00	0.32
Avail Cap(c_a), veh/h	257	905	774	590	499	515	1165	0	520	285	0	267
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.7	28.8	15.2	31.8	27.5	27.5	27.7	0.0	23.5	28.6	0.0	28.5
Incr Delay (d2), s/veh	0.5	3.0	0.2	5.4	0.9	0.9	3.5	0.0	0.1	0.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	5.9	6.7	4.2	5.0	5.1	7.6	0.0	1.6	1.7	0.0	1.5
LnGrp Delay(d),s/veh	31.1	31.8	15.4	37.3	28.4	28.4	31.2	0.0	23.6	28.8	0.0	28.8
LnGrp LOS	C	C	B	D	C	C	C		C	C		C
Approach Vol, veh/h		983			896			809			174	
Approach Delay, s/veh		26.3			32.2			30.3			28.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	21.0		16.8	14.1	21.9		23.0
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 13	19.4		12.0	* 11	21.4		24.9
Max Q Clear Time (g_c+I1), s	10.1	13.5		5.5	5.6	12.0		16.7
Green Ext Time (p_c), s	0.2	1.7		0.3	0.0	1.3		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	29.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	120	15	200	20	470	25	1290	380	615	1415	80
Future Volume (veh/h)	165	120	15	200	20	470	25	1290	380	615	1415	80
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		0.99	1.00		0.99	1.00		0.97	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	179	130	16	217	22	511	27	1402	413	668	1538	87
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	296	36	244	378	659	42	1673	507	742	2561	145
Arrive On Green	0.12	0.18	0.18	0.14	0.20	0.20	0.02	0.33	0.33	0.22	0.52	0.52
Sat Flow, veh/h	1774	1624	200	1774	1863	1563	1774	5085	1542	3442	4918	278
Grp Volume(v), veh/h	179	0	146	217	22	511	27	1402	413	668	1060	565
Grp Sat Flow(s),veh/h/ln	1774	0	1824	1774	1863	1563	1774	1695	1542	1721	1695	1806
Q Serve(g_s), s	13.1	0.0	9.4	15.9	1.3	26.9	2.0	33.8	32.5	25.0	28.9	28.9
Cycle Q Clear(g_c), s	13.1	0.0	9.4	15.9	1.3	26.9	2.0	33.8	32.5	25.0	28.9	28.9
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	207	0	332	244	378	659	42	1673	507	742	1766	941
V/C Ratio(X)	0.87	0.00	0.44	0.89	0.06	0.78	0.64	0.84	0.81	0.90	0.60	0.60
Avail Cap(c_a), veh/h	329	0	386	315	378	659	87	1804	547	870	1894	1009
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.5	0.0	48.2	56.1	42.6	33.3	64.1	41.2	40.7	50.6	22.1	22.1
Incr Delay (d2), s/veh	13.1	0.0	0.9	21.4	0.1	5.8	15.0	3.5	8.7	11.2	0.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	4.8	9.3	0.7	17.1	1.2	16.4	15.1	13.0	13.5	14.5
LnGrp Delay(d),s/veh	70.7	0.0	49.1	77.5	42.6	39.1	79.1	44.6	49.4	61.8	22.6	23.0
LnGrp LOS	E		D	E	D	D	E	D	D	E	C	C
Approach Vol, veh/h		325			750			1842			2293	
Approach Delay, s/veh		61.0			50.3			46.2			34.1	
Approach LOS		E			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	33.0	48.1	22.7	28.6	7.6	73.5	19.9	31.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	33.5	47.0	23.5	28.0	6.5	74.0	24.6	26.9
Max Q Clear Time (g_c+I1), s	27.0	35.8	17.9	11.4	4.0	30.9	15.1	28.9
Green Ext Time (p_c), s	1.5	7.8	0.3	0.6	0.0	17.2	0.3	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	42.4
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	740	345	80	115	485	135	165	50	15	170	65	40
Future Volume (veh/h)	740	345	80	115	485	135	165	50	15	170	65	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	804	375	87	125	527	147	116	141	16	185	71	43
Adj No. of Lanes	2	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	775	1104	253	177	715	199	248	260	215	241	148	89
Arrive On Green	0.23	0.39	0.39	0.10	0.26	0.26	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	3442	2847	652	1774	2727	757	1774	1863	1539	1774	1086	658
Grp Volume(v), veh/h	804	231	231	125	341	333	116	141	16	185	0	114
Grp Sat Flow(s),veh/h/ln	1721	1770	1730	1774	1770	1714	1774	1863	1539	1774	0	1743
Q Serve(g_s), s	19.3	7.9	8.1	5.8	15.1	15.2	5.2	6.0	0.8	8.6	0.0	5.2
Cycle Q Clear(g_c), s	19.3	7.9	8.1	5.8	15.1	15.2	5.2	6.0	0.8	8.6	0.0	5.2
Prop In Lane	1.00		0.38	1.00		0.44	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	775	686	671	177	464	450	248	260	215	241	0	237
V/C Ratio(X)	1.04	0.34	0.34	0.71	0.73	0.74	0.47	0.54	0.07	0.77	0.00	0.48
Avail Cap(c_a), veh/h	775	686	671	331	545	528	517	543	449	600	0	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.2	18.5	18.5	37.4	28.9	28.9	33.9	34.3	32.1	35.7	0.0	34.2
Incr Delay (d2), s/veh	42.4	1.0	1.1	1.9	8.4	8.9	0.5	0.7	0.1	1.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.6	4.1	4.0	2.9	8.5	8.3	2.5	3.1	0.3	4.3	0.0	2.5
LnGrp Delay(d),s/veh	75.6	19.5	19.6	39.3	37.3	37.9	34.5	35.0	32.1	37.7	0.0	34.8
LnGrp LOS	F	B	B	D	D	D	C	C	C	D		C
Approach Vol, veh/h		1266			799			273			299	
Approach Delay, s/veh		55.2			37.9			34.6			36.6	
Approach LOS		E			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.2	38.6		16.8	24.0	27.9		17.1
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 16	29.7		29.0	* 19	26.4		25.0
Max Q Clear Time (g_c+I1), s	7.8	10.1		10.6	21.3	17.2		8.0
Green Ext Time (p_c), s	0.1	6.0		0.6	0.0	5.2		0.6

Intersection Summary		
HCM 2010 Ctrl Delay		45.7
HCM 2010 LOS		D

Notes

APPENDIX J

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – YEAR 2030 (WITH RANCHO DEL ORO INTERCHANGE) + PROJECT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	815	204	194	1110	130	181	500	150	245	766	180
Future Volume (veh/h)	185	815	204	194	1110	130	181	500	150	245	766	180
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	201	886	222	211	1207	141	197	543	163	266	833	196
Adj No. of Lanes	2	3	0	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	1289	321	292	1635	666	288	1004	440	357	1075	607
Arrive On Green	0.08	0.32	0.32	0.08	0.32	0.32	0.08	0.28	0.28	0.10	0.30	0.30
Sat Flow, veh/h	3442	4048	1009	3442	5085	1560	3442	3539	1552	3442	3539	1571
Grp Volume(v), veh/h	201	741	367	211	1207	141	197	543	163	266	833	196
Grp Sat Flow(s),veh/h/ln	1721	1695	1667	1721	1695	1560	1721	1770	1552	1721	1770	1571
Q Serve(g_s), s	4.9	16.4	16.5	5.1	18.2	4.9	4.8	11.2	7.2	6.5	18.4	7.5
Cycle Q Clear(g_c), s	4.9	16.4	16.5	5.1	18.2	4.9	4.8	11.2	7.2	6.5	18.4	7.5
Prop In Lane	1.00		0.61	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	282	1080	531	292	1635	666	288	1004	440	357	1075	607
V/C Ratio(X)	0.71	0.69	0.69	0.72	0.74	0.21	0.68	0.54	0.37	0.75	0.78	0.32
Avail Cap(c_a), veh/h	420	1471	723	428	2218	845	781	1593	699	612	1420	760
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	25.6	25.6	38.4	25.9	15.6	38.3	26.1	24.7	37.4	27.3	18.6
Incr Delay (d2), s/veh	3.4	0.8	1.7	3.4	0.9	0.2	2.9	0.5	0.5	3.1	2.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	7.7	7.8	2.6	8.6	2.1	2.4	5.5	3.2	3.2	9.3	3.3
LnGrp Delay(d),s/veh	41.8	26.4	27.3	41.7	26.8	15.8	41.2	26.5	25.2	40.5	29.3	18.9
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	C	B
Approach Vol, veh/h		1309			1559			903			1295	
Approach Delay, s/veh		29.0			27.8			29.5			30.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	31.9	11.7	30.6	11.5	32.1	13.4	28.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.7	37.3	19.5	34.5	10.5	37.5	15.3	38.7
Max Q Clear Time (g_c+I1), s	7.1	18.5	6.8	20.4	6.9	20.2	8.5	13.2
Green Ext Time (p_c), s	0.2	6.3	0.5	5.0	0.2	7.5	0.5	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.0
HCM 2010 LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	81	141	400	131	359	690
Future Volume (veh/h)	81	141	400	131	359	690
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	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	1900	1863	1863
Adj Flow Rate, veh/h	88	153	435	142	390	750
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	421	631	710	229	490	2329
Arrive On Green	0.12	0.12	0.27	0.27	0.28	0.66
Sat Flow, veh/h	3442	1583	2702	842	1774	3632
Grp Volume(v), veh/h	88	153	294	283	390	750
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1681	1774	1770
Q Serve(g_s), s	0.9	2.6	5.9	6.0	8.4	3.8
Cycle Q Clear(g_c), s	0.9	2.6	5.9	6.0	8.4	3.8
Prop In Lane	1.00	1.00		0.50	1.00	
Lane Grp Cap(c), veh/h	421	631	481	457	490	2329
V/C Ratio(X)	0.21	0.24	0.61	0.62	0.80	0.32
Avail Cap(c_a), veh/h	1932	1326	980	931	1333	5009
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	8.2	13.0	13.1	13.8	3.0
Incr Delay (d2), s/veh	0.2	0.2	1.3	1.4	3.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.2	3.0	2.9	4.4	1.8
LnGrp Delay(d),s/veh	16.4	8.4	14.3	14.4	16.8	3.1
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	241		577			1140
Approach Delay, s/veh	11.3		14.4			7.8
Approach LOS	B		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.8	15.6				31.5		9.5
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	30.8	22.7				58.0		23.0
Max Q Clear Time (g_c+I1), s	10.4	8.0				5.8		4.6
Green Ext Time (p_c), s	1.1	2.8				5.4		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	10.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	40	150	235	70	75	210	484	180	40	1401	40
Future Volume (veh/h)	12	40	150	235	70	75	210	484	180	40	1401	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	13	43	163	255	76	82	228	526	196	43	1523	43
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	435	194	268	459	403	240	697	260	57	1541	689
Arrive On Green	0.01	0.12	0.12	0.15	0.26	0.26	0.14	0.54	0.54	0.03	0.44	0.44
Sat Flow, veh/h	1774	3539	1576	1774	1770	1555	1774	1295	482	1774	3539	1581
Grp Volume(v), veh/h	13	43	163	255	76	82	228	0	722	43	1523	43
Grp Sat Flow(s),veh/h/ln	1774	1770	1576	1774	1770	1555	1774	0	1777	1774	1770	1581
Q Serve(g_s), s	0.8	1.3	11.7	16.5	3.9	4.8	14.8	0.0	36.6	2.8	49.4	1.8
Cycle Q Clear(g_c), s	0.8	1.3	11.7	16.5	3.9	4.8	14.8	0.0	36.6	2.8	49.4	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	26	435	194	268	459	403	240	0	957	57	1541	689
V/C Ratio(X)	0.50	0.10	0.84	0.95	0.17	0.20	0.95	0.00	0.75	0.75	0.99	0.06
Avail Cap(c_a), veh/h	76	559	249	268	470	413	240	0	957	78	1541	689
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	45.1	49.7	48.8	33.3	33.6	49.7	0.0	20.8	55.6	32.4	19.0
Incr Delay (d2), s/veh	13.8	0.1	18.1	42.0	0.2	0.2	44.1	0.0	3.4	23.1	20.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.6	6.1	11.2	1.9	2.1	10.2	0.0	18.8	1.7	28.4	0.8
LnGrp Delay(d),s/veh	70.5	45.2	67.8	90.9	33.4	33.8	93.8	0.0	24.2	78.8	52.5	19.0
LnGrp LOS	E	D	E	F	C	C	F		C	E	D	B
Approach Vol, veh/h		219			413			950			1609	
Approach Delay, s/veh		63.5			69.0			40.9			52.3	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	18.8	20.2	55.0	6.2	34.6	8.2	67.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	18.3	15.7	50.5	5.0	30.8	5.1	61.1
Max Q Clear Time (g_c+I1), s	18.5	13.7	16.8	51.4	2.8	6.8	4.8	38.6
Green Ext Time (p_c), s	0.0	0.3	0.0	0.0	0.0	0.9	0.0	5.6

Intersection Summary	
HCM 2010 Ctrl Delay	51.8
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	65	286	180	55	55	404	655	138	65	1245	111
Future Volume (veh/h)	40	65	286	180	55	55	404	655	138	65	1245	111
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		0.99	1.00		0.98	1.00		0.97	1.00		0.98
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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	43	71	311	196	60	60	439	712	150	71	1353	121
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	231	513	232	111	111	424	1594	695	91	1340	590
Arrive On Green	0.20	0.20	0.20	0.13	0.13	0.13	0.12	0.45	0.45	0.05	0.38	0.38
Sat Flow, veh/h	690	1139	1567	1774	849	849	3442	3539	1543	1774	3539	1558
Grp Volume(v), veh/h	114	0	311	196	0	120	439	712	150	71	1353	121
Grp Sat Flow(s),veh/h/ln	1828	0	1567	1774	0	1697	1721	1770	1543	1774	1770	1558
Q Serve(g_s), s	5.8	0.0	18.3	11.8	0.0	7.2	13.5	15.2	6.5	4.3	41.5	5.7
Cycle Q Clear(g_c), s	5.8	0.0	18.3	11.8	0.0	7.2	13.5	15.2	6.5	4.3	41.5	5.7
Prop In Lane	0.38		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	372	0	513	232	0	222	424	1594	695	91	1340	590
V/C Ratio(X)	0.31	0.00	0.61	0.84	0.00	0.54	1.04	0.45	0.22	0.78	1.01	0.21
Avail Cap(c_a), veh/h	484	0	610	291	0	279	424	1594	695	168	1340	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	0.0	31.0	46.6	0.0	44.6	48.1	20.7	18.3	51.4	34.1	22.9
Incr Delay (d2), s/veh	0.5	0.0	1.2	16.6	0.0	2.0	53.3	0.9	0.7	13.2	27.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	8.1	6.9	0.0	3.5	9.5	7.6	2.9	2.5	25.1	2.6
LnGrp Delay(d),s/veh	37.6	0.0	32.3	63.1	0.0	46.6	101.3	21.6	19.1	64.6	61.1	23.7
LnGrp LOS	D		C	E		D	F	C	B	E	F	C
Approach Vol, veh/h		425			316			1301			1545	
Approach Delay, s/veh		33.7			56.9			48.2			58.3	
Approach LOS		C			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	53.9		26.8	18.0	46.0		18.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	10.4	44.6		29.0	13.5	41.5		18.0
Max Q Clear Time (g_c+I1), s	6.3	17.2		20.3	15.5	43.5		13.8
Green Ext Time (p_c), s	0.0	5.8		1.2	0.0	0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	51.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	135	255	430	110	345	110	844	780	45	1326	45
Future Volume (veh/h)	55	135	255	430	110	345	110	844	780	45	1326	45
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		0.98	1.00		0.98
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	60	147	277	467	120	375	120	917	848	49	1441	49
Adj No. of Lanes	2	2	1	2	2	1	2	3	2	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	665	387	579	1105	551	194	2027	1559	137	1929	66
Arrive On Green	0.04	0.19	0.19	0.17	0.31	0.31	0.06	0.40	0.40	0.04	0.38	0.38
Sat Flow, veh/h	3442	3539	1583	3442	3539	1562	3442	5085	2733	3442	5048	172
Grp Volume(v), veh/h	60	147	277	467	120	375	120	917	848	49	968	522
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1562	1721	1695	1367	1721	1695	1829
Q Serve(g_s), s	1.5	3.1	14.0	11.4	2.1	17.9	3.0	11.6	17.1	1.2	21.6	21.6
Cycle Q Clear(g_c), s	1.5	3.1	14.0	11.4	2.1	17.9	3.0	11.6	17.1	1.2	21.6	21.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	151	665	387	579	1105	551	194	2027	1559	137	1296	699
V/C Ratio(X)	0.40	0.22	0.72	0.81	0.11	0.68	0.62	0.45	0.54	0.36	0.75	0.75
Avail Cap(c_a), veh/h	216	731	416	939	1474	713	601	2432	1776	711	1729	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	30.1	30.3	35.1	21.4	24.2	40.4	19.3	11.9	41.0	23.4	23.4
Incr Delay (d2), s/veh	1.7	0.2	5.4	2.7	0.0	1.8	3.2	0.2	0.3	1.6	1.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.5	6.7	5.7	1.0	8.0	1.5	5.5	6.4	0.6	10.3	11.3
LnGrp Delay(d),s/veh	42.5	30.3	35.7	37.8	21.5	26.0	43.6	19.5	12.2	42.6	24.7	25.7
LnGrp LOS	D	C	D	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		484			962			1885			1539	
Approach Delay, s/veh		34.9			31.1			17.8			25.6	
Approach LOS		C			C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	39.4	19.2	21.0	9.4	38.0	8.3	31.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.1	41.9	23.9	18.1	15.3	44.7	5.5	36.5				
Max Q Clear Time (g_c+I1), s	3.2	19.1	13.4	16.0	5.0	23.6	3.5	19.9				
Green Ext Time (p_c), s	0.1	11.2	1.3	0.4	0.2	9.9	0.0	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			24.6									
HCM 2010 LOS			C									

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	435	440	0	1299	1666	0
Future Volume (veh/h)	435	440	0	1299	1666	0
Number	7	14	5	2	6	16
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	0	1863	1863	0
Adj Flow Rate, veh/h	473	478	0	1412	1811	0
Adj No. of Lanes	2	1	0	4	5	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	1231	566	0	2325	2737	0
Arrive On Green	0.36	0.36	0.00	0.36	0.36	0.00
Sat Flow, veh/h	3442	1583	0	6929	8252	0
Grp Volume(v), veh/h	473	478	0	1412	1811	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0
Q Serve(g_s), s	4.7	12.8	0.0	8.3	9.3	0.0
Cycle Q Clear(g_c), s	4.7	12.8	0.0	8.3	9.3	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	1231	566	0	2325	2737	0
V/C Ratio(X)	0.38	0.84	0.00	0.61	0.66	0.00
Avail Cap(c_a), veh/h	2005	923	0	2804	3301	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	11.0	13.6	0.0	12.0	12.3	0.0
Incr Delay (d2), s/veh	0.1	1.9	0.0	0.1	0.2	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	2.2	5.9	0.0	3.6	3.9	0.0
LnGrp Delay(d),s/veh	11.1	15.5	0.0	12.1	12.5	0.0
LnGrp LOS	B	B		B	B	
Approach Vol, veh/h	951			1412	1811	
Approach Delay, s/veh	13.3			12.1	12.5	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		23.6		22.6		23.6		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		20.2		26.9		20.2		
Max Q Clear Time (g_c+I1), s		10.3		14.8		11.3		
Green Ext Time (p_c), s		4.9		1.7		5.5		

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	605	305	275	325	30	525	50	220	35	65	35
Future Volume (veh/h)	70	605	305	275	325	30	525	50	220	35	65	35
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	76	658	332	299	353	33	610	0	239	38	71	38
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	832	696	390	753	70	745	0	333	139	266	146
Arrive On Green	0.12	0.24	0.24	0.11	0.23	0.23	0.21	0.00	0.21	0.16	0.16	0.16
Sat Flow, veh/h	1774	3539	1543	3442	3274	304	3548	0	1583	889	1696	931
Grp Volume(v), veh/h	76	658	332	299	190	196	610	0	239	78	0	69
Grp Sat Flow(s),veh/h/ln	1774	1770	1543	1721	1770	1809	1774	0	1583	1818	0	1698
Q Serve(g_s), s	2.9	12.7	11.1	6.1	6.7	6.8	11.9	0.0	10.2	2.7	0.0	2.6
Cycle Q Clear(g_c), s	2.9	12.7	11.1	6.1	6.7	6.8	11.9	0.0	10.2	2.7	0.0	2.6
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	0.49		0.55
Lane Grp Cap(c), veh/h	211	832	696	390	407	416	745	0	333	285	0	266
V/C Ratio(X)	0.36	0.79	0.48	0.77	0.47	0.47	0.82	0.00	0.72	0.27	0.00	0.26
Avail Cap(c_a), veh/h	268	1124	823	535	570	582	1118	0	499	300	0	280
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.5	26.1	14.3	31.3	24.1	24.2	27.4	0.0	26.7	27.0	0.0	27.0
Incr Delay (d2), s/veh	0.4	1.9	0.2	2.8	0.3	0.3	1.8	0.0	1.1	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.4	6.5	3.1	3.3	3.4	6.0	0.0	4.6	1.4	0.0	1.2
LnGrp Delay(d),s/veh	29.9	28.0	14.4	34.1	24.5	24.5	29.1	0.0	27.8	27.2	0.0	27.2
LnGrp LOS	C	C	B	C	C	C	C		C	C		C
Approach Vol, veh/h		1066			685			849			147	
Approach Delay, s/veh		23.9			28.7			28.8			27.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.9	22.9		16.5	13.3	22.5		20.4
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 11	23.1		12.0	* 11	23.4		22.9
Max Q Clear Time (g_c+I1), s	8.1	14.7		4.7	4.9	8.8		13.9
Green Ext Time (p_c), s	0.1	2.4		0.3	0.0	1.1		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	26.8
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	70	15	115	15	250	45	949	295	636	1345	125
Future Volume (veh/h)	100	70	15	115	15	250	45	949	295	636	1345	125
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		0.97
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	109	76	16	125	16	272	49	1032	321	691	1462	136
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	139	221	46	155	293	609	69	1737	538	782	2503	233
Arrive On Green	0.08	0.15	0.15	0.09	0.16	0.16	0.04	0.34	0.34	0.23	0.53	0.53
Sat Flow, veh/h	1774	1492	314	1774	1863	1583	1774	5085	1576	3442	4723	439
Grp Volume(v), veh/h	109	0	92	125	16	272	49	1032	321	691	1049	549
Grp Sat Flow(s),veh/h/ln	1774	0	1806	1774	1863	1583	1774	1695	1576	1721	1695	1772
Q Serve(g_s), s	5.5	0.0	4.2	6.4	0.7	11.7	2.5	15.4	15.5	17.8	19.4	19.4
Cycle Q Clear(g_c), s	5.5	0.0	4.2	6.4	0.7	11.7	2.5	15.4	15.5	17.8	19.4	19.4
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	139	0	267	155	293	609	69	1737	538	782	1797	939
V/C Ratio(X)	0.79	0.00	0.34	0.81	0.05	0.45	0.71	0.59	0.60	0.88	0.58	0.58
Avail Cap(c_a), veh/h	257	0	550	176	482	770	141	1737	538	880	1797	939
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	0.0	35.2	41.2	32.9	21.0	43.7	25.0	25.0	34.3	14.7	14.7
Incr Delay (d2), s/veh	9.4	0.0	0.8	21.3	0.1	0.5	12.7	1.5	4.8	9.8	1.4	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	2.2	4.0	0.4	5.2	1.5	7.4	7.5	9.5	9.4	10.1
LnGrp Delay(d),s/veh	51.0	0.0	35.9	62.4	33.0	21.5	56.4	26.5	29.8	44.1	16.1	17.4
LnGrp LOS	D		D	E	C	C	E	C	C	D	B	B
Approach Vol, veh/h		201			413			1402			2289	
Approach Delay, s/veh		44.1			34.4			28.3			24.9	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.4	35.9	12.5	18.1	8.1	53.2	11.7	19.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	23.5	31.4	9.1	28.0	7.3	47.6	13.3	23.8
Max Q Clear Time (g_c+I1), s	19.8	17.5	8.4	6.2	4.5	21.4	7.5	13.7
Green Ext Time (p_c), s	1.0	6.9	0.0	0.4	0.0	13.5	0.1	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	27.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	776	220	25	30	345	45	20	5	10	85	10	45
Future Volume (veh/h)	776	220	25	30	345	45	20	5	10	85	10	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	843	239	27	33	375	49	26	0	11	92	11	49
Adj No. of Lanes	2	2	0	1	2	0	2	0	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	964	1423	159	112	716	93	297	0	132	144	24	108
Arrive On Green	0.28	0.44	0.44	0.06	0.23	0.23	0.08	0.00	0.08	0.08	0.08	0.08
Sat Flow, veh/h	3442	3201	357	1774	3150	409	3548	0	1583	1774	298	1330
Grp Volume(v), veh/h	843	131	135	33	210	214	26	0	11	92	0	60
Grp Sat Flow(s),veh/h/ln	1721	1770	1789	1774	1770	1789	1774	0	1583	1774	0	1628
Q Serve(g_s), s	14.5	2.7	2.8	1.1	6.4	6.5	0.4	0.0	0.4	3.1	0.0	2.2
Cycle Q Clear(g_c), s	14.5	2.7	2.8	1.1	6.4	6.5	0.4	0.0	0.4	3.1	0.0	2.2
Prop In Lane	1.00		0.20	1.00		0.23	1.00		1.00	1.00		0.82
Lane Grp Cap(c), veh/h	964	787	795	112	402	407	297	0	132	144	0	132
V/C Ratio(X)	0.87	0.17	0.17	0.30	0.52	0.53	0.09	0.00	0.08	0.64	0.00	0.45
Avail Cap(c_a), veh/h	1128	1048	1060	258	726	733	1432	0	639	831	0	762
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.3	10.3	10.3	27.7	21.0	21.0	26.2	0.0	26.2	27.6	0.0	27.1
Incr Delay (d2), s/veh	6.3	0.4	0.4	0.5	3.8	3.8	0.0	0.0	0.1	1.8	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	1.4	1.5	0.6	3.6	3.6	0.2	0.0	0.2	1.6	0.0	1.0
LnGrp Delay(d),s/veh	27.5	10.7	10.7	28.3	24.7	24.8	26.2	0.0	26.3	29.3	0.0	28.0
LnGrp LOS	C	B	B	C	C	C	C		C	C		C
Approach Vol, veh/h		1109			457			37			152	
Approach Delay, s/veh		23.5			25.0			26.3			28.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.6	32.9		10.1	22.0	19.5		10.3
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 9	36.7		29.0	* 20	25.4		25.0
Max Q Clear Time (g_c+I1), s	3.1	4.8		5.1	16.5	8.5		2.4
Green Ext Time (p_c), s	0.0	4.0		0.3	0.9	5.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		24.4
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	1365	312	287	1025	195	201	691	291	165	411	95
Future Volume (veh/h)	270	1365	312	287	1025	195	201	691	291	165	411	95
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	293	1484	339	312	1114	212	218	751	316	179	447	103
Adj No. of Lanes	2	3	0	2	3	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	362	1683	383	373	2088	751	277	899	397	238	858	541
Arrive On Green	0.11	0.41	0.41	0.11	0.41	0.41	0.08	0.25	0.25	0.07	0.24	0.24
Sat Flow, veh/h	3442	4132	939	3442	5085	1563	3442	3539	1563	3442	3539	1544
Grp Volume(v), veh/h	293	1216	607	312	1114	212	218	751	316	179	447	103
Grp Sat Flow(s),veh/h/ln	1721	1695	1681	1721	1695	1563	1721	1770	1563	1721	1770	1544
Q Serve(g_s), s	9.3	37.0	37.4	9.9	18.5	9.1	6.9	22.4	21.1	5.7	12.2	5.2
Cycle Q Clear(g_c), s	9.3	37.0	37.4	9.9	18.5	9.1	6.9	22.4	21.1	5.7	12.2	5.2
Prop In Lane	1.00		0.56	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	362	1381	685	373	2088	751	277	899	397	238	858	541
V/C Ratio(X)	0.81	0.88	0.89	0.84	0.53	0.28	0.79	0.84	0.80	0.75	0.52	0.19
Avail Cap(c_a), veh/h	512	1449	718	416	2088	751	305	1024	452	262	980	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	30.6	30.7	48.8	24.8	17.5	50.4	39.4	38.9	51.0	36.7	25.5
Incr Delay (d2), s/veh	6.5	6.4	12.4	12.8	0.3	0.2	11.7	5.5	8.6	10.6	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	18.5	19.7	5.4	8.6	3.9	3.8	11.6	10.0	3.1	6.0	2.3
LnGrp Delay(d),s/veh	55.3	37.0	43.1	61.6	25.1	17.7	62.1	45.0	47.5	61.6	37.2	25.6
LnGrp LOS	E	D	D	E	C	B	E	D	D	E	D	C
Approach Vol, veh/h		2116			1638			1285			729	
Approach Delay, s/veh		41.3			31.1			48.5			41.5	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.6	50.0	13.5	31.6	16.2	50.3	12.2	32.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	47.7	9.9	30.9	16.6	44.6	8.5	32.3
Max Q Clear Time (g_c+I1), s	11.9	39.4	8.9	14.2	11.3	20.5	7.7	24.4
Green Ext Time (p_c), s	0.2	6.1	0.1	2.6	0.4	8.2	0.0	3.5

Intersection Summary		
HCM 2010 Ctrl Delay		40.0
HCM 2010 LOS		D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	94	243	660	106	245	450
Future Volume (veh/h)	94	243	660	106	245	450
Number	3	18	2	12	1	6
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	1900	1863	1863
Adj Flow Rate, veh/h	102	264	717	115	266	489
Adj No. of Lanes	2	1	2	0	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	645	600	1040	167	340	2214
Arrive On Green	0.19	0.19	0.34	0.34	0.19	0.63
Sat Flow, veh/h	3442	1583	3148	490	1774	3632
Grp Volume(v), veh/h	102	264	415	417	266	489
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1775	1774	1770
Q Serve(g_s), s	1.2	6.0	9.7	9.7	6.9	2.9
Cycle Q Clear(g_c), s	1.2	6.0	9.7	9.7	6.9	2.9
Prop In Lane	1.00	1.00		0.28	1.00	
Lane Grp Cap(c), veh/h	645	600	603	604	340	2214
V/C Ratio(X)	0.16	0.44	0.69	0.69	0.78	0.22
Avail Cap(c_a), veh/h	1652	1063	1114	1118	852	4259
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	11.1	13.7	13.7	18.5	3.9
Incr Delay (d2), s/veh	0.1	0.5	1.4	1.4	4.0	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	0.6	2.6	5.0	5.0	3.7	1.4
LnGrp Delay(d),s/veh	16.5	11.6	15.1	15.1	22.5	4.0
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	366		832			755
Approach Delay, s/veh	13.0		15.1			10.5
Approach LOS	B		B			B

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.7	20.9				34.6		13.5
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	23.1	30.3				57.9		23.1
Max Q Clear Time (g_c+I1), s	8.9	11.7				4.9		8.0
Green Ext Time (p_c), s	0.6	4.6				3.2		1.1

Intersection Summary			
HCM 2010 Ctrl Delay			12.9
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	130	460	400	115	190	130	1290	200	20	743	61
Future Volume (veh/h)	71	130	460	400	115	190	130	1290	200	20	743	61
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	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	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	77	141	500	435	125	207	141	1402	217	22	808	66
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	554	244	272	451	397	165	861	133	36	1680	752
Arrive On Green	0.05	0.16	0.16	0.15	0.26	0.26	0.09	0.55	0.55	0.02	0.47	0.47
Sat Flow, veh/h	1774	3539	1560	1774	1770	1558	1774	1572	243	1774	3539	1583
Grp Volume(v), veh/h	77	141	500	435	125	207	141	0	1619	22	808	66
Grp Sat Flow(s),veh/h/ln	1774	1770	1560	1774	1770	1558	1774	0	1816	1774	1770	1583
Q Serve(g_s), s	6.3	5.1	23.0	22.5	8.3	16.8	11.5	0.0	80.5	1.8	22.8	3.4
Cycle Q Clear(g_c), s	6.3	5.1	23.0	22.5	8.3	16.8	11.5	0.0	80.5	1.8	22.8	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	97	554	244	272	451	397	165	0	995	36	1680	752
V/C Ratio(X)	0.80	0.25	2.05	1.60	0.28	0.52	0.85	0.00	1.63	0.62	0.48	0.09
Avail Cap(c_a), veh/h	180	554	244	272	451	397	274	0	995	72	1680	752
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.7	54.5	62.0	62.2	43.9	47.0	65.6	0.0	33.2	71.4	26.3	21.2
Incr Delay (d2), s/veh	13.7	0.2	485.7	287.3	0.3	1.2	12.7	0.0	287.1	15.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	2.5	42.8	32.7	4.1	7.4	6.2	0.0	119.4	1.0	11.2	1.5
LnGrp Delay(d),s/veh	82.3	54.7	547.7	349.6	44.2	48.2	78.4	0.0	320.3	87.3	26.5	21.2
LnGrp LOS	F	D	F	F	D	D	E		F	F	C	C
Approach Vol, veh/h		718			767			1760			896	
Approach Delay, s/veh		401.0			218.5			300.9			27.6	
Approach LOS		F			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	27.5	18.2	74.3	12.5	42.0	7.5	85.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.5	23.0	22.7	63.8	14.9	30.6	6.0	80.5
Max Q Clear Time (g_c+I1), s	24.5	25.0	13.5	24.8	8.3	18.8	3.8	82.5
Green Ext Time (p_c), s	0.0	0.0	0.2	6.1	0.1	1.6	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	243.9
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	65	430	140	70	100	573	1750	200	60	1025	136
Future Volume (veh/h)	86	65	430	140	70	100	573	1750	200	60	1025	136
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		1.00	1.00		0.98	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	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	93	71	467	152	76	109	623	1902	217	65	1114	148
Adj No. of Lanes	0	1	1	1	1	0	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	199	152	605	213	83	119	672	1859	813	73	1314	579
Arrive On Green	0.19	0.19	0.19	0.12	0.12	0.12	0.20	0.53	0.53	0.04	0.37	0.37
Sat Flow, veh/h	1027	784	1531	1774	693	994	3442	3539	1547	1774	3539	1560
Grp Volume(v), veh/h	164	0	467	152	0	185	623	1902	217	65	1114	148
Grp Sat Flow(s),veh/h/ln	1811	0	1531	1774	0	1687	1721	1770	1547	1774	1770	1560
Q Serve(g_s), s	12.0	0.0	29.0	12.4	0.0	16.3	26.7	78.8	11.6	5.5	43.3	9.9
Cycle Q Clear(g_c), s	12.0	0.0	29.0	12.4	0.0	16.3	26.7	78.8	11.6	5.5	43.3	9.9
Prop In Lane	0.57		1.00	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	0	605	213	0	202	672	1859	813	73	1314	579
V/C Ratio(X)	0.47	0.00	0.77	0.71	0.00	0.91	0.93	1.02	0.27	0.89	0.85	0.26
Avail Cap(c_a), veh/h	350	0	605	213	0	202	711	1859	813	73	1314	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.7	0.0	40.3	63.5	0.0	65.2	59.3	35.6	19.7	71.5	43.3	32.8
Incr Delay (d2), s/veh	1.0	0.0	6.1	10.7	0.0	40.1	17.7	26.9	0.8	67.7	6.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	18.0	6.7	0.0	9.9	14.4	45.2	5.1	4.1	22.5	4.4
LnGrp Delay(d),s/veh	54.6	0.0	46.4	74.3	0.0	105.3	77.0	62.5	20.5	139.3	50.2	33.8
LnGrp LOS	D		D	E		F	E	F	C	F	D	C
Approach Vol, veh/h		631			337			2742			1327	
Approach Delay, s/veh		48.5			91.3			62.5			52.7	
Approach LOS		D			F			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.7	83.3		33.5	33.8	60.2		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	6.2	78.8		29.0	31.0	54.0		18.0
Max Q Clear Time (g_c+I1), s	7.5	80.8		31.0	28.7	45.3		18.3
Green Ext Time (p_c), s	0.0	0.0		0.0	0.6	4.7		0.0

Intersection Summary			
HCM 2010 Ctrl Delay			60.1
HCM 2010 LOS			E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	120	310	440	275	421	250	1362	660	40	1130	100
Future Volume (veh/h)	115	120	310	440	275	421	250	1362	660	40	1130	100
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		0.98	1.00		0.98	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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	125	130	337	478	299	458	272	1480	717	43	1228	109
Adj No. of Lanes	2	2	1	2	2	1	2	3	2	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	704	480	573	1097	537	358	2085	1587	123	1622	144
Arrive On Green	0.06	0.20	0.20	0.17	0.31	0.31	0.10	0.41	0.41	0.04	0.34	0.34
Sat Flow, veh/h	3442	3539	1583	3442	3539	1551	3442	5085	2740	3442	4750	422
Grp Volume(v), veh/h	125	130	337	478	299	458	272	1480	717	43	876	461
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1551	1721	1695	1370	1721	1695	1781
Q Serve(g_s), s	3.4	2.9	17.9	12.8	6.1	26.1	7.3	23.1	14.3	1.2	21.8	21.9
Cycle Q Clear(g_c), s	3.4	2.9	17.9	12.8	6.1	26.1	7.3	23.1	14.3	1.2	21.8	21.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	190	704	480	573	1097	537	358	2085	1587	123	1158	608
V/C Ratio(X)	0.66	0.18	0.70	0.83	0.27	0.85	0.76	0.71	0.45	0.35	0.76	0.76
Avail Cap(c_a), veh/h	278	704	480	777	1182	575	647	2297	1702	705	1589	835
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.1	31.7	29.4	38.4	24.7	28.9	41.5	23.4	11.6	44.8	27.8	27.8
Incr Delay (d2), s/veh	3.8	0.1	4.6	5.8	0.1	11.3	3.3	0.9	0.2	1.7	1.4	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.4	8.4	6.6	3.0	12.8	3.6	10.9	5.4	0.6	10.5	11.2
LnGrp Delay(d),s/veh	47.9	31.8	34.0	44.2	24.9	40.2	44.8	24.3	11.8	46.5	29.2	30.5
LnGrp LOS	D	C	C	D	C	D	D	C	B	D	C	C
Approach Vol, veh/h		592			1235			2469			1380	
Approach Delay, s/veh		36.4			38.0			22.9			30.2	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	43.5	20.3	23.4	14.4	37.0	9.8	34.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.5	43.0	21.5	18.0	17.9	44.6	7.7	31.8
Max Q Clear Time (g_c+I1), s	3.2	25.1	14.8	19.9	9.3	23.9	5.4	28.1
Green Ext Time (p_c), s	0.1	12.7	1.0	0.0	0.6	8.7	0.1	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	29.4
HCM 2010 LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	345	595	0	1927	1520	0
Future Volume (veh/h)	345	595	0	1927	1520	0
Number	7	14	5	2	6	16
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	0	1863	1863	0
Adj Flow Rate, veh/h	375	647	0	2095	1652	0
Adj No. of Lanes	2	1	0	4	5	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	1445	665	0	2335	2749	0
Arrive On Green	0.42	0.42	0.00	0.36	0.36	0.00
Sat Flow, veh/h	3442	1583	0	6929	8252	0
Grp Volume(v), veh/h	375	647	0	2095	1652	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1602	1509	0
Q Serve(g_s), s	4.2	24.0	0.0	18.5	10.7	0.0
Cycle Q Clear(g_c), s	4.2	24.0	0.0	18.5	10.7	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	1445	665	0	2335	2749	0
V/C Ratio(X)	0.26	0.97	0.00	0.90	0.60	0.00
Avail Cap(c_a), veh/h	1445	665	0	2358	2776	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	11.3	17.0	0.0	17.9	15.5	0.0
Incr Delay (d2), s/veh	0.0	28.1	0.0	4.8	0.3	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	2.0	15.4	0.0	8.8	4.4	0.0
LnGrp Delay(d),s/veh	11.3	45.1	0.0	22.8	15.7	0.0
LnGrp LOS	B	D		C	B	
Approach Vol, veh/h	1022			2095	1652	
Approach Delay, s/veh	32.7			22.8	15.7	
Approach LOS	C			C	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		28.6		31.2		28.6		
Change Period (Y+Rc), s		6.8		6.1		6.8		
Max Green Setting (Gmax), s		22.0		25.1		22.0		
Max Q Clear Time (g_c+I1), s		20.5		26.0		12.7		
Green Ext Time (p_c), s		1.3		0.0		5.2		

Intersection Summary		
HCM 2010 Ctrl Delay		22.5
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	520	300	350	450	25	641	35	85	60	55	45
Future Volume (veh/h)	85	520	300	350	450	25	641	35	85	60	55	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	92	565	326	380	489	27	724	0	92	65	60	49
Adj No. of Lanes	1	2	1	2	2	0	2	0	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	709	690	467	723	40	845	0	377	195	185	155
Arrive On Green	0.12	0.20	0.20	0.14	0.21	0.21	0.24	0.00	0.24	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1563	3442	3409	188	3548	0	1583	1270	1206	1008
Grp Volume(v), veh/h	92	565	326	380	253	263	724	0	92	92	0	82
Grp Sat Flow(s),veh/h/ln	1774	1770	1563	1721	1770	1827	1774	0	1583	1799	0	1685
Q Serve(g_s), s	3.6	11.6	11.3	8.2	10.0	10.1	14.9	0.0	3.6	3.5	0.0	3.3
Cycle Q Clear(g_c), s	3.6	11.6	11.3	8.2	10.0	10.1	14.9	0.0	3.6	3.5	0.0	3.3
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	0.71		0.60
Lane Grp Cap(c), veh/h	220	709	690	467	376	388	845	0	377	277	0	259
V/C Ratio(X)	0.42	0.80	0.47	0.81	0.67	0.68	0.86	0.00	0.24	0.33	0.00	0.32
Avail Cap(c_a), veh/h	256	902	776	588	498	514	1161	0	518	284	0	266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.8	29.0	15.2	32.0	27.6	27.6	27.7	0.0	23.4	28.7	0.0	28.6
Incr Delay (d2), s/veh	0.5	3.0	0.2	5.5	1.0	1.0	3.7	0.0	0.1	0.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	5.9	6.8	4.2	5.0	5.1	7.7	0.0	1.6	1.7	0.0	1.5
LnGrp Delay(d),s/veh	31.3	32.0	15.3	37.5	28.5	28.6	31.4	0.0	23.6	29.0	0.0	28.9
LnGrp LOS	C	C	B	D	C	C	C		C	C		C
Approach Vol, veh/h		983			896			816			174	
Approach Delay, s/veh		26.4			32.3			30.6			28.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	21.0		16.8	14.1	21.9		23.2
Change Period (Y+Rc), s	* 4.7	5.8		5.1	* 4.7	5.8		5.1
Max Green Setting (Gmax), s	* 13	19.4		12.0	* 11	21.4		24.9
Max Q Clear Time (g_c+I1), s	10.2	13.6		5.5	5.6	12.1		16.9
Green Ext Time (p_c), s	0.2	1.7		0.3	0.0	1.3		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	29.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	120	15	200	20	470	25	1292	380	619	1416	80
Future Volume (veh/h)	165	120	15	200	20	470	25	1292	380	619	1416	80
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		0.99	1.00		0.99	1.00		0.97	1.00		0.98
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	179	130	16	217	22	511	27	1404	413	673	1539	87
Adj No. of Lanes	1	1	0	1	1	1	1	3	1	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	295	36	244	377	660	42	1672	507	746	2566	145
Arrive On Green	0.12	0.18	0.18	0.14	0.20	0.20	0.02	0.33	0.33	0.22	0.52	0.52
Sat Flow, veh/h	1774	1624	200	1774	1863	1563	1774	5085	1542	3442	4918	278
Grp Volume(v), veh/h	179	0	146	217	22	511	27	1404	413	673	1061	565
Grp Sat Flow(s),veh/h/ln	1774	0	1824	1774	1863	1563	1774	1695	1542	1721	1695	1806
Q Serve(g_s), s	13.2	0.0	9.5	16.0	1.3	26.9	2.0	34.0	32.6	25.3	28.9	28.9
Cycle Q Clear(g_c), s	13.2	0.0	9.5	16.0	1.3	26.9	2.0	34.0	32.6	25.3	28.9	28.9
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	207	0	331	244	377	660	42	1672	507	746	1769	942
V/C Ratio(X)	0.87	0.00	0.44	0.89	0.06	0.77	0.64	0.84	0.81	0.90	0.60	0.60
Avail Cap(c_a), veh/h	329	0	384	314	377	660	87	1799	546	868	1889	1006
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.7	0.0	48.4	56.3	42.7	33.3	64.3	41.3	40.9	50.7	22.1	22.1
Incr Delay (d2), s/veh	13.3	0.0	0.9	21.5	0.1	5.7	15.1	3.5	8.7	11.5	0.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	4.9	9.3	0.7	17.1	1.2	16.4	15.1	13.2	13.7	14.7
LnGrp Delay(d),s/veh	70.9	0.0	49.3	77.8	42.8	39.0	79.4	44.8	49.6	62.1	22.6	23.0
LnGrp LOS	E		D	E	D	D	E	D	D	E	C	C
Approach Vol, veh/h		325			750			1844			2299	
Approach Delay, s/veh		61.2			50.4			46.4			34.3	
Approach LOS		E			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	33.3	48.2	22.7	28.6	7.7	73.8	20.0	31.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	33.5	47.0	23.5	28.0	6.5	74.0	24.6	26.9
Max Q Clear Time (g_c+I1), s	27.3	36.0	18.0	11.5	4.0	30.9	15.2	28.9
Green Ext Time (p_c), s	1.5	7.7	0.3	0.6	0.0	17.2	0.3	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	42.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	744	345	80	115	485	135	165	50	15	170	65	40
Future Volume (veh/h)	744	345	80	115	485	135	165	50	15	170	65	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	809	375	87	125	527	147	116	141	16	185	71	43
Adj No. of Lanes	2	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	775	1104	253	177	715	199	248	260	215	241	148	89
Arrive On Green	0.23	0.39	0.39	0.10	0.26	0.26	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	3442	2847	652	1774	2727	757	1774	1863	1539	1774	1086	658
Grp Volume(v), veh/h	809	231	231	125	341	333	116	141	16	185	0	114
Grp Sat Flow(s),veh/h/ln	1721	1770	1730	1774	1770	1714	1774	1863	1539	1774	0	1743
Q Serve(g_s), s	19.3	7.9	8.1	5.8	15.1	15.2	5.2	6.0	0.8	8.6	0.0	5.2
Cycle Q Clear(g_c), s	19.3	7.9	8.1	5.8	15.1	15.2	5.2	6.0	0.8	8.6	0.0	5.2
Prop In Lane	1.00		0.38	1.00		0.44	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	775	686	671	177	464	450	248	260	215	241	0	237
V/C Ratio(X)	1.04	0.34	0.34	0.71	0.73	0.74	0.47	0.54	0.07	0.77	0.00	0.48
Avail Cap(c_a), veh/h	775	686	671	331	545	528	517	543	449	600	0	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.2	18.5	18.5	37.4	28.9	28.9	33.9	34.3	32.1	35.7	0.0	34.2
Incr Delay (d2), s/veh	44.4	1.0	1.1	1.9	8.4	8.9	0.5	0.7	0.1	1.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.8	4.1	4.0	2.9	8.5	8.3	2.5	3.1	0.3	4.3	0.0	2.5
LnGrp Delay(d),s/veh	77.6	19.5	19.6	39.3	37.3	37.9	34.5	35.0	32.1	37.7	0.0	34.8
LnGrp LOS	F	B	B	D	D	D	C	C	C	D		C
Approach Vol, veh/h		1271			799			273			299	
Approach Delay, s/veh		56.5			37.9			34.6			36.6	
Approach LOS		E			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.2	38.6		16.8	24.0	27.9		17.1
Change Period (Y+Rc), s	* 4.7	5.4		5.1	* 4.7	5.4		5.1
Max Green Setting (Gmax), s	* 16	29.7		29.0	* 19	26.4		25.0
Max Q Clear Time (g_c+I1), s	7.8	10.1		10.6	21.3	17.2		8.0
Green Ext Time (p_c), s	0.1	6.0		0.6	0.0	5.2		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	46.3
HCM 2010 LOS	D

Notes