THE CITY OF SAN DIEGO

DEVELOPMENT SERVICES DEPARTMENT

Date of Notice: July 25, 2016

PUBLIC NOTICE

OF THE PREPARATION OF A ENVIRONMENTAL IMPACT REPORT

AND

AN ENVIRONMENTAL IMPACT REPORT SCOPING MEETING

SAP No. 24006519

PUBLIC NOTICE: The City of San Diego as the Lead Agency has determined that the project described below will require the preparation of an Environmental Impact Report (EIR) in compliance with the California Environmental Quality Act (CEQA). This Notice of Preparation of a project EIR and Scoping Meeting was publicly noticed and distributed on July 25, 2016. This notice was published in the SAN DIEGO DAILY TRANSCRIPT and placed on the City of San Diego website at: http://www.sandiego.gov/city-clerk/officialdocs/notices/index.shtml under the "California Environmental Quality Act (CEQA) Notices & Documents" section. In addition, the Public Notice was distributed to the Central Library, as well as the Mission Valley Branch Library.

SCOPING MEETING: A public scoping meeting will be held by the City of San Diego's Development Services Department on **August 8, 2016, beginning at 6:00 PM and running no later than 8:00 PM** at the project site which is located at 123 Camino de la Reina, San Diego, CA 92108. **Please note that depending on the number of attendees, the meeting could end earlier than 8:00 PM.** Verbal and written comments regarding the scope and alternatives of the proposed EIR will be accepted at the meeting.

Please send in written/mail-in comments may also be sent to the following address**: Jeffrey Szymanski, Environmental Planner, City of San Diego Development Services Center, 1222 First Avenue, MS 501, San Diego, CA 92101 or e-mail your comments to DSDEAS@sandiego.gov with the Project Name and Number in the subject line Number** in the subject line within 30 days of the receipt of this notice/date of the Public Notice above. Responsible agencies are requested to indicate their statutory responsibilities in connection with this project when responding. An EIR incorporating public input will then be prepared and distributed for the public to review and comment.

GENERAL PROJECT INFORMATION:

- **PROJECT NAME/NO.: ALEXAN FASHION VALLEY / 474586**
- **COMMUNITY AREA: Mission Valley**
- **COUNCIL DISTRICT: 6**

DESCRIPTION: SITE DEVELOPMENT PERMIT and PLANNED DEVELOPMENT PERMIT to demolish existing structures (35,699 square feet) and on-site surface parking and construction of a mixed used development comprised of 284 dwelling units, 5,760 square feet of commercial (office use) and 3,170 square feet of commercial (restaurant use) within the Mission Valley Community Plan area. The project would range in height from four stories to five stories and would have a total of 284 residential units and 8,897 square feet of commercial space (office and restaurant space). A total of 408

parking spaces would be provided in a six-story, above ground parking structure, in addition to 67 surface parking spaces, for a total of 475 parking spaces.

Access to the project site currently occurs from three driveways off of Camino de la Reina. Primary access to the project would occur via a driveway located in the central portion of the western frontage along Camino de la Reina, in the roughly the same location as the current driveway. The southwestern driveway would be retained in generally the same location as exists currently. The northern driveway would be shifted to the northeastern corner of the project site. A fire lane would be provided along the eastern boundary of the project site.

The project site is located at 123 Camino de la Reina and is developed with commercial office buildings, surface parking, and landscaping. Regional access to the site is provided by Interstate 8 (I-8), located immediately south of the project; SR-163, located immediately east of the project site; and I-805, located approximately two miles east of the project site. local access to the site is via Camino de la Reina. The site is zoned MV-CR (Mission Valley – Commercial Retail), Development Intensity District (DID) G and is designated Commercial Retail in the Mission Valley Community Plan. The project is proposing a mixed-use development as allowed under the Multiple Use Option in the Community Plan.

Applicant: Alec Schiffer, Maple Multi-Family Land CA, LP

Recommended Finding: Pursuant to Section 15060(d) of the CEQA Guidelines, it appears that the proposed project may result in significant environmental impacts in the following areas**: Land Use, Transportation/ Circulation and Parking, Air Quality and Odor, Energy, Geologic Conditions, Greenhouse Gas Emissions, Hydrology, Noise, Paleontological Resources, Public Services and Facilities, Public Utilities, Visual Effects/Neighborhood Character, Water Quality, and Cumulative Effects.**

Availability in Alternative Format: To request this Notice or the City's letter to the applicant detailing the required scope of work (EIR Scoping Letter) in alternative format, call the Development Services Department at (619) 446-5460 (800) 735-2929 (TEXT TELEPHONE).

Additional Information: For environmental review information, contact Jeffrey Szymanski at (619) (619) 446-5324. The Scoping Letter and supporting documents may be reviewed, or purchased for the cost of reproduction, at the Fifth floor of the Development Services Department. **For information regarding public meetings/hearings on this project, contact the Project Manager, John Fisher, at (619) 446-5231.** This notice was published in the SAN DIEGO DAILY TRANSCRIPT and distributed on July 25, 2016.

Kerry M. Santoro
Deputy Director
Development Services Department

ATTACHMENTS: Figure 1: Location Map
Figure 2: Site Plan
Scoping Letter

Distribution:

State of California
State Clearinghouse (46A)

City of San Diego
Mayor's Office (91)
Councilmember Lightner, District 1 (MS 10A)
Councilmember Faulconer District 2 (MS 10A)
Councilmember Gloria, District 3 (MS 10A)
Councilmember Cole, District 4 (MS 10A)
Councilmember Kersey, District 5 (MS 10A)
Councilmember Zapf, District 6 (MS 10A)
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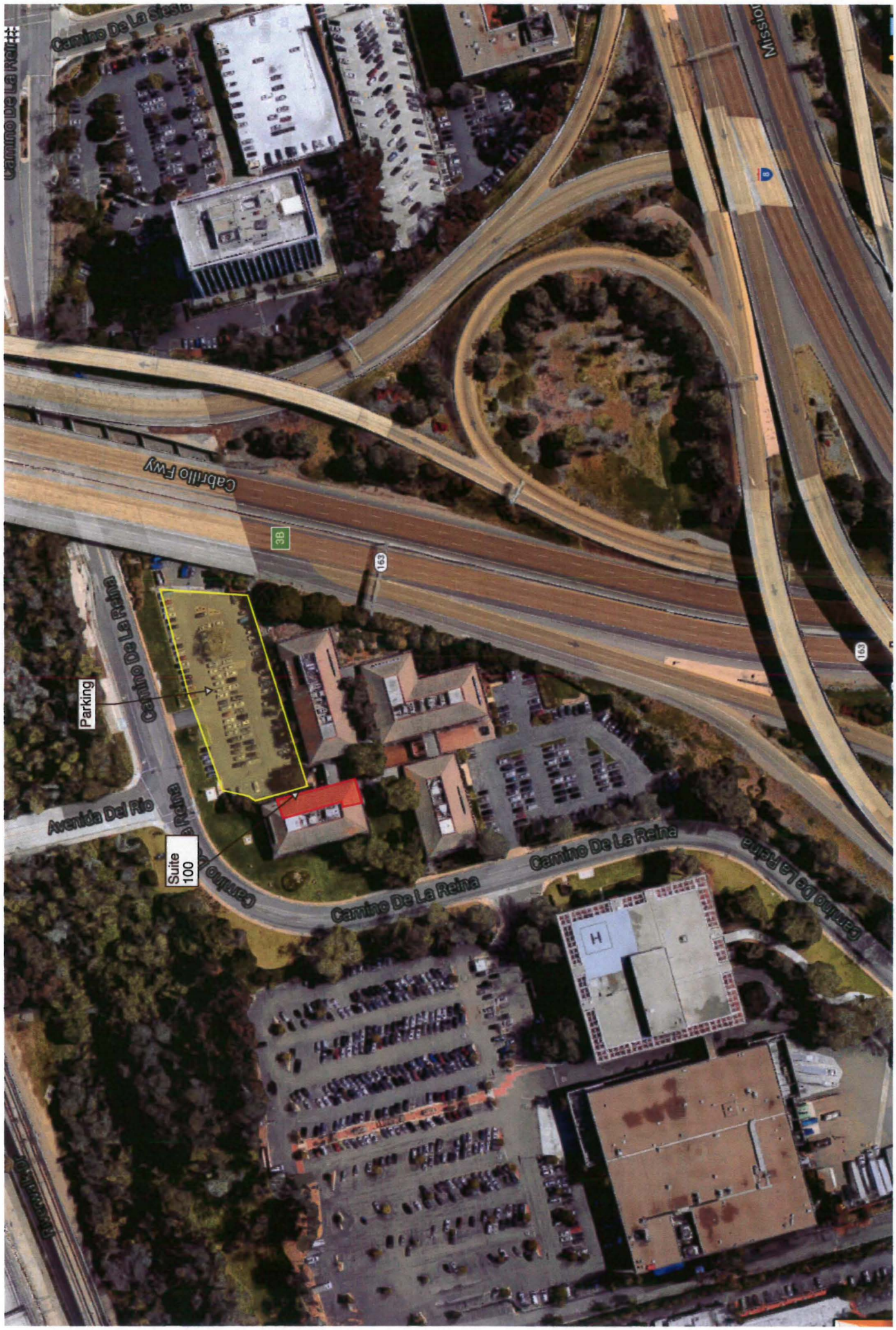
Councilmember Alvarez, District 8 (MS 10A)
Councilmember Emerald, District 9 (MS 10A)
Development Services Department
- EAS
- Transportation
- Planning Review
- Fire Plan Review
- Engineering Review
- Geology
- Landscaping
- PUD-water and Sewer Development
- Project Manager

Planning Department
- Plan Facilities Financing
- Plan Long Range Planning

Development Coordination (78A)
Central Library (81A)
Mission Valley Branch Library (81R)
Environmental Services Department (93A)
City Attorney's Office- (MS 59)

Others
Metropolitan Transit System (112)
San Diego Gas & Electric (114)
The San Diego River Park Foundation (163)
San Diego Natural History Museum (166)
San Diego River Conservancy (168)
Mission Valley Center Association (328)
Friars Village HOA (328A)
Mary Johnson (328B)
Mission Valley Community Council (328C)
Union Tribune News (329)
Mission Valley Planning Group (331)

General Manager, Fashion Valley (332)
The San Diego River Coalition (334)
South Coastal Information Center @ San Diego State University (210)
Frank Brown (216)
Carmen Lucas (206)
Clint Linton (215b)
San Diego Archaeological Center (212)
Save Our Heritage Organization (214)
Ron Christman (215)
San Diego County Archaeological Society (218)
Kumeyaay Cultural Heritage Preservation (223)
Kumeyaay Cultural Repatriation Committee (225)
Native American Distribution (225 A-S)
Alec Schiffer, Trammell Crow
Karen L. Ruggels, K L R PLANNING, Consultant


Camino De La Siesta
Cabrillo Fwy
3B
163
Parking
Camino De La Reina
Avenida Del Rio
Suite 100
Camino De La Reina
Camino De La Reina
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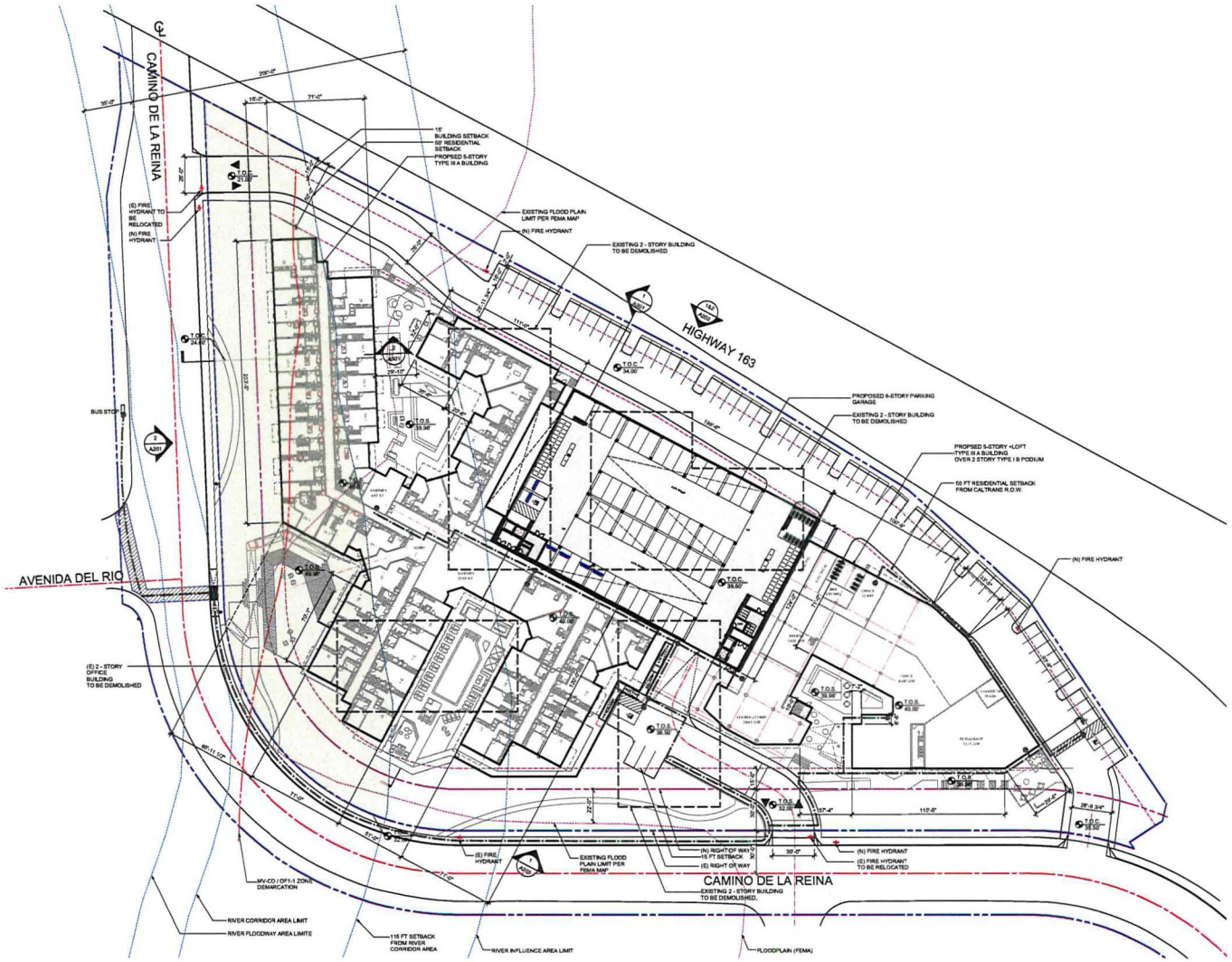

GROSS SITE AREA	= 4.918 AC
EXISTING USAGE:	(4) EXISTING COMMERICAL OFFICE BUILDING TO BE DEMOLISHED TOTAL FLOOR AREA = 69,851 S.F. AND WERE BUILT IN 1972.
PROPOSED USAGE:	R-2 RESIDENTIAL COMMERCIAL: OFFICE, RESTAURANT

LEGEND:

- ACCESSIBLE PATH OF TRAVEL
- (N) RIGHT OF WAY
- SETBACK
- (E) RIGHT OF WAY
- FIRE HYDRANT
- TRAFFIC LIGHT
- SITE ENTRY/EGRESS
- ELEVATION TAG
- SECTION TAG
- DESCRIPTION EL +X'-X"
- HEIGHT IDENTIFIER TAG

NORTH

SCALE: 1" = 32'-0" 0 25 50 75 100 FT

The City of SAN DIEGO

Development Services Department
Land Development Review Division

July 25, 2016

Mr. Alec Schiffer
Maple Multi-Family Land CA, LP.
5790 Fleet Street, Suite 140
Carlsbad, California 92008

SUBJECT: **Scope of Work for an Environmental Impact Report for the Alexan Fashion Valley Project, Project No. 474586**

Dear Mr. Schiffer:

Pursuant to Section 15060(d) of the California Environmental Quality Act (CEQA), the Environmental Analysis Section (EAS) of the City of San Diego Development Services Department has determined that the proposed project may have significant effects on the environment, and the preparation of an Environmental Impact Report (EIR) is required. Staff has determined that a project EIR is the appropriate environmental document for the Alexan Fashion Valley project.

The purpose of this letter is to identify the issues to be specifically addressed in the EIR. The EIR shall be prepared in accordance with the City's "Technical Report and Environmental Impact Report Guidelines" (dated December 2005). A copy of the current guidelines is attached. The project issues to be discussed in the EIR are outlined below. A Notice of Preparation (NOP) will be distributed to the Responsible Agencies and others who may have an interest in the project as required by CEQA Section 21083.9(a)(2).

Scoping meetings are required by CEQA Section 21083.9(a)(2) for projects that may have statewide, regional or area-wide environmental impacts. The City's environmental review staff has determined that this project meets this threshold. A scoping meeting has been scheduled for August 8, 2016 from 6:00PM to 8:00PM at the project site located at 123 Camino de la Reina, San Diego, CA 92108.

Please note, changes or additions to the scope of work may be required as a result of input received in response to the Notice of Preparation and Scoping Meeting. In addition, the applicant may adjust the project over time, and any such changes would be disclosed within the EIR.

Each section/issue area of the EIR should provide a descriptive analysis of the project followed by a comprehensive evaluation of the issue area. The EIR should also include sufficient graphics and tables to provide a complete and meaningful description of all major project features, the

environmental impacts of the project, as well as cumulative impacts, mitigation of significant impacts, and alternatives to the project.

PROJECT DESCRIPTION

Discretionary Actions

The proposed project consists of an application for a SITE DEVELOPMENT PERMIT and a PLANNED DEVELOPMENT PERMIT to demolish existing structures (69,651 square feet) and on-site surface parking and construct a mixed-used development consisting of 284 attached residential units, including 48 units with a home-business focus; 3,275 square feet of restaurant space; and 8,480 square feet of commercial office space.

Location of Project

The project site is located at 123 Camino de la Reina and is currently developed with commercial office buildings, surface parking, and landscaping. Regional access to the site is provided by Interstate 8 (I-8), located immediately south of the project; State Route 163 (SR-163), located immediately east of the project site; and Interstate 805 (I-805), located approximately two miles east of the project site. Local access to the site is via Camino de la Reina.

The site is zoned MV-CR (Mission Valley – Commercial Retail), Development Intensity District (DID) G, and is designated Commercial Retail in the Mission Valley Community Plan. The project proposes to use the Multiple Use Option allowed by the Community Plan to redevelop the project site as a mixed-use project.

Project Description

The proposed project would redevelop a 4.92 acre in-fill site within the Mission Valley Community Plan. The project would build 284 residential dwelling units, including 48 residential work-lofts to allow a home-business focus, constructed in "wrap design"; 8,470 square feet of commercial (office use) and 3, square feet of commercial (restaurant use). The structures would range in height from four stories to five stories with a mezzanine. A total of 406 parking spaces would be provided in a six-story, above ground parking structure, in addition to 65 surface parking spaces, for a total of 471 parking spaces.

Access to the project site currently occurs from three driveways off of Camino de la Reina. The central entry would be at the primary access to the project via a driveway located in the central portion of the western frontage along Camino de la Reina, in roughly the same location as the current driveway. The southwestern driveway would be retained in generally the same location as exists currently. The northern driveway would be shifted to the northeastern corner of the project site. A fire lane would be provided along the eastern boundary of the project site. Additionally, in order to enhance pedestrian accessibility, a grand stairway would be constructed as a focal point into the project opposite Avenida Del Rio, which provides direct access to Fashion Valley Mall and a light rail transit station.

EIR FORMAT/CONTENT REQUIREMENTS

The EIR serves to inform governmental agencies and the public of a project's environmental impacts. Emphasis in the EIR must be on identifying feasible solutions to environmental impacts. The objective is not to simply describe and document an impact, but to actively create and suggest mitigation measures or project alternatives to substantially reduce the significant adverse

environmental impacts. The adequacy of the EIR will depend greatly on the thoroughness of this effort.

The EIR must be written in an objective, clear, and concise manner, in plain language. The use of graphics is encouraged to replace extensive word descriptions and to assist in clarification. Conclusions must be supported with quantitative, as well as qualitative, information, to the extent feasible.

Prior to the distribution of the draft EIR for public review, Conclusions, which are attached at the front of the draft EIR, will also need to be prepared. The Conclusions cannot be prepared until an approved draft has been submitted and accepted by the City. and an executive summary of all of the following sections. **The entire document must be left justified. In addition, the environmental document is required to utilize Open sans, 10-point font.** Please refer to the "Environmental Impact Report Guidelines" (updated December 2005) for additional details regarding the required information.

I. CERTIFICATION PAGE

Prior to the distribution of the draft EIR for public review, the Certification Page, which is attached at the front of the draft EIR, will need to be prepared. The Certification Page cannot be prepared until an approved draft document has been submitted and accepted by the City.

II. TITLE PAGE

The EIR shall include a Title Page that includes the Project Tracking System (PTS) number, State Clearinghouse (SCH) number, and date of publication. DO NOT include any company logos and applicant's or consultant's names.

III. TABLE OF CONTENTS

The EIR shall include a Table of Contents and must list all sections included in the EIR, as well as a list of the Appendices, Tables, and Figures. Immediately following the Table of Contents, a list of acronyms and abbreviations used in the document must be provided.

IV. EXECUTIVE SUMMARY

The consultant will prepare the Executive Summary to be submitted for review with the last screencheck draft EIR, unless otherwise determined. The Executive Summary shall have an independent page numbering system (e.g., S-1, S-2). In general, the Executive Summary should reflect the EIR outline but not need contain every element of the EIR. At a minimum, the Executive Summary must include: a brief project description; impacts determined to be significant (including cumulative effects); impacts found to be less than significant; alternatives; areas of controversy; and, lastly, a matrix listing the impacts and mitigation measures. Please refer to the Environmental Report Guidelines for further detailed information.

V. INTRODUCTION

The EIR shall introduce the project with a brief discussion on the intended use and purpose of the EIR. This discussion shall focus on the type of analysis that the EIR is providing and provide an explanation of why it is necessary to implement the project. This section shall describe and/or incorporate by reference any previously certified environmental documents that cover the project site including any EIRs. This section shall briefly describe areas where the project is in compliance or non-compliance with assumptions and mitigation contained in these previously certified documents. Additionally, this section shall provide a brief description of any other local, state and federal agencies that may be involved in the project review and/or any grant approvals.

VI. ENVIRONMENTAL SETTING

The EIR shall describe the precise location of the project with an emphasis on the physical features of the site and the surrounding areas and present it on a detailed topographic map and regional map. This section shall also include a map of the specific proposal and discuss the existing conditions on the project site and in the project area. In addition, the section shall provide a local and regional description of the environmental setting of the project, as well as the zoning and land use designations of the site and its contiguous properties, area topography, drainage characteristics, and vegetation. It shall include any applicable land use plans such as the City's MSCP/MHPA and other applicable open space preserves or overlay zones that affect the project site, such as the City of San Diego General Plan. The section shall include a listing of any open space easements or building restricted easements that exist on the property. A description of other utilities that may be present on or in close proximity to the site and their maintenance accesses shall also be discussed. Provide a recent aerial photo of the site and surrounding uses, and clearly identify the project location. This section shall include a brief description of the location of the closest police and fire stations along with their response times.

VII. PROJECT DESCRIPTION

The EIR shall include a detailed discussion of the goals and objectives of the project, in terms of public benefit (increase in housing supply, employment centers, etc.). Project objectives will be critical in determining the appropriate alternatives for the project, which would avoid or substantially reduce potentially significant impacts. As stated in CEQA Section 15124 (b), "A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding consideration, if necessary. The statement of objectives should include the underlying purpose of the project."

This section shall describe all discretionary actions needed to implement the project (e.g. Site Development Permit, Planned Development Permit, Easement Vacations, etc.), including all permits required from federal, state, and local agencies. The description of the project shall include all major project features, including density, grading (cut and fill), relocation of existing facilities, land use, retaining walls, landscaping, drainage design, improvement plans, off-site improvements, vehicular access points and parking areas associated with the project. The project description shall describe any off-site activities necessary to construct the project. The EIR shall include sufficient graphics and tables to provide a complete

description of all major project features. Project phasing also should be described in this section. This discussion shall address the whole of the project

VIII. HISTORY OF PROJECT CHANGES

This section of the EIR shall outline the history of the project and any physical changes that have been made to the project in response to environmental concerns identified during the City's review of the project.

IX. ENVIRONMENTAL IMPACT ANALYSIS

The potential for significant environmental impacts must be thoroughly analyzed and mitigation measures identified that would avoid or substantially lessen any significant impacts. Since the City of San Diego is the Lead Agency for this project, the EIR must represent the independent analyses of the Environmental Analysis Section (EAS). Therefore, all impact analysis must be based on the City's "Significance Determination Thresholds" dated January 2011. Below are key environmental issue areas that have been identified for this project, within which the issue statements must be addressed individually.

Discussion of each issue statement shall include an explanation of the existing project site conditions, impact analysis, significance determination, and appropriate mitigation. The impact analysis shall address potential direct, indirect, and cumulative impacts that could be created through implementation of the project and its alternatives. Lastly, the EIR should summarize each required technical study or survey report within each respective issue section, and all requested technical reports must be included as the appendices to the EIR and summarized in the text of the document.

In each environmental issue section, mitigation measures to avoid or substantially lessen impacts must be clearly identified and discussed. The ultimate outcome after mitigation should also be discussed (i.e., significant but mitigated, significant and unmitigated). If other potentially significant issue areas arise during the detailed environmental investigation of the project, consultation with Development Services Department is required to determine if these areas need to be added to the EIR. As supplementary information is required, the EIR may also need to be expanded.

<u>Land Use</u>

Issue 1: Would the proposal result in a conflict with the environmental goals, objectives, or recommendations of the General/Community Plan in which it is located?

Issue 2: Would the proposal require a deviation or variance, and the deviation or variance would in turn result in a physical impact on the environment?

Issue 3: Would the proposal result in the exposure of people to current or future noise levels which exceed standards established in the Noise Element of the General Plan or an adopted Airport Land Use Compatibility Plan (ALUCP)?

The project site is located within the Mission Valley Planned District and is zoned MV-CR. Section 1514.0307 of the Mission Valley Planned District Ordinance states multiple use development is permitted within the commercial zones, including the MV-CR zone. The project site is designated for commercial use in the Mission Valley Community Plan.

As indicated under Project Description, the project includes a Site Development Permit and a Planned Development Permit. The EIR shall evaluate consistencies/inconsistencies (including all deviations, variances, etc.) with local, state, and federal regulations (i.e., the City's General Plan, Mission Valley Community Plan, and City of San Diego Land Development Code). If the project is found to be inconsistent with any adopted land use plans, the EIR would disclose and analyze any physical effects that may result from the inconsistency that could be considered significantly adverse.

The site is not located within or adjacent to any Multi-Habitat Planning area of the Multiple Species Conservation Program (MSCP). The closest MHPA is located within the San Diego River, north of the project site. Therefore, no land use conflicts with the MSCP Subarea Plan are anticipated. This shall be disclosed and discussed in the Land Use section of the EIR.

Transportation/Circulation/Parking

Issue 1: **Would the proposal result in substantial impact upon existing or planned transportation systems?**

Issue 2: **Would the project result in traffic generation in excess of specific community plan allocation?**

Issue 3: **Would the project result in an increase in projected traffic which is substantial in relation to the existing traffic load and capacity of the street system?**

Issue 4: **Would the project result in the addition of a substantial amount of traffic to a congested freeway segment, interchange, or ramp?**

Issue 5: **Would the project result in an increased demand for off-site parking and or affect existing parking?**

Issue 6: **Would the project have a substantial impact upon existing or planned transportation systems?**

Issue 7: **Would the project result in an increase in traffic hazards for motor vehicles, bicyclists or pedestrians due to a proposed, non-standard design feature (e.g., poor sight distance or driveway onto an access- restricted roadway)?**

Issue 8: Would the project conflict with adopted policies, plans or programs supporting alternative transportation models (e.g., bus turnouts, bicycle racks)?

The project meets the Average Daily Traffic (ADT) per gross acres as identified in the Mission Valley Community Plan for Development Intensity District "G"; additionally, the project is within Threshold 2 and therefore requires the preparation of a traffic impact analysis. The traffic impact study must be prepared for this project to the satisfaction of the City Engineer.

Describe in this section any required modifications and/or improvements to the existing circulation system, including City streets, intersections, freeways, and interchanges required as a result of the project. Provide an analysis of any potential impacts of the construction of the required traffic improvements. Discuss any potential traffic impacts on the Mission Valley community, as well as adjacent communities (if applicable). Address cumulative traffic impacts, including any future development and/or re-development in the Mission Valley community. Note the assumption of traffic conditions at build-out. Describe the adequacy of parking and the pedestrian access and connectivity of the project, both internally and externally. Describe how any proposed pedestrian and bicycle access would connect with off-site circulation elements. Address emergency access, if modifications to the existing street system are proposed.

The EIR shall present mitigation measures that are required to reduce impacts. Discuss if those measures will mitigate impacts to below a level of significance. If the project results in traffic impacts, which cannot be mitigated to below a level of significance, the Alternatives section of the EIR should include a project alternative that will avoid or further reduce traffic impacts.

The EIR should provide an evaluation of the parking needs for the project and if the project would result in a shortage of parking spaces based on City requirements. If the project does not provide adequate parking based on City requirements, address the potential that the parking shortage would result in off-site parking that could affect the surrounding community. Significant impacts to parking require the inclusion of mitigation measures and/or project alternatives that would reduce significant impacts to below a level of significance.

Air Quality

Issue 1: Would the proposal conflict with or obstruct implementation of the applicable air quality plan?

Issue 2: Would the proposal result in a violation of any air quality standard or contribute substantially to an existing or projected air quality violation?

Issue 3: Would the proposal exceed 100 pounds per day of Particulate Matter (PM) (dust)?

Issue 4: Would the proposal result in creating objectionable odors affecting a substantial number of people?

The construction and operation phases of the project have potential to affect air quality. Construction can create short-term air quality impacts through equipment use, ground-disturbing activities, architectural coatings, and worker automotive trips. Air quality impacts resulting from the operation of the project would be primarily generated by increases in automotive trips. An air quality analysis must be prepared which discusses the project's impact on the ability to meet state, regional, and local air quality strategies/standards, as well as any health risks associated with construction. The development would not generate odor impacts, thus this issue does not need to be addressed further.

Describe the project's climatological setting within the San Diego Air Basin and the basin's current attainment levels for State and Federal Ambient Air Quality Standards. Discuss short- and long-term and cumulative impacts on regional air quality, including construction and operational-related sources of air pollutants. Discuss the potential impacts from the increase in trips to the Regional Air Quality Standards, and the overall air quality impacts from such trips, and any proposed mitigation measures. Should the project result in a significant decrease in the levels of service of any roadway or intersection in the vicinity of a sensitive receptor, address the potential degradation of air quality, which may result, including the possibility of "hot spots" within the area. Also include a discussion of potential dust generation during construction within this section of the document together with any proposed dust suppression measures that would avoid or lessen dust related impacts to sensitive receptors within the area.

The significance of potential air quality impacts shall be assessed and control strategies identified. The EIR shall analyze the proposed projects' compliance with the State Implementation Plan (SIP), the Regional Transportation Plan (RTP) and the Regional Transportation Improvement Plan (RTIP).

The EIR shall also assess the potential health risks associated with particulate emissions from, and shall assess whether the proposed project would allow for future development which would create a significant adverse effect on air quality that could affect public health.

Energy

Issue 1: Would the construction and operation of the proposal result in the use of excessive amounts of electrical power?

Issue 2: Would the proposal result in the use of excessive amounts of fuel or other forms of energy (including natural gas, oil, etc.)?

Appendix F of the State CEQA Guidelines requires that potentially significant energy implications of a project shall be considered in an EIR to the extent relevant and applicable to the project. Particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy should be included in this section. The EIR section shall address the estimated energy use for the project and assess whether the project would generate a demand for energy (electricity and/or natural gas) that would exceed the planned capacity of the energy suppliers. A description of any energy and/or water saving project features should also be included in this section. (Cross-reference with GHG Emissions discussion section as appropriate.) Describe any

proposed measures included as part of the project or required as mitigation measures directed at conserving energy and reducing energy consumption. Ensure this section addresses all issues described within Appendix F of the CEQA Guidelines.

Geologic Conditions

Issue 1: Would the proposal expose people or structures to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?

Issue 2: Would the proposal result in a substantial increase in wind or water erosion of soils, either on or off the site?

Issue 3: Would the proposal 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?

The project site is located in a seismically active region of California where the potential for geologic hazards, such as earthquakes and ground failures exist. According to the City of San Diego Seismic Safety Study, the project site is located within Geologic Hazard Category 31, characterized as liquefaction having a high potential with shallow groundwater, major drainages, and hydraulic fills. No active, potentially active, or inactive faults are known to exist onsite. Furthermore, the project site has been previously graded and is fully developed with commercial buildings, maintenance bays, and associated surface parking. The project would replace the existing land uses with a mixed-use development. The project site could be subject to liquefaction, due to its location proximate to the San Diego River. A geotechnical investigation, prepared in accordance with the City's Geotechnical Report Guidelines, is required to address the feasibility and suitability of the entire site for the development

The section shall describe the geologic and subsurface conditions in the project area. It shall describe the general setting in terms of existing topography, geology (surface and subsurface), tectonics and soil types. It shall assess possible impacts to the project from geologic hazards and unfavorable soil conditions. The constraints discussion shall include issues such as the potential for liquefaction, slope instability, and other hazards. Any secondary impacts due to soils/geology mitigation (e.g., excavation of unsuitable soil) shall also be addressed. Additionally, the sections shall provide mitigation, as appropriate, that would reduce the potential for future adverse impacts resulting from on-site soils and geologic hazards.

Greenhouse Gas Emissions

Issue 1: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Issue 2: Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases?

This section shall present an overview of greenhouse gases (GHG) including the most recent information regarding the current understanding of the mechanisms behind current conditions and trends, and the broad environmental issues related to global climate change. A discussion of current domestic legislation, plans, policies, and programs pertinent to global climate change shall also be included. The EIR shall provide details of the project's sustainable features such as pedestrian access and orientation, sustainable design and building features, and others that meet criteria outlined in the Conservation Element of the General Plan.

The EIR shall address the project's contribution to GHG emissions. A quantitative analysis addressing the project-generated GHG emissions, as applicable, shall be provided in a GHG emission study summarized in the EIR.

Based on the scope of the project, the analysis should identify existing baseline GHG emissions and GHG emissions resulting from both construction activities related to the project and on-going operation of the project. The analysis should include, but is not limited to, the five primary sources of GHG emissions: vehicular traffic, generation of electricity, natural gas consumption/combustion, solid waste generation, and water usage. If the project would result in significant GHG emissions, project features, designs and measures should be identified and incorporated into the project to reduce GHG emissions to below a level of significance.

Health and Safety

Issue 1: **Would the proposal expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including when wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?**

Issue 2: **Would the proposal result in hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waster within a quarter-mile of an existing or proposed school?**

Issue 3: **Would the proposal impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

Issue 4: **Would the proposal be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result create a significant hazard t the public or environment?**

Issue 5: **Would the proposal expose people to toxic substances, such as pesticides and herbicides, some of which have long-lasting ability, applied to the soil during previous agricultural uses?**

Issue 6: **Would the proposal result in a safety hazard for people residing or working in a designated airport influence area?**

Issue 7: Would the proposal result in a safety hazard for people residing or working within two miles of a private airstrip or a private airport or heliport facility that is not covered by an adopted Airport Land Use Compatibility Plan?

The EIR shall identify known contamination site(s) within the project areas and address the potential impact to occupants of the proposed project. This section should also address any other hazardous materials that would be utilized and/or stored on-site. Please provide the types and quantities of hazardous materials along with the locations of storage areas on the plans. The EIR shall also discuss project effects on emergency routes and access within the project area during and after project construction.

Fire hazards exist where highly flammable vegetation is located adjacent to development. Specialized public safety issues arise in cases where brush management requirements cannot be met. The EIR should discuss the project in terms of health and safety as it relates to fire hazards on and adjacent to the project. The discussion should include a discussion of brush management zones (if required), as well as any other fire safety measure to be implemented for the site.

The project site in located in the Airport Influence Area (AIA) Review Area 2 for Montgomery Field and San Diego International Airport, as depicted in the adopted 2014 Airport Land Use Compatibility Plan (ALUCP). Discuss the project's consistency with the ALUCPs relative to safety hazards.

Historical Resources

Issue 1: Would the proposal result in an alteration, including the adverse physical or aesthetic effects and/or the destruction of a prehistoric or historic building (including an architecturally significant building), structure, or object, or site?

Issue 2: Would the proposal result in any impact to existing religious or sacred uses within the potential impact area?

Issue 3: Would the proposal result in the disturbance of any human remains, including those interred outside of formal cemeteries?

Historic resources include all properties eligible or potentially eligible for the National Register of Historic Places, as well as those that may be significant pursuant to State and local laws and registration programs such as the California Register of Historical Resources of the City of San Diego Historical Resources Register. Historical resources include buildings, structures, objects, archaeological sites, districts, landscaping, and traditional cultural properties possessing physical evidence of human activities that are typically over 45 years old, regardless of whether they have been altered or continue to be used. CEQA requires that before approving discretionary projects, the Lead Agency must identify and examine the significant adverse environmental effects which may result from that project. Pursuant to Section 21084.1 of the State CEQA Guidelines, a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant

effect on the environment. Provided information regarding the age of the existing building to be demolished and evidence relative to its historic relevance.

Hydrology

Issue 1: Would the proposal result in an increase in impervious surfaces and associated increased runoff?

Issue 2: Would the proposal result in a substantial alteration to on- and off-site drainage patterns due to changes in runoff flow rates or volumes?

Issue 3: Would the proposal develop wholly or partially within the 100-year floodplain identified in the FEMA maps or impose flood hazards on other properties.

Increases in impervious surfaces could potentially result in significant erosion and subsequent sedimentation downstream. A hydrology study is required to address these issues. The study shall pay particular attention to addressing anticipated changes to existing drainage patterns and runoff volumes affecting adjacent properties. The Hydrology section should include changes in impervious surfaces and the resulting changes in drainage patterns.

Noise

Issue 1: Would the proposal result or create a significant increase in the existing ambient noise levels?

Issue 2: Would the proposal result in the exposure of people noise levels created by the project which exceed the City's adopted noise ordinance and/or City's Significance Determination Thresholds?

An acoustical analysis, prepared in accordance with the City's "Acoustical Report Guidelines," is required to determine if any impacts would occur due to project implementation. The report must determine if the project has the potential to create significant noise impacts. Additionally, the noise report shall evaluate the project's consistency with the General Plan Noise Element. If there is a potential for proposed uses to be incompatible with exterior noise levels at outdoor amenities or interior areas, measures must be included as project design features in order to ensure consistency with the General Plan Noise Element (i.e., setbacks, use of double-paned glass, noise walls/berms and other noise attenuation techniques). Include tables within the noise study, which show the existing, and future noise levels of dB(A) and any increased noise levels over dB(A) in 3 dB(A) increments along affected roads.

The analysis should discuss how the project would conform to the City of San Diego Municipal Code Noise and Abatement Control Ordinance §59.5.01 and the General Plan. Additionally, construction noise may impact surrounding uses and the EIR should include a discussion regarding this potential impact.

The EIR shall discuss whether the project is located in an area affected by aircraft noise and, if so, would land uses proposed by the project be compatible with an adopted Airport Land Use Compatibility Plan.

Paleontological Resources

Issue 1: Would the proposal require over 1,000 cubic yards of excavation in a high resource potential geologic deposit/formation/rock unit?

Issue 2: Would the proposal require over 2,000 cubic yards of excavation in a moderate resource potential geologic deposit/formation/rock unit?

The EIR should include a paleontological resources discussion that identifies the underlying soils and formations and the likelihood of the project to uncover paleontological resources during grading activities. The section should identify the depth of cut (in feet) and amount of grading (in cubic yards) that would result from any grading activities. The City's thresholds for monitoring include grading depths of 10 feet or more and excavation of 1,000 or 2,000 cubic yards depending on the respective moderate or high sensitivity of the formational soils on-site. Monitoring may also be required depending on other site conditions, such as previous grading on-site and depth of exposed formations(s). If the development would impact fossil formations possessing moderate to high potential for significant resources, specific conditions (monitoring and curation) would be required to mitigate impacts to a level below significance.

The project site is underlain by artificial fill, alluvium, and Stadium Conglomerate. Artificial fill has no potential for paleontological resources; and alluvium has a low potential for resources. Stadium Conglomerate, however, has a high sensitivity rating, indicating the potential for unknown subsurface paleontological resources to occur on the project site. The project site has been previously graded and is fully development resulting in a low probability of encountering fossil resources. However, if site grading would occur at depths to encounter native materials and, in particular, the Stadium Conglomerate, there is the potential that paleontological resources could be adversely affected. In this event, monitoring would be required to mitigate potential impacts to below a level of significance. The EIR should include a paleontological discussion based on current City mitigation requirements for paleontological resources.

Public Services and Facilities

Issue 1: Would the proposal have a substantial effect upon, or result in a need for new or altered governmental services in any of the following areas: Police protection; Fire/Life Safety protection; Libraries; Parks or other recreational facilities; Maintenance of public facilities, including roads, and Schools?

The EIR shall describe the public services currently available to serve the project site, and discuss any intensification of land use on the property and if it would lead to an increased demand on existing and planned public services and facilities. The EIR shall identify whether or not construction of new facilities would be required, and describe how the construction

and long-term maintenance and operation of these facilities could be financed. In particular, identify fire, police, and road facilities in relation to the project site. Disclose the Fire and Police Departments' current response time to the area. Discuss if the site currently receives six-minute response time for fire crews and equipment, eight-minute emergency services response time, and whether the Police Department's goal of a seven-minute response time for priority calls are currently able to be met on-site. Discuss if or how the project would alter any existing or planned response times to the site or surrounding service area. Discuss the project impact on existing or future recreational facilities.

Public Utilities

Issue 1: Would the proposal result in a need for new systems, or require substantial alterations to existing utilities, the construction of which would create physical impacts with regard to the following utilities: Natural gas; Water; Sewer; Communication systems; and Solid waste disposal?

Issue 2: Would the proposal use of excessive amounts of water?

Issue 3: Does the proposal propose landscaping which is predominantly non-drought resistant vegetation?

The EIR shall include a discussion of potential impacts to public utilities as a result of the project. Electricity and gas are provided by Sempra Energy. Water and wastewater services are supplied by the City. The EIR will also identify any conflicts with existing and planned infrastructure, and evaluate any need for upgrading infrastructure and include an analysis of any impacts resulting from the construction of needed new facilities.

The EIR will include a discussion of the project's construction and operational effects on the City's ability to handle solid waste. According to Assembly Bill 939, the City of San Diego is required to divert at least 50 percent of its solid waste from landfill disposal through source reduction, recycling, and composting. The project meets the City's threshold of demolition and/or development of 40,000 square feet or more and therefore a Waste Management Plan must be prepared by the applicant, approved by the City's Environmental Services Department, and summarized in the EIR. The Plan must address recycling and solid waste disposal, for demolition, construction, and post-construction occupancy phases of the project.

In regards to water usage, the project would not require a Water Supply Assessment, as it does not meet the requirements of SB 610 and SB 221.

Visual Quality/Neighborhood Character

Issue 1: Would the proposal result in the creation of a negative aesthetic site or project?

Issue 2: Would the proposal's bulk, scale, materials, or style be incompatible with surrounding development?

Issue 3: Would the proposal create substantial light or glare which would adversely affect daytime or nighttime view in the area?

Issue 4: Would the proposal result in substantial alteration to the existing or planned character of the area, such as could occur with the construction of a subdivision in a previously under developed area? Note: for substantial alteration to occur, new development would have to be of a size, scale or design that would markedly contrast with the character of the surrounding area.

This section should evaluate grading associated with the project and the potential change in the visual environment based on the development. Provide an evaluation of the Visual Quality/Neighborhood Character (Aesthetics) impacts due to the project. Describe the structures in terms of building mass, bulk, height, and architecture. Describe or state how this complies with or is allowed by the City's standards for the zone (or proposed zone). Describe how the character of the surrounding community area would be affected with development of the project. Address visual impacts of the project from public vantage points. Visibility of the site from public vantage points should be identified through a photo survey/inventory and/or photo simulations, and any changes in these views should be described.

Describe how the character of the surrounding area would be affected with development of the project. Describe any unifying theme proposed for the development area, and include a description of the design guidelines. Would the project result in a homogenous style of architecture, or would varied architectural designs be encouraged? Also address any zone deviations (such as height) that could result in substantial impacts to the visual environment.

If significant impacts to Visual Quality/Neighborhood Character are identified, mitigation measures and/or project alternatives that would reduce significant impacts to below a level of significance should be provided. Any and all deviations/variances relating to visual quality/neighborhood character and bulk and scale must be discussed in this section.

Water Quality

Issue 1: Would the proposal result in an increase in pollutant discharge to receiving waters during or following construction? Would the proposal discharge identified pollutants to an already impaired water body?

Issue 2: What short-term and long-term effects would the proposal have on local and regional water quality? What types of pre- and post-construction Best Management Practices (BMPs) would be incorporated into the proposal to preclude impacts to local and regional water quality?

Water Quality is affected by sedimentation caused by erosion, by urban run-off carrying contaminants, and by direct discharge of pollutants (point-source pollution). As land is developed or redeveloped, the impervious surfaces could send an increased volume of runoff containing oils, heavy metals, pesticides, fertilizers, and other contaminants (non-source pollution) into associated watersheds. Sedimentation can impede stream flow.

Compliance with the City's Storm Water Standards is generally considered to preclude water quality impacts. The Storm Water Standards are available online.

Discuss the project's effect on water quality within the project area and downstream. If the project requires treatment control Best Management Practices (BMPs), submit a Water Quality Technical Report (WQTR) consistent with the City's Storm Water Standards. The report must describe how source control and site design have been incorporated into the project, the selection and calculations regarding the numeric sizing treatment standards, BMP maintenance schedules and maintenance costs, and the responsible party for future maintenance and associated costs. The report must also address water quality, by describing the types of pollutants that would be generated during post construction, the pollutants to be captured and treated by the BMPs. The findings in this report must be reflected within this section of the EIR. Based on the analysis and conclusions of the WQTR, the EIR shall disclose how the project would comply with local, state, and federal regulations and standards.

X. SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

This section shall describe any significant unavoidable impacts of the project, including those significant impacts that can be mitigated but not reduced to below a level of significance. Provide mitigation measures where appropriate; including triggers, details, responsible entities, and a monitoring and report schedule. Include a sentence on the significance of each impact area discussed, with effect of the proposed mitigation if appropriate. Do not include analysis in this sentence.

XI. SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

In accordance with CEQA Section 15126.2(c), the EIR shall include a discussion of any significant irreversible environmental changes which would be caused by the action should it be implemented. This section shall address the use of nonrenewable resources during the construction and life of the project. See CEQA Section 15127 for limitation on the requirements for this discussion.

XII. GROWTH INDUCEMENT

The EIR shall address the potential for growth inducement through implementation of the project. The EIR shall discuss the ways in which the project 1) is directly and indirectly growth inducing (i.e. fostering economic or population growth by land use changes, construction of additional housing, etc.) and 2) if the subsequent consequences (i.e. impacts to existing infrastructure, requirement of new facilities, roadways, etc.) of the growth inducing project would create a significant and/or unavoidable impact, and provide for mitigation or avoidance. Accelerated growth could further strain existing community facilities or encourage activities that could significantly affect the environment. This section need not conclude that growth-inducing impacts if any are significant unless the project would induce substantial growth or concentration of population.

XIII. CUMULATIVE IMPACTS

In accordance with CEQA Section 15130, potential cumulative impacts shall be discussed in a separate section of the EIR. This section shall include all existing and pending development proposals, including those undergoing review with the Development Services Department. The discussion shall address the potential cumulative effects related to each environmental resources area that should be discussed in the EIR as outlined above.

The EIR shall summarize the overall short-term and long-term impacts this project could have in relation to other planned and proposed projects. When this project is considered with other past, present and reasonably foreseeable probable future projects within close proximity, would the project result in significant environmental changes that are individually limited but cumulatively considerable? If incremental impacts do not rise to the level of cumulatively significant the Draft EIR shall make a statement to that extent.

XIV. EFFECTS FOUND NOT TO BE SIGNIFICANT

A separate section of the EIR shall include a brief discussion of why certain areas were not considered to be potentially significant and were therefore not included in the EIR. For the Camino Del Rio Mixed Use project, these include agricultural resources, biological resources, health and safety, historical resources, mineral resources, recreation, and population and housing. If issues related to these areas or other potentially significant issues areas arise during the detailed environmental investigation of the project, consultation with EAS is recommended to determine if subsequent issue area discussions need to be added to the EIR. Additionally, as supplementary information is submitted (such as with the technical reports), the EIR may need to be expanded to include these or other additional use areas.

XV. ALTERNATIVES

The EIR shall place major attention on reasonable alternatives that avoid or reduce the project's significant environmental impacts while still achieving the stated project objectives. Therefore, a discussion of the project's objectives should be included in this section. The alternatives should be identified and discussed in detail and should address all significant impacts. Refer to Section 15364 of the CEQA Guidelines for the CEQA definition of "feasible."

This section should provide a meaningful evaluation, analysis, and comparison of alternatives' impacts to those of the project (matrix format recommended). These alternatives should be identified and discussed in detail and should address all significant impacts. The alternatives analysis should be conducted with sufficient graphics, narrative and detail to clearly assess the relative level of impacts and feasibility. Issues to consider when assessing "feasibility" are site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, jurisdictional boundaries and the applicant's control over alternative sites (own, ability to purchase, etc.).

Preceding the detailed alternatives analysis, provide a section entitled "Alternatives Considered but Rejected." This section should include a discussion of preliminary alternatives that were considered but not analyzed in detail. The reasons for rejection must

be explained in detail and demonstrate to the public the analytical route followed in rejecting certain alternatives.

No Project Alternatives

The No Project Alternative discussion shall compare the environmental effects of approving the project with impacts of not approving the project. In accordance with CEQA Guidelines Section 15126.6(e)(3)(B), the No Project Alternatives shall discuss the existing conditions at the time of the NOP, as well as what would be reasonably expected to occur in the foreseeable future if the proposed project is not approved, based on current zoning, and use designations, and available infrastructure.

The No Project/Development Alternative assumes no construction associated with the proposed project, with future development occurring with the existing land use. The intent of this alternate is to satisfy CEQA's requirement to address development of the project site in accordance with any approved plans and/or existing zoning.

Other Project Alternatives

In addition to the No Project alternatives, the EIR shall consider other alternatives that are determined through the environmental review process that could reduce or avoid potentially significant environmental effects associated with the proposed project. These alternatives must be discussed and/or defines with EAS staff prior to included them in the EIR.

The Alternatives section of the EIR will be based on a description of "reasonable" project alternatives, which are capable of reducing or avoiding potentially significant impacts associated with the proposed project. Site-specific alternatives, if needed, will be developed in response to the conclusions of the environmental analyses and the various technical studies and may include alternative project design(s) that can reduce one or more of the identified significant adverse impacts of the proposed project. This may include a reduction in land use intensity, alternative land use plan(s), or feasible design scenarios.

If any of the technical reports prepared for the proposed project show significant impacts as a result of project build-out, a Reduced Development Alternative that reduces those impacts should be presented and evaluated. The applicant should work with City staff to determine the development area and intensity that should be considered din this alternative.

If, through the environmental analysis, other alternatives become apparent that would mitigate potential impacts, these should be discussed with EAS staff prior to including them in the Draft EIR. It is important to emphasize that the alternatives section of the EIR should constitute a major part of the report. The timely processing of the environmental review will likely be dependent on the thoroughness of effort exhibited in the alternative analysis.

XVI. MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)

Mitigation measures should be clearly identified and discussed and their effectiveness assessed in each issue section of the EIR. A Mitigation, Monitoring, and Reporting Program

(MMRP) for each issue area with significant impacts is mandatory and projected effectiveness must be assessed (i.e., all or some CEQA impacts would be reduced to below a level of significance, etc.). At a minimum, the MMRP should identify: 1) the department responsible for the monitoring; 2) the monitoring and reporting schedule; and 3) the completion requirements. In addition, mitigation measures and the monitoring and reporting program for each impact should also be contained (verbatim) to be included within the EIR in a separate section and a duplicate separate copy (Word version) must also be provided to EAS.

XVII. REFERENCES

Materials must be reasonably accessible. Use the most up-to-date possible and reference source documents

XVIII. INDIVIDUALS AND AGENCIES CONSULTED

List those consulted in preparation of the EIR. Seek out parties who would normally be expected to be a responsible agency or an interest in the project.

XIX. CERTIFICATION PAGE

Include City and Consulting staff members, titles, and affiliations

XX. APPENDICES

Include the EIR Notice of Preparation (NOP), and any comments received regarding the NOP and Scoping Letter. Include all accepted technical studies.

CONCLUSION

If other potentially significant issue areas arise during detailed environmental investigation of the project, consultation with this division is required to determine if these other areas need to be addressed in the EIR. Should the project description be revised, an additional scope of work may be required. Furthermore, as the project design progresses and supplementary information becomes available, the EIR may need to be expanded to include additional issue areas.

It is important to note that timely processing of your project will be contingent in large part on your selection of a well-qualified consultant. Prior to starting work on the EIR, a meeting between the consultant and EAS will be required to discuss and clarify the scope of work. Until the screencheck for the draft EIR is submitted, which addresses all of the above issues, the environmental processing timeline will be held in abeyance. Should you have any questions, please contact the environmental analyst, Jeffrey Szymanski at (619) 446-5324; for general question regarding the project contact John Fisher, Project Manager, at (619) 446-5231.

Sincerely,

Jeffrey Szymanski (FOR)
Kerry M. Santoro

Deputy Director
Development Services Department

cc: Jeffrey Szymanski, Development Services Department
Environmental Project File
Karen L. Ruggels, K L R PLANNING, Consultant

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August 22, 2016

File Number 3300300

Mr. Jeffrey Szymanski
City of San Diego
Development Services Center
1222 First Avenue, Mail Station 501
San Diego, CA 92101

MEMBER AGENCIES
Cities of
Carlsbad
Chula Vista
Coronado
Del Mar
El Cajon
Encinitas
Escondido
Imperial Beach
La Mesa
Lemon Grove
National City
Oceanside
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Solana Beach
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and
County of San Diego

ADVISORY MEMBERS
Imperial County
California Department of Transportation
Metropolitan Transit System
North County Transit District
United States Department of Defense
San Diego Unified Port District
San Diego County Water Authority
Southern California Tribal Chairmen's Association
Mexico

Dear Mr. Szymanski:

SUBJECT: Alexan Fashion Valley (Project No. 474586)

Thank you for the opportunity to comment on the Alexan Fashion Valley Notice of Preparation (NOP). The San Diego Association of Governments (SANDAG) appreciates the City of San Diego's efforts to implement the policies included in San Diego Forward: The Regional Plan (Regional Plan) that emphasize the need for better land use and transportation coordination. These policies will help provide people with more travel and housing choices, protect the environment, create healthy communities, and stimulate economic growth. SANDAG's comments are based on policies included in the Regional Plan and are submitted from a regional perspective.

Smart Growth

SANDAG appreciates that the City of San Diego has prioritized transit-oriented development and land use changes in the project area that support the Smart Growth Concept Map and Regional Plan. A key goal of the Regional Plan is to focus growth in smart growth opportunity areas. This project is located in an Existing/Planned Town Center (SD MV-2), a Smart Growth Opportunity Area identified on the Smart Growth Concept Map. The proposed project is currently well-served by a number of high-frequency local bus routes (Routes 6, 20, 41, 120), as well as Trolley service (Green Line). Please include the following planned routes/services in the plan documents and facilitate access to these services (e.g., pedestrian and bicycle improvements to ensure access to the Fashion Valley Transit Station):

- *Rapid* service (Routes 41 and 120)
    - Route 120, currently a high-frequency local bus service, will be transitioned to a *Rapid* service.
- High-frequency local bus service (Routes 25, 88, 646, 928).

Transportation Demand Management

When preparing the Environmental Impact Report for the Alexan Fashion Valley Project, please consider integrating additional transportation demand management (TDM) strategies, which could serve as mitigation measures to assist with reducing single-occupancy vehicle trips to and from the project area, while encouraging alternative travel modes. Examples of TDM strategies could include:

- Provision and promotion of shared mobility services (e.g., carshare, bikeshare, on-demand rideshare) to reduce reliance on private automobiles, reduce demand for parking, and improve circulation within and around the development.
- Implement reduced parking requirements, given the close proximity to transit services, coupled with shared parking strategies among commercial and residential uses. Additional parking management strategies could include unbundled parking, priced parking, parking cash-out, and designated parking for carpools, vanpools, and carshare vehicles.
- Offer subsidized transit passes to employees and residents to encourage Green Line Trolley ridership and other connecting transit services.
- Offer bike amenities such as secure and convenient bike parking, locker rooms, and bike repair stands.
- Transportation kiosks with information about regional transit services and TDM programs.
- Designated transportation coordinator to manage and monitor TDM programs for employees and residents.

Other regional TDM programs, such as the SANDAG Vanpool Program, online ridematching, multimodal trip planning, and the Guaranteed Ride Home program can be promoted to residents, employees, and visitors to assist with reducing traffic congestion. Information on these programs can be accessed through iCommuteSD.com, and the SANDAG TDM division can assist with integration of these measures as part of this project.

Other Considerations

SANDAG has a number of resources that can be used in the design of the project or as resources for additional information or clarification on topics discussed in this letter. These can be found on our website at sandag.org/igr:

- SANDAG Regional Parking Management Toolbox
- Riding to 2050, the San Diego Regional Bike Plan
- Regional Multimodal Transportation Analysis: Alternative Approaches for Preparing Multimodal Transportation Analysis in Environmental Impact Reports
- Planning and Designing for Pedestrians, Model Guidelines for the San Diego Region
- Trip Generation for Smart Growth
- Parking Strategies for Smart Growth
- Designing for Smart Growth, Creating Great Places in the San Diego Region

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 Alexan Fashion Valley NOP. If you have any questions, please contact me at (619) 699-1943 or via email at susan.baldwin@sandag.org.

Sincerely,

SUSAN B. BALDWIN, AICP
Senior Regional Planner

SBA/KHE/asa

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September 1, 2016

11-SD-163, 8
SR-163 - 3.9 PM
I-8 - 2.4 PM
NOP

Mr. Jeffrey Szymanski, Senior Planner
City of San Diego
Development Services Department
1222 First Avenue, MS-501
San Diego, CA 92101

Dear Mr. Szymanski:

The California Department of Transportation (Caltrans) has reviewed the Notice of Preparation (NOP) (SCH# 2016071065) for the proposed Alexan Fashion Valley draft Environmental Impact Report (EIR) in proximity to State Route 163 (SR-163) and Interstate 8 (I-8). Caltrans has the following comments:

This property development is in close proximity to the SR-163 / Friars Road Interchange Modification Project. Please refer to the link to the City of San Diego's Friars Road Project environmental document below:

http://www.dot.ca.gov/dist11/Env_docs/SR163-FriarsRdInterchangeDEIR.pdf

For your information, the San Diego Association of Governments' (SANDAG) "San Diego Forward" Regional Transportation Plan also proposes the construction of auxiliary lanes along the northbound and southbound SR-163 (Revenue Constrained Plan) with a planned project by 2050.

If you have any questions, please contact Mark McCumsey at (619) 688-6802 or by email at mark.mccumsey@dot.ca.gov

Sincerely,

JACOB M. ARMSTRONG, Branch Chief
Development Review Branch

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
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Edmund G. Brown Jr., Governor

July 26, 2016

Jeffrey Szymanski
City of San Diego
1222 First Avenue, MS-501
San Diego, CA 92101

sent via e-mail:
DSDEAS@sandiego.gov

RE: SCH# 2016071065; Alexan Fashion Valley Project, Draft Environmental Impact Report, San Diego County, California

Dear Mr. Szymanski:

The Native American Heritage Commission has received the Notice of Preparation (NOP) for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared. (Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd.(a)(1) (CEQA Guidelines § 15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a **separate category of cultural resources**, "tribal cultural resources" (Pub. Resources Code § 21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code § 21084.3 (a)). **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
    a. A brief description of the project.
    b. The lead agency contact information.
    c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code § 21080.3.1 (d)).
    d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code § 21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. (Pub. Resources Code § 21080.3.1(b)).
    a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Resources Code § 21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
    a. Alternatives to the project.
    b. Recommended mitigation measures.
    c. Significant effects. (Pub. Resources Code § 21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
    a. Type of environmental review necessary.
    b. Significance of the tribal cultural resources.
    c. Significance of the project's impacts on tribal cultural resources.
    d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
    a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
    b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
    a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
    b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
        i. Planning and construction to avoid the resources and protect the cultural and natural context.
        ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
   I. Protecting the cultural character and integrity of the resource.
   II. Protecting the traditional use of the resource.
   III. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code § 21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

This process should be documented in the Cultural Resources section of your environmental document.

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code § 65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code section 65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction. (Gov. Code § 65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
   a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
   b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have been already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

Please contact me if you need any additional information at gayle.totton@nahc.ca.gov.

Sincerely,



Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

cc: State Clearinghouse

Scoping Meeting for EIR
August 8, 2016
Transcript of Meeting

Jeffrey Szymanski:
Good evening and thank you for attending the Scoping meeting for the Environmental Impact Report (EIR) for the Alexan Fashion Valley Project. My name is Jeffrey Szymanski, Environmental Planner for the City of San Diego's Development Services Department. The purpose of scoping meetings is for the public to assist in defining the scope of work for the EIR.

This meeting is required by the California Environmental Quality Act (CDQA) for the projects, which may have State-wide, Regional or Area-wide environmental impacts. The City's environmental review staff has determined that this project meets this threshold, and thereby scheduled this meeting to gather public input prior to the preparation of the project's environmental document.

The City's environmental review staff is required bye the City's Municipal Code to provide the public and decision makers with independently prepared environmental documents which disclose impacts to the physical environmental. This information is used by decision makers as part of the deliberative process for approving or denying a project. The environmental document does not recommend approval or denial, but provides information in regards to the environmental impacts of a project.

Now, a few comments about how the meeting will be presented. Firs, we'll have a brief presentation from the project's applicant followed by the public comment period. This meeting is designed to get as much public input on areas that need to be addressed in the EIR in the time allotted for this meeting. Therefore, each speaker is asked to introduce themselves, state their address and complete their comments within three minutes. The meeting will end at 8:00 pm or sooner depending on the number of speakers.

In addition to verbal comments, which are being taped for the record, there are forms available from the City staff upon which you can provide written comments You may return the comment forms back to City staff at the close of the meeting or send to the City as described on the form. Please remember to put your name and address on the sign-in sheet before you leave the meeting if you would like to receive Notice of Availability for the DEIR.

Please refrain from conducting a debate on the merits of the project at this meeting, as this is not the purpose for tonight's gathering. Rather, please focus your comments on those environmental impacts you would like thoroughly analyzed in the project's Environmental document. Lastly, I will be acting as the moderator and timekeeper for the duration of the meeting and therefore would respectfully request that you yield when notified that your three minutes are up. Thank you for your patience. Well now begin with a presentation and then we will open the meeting for public comment.

Alec Schiffer:
Good evening, Alec Schiffer with Trammell Crow Residential, the developer of this project. My address is 5790 Fleet Street, Suite 140, Carlsbad, California 92008.Trammell Crow Residential, the developer of this project we are discussing tonight is called Alexan Fashion Valley. Our proposition

is to demolish the existing structures where we are today and build a mixed-use development consisting of residential and commercial uses.

The project will range in height from five to seven stories, wrapped around a six-story parking garage, and will have a total of 284 residential units, including 48 units with a home business focus and over 11, 000 feet of commercial divided up into various uses with potential for office/retail and restaurant uses.

Residential units for the project will be provided in a variety of forms. Studio, one-bedroom and two-bedroom units will be provided. Additionally, the project introduces residential-work units designed to accommodate individuals who operate businesses from a home office. Residential-work units will be coupled with a giant shared open-office amenity areas to support our resident entrepreneurs and home office workers.

The amenity space in the project is amazing. We have over 9,000 feet of indoor amenity area including a 2,430 square foot fitness center. Over 2,500 square foot pool amenity and over 3, 500 feet of business center area to support the residential-work units.

Exterior amenity areas will include passive recreation and gathering areas, a poll area, cooking areas and uses complimentary to the commercial space. Connecting these amenity spaces on the exterior of the property will be a pedestrian focused nature walk and an area we all the perch which will provide a strong connection between the project, the mall and the transit center.

The project will provide a total of 471 parking spaces. A majority of these will be in a six-story, above-ground one-story below ground parking structure will be situated at the center of the site, and wrapped by the residential units, with 406 parking spaces. In addition to automobile parking, the project will provide approximately 150 bicycle parking spaces and 34 motorcycle parking spaces.

The landscape plan includes the use of indigenous and-or drought-tolerant plant material, wherever possible. And will emphasize a garden setting, where plant material will be used to help define spaces, encourage circulation, highlight entry points, and provide softness and scale to the architecture. That's it.

Jeffrey Szymanski:
Okay, at this point I'd like to open up the meeting for public comment, if there's anyone in the public that would like to comment on the project, this would be the time.

Carrie Cautrelle: (sp)
I'm Carrie Cautrelle, my address is 123 Camino De La Reina, and it's a question about what is the time line for this development?

Alec Schiffer:
So, right now we don't have a particular time line that involves the start of the project. It's more related to the transaction on the site. We would like to start as early as we can get approvals and work out leases with the tenants, but there are existing leases in place, so, I think ideally in reference to this document we're talking about would be delivering somewhere in 2019, which means that we start somewhere in 2017.

Carrie Cautrelle: (sp)
Carrie Cautrelle, my address is 123 Camino De La Reina.

Alec Schiffer:
And I'll tell ya, I'm happy to go into as much detail as is possible for you outside of this meeting, as it involves because I do have certain restrictions with people's leases and things. In fact, we don't intend to go against those.

Jeffrey Szymanski:
I don't think there are anymore comments. So this closes the public environmental scoping meeting for the Alexan Fashion Valley Project. Your input will be transcribed, considered by City staff for use in the scope of the EIR, and included as part of the official record for the document. Speakers and commenter's will also be placed on the notification list for further environmental review actions related to this project.

I would also like to remind everyone that this is just the start of the environmental review process and opportunities for public input. There will be other opportunities to provide comment on the project, such as during public review of the draft environmental document and any public hearings.

Thank you for taking the time to participate in the meeting and have a great evening.

FOCUSED TRAFFIC IMPACT ANALYSIS

For

ALEXAN FASHION VALLEY PROJECT

Prepared for

TRAMMELL CROW RESIDENTIAL
&
CITY OF SAN DIEGO

Final Submittal: May 18, 2017



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1. EXECUTIVE SUMMARY

This study was commissioned by Trammell Crow Residential to determine potential transportation impacts and appropriate mitigation measures for the proposed Alexan Fashion Valley project (proposed project). The proposed 4.92 acre project site is located at 123 Camino De La Reina just south of the Fashion Valley Mall and west of Highway 163 in the Mission Valley Community of the City of San Diego. The proposed project will demolish 69,651 square feet of existing office use and construct 284 multi-family residential units, 8,150 square feet of office and 3,145 square feet of restaurant. The project is expected to generate 2,096 average daily trips (ADT) with 176 (66 inbound and 110 outbound) AM peak hour trips and 195 (116 inbound and 78 outbound) PM peak hour trips. Due to the project's close proximity to the Fashion Valley Transit Center, a transit and mixed-use reduction has been applied to the projects trip generation. The existing office use to be demolished currently generates 1,245 ADT with 158 AM and 176 PM peak hour trips. After the transit, mixed-use and existing land use credits are applied, the NET NEW TRIPS generated by the project would be **851** ADT with **18** (**-76** inbound and **94** outbound) AM peak hour trips and **19** (**81** inbound and **-63** outbound) PM peak hour trips.

In order to determine a scope of work for the Transportation Impact Study, staff of Urban Systems Associates, Inc. (USAI) completed a preliminary evaluation and prepared a scoping memo for City Transportation staff. Based on the evaluation and scoping memo, study area intersections and street segments were identified for the analysis and traffic generation and distribution was determined.

The traffic generation of the Project was estimated based on trip generation rates in the City of San Diego's May 2003 Trip Generation Manual as well as trip reduction estimates based on the City's Traffic Impact Study Manual, July 1998. The addition of project traffic was evaluated in Existing, Opening Day (late 2019) and Horizon Year 2035 scenarios, and an impact analysis was completed in which six

scenarios were analyzed. The following scenarios were included in the report: Existing, Existing With Project, Opening Day (2019) Without Project, Opening Day (2019) With Project, Horizon Year 2035 Without Project and Horizon Year 2035 With Project. The term "Opening Day" is meant to discuss a condition occurring after the project's estimated opening day where traffic from other known development projects in the area expected to be operational between the date of existing counts and the project's expected opening day in late 2019 is added onto existing traffic levels. This reflects the best information available for determining what traffic would be at the project's opening day. The term "Horizon Year 2035" is meant to discuss traffic conditions to the Year 2035. Traffic volumes for the Horizon Year 2035 Without Project condition in this report are based on future (Year 2035 With Project) traffic volumes from the approved Union Tribune Traffic Impact Analysis dated Feb. 2015. A SANDAG Series 12 Year 2035 traffic model was prepared for the Union Tribune TIA and is the basis for the Year 2035 traffic volumes used in this analysis.

Study Results:

Based upon this transportation impact analysis, it was determined that development of the proposed project would have the following impacts:

Impacts:

1. **Street Segments –** The proposed project is not expected to cause any direct significant impacts in the Existing With Project or Opening Day (2019) With Project scenarios as shown in **Table 1-1** and **Table 1-2**. The proposed project has two (2) significant cumulative project impact in the Horizon Year 2035 With Project scenario as shown in **Table 1-3**.

2. **Intersections –** As shown in **Table 1-4 and 1-5**, the project is not expected to cause any direct project impacts to intersections in the Existing with Project or Opening Day (2019) With Project scenarios. Also, as shown in **Table 1-6**, the project is not expected to cause any cumulative project impacts in the Horizon Year 2035 with Project scenario.

Mitigation:

Camino De La Reina: Hotel Circle North to Driveway #1

Widening this segment to a 3-lane Collector standards (providing half-width of a 4-lane Major roadway) would mitigate the project's significant impact. The Alexan Fashion Valley project proposes to provide an irrevocable offer of dedication (IOD) and deferred improvement agreement (DIA) for the widening of Camino De La Reina along the project frontage. This widening along the project frontage will include a half-width of 30' centerline to curb for 11' and 13' travel lanes with a 6' bike lane in accordance with the current Community Plan. This widening would occur if Camino De La Reina remains a 4-lane Major classification after approval of the Community Plan Update currently underway. In addition, the project also proposes to restripe the project following widening (to account for appropriate transitions) of Camino De La Reina to 3-lane Collector standards between Driveway #1 and Hotel Circle. Provisions of the IOD, DIA, and restriping will mitigate the cumulative impact along this segment.

Camino De La Reina: Driveway 2 to Avenida Del Rio

Widening this segment to a 3-lane Collector standards (providing half-width of a 4-lane Major roadway) would mitigate the project's significant impact. The Alexan Fashion Valley project proposes to provide an irrevocable offer of dedication (IOD) and deferred improvement agreement (DIA) for the widening of Camino De La Reina along the project frontage. This widening along the project frontage will include a

half-width of 30' centerline to curb for 11' and 13' travel lanes with a 6' bike lane in accordance with the current Community Plan. This widening would occur if Camino De La Reina remains a 4-lane Major classification after approval of the Community Plan Update currently underway. In addition, the project also proposes to restripe the project frontage following widening (to account for appropriate transitions) of Camino De La Reina to 3-lane Collector standards from Driveway #1 along the frontage. Provisions of the IOD, DIA, and restriping will mitigate the cumulative impact along this segment.

TABLE 1-1

Existing With and Without Project Street Segment Significance

Road	Segment	LOS "E" Capacity	Class.	Existing			Existing + Project			ΔV/C	Is this impact Significant?
				LOS	Volume	V/C	LOS	Volume	V/C		
Camino De La Reina	Hotel Circle N. to Driveway 1	15,000	2-Ca	C	8,886	0.59	C	9,498	0.63	0.041	***NO***
	Driveway 2 to Avenida Del Rio	15,000	2-Ca	C	8,886	0.59	C	9,061	0.60	0.012	***NO***
	Driveway 3 to Camino De La Siesta	15,000	2-Ca	E	13,654	0.91	E	13,803	0.92	0.010	***NO***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

2-Ca = 2 Lane Collector (w/continuous left-turn lane)

Notes:

Count Date: 2/25/15

TABLE 1-2

Opening Day (2019) Without & With Project Street Segment Significance

Road	Segment	LOS "E" Capacity	Class.	Opening Day (2018)			Opening Day (2018) With Project			ΔV/C	Is this impact Significant?
				LOS	Volume	V/C	LOS	Volume	V/C		
Camino De La Reina	Hotel Circle N. to Driveway 1	15,000	2-Ca	D	10,536	0.70	D	11,148	0.74	0.041	***NO***
	Driveway 2 to Avenida Del Rio	15,000	2-Ca	D	10,086	0.67	D	10,261	0.68	0.012	***NO***
	Driveway 3 to Camino De La Siesta	15,000	2-Ca	F	16,303	1.09	F	16,452	1.10	0.010	***NO***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

2-Ca = 2 Lane Collector (w/continuous left-turn lane)

TABLE 1-3

Horizon Year 2035 With and Without Project Street Segment Significance

Road	Segment	LOS "E" Capacity	Class.	Horizon Year 2035			Horizon Year 2035 + Project			ΔV/C	Is this impact Significant?
				LOS	Volume	V/C	LOS	Volume	V/C		
Camino De La Reina	Hotel Circle N. to Driveway 1	15,000	2-Ca	F	16,460	1.10	F	17,072	1.14	0.041	***YES***
	Driveway 2 to Avenida Del Rio	15,000	2-Ca	F	18,330	1.22	F	18,505	1.23	0.012	***YES***
	Driveway 3 to Camino De La Siesta	15,000	2-Ca	F	18,520	1.23	F	18,669	1.24	0.010	***NO***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

2-Ca = 2 Lane Collector (w/continuous left-turn lane)

TABLE 1-4

Existing Without and Existing With Project Intersection Comparison

#	Intersection	Existing				Existing + Project							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Hotel Circle N. / Camino De La Reina	12.0	B	23.4	C	12.6	B	0.6	No	26.4	C	3.0	No
2	Camino De La Reina / Driveway 1	10.6	B	14.8	B	11.2	B	0.6	No	13.9	B	-0.9	No
3	Camino De La Reina / Driveway 2	10.9	B	13.1	B	11.1	B	0.2	No	14.1	B	1.0	No
4	Camino Del La Reina / Avenida Del Rio	10.8	B	16.9	B	11.5	B	0.7	No	17.1	B	0.2	No
5	Camino Del La Reina / Driveway 3	9.9	A	17.6	C	9.6	A	-0.3	No	17.5	C	-0.1	No
6	Camino Del La Reina / Camino De La Siesta	16.3	B	19.7	B	16.5	B	0.2	No	20.1	C	0.4	No

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D= Delay

TABLE 1-5

Opening Day (2019) Without and With Project Intersection Comparison

#	Intersection	Opening Day (2019)				Opening Day (2019) + Project							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Hotel Circle N. / Camino De La Reina	13.7	B	32.3	C	14.4	B	0.7	No	35.1	D	2.8	No
2	Camino De La Reina / Driveway 1	11.1	B	16.2	C	11.8	B	0.7	No	14.9	B	-1.3	No
3	Camino De La Reina / Driveway 2	11.7	B	14.7	B	12.0	B	0.3	No	16.2	C	1.5	No
4	Camino Del La Reina / Avenida Del Rio	14.8	B	17.8	B	15.5	B	0.7	No	17.6	B	-0.2	No
5	Camino Del La Reina / Driveway 3	11.0	B	20.5	C	10.9	B	-0.1	No	20.3	C	-0.2	No
6	Camino Del La Reina / Camino De La Siesta	17.1	B	21.9	C	17.3	B	0.2	No	21.5	C	-0.4	No

Notes:

LOS = Level of Service
Δ = Change
S = Significant
D= Delay

TABLE 1-6

Horizon Year 2035 Without and With Project Intersection Comparison

#	Intersection	Horizon Year 2035				Horizon Year 2035 + Project							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Hotel Circle N. / Camino De La Reina	17.5	B	47.1	D	17.8	B	0.3	No	50.7	D	3.6	No
2	Camino De La Reina / Driveway 1	12.2	B	20.2	C	13.2	B	1.0	No	17.8	C	-2.4	No
3	Camino De La Reina / Driveway 2	14.1	B	22.6	C	14.6	B	0.5	No	26.1	D	3.5	No
4	Camino Del La Reina / Avenida Del Rio	16.1	B	26.2	C	16.2	B	0.1	No	26.1	C	-0.1	No
5	Camino Del La Reina / Driveway 3	11.4	B	34.4	D	11.1	B	-0.3	No	33.5	D	-0.9	No
6	Camino Del La Reina / Camino De La Siesta	19.3	B	48.3	D	19.6	B	0.3	No	46.4	D	-1.9	No

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D= Delay

2. INTRODUCTION

Urban Systems Associates, Inc. (USAI) was commissioned by Trammell Crow Residential to determine potential transportation impacts and appropriate mitigation measures for the proposed Alexan Fashion Valley project (proposed project). The proposed 4.92 acre project site is located at 123 Camino De La Reina just south of the Fashion Valley Mall and west of Highway 163 in the Mission Valley Community of the City of San Diego. The project location is shown in **Figure 2-1**. The proposed project will demolish 69,651 square feet of existing office use and construct 284 multi-family residential units, 8,150 square feet of office and 3,145 square feet of restaurant. The project is expected to generate 2,096 average daily trips (ADT) with 176 (66 inbound and 110 outbound) AM peak hour trips and 195 (116 inbound and 78 outbound) PM peak hour trips. Due to the project's close proximity to the Fashion Valley Transit Center, a transit and mixed-use reduction has been applied to the projects trip generation. The existing office use to be demolished currently generates 1,245 ADT with 158 AM and 176 PM peak hour trips. After the transit, mixed-use and existing land use credits are applied, the NET NEW TRIPS generated by the project would be **851** ADT with **18** (**-76** inbound and **94** outbound) AM peak hour trips and **19** (**81** inbound and **-63** outbound) PM peak hour trips.

Figure 2-2 shows the project site plan. **Figure 2-3** shows the project vicinity map.

To determine the study area, USAI used City and regional guidelines that require 50 trips in one direction during a peak hour be used as a threshold for study intersections and street segments. Also, based on the City and regional guidelines, USAI used 50 peak directional trips as the basis for studying freeway segments. No freeway segments met the criteria and therefore, none of these facilities were included in this study. **Figure 2-4** shows the study area boundary and the intersection key selected for the study.



FIGURE 2-1

Project Location Map

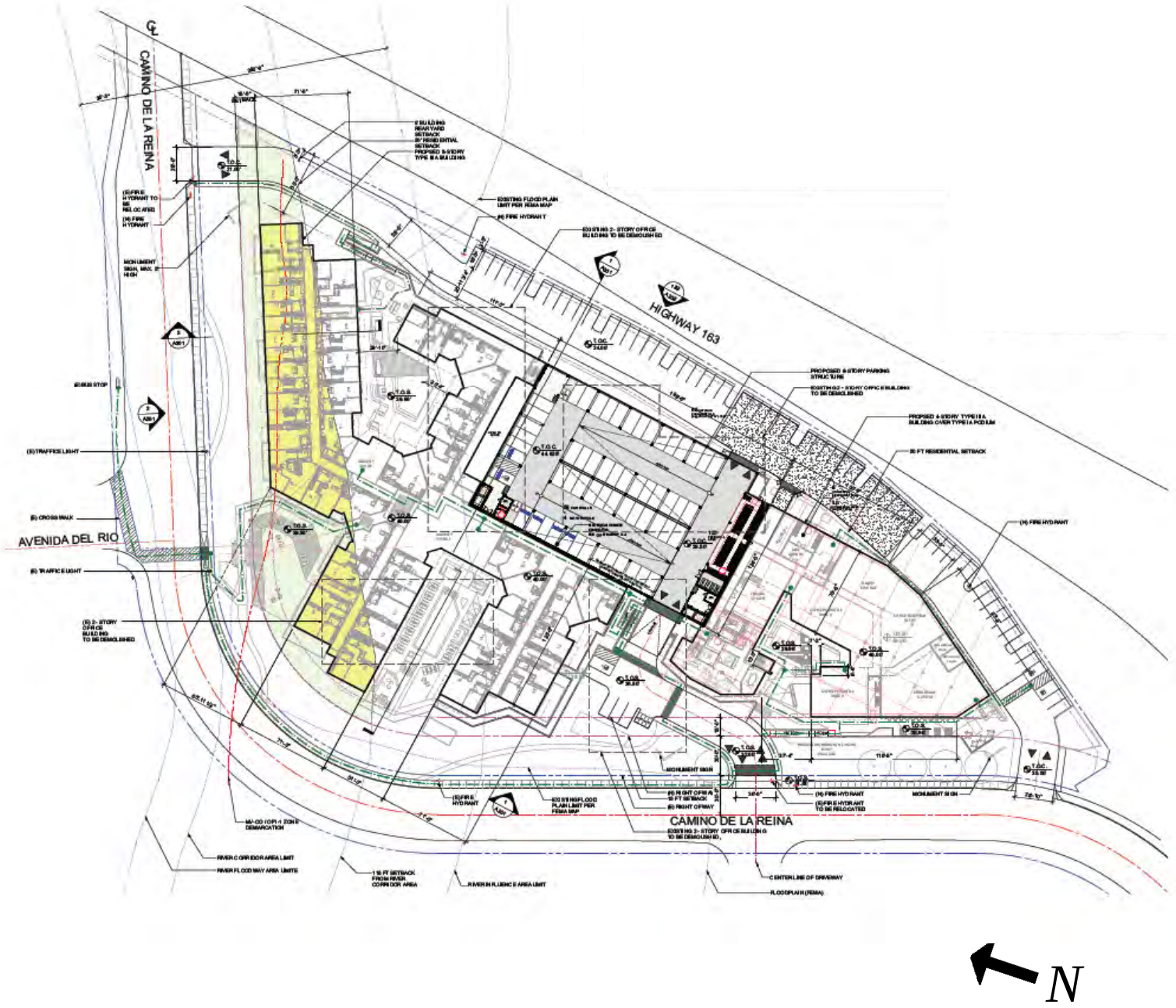


FIGURE 2-2

Project Site Plan



FIGURE 2-3

Project Vicinity Map

Table 2-1 shows the study area street segments and intersections evaluated in this study.

In order to summarize project impacts and required mitigation, this report is divided into the following text sections:

1.0 Executive Summary

2.0 Introduction

3.0 Proposed Project

4.0 Methodology

5.0 Existing Conditions

6.0 Existing With Project

7.0 Other Projects

8.0 Opening Day (2019) Without Project

9.0 Opening Day (2019) With Project

10.0 Horizon Year 2035 Without Project

11.0 Horizon Year 2035 With Project

12.0 Mission Valley Planned District Ordinance Consistency

13.0 Parking

14.0 Access and On-Site Vehicular / Pedestrian Circulation

15.0 Transportation Demand Management (TDM)

16.0 Transit and Other Modes

17.0 Construction Traffic

18.0 Conclusions and Recommendations

19.0 References

20.0 Urban Systems Associates, Inc., Preparers

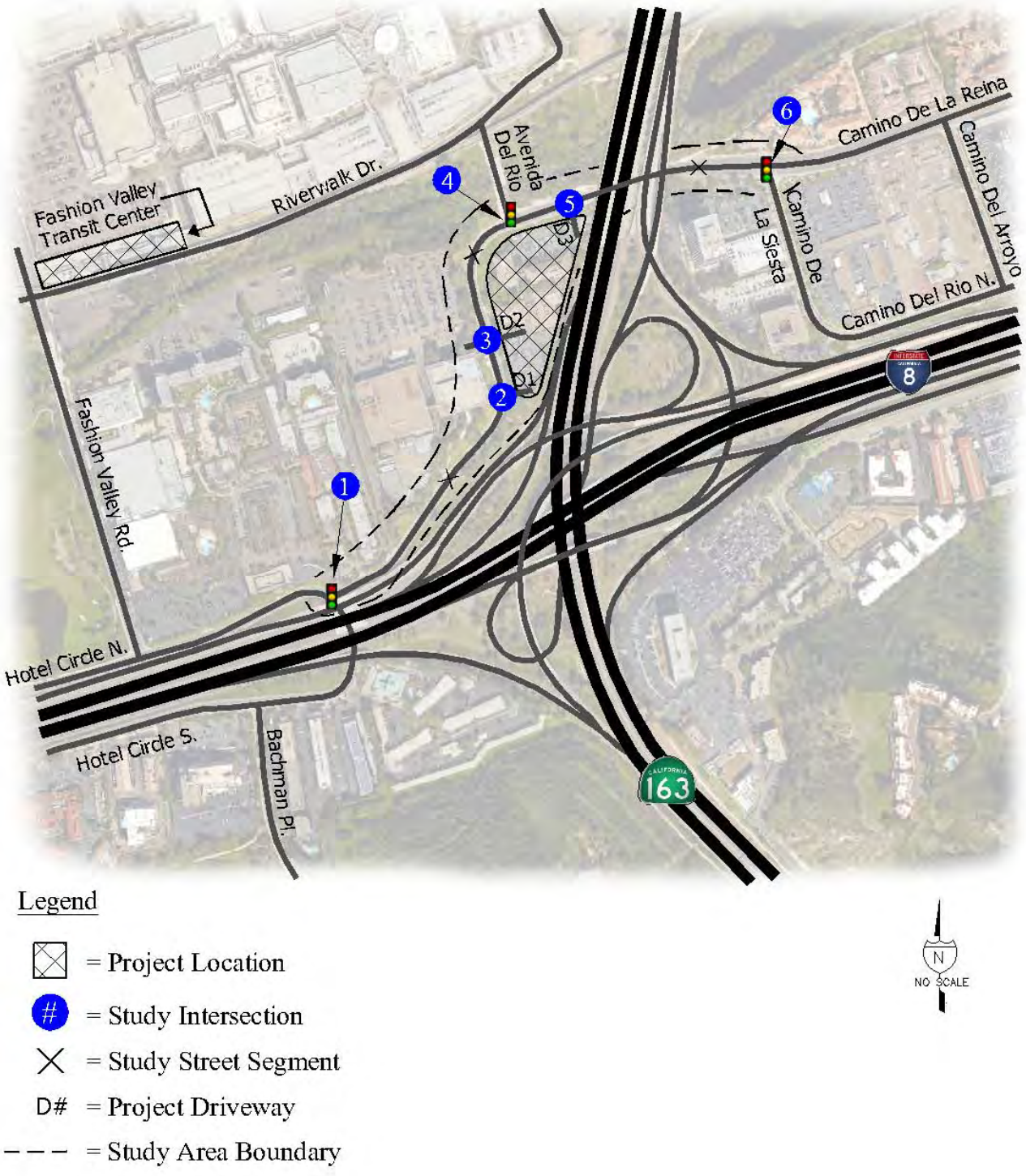


FIGURE 2-4

Study Area Boundary and Intersection Key

TABLE 2-1

Study Area Street Segments and Intersections

Street Segments	
Road	**Segment**
Camino De La Reina	Hotel Circle N. to Driveway 1
	Driveway 2 to Avenida Del Rio
	Driveway 3 to Camino De La Siesta

Intersections	
Number	**Intersection**
1	Hotel Circle N. / Camino De La Reina
2	Camino De La Reina / Driveway 1
3	Camino De La Reina / Driveway 2
4	Camino Del La Reina / Avenida Del Rio
5	Camino Del La Reina / Driveway 3
6	Camino Del La Reina / Camino De La Siesta

3. PROPOSED PROJECT

The proposed 4.92 acre project site is located at 123 Camino De La Reina just south of the Fashion Valley Mall and west of Highway 163 in the Mission Valley Community of the City of San Diego. The proposed project will demolish 69,651 square feet of existing office use and construct 284 multi-family residential units, 8,150 square feet of office and 3,145 square feet of restaurant.

3.1 TRIP GENERATION

A trip generation table for the project was developed as shown in **Table 3-1**. The project is expected to generate 2,096 average daily trips (ADT) with 176 (66 inbound and 110 outbound) AM peak hour trips and 195 (116 inbound and 78 outbound) PM peak hour trips. Due to the project's close proximity to the Fashion Valley Transit Center, a transit and mixed-use reduction has been applied to the projects trip generation. The existing 69,651 SF office use will be demolished as part of this project and is estimated to generate 1,245 ADT with 158 AM and 176 PM peak hour trips. After the transit, mixed-use and existing land use credits are applied, the NET NEW TRIPS generated by the project would be **851** ADT with **18** (**-76** inbound and **94** outbound) AM peak hour trips and **19** (**81** inbound and **-63** outbound) PM peak hour trips. The Mission Valley Community is well served by transit and has significant pedestrian and bicycle options which has the effect of reducing overall traffic as compared to a typical suburban community.

3.2 TRIP DISTRIBUTION AND ASSIGNMENT

Figure 3-1 shows the project only trip distribution percentages, which were taken from approved Union Tribune Traffic Impact Analysis since the Union Tribune site is directly across Camino De La Reina and the land uses are nearly identical for the two sites. As shown in the distribution graphic, project traffic would distribute 70% to the west and 17% to the east on Camino De La Reina while 13% travels north towards the Fashion Valley Mall on Avenida Del Rio.

Figure 3-2 shows the project only average daily traffic volumes, which are based on the daily net new traffic generation from **Table 3-1** and distribution of project only traffic from **Figure 3-1**.

Figure 3-3 shows the AM/PM peak hour project only traffic volumes. As shown in the graphic, some of the turn volumes from the project are negative. This is due to the change in land use from primarily office to residential which has different AM and PM peak hour characteristics. For example, in the AM peak hour, the majority of the residential traffic is exiting the site whereas traffic is entering the site for an office use in the AM peak. This is clearly shown in the project's trip generation table. It should be noted that turn volumes at the project driveways are calculated based on the proposed project subtotal without taking credit for the existing use. This resulted in all positive volumes at the project driveways and is expected to be an overestimation of the driveway operations.

TABLE 3-1

Project Trip Generation

Driveway Rates

Land Use	Intensity	Rate*	ADT	AM						PM					
				Peak%*	Vol.	In %	Out%	In	Out	Peak%*	Vol.	In %	Out%	In	Out
Proposed Project															
Multiple Dwelling Units	**284** units	6 /unit	**1,704**	8%	**136**	20% : 80%		**27**	**109**	9%	**153**	70% : 30%		**107**	**46**
Transit Reduction		5%	**-85**	9%	**-12**			**-2**	**-10**	6%	**-9**			**-6**	**-3**
Mixed Use Reduction		10%	**-170**	8%	**-11**			**-2**	**-9**	10%	**-15**			**-11**	**-5**
Multi-Tenant Office	**8,150** SF	Formula[1]	**254**	13%	**33**	90% : 10%		**30**	**3**	14%	**36**	20% : 80%		**7**	**29**
Transit Reduction		3%	**-8**	5.5%	**-2**			**-2**	**0**	2%	**-1**			**0**	**-1**
Mixed Use Reduction		3%	**-8**	5%	**-2**			**-1**	**0**	4%	**-1**			**0**	**-1**
High Turnover (sit-down) Restaurant	**3,145** SF	**130** /KSF	**409**	**8%**	**33**	**50% : 50%**		**17**	**17**	**8%**	**33**	**60% : 40%**		**20**	**13**
Proposed Project SUBTOTAL (with Transit & Mixed-Use Reductions)			**2,096**		**176**			**66**	**110**		**195**			**116**	**78**
Existing															
Multi-Tenant Office	**69,651** SF	Formula[1]	**1,284**	**13%**	**167**	90% : 10%		**150**	**17**	**14%**	**180**	20% : 80%		**36**	**144**
Transit Reduction		3%	**-39**	5.5%	**-9**			**-8**	**-1**	2%	**-4**			**-1**	**-3**
Existing SUBTOTAL (with Transit Reductions)			**1,245**		**158**			**142**	**16**		**176**			**35**	**141**
NET NEW TOTAL (Proposed - Existing)			**851**		**18**			**-76**	**94**		**19**			**81**	**-63**

Source:

*Rates taken from the City of San Diego Trip Generation Manual, May 2003

Transit and mixed-use reductions are taken from the City of San Diego Traffic Impact Study Manual, July 1998.

Note:

ADT= Average Daily Trips

KSF = 1,000 Square Feet

1 = Commercial Office ADT calculated from formula taken from City of San Diego Trip Generation Manual, May 2003 (see below)

Ln(Trips) = 0.756*LN(Commercial Office KSF) +3.95

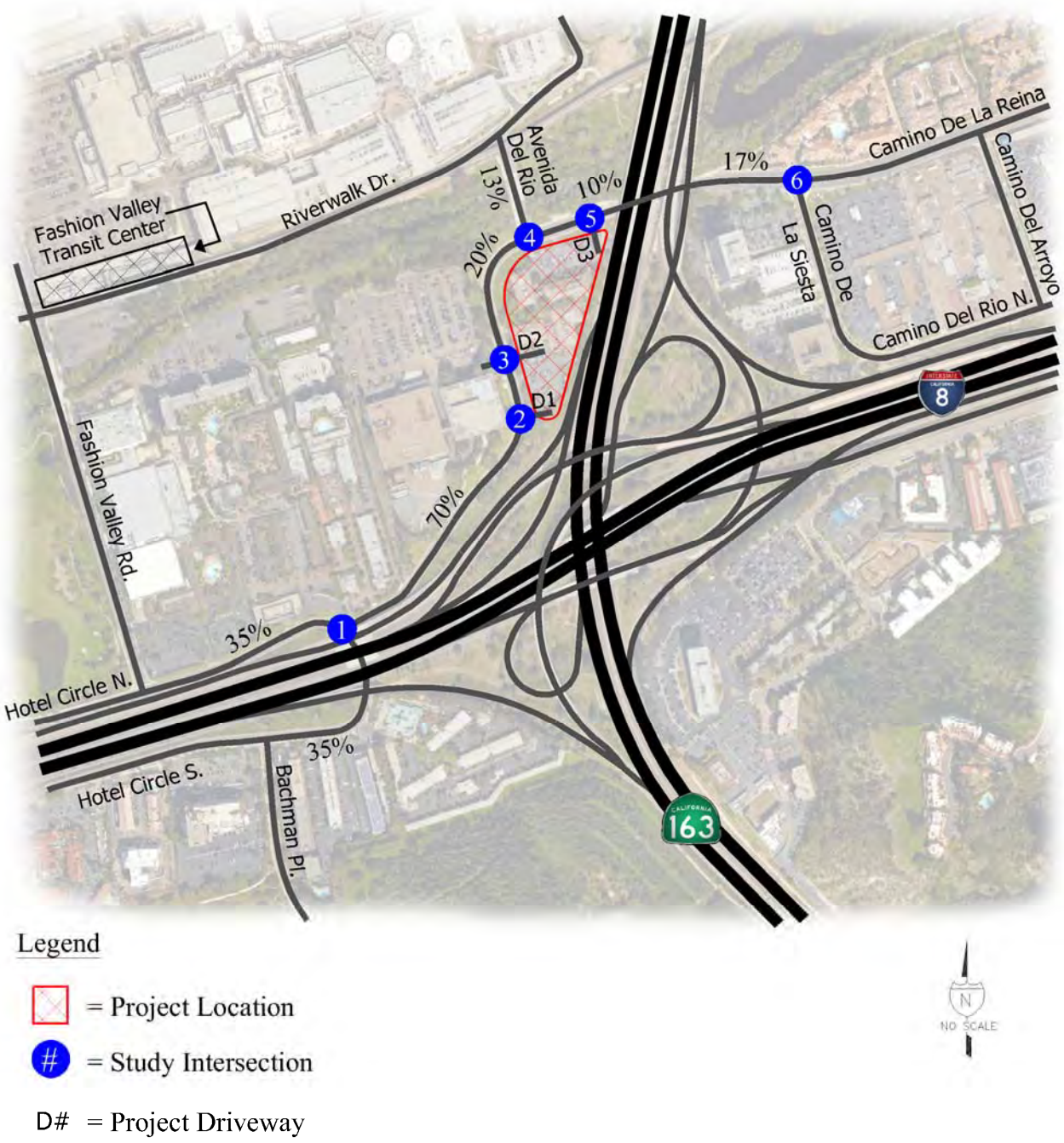
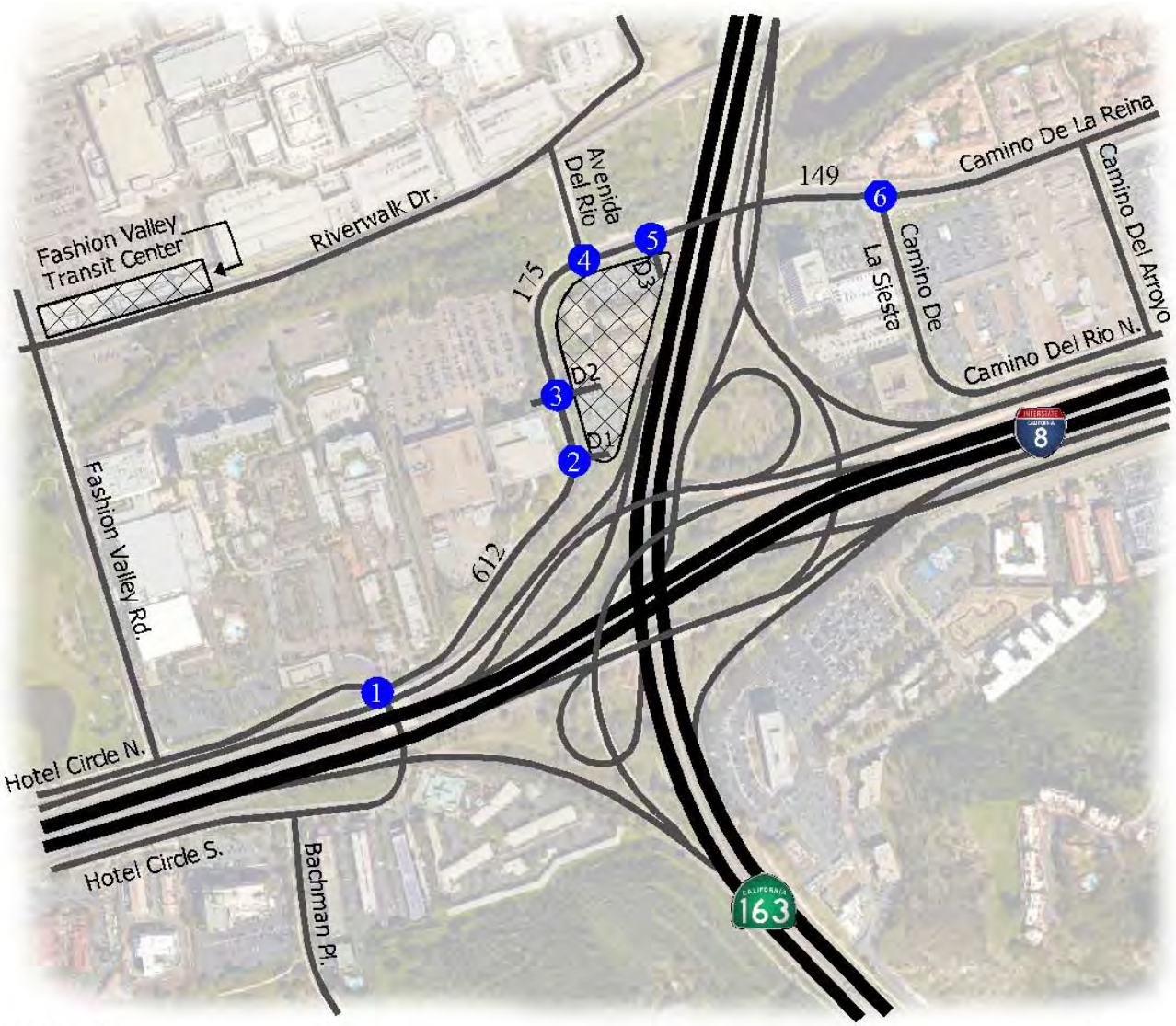


FIGURE 3-1

Project Only Traffic Distribution Percentages



Legend

= Project Location

= Study Intersection

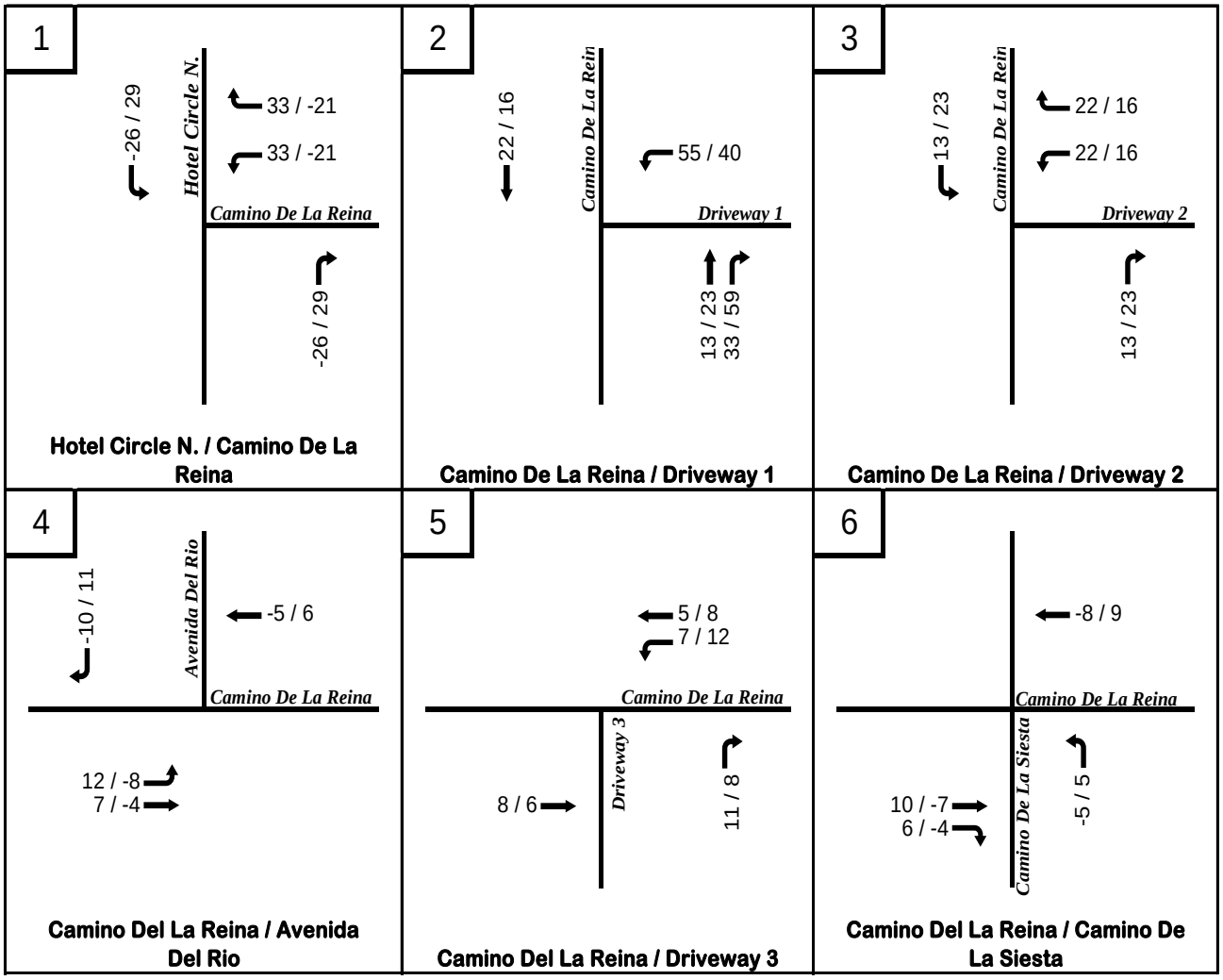
D# = Project Driveway

XXX = Average Daily Traffic Volume

N
NO SCALE

FIGURE 3-2

Project Only Average Daily Traffic



XX / XX = AM / PM Peak hour volumes

FIGURE 3-3

Project Only AM / PM Peak Hour Traffic

4. METHODOLOGY

This section of the report describes various analysis procedures and criteria that are used to determine if the proposed project has a significant impact and if mitigation is required. Mitigation may be either specific improvements by the project for a direct or cumulative impact or a financial contribution toward an improvement by others if a cumulative impact occurs. Two criteria must be met before project mitigation is required. First, the intersection or street segment must be projected to operate at an unacceptable LOS after project trips are added (i.e., "E" or "F" as discussed below). Second, the amount of project traffic must be significant based on the application of criteria also discussed below. For an intersection, if the change in delay anticipated due to the project is greater than 2 seconds or 1 second and the LOS is "E" or "F" respectively, then the project's intersection impacts would be considered significant. For a street segment, if the change in volume to capacity ratio (V/C ratio) anticipated due to the project exceeds 0.02 or 0.01, and the LOS is "E" or "F," respectively, then the project's street segment impact would be considered significant. If project traffic causes an intersection, roadway segment, or freeway segment to degrade from LOS "D" to LOS "E" or LOS "F," the project impact would be significant and project mitigation is required. For freeway segment impacts to be considered significant, the segment would need to operate at an unacceptable LOS and exceed a change in V/C ratio of 0.01 or 0.005 for LOS "E" and "F," respectively. A project ramp meter impact would be significant if the ramp meter calculations show 15 minutes of delay or greater and the change in delay due to the project is greater than 2 minutes or 1 minute and the freeway mainline segments are expected to operate at LOS "E" and "F," respectively, using the most restrictive meter rate method.

4.1 CITY OF SAN DIEGO GUIDELINES

The City of San Diego has developed a Traffic Impact Study Manual (July 1998). The stated purpose of the Traffic Impact Study Manual is "....to ensure consistency with all applicable City and State regulations." The Traffic Impact Study Manual provides guidance regarding preparation of traffic impact reports in the City of San Diego. Since the proposed project is located in the City of San Diego, this traffic impact report follows the procedures outlined in their traffic manual. The manual includes guidelines for forecasting, trip generation and assignment, and analysis procedures.

The City's Significance Determination Thresholds (2011) establish criteria that identify the allowable change in delay or V/C ratio due to project impacts. This publication also establishes criteria for measuring project impacts at intersections. This method establishes an allowable increase in delay at intersections due to the addition of project trips. The City Traffic Impact Study Manual specifies use of the most current Highway Capacity Manual (HCM) operational method for studying intersections. For analyzing intersections, a software package called Synchro is used. This software package is a direct and faithful application of the HCM methodology.

4.2 TRIP DISTRIBUTION

The projected trips were distributed based on the distribution used in the approved Union Tribune Traffic Impact Analysis dated February 2015.

4.3 STREET LOS THRESHOLD

When analyzing street segments, the LOS must be determined. LOS is a measure used to describe the conditions of traffic flow. LOS is expressed using letter designations from "A" to "F." LOS "A" represents the best case, and LOS "F" represents the worst case. Generally LOS "A" through "C" represents free-flowing traffic conditions with little or no delay. LOS "D" represents limited congestion and some delay. However, the duration of periods of delay is acceptable to most people. LOS "E" and "F" represent significant delays on local streets, which are generally unacceptable for urban design purposes. The LOS descriptions are from Chapter 17 of the HCM 2010 (Transportation Research Board 2010).

The City of San Diego has developed LOS threshold tables based on the different functional street classifications and their ability to carry traffic. For the City of San Diego, LOS "D" is the acceptable LOS standard for roadways and intersections.

4.4 INTERSECTION LOS PROCEDURES

The City and Regional Congestion Management Program (CMP) guidelines, as adopted by SANDAG (2006), determine the procedures to be used for intersection peak hour analysis. To determine an intersection peak hour LOS, the CMP guidelines require use of the most recent procedure from Chapter 18 of the HCM (Transportation Research Board 2010). The procedure in Chapter 18, which is used to analyze signalized intersections, is the "operational method." This method determines LOS based on

average control delay expressed in seconds. **Table 4-1** shows the LOS based upon the delay. A computer program known as Synchro Version 9.0 is used to complete the analysis. As discussed above, the City and CMP guidelines have established LOS "D" or better as the objective for intersections and street segments. Assumptions and default values for the intersection analysis are based on those listed on page 19 of the City of San Diego, Traffic Impact Study Manual. This includes an assumption of 10 pedestrians per hour per approach. No signalized intersections were assumed to operate as a coordinated system.

4.5 SIGNIFICANCE THRESHOLDS

As discussed above, two criteria must be met before project traffic mitigation is required. First, an unacceptable LOS (i.e., "E" or "F") must occur, and second, significance thresholds for only project traffic must be exceeded. Alternatively, if project traffic causes a facility to degrade from LOS "D" to "E," a significant impact would occur. The City's significance thresholds are summarized in **Table 4-2**. These thresholds are used in this analysis along with LOS to determine if project mitigation is required. **Table 4-3** shows the roadway classifications for the City of San Diego.

TABLE 4-1

Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay Per Vehicle (sec)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Source: Transportation Research Board 2010, Table 18-4

Level of Service Criteria for Un-signalized Intersections

Level of Service	Control Delay Per Vehicle (sec)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Source: Transportation Research Board 2010

TABLE 4-2

Significance Thresholds

Level of Service with Project*	Allowable Increase Due to Project Impacts**					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	*Speed (mph)*	*V/C*	*Speed (mph)*	*Delay (sec.)*	*Delay (min.)*
E (or ramp meter delays above 15 minutes)	0.010	1.0	0.02	1.0	2.0	2.0
F (or ramp meter delays above 15 minutes)	0.005	0.5	0.01	0.5	1.0	1.0

Note 1: The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 minutes.
Note 2: The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 minute.
* All LOS measurements are based upon Highway Capacity Manual procedures for peak-hour conditions. However, V/C ratios for roadway segments are estimated on an ADT/24-hour traffic volume basis (using Table 2 of the City's Traffic Impact Study Manual). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped locations). For metered freeway ramps, LOS does not apply. However,ramp meter delays above 15 minutes are considered excessive.

** If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. The project applicant shall then identify feasible improvements (within the Traffic Impact Study) that will restore/ and maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see above * note), or if the project adds a significant amount of peak hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating the project's direct significant and / or cumulatively considerable traffic impacts.

Key:

1. V/C =Volume to Capacity Ratio
2. Speed = Arterial speed measured in miles per hour
3. Delay = Average control delay per vehicle measured in seconds for intersections, or minutes for ramp meters
4. LOS = Level of Service

TABLE 4-3
Roadway Classifications

Street Classification	Lanes	Level of Service W/ADT				
		A	B	C	D	E
Freeway	8 lanes	60,000	84,000	120,000	140,000	150,000
Freeway	6 lanes	45,000	63,000	90,000	110,000	120,000
Freeway	4 lanes	30,000	42,000	60,000	70,000	80,000
Expressway	6 Lanes	30,000	42,000	60,000	70,000	80,000
Prime Arterial	6 Lanes	25,000	35,000	50,000	55,000	60,000
Major Arterial	6 Lanes	20,000	28,000	40,000	45,000	50,000
Major Arterial	4 Lanes	15,000	21,000	30,000	35,000	40,000
Collector	4 Lanes	10,000	14,000	20,000	25,000	30,000
Collector (no center lane) (continuous left-turn lane)	4 Lanes 2 Lanes	5,000	7,000	10,000	13,000	15,000
Collector (no fronting property)	2 Lanes	4,000	5,500	7,500	9,000	10,000
Collector (commercial-industrial fronting)	2 Lanes	2,500	3,500	5,000	6,500	8,000
Collector (multi-family)	2 Lanes	2,500	3,500	5,000	6,500	8,000
Sub-Collector (single-family)	2 Lanes	---	---	2,200	---	---

Legend

XXX/XXX =Approximate recommended ADT based on the City of San Diego Street Design Manual

Notes:

1. The volumes and the average daily level of service listed above are only intended as a general planning guideline.
2. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

5. EXISTING CONDITIONS

The proposed 4.92 acre project site is located at 123 Camino De La Reina just south of the Fashion Valley Mall and west of Highway 163 in the Mission Valley Community of the City of San Diego. **Appendix A** includes the Circulation Element from the Mission Valley Community Plan.

5.1 EXISTING ROADWAY FACILITIES

Camino De La Reina – is an east–west two lane Collector with a two-way left turn lane between Hotel Circle North and Avenida Del Rio. The ultimate classification for Camino De La Reina within the Mission Valley Community Plan is a 4-lane Major road. On-street parking is not permitted along the project frontage of Camino De La Reina. The posted speed limit is 25 miles per hour There are no Class II bike lanes on Camino De La Reina within the study area.

5.2 EXISTING TRAFFIC VOLUMES

Figure 5-1 shows the existing average weekday 24-hour traffic volumes for street segments in the project study area. Existing street segment functional classifications were used for purposes of this analysis. Daily traffic counts summarized on **Figure 5-1** were collected on Wednesday, February 25, 2015. **Appendix A** includes the existing count data for street segments and intersections.

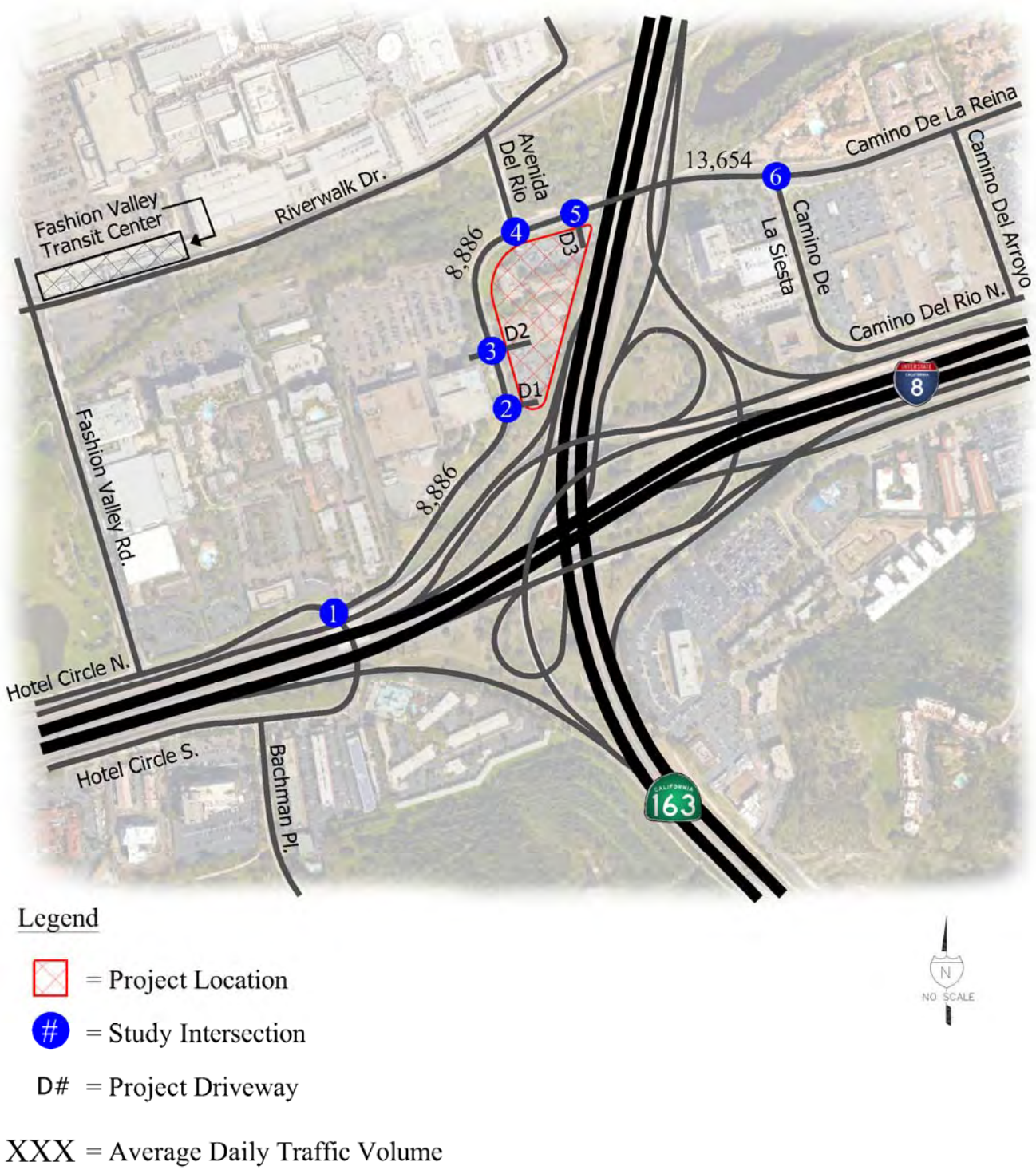


FIGURE 5-1

Existing Average Daily Traffic

5.3 STREET SEGMENT ANALYSIS

As shown on **Table 5-1**, Camino De La Reina between Driveway #3 and Camino De La Siesta currently operate at LOS "E".

5.4 EXISTING INTERSECTIONS

Figure 5-2 shows the existing lane configurations for the intersections in the study area, and the type of intersection control. The Union Tribune project proposes to partially realign the west leg of the intersection (UT main entrance) to the east leg which provides access to the proposed Alexan Fashion Valley project. This intersection improvement is assumed in all conditions.

5.5 EXISTING INTERSECTION PEAK HOUR VOLUMES AND LOS

Figure 5-3 shows the existing AM and PM peak hour intersection traffic data, which was collected at the intersections. As required by the City of San Diego, the analysis of peak hour intersection performance was based on the 2010 HCM using operational analysis procedures. A computer program (Synchro), which is based on the HCM, was used to complete the analysis. Manual counts were conducted on February 25, 2015 on a Wednesday for all intersections except for Camino De La Reina at Driveway 1. The AM/ PM peak hour traffic at Driveway 1 was assumed to be the difference between the sum of Driveway 2 & 3 and the trip generation for the existing uses on-site. As shown on **Table 5-2**, all intersections currently operate at a LOS "D" or better during the AM and PM peak hour periods. LOS calculation worksheets for existing conditions may be found in **Appendix B**.

TABLE 5-1

Existing Street Segment Levels of Service

Road	Segment	Standard	Class.	Cap.	Volume	V/C	LOS
Camino De La Reina	Hotel Circle N. to Driveway 1	SD	2-Ca	15,000	8,886	0.59	C
	Driveway 2 to Avenida Del Rio	SD	2-Ca	15,000	8,886	0.59	C
	Driveway 3 to Camino De La Siesta	SD	2-Ca	15,000	13,654	0.91	E

Legend:

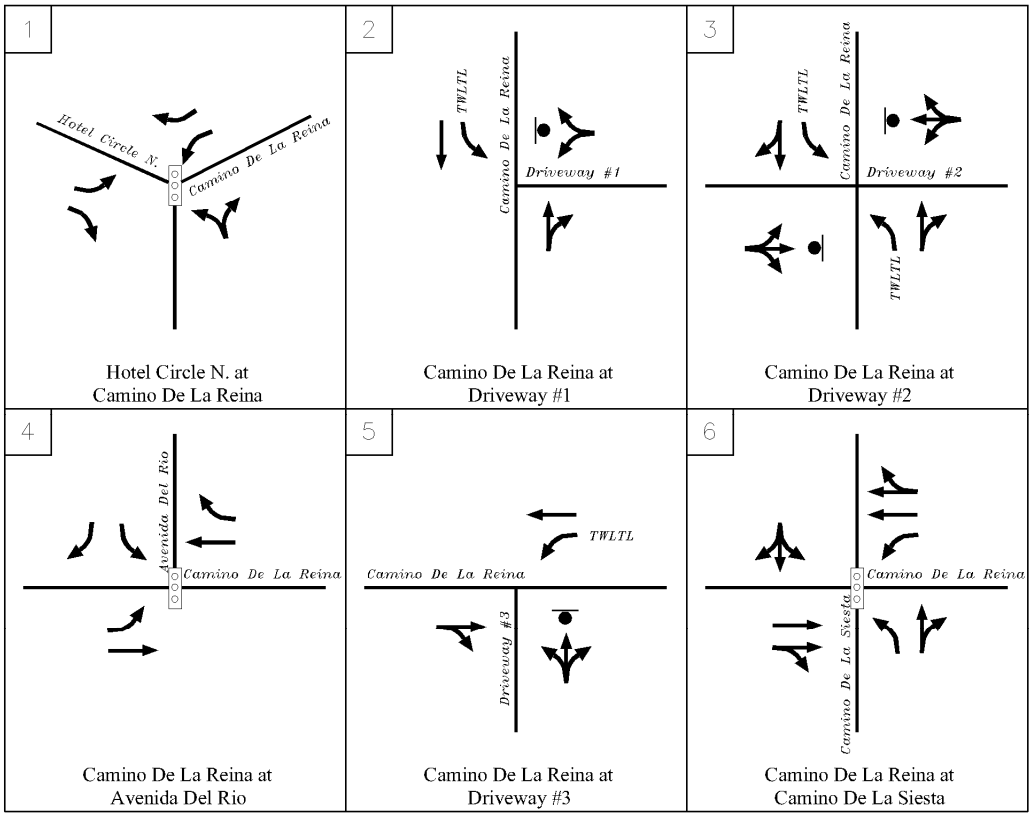
Class. = Functional Class

Cap. = Capacity

LOS = Level of Service

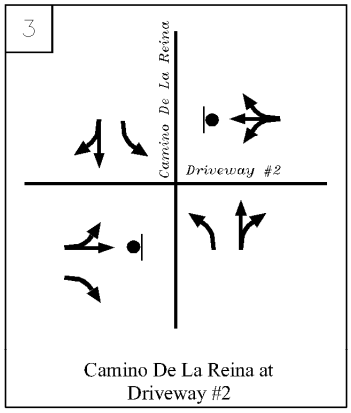
2-Ca = 2 Lane Collector (w/continuous left-turn lane)

Count Date: Wed. February 25, 2015



Legend

= Signalized Intersection = Stop Sign TWLTL = Two-Way Left Turn Lane

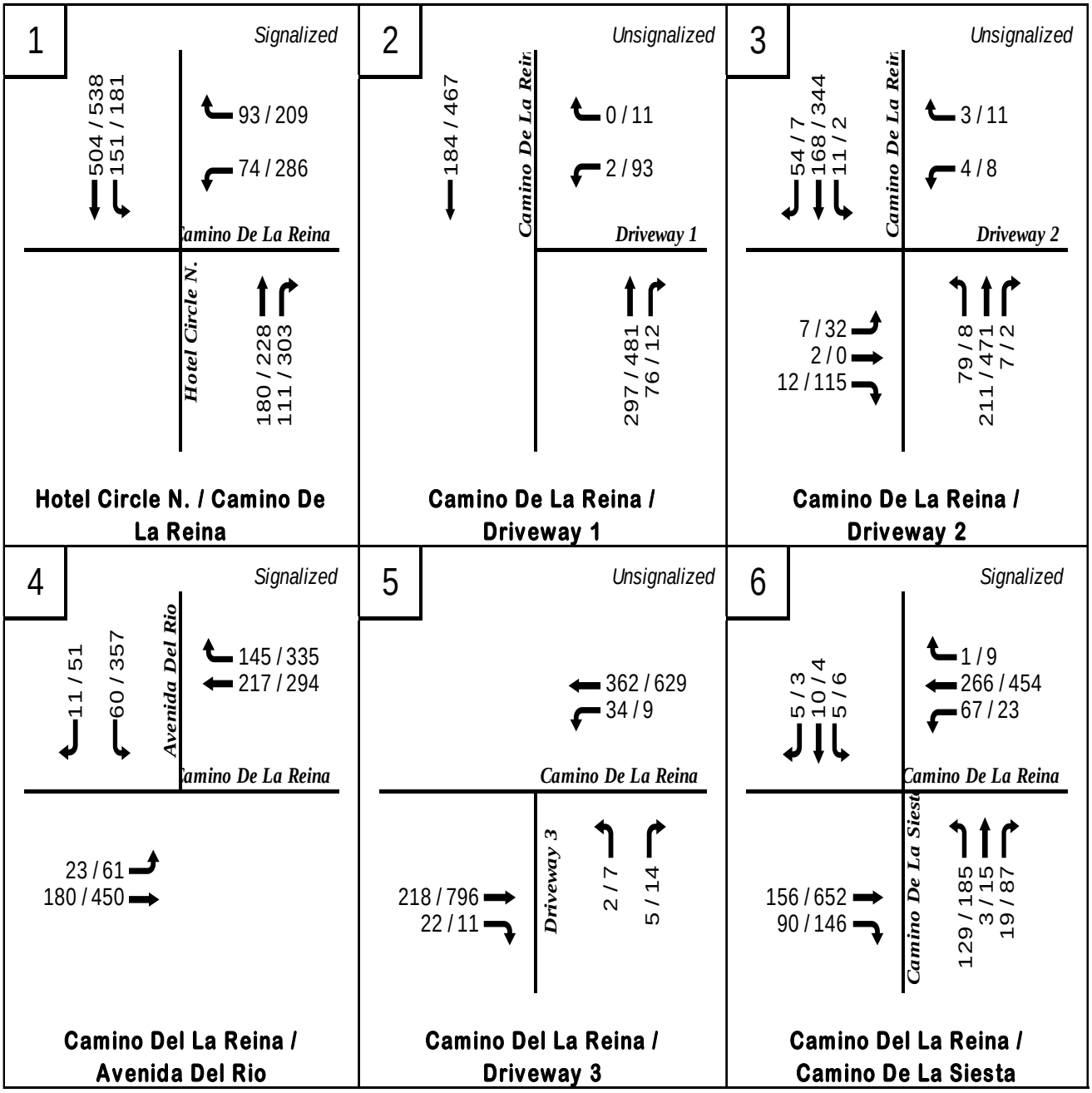




Note: Intersection improvements based on Union Tribune Master Plan assumed Opening Day and Horizon Year scenarios

FIGURE 5-2

Existing Lane Configurations



XX / XX = AM / PM Peak hour volumes

FIGURE 5-3

Existing AM/PM Peak Hour Traffic

TABLE 5-2

Existing Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Hotel Circle N. / Camino De La Reina	Signalized	12.0	B	23.4	C
2	Camino De La Reina / Driveway 1	One-Way Stop	10.6	B	14.8	B
3	Camino De La Reina / Driveway 2	Two-Way Stop	10.9	B	13.1	B
4	Camino Del La Reina / Avenida Del Rio	Signalized	10.8	B	16.9	B
5	Camino Del La Reina / Driveway 3	One-Way Stop	9.9	A	17.6	C
6	Camino Del La Reina / Camino De La Siesta	Signalized	16.3	B	19.7	B

Notes:

Delay = Seconds per Vehicle

LOS = Level of Service

6. EXISTING WITH PROJECT

The purpose of this chapter is to evaluate the impacts of the Existing With Project analysis. This analysis evaluates the project's "direct impacts" by comparing existing conditions without the project to existing conditions with the project. **Appendix C** includes the Existing With Project Synchro worksheets.

6.1 STREET SEGMENTS

Street segments LOS with project traffic were determined by adding expected project only daily volumes to the counted existing daily volumes. **Figure 6-1** shows the Existing With Project average daily traffic volumes. **Table 6-1** shows street segment LOS with the addition of the Alexan Fashion Valley project traffic. As shown, Camino De La Reina between Driveway #3 and Camino De La Siesta operates at LOS "E".

6.2 INTERSECTIONS

Project traffic for the AM and PM peaks were added to existing traffic as shown in **Figure 6-2**. Intersection delays and LOS for the Existing With Project peak hour traffic is provided in **Table 6-2**. As shown, no intersections within the study area are projected to operate at unacceptable LOS.

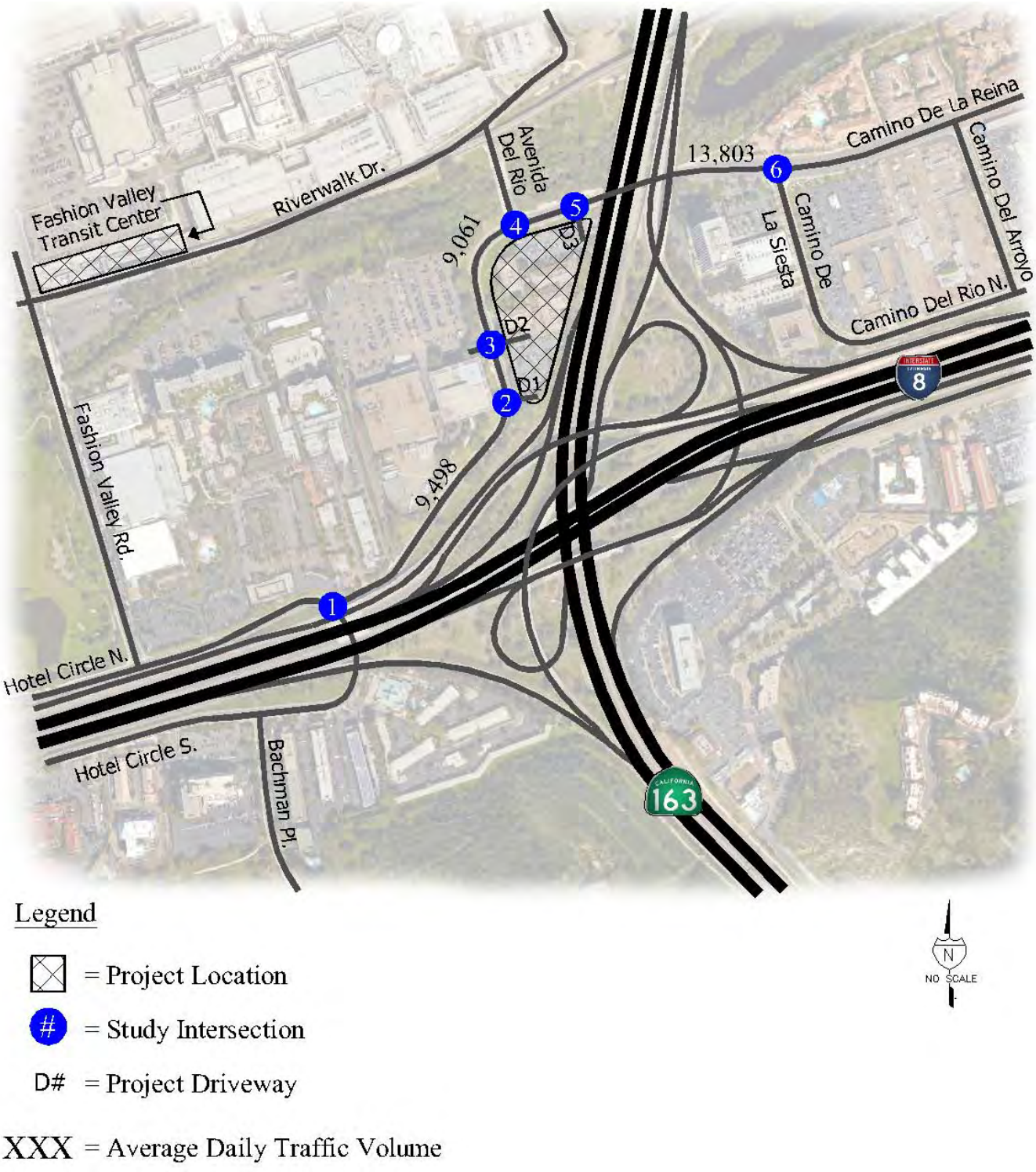


FIGURE 6-1

Existing With Project Average Daily Traffic

TABLE 6-1

Existing With Project Street Segment Levels of Service

Road	Segment	Standard	Class.	Cap.	Volume	V/C	LOS
Camino De La Reina	Hotel Circle N. to Driveway 1	SD	2-Ca	15,000	9,498	0.63	C
	Driveway 2 to Avenida Del Rio	SD	2-Ca	15,000	9,061	0.60	C
	Driveway 3 to Camino De La Siesta	SD	2-Ca	15,000	13,803	0.92	E

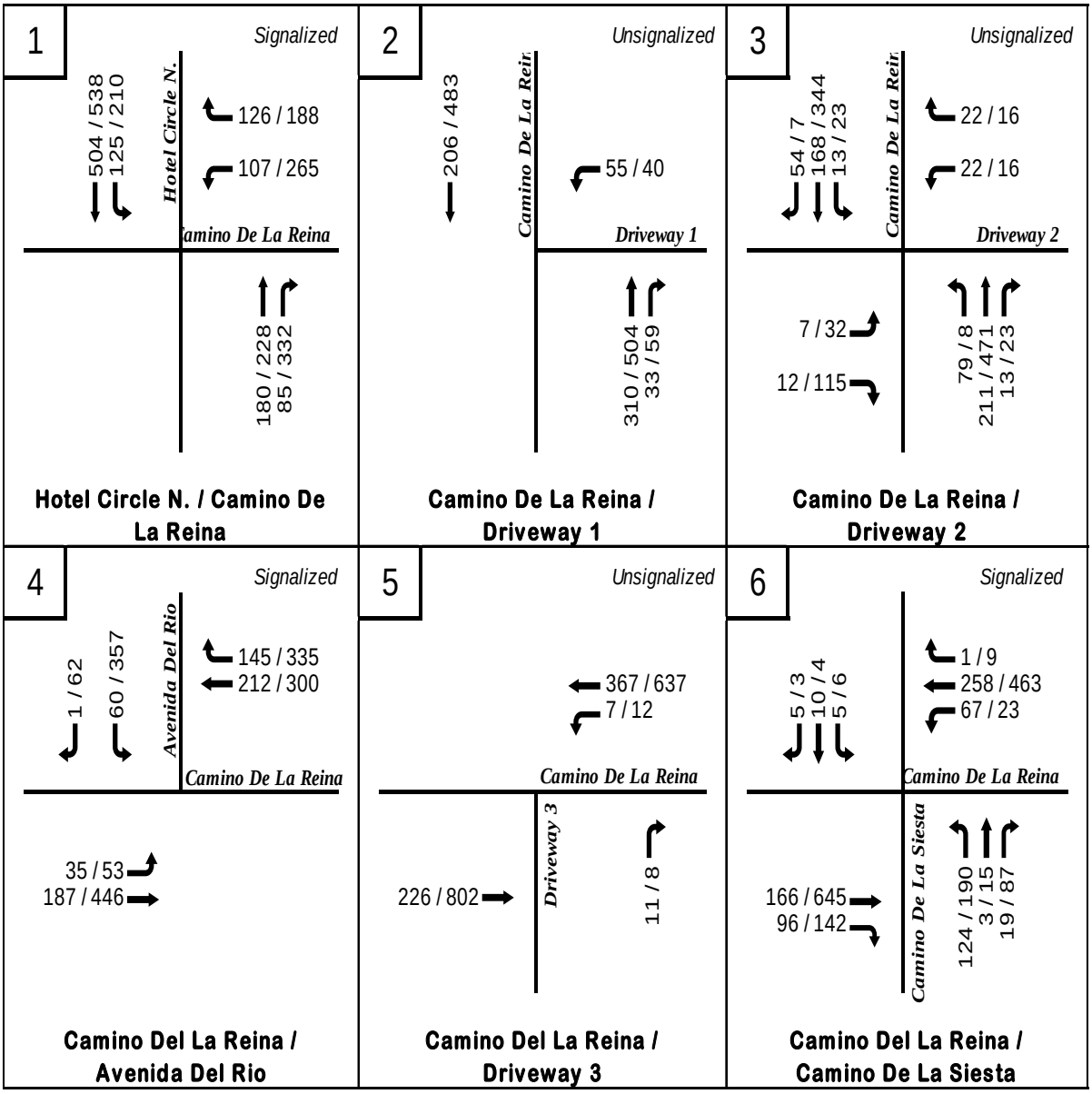
Legend:

Class. = Functional Class

Cap. = Capacity

LOS = Level of Service

2-Ca = 2 Lane Collector (w/continuous left-turn lane)



XX / XX = AM / PM Peak hour volumes

FIGURE 6-2

Existing With Project AM/PM Peak Hour Traffic

TABLE 6-2

Existing With Project Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Hotel Circle N. / Camino De La Reina	Signalized	12.6	B	26.4	C
2	Camino De La Reina / Driveway 1	One-Way Stop	11.2	B	13.9	B
3	Camino De La Reina / Driveway 2	Two-Way Stop	11.1	B	14.1	B
4	Camino Del La Reina / Avenida Del Rio	Signalized	11.5	B	17.1	B
5	Camino Del La Reina / Driveway 3	One-Way Stop	9.6	A	17.5	C
6	Camino Del La Reina / Camino De La Siesta	Signalized	16.5	B	20.1	C

Notes:

Delay = Seconds per Vehicle

LOS = Level of Service

7. OTHER PROJECTS

To find the Opening Day Without Project traffic volumes, USAI researched other projects and contacted City staff to determine other proposed or approved projects that are expected to have impacts within the project study area. These "other projects" are added to existing traffic in order to determine "cumulative impacts" as required by the California Environmental Quality Act (CEQA). According to CEQA, a list of "past, present and probable future projects" should be used to determine cumulative project conditions. For purposes of this analysis, the Alexan Fashion Valley project anticipated opening day to be Year 2019. Any "other projects" which were expected to be completed and occupied prior to the "Opening Day" were included in the "Opening Day" scenario. The full list of "other projects" included and considered in the Opening Day analysis has been included in **Table 7-1**.

Other Project Traffic Volumes:

In consultation with City Staff, USAI determined there are five (5) other reasonably foreseeable projects that would contribute traffic within the projects study area. As shown in **Table 7-1**, there are six (6) other projects that were considered but not included due to their lack of impact on the project study area. **Figure 7-1** shows the locations of these other projects.

Longer Term Cumulative Traffic Volumes:

Full buildout of Civita, the Riverwalk project and the Hazard Center Drive Extension are not expected to be completed before the Alexan Fashion Valley Project's opening day (Year 2019). Therefore, in the "Opening Day" condition, traffic impacts from the Hazard Center Drive Extension and full buildout of Civita and Riverwalk are not considered. Trip distribution, trip generation, and project only data for these "other" projects can be found in **Appendix D.**

TABLE 7-1

Other Projects List

#	Project	Land Use		ADT	Status
Projects Included in Opening Day (2018) Analysis					
1	Union Tribune Mixed Use	200 units	Multi-Family Residential	1,128	Approved
		3,000 SF	Service Retail		
2	Camino Del Rio Mixed Use	305 units	Multi-Family Residential	1,830	Approved
		5,000 SF	Multi-Tenant Office	175	
		4,000 SF	Retail	160	
3	Riverwalk[3] (Phase 1)	3,000 units	Residential	18,000	Not yet submitted but included in study
		170,000 SF	Commercial / Retail	8,330	
4	Legacy International Center	127 rooms	Timeshare Religious Facility	1,805	Pending
5	Town and Country	840 units	Multi-Family Residential	210	Pending
Projects Considered but Not Included in Opening Day (2018) Analysis[1]					
6	Residence Inn	118 rooms	Motel	1,062	Considered
7	Lankford Medical Office	92,400 SF	Medical Office	1,848	Considered
8	Discovery Place	111 rooms	Hotel	999	Considered
		1,500 SF	Fast Food	756	
		6,000 SF	Commercial / Retail	216	
9	Holiday Inn Express[2]	92 rooms	Hotel	394	Considered
10	Civita - Quarry Falls[4] (Phase 1)	2,477 units	Residential	17,450	Considered
		50,000 SF	Community Commercial		
		50,000 SF	Neighborhood Commercial		
11	Hazard Center	473 units	Multi-dwelling units	950	Considered
		2,205 SF	Commercial / Retail		

Notes:

(1) = These projects are either built or traffic from these projects are outside the study area for the proposed project.

(2) = The Holiday Inn Express was constructed and occupied in May 2015. Since the traffic counts were conducted prior to May 2015, this project was considered as an "other" project. However, Holiday Inn Express traffic is minimal and would not be expected to impact the Alexan Fashion Valley study area.

(3) = As of March 2016, the Riverwalk Master Plan (Levi-Cushman Specific Plan) has not been submitted to the City of San Diego. However, the Opening Day (2018) analysis assumes 3,000 dwelling units and 170,000 SF of commercial retail generating 26,330 ADT to be conservative.

(4) = As of March 2016, the Quarry Falls-Civita development has built approximately 1,500 dwelling units which is lower than the 2,477 dwelling units and 100,000 SF of commercial generating 17,450 ADT. The Opening Day (2018) considered, but did not include any traffic from Civita since it would not be expected to impact the Alexan Fashion Valley study area.

Legend:

SF = square feet
DU = dwelling unit
ADT = Average Daily Traffic

Development of Volumes:

Project only volumes from the U-T Mixed-Use project, Camino Del Rio Mixed-Use, Riverwalk, Legacy International Center and Town & Country were extracted from their traffic studies, and manually added to existing traffic volumes to get Opening Day "other project" volumes. **Figure 7-2** shows the total other projects average daily traffic volumes. **Figure 7-3** show the total other projects AM/PM peak hour traffic volumes. As referenced previously, trip distribution, trip generation, and project only data for the cumulative projects included and considered can be found in **Appendix D.**



FIGURE 7-1

Other Projects Location Map

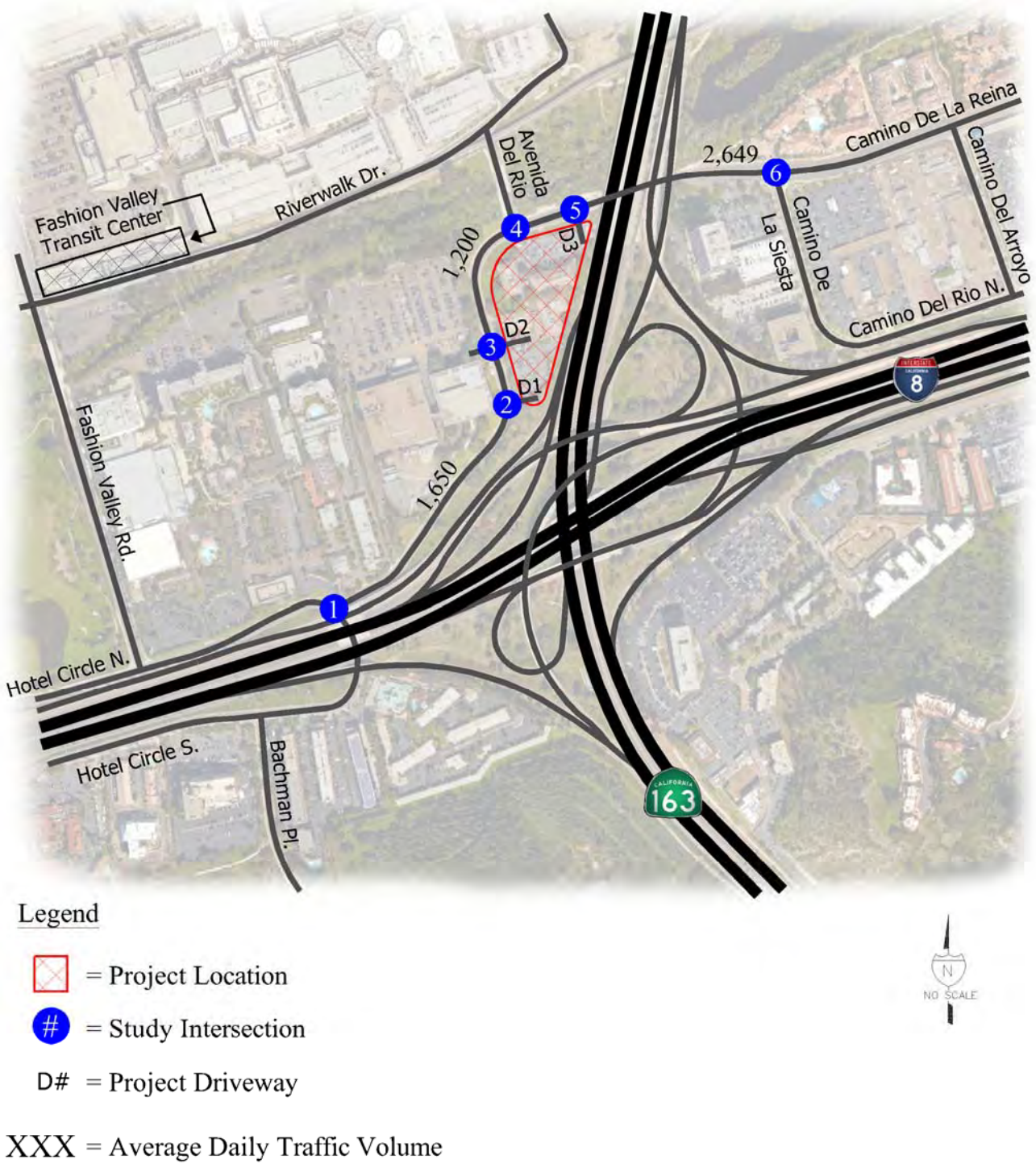
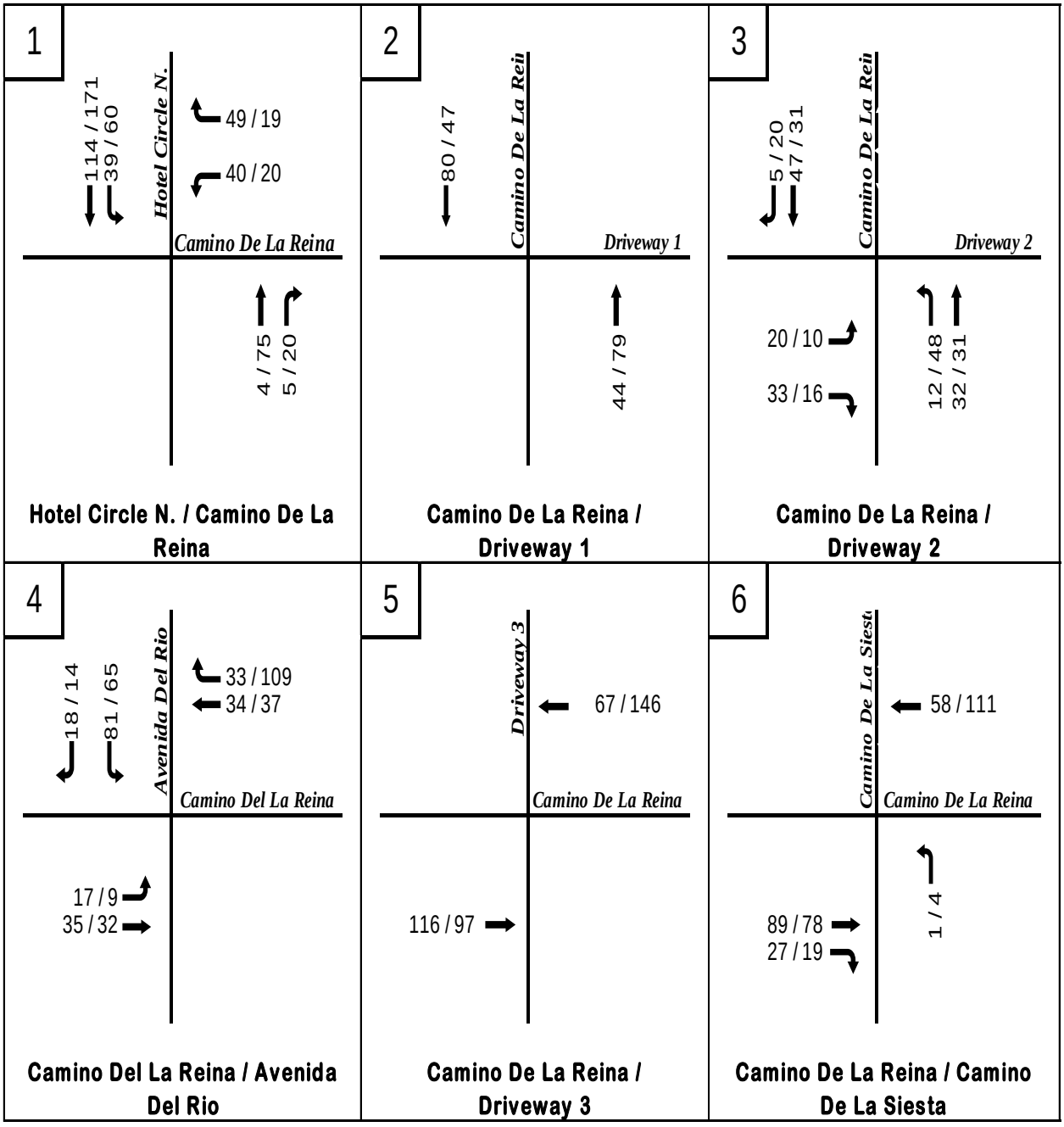


FIGURE 7-2

Opening Day (2019) - Other Project Average Daily Traffic Volumes



XX / XX = AM / PM Peak hour volumes

FIGURE 7-3

Opening Day (2019) - Other Project AM/PM Peak Hour Traffic Volumes

8. OPENING DAY (2019) WITHOUT PROJECT

In order to determine Opening Day traffic, USAI followed the methodology outlined in the City of San Diego Traffic Impact Study Manual. An examination of the immediate area surrounding the project to include projects that were approved, pending approval, or planned in the area and assumed to be constructed prior to the project's anticipated opening day in Year 2019 were evaluated, as discussed in the previous section of this report. The project only traffic from other projects was added to the existing traffic to reflect an "existing plus other project" or Opening Day scenario. No road network changes were assumed for this condition compared to the existing condition.

8.1 STREET SEGMENTS

Figure 8-1 shows average daily traffic volumes from the other projects expected to be completed prior to the project's opening day added to existing average daily traffic volumes.

Table 8-1 shows street segment LOS without project traffic. As shown, Camino De La Reina between Driveway 3 to Camino De La Siesta is projected to operate at LOS F.

8.2 INTERSECTIONS

Figure 8-2 shows the peak hour traffic volumes from the other projects expected to be complete prior to the project's opening day in late 2019 which were added to existing peak hour volumes at the study area intersections. **Table 8-2** shows the resulting AM and PM peak hour LOS. As shown in **Table 8-2**, all intersections evaluated are expected to operate at an acceptable LOS.

Appendix E includes the Opening Day (2019) Without Project Synchro worksheets.

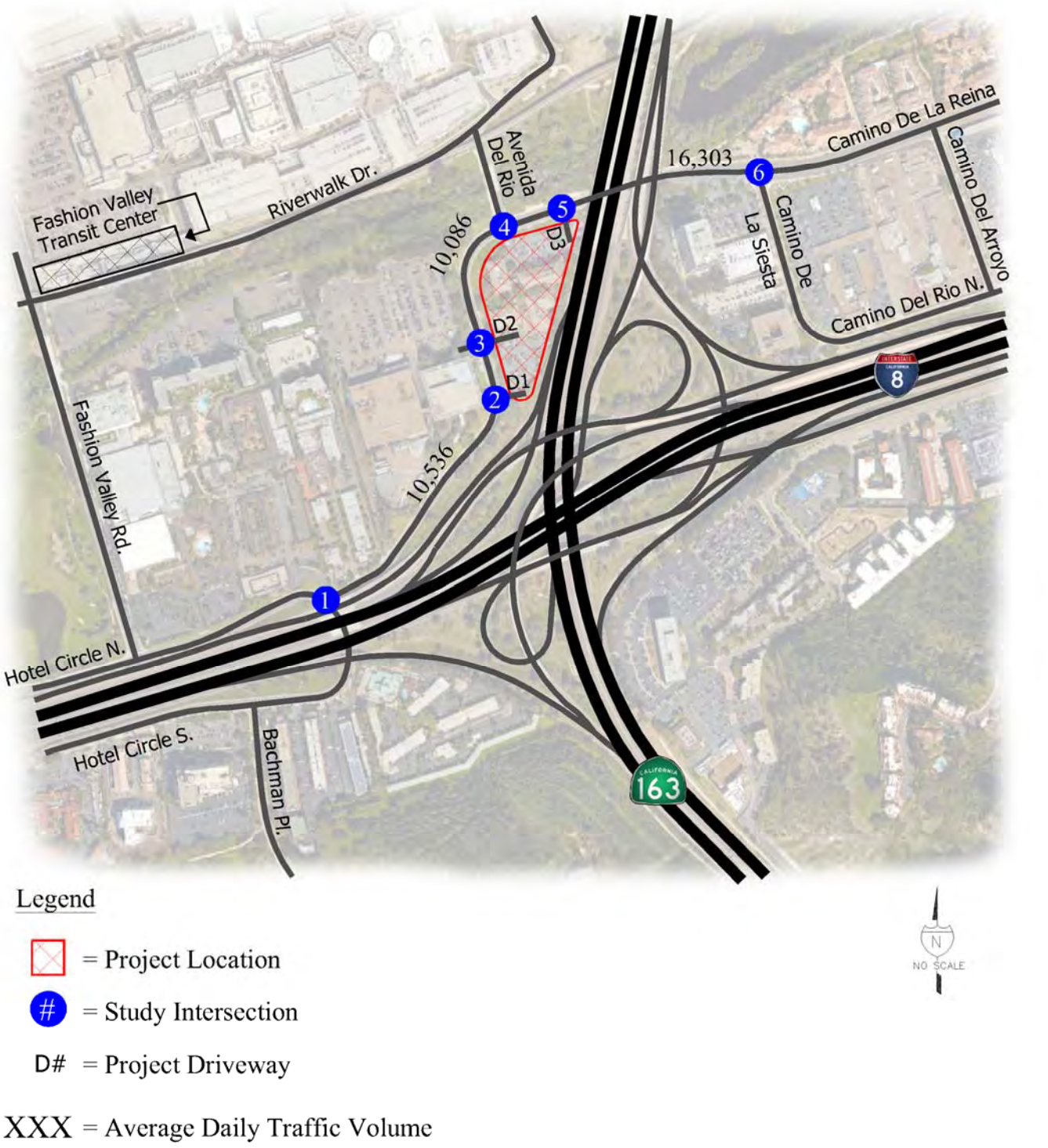


FIGURE 8-1

Opening Day (2019) Without Project Average Daily Traffic

TABLE 8-1

Opening Day (2019) Without Project Street Segment Levels of Service

Road	Segment	Standard	Class.	Cap.	Volume	V/C	LOS
Camino De La Reina	Hotel Circle N. to Driveway 1	SD	2-Ca	15,000	10,536	0.70	D
	Driveway 2 to Avenida Del Rio	SD	2-Ca	15,000	10,086	0.67	D
	Driveway 3 to Camino De La Siesta	SD	2-Ca	15,000	16,303	1.09	F

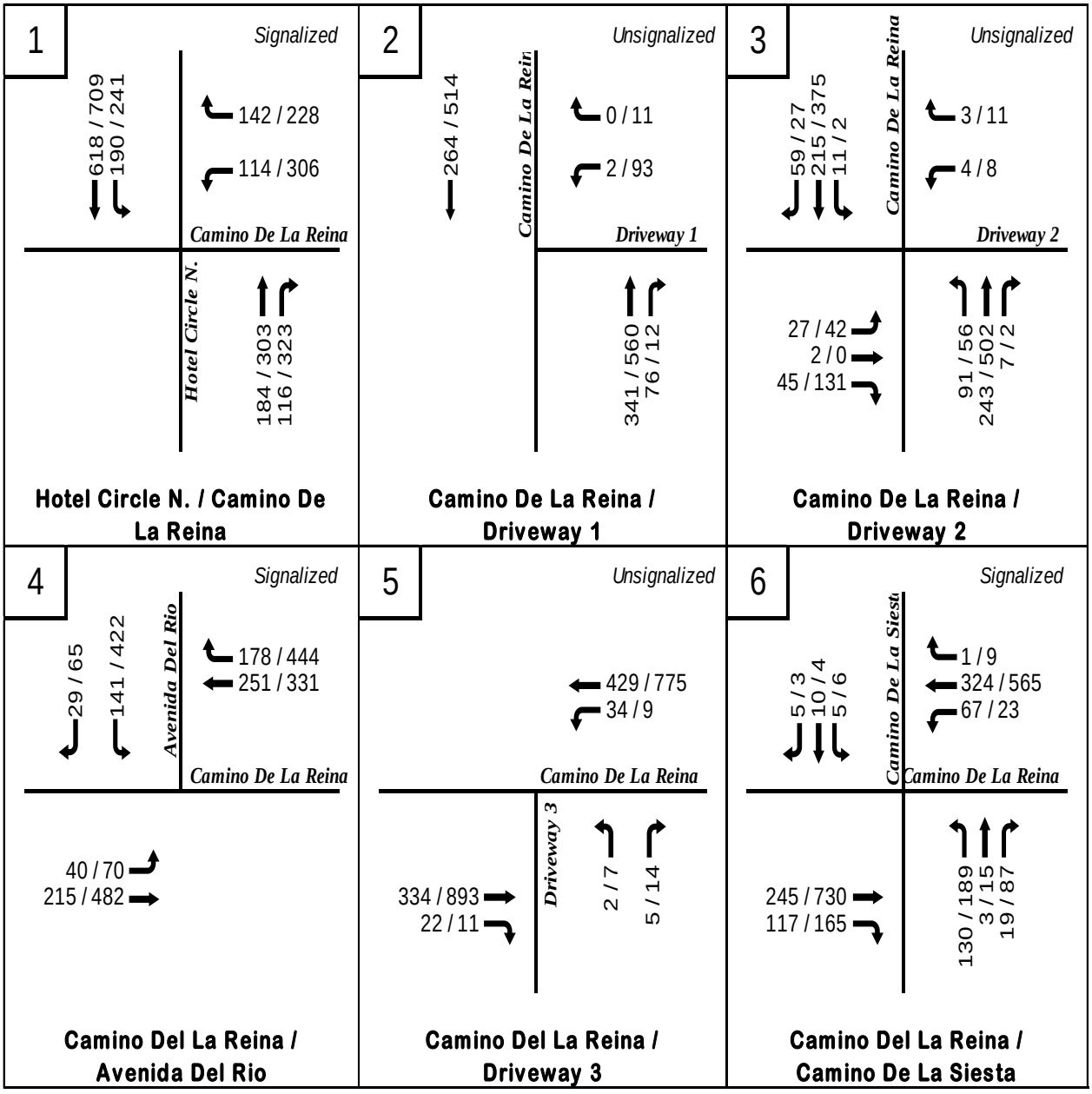
Legend:

Class. = Functional Class

Cap. = Capacity

LOS = Level of Service

2-Ca = 2 Lane Collector (w/continuous left-turn lane)



XX / XX = AM / PM Peak hour volumes

FIGURE 8-2

Opening Day (2019) Without Project AM/PM Peak Hour Traffic

TABLE 8-2

Opening Day (2019) Without Project Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Hotel Circle N. / Camino De La Reina	Signalized	13.7	B	32.3	C
2	Camino De La Reina / Driveway 1	One-Way Stop	11.1	B	16.2	C
3	Camino De La Reina / Driveway 2	Two-Way Stop	11.7	B	14.7	B
4	Camino Del La Reina / Avenida Del Rio	Signalized	14.8	B	17.8	B
5	Camino Del La Reina / Driveway 3	One-Way Stop	11.0	B	20.5	C
6	Camino Del La Reina / Camino De La Siesta	Signalized	17.1	B	21.9	C

Notes:

Delay = Seconds per Vehicle

LOS = Level of Service

9. OPENING DAY (2019) WITH PROJECT

This section of the report evaluates the Opening Day (2019) With Project traffic conditions by adding the other projects expected to be completed prior to the project's opening day in Year 2019 plus Project traffic to Existing volumes. These traffic volumes are then used to evaluate project traffic impacts. This methodology was discussed in Chapter 8.0. No road network changes were assumed for this condition compared to the existing condition.

9.1 STREET SEGMENTS

Figure 9-1 shows average daily traffic volumes with project traffic added to existing plus other projects which are expected to be completed prior to the project's opening day as discussed in Section 8.0.

Table 9-1 shows street segment levels of service with Project traffic. As shown, Camino De La Reina between Driveway 3 to Camino De La Siesta is projected to operate at LOS F.

9.2 INTERSECTIONS

Figure 9-2 shows the Opening Day (2019) With Project traffic volumes during AM/PM peak hours at study area intersections.

Table 9-2 includes study area intersection LOS with the Project traffic added. As shown, all intersections are projected to operate at acceptable levels of service.

Appendix F includes the Opening Day (2019) With Project Synchro worksheets.

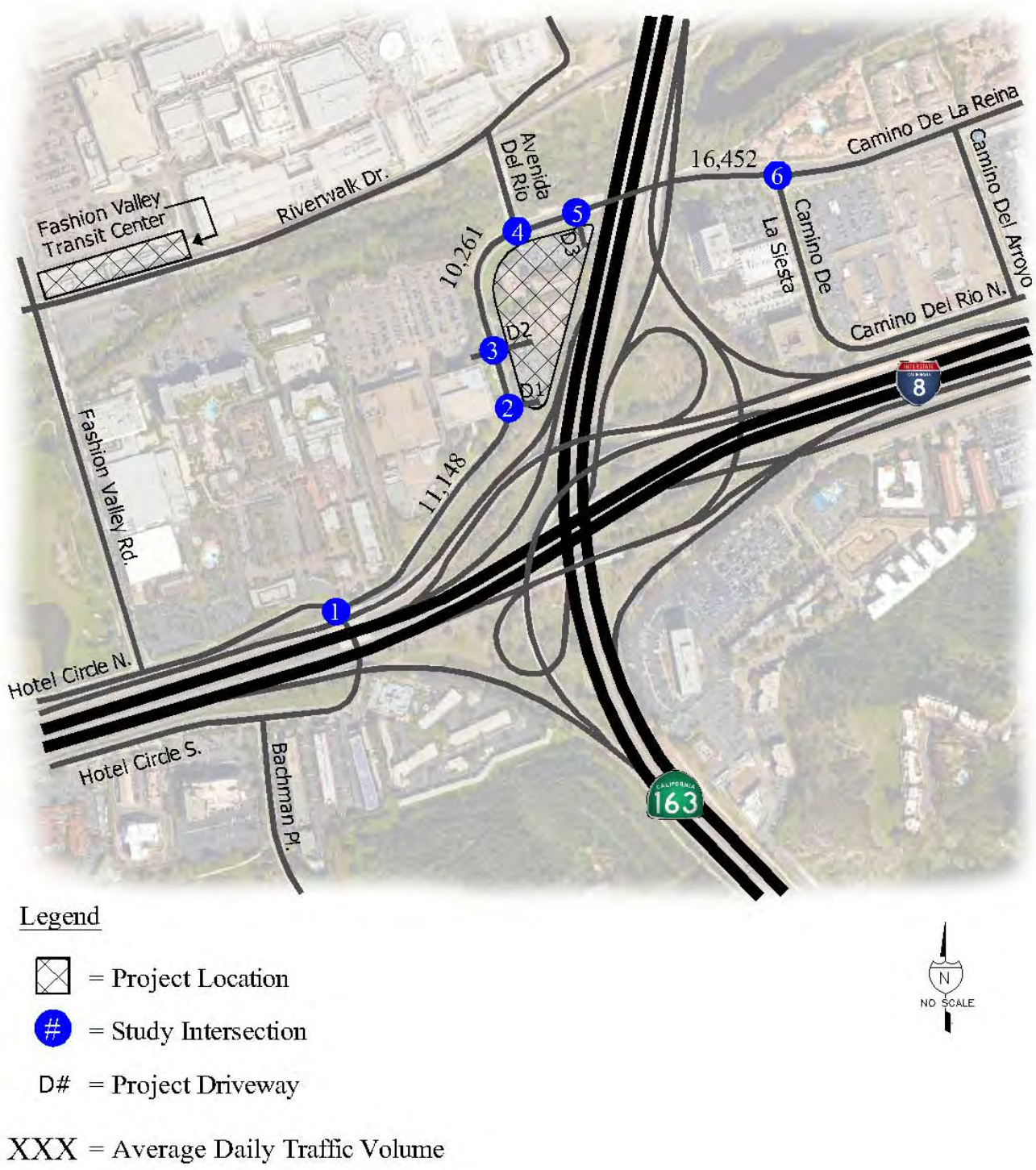


FIGURE 9-1

Opening Day (2019) With Project Average Daily Traffic

TABLE 9-1

Opening Day (2019) With Project Street Segment Levels of Service

Road	Segment	Standard	Class.	Cap.	Volume	V/C	LOS
Camino De La Reina	Hotel Circle N. to Driveway 1	SD	2-Ca	15,000	11,148	0.74	D
	Driveway 2 to Avenida Del Rio	SD	2-Ca	15,000	10,261	0.68	D
	Driveway 3 to Camino De La Siesta	SD	2-Ca	15,000	16,452	1.10	F

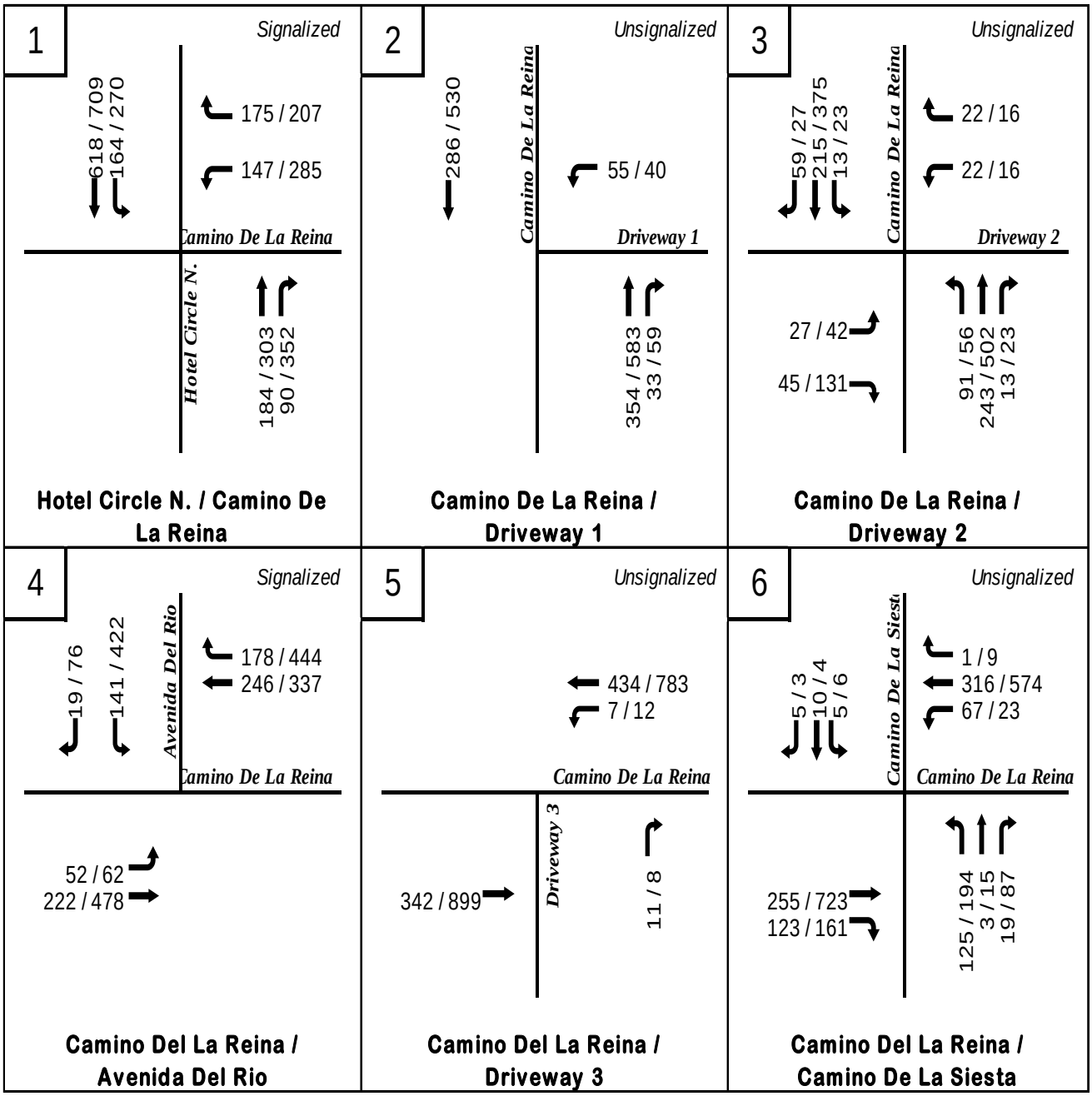
Legend:

Class. = Functional Class

Cap. = Capacity

LOS = Level of Service

2-Ca = 2 Lane Collector (w/continuous left-turn lane)



XX / XX = AM / PM Peak hour volumes

FIGURE 9-2

Opening Day (2019) With Project AM/PM Peak Hour Traffic

TABLE 9-2

Opening Day (2019) With Project Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Hotel Circle N. / Camino De La Reina	Signalized	14.4	B	35.1	D
2	Camino De La Reina / Driveway 1	One-Way Stop	11.8	B	14.9	B
3	Camino De La Reina / Driveway 2	Two-Way Stop	12	B	16.2	C
4	Camino Del La Reina / Avenida Del Rio	Signalized	15.5	B	17.6	B
5	Camino Del La Reina / Driveway 3	One-Way Stop	10.9	B	20.3	C
6	Camino Del La Reina / Camino De La Siesta	Signalized	17.3	B	21.5	C

Notes:

Delay = Seconds per Vehicle

LOS = Level of Service

10. HORIZON YEAR 2035 WITHOUT PROJECT

Horizon Year 2035 Without Project traffic volumes for the Alexan Fashion Valley project are based on a SANDAG Series 12 Regional Traffic Model prepared for the Union Tribune Master Plan. Year 2035 With Project traffic volumes from the Union Tribune TIA were used in this analysis as the Year 2035 baseline volumes with the exception of Camino De La Reina / Camino De La Siesta which was taken from the Camino Del Rio Mixed-Use Traffic Study.

Within the study area for Alexan Fashion Valley, the following planned improvements were assumed in the Year 2035 scenarios:

- Via Las Cumbres Extension – Via Las Cumbres is assumed to be constructed from Friars Road to Hotel Circle North.
- Hazard Center Drive Extension – Hazard Center Road is assumed to be extended under SR-163 to connect to Riverwalk Drive as a two lane facility.

As discussed in the Opening Day scenarios, no road network changes were assumed for this condition compared to the existing condition.

10.1 STREET SEGMENTS

Figure 10-1 shows average daily traffic volumes from the Horizon Year 2035 Without Project scenario.

Table 10-1 shows street segment LOS without project traffic. As shown, all three study segments on Camino De La Reina operate at unacceptable levels of service “F”.

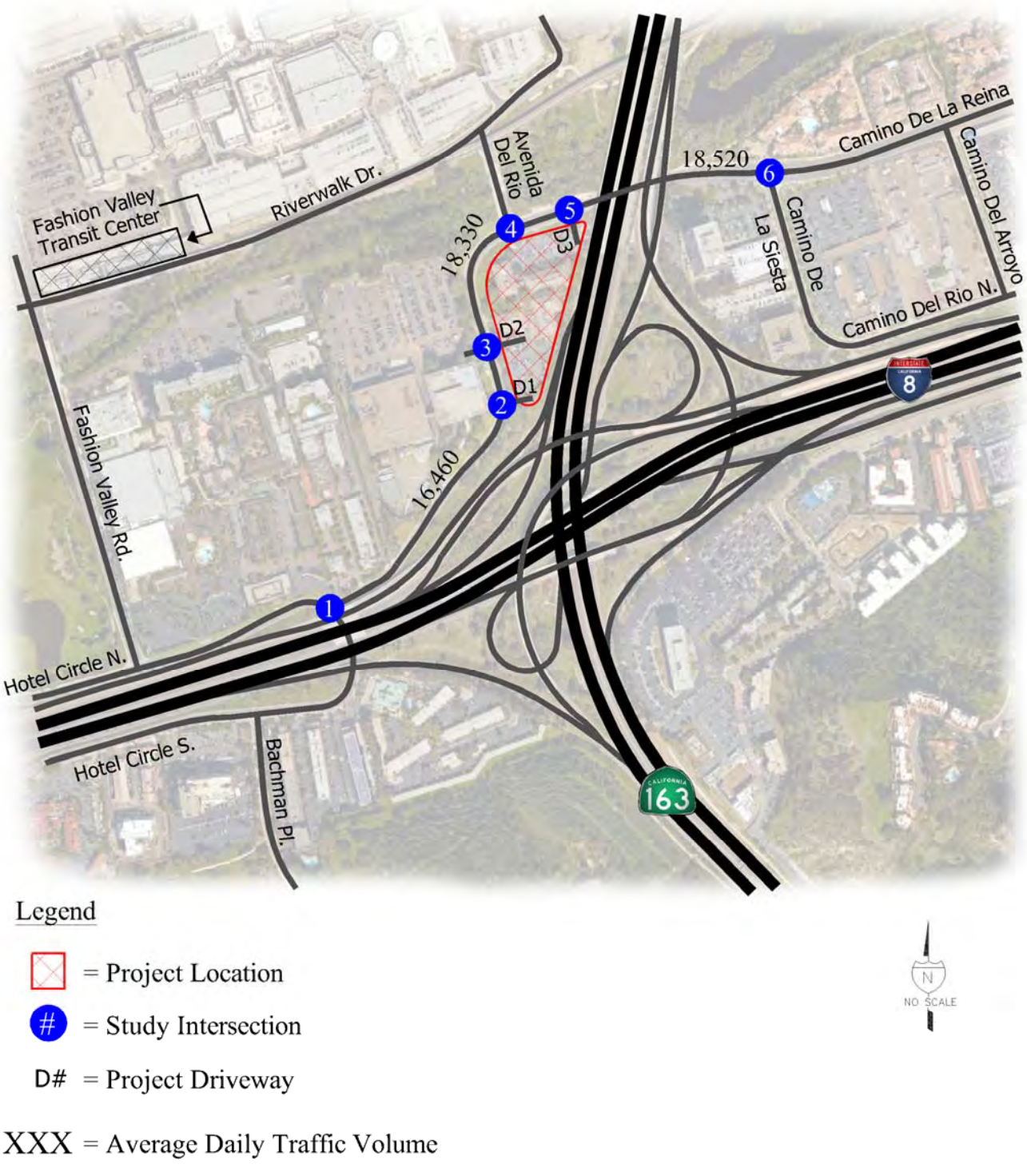


FIGURE 10-1

Horizon Year 2035 Without Project Average Daily Traffic

TABLE 10-1

Horizon Year 2035 Without Project Street Segment Levels of Service

Road	Segment	Standard	Class.	Cap.	Volume	V/C	LOS
Camino De La Reina	Hotel Circle N. to Driveway 1	SD	2-Ca	15,000	16,460	1.10	F
	Driveway 2 to Avenida Del Rio	SD	2-Ca	15,000	18,330	1.22	F
	Driveway 3 to Camino De La Siesta	SD	2-Ca	15,000	18,520	1.23	F

Legend:

Class. = Functional Class

Cap. = Capacity

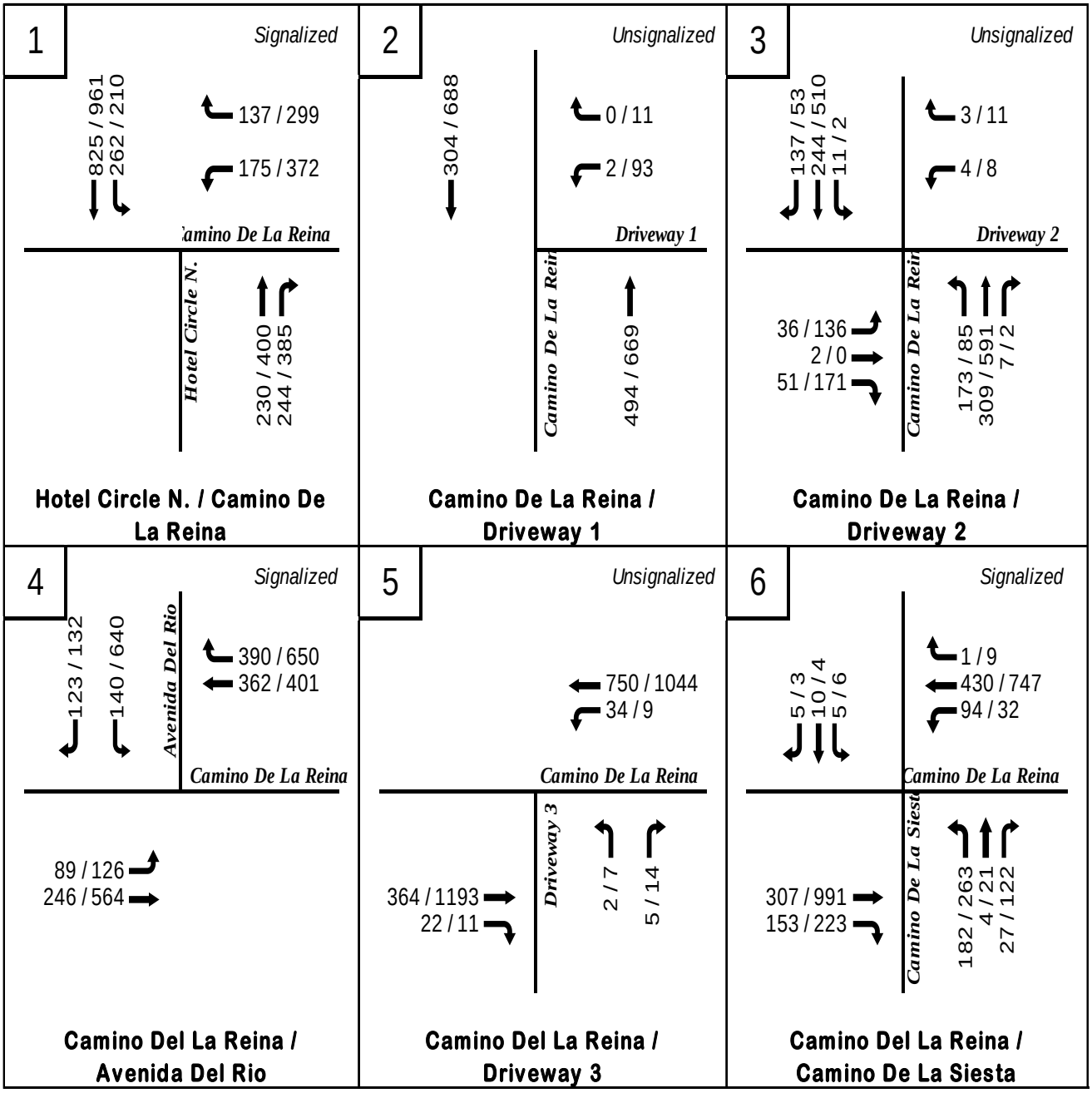
LOS = Level of Service

2-Ca = 2 Lane Collector (w/continuous left-turn lane)

10.2 INTERSECTIONS

Figure 10-2 shows the peak hour traffic volumes from the Horizon Year 2035 Without Project scenario at study area intersections. **Table 10-2** shows the resulting AM and PM peak hour LOS. As shown in **Table 10-2**, all intersections evaluated are expected to operate at an acceptable LOS.

Appendix H includes the Horizon Year 2035 Without Project Synchro worksheets.



XX / XX = AM / PM Peak hour volumes

FIGURE 10-2

Horizon Year 2035 Without Project AM/PM Peak Hour Traffic

TABLE 10-2

Horizon Year 2035 Without Project Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Hotel Circle N. / Camino De La Reina	Signalized	17.5	B	47.1	D
2	Camino De La Reina / Driveway 1	One-Way Stop	12.2	B	20.2	C
3	Camino De La Reina / Driveway 2	Two-Way Stop	14.1	B	22.6	C
4	Camino Del La Reina / Avenida Del Rio	Signalized	16.1	B	26.2	C
5	Camino Del La Reina / Driveway 3	One-Way Stop	11.4	B	34.4	D
6	Camino Del La Reina / Camino De La Siesta	Signalized	19.3	B	48.3	D

Notes:

Delay = Seconds per Vehicle

LOS = Level of Service

11. HORIZON YEAR 2035 WITH PROJECT

This section of the report discusses the Horizon Year 2035 with Project conditions.

11.2 YEAR 2035 WITH PROJECT TRAFFIC VOLUMES

Horizon Year 2035 With Project volumes were developed by adding project traffic to the Horizon Year 2035 Without Project volumes. This section discusses the analysis results of the Horizon Year 2035 With Project scenario.

11.3 STREET SEGMENTS

Figure 11-1 shows the Horizon Year 2035 With Project street segment traffic volumes.

An analysis was completed for street segments in the Horizon Year 2035 With Project condition. As shown on **Table 11-1**, all three study segments on Camino De La Reina operate at unacceptable levels of service "F".

11.4 INTERSECTIONS

Figure 11-2 shows the expected peak hour volumes at Horizon Year 2035 With Project for the intersections analyzed. **Table 11-2** shows the AM and PM peak hour LOS for the Horizon Year 2035 With Project condition. As shown, all intersections operate at acceptable levels of service in the AM and PM peak hour.

Appendix I includes Synchro worksheets for Horizon Year 2035 With Project condition.

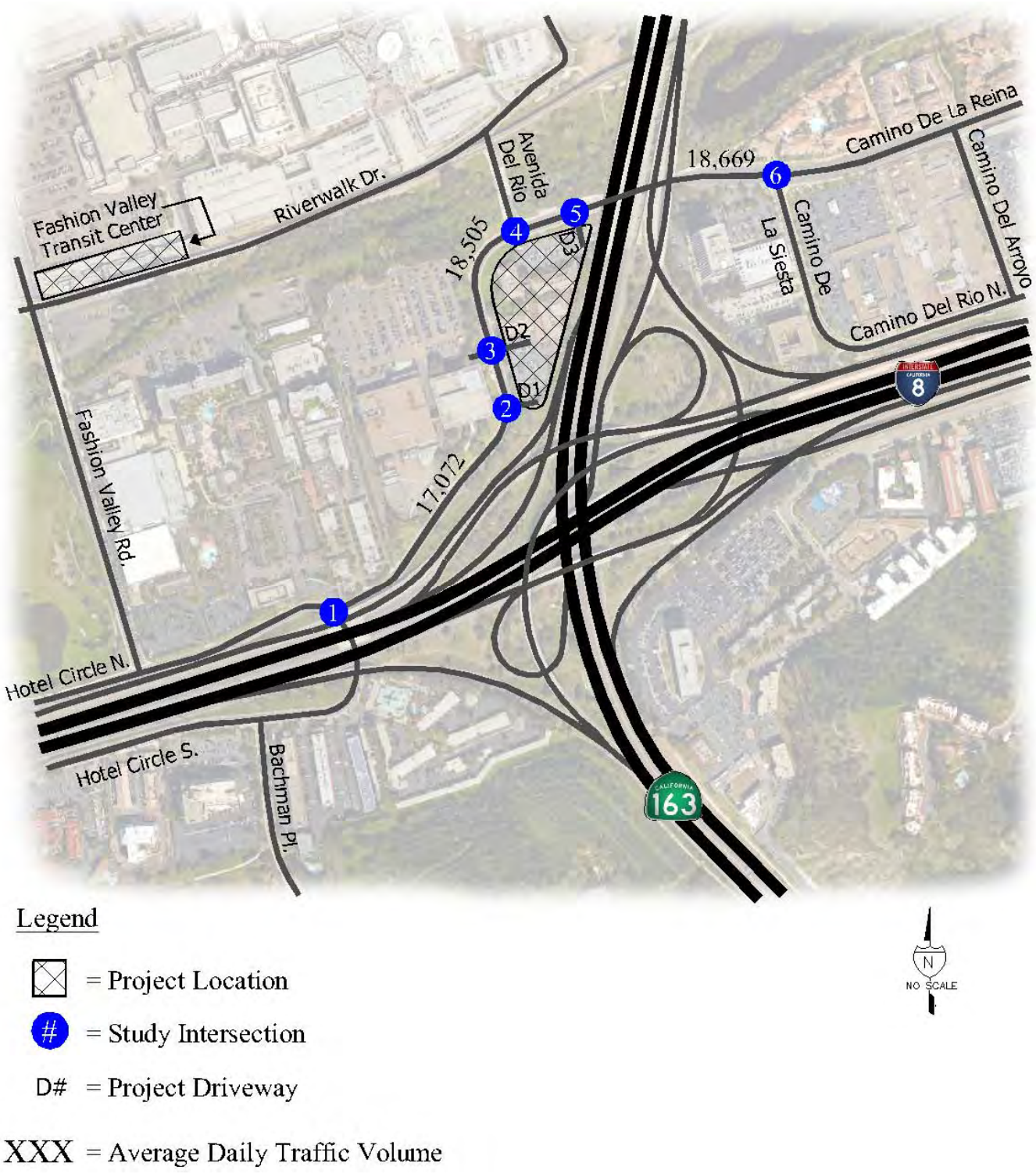


FIGURE 11-1

Horizon Year 2035 With Project Average Daily Traffic Volumes

TABLE 11-1

Horizon Year 2035 With Project Street Segment Levels of Service

Road	Segment	Standard	Class.	Cap.	Volume	V/C	LOS
Camino De La Reina	Hotel Circle N. to Driveway 1	SD	2-Ca	15,000	17,072	1.14	F
	Driveway 2 to Avenida Del Rio	SD	2-Ca	15,000	18,505	1.23	F
	Driveway 3 to Camino De La Siesta	SD	2-Ca	15,000	18,669	1.24	F

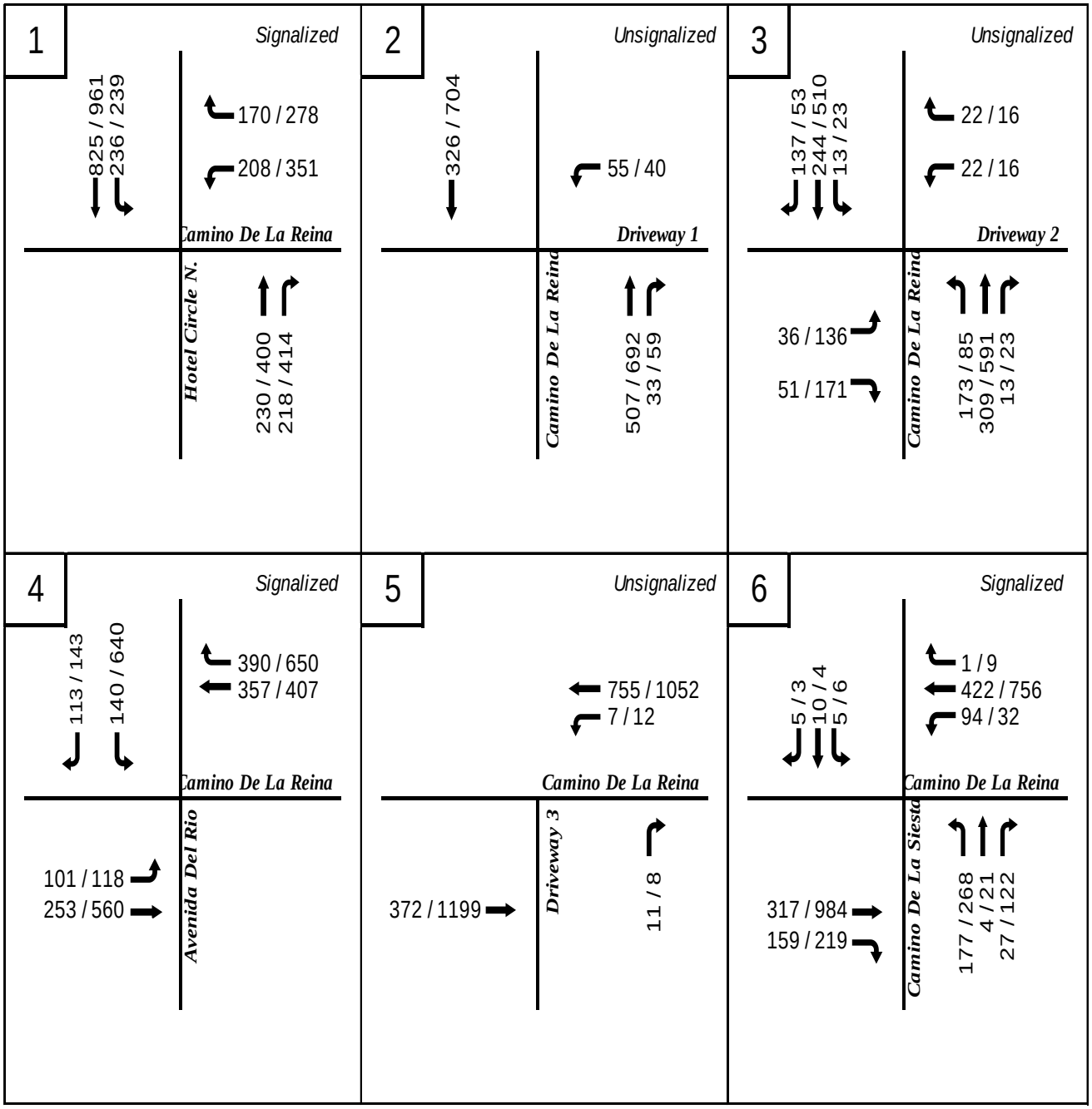
Legend:

Class. = Functional Class

Cap. = Capacity

LOS = Level of Service

2-Ca = 2 Lane Collector (w/continuous left-turn lane)



XX / XX = AM / PM Peak hour volumes

FIGURE 11-2

Horizon Year 2035 With Project AM/PM Peak Hour Traffic Volumes

TABLE 11-2

Horizon Year 2035 With Project Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Hotel Circle N. / Camino De La Reina	Signalized	17.8	B	50.7	D
2	Camino De La Reina / Driveway 1	One-Way Stop	13.2	B	17.8	C
3	Camino De La Reina / Driveway 2	Two-Way Stop	14.6	B	26.1	D
4	Camino Del La Reina / Avenida Del Rio	Signalized	16.2	B	26.1	C
5	Camino Del La Reina / Driveway 3	One-Way Stop	11.1	B	33.5	D
6	Camino Del La Reina / Camino De La Siesta	Signalized	19.6	B	46.4	D

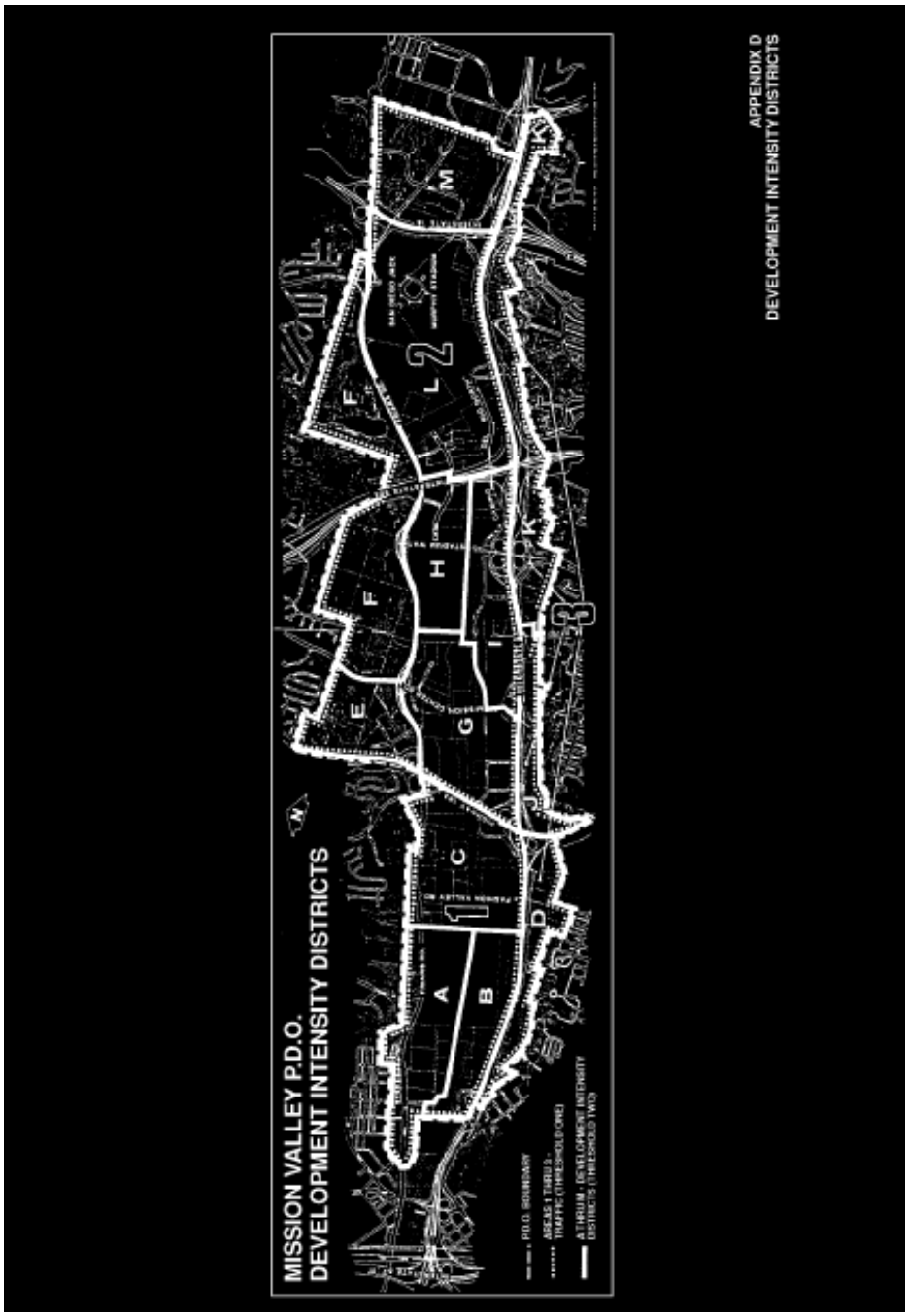
Notes:

Delay = Seconds per Vehicle

LOS = Level of Service

12. MISSION VALLEY PLANNED DISTRICT ORDINANCE CONSISTENCY

As shown on **Table 12-1**, up to 2,005 ADT is expected to be generated by the Alexan Fashion Valley project using Mission Valley Planned District Ordinance rates (Municipal Code Table 1514-03B). The 4.92 acre site is located in the MV-CO zone of the Mission Valley Planned District and the OF-1-1 zone within the Mission Valley Community Plan. The Mission Valley Community is governed by a Planned District Ordinance (MVPDO) which limits development intensity. According to the MVPDO (§1514.0301 (c) (1)), "Development intensity shall be limited by the number of average daily trips (ADT) generated by the existing and proposed land uses of any development proposal". The project is located in Development Intensity District C. According to Table 1514-03A in the MVPDO, up to 417 ADT per gross acre is allowed within development threshold 2. For the 4.92 acre project site, the Community Plan would allow up to 2,050 ADT within the allowable development thresholds. Therefore, the proposed project is expected to generate fewer average daily trips than allowed under threshold 2 and would be consistent with the Community Plan**.** **Figure 12-1** and **Table 12-2** show the development intensity thresholds and districts.



Source: Mission Valley Planned District Ordinance

FIGURE 12-1

Mission Valley Development Intensity Districts

TABLE 12-1
Mission Valley Development Intensity Trip Generation Calculation

AVERAGE DAILY TRIPS (ADT) SUMMARY (PER TABLE 1514-03B)			
ALLOWABLE ADT			
SITE AREA*		**ALLOWABLE PER ACRE**	**TOTAL**
4.92		417	2,052
PROPOSED ADT			
RESIDENTIAL USE			
DWELLING UNITS (DU)		TRIP/DU	
RESIDENTIAL UNIT			
236		6	1,416.0
RESIDENTIAL - WORK UNIT			
48		6	288.0
COMMERCIAL (OFFICE)			
AREA (SF)		NO. OF TRIPS/1000 SF	
8,150.00	SF	20	163.0
COMMERCIAL (RESTAURANT)			
AREA		NO. OF TRIPS/1000 SF	
3,145.00	SF	40	125.8
TOTAL PROPOSED			**1,993**

* PREDEDICATION

TABLE 12-2
Mission Valley Development Intensity District Thresholds

	Trips Per Gross Acre	
District	**Threshold 1**	**Threshold**
A	150 [1]	338 [1]
B	150	263
C	150 [1]	417 [1]
D	200 [1]	380 [1]
E	140 [1]	353 [1]
F	140 [1]	140 [1]
G	140	344
H	140	323
I	140	571
J	200 [1]	671 [1]
K	200 [1]	424 [1]
L	140	267
M	140	157

Footnote for Table 1514-03A

1 Excluding acreage within steep hillsides.

Source: Mission Valley Planned District Ordinance

13. PARKING

As shown in **Table 13-1**, parking for the project is planned to meet the parking requirements contained in the City of San Diego Municipal Code. Parking for the residential portion of the project will be primarily accommodated in a proposed six (6) story parking structure accessed off of Camino De La Reina. The project is planning to accommodate a total of 469 spaces on-site. Parking required per the City's Municipal Code is 469 spaces. The planned parking supply meets the minimum required by the Municipal Code.

TABLE 13-1

Project Parking Calculations

CAR PARKING SUMMARY (PER CODE 142-05C)

TYPE	STALL PER UNIT/TYPE	NO. OF UNITS	NO. OF STALLS	
RESIDENTIAL				
STUDIO	1	2	2	
1 BD	1.25	161	201.25	
2 BD	1.75	73	127.75	
3 BD	-	-	-	
RESIDENTIAL - WORK				
1 BD EQUIVALENT	1.25	40	50.00	
2 BD EQUIVALENT	1.75	4	7.00	
3 BD EQUIVALENT	2.00	4	8.00	
RESTAURANT	12.8 PER 1000 SF	3,145.00	40.26	(PER CODE 142-05F)
OFFICE+LEASING	2.9 PER 1000 SF	11,015.00	31.94	(PER CODE 142-05G)
TOTAL REQUIRED			**468**	
TOTAL PROVIDED	(404 STALLS AT PARKING GARAGE AND 65 OUTDOOR STALLS)		**469**	

MOTORCYCLE PARKING SUMMARY

TYPE	STALL PER UNIT	NO. OF UNITS/STALLS	NO. OF STALLS	
RESIDENTIAL				
STUDIO	0.05	2	0.10	
1 BD	0.10	161	16.10	
2 BD	0.10	73	7.30	
3 BD	0.10	-	-	
RESIDENTIAL - WORK				
1 BD EQUIVALENT	0.10	40	4.00	
2 BD EQUIVALENT	0.10	4	0.40	
3 BD EQUIVALENT	0.10	4	0.40	
RESTAURANT	2% OF STALLS	40	0.81	2 MIN.
OFFICE+LEASING	2% OF STALLS	32	0.64	2 MIN.
TOTAL REQUIRED			**34**	
TOTAL PROVIDED	(30 STALLS AT PARKING GARAGE AND 4 OUTDOOR STALLS)		**34**	

BICYCLE PARKING SUMMARY

TYPE		STALL PER UNIT	NO. OF UNITS/STALLS	NO. OF STALLS	
RESIDENTIAL					
STUDIO		0.30	2	0.60	
1 BD		0.40	161	64.40	
2 BD		0.50	73	36.50	
3 BD		0.60	-	-	
RESIDENTIAL - WORK					
1 BD EQUIVALENT		0.40	40	16.00	
2 BD EQUIVALENT		0.50	4	2.00	
3 BD EQUIVALENT		0.60	4	2.40	
RESTAURANT					
	SHORT TERM	5% OF STALLS	40	2.01	
	LONG TERM	5% OF STALLS	40	2.01	
OFFICE+LEASING					
	SHORT TERM	5% OF STALLS	32	1.60	2 MIN.
	LONG TERM	5% OF STALLS	32	1.60	
TOTAL REQUIRED				**130**	
TOTAL PROVIDED		(122 RESIDENTIAL + 8 COMMERCIAL LONG TERM+10 COMMERCIAL SHORT TERM)		**140**	

14. ACCESS AND ON-SITE VEHICULAR / PEDESTRIAN CIRCULATION

14.1 ACCESS & ON-SITE CIRCULATION

As shown in **Figure 2-1**, access for the project is planned via three driveways on Camino De La Reina. The two existing driveways along the west side of the project site (Driveway 1 & 2) will remain, and the existing driveway located on the north side of the project site (Driveway 3) will be relocated approximately 200 feet east. Camino De La Reina has an existing two way left turn lane west of Avenida Del Rio which will accommodate vehicles turning left into the project.

Driveway 1 and Driveway 3 will connect and provide access to surface parking as well as the east entrance to the parking structure. Driveway 2 will provide direct access to the west entrance of the parking structure. As discussed in previous sections of this report, these unsignalized access points are expected to operate at LOS "B" or "C" in all study conditions. The proposed site plan is shown in **Figure 2-2.**

14.2 PEDESTRIAN CIRCULATION

Pedestrian circulation for the project will be accommodated through internal walkways within the project as well as sidewalks along Camino De La Reina. Existing sidewalks are provided on the north side of Camino De La Reina between Hotel Circle and Avenida Del Rio as well as on the south side between Driveway 1 and Avenida Del Rio. Existing sidewalks are also available on the west side of Avenida Del Rio. Crosswalks are located at the signalized intersection of Camino De La Reina and Avenida Del Rio. These crosswalks provide direct access to the MTS bus stop, Fashion Valley Mall, and the trolley station.

15. TRANSPORTATION DEMAND MANAGEMENT (TDM)

15.1 TDM

Transportation Demand Management (TDM) refers to a variety of strategies designed to change the travel behavior in order to improve the transportation system efficiency. Typically TDM strategies aim at reducing single-occupancy vehicle trips during peak periods through ridesharing and by encouraging commuting in the non-peak periods.

In accordance with the City of San Diego Climate Action Plan (CAP) Strategies, the proposed Alexan Fashion Valley Project will implement the following as part of the project's TDM Program:

- Leases with commercial tenants shall include a requirement to cash-out employees for not using parking.
- Parking spaces for residents shall be leased separate from the rental of apartment homes.
- An employer network in the SANDAG iCommute program (http://www.icommutesd.com/) shall be established and maintained, promoting SANDAG's RideMatcher service to tenants/employees.
- On-site home-work units that support and encourage telework options.
- Access to services that reduce the need to drive, such as cafes, commercial stores, banks, post offices, restaurants, and gyms located within 1,320 feet (1/4 mile) of the project.
- Kiosks/bulletin boards in central locations, which encourage alternative modes of transportation.
- Designated carpool coordinator for the residents
- Bicycle parking in central locations
- Preferred parking for fuel efficient vehicles

This TDM meets the requirements of the CAP Checklist as shown in **Appendix J**.

16. TRANSIT AND OTHER MODES

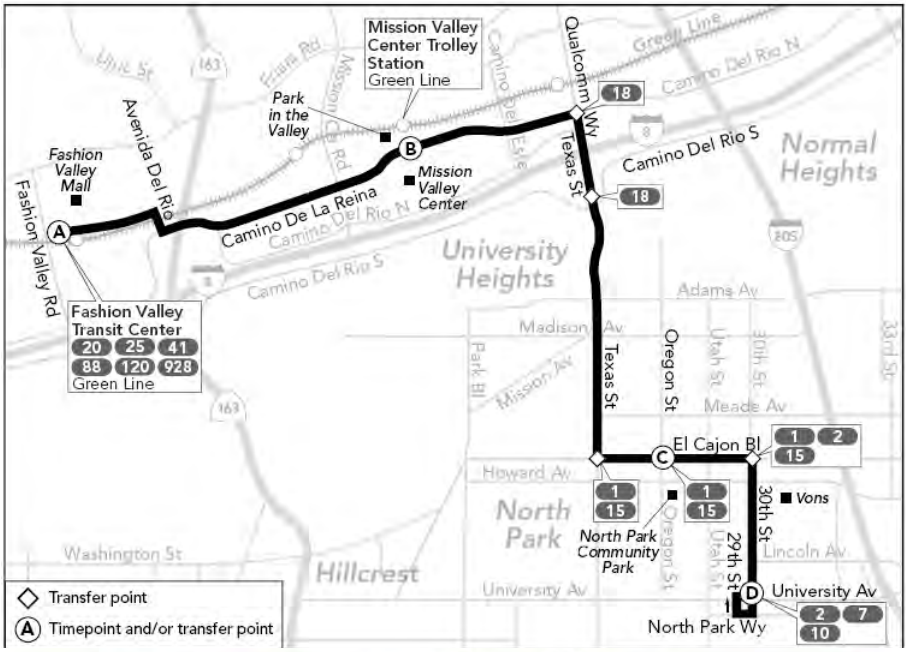
16.1 PEDESTRIAN AND BICYCLES

As discussed in Section 13.2, pedestrian access will be provided through sidewalks on Camino De La Reina and Avenida Del Rio. From the proposed project, pedestrians can utilize these sidewalks to reach the rest of the community. No bicycle facilities are provided on Camino De La Reina or Avenida Del Rio within the study area.

16.2 TRANSIT

Walking distance to Fashion Valley Transit Center is approximately 0.36 miles. MTS Bus Routes 6, 20, 25, 41, 88, 120, 928 all have stops at the Fashion Valley Transit Center. As shown in **Figure 16-1** the project site is served by Route 6 of the Metropolitan Transit System. MTS Bus Route 6 travels on Camino De La Reina with a stop on the north side at the intersection of Camino De La Reina and Avenida Del Rio along the northern project frontage. This route connects the project site with Mission Valley Center and Fashion Valley Transit Center along with North Park. The route is active Monday through Friday at approximately 15 minute intervals. The route is also active on Saturday and Sunday at lesser and varying intervals.

Additionally, the Green Line of the MTS Trolley System stops at the Fashion Valley Transit Center approximately every 15 minutes. The route is also active on Saturday and Sunday at lesser and varying intervals.



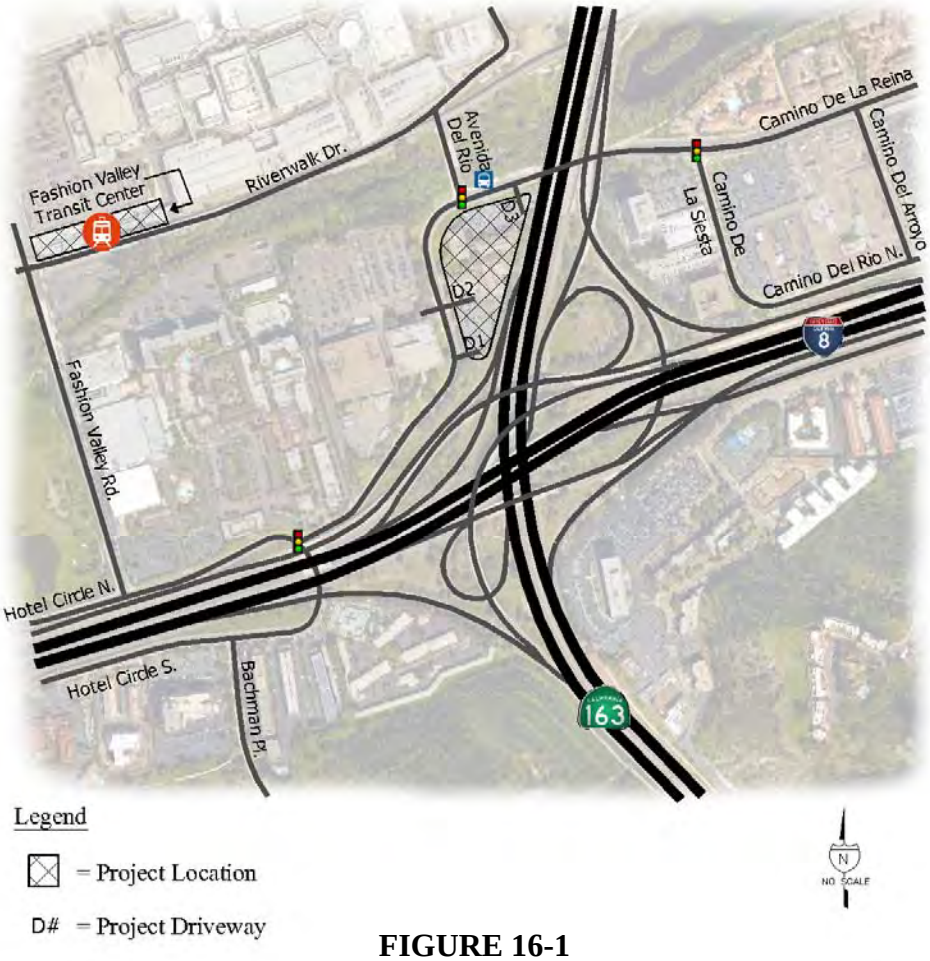


FIGURE 16-1

Bus Route 6 Map

17. CONSTRUCTION TRAFFIC

17.1 CONSTRUCTION TRAFFIC TRIP GENERATION

As requested by the City of San Diego, Urban Systems Associates analyzed the traffic that was expected during the construction of the proposed mixed-use development. The construction will take place in a single phase with an estimated start date in Quarter 3 of 2017. Demolition of the current site is expected to last approximately 2 months. Construction of the mixed-use development is expected to last approximately 24 months. Therefore total construction time is estimated at approximately 26 months. The peak construction with the majority of the exports, deliveries, and workers is expected to last approximately 3 months.

As shown in **Table 17-1**, the expected average daily construction traffic (ADT) is approximately 240 trips. A passenger-car-equivalent for heavy vehicles (trucks) was taken from the *Highway Capacity Manual 2010 (Exhibit 21-10)*. One truck is therefore equivalent to 2.0 cars and therefore counts as twice the ADT. The net new trips expected from the proposed project is expected to be approximately 795 ADT. Therefore, the expected ADT during construction will be lower than the ADT analyzed in Chapter 6.0 (Existing With Project).

17.2 STREET SEGMENTS

Table 17-2 shows the Existing and Existing With Construction Traffic comparison table for studied st reet segments. As shown, all studied street segments operate at level of service (LOS) of C or better with the exception of Camino De La Reina between Driveway 3 and Camino De La Siesta. As shown, impacts from construction traffic are expecte3d to be lower than the proposed project due to lower construction traffic (240 ADT maximum vs. 874 from project).

TABLE 17-1

Construction Traffic Trip Generation

Purpose	Number	PCE	Equivalent Autos	Trips	ADT
Exports/Deliveries[1]	10	2.0	*20*	2 /Truck	40
Employees	100	1	*100*	2 /Auto	200
Total Construction Trips					**240**

Notes:
ADT = Average Daily Traffic

PCE = Passenger-Car equivalents for heavy vehicles assumed to be 2.0 per Exhibit 21-10 of the HCM 2010.
1. Expected duration is approximately 48 days

TABLE 17-2

Existing & Existing With Construction Traffic Street Segment Comparison

Road	Segment	LOS "E" Capacity	Funct. Class.	Existing			Existing + Construction			ΔV/C	Is this impact Significant?
				LOS	Volume	V/C	LOS	Volume	V/C		
Camino De La Reina	Hotel Circle N. to Driveway 1	15,000	2-Ca	C	8,886	0.59	B	9,054	0.60	0.011	***NO***
	Driveway 2 to Avenida Del Rio	15,000	2-Ca	C	8,886	0.59	B	8,934	0.60	0.003	***NO***
	Driveway 3 to Camino De La Siesta	15,000	2-Ca	E	13,654	0.91	C	13,695	0.91	0.003	***NO***

Legend:

Class. = Functional Class

Cap. = Capacity

LOS = Level of Service

2-Ca = 2 Lane Collector (w/continuous left-turn lane)

18. CONCLUSIONS AND RECOMMENDATIONS

18.1 PROJECT TRIP GENERATION

The project is expected to generate 2,096 average daily trips (ADT) with 176 (66 inbound and 110 outbound) AM peak hour trips and 195 (116 inbound and 78 outbound) PM peak hour trips. Due to the project's close proximity to the Fashion Valley Transit Center, a transit and mixed-use reduction has been applied to the projects trip generation. The existing office use to be demolished currently generates 1,245 ADT with 158 AM and 176 PM peak hour trips. After the transit, mixed-use and existing land use credits are applied, the NET NEW TRIPS generated by the project would be **851** ADT with **18** (**-76** inbound and **94** outbound) AM peak hour trips and **19** (**81** inbound and **-63** outbound) PM peak hour trips.

18.2 EXISTING CONDITIONS

Street Segments:

All street segments are shown to operate at LOS "C" or better in the Existing condition except for Camino De La Reina between Driveway 3 and Camino De La Seista which operates at LOS "E".

Intersections:

All intersections are expected to operate at LOS "C" or better in the Existing condition.

18.3 EXISTING WITH PROJECT

When project traffic is added to existing traffic, the following results occur.

Street Segments:

All street segments are anticipated to operate at LOS "C" or better in the Existing With Project scenario except for Camino De La Reina between Driveway 3 and Camino De La Seista which operates at LOS "E".

Intersections:

All intersections are projected to operate at LOS "C" or better in the Existing With Project scenario.

18.4 OPENING DAY (2019) WITHOUT PROJECT

Street Segments:

All street segments are anticipated to operate at LOS "D" or better in the Opening Day Without Project scenario except for Camino De La Reina between Driveway 3 and Camino De La Siesta which is projected to operate at LOS "F".

.

Intersections:

All intersections are projected to operate at LOS "C" or better in Opening Day Without Project scenario.

18.5 OPENING DAY (2019) WITH PROJECT

When existing plus other projects expected to be completed prior to the projects opening day plus the proposed project are added, the following results occur.

Street Segments:

All street segments are projected to operate at LOS "D" or better in the Opening Day With Project condition except for Camino De La Reina between Driveway 3 and Camino De La Siesta which is projected to operate at LOS "F".

Intersections:

All intersections are projected to operate at LOS "D" or better in this condition with the project.

18.6 DIRECT IMPACTS:

Street Segments:

Table 18-1 shows the summary of the direct impacts in the Existing With Project scenario for street segments within the study area. **Table 18-2** shows the summary of the direct impacts in the Opening Day With Project scenario for street segments. As shown, there are **no** significant direct impacts expected as a result of the proposed project.

Intersections:

Table 18-3 shows the summary of the direct impacts in the Existing With Project scenario for intersections within the study area. **Table 18-4** shows the summary of the direct impacts in the Opening Day With Project scenario for intersections within the study area. As shown in the tables, there are **no** significant direct impacts as a result of the proposed project.

Mitigation:

No direct impacts are anticipated as a result of the proposed Alexan Fashion Valley project. Therefore, no mitigation is proposed.

TABLE 18-1

Existing With & Without Project Street Segment Significance

Road	Segment	LOS "E" Capacity	Class.	Existing			Existing + Project			ΔV/C	Is this impact Significant?
				LOS	Volume	V/C	LOS	Volume	V/C		
Camino De La Reina	Hotel Circle N. to Driveway 1	15,000	2-Ca	C	8,886	0.59	C	9,498	0.63	0.041	***NO***
	Driveway 2 to Avenida Del Rio	15,000	2-Ca	C	8,886	0.59	C	9,061	0.60	0.012	***NO***
	Driveway 3 to Camino De La Siesta	15,000	2-Ca	E	13,654	0.91	E	13,803	0.92	0.010	***NO***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

2-Ca = 2 Lane Collector (w/continuous left-turn lane)

Notes:

Count Date: 2/25/15

TABLE 18-2

Opening Day (2019) With & Without Project Street Segment Significance

Road	Segment	LOS "E" Capacity	Class.	Opening Day (2018)			Opening Day (2018) With Project			ΔV/C	Is this impact Significant?
				LOS	Volume	V/C	LOS	Volume	V/C		
Camino De La Reina	Hotel Circle N. to Driveway 1	15,000	2-Ca	D	10,536	0.70	D	11,148	0.74	0.041	***NO***
	Driveway 2 to Avenida Del Rio	15,000	2-Ca	D	10,086	0.67	D	10,261	0.68	0.012	***NO***
	Driveway 3 to Camino De La Siesta	15,000	2-Ca	F	16,303	1.09	F	16,452	1.10	0.010	***NO***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

2-Ca = 2 Lane Collector (w/continuous left-turn lane)

TABLE 18-3

Existing With & Without Project Intersection Summary

#	Intersection	Existing				Existing + Project							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Hotel Circle N. / Camino De La Reina	12.0	B	23.4	C	12.6	B	0.6	No	26.4	C	3.0	No
2	Camino De La Reina / Driveway 1	10.6	B	14.8	B	11.2	B	0.6	No	13.9	B	-0.9	No
3	Camino De La Reina / Driveway 2	10.9	B	13.1	B	11.1	B	0.2	No	14.1	B	1.0	No
4	Camino Del La Reina / Avenida Del Rio	10.8	B	16.9	B	11.5	B	0.7	No	17.1	B	0.2	No
5	Camino Del La Reina / Driveway 3	9.9	A	17.6	C	9.6	A	-0.3	No	17.5	C	-0.1	No
6	Camino Del La Reina / Camino De La Siesta	16.3	B	19.7	B	16.5	B	0.2	No	20.1	C	0.4	No

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D= Delay

TABLE 18-4

Opening Day (2019) With & Without Project Intersection Summary

#	Intersection	Opening Day (2019)				Opening Day (2019) + Project							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Hotel Circle N. / Camino De La Reina	13.7	B	32.3	C	14.4	B	0.7	No	35.1	D	2.8	No
2	Camino De La Reina / Driveway 1	11.1	B	16.2	C	11.8	B	0.7	No	14.9	B	-1.3	No
3	Camino De La Reina / Driveway 2	11.7	B	14.7	B	12.0	B	0.3	No	16.2	C	1.5	No
4	Camino Del La Reina / Avenida Del Rio	14.8	B	17.8	B	15.5	B	0.7	No	17.6	B	-0.2	No
5	Camino Del La Reina / Driveway 3	11.0	B	20.5	C	10.9	B	-0.1	No	20.3	C	-0.2	No
6	Camino Del La Reina / Camino De La Siesta	17.1	B	21.9	C	17.3	B	0.2	No	21.5	C	-0.4	No

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D= Delay

18.6 HORIZON YEAR 2035 WITHOUT PROJECT

When future model volumes are evaluated, the following results occur.

Street Segments:

All three street segments are projected to operate at LOS "F" in the Horizon Year 2035 Without Project condition.

Intersections:

All intersections are projected to operate at LOS "D" or better in this condition without the project in both the AM and PM peak hour.

18.7 HORIZON YEAR 2035 WITH PROJECT

When future model volumes with project traffic are evaluated, the following results occur.

Street Segments:

All three street segments are projected to operate at LOS "F" in the Horizon Year 2035 With Project condition.

Intersections:

All intersections are projected to operate at LOS "D" or better in this condition with the project in both the AM and PM peak hour.

18.8 CUMULATIVE IMPACTS:

Street Segments:

Table 18-5 shows the summary of the cumulative impacts in the Horizon Year 2035 With Project scenario for street segments within the study area. As shown, there are two (2) significant cumulative impact as a result of the proposed project on Camino De La Reina from Hotel Circle North to Driveway 1.

Intersections:

Table 18-6 shows the summary of the cumulative impacts in the Horizon Year 2035 With Project scenario for intersections within the study area. As shown in the table, there are **no** significant cumulative impacts as a result of the proposed project.

Mitigation:

Camino De La Reina: Hotel Circle North to Driveway #1

Widening this segment to a 3-lane Collector standards (providing half-width of a 4-lane Major roadway) would mitigate the project's significant impact. The Alexan Fashion Valley project proposes to provide an irrevocable offer of dedication (IOD) and deferred improvement agreement (DIA) for the widening of Camino De La Reina along the project frontage. This widening along the project frontage will include a half-width of 30' centerline to curb for 11' and 13' travel lanes with a 6' bike lane in accordance with the current Community Plan. This widening would occur if Camino De La Reina remains a 4-lane Major classification after approval of the Community Plan Update currently underway. In addition, the project also proposes to restripe the project frontage following widening (to account for appropriate transitions) of Camino De La Reina to 3-lane Collector standards between Driveway #1 and Hotel Circle. Provisions of the IOD, DIA, and restriping will mitigate the cumulative impact along this segment.

Camino De La Reina: Driveway 2 to Avenida Del Rio

Widening this segment to a 3-lane Collector standards (providing half-width of a 4-lane Major roadway) would mitigate the project's significant impact. The Alexan Fashion Valley project proposes to provide an irrevocable offer of dedication (IOD) and deferred improvement agreement (DIA) for the widening of Camino De La Reina along the project frontage. This widening along the project frontage will include a half-width of 30' centerline to curb for 11' and 13' travel lanes with a 6' bike lane in accordance with the current Community Plan. This widening would occur if Camino De La Reina remains a 4-lane Major classification after approval of the Community Plan Update currently underway. In addition, the project also proposes to restripe the project frontage following widening (to account for appropriate transitions) of Camino De La Reina to 3-lane Collector standards from Driveway #1 along the frontage. Provisions of the IOD, DIA, and restriping will mitigate the cumulative impact along this segment.

TABLE 18-5

Horizon Year 2035 With & Without Project Street Segment Significance

Road	Segment	LOS "E" Capacity	Class.	Horizon Year 2035			Horizon Year 2035 + Project			ΔV/C	Is this impact Significant?
				LOS	Volume	V/C	LOS	Volume	V/C		
Camino De La Reina	Hotel Circle N. to Driveway 1	15,000	2-Ca	F	16,460	1.10	F	17,072	1.14	0.041	***YES***
	Driveway 2 to Avenida Del Rio	15,000	2-Ca	F	18,330	1.22	F	18,505	1.23	0.012	***YES***
	Driveway 3 to Camino De La Siesta	15,000	2-Ca	F	18,520	1.23	F	18,669	1.24	0.010	***NO***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

2-Ca = 2 Lane Collector (w/continuous left-turn lane)

TABLE 18-6

Horizon Year 2035 With & Without Project Intersection Summary

#	Intersection	Horizon Year 2035				Horizon Year 2035 + Project							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Hotel Circle N. / Camino De La Reina	17.5	B	47.1	D	17.8	B	0.3	No	50.7	D	3.6	No
2	Camino De La Reina / Driveway 1	12.2	B	20.2	C	13.2	B	1.0	No	17.8	C	-2.4	No
3	Camino De La Reina / Driveway 2	14.1	B	22.6	C	14.6	B	0.5	No	26.1	D	3.5	No
4	Camino Del La Reina / Avenida Del Rio	16.1	B	26.2	C	16.2	B	0.1	No	26.1	C	-0.1	No
5	Camino Del La Reina / Driveway 3	11.4	B	34.4	D	11.1	B	-0.3	No	33.5	D	-0.9	No
6	Camino Del La Reina / Camino De La Siesta	19.3	B	48.3	D	19.6	B	0.3	No	46.4	D	-1.9	No

Notes:

LOS = Level of Service

Δ = Change

S = Significant

D= Delay

19. REFERENCES

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Registered Civil Engineer, Licensed Traffic Engineer

Word Processing, Report Production and Compilation

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This report is site and time specific and is intended for a one-time use for this intended project under the conditions described as "Proposed Project." Any changes or delay in implementation may require re-analysis and re-consideration by the public agency granting approvals. California land development planning involves subjective political considerations as well as frequently re-interpreted principals of law as well as changes in regulations, policies, guidelines and procedures. Urban Systems and their professionals make no warrant, either express or implied, regarding our findings, recommendations, or professional advice as to the ability to successfully accomplish this land development project.

Traffic is a consequence of human behavior and as such is predictable only in a gross cumulative methodology of user opportunities, using accepted standards and following patterns of past behavior and physical constraints attempting to project into a future window of circumstances. Any counts or existing conditions cited are only as reliable as to the time and conditions under which they were recorded. As such the preparer of this analysis is unable to warrant, either express or implied, that any forecasts are statements of actual true conditions which will in fact exist at any future date.

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APPENDIX A

EXISTING TRAFFIC COUNTS

SIGNAL TIMING SHEETS

COMMUNITY PLAN CIRCULATION ELEMENT

ITM Peak Hour Summary

Prepared by:

NDS

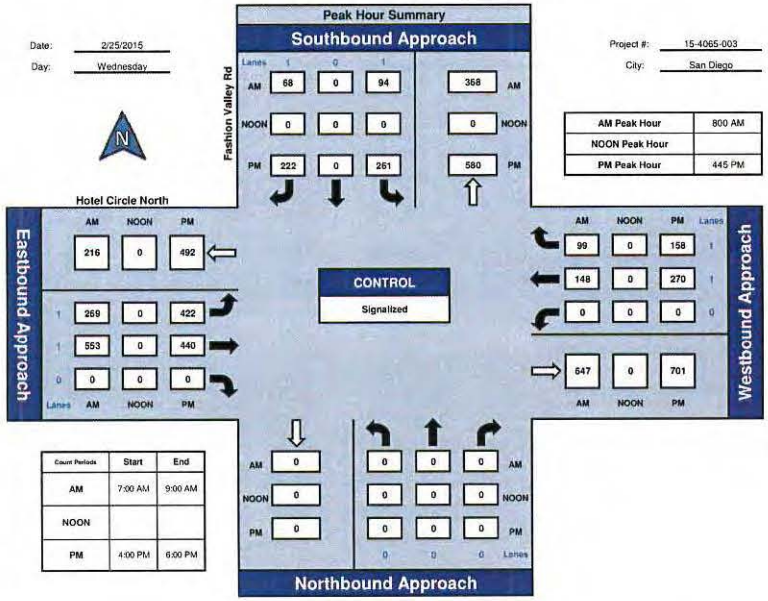
National Data & Surveying Services

Fashion Valley Rd and Hotel Circle North , San Diego

Date: 2/25/2015
Day: Wednesday

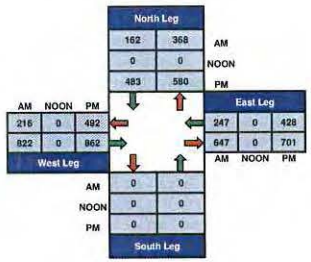
Project #: 15-4065-003
City: San Diego

AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	445 PM

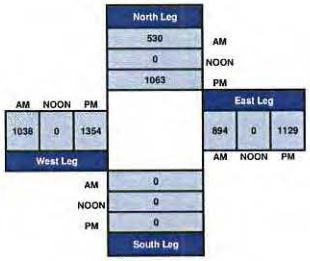


Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

NDS

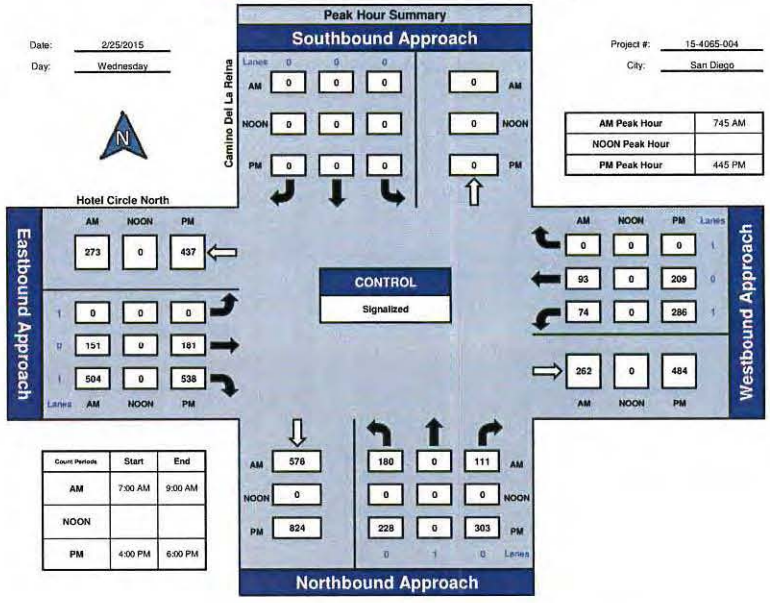
National Data & Surveying Services

Camino Del La Reina and Hotel Circle North , San Diego

Date: 2/25/2015
Day: Wednesday

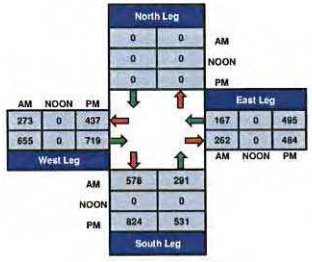
Project #: 15-4065-004
City: San Diego

AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	445 PM

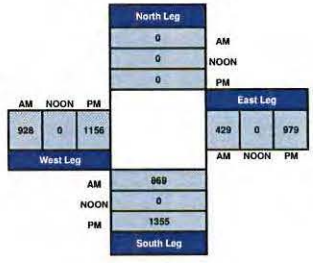


Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



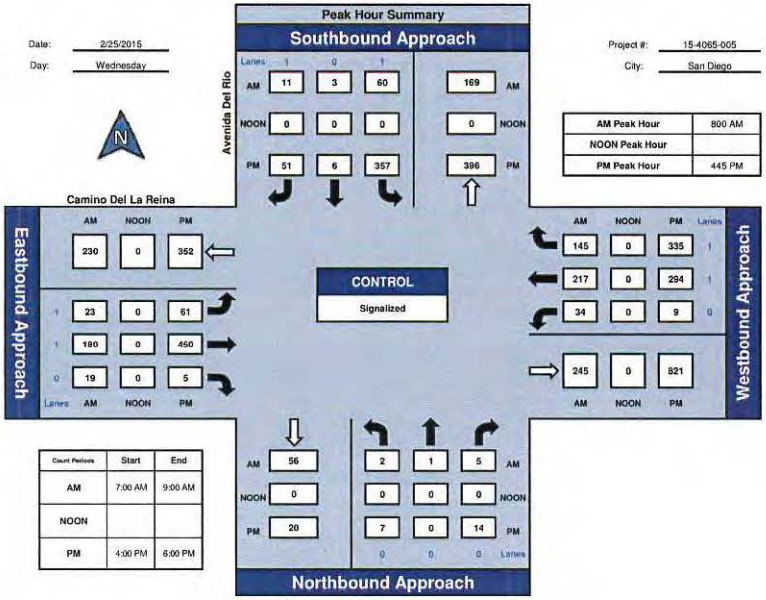
ITM Peak Hour Summary

Prepared by:

NDS

National Data & Surveying Services

Avenida Del Rio and Camino Del La Reina , San Diego



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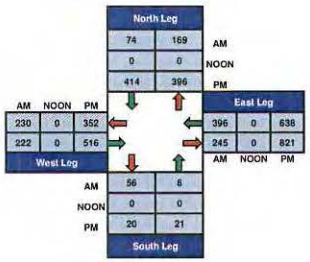
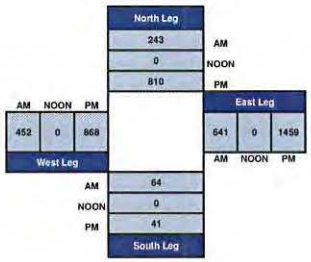


Total Volume Per Leg



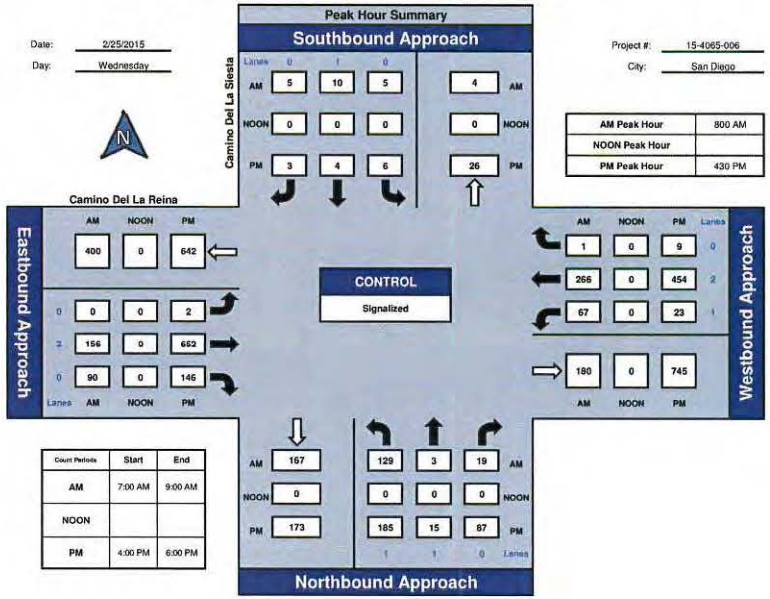
ITM Peak Hour Summary

Prepared by:

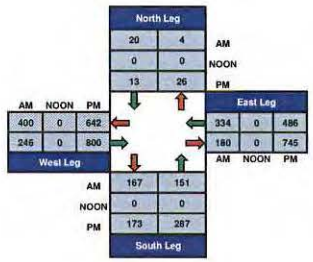
NDS

National Data & Surveying Services

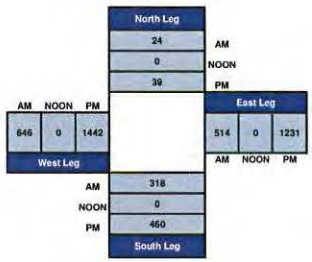
Camino Del La Siesta and Camino Del La Reina , San Diego



Total Ins & Outs



Total Volume Per Leg

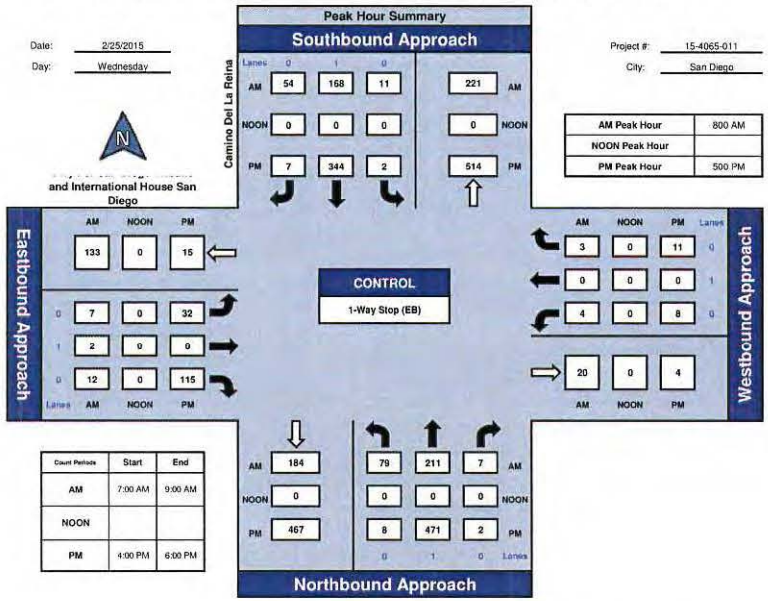


ITM Peak Hour Summary

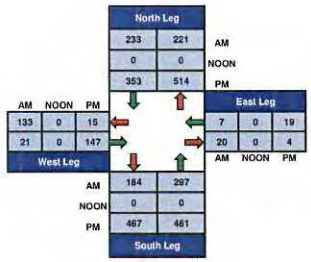
Prepared by:

National Data & Surveying Services

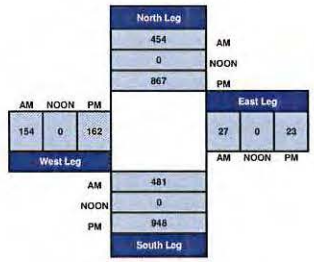
Camino Del La Reina and Dwy For San Diego Tribune and International House San Diego , San Diego



Total Ins & Outs



Total Volume Per Leg



Existing Drwy. Vol. Calculations

AM (in)

22 + 34

+11 + 7 = 74

AM 150 − 74 = $\boxed{76}$

(out)

2+1+5+3+4 = 15

17−15 = $\boxed{2}$

PM

(in)

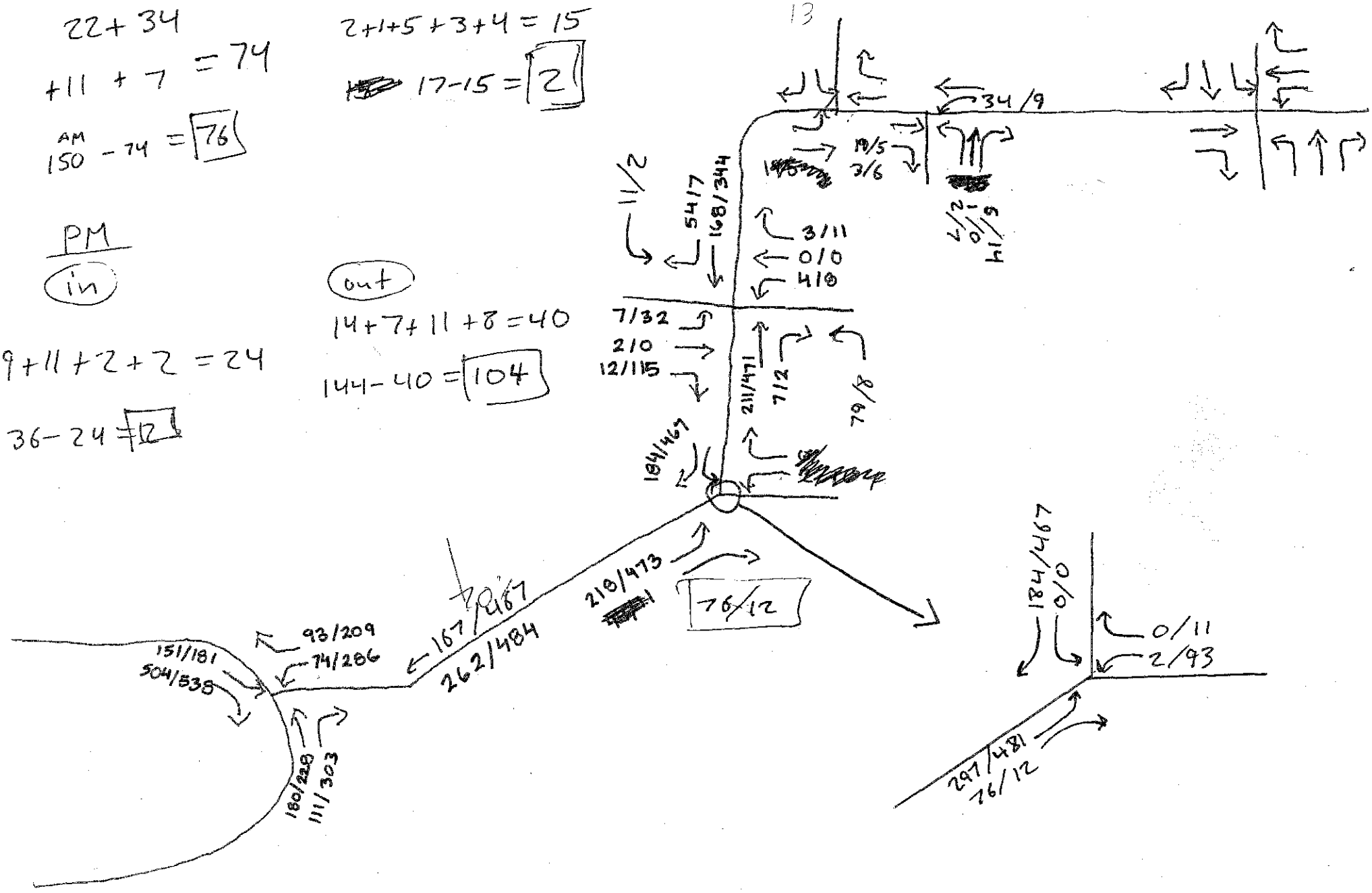
9+11+2+2 = 24

36−24 = $\boxed{12}$

(out)

14+7+11+8 = 40

144−40 = $\boxed{104}$



Prepared by NDS/ATD

VOLUME

Hotel Circle North Bet. Fashion Valley Rd & Camino De La Reina

Day: Wednesday
Date: 2/25/2015

City: San Diego
Project #: CA15_4066_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,708	5,006	12,714

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			3	10	13	12:00			88	95	183
00:15			4	5	9	12:15			96	91	187
00:30			10	3	13	12:30			71	88	159
00:45			4 21	1 19	5 40	12:45			128 383	123 397	251 780
01:00			3	4	7	13:00			125	97	222
01:15			4	3	7	13:15			164	85	249
01:30			4	1	5	13:30			137	94	231
01:45			2 13	6 14	8 27	13:45			115 541	84 360	199 901
02:00			4	6	10	14:00			118	95	213
02:15			0	2	2	14:15			113	102	215
02:30			1	1	2	14:30			136	78	214
02:45			1 6	3 12	4 18	14:45			112 479	87 362	199 841
03:00			1	0	1	15:00			91	80	171
03:15			0	1	1	15:15			142	92	234
03:30			1	2	3	15:30			130	82	212
03:45			1 3	5 8	6 11	15:45			129 492	95 349	224 841
04:00			3	4	7	16:00			157	83	240
04:15			1	6	7	16:15			160	94	254
04:30			2	6	8	16:30			183	107	290
04:45			6 12	4 20	10 32	16:45			189 689	108 392	297 1081
05:00			7	6	13	17:00			160	112	272
05:15			10	7	17	17:15			186	107	293
05:30			20	12	32	17:30			186	109	295
05:45			21 58	24 49	45 107	17:45			201 733	90 418	291 1151
06:00			16	19	35	18:00			185	91	276
06:15			45	28	73	18:15			132	94	226
06:30			75	35	110	18:30			104	81	185
06:45			92 228	37 119	129 347	18:45			92 513	77 343	169 856
07:00			107	43	150	19:00			79	86	165
07:15			116	63	179	19:15			66	64	130
07:30			131	65	196	19:30			41	65	106
07:45			179 533	91 262	270 795	19:45			79 265	68 283	147 548
08:00			147	53	200	20:00			73	54	127
08:15			165	64	229	20:15			107	50	157
08:30			161	62	223	20:30			85	50	135
08:45			172 645	67 246	239 891	20:45			93 358	48 202	141 560
09:00			103	54	157	21:00			68	40	108
09:15			96	67	163	21:15			61	46	107
09:30			80	52	132	21:30			77	46	123
09:45			76 355	52 225	128 580	21:45			63 269	29 161	92 430
10:00			61	64	125	22:00			49	37	86
10:15			83	78	161	22:15			46	18	64
10:30			88	77	165	22:30			70	32	102
10:45			97 329	86 305	183 634	22:45			68 233	20 107	88 340
11:00			75	75	150	23:00			70	17	87
11:15			91	71	162	23:15			58	10	68
11:30			102	77	179	23:30			31	13	44
11:45			84 352	75 298	159 650	23:45			39 198	15 55	54 253
TOTALS			2555	1577	4132	TOTALS			5153	3429	8582
SPLIT %			61.8%	38.2%	32.5%	SPLIT %			60.0%	40.0%	67.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,708	5,006	12,714

AM Peak Hour	07:45	11:45	07:45	PM Peak Hour	17:15	16:45	16:45
AM Pk Volume	652	349	922	PM Pk Volume	758	436	1157
Pk Hr Factor	0.911	0.918	0.854	Pk Hr Factor	0.943	0.973	0.974
7 - 9 Volume	1178	508	1686	4 - 6 Volume	1422	810	2232
7 - 9 Peak Hour	07:45	07:30	07:45	4 - 6 Peak Hour	17:00	16:45	16:45
7 - 9 Pk Volume	652	273	922	4 - 6 Pk Volume	733	436	1157
Pk Hr Factor	0.911	0.750	0.854	Pk Hr Factor	0.912	0.973	0.974

Prepared by NDS/ATD

VOLUME

Camino De La Reina Bet. Hotel Circle & Avenida Del Rio

Day: Wednesday
Date: 2/25/2015

City: San Diego
Project #: CA15_4066_004

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,483	4,403	8,886

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			4	9	13	12:00			78	75	153
00:15			9	10	19	12:15			78	71	149
00:30			3	8	11	12:30			81	70	151
00:45			4 20	3 30	7 50	12:45			80 317	92 308	172 625
01:00			5	4	9	13:00			90	87	177
01:15			0	1	1	13:15			108	87	195
01:30			1	3	4	13:30			75	83	158
01:45			6 12	5 13	11 25	13:45			85 358	69 326	154 684
02:00			0	6	6	14:00			90	85	175
02:15			2	3	5	14:15			61	81	142
02:30			1	5	6	14:30			75	82	157
02:45			0 3	4 18	4 21	14:45			73 299	66 314	139 613
03:00			1	2	3	15:00			66	74	140
03:15			1	3	4	15:15			66	72	138
03:30			0	2	2	15:30			89	89	178
03:45			1 3	9 16	10 19	15:45			100 321	75 310	175 631
04:00			2	6	8	16:00			66	103	169
04:15			2	2	4	16:15			82	75	157
04:30			6	2	8	16:30			124	116	240
04:45			4 14	1 11	5 25	16:45			114 386	75 369	189 755
05:00			3	3	6	17:00			109	112	221
05:15			10	3	13	17:15			114	131	245
05:30			11	12	23	17:30			128	136	264
05:45			20 44	8 26	28 70	17:45			121 472	94 473	215 945
06:00			14	13	27	18:00			96	117	213
06:15			14	15	29	18:15			86	93	179
06:30			23	24	47	18:30			89	65	154
06:45			29 80	31 83	60 163	18:45			62 333	68 343	130 676
07:00			37	24	61	19:00			42	77	119
07:15			37	42	79	19:15			49	67	116
07:30			52	61	113	19:30			41	51	92
07:45			67 193	54 181	121 374	19:45			38 170	58 253	96 423
08:00			60	46	106	20:00			31	65	96
08:15			69	51	120	20:15			26	48	74
08:30			88	47	135	20:30			22	48	70
08:45			87 304	42 186	129 490	20:45			26 105	48 209	74 314
09:00			63	41	104	21:00			28	64	92
09:15			58	34	92	21:15			15	43	58
09:30			49	37	86	21:30			17	47	64
09:45			76 246	30 142	106 388	21:45			13 73	26 180	39 253
10:00			63	47	110	22:00			22	32	54
10:15			63	41	104	22:15			22	21	43
10:30			72	50	122	22:30			13	20	33
10:45			74 272	58 196	132 468	22:45			21 78	14 87	35 165
11:00			76	53	129	23:00			20	30	50
11:15			76	64	140	23:15			11	20	31
11:30			86	63	149	23:30			13	17	30
11:45			88 326	70 250	158 576	23:45			10 54	12 79	22 133
TOTALS			1517	1152	2669	TOTALS			2966	3251	6217
SPLIT %			56.8%	43.2%	30.0%	SPLIT %			47.7%	52.3%	70.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,483	4,403	8,886

AM Peak Hour	11:30	11:45	11:45	PM Peak Hour	17:00	17:15	17:00
AM Pk Volume	330	286	611	PM Pk Volume	472	478	945
Pk Hr Factor	0.938	0.953	0.967	Pk Hr Factor	0.922	0.879	0.895
7 - 9 Volume	497	367	864	4 - 6 Volume	858	842	1700
7 - 9 Peak Hour	08:00	07:30	08:00	4 - 6 Peak Hour	17:00	17:00	17:00
7 - 9 Pk Volume	304	212	490	4 - 6 Pk Volume	472	473	945
Pk Hr Factor	0.864	0.869	0.907	Pk Hr Factor	0.922	0.869	0.895

Prepared by NDS/ATD

VOLUME

Camino De La Reina Bet. Avenida Del Rio & Camino De La Siesta

Day: Wednesday
Date: 2/25/2015

City: San Diego
Project #: CA15_4066_005

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,586	7,068	13,654

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			5	13	18	12:00			125	115	240
00:15			8	4	12	12:15			96	149	245
00:30			5	8	13	12:30			105	142	247
00:45			4	22 1 26	5 48	12:45			148	474 156 562	304 1036
01:00			5	2	7	13:00			117	159	276
01:15			1	0	1	13:15			133	145	278
01:30			3	2	5	13:30			132	152	284
01:45			6	15 1 5	7 20	13:45			119	501 115 571	234 1072
02:00			0	1	1	14:00			146	146	292
02:15			1	0	1	14:15			120	154	274
02:30			2	0	2	14:30			102	129	231
02:45			0	3 1 2	1 5	14:45			118	486 112 541	230 1027
03:00			1	2	3	15:00			118	123	241
03:15			1	2	3	15:15			139	106	245
03:30			0	1	1	15:30			125	127	252
03:45			0	2 5 10	5 12	15:45			141	523 119 475	260 998
04:00			3	0	3	16:00			149	137	286
04:15			4	1	5	16:15			151	126	277
04:30			6	4	10	16:30			193	158	351
04:45			4	17 3 8	7 25	16:45			202	695 156 577	358 1272
05:00			3	7	10	17:00			193	150	343
05:15			7	11	18	17:15			217	185	402
05:30			3	25	28	17:30			207	146	353
05:45			9	22 29 72	38 94	17:45			184	801 130 611	314 1412
06:00			14	21	35	18:00			206	151	357
06:15			11	30	41	18:15			142	119	261
06:30			19	43	62	18:30			130	97	227
06:45			24	68 58 152	82 220	18:45			97	575 113 480	210 1055
07:00			34	55	89	19:00			86	103	189
07:15			26	92	118	19:15			87	110	197
07:30			30	99	129	19:30			82	87	169
07:45			47	137 79 325	126 462	19:45			71	326 94 394	165 720
08:00			49	89	138	20:00			72	89	161
08:15			66	96	162	20:15			83	68	151
08:30			67	110	177	20:30			57	66	123
08:45			58	240 100 395	158 635	20:45			64	276 58 281	122 557
09:00			55	96	151	21:00			102	57	159
09:15			53	73	126	21:15			69	60	129
09:30			47	78	125	21:30			61	40	101
09:45			57	212 98 345	155 557	21:45			43	275 30 187	73 462
10:00			62	89	151	22:00			39	33	72
10:15			63	93	156	22:15			34	20	54
10:30			91	112	203	22:30			33	21	54
10:45			84	300 112 406	196 706	22:45			35	141 17 91	52 232
11:00			87	85	172	23:00			24	19	43
11:15			100	114	214	23:15			12	16	28
11:30			115	136	251	23:30			14	13	27
11:45			114	416 160 495	274 911	23:45			9	59 9 57	18 116
TOTALS				1454 2241	3695	TOTALS				5132 4827	9959
SPLIT %				39.4% 60.6%	27.1%	SPLIT %				51.5% 48.5%	72.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,586	7,068	13,654

AM Peak Hour	11:15	11:45	11:30	PM Peak Hour	16:45	16:30	16:45
AM Pk Volume	454	566	1010	PM Pk Volume	819	649	1456
Pk Hr Factor	0.908	0.884	0.922	Pk Hr Factor	0.944	0.877	0.905
7 - 9 Volume	377	720	1097	4 - 6 Volume	1496	1188	2684
7 - 9 Peak Hour	08:00	08:00	08:00	4 - 6 Peak Hour	16:45	16:30	16:45
7 - 9 Pk Volume	240	395	635	4 - 6 Pk Volume	819	649	1456
Pk Hr Factor	0.896	0.898	0.897	Pk Hr Factor	0.944	0.877	0.905

Prepared by NDS/ATD

VOLUME

Camino De La Reina Bet. Camino De La Siesta & Mission Center Rd

Day: Wednesday
Date: 2/25/2015

City: San Diego
Project #: CA15_4066_006

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,766	5,717	11,483

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			3	14	17	12:00			127	97	224
00:15			3	3	6	12:15			100	126	226
00:30			3	6	9	12:30			96	112	208
00:45			4	13 2 25	6 38	12:45			120	443 147 482	267 925
01:00			5	5	10	13:00			116	111	227
01:15			4	1	5	13:15			101	128	229
01:30			3	1	4	13:30			122	115	237
01:45			3	15 0 7	3 22	13:45			104	443 108 462	212 905
02:00			0	1	1	14:00			123	113	236
02:15			1	2	3	14:15			101	112	213
02:30			1	1	2	14:30			95	109	204
02:45			0	2 1 5	1 7	14:45			110	429 99 433	209 862
03:00			1	2	3	15:00			118	86	204
03:15			1	1	2	15:15			123	87	210
03:30			0	1	1	15:30			109	112	221
03:45			2	4 6 10	8 14	15:45			120	470 110 395	230 865
04:00			3	0	3	16:00			143	107	250
04:15			4	3	7	16:15			138	102	240
04:30			5	4	9	16:30			173	123	296
04:45			3	15 3 10	6 25	16:45			193	647 94 426	287 1073
05:00			3	4	7	17:00			183	116	299
05:15			7	6	13	17:15			180	132	312
05:30			2	19	21	17:30			191	123	314
05:45			9	21 21 50	30 71	17:45			149	703 106 477	255 1180
06:00			7	19	26	18:00			172	114	286
06:15			7	20	27	18:15			126	102	228
06:30			14	43	57	18:30			120	82	202
06:45			22	50 49 131	71 181	18:45			91	509 96 394	187 903
07:00			21	39	60	19:00			80	79	159
07:15			26	98	124	19:15			76	89	165
07:30			25	85	110	19:30			64	69	133
07:45			37	109 92 314	129 423	19:45			63	283 78 315	141 598
08:00			35	93	128	20:00			65	68	133
08:15			45	87	132	20:15			63	53	116
08:30			50	78	128	20:30			53	57	110
08:45			50	180 76 334	126 514	20:45			53	234 50 228	103 462
09:00			44	68	112	21:00			78	44	122
09:15			43	59	102	21:15			49	43	92
09:30			48	64	112	21:30			38	40	78
09:45			42	177 74 265	116 442	21:45			28	193 23 150	51 343
10:00			55	72	127	22:00			27	27	54
10:15			60	76	136	22:15			27	17	44
10:30			80	88	168	22:30			25	18	43
10:45			76	271 83 319	159 590	22:45			25	104 14 76	39 180
11:00			86	64	150	23:00			29	10	39
11:15			91	98	189	23:15			10	12	22
11:30			108	100	208	23:30			10	6	16
11:45			106	391 114 376	220 767	23:45			11	60 5 33	16 93
TOTALS				1248 1846	3094	TOTALS				4518 3871	8389
SPLIT %				40.3% 59.7%	26.9%	SPLIT %				53.9% 46.1%	73.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,766	5,717	11,483

AM Peak Hour	11:30	11:45	11:30	PM Peak Hour	16:45	12:45	16:45
AM Pk Volume	441	449	878	PM Pk Volume	747	501	1212
Pk Hr Factor	0.868	0.891	0.971	Pk Hr Factor	0.968	0.852	0.965
7 - 9 Volume	289	648	937	4 - 6 Volume	1350	903	2253
7 - 9 Peak Hour	08:00	07:15	07:45	4 - 6 Peak Hour	16:45	17:00	16:45
7 - 9 Pk Volume	180	368	517	4 - 6 Pk Volume	747	477	1212
Pk Hr Factor	0.900	0.939	0.979	Pk Hr Factor	0.968	0.903	0.965

INTERSECTION: CAMINO DE LA REINA @ HOTEL CIRCLE NORTH

223 Program

Group Assignment:
Field Master Assignment:

N/S Street Name: CAM DE LA REINA
E/W Street Name: HOTEL CIRCLE N

Column # --->		1	2	3	4	5	6	7	8
Phase # --->			HOTEL CIRCLE N		CAM DE LA REINA		HOTEL CIRCLE N		
Row			→		⅄	⌐	←		
0	Ped Walk						7		
1	Ped FDW						10		
2	Min Green		7		4	4	7		
3	Type 3 Limit								
4	Add/Veh								
5	Veh Extn		2.0		2.0	2.0	2.0		
6	Max Gap		2.0		2.0	2.0	2.0		
7	Min Gap		2.0		2.0	2.0	2.0		
8	Max Limit		40		40	30	40		
9	Max Limit 2								
A	Bus Adv								
B	Call to Phs								
C	Reduce By								
D	Every								
E	Yellow		3.9		3.9	3.4	3.9		
F	Red Clear		1.0		1.0	1.0	1.0		

Phase Timing - Bank 1
F + Phase + Row

<F Page>

Row		E
0	RR-1 Delay	
1	RR-1 Clear	
2	EV-A Delay	
3	EV-A Clear	
4	EV-B Delay	
5	EV-B Clear	
6	EV-C Delay	
7	EV-C Clear	
8	EV-D Delay	
9	EV-D Clear	
A	RR-2 Delay	
B	RR-2 Clear	
C	View EV Delay	---
D	View EV Clear	---
E	View RR Delay	---
F	View RR Clear	---

F + E + Row

Row		F
0	Permit	2_456
1	Red Lock	
2	Yellow Lock	
3	Min Recall	2 6
4	Ped Recall	
5	Peds (View)	6
6	Rest In Walk	
7	Red Rest	
8	Dbl Entry	
9	Max Recall	
A	Soft Recall	
B	Max 2	
C	Cond Serv	
D	Ped Lock	12345678
E	Yellow Start	2 6
F	1st Phases	4

F + F + Row

Max Initial	0
Red Revert	5.0
All Red Start	0.0

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

Start / Revert Times

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

Communication Addresses

C + F + O

	1	Row
Free Lag	2 4 6	0

Lag Phases <C Page>

Overlap Timing

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

<F Page>
F + COLOR +

<D Page>
D + 0 + OVERLAP

Manual Plan	14	C + A + 1
Manual Offset	0	C + B + 1

Manual Selection

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

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

Downtime Flash	255	(minutes)

Downtime Before Auto Manual Flash
F + 0 + 8

Disable Ports	234

Disable Communication Ports
D + D + 9

Timing Sheet By: M2S
Approved By: FLG
Drawing Number:
Timing Implemented On: 08/06/13

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

TOD Function 7 + ROW

<D Page> D + F + ROW

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

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

Configuration E + F + ROW <E Page>

Row		E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	
B	EV-B Phases	
C	EV-C Phases	
D	EV-D Phases	
E	Extra 1 Config. Bits	1_345
F	IC Select (Interconnect)	2

Configuration E + E + ROW

For access, set F + 9 + E = 1

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

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

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

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

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

Disable Parity	0	D+B+0

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

Program Information
C + C + 0 = program
C + C + F = version

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

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

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

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

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

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Row

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

Active Detectors <D Page>

Row

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

System Detectors <D Page>

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

Detector Failure Monitor

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

Advance Warning Beacon - Sign 1

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

Advance Warning Beacon - Sign 2

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

Power Cycle Correction (Default = 0.5)

200 SA 1.e

PHASE TIMING

INTERVAL		1	2	3	4	5	6	7	8
WALK	0						7		
FLASH D/W	1						9		
MIN GREEN	2		5/7		4	4	5/7		
TYPE 3 DET	3		EFF						
ADD PER VEH	4		8/15/02						
VEH EXTN *	5		2.0		2.0	2.0	2.0		
MAX GAP *	6		2.0		2.0	2.0	2.0		
MIN GAP *	7		2.0		2.0	2.0	2.0		
MAX EXTN	8		40		40	30	40		
MAX 2	9								
BUS LEAD	A								
CALL TO PHS	B								
REDUCE BY	C		EFF						
EVERY	D		10/1/12		3.9	3.4	3.9		
YELLOW	E		3.0	3.9	3.0	3.0	3.0		
RED CLEAR	F		1.0		1.0	1.0	1.0		

F + PHASE + LOCATION

PREEMPT		
	E	
RR 1 DELAY		0
RR 1 CLEAR		1
EVA DELAY		2
EVA CLEAR		3
EVB DELAY		4
EVB CLEAR		5
EVC DELAY		6
EVC CLEAR		7
EVD DELAY		8
EVD CLEAR		9
RR2 DELAY		A
RR 2 CLEAR		B
EV CLR TMR		C
EV DLY TMR		D
RR CLR TMR		E
RR DLY TMR		F

MAX INITIAL (F-0-E) _____ RED REVERT (F-0-F) 5.0 ALL-RED START (F-C-0) 0.0

PHASE FUNCTION FLAGS

		PHASE 1	2	3	4	5	6	7	8
PERMIT	0		X		X	X	X		
RED LOCK	1								
YELLOW LOCK	2								
VEHICLE RECALL	3		X				X		
PED RECALL	4								
PEDS (VIEW)	5								
REST IN WALK	6								
RED REST	7								
DOUBLE ENTRY	8								
MAX RECALL	9								
SOFT RECALL	A		X				X		
MAX 2	B								
COND SERVICE	C								
	D								
START-UP	E		X				X		
FIRST PHASES	F				X				

F + F + FUNCTION #

EFF 8/15/02

OVERLAP TIMING

	LOAD SWITCH	GREEN 9	YELLOW C	RED D
OLAP A				
OLAP B				
OLAP C				
OLAP D				

D + 0 + OVERLAP

F + COLOR + OVERLAP

PHASE SEQUENCE

PHASE	1	2	3	4	5	6	7	8
LAG 0 (FREE)		X		X		X		

C + F + 0

MANUAL (C-A-1) 14

ADDRESS (C-0-0) _____

TURN-ON DATE:

TIME:

DRAWING NO. D- 16982-1

LAST CHANGE: 01-25-1996

BY: DRH

LOCATION Camino de la Reina & Hotel Circle North

DETECTOR TIMES (Type 336 Cabinet)

Y \ X	SET DELAY 1	2	SET CARRY 3	4	OBS COUNT 5	6	OBS DELAY 7	8	OBS CARRY 9	A
0	1I1U	5I5U	1I1U	5I5U	1I1U	5I5U	1I1U	5I5U	1I1U	5I5U
1	2I2U	6I6U	2I2U	8I8U	2I2U	6I6U	2I2U	6I6U	2I2U	8I8U
2	2I2L	6I6L	2I2L	8I6L	2I2L	6I6L	2I2L	8I6L	2I2L	6I6L
3										
4										
5	2I1L	6I5L	2I1L	6I5L	2I1L	6I5L	2I1L	6I5L	2I1L	6I5L
6	3I3U	7I7U	3I3U	7I7U	3I3U	7I7U	3I3U	7I7U	3I3U	7I7U
7	4I4U	8I8U	4I4U	8I8U	4I4U	6I6U	4I4U	8I6U	4I4U	8I8U
8	4I4L	8I8L	4I4L	8I8L	4I4L	8I8L	4I4L	8I8L	4I4L	8I8L
9										
A										
B	4I3L	8I7L	4I3L	8I7L	4I3L	8I7L	4I3L	8I7L	4I3L	8I7L
C										
D										

D + X (ACROSS) + Y (DOWN)

TO ACCESS CONFIGURATION DATA, SET F-9-E = 1

TIME OF DAY FEATURES

EVENT	TIME	FUNC	DAY OF WEEK S	M	T	W	T	F	S
0			1	2	3	4	5	6	7
1									
2									
3									
4									
5									
6									
7									
8									
9									

7 + EVENT #

PHASE OR FUNCTION

1	2	3	4	5	6	7	8

D + F + EVENT

TIME OF DAY FUNCTION CODES

0-PERMIT
1-RED LOCK
2-YELLOW LOCK
3-VEH RECALL
4-PED RECALL
5-(RESERVED)
6-REST IN WALK
7-RED REST
8-DBL ENTRY
9-VEH MAX RCL
A-SOFT RCL
B-MAX 2 EXT
C-COND SERV
D-TOD LAG PHS

E-1-LOCAL OVERRIDE
2-PHASE BANK 2
3-PHASE BANK 3
7-DET COUNT
8-SPLIT MONITOR

F - TOD OUTPUTS
1- TOD OUTPUT 1
2- TOD OUTPUT 2
3- TOD OUTPUT 3
4- TOD OUTPUT 4

TIME AND DATE

8 - 0 HOUR, MINUTE, DAY-OF-WEEK
8 - 1 DAY-OF-MONTH, YEAR, MONTH
8 - F SECONDS

CONFIGURATION DATA

		PHASE 1	2	3	4	5	6	7	8
EXCLUSIVE	0								
RR1 GN CLR	1								
RR2 GRN CLR	2								
RR2 LTD SRV	3								
PRO/PERM	4								
OLA GN OMIT	5								
OLB GN OMIT	6								
OLC GN OMIT	7								
OLD GN OMIT	8								
OV FL YELLOW	9								
EMVEH A	A								
EMVEH B	B								
EMVEH C	C								
EMVEH D	D								
EXTRA	E	X		X					
IC SELECT	F		X						

E + E + INTERVAL

EXTRA (E+E+E)
1-TBC TYPE 1
2-NEMA COORD
3-DAYLIGHT SAVINGS
4-EV ADVANCE
5-REMOTE EVP
6-SPECIAL EVENT
7-PRETIMED
8-SPLIT RING

ICSELECT (E+E+F)
1-SIMPLEX IN
2-2 WAY MODEM
3-7 WIRE IN
4-FLH/FREE
5-SIMPLEX OUT
6-7 WIRE OUT

ASSIGN5 (E+F+F)
1-RT OVERLAP
2-TOD OUTPUTS
3-STEADY EV BEACON
4-FLASH EV BEACON

CONFIGURATION DATA

		PHASE 1	2	3	4	5	6	7	8
	0								
RR OLAP A	1								
RR OLAP B	2								
RR OLAP C	3								
RR OLAP D	4								
PED 2P	5								
PED 6P	6						X		
PED 4P	7								
PED 8P	8								
FLH YELLOW	9								
OVERLAP A	A								
OVERLAP B	B								
OVERLAP C	C								
OVERLAP D	D								
RESTRICT	E								
ASSIGN5	F								

E + F + INTERVAL

LOCATION: Camino de la Reina & Hotel Circle North

INTERSECTION: CAMINO DE LA REINA & AVENIDA DEL R

223 ...gram

Group Assignment:
Field Master Assignment:

N/S Street Name: AVENIDA DEL RIO
E/W Street Name: CAMINO DE LA REINA

Last Database Change:
System Ref. Number:

N

Row	Column # ---> / Phase # --->	1	2	3	4	5	6	7	8
			→		↓ ↑	↑	←		
0	Ped Walk				7		7		
1	Ped FDW				9		17		
2	Min Green		7		4	4	7		
3	Type 3 Limit								
4	Add/Veh								
5	Veh Extn		2.0		2.0	2.0	2.0		
6	Max Gap		2.0		2.0	2.0	2.0		
7	Min Gap		2.0		2.0	2.0	2.0		
8	Max Limit		60		40	30	60		
9	Max Limit 2								
A	Bus Adv								
B	Call to Phs								
C	Reduce By								
D	Every								
E	Yellow		3.9		3.9	3.4	3.9		
F	Red Clear		1.0		1.0	1.0	1.0		

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

Row	E	
0	RR-1 Delay	
1	RR-1 Clear	
2	EV-A Delay	0
3	EV-A Clear	0
4	EV-B Delay	
5	EV-B Clear	
6	EV-C Delay	0
7	EV-C Clear	0
8	EV-D Delay	
9	EV-D Clear	
A	RR-2 Delay	
B	RR-2 Clear	
C	View EV Delay	---
D	View EV Clear	---
E	View RR Delay	---
F	View RR Clear	---

Preempt Timing
F + E + Row

Row	F	
0	Permit	2 456
1	Red Lock	
2	Yellow Lock	
3	Min Recall	
4	Ped Recall	
5	Peds (View)	4 6
6	Rest In Walk	
7	Red Rest	
8	Dbl Entry	
9	Max Recall	
A	Soft Recall	2 6
B	Max 2	
C	Cond Serv	
D	Ped Lock	12345678
E	Yellow Start	2 6
F	1st Phases	4

Phase Functions <F Page>
F + F + Row

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

Start / Revert Times

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

Communication Addresses

C + F + O		Row
Free Lag	2 4 6	0

Lag Phases <C Page>

Overlap Timing

	Row	C Green Clear	D Yellow Change	E Red Clear	F Load-Switch #
Overlap A	A				
Overlap B	B				
Overlap C	C				
Overlap D	D				

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

Manual Plan	14	C + A + 1
Manual Offset	0	C + B + 1

Manual Selection

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

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

Downtime Flash	255	(minutes)

Downtime Before Auto Manual Flash
F + 0 + 8

Disable Ports	234

Disable Communication Ports
D + D + 9

Timing Sheet By: LEM
Approved By: EFF
Drawing Number:
Timing Implemented On: 3/8/12

INTERSECTION: CAMINO DE LA REINA & AVENIDA DEL RIO

223 Program

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

TOD Function <D Page>

7 + ROW D + F + ROW

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

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

Configuration <E Page>

E + F + ROW

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

Configuration

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

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

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

Day of Week

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

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

Time and Date

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

Disable Parity	0	D+B+0

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

Program Information

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

Remote Download

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

Row	1 Delay	3 Carry-over
0		
1		
2		
3		
4		
5		
6		
7		
8	10.0	
9		
A		
B		
C		
D		
E	---	---
F	---	---

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

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

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

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Phase	Detector Numbers	E
1	1 2 3 4 5 6 7 8	12345678
2	9 10 11 12 -- -- -- --	1234
5	13 14 15 16 17 18 19 20	12345678
6	-- -- -- -- 21 22 23 24	5678
7	-- -- -- -- -- -- -- --	1234
8	-- 25 26 27 28 -- -- --	2345

Active Detectors <D Page>

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

System Detectors <D Page>

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

Detector Failure Monitor

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

Advance Warning Beacon - Sign 1

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

Advance Warning Beacon - Sign 2

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

Power Cycle Correction (Default = 0.5)

INTERSECTION: CAMINO DE LA REINA @ CAMINO DE[illegible] SIESTA

22[illegible] ogram

Group Assignment:
Field Master Assignment:

[illegible]ool Name: CAMINO DE LA SIESTA
E/W Street Name: CAMINO DE LA REINA

Timing Sheet By: JD
Approved By: [illegible]

Last Database Change: N/A
System Ref. Number:
Drawing Number:
Timing Implemented On:

Row	Column # --->	1	2	3	4	5	6	7	8
	Phase # --->	1	2	3	4	5	6	7	8
		↓	→		↓	←			↑
0	Ped Walk		7			7			7
1	Ped FDW		12			8			21
2	Min Green	4	7		4	7			4
3	Type 3 Limit								
4	Add/Veh								
5	Veh Extn	2.0	2.6		3.0	2.7			3.0
6	Max Gap	2.0	2.6		3.0	2.7			3.0
7	Min Gap	2.0	1.2 ~~0.2~~		3.0	1.2 ~~0.2~~			3.0
8	Max Limit	30	60		30	60			30
9	Max Limit 2								
A	Bus Adv								
B	Call to Phs								
C	Reduce By		0.1			0.1			
D	Every		1.3			1.2			
E	Yellow	3.4① ~~3.0~~	3.9		3.9① ~~3.0~~	4.1			3.9① ~~3.0~~
F	Red Clear	1.0	1.0		1.0	1.0			1.0

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

Row		
0	RR-1 Delay	
1	RR-1 Clear	
2	EV-A Delay	0
3	EV-A Clear	0
4	EV-B Delay	
5	EV-B Clear	
6	EV-C Delay	0
7	EV-C Clear	0
8	EV-D Delay	
9	EV-D Clear	
A	RR-2 Delay	
B	RR-2 Clear	
C	View EV Delay	
D	View EV Clear	
E	View RR Delay	
F	View RR Clear	

Preempt Timing
F + E + Row

Row		
0	Permit	12_4_6_8
1	Red Lock	
2	Yellow Lock	
3	Min Recall	_2___6__
4	Ped Recall	
5	Peds (View)	_2___6_8
6	Rest In Walk	
7	Red Rest	
8	Dbl Entry	___4___8
9	Max Recall	
A	Soft Recall	
B	Max 2	
C	Cond Serv	
D	Ped Lock	12345678
E	Yellow Start	_2___6__
F	1st Phases	___4___8

Phase Functions <F Page>
F + F + Row

① WH 8/20/04

Max Initial	0
Red Revert	5.0
All Red Start	0.0

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

Start / Revert Times

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

Communication Addresses

C + F + O	1	Row
Free Lag	_2_4_6_8	

Lag Phases <C Page>

Row		7 Green Clear	C Yellow Change	D Red Clear	1 Load-Switch #
0	Overlap A				
1	Overlap B				
2	Overlap C				
3	Overlap D				

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

Manual Plan	14
Manual Offset	0

C + A + 1
C + B + 1

Manual Selection

Manual Plan	Manual Offset
0 = Automatic	0 = Automatic
1-9 = Plan 1-9	1 = Offset A
14 = Free	2 = Offset B
15 = Flash	3 = Offset C

Downtime Flash	255	(minutes)

Downtime Before Auto Manual Flash
F + 0 + 8

Disable Ports	_234___

Disable Communication Ports
D + D + 9

INTERSECTION: CAMINO DE LA REINA @ CAMINO LA SIESTA

223 Prc m

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

TOD Function

7 + ROW

<D Page>

D + F + ROW

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

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

Configuration

E + F + ROW

<E Page>

Day of Week

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

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

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

Configuration

E + E + ROW

For access, set F + 9 + E = 1

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

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

Time and Date

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

Disable Parity	0	D+B+0

Dial-Up Telephone Communications

(If set to a non-zero value, parity will be disabled)

Program Information

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

Remote Download

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

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

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

Row	2 Delay	4 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		
8	5.0	
9		
A		
B		
C		
D		
E	---	---
F	---	---

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

Detector Delay & Carryover <D Page>

D + X (across) + ROW

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

Active Detectors <D Page>

Row		9 Detector #
	System Det. # 1	
	System Det. # 2	
	System Det. # 3	
	System Det. # 4	
	System Det. # 5	
	System Det. # 6	
	System Det. # 7	
	System Det. # 8	

System Detectors <D Page>

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

Detector Failure Monitor

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

Advance Warning Beacon - Sign 1

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

Advance Warning Beacon - Sign 2

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

Power Cycle Correction (Default = 0.5)

TRAFFIC SIGNAL TIMING - BITS 152



PHASE TIMING

C.D.R

C.D.S

PHASE # →		1	2	3	4	5	6	7	8
WALK	0		7				7		7
FLASH D/W	1		~~6~~ 12	JD			~~6~~ 8	JD	~~7~~ 2.1 JD
MIN GREEN	2	4	~~10~~ 7	JD 5/17/02	4		~~10~~ 7	JD 5/17/02	4
TYPE 3 DET	3								
ADD/VEH	4		2.6 JD				2.7 JD		
VEH EXTEN	5	2.0	~~2.9~~ /	3.0	~~2.0~~		~~2.9~~ /		~~2.0~~
MAX GAP	6	2.0	~~2.9~~ 2.6	3.0	~~2.0~~		~~2.9~~ 2.7		2.0
MIN GAP	7	2.0	6.2	3.0	~~2.0~~		0.2		2.0
MAX EXTEN	8	30	60		~~30~~ 40 TEMP		60		30
MAX 2 JD 5/17/02	9	~~30~~	~~60~~		~~30~~		~~60~~		~~30~~
	A								
	B								
REDUCE BY	C		0.1				0.1		
REDUCE EVERY	D		1.1				1.1		
YELLOW	E	3.0	3.0		3.0		3.0		3.0
RED CLEAR	F	1.0	1.0		1.0		1.0		1.0

LOCATION — DELETE 8/17/94

PREEMPT

	E	
RR1 DELAY		0
RR1 CLEAR		1
EV A DELAY	0	2
EV A CLEAR	~~30~~	3
EV B DELAY		4
EV B CLEAR		5
EV C DELAY	0	6
EV C CLEAR	~~30~~	7
EV D DELAY		8
EV D CLEAR		9
RR2 DELAY		A
RR2 CLEAR		B
EV CLR TMR		C
EV DLY TMR		D
RR CLR TMR		E
RR DLY TMR		F

JD 5/17/02

MAX INITIAL (F-0-E) = _____ KEYSTROKES: F + PHASE + LOCATION RED REVERT (F-0-F) = _____

PHASE FUNCTION FLAGS

		PHASE 1	2	3	4	5	6	7	8
PERMIT	0	X	X		X		X		X
RED LOCK	1								
YELLOW LOCK	2								
VEH RECALL	3		X				X		
PED RECALL	4								
PEDS	5								
REST IN WALK	6								
RED REST	7								
DOUBLE ENTRY	8								
MAX RECALL	9								
OVERLAP A	A								
OVERLAP B	B								
OVERLAP C	C								
OVERLAP D	D								
STARTUP	E		X				X		
(RESERVED)	F								

KEYSTROKES: F + F + FUNCTION #

PHASE SEQUENCES

		PHASE 1	2	3	4	5	6	7	8
LAG 0 (FREE)	0		X		X		X		X
LAG 1	1								
LAG 2	2								
LAG 3	3								
LAG 4	4								
LAG 5	5								
LAG 6	6								
LAG 7	7								
LAG 8	8								
LAG 9	9								
COOR MAX RECALL	A								
COOR LAG RECALL	B								
SYNC PHASES	C								
HOLD	D								
NEXT PHASE	E								
FORCE OFF	F								

KEYSTROKES: C + F + FUNCTION #

REMARKS:

LOC: CAMINO DE LA REINA / CAMINO DE LA SIESTA

T.O DATE: 27 JUN 89 10:15 A

PAGE 1 OF ____

ED-74 (5-85)

DETECTOR TIMES (332 CABINET)

X → / Y ↓	1 SET DELAY	2 SET CARRY	3 OBS COUNT	4 OBS DELAY	5 OBS CARRY	6	7	8	9	A
0	1J1	5J1	1I1	5J1						
1	2I2U	6J2U	2I2U 1.8	6J2U 1.8						
2	2I2L	6J2L	2I2L	6J2L						
3	2I3U	6J3U	2I3U	6J3U						
4	2I3L	6J3L	2I3L	6J3L						
5	2I4	6J4	2I4	6J4						
6	5I5	7J5	5I5	7J5						
7	4I6U	8J6U 10	4I6U	8J6U						
8	4I6L	8J6L 4	4I6L	8J6L						
9	4I7U	8J7U	4I7U	8J7U						
A	4I7L	8J7L	4I7L	8J7L						
B	4I8	8J8	4I8	8J8						
C	1I9U	5J9U	1I9U	5J9U						
D	3I9L	7J9L	3I9L	7J9L						
E										
F										

KEYSTROKES: D + X + Y

TIME OF DAY FUNCTION

	TIME (24 HOUR)	FUN	DAY OF WEEK 1	2	3	4	5	6	7
0									
1									
2									
3									
4									
5									
6									
7									
8									
9									
A									
B									
C									
D									
E									
F									

KEYSTROKES: 7 + EVENT NUMBER

PEDESTRIAN ASSIGNMENTS

LOC	SWITCH PACK	INPUT CI PIN	PHASE 1	2	3	4	5	6	7	8
EF5	2P	67		X						
EF6	6P	68						X		
EF7	4P	69								
EF8	8P	70								X

EMERGENCY VEHICLE PREEMPT ASSIGNMENTS

LOC	PREEM	INPUT CI PIN	PHASE 1	2	3	4	5	6	7	8
EEA	EVA	71		X						
EEB	EVB	72								
EEC	EVC	73	X					X		
EED	EVD	74								

RAILROAD PREEMPTION ASSIGNMENTS

LOC	PHASE	1	2	3	4	5	6	7	8
EE1	RR1 CLEAR								
EE2	RR2 CLEAR								
E3	RR2 LMT SVC								

CONDITIONAL SERVICE D-F-0 _____

LONG POWER FAIL CORRECTION F-0-6 _____

SHORT POWER FAIL CORRECTION F-0-7 _____

CURRENT TIME AND DATE

8-0 HOUR, MINUTE, DAY OF WEEK

8-1 DAY OF MONTH, YEAR, MONTH

C-4-9 SECONDS



Existing Traffic Flow **11** FIGURE

Mission Valley Community Plan

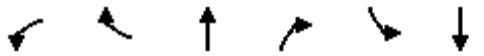
APPENDIX B

EXISTING SYNCHRO WORKSHEETS

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	151	504	180	111	74	93
Future Volume (veh/h)	151	504	180	111	74	93
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	164	548	196	121	80	101
Adj No. of Lanes	1	1	1	0	1	1
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	217	1412	605	373	164	146
Arrive On Green	0.12	0.76	0.57	0.57	0.09	0.09
Sat Flow, veh/h	1774	1863	1065	657	1774	1583
Grp Volume(v), veh/h	164	548	0	317	80	101
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1722	1774	1583
Q Serve(g_s), s	5.8	6.6	0.0	6.4	2.8	4.0
Cycle Q Clear(g_c), s	5.8	6.6	0.0	6.4	2.8	4.0
Prop In Lane	1.00			0.38	1.00	1.00
Lane Grp Cap(c), veh/h	217	1412	0	978	164	146
V/C Ratio(X)	0.75	0.39	0.00	0.32	0.49	0.69
Avail Cap(c_a), veh/h	532	1742	0	978	519	463
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	1.00
Uniform Delay (d), s/veh	27.7	2.7	0.0	7.5	28.2	28.8
Incr Delay (d2), s/veh	2.0	0.1	0.0	0.9	0.8	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.4	0.0	3.2	1.4	3.6
LnGrp Delay(d),s/veh	29.7	2.8	0.0	8.4	29.0	30.9
LnGrp LOS	C	A		A	C	C
Approach Vol, veh/h		712	317		181	
Approach Delay, s/veh		9.0	8.4		30.1	
Approach LOS		A	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		54.4		10.9	12.4	42.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		61.1		19.1	19.6	37.1		
Max Q Clear Time (g_c+I1), s		8.6		6.0	7.8	8.4		
Green Ext Time (p_c), s		4.1		0.2	0.2	4.0		

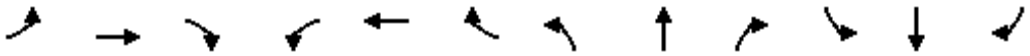
Intersection Summary	
HCM 2010 Ctrl Delay	12.0
HCM 2010 LOS	B



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	0	297	76	0	184
Future Volume (Veh/h)	2	0	297	76	0	184
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	323	83	0	200
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						1155
pX, platoon unblocked						
vC, conflicting volume	564	364			406	
vC1, stage 1 conf vol	364					
vC2, stage 2 conf vol	200					
vCu, unblocked vol	564	364			406	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	645	680			1153	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	2	406	0	200
Volume Left	2	0	0	0
Volume Right	0	83	0	0
cSH	645	1700	1700	1700
Volume to Capacity	0.00	0.24	0.00	0.12
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	10.6	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	10.6	0.0	0.0	
Approach LOS	B			

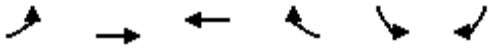
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	2	12	4	0	3	79	211	7	11	168	54
Future Volume (Veh/h)	7	2	12	4	0	3	79	211	7	11	168	54
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	8	2	13	4	0	3	86	229	8	12	183	59
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											731	
pX, platoon unblocked	0.97	0.97	0.97	0.97	0.97		0.97					
vC, conflicting volume	640	646	212	626	671	233	242			237		
vC1, stage 1 conf vol	236	236		405	405							
vC2, stage 2 conf vol	404	409		221	266							
vCu, unblocked vol	610	615	166	595	641	233	197			237		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	98	99	100	100	94			99		
cM capacity (veh/h)	528	505	848	526	491	806	1328			1330		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	23	7	86	237	12	242
Volume Left	8	4	86	0	12	0
Volume Right	13	3	0	8	0	59
cSH	668	618	1328	1700	1330	1700
Volume to Capacity	0.03	0.01	0.06	0.14	0.01	0.14
Queue Length 95th (ft)	3	1	5	0	1	0
Control Delay (s)	10.6	10.9	7.9	0.0	7.7	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	10.6	10.9	2.1		0.4	
Approach LOS	B	B				

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	29.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	180	217	145	60	11
Future Volume (veh/h)	23	180	217	145	60	11
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	25	196	236	158	65	12
Adj No. of Lanes	1	1	1	1	1	1
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	38	1084	944	1273	527	470
Arrive On Green	0.02	0.58	0.51	0.51	0.30	0.30
Sat Flow, veh/h	1774	1863	1863	1583	1774	1583
Grp Volume(v), veh/h	25	196	236	158	65	12
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1583
Q Serve(g_s), s	1.1	4.0	5.8	1.8	2.2	0.4
Cycle Q Clear(g_c), s	1.1	4.0	5.8	1.8	2.2	0.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	38	1084	944	1273	527	470
V/C Ratio(X)	0.66	0.18	0.25	0.12	0.12	0.03
Avail Cap(c_a), veh/h	232	1288	944	1273	527	470
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	39.4	7.9	11.3	1.7	20.8	20.2
Incr Delay (d2), s/veh	7.2	0.0	0.6	0.2	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.0	3.1	2.0	1.1	0.5
LnGrp Delay(d),s/veh	46.6	7.9	11.9	1.9	21.3	20.3
LnGrp LOS	D	A	B	A	C	C
Approach Vol, veh/h		221	394		77	
Approach Delay, s/veh		12.3	7.9		21.1	
Approach LOS		B	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		52.1		29.0	6.1	46.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		56.1		24.1	10.6	41.1		
Max Q Clear Time (g_c+I1), s		6.0		4.2	3.1	7.8		
Green Ext Time (p_c), s		2.0		0.1	0.0	1.9		

Intersection Summary	
HCM 2010 Ctrl Delay	10.8
HCM 2010 LOS	B



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	218	22	34	362	2	5
Future Volume (Veh/h)	218	22	34	362	2	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	237	24	37	393	2	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	106					
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			261		520	249
vC1, stage 1 conf vol					249	
vC2, stage 2 conf vol					270	
vCu, unblocked vol			199		470	186
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	99
cM capacity (veh/h)			1305		648	785

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	261	37	196	196	7
Volume Left	0	37	0	0	2
Volume Right	24	0	0	0	5
cSH	1700	1305	1700	1700	740
Volume to Capacity	0.15	0.03	0.12	0.12	0.01
Queue Length 95th (ft)	0	2	0	0	1
Control Delay (s)	0.0	7.8	0.0	0.0	9.9
Lane LOS		A			A
Approach Delay (s)	0.0	0.7			9.9
Approach LOS					A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	156	90	67	266	1	129	3	19	5	10	5
Future Volume (veh/h)	0	156	90	67	266	1	129	3	19	5	10	5
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		0.96	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	0	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	170	98	73	289	1	140	3	21	5	11	5
Adj No. of Lanes	0	2	0	1	2	0	1	1	0	0	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, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	667	363	93	1531	5	703	86	600	198	416	171
Arrive On Green	0.00	0.30	0.30	0.05	0.42	0.42	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	0	2286	1194	1774	3617	13	1391	202	1411	306	977	401
Grp Volume(v), veh/h	0	135	133	73	141	149	140	0	24	21	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1617	1774	1770	1860	1391	0	1613	1685	0	0
Q Serve(g_s), s	0.0	3.8	4.1	2.7	3.3	3.3	3.7	0.0	0.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.8	4.1	2.7	3.3	3.3	4.1	0.0	0.6	0.5	0.0	0.0
Prop In Lane	0.00		0.74	1.00		0.01	1.00		0.88	0.24		0.24
Lane Grp Cap(c), veh/h	0	538	492	93	749	787	703	0	686	784	0	0
V/C Ratio(X)	0.00	0.25	0.27	0.78	0.19	0.19	0.20	0.00	0.03	0.03	0.00	0.00
Avail Cap(c_a), veh/h	0	538	492	204	854	898	703	0	686	784	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.3	17.4	30.9	11.9	11.9	12.1	0.0	11.1	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	1.3	5.3	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.0	2.0	1.5	1.6	1.7	1.6	0.0	0.3	0.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	18.4	18.8	36.2	12.0	12.0	12.2	0.0	11.1	11.1	0.0	0.0
LnGrp LOS		B	B	D	B	B	B		B	B		
Approach Vol, veh/h		268			363			164			21	
Approach Delay, s/veh		18.6			16.9			12.0			11.1	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.9	25.2		33.0		33.1		33.0
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9
Max Green Setting (Gmax), s	7.6	* 20		28.1		31.9		28.1
Max Q Clear Time (g_c+I1), s	4.7	6.1		2.5		5.3		6.1
Green Ext Time (p_c), s	0.0	2.5		0.6		3.0		0.6

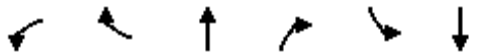
Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	181	538	228	303	286	209
Future Volume (veh/h)	181	538	228	303	286	209
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	197	585	248	329	311	227
Adj No. of Lanes	1	1	1	0	1	1
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	239	1260	347	461	357	319
Arrive On Green	0.13	0.68	0.49	0.49	0.20	0.20
Sat Flow, veh/h	1774	1863	713	945	1774	1583
Grp Volume(v), veh/h	197	585	0	577	311	227
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1658	1774	1583
Q Serve(g_s), s	8.7	11.9	0.0	22.0	13.6	10.7
Cycle Q Clear(g_c), s	8.7	11.9	0.0	22.0	13.6	10.7
Prop In Lane	1.00			0.57	1.00	1.00
Lane Grp Cap(c), veh/h	239	1260	0	808	357	319
V/C Ratio(X)	0.83	0.46	0.00	0.71	0.87	0.71
Avail Cap(c_a), veh/h	345	1372	0	808	466	416
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	1.00
Uniform Delay (d), s/veh	33.8	6.1	0.0	16.2	31.0	29.9
Incr Delay (d2), s/veh	6.9	0.1	0.0	5.3	11.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	6.0	0.0	11.1	7.7	9.3
LnGrp Delay(d),s/veh	40.7	6.2	0.0	21.5	42.1	32.1
LnGrp LOS	D	A		C	D	C
Approach Vol, veh/h		782	577		538	
Approach Delay, s/veh		14.9	21.5		37.9	
Approach LOS		B	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		59.2		21.1	15.2	44.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		59.1		21.1	15.6	39.1		
Max Q Clear Time (g_c+I1), s		13.9		15.6	10.7	24.0		
Green Ext Time (p_c), s		6.4		0.5	0.1	5.0		

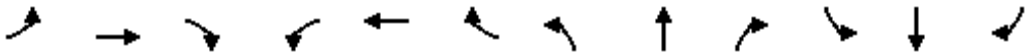
Intersection Summary	
HCM 2010 Ctrl Delay	23.4
HCM 2010 LOS	C



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	93	11	481	12	0	467
Future Volume (Veh/h)	93	11	481	12	0	467
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	101	12	523	13	0	508
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						1155
pX, platoon unblocked	0.90					
vC, conflicting volume	1038	530			536	
vC1, stage 1 conf vol	530					
vC2, stage 2 conf vol	508					
vCu, unblocked vol	985	530			536	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	79	98			100	
cM capacity (veh/h)	471	549			1032	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	113	536	0	508
Volume Left	101	0	0	0
Volume Right	12	13	0	0
cSH	478	1700	1700	1700
Volume to Capacity	0.24	0.32	0.00	0.30
Queue Length 95th (ft)	23	0	0	0
Control Delay (s)	14.8	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	14.8	0.0	0.0	
Approach LOS	B			

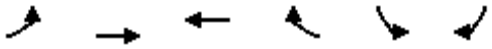
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	0	115	8	0	11	8	471	2	2	344	7
Future Volume (Veh/h)	32	0	115	8	0	11	8	471	2	2	344	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	35	0	125	9	0	12	9	512	2	2	374	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											731	
pX, platoon unblocked	0.87	0.87	0.87	0.87	0.87		0.87					
vC, conflicting volume	924	914	378	1034	917	513	382			514		
vC1, stage 1 conf vol	382	382		531	531							
vC2, stage 2 conf vol	542	532		503	386							
vCu, unblocked vol	839	828	213	965	831	513	217			514		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	83	98	100	98	99			100		
cM capacity (veh/h)	447	452	721	376	450	561	1179			1052		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	160	21	9	514	2	382
Volume Left	35	9	9	0	2	0
Volume Right	125	12	0	2	0	8
cSH	636	463	1179	1700	1052	1700
Volume to Capacity	0.25	0.05	0.01	0.30	0.00	0.22
Queue Length 95th (ft)	25	4	1	0	0	0
Control Delay (s)	12.6	13.1	8.1	0.0	8.4	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	12.6	13.1	0.1		0.0	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	41.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	61	450	294	335	357	51
Future Volume (veh/h)	61	450	294	335	357	51
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	66	489	320	364	388	55
Adj No. of Lanes	1	1	1	1	1	1
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	85	860	672	1238	747	666
Arrive On Green	0.05	0.46	0.36	0.36	0.42	0.42
Sat Flow, veh/h	1774	1863	1863	1583	1774	1583
Grp Volume(v), veh/h	66	489	320	364	388	55
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1583
Q Serve(g_s), s	3.1	16.0	11.1	5.4	13.5	1.7
Cycle Q Clear(g_c), s	3.1	16.0	11.1	5.4	13.5	1.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	85	860	672	1238	747	666
V/C Ratio(X)	0.78	0.57	0.48	0.29	0.52	0.08
Avail Cap(c_a), veh/h	226	1007	672	1238	747	666
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	39.3	16.4	20.6	2.6	17.9	14.5
Incr Delay (d2), s/veh	5.6	0.2	2.4	0.6	2.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	8.2	6.1	7.1	7.1	2.1
LnGrp Delay(d),s/veh	44.9	16.6	23.0	3.2	20.5	14.7
LnGrp LOS	D	B	C	A	C	B
Approach Vol, veh/h		555	684		443	
Approach Delay, s/veh		20.0	12.4		19.8	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		43.4		40.0	8.4	35.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		45.1		35.1	10.6	30.1		
Max Q Clear Time (g_c+I1), s		18.0		15.5	5.1	13.1		
Green Ext Time (p_c), s		4.3		0.7	0.0	3.9		

Intersection Summary	
HCM 2010 Ctrl Delay	16.9
HCM 2010 LOS	B



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	796	11	9	629	7	14
Future Volume (Veh/h)	796	11	9	629	7	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	865	12	10	684	8	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	106					
pX, platoon unblocked			0.81		0.81	0.81
vC, conflicting volume			877		1233	871
vC1, stage 1 conf vol					871	
vC2, stage 2 conf vol					362	
vCu, unblocked vol			732		1171	725
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	95
cM capacity (veh/h)			704		328	298

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	877	10	342	342	23
Volume Left	0	10	0	0	8
Volume Right	12	0	0	0	15
cSH	1700	704	1700	1700	308
Volume to Capacity	0.52	0.01	0.20	0.20	0.07
Queue Length 95th (ft)	0	1	0	0	6
Control Delay (s)	0.0	10.2	0.0	0.0	17.6
Lane LOS		B			C
Approach Delay (s)	0.0	0.1			17.6
Approach LOS					C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	652	146	23	454	9	185	15	87	6	4	3
Future Volume (veh/h)	0	652	146	23	454	9	185	15	87	6	4	3
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		0.96	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	0	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	709	159	25	493	10	201	16	95	7	4	3
Adj No. of Lanes	0	2	0	1	2	0	1	1	0	0	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, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1001	224	39	1550	31	704	97	575	353	198	128
Arrive On Green	0.00	0.35	0.35	0.02	0.44	0.44	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	0	2953	641	1774	3544	72	1402	233	1384	658	477	310
Grp Volume(v), veh/h	0	439	429	25	246	257	201	0	111	14	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1731	1774	1770	1847	1402	0	1617	1444	0	0
Q Serve(g_s), s	0.0	14.5	14.5	0.9	6.1	6.2	2.8	0.0	2.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	14.5	14.5	0.9	6.1	6.2	5.7	0.0	2.9	2.9	0.0	0.0
Prop In Lane	0.00		0.37	1.00		0.04	1.00		0.86	0.50		0.21
Lane Grp Cap(c), veh/h	0	619	606	39	774	807	704	0	671	679	0	0
V/C Ratio(X)	0.00	0.71	0.71	0.64	0.32	0.32	0.29	0.00	0.17	0.02	0.00	0.00
Avail Cap(c_a), veh/h	0	619	606	105	834	870	704	0	671	679	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	19.0	19.0	32.8	12.5	12.5	13.1	0.0	12.4	11.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.7	6.9	6.2	0.2	0.2	0.2	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.2	8.1	0.5	3.0	3.2	2.6	0.0	1.3	0.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	25.7	25.9	39.0	12.7	12.6	13.4	0.0	12.6	11.7	0.0	0.0
LnGrp LOS		C	C	D	B	B	B		B	B		
Approach Vol, veh/h		868			528			312			14	
Approach Delay, s/veh		25.8			13.9			13.1			11.7	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	5.9	28.8		33.0		34.7		33.0
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9
Max Green Setting (Gmax), s	4.0	* 24		28.1		31.9		28.1
Max Q Clear Time (g_c+I1), s	2.9	16.5		4.9		8.2		7.7
Green Ext Time (p_c), s	0.0	4.2		1.3		8.5		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.7
HCM 2010 LOS	B

Notes

APPENDIX C

EXISTING WITH PROJECT SYNCHRO WORKSHEETS

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	125	504	180	85	107	126
Future Volume (veh/h)	125	504	180	85	107	126
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	136	548	196	92	116	137
Adj No. of Lanes	1	1	1	0	1	1
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	191	1355	654	307	211	188
Arrive On Green	0.11	0.73	0.55	0.55	0.12	0.12
Sat Flow, veh/h	1774	1863	1186	557	1774	1583
Grp Volume(v), veh/h	136	548	0	288	116	137
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1743	1774	1583
Q Serve(g_s), s	4.7	7.2	0.0	5.7	3.9	5.3
Cycle Q Clear(g_c), s	4.7	7.2	0.0	5.7	3.9	5.3
Prop In Lane	1.00			0.32	1.00	1.00
Lane Grp Cap(c), veh/h	191	1355	0	960	211	188
V/C Ratio(X)	0.71	0.40	0.00	0.30	0.55	0.73
Avail Cap(c_a), veh/h	546	1728	0	960	587	524
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	1.00
Uniform Delay (d), s/veh	27.5	3.4	0.0	7.7	26.5	27.1
Incr Delay (d2), s/veh	1.8	0.1	0.0	0.8	0.8	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.7	0.0	2.9	2.0	4.6
LnGrp Delay(d),s/veh	29.3	3.4	0.0	8.5	27.3	29.1
LnGrp LOS	C	A		A	C	C
Approach Vol, veh/h		684	288		253	
Approach Delay, s/veh		8.6	8.5		28.3	
Approach LOS		A	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		51.3		12.5	11.3	40.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		59.1		21.1	19.6	35.1		
Max Q Clear Time (g_c+I1), s		9.2		7.3	6.7	7.7		
Green Ext Time (p_c), s		3.9		0.3	0.1	3.8		

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	55	0	310	33	0	206
Future Volume (Veh/h)	55	0	310	33	0	206
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	0	337	36	0	224
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						1155
pX, platoon unblocked						
vC, conflicting volume	579	355			373	
vC1, stage 1 conf vol	355					
vC2, stage 2 conf vol	224					
vCu, unblocked vol	579	355			373	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	100			100	
cM capacity (veh/h)	643	689			1185	

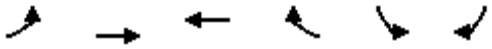
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	60	373	0	224
Volume Left	60	0	0	0
Volume Right	0	36	0	0
cSH	643	1700	1700	1700
Volume to Capacity	0.09	0.22	0.00	0.13
Queue Length 95th (ft)	8	0	0	0
Control Delay (s)	11.2	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	11.2	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	28.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	12	22	0	22	79	211	13	13	168	54
Future Volume (Veh/h)	7	0	12	22	0	22	79	211	13	13	168	54
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	8	0	13	24	0	24	86	229	14	14	183	59
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											731	
pX, platoon unblocked	0.97	0.97	0.97	0.97	0.97		0.97					
vC, conflicting volume	666	656	212	632	678	236	242			243		
vC1, stage 1 conf vol	240	240		408	408							
vC2, stage 2 conf vol	425	415		224	270							
vCu, unblocked vol	636	626	167	601	649	236	198			243		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	98	95	100	97	94			99		
cM capacity (veh/h)	501	500	847	523	488	803	1328			1323		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	21	48	86	243	14	242
Volume Left	8	24	86	0	14	0
Volume Right	13	24	0	14	0	59
cSH	671	634	1328	1700	1323	1700
Volume to Capacity	0.03	0.08	0.06	0.14	0.01	0.14
Queue Length 95th (ft)	2	6	5	0	1	0
Control Delay (s)	10.5	11.1	7.9	0.0	7.7	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	10.5	11.1	2.1		0.4	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	30.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	187	212	145	60	1
Future Volume (veh/h)	35	187	212	145	60	1
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	38	203	230	158	65	1
Adj No. of Lanes	1	1	1	1	1	1
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	50	1080	926	1260	530	473
Arrive On Green	0.03	0.58	0.50	0.50	0.30	0.30
Sat Flow, veh/h	1774	1863	1863	1583	1774	1583
Grp Volume(v), veh/h	38	203	230	158	65	1
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1583
Q Serve(g_s), s	1.7	4.1	5.7	1.8	2.2	0.0
Cycle Q Clear(g_c), s	1.7	4.1	5.7	1.8	2.2	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	50	1080	926	1260	530	473
V/C Ratio(X)	0.75	0.19	0.25	0.13	0.12	0.00
Avail Cap(c_a), veh/h	255	1295	926	1260	530	473
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	38.9	8.0	11.6	1.9	20.6	19.9
Incr Delay (d2), s/veh	8.2	0.0	0.6	0.2	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	0.9	2.1	3.1	2.0	1.1	0.0
LnGrp Delay(d),s/veh	47.1	8.0	12.3	2.1	21.1	19.9
LnGrp LOS	D	A	B	A	C	B
Approach Vol, veh/h		241	388		66	
Approach Delay, s/veh		14.2	8.1		21.1	
Approach LOS		B	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		51.7		29.0	6.7	45.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		56.1		24.1	11.6	40.1		
Max Q Clear Time (g_c+I1), s		6.1		4.2	3.7	7.7		
Green Ext Time (p_c), s		2.0		0.1	0.0	1.9		

Intersection Summary	
HCM 2010 Ctrl Delay	11.5
HCM 2010 LOS	B



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	226	0	7	367	0	11
Future Volume (Veh/h)	226	0	7	367	0	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	246	0	8	399	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	106					
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			246		462	246
vC1, stage 1 conf vol					246	
vC2, stage 2 conf vol					216	
vCu, unblocked vol			185		411	185
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	98
cM capacity (veh/h)			1323		691	788

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	246	8	200	200	12
Volume Left	0	8	0	0	0
Volume Right	0	0	0	0	12
cSH	1700	1323	1700	1700	788
Volume to Capacity	0.14	0.01	0.12	0.12	0.02
Queue Length 95th (ft)	0	0	0	0	1
Control Delay (s)	0.0	7.7	0.0	0.0	9.6
Lane LOS		A			A
Approach Delay (s)	0.0	0.2			9.6
Approach LOS					A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	21.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	166	96	67	258	1	124	3	19	5	10	5
Future Volume (veh/h)	0	166	96	67	258	1	124	3	19	5	10	5
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		0.96	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	0	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	180	104	73	280	1	135	3	21	5	11	5
Adj No. of Lanes	0	2	0	1	2	0	1	1	0	0	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, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	666	364	93	1531	5	703	86	600	198	416	171
Arrive On Green	0.00	0.30	0.30	0.05	0.42	0.42	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	0	2282	1197	1774	3617	13	1391	202	1411	306	977	401
Grp Volume(v), veh/h	0	144	140	73	137	144	135	0	24	21	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1617	1774	1770	1860	1391	0	1613	1685	0	0
Q Serve(g_s), s	0.0	4.1	4.4	2.7	3.2	3.2	3.5	0.0	0.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	4.1	4.4	2.7	3.2	3.2	3.9	0.0	0.6	0.5	0.0	0.0
Prop In Lane	0.00		0.74	1.00		0.01	1.00		0.88	0.24		0.24
Lane Grp Cap(c), veh/h	0	538	492	93	749	787	703	0	686	784	0	0
V/C Ratio(X)	0.00	0.27	0.29	0.78	0.18	0.18	0.19	0.00	0.03	0.03	0.00	0.00
Avail Cap(c_a), veh/h	0	538	492	204	854	898	703	0	686	784	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.4	17.5	30.9	11.9	11.9	12.0	0.0	11.1	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.2	1.5	5.3	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.1	2.1	1.5	1.6	1.7	1.6	0.0	0.3	0.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	18.6	19.0	36.2	12.0	12.0	12.1	0.0	11.1	11.1	0.0	0.0
LnGrp LOS		B	B	D	B	B	B		B	B		
Approach Vol, veh/h		284			354			159			21	
Approach Delay, s/veh		18.8			17.0			12.0			11.1	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.9	25.2		33.0		33.1		33.0
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9
Max Green Setting (Gmax), s	7.6	* 20		28.1		31.9		28.1
Max Q Clear Time (g_c+I1), s	4.7	6.4		2.5		5.2		5.9
Green Ext Time (p_c), s	0.0	2.5		0.6		3.1		0.6

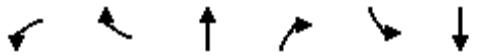
Intersection Summary	
HCM 2010 Ctrl Delay	16.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	210	538	228	332	265	188
Future Volume (veh/h)	210	538	228	332	265	188
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	228	585	248	361	288	204
Adj No. of Lanes	1	1	1	0	1	1
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	266	1302	334	487	328	293
Arrive On Green	0.15	0.70	0.50	0.50	0.19	0.19
Sat Flow, veh/h	1774	1863	672	979	1774	1583
Grp Volume(v), veh/h	228	585	0	609	288	204
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1651	1774	1583
Q Serve(g_s), s	10.6	11.7	0.0	24.9	13.4	10.2
Cycle Q Clear(g_c), s	10.6	11.7	0.0	24.9	13.4	10.2
Prop In Lane	1.00			0.59	1.00	1.00
Lane Grp Cap(c), veh/h	266	1302	0	821	328	293
V/C Ratio(X)	0.86	0.45	0.00	0.74	0.88	0.70
Avail Cap(c_a), veh/h	327	1366	0	821	379	338
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	1.00
Uniform Delay (d), s/veh	35.1	5.6	0.0	17.0	33.6	32.3
Incr Delay (d2), s/veh	14.5	0.1	0.0	6.0	16.8	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	5.9	0.0	12.5	8.1	9.0
LnGrp Delay(d),s/veh	49.6	5.7	0.0	23.0	50.3	36.0
LnGrp LOS	D	A		C	D	D
Approach Vol, veh/h		813	609		492	
Approach Delay, s/veh		18.0	23.0		44.4	
Approach LOS		B	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		64.1		20.6	17.1	47.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		62.1		18.1	15.6	42.1		
Max Q Clear Time (g_c+I1), s		13.7		15.4	12.6	26.9		
Green Ext Time (p_c), s		6.7		0.3	0.1	5.2		

Intersection Summary	
HCM 2010 Ctrl Delay	26.4
HCM 2010 LOS	C



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	0	504	59	0	483
Future Volume (Veh/h)	40	0	504	59	0	483
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	0	548	64	0	525
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						1155
pX, platoon unblocked	0.91					
vC, conflicting volume	1105	580			612	
vC1, stage 1 conf vol	580					
vC2, stage 2 conf vol	525					
vCu, unblocked vol	1064	580			612	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	100			100	
cM capacity (veh/h)	449	514			967	

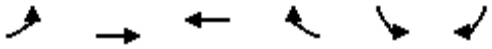
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	43	612	0	525
Volume Left	43	0	0	0
Volume Right	0	64	0	0
cSH	449	1700	1700	1700
Volume to Capacity	0.10	0.36	0.00	0.31
Queue Length 95th (ft)	8	0	0	0
Control Delay (s)	13.9	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	13.9	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	0	115	16	0	16	8	471	23	23	344	7
Future Volume (Veh/h)	32	0	115	16	0	16	8	471	23	23	344	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	35	0	125	17	0	17	9	512	25	25	374	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											731	
pX, platoon unblocked	0.88	0.88	0.88	0.88	0.88		0.88					
vC, conflicting volume	975	983	378	1092	974	524	382			537		
vC1, stage 1 conf vol	428	428		542	542							
vC2, stage 2 conf vol	547	555		549	432							
vCu, unblocked vol	900	910	219	1033	900	524	223			537		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	83	95	100	97	99			98		
cM capacity (veh/h)	414	416	719	350	428	553	1178			1031		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	160	34	9	537	25	382
Volume Left	35	17	9	0	25	0
Volume Right	125	17	0	25	0	8
cSH	619	429	1178	1700	1031	1700
Volume to Capacity	0.26	0.08	0.01	0.32	0.02	0.22
Queue Length 95th (ft)	26	6	1	0	2	0
Control Delay (s)	12.8	14.1	8.1	0.0	8.6	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	12.8	14.1	0.1		0.5	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	42.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	53	446	300	335	357	62
Future Volume (veh/h)	53	446	300	335	357	62
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	58	485	326	364	388	67
Adj No. of Lanes	1	1	1	1	1	1
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	74	834	660	1252	775	691
Arrive On Green	0.04	0.45	0.35	0.35	0.44	0.44
Sat Flow, veh/h	1774	1863	1863	1583	1774	1583
Grp Volume(v), veh/h	58	485	326	364	388	67
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1583
Q Serve(g_s), s	2.8	16.5	11.6	5.3	13.4	2.1
Cycle Q Clear(g_c), s	2.8	16.5	11.6	5.3	13.4	2.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	74	834	660	1252	775	691
V/C Ratio(X)	0.78	0.58	0.49	0.29	0.50	0.10
Avail Cap(c_a), veh/h	180	945	660	1252	775	691
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	40.3	17.5	21.5	2.4	17.3	14.1
Incr Delay (d2), s/veh	6.5	0.3	2.6	0.6	2.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.6	6.5	7.3	7.1	2.5
LnGrp Delay(d),s/veh	46.8	17.8	24.1	3.0	19.6	14.4
LnGrp LOS	D	B	C	A	B	B
Approach Vol, veh/h		543	690		455	
Approach Delay, s/veh		20.9	13.0		18.8	
Approach LOS		C	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		43.0		42.0	8.0	35.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		43.1		37.1	8.6	30.1		
Max Q Clear Time (g_c+I1), s		18.5		15.4	4.8	13.6		
Green Ext Time (p_c), s		4.2		0.7	0.0	3.9		

Intersection Summary	
HCM 2010 Ctrl Delay	17.1
HCM 2010 LOS	B



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	802	0	12	637	0	8
Future Volume (Veh/h)	802	0	12	637	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	872	0	13	692	0	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	106					
pX, platoon unblocked			0.81		0.81	0.81
vC, conflicting volume			872		1244	872
vC1, stage 1 conf vol					872	
vC2, stage 2 conf vol					372	
vCu, unblocked vol			723		1183	723
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	97
cM capacity (veh/h)			707		326	298

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	872	13	346	346	9
Volume Left	0	13	0	0	0
Volume Right	0	0	0	0	9
cSH	1700	707	1700	1700	298
Volume to Capacity	0.51	0.02	0.20	0.20	0.03
Queue Length 95th (ft)	0	1	0	0	2
Control Delay (s)	0.0	10.2	0.0	0.0	17.5
Lane LOS		B			C
Approach Delay (s)	0.0	0.2			17.5
Approach LOS					C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	645	142	23	463	9	190	15	87	6	4	3
Future Volume (veh/h)	0	645	142	23	463	9	190	15	87	6	4	3
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		0.96	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	0	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	701	154	25	503	10	207	16	95	7	4	3
Adj No. of Lanes	0	2	0	1	2	0	1	1	0	0	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, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	980	215	39	1519	30	716	99	587	360	202	131
Arrive On Green	0.00	0.34	0.34	0.02	0.43	0.43	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	0	2966	631	1774	3546	70	1402	233	1384	661	476	310
Grp Volume(v), veh/h	0	432	423	25	251	262	207	0	111	14	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1734	1774	1770	1847	1402	0	1617	1447	0	0
Q Serve(g_s), s	0.0	14.4	14.4	0.9	6.4	6.4	3.0	0.0	2.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	14.4	14.4	0.9	6.4	6.4	5.9	0.0	2.9	2.9	0.0	0.0
Prop In Lane	0.00		0.36	1.00		0.04	1.00		0.86	0.50		0.21
Lane Grp Cap(c), veh/h	0	604	591	39	758	791	716	0	686	693	0	0
V/C Ratio(X)	0.00	0.71	0.72	0.64	0.33	0.33	0.29	0.00	0.16	0.02	0.00	0.00
Avail Cap(c_a), veh/h	0	604	591	105	818	854	716	0	686	693	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	19.4	19.4	32.8	12.9	12.9	12.8	0.0	12.1	11.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	7.1	7.2	6.2	0.2	0.2	0.2	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.1	8.0	0.5	3.1	3.3	2.6	0.0	1.3	0.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	26.5	26.7	39.0	13.1	13.1	13.0	0.0	12.2	11.4	0.0	0.0
LnGrp LOS		C	C	D	B	B	B		B	B		
Approach Vol, veh/h		855			538			318			14	
Approach Delay, s/veh		26.6			14.3			12.7			11.4	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	5.9	28.2		33.6		34.1		33.6
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9
Max Green Setting (Gmax), s	4.0	* 23		28.7		31.3		28.7
Max Q Clear Time (g_c+I1), s	2.9	16.4		4.9		8.4		7.9
Green Ext Time (p_c), s	0.0	4.0		1.3		8.3		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.1
HCM 2010 LOS	C

Notes

APPENDIX D

CUMULATIVE PROJECTS INFORMATION

LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT ANALYSIS

UNION TRIBUNE MASTER PLAN

San Diego, California
February 12, 2015

LLG Ref. 3-12-2095



Prepared by:
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8.0 PROJECT TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT

The following is a discussion of the existing land uses, project trip generation and the project traffic distribution and assignment to the local and regional network.

8.1 Existing Land Uses

The project site is currently occupied by 168,570 square feet of office space (Union Tribune offices) and 191,600 square feet of manufacturing land uses (Union Tribune printing facility). No changes to the existing office space and printing facility are proposed. LLG conducted daily traffic counts on the property to assist in determining the existing trip generation. The existing site is calculated to generate 2,617 ADT. *Appendix A* contains copies of the project driveway counts sheets.

8.2 Project Trip Generation

The Union Tribune Master Plan proposes a mixed-use, transit oriented development consisting of the following land uses and densities. The UT project proposes the following land uses in addition to existing. Minor changes to the land use densities may be proposed at a future time.

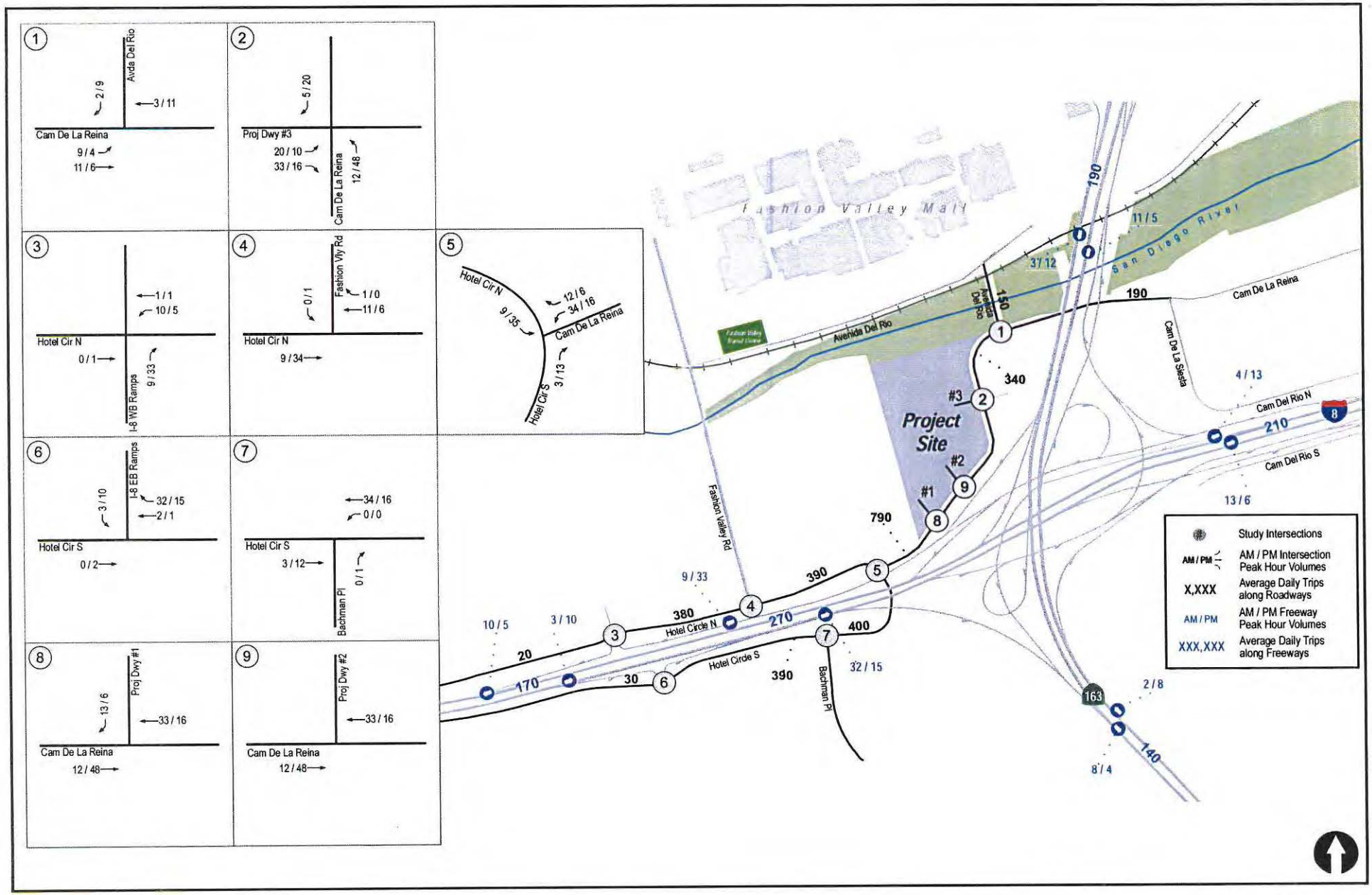
- Residential – 200 units (new land use)
- Service Retail Amenity Space – 3,000 SF (new land use)

Using the City of San Diego trip generation rates (based on *Trip Generation Manual, May 2003*) and allowed mixed-use and transit credits, the UT project is calculated to generate a total of 1,140 driveway ADT with 17 inbound / 66 outbound driveway trips during the AM peak hour and 68 inbound / 33 outbound driveway trips during the PM peak hour. ***The UT project is calculated to generate a total of 1,128 cumulative ADT with 17 inbound / 66 outbound cumulative trips during the AM peak hour and 68 inbound / 32 outbound cumulative trips during the PM peak hour.***

Table 8–1 shows the total trip generation summary for the UT project.

8.3 Project Traffic Distribution and Assignment

LLG coordinated with City of San Diego staff regarding the project trip distribution. The project trip distribution and assignment was based on existing roadway network and travel patterns, a working knowledge of the local transportation system and a detailed review of the proposed land uses. Given the project land uses are primarily residential, a measurable amount of traffic was assigned to the freeway via Hotel Circle. A detailed description of the project traffic distribution and assignment for the Near-Term (Opening Day 2017) and Year 2035 (Horizon Year) scenarios is provided in ***Sections 10.0*** and ***11.0***, respectively.



LINSCOTT LAW & GREENSPAN engineers

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Date: 11/13/14

Figure 9-1

Project Traffic Volumes

UNION TRIBUNE

TRAFFIC IMPACT ANALYSIS

For

THE CAMINO DEL RIO MIXED-USE PROJECT

Prepared for

DIN/ CAL 3, INC.

FINAL SUBMITTAL: May 28, 2014



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TRAFFIC PLANNING & ENGINEERING, MARKETING & PROJECT SUPPORT
CONSULTANTS TO INDUSTRY AND GOVERNMENT
8451 Miralani Drive, Suite A
San Diego, CA 92126
(858) 560-4911

TABLE 3-1

Project Trip Generation

Driveway Rates

Use	Intensity	Rate	ADT	AM						PM					
				Peak %	Vol.	In %	Out%	In	Out	Peak %	Vol.	In %	Out%	In	Out
Proposed Project															
Multi-Family Residential	305	6 /DU	1,830	8%	146	20% : 80%		29	117	10%	183	70% : 30%		128	55
Multi-Tenant Office	5,000	Formula	175	13%	23	90% : 10%		20	2	14%	25	20% : 80%		5	20
Retail	4,000	40 /KSF	160	3%	5	60% : 40%		3	2	9%	14	50% : 50%		7	7
PROPOSED SUB-TOTAL			2,165		174			53	121		222			140	82
MXD Credit %			17%		14%			14%	14%		15%			15%	15%
MXD Credit			368		24			7	17		33			21	12
SUB-TOTAL - WITH MXD CREDIT			1,797		150			45	104		189			119	69
Existing Land Uses															
Recreational Vehicle Dealership*	1.04	200 /Acre	208	5%	10	70% : 30%		7	3	8%	17	40% : 60%		7	10
Truck Parking Facility*	2.62	60 /Acre	157	5%	8	70% : 30%		6	2	8%	13	40% : 60%		5	8
EXISTING SUB-TOTAL			365		18			13	5		29			12	18
NET TOTAL (MXD - EXISTING)			1,432		131			32	99		159			107	52

Source:

Trip Rates taken from the City of San Diego Trip Generation Manual, May 2003

* Land Uses and ADT trip rates taken from Table 4 - *Additional Trip Generation Rate Guidelines* of the City of S.D. Trip Generation Manual.

* Peak Hour Percentages and Splits assumed Automobile Services - Car Dealer in Table 1 of the City of S.D. Trip Generation Manual.

Note:

DU= Dwelling Unit Density= 57.5 units per acre

KSF = 1,000 Square Feet

Formula: Ln(T)=0.756Ln(x)+3.95

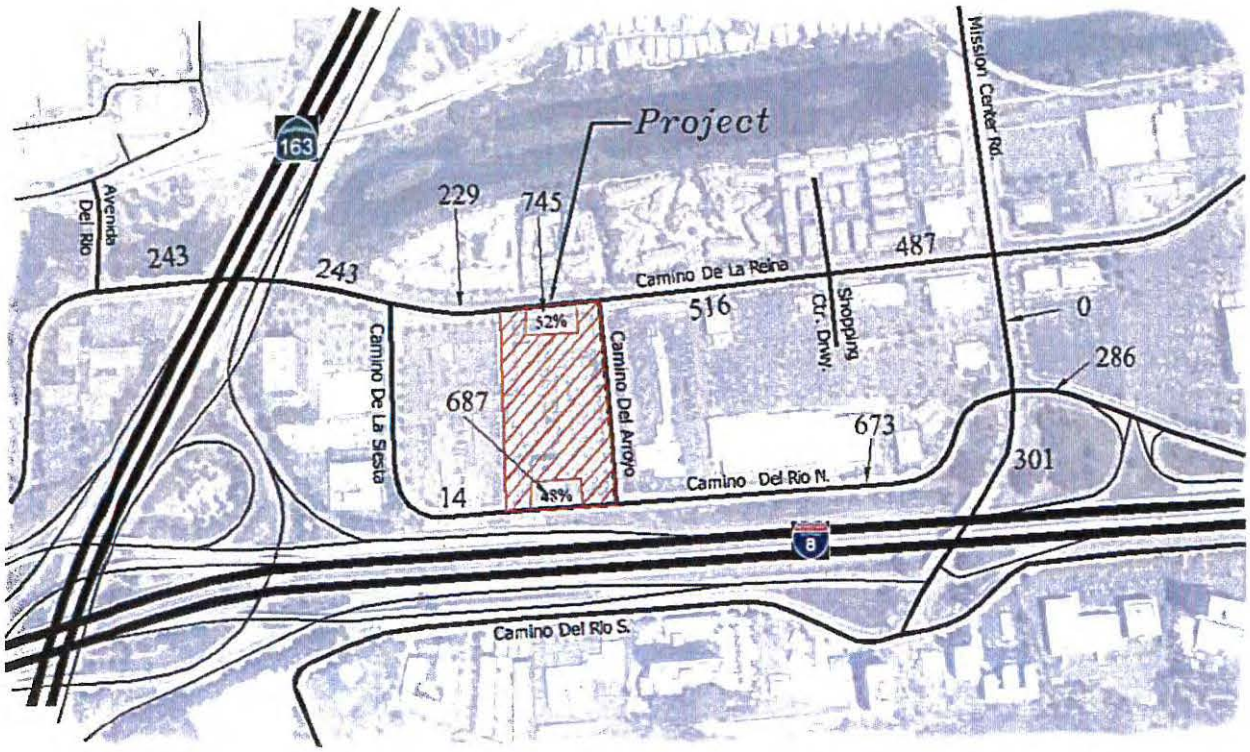

FIGURE 3-3

Project Only Average Daily Traffic

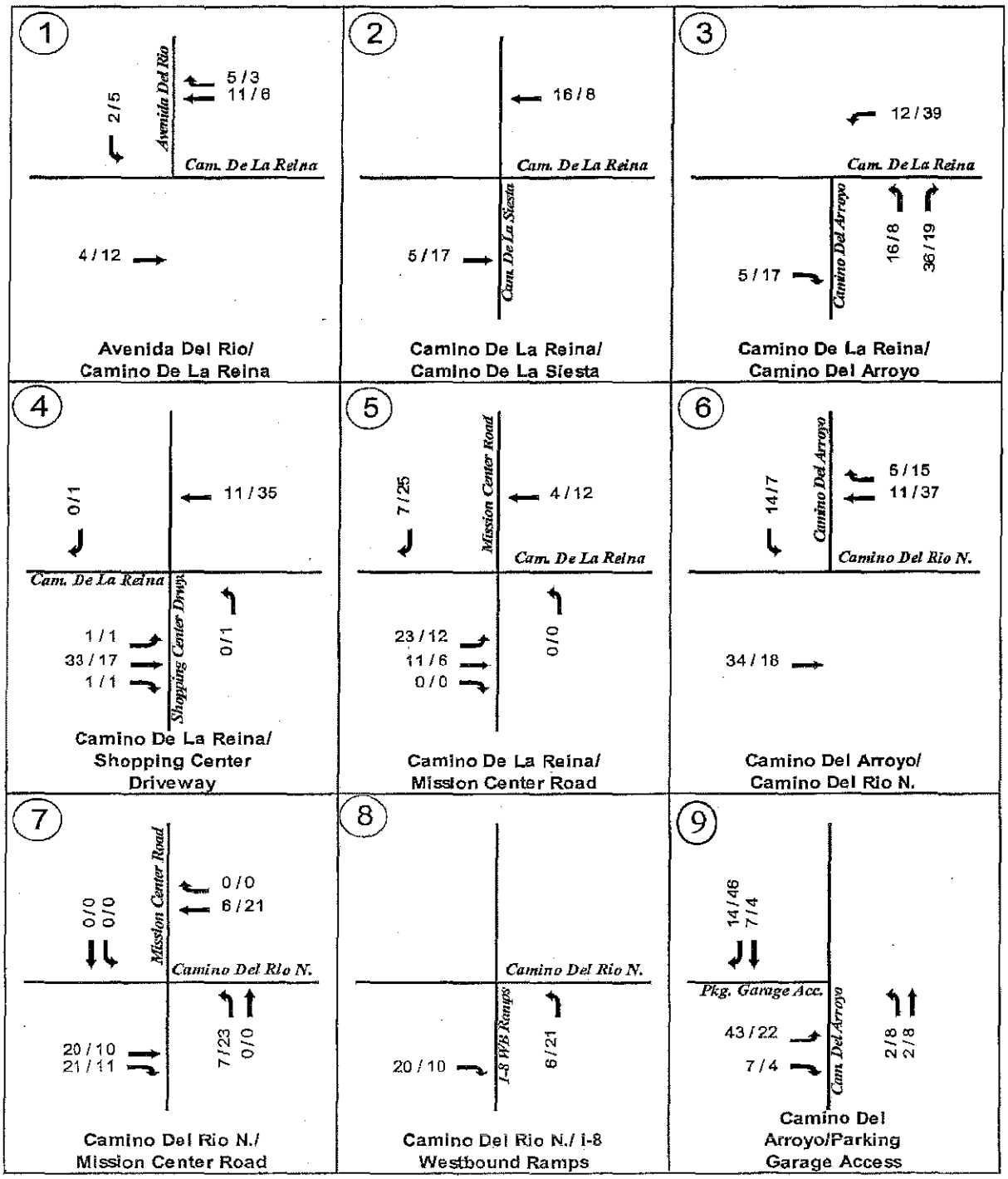

FIGURE 3-4

Project Only AM / PM Peak Hour Traffic

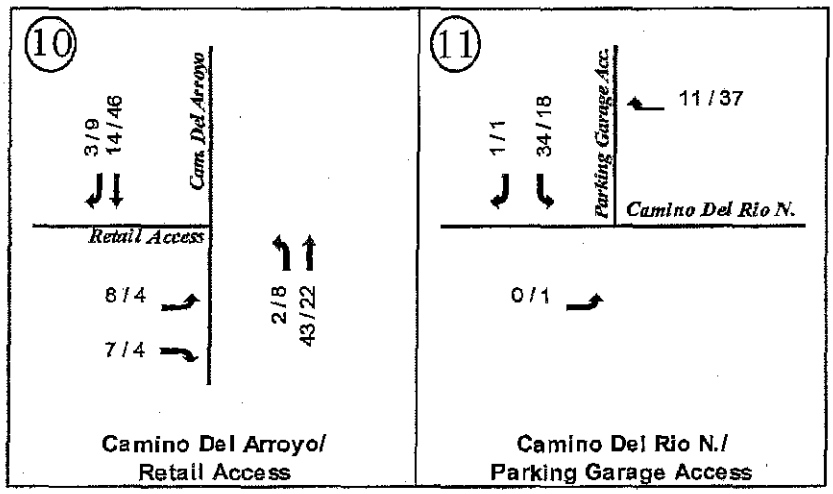

FIGURE 3-4 (cont.)

Project Only AM / PM Peak Hour Traffic

LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT ANALYSIS

LEGACY INTERNATIONAL CENTER

San Diego, California
October 29, 2015

LLG Ref. 3-12-2194



Prepared by:

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TABLE 8–1
PROJECT TRIP GENERATION

Land Use/ Trip Generator	Total Size	Daily Trip End (ADTs)		AM Peak Hour		PM Peak Hour	
		Rate	Volume	In	Out	In	Out
The Tri Wing "Legacy Village"							
Timeshare Rooms[g] Primary Generator	*Total*: 127 rooms	8/room	*Cumulative (100%):* 1,016	30	20	28	43
	Attraction: 0%		*Pass-By (0%):* 0	-	-	-	-
	Effective: 127 rooms		*Driveway (100%):* 1,016	30	20	28	43
"Mount Horeb" Out Door Amphitheater							
Amphitheater[e] Secondary Generator	*Total*: 300 seats	1.8/seat	*Cumulative (100%):* 378	-	-	151	38
	Attraction: 70%		*Pass-By (0%):* 0	-	-	-	-
	Effective: 210 seats		*Driveway (100%):* 378	-	-	151	38
Legacy International Executive Offices							
Executive Office[i] Primary Generator	*Total*: 23,028 SF	Ln formula	*Cumulative (100%):* 556	65	7	16	62
	Attraction: 100%		*Pass-By (0%):* 0	-	-	-	-
	Effective: 23,028SF		*Driveway (100%):* 556	65	7	16	62
Retail Bazaar & Catacombs							
Retail Bazaar[c] Secondary Generator	*Total*: 8,200 SF	40/KSF	*Cumulative (90%):* 118	2	2	5	5
	Attraction: 40%		*Pass-By (10%):* 13	-	-	1	1
	Effective: 3,280 SF		*Driveway (100%):* 131	2	2	6	6
Retail[c] Secondary Generator	*Total*: 5,992 SF	40/KSF	*Cumulative (90%):* 86	2	1	4	4
	Attraction: 40%		*Pass-By (10%):* 10	-	-	-	-
	Effective: 2,397 SF		*Driveway (100%):* 96	2	1	4	4
TOTAL Proposed Project			***Cumulative: 4,400***	***155***	***55***	***311***	***232***
			Pass-By: 77	***0***	***0***	***4***	***3***
			Driveway: 4,477	***155***	***55***	***315***	***235***
EXISTING SITE							
Resort Hotel[j]	*Total*: 202 rooms	10/room	*Cumulative (100%):* 2,020	73	48	97	65
	Attraction: 100%		*Pass-By (0%):* 0	-	-	-	-
	Effective: 202 rooms		*Driveway (100%):* 2,020	73	48	97	65
Valley Kitchen Restaurant[k]	*Total*: 5,300 SF	130/KSF	*Cumulative (80%):* 276	11	11	14	9
	Attraction: 50%[l]		*Pass-By (20%):* 69	3	3	3	2
	Effective: 2,650 SF		*Driveway (100%):* 345	14	14	17	11
Gas Station *(closed)*[m]	*Total*: 8 pumps	130/pump	*Cumulative (20%):* 0	-	-	-	-
	Attraction: 100%		*Pass-By (80%):* 0	-	-	-	-
	Effective: 8 pumps		*Driveway (100%):* 0	-	-	-	-
Frog's Health Club *(closed)*[m]	*Total*: 28,000 SF	40/KSF	*Cumulative (100%):* 0	-	-	-	-
	Attraction: 100%		*Pass-By (0%):* 0	-	-	-	-
	Effective: 28,000 SF		*Driveway (100%):* 0	-	-	-	-

TABLE 8–1
PROJECT TRIP GENERATION

Land Use/ Trip Generator	Total Size	Daily Trip End (ADTs)		AM Peak Hour		PM Peak Hour	
		Rate	Volume	In	Out	In	Out
Liquor Store [n]	*Total*: 1,200 SF *Attraction*: 100% *Effective:* 1,200 SF	500/KSF	*Cumulative (50%):* 300 *Pass-By (50%):* 300 *Driveway (100%):600*	12 12 24	12 12 24	12 12 24	12 12 24
TOTAL Existing			***Cumulative: 2,595*** ***Pass-By: 370*** ***Driveway: 2,965***	***96*** ***15*** ***111***	***71*** ***15*** ***86***	***123*** ***15*** ***138***	***86*** ***14*** ***100***
NET NEW PROJECT TRIPS [o]			***Cumulative: 1,805*** ***Pass-By: (293)*** ***Driveway: 1,512***	***59*** ***(15)*** ***44***	***(16)*** ***(15)*** ***(31)***	***188*** ***(11)*** ***177***	***146*** ***(11)*** ***135***

Footnotes:

a. City of San Diego trip rate for "health club" used.

b. External trip attraction (%) indicates external primary trips attracted to the project site. The balance of the land use SF is assumed to be captured internally.

c. Trip rate for "specialty retail" used.

d. City of San Diego trip rate for "quality restaurant" used.

e. City of San Diego trip rate for "theater" used. City of San Diego trip rates show 0% AM ADT. AM assumed as 4% to be conservative.

f. City of San Diego trip rate for "house of worship" used. To be conservative, the typical trip rate of 15 / KSF was quadrupled.

g. No City of San Diego trip rate for "timeshare". Hence, City of San Diego for "resort" hotel was used.

h. No City of San Diego trip rate for "amphitheater". A trip rate of 1.8 / seat was used based on City trip rates. No AM peak hour trips assumed and majority of PM peak hour trips assumed to arrive within the hour.

i. City of San Diego trip rate for "commercial office" used by applying the Ln formula: Ln(T) = 0.756 Ln (x) + 3.95.

j. Existing hotel includes 202 guest rooms and 7,000 SF convention space. Hence, City of San Diego trip rate of 10 trips per room was used.

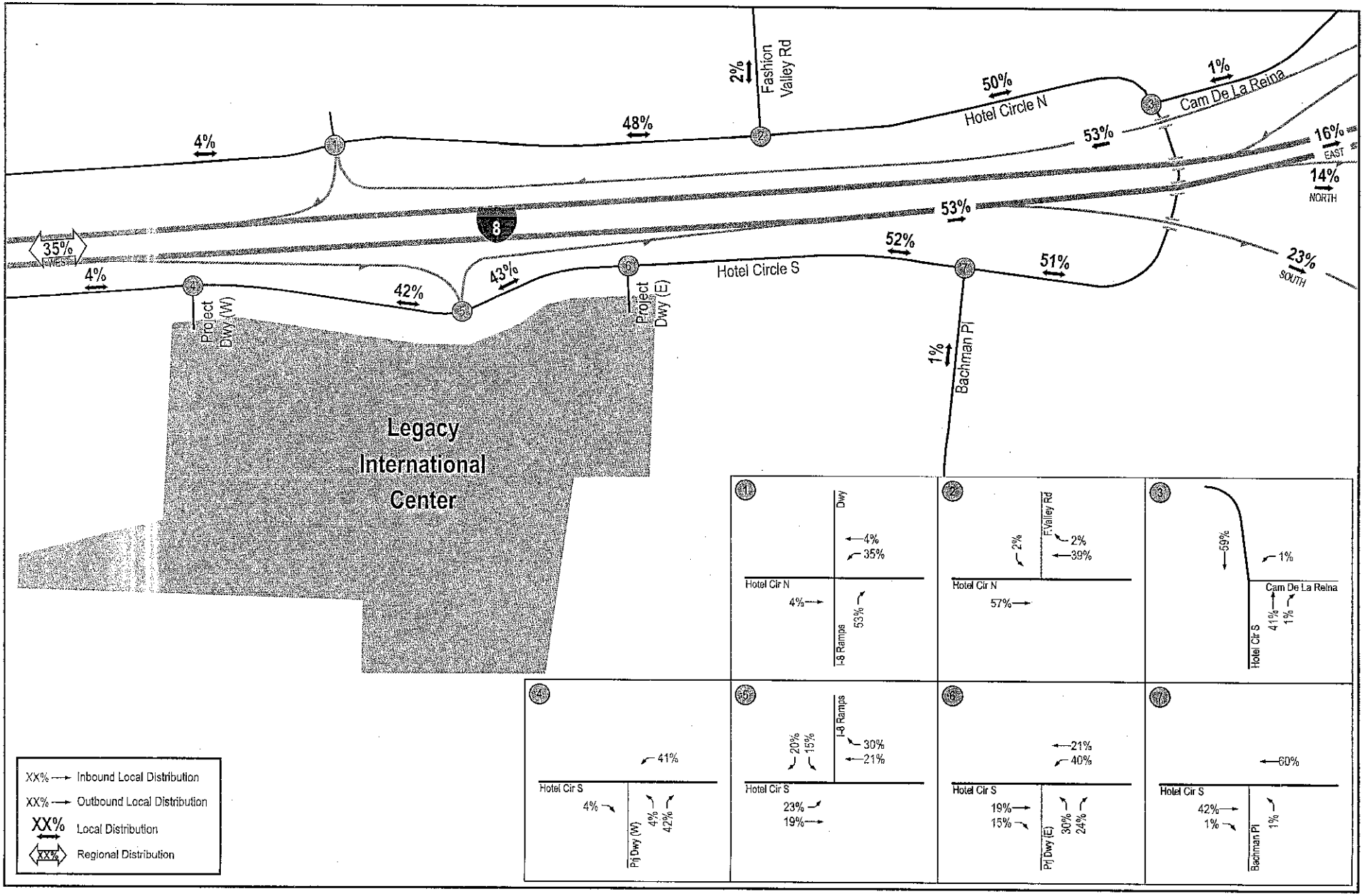
k. City of San Diego trip rate for "high turnover restaurant (sit-down)" used.

l. 50% of trips generated by the restaurant assumed to be independent from trips attracted from the resort hotel.

m. Based on discussions with City staff, no existing trip credits are assumed for the gas station and health club, given that they have been closed for over 6 months.

n. Square-footage measured from aerial photos. City of San Diego trip rate for "convenience market chain" used.

o. Net new trips = Proposed Project — Existing.



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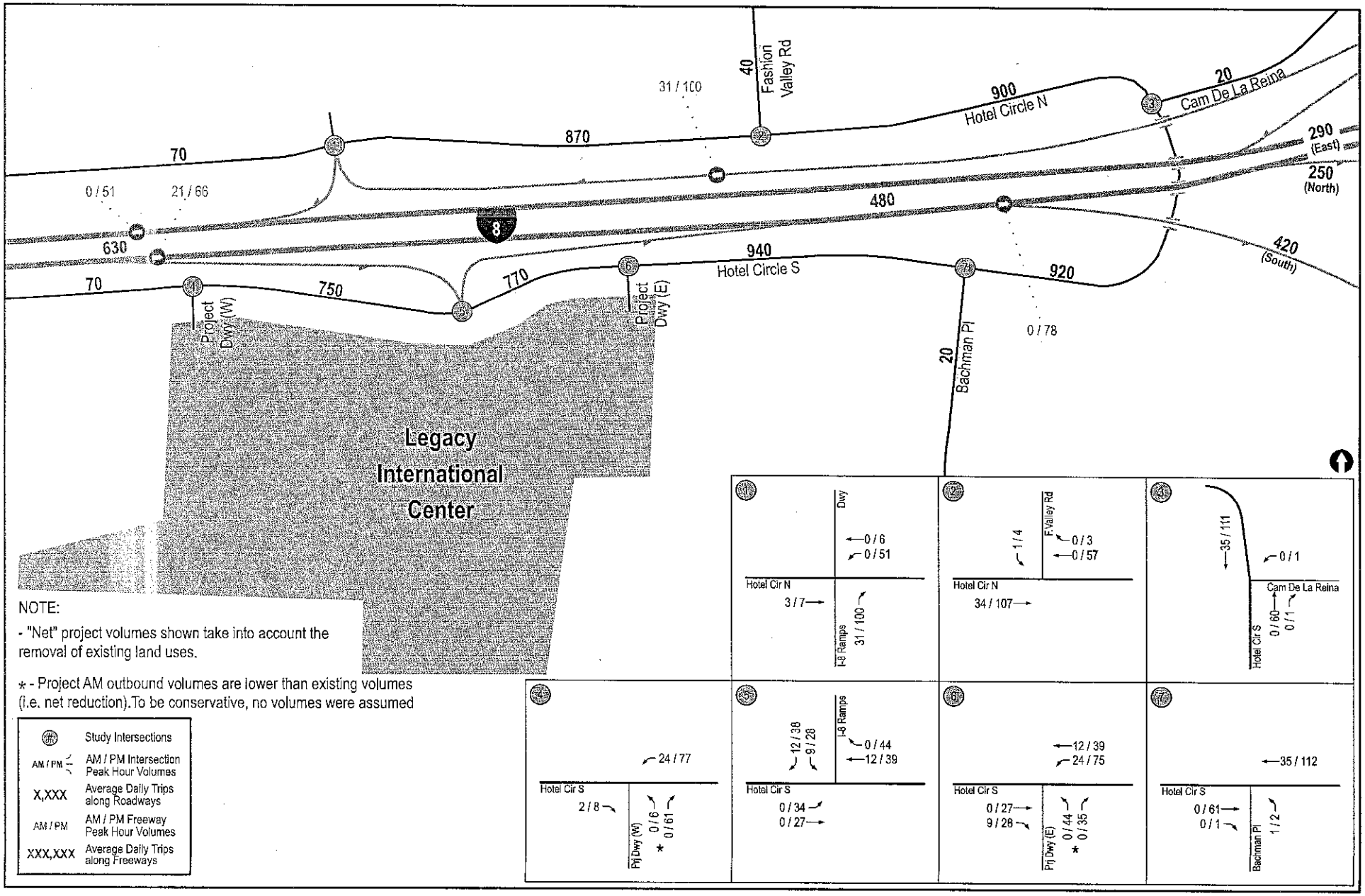
Date: 09/23/14

Figure 8-1

Project Traffic Distribution

LEGACY INTERNATIONAL CENTER



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Date: 10/14/14

Figure 8-2

"Net" Project Traffic Volumes

LEGACY INTERNATIONAL CENTER

9.0 EXISTING + PROJECT ANALYSIS

Existing + Project conditions assumes the proposed project under the existing environmental conditions (existing traffic volumes, existing roadway infrastructure, and existing surrounding land uses).

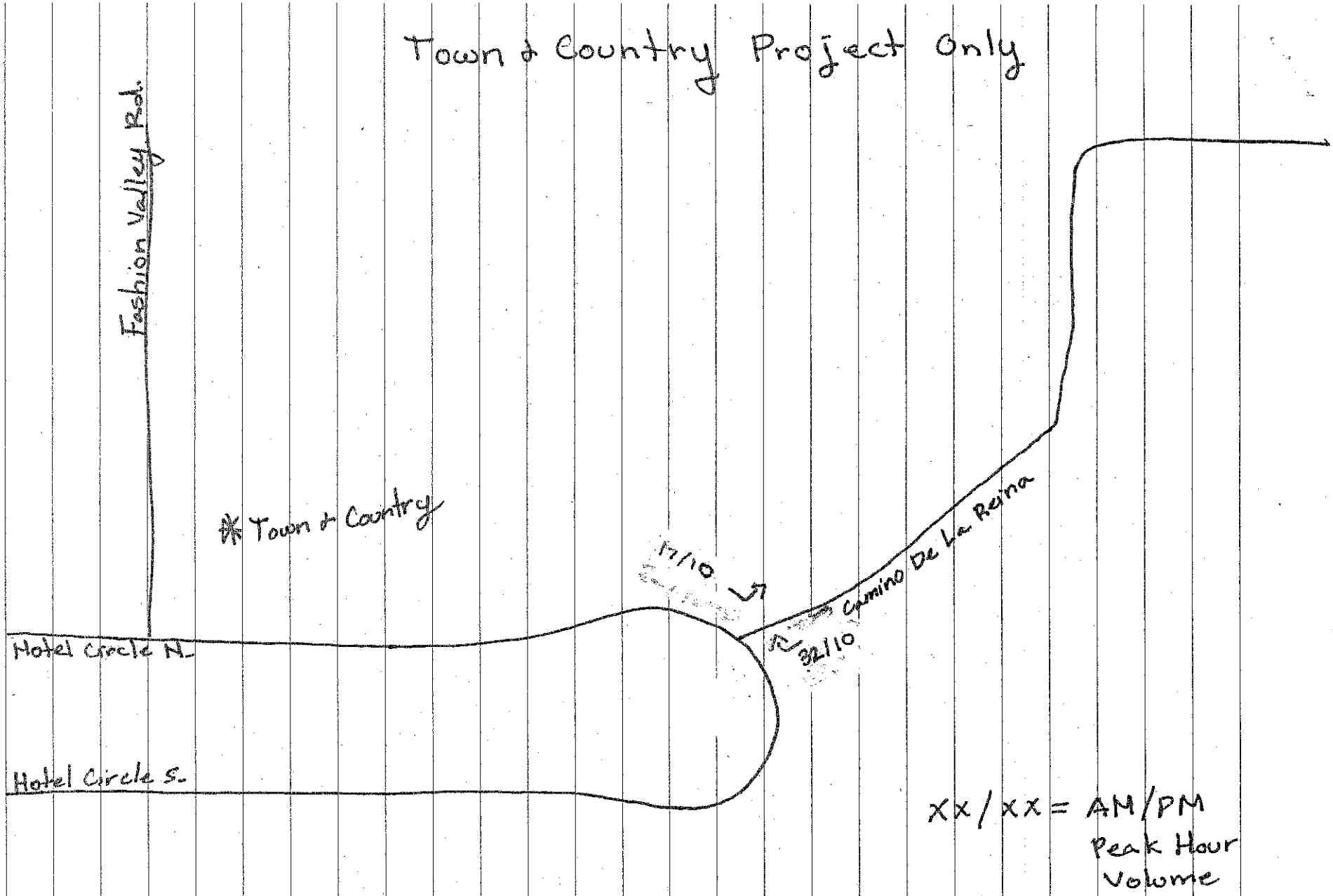
Figure 9–1 illustrates the Existing + Project AM and PM peak hour turning movement volumes and daily traffic volumes.

9.1 Existing + Project Intersection Operations

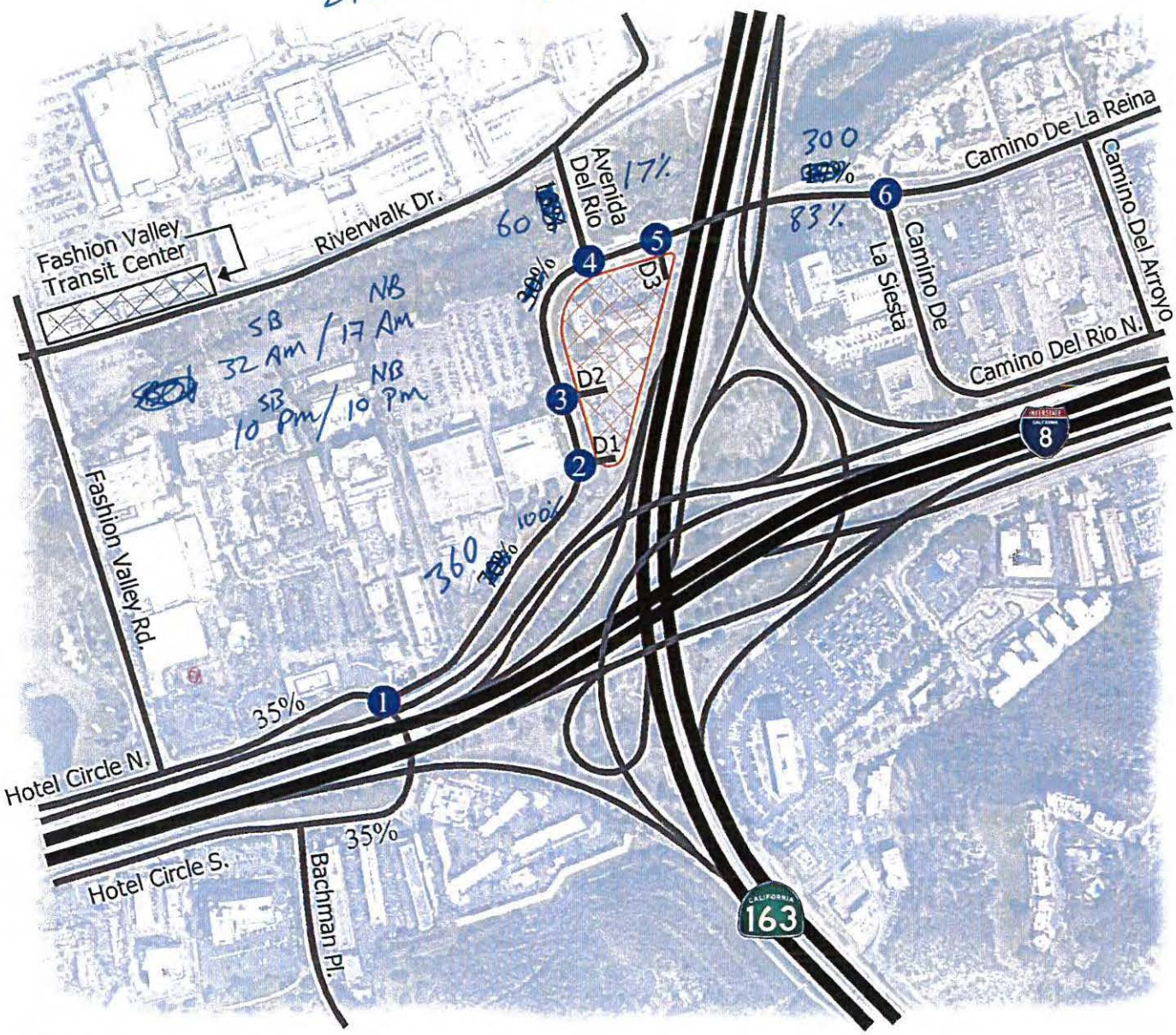
Intersection capacity analyses were conducted for the study intersections under Existing + Project conditions. ***Table 9–1*** reports the intersection operations during the peak hour conditions. As shown in *Table 9–1,* all study area intersections were calculated to continue to operate at LOS D or better under Existing + Project conditions with the exception of the following:

- Hotel Circle S./ I-8 EB Ramps (LOS F during the PM peak hour)

Based on the City's significance criteria, **significant direct impacts** were identified at the Hotel Circle S./ I-8 EB Ramps intersection. Mitigation measures for these impacts are discussed in detail in ***Section 17.0***. ***Appendix G*** contains the intersection analysis worksheets for the Existing + Project scenario.


Town & Country Project Only
Fashion Valley Rd.
* Town & Country
11/10
32/10
Camino De La Reina
Hotel Circle N.
Hotel Circle S.
XX/XX = AM/PM
Peak Hour
Volume

Net ADT 210 AM In/Out -208 / +174 PM +96 In / -119 Out



Legend

- = Project Location
- # = Study Intersection
- = Study Street Segment
- D# = Project Driveway
- = Study Area Boundary

~~50/68 = 73% : Study Area Calculation~~

Town + Country

Trip Gen + Distribution

840 DU x 6 trips/DU

Demolition 35,625 SF of Gen. Spec

Existing 954 Hotel Room 212,766 SF of Conference Room

Demolition 254 Hotel Rooms 10 trips

25,652 SF Restaurant 84,298 SF

AH 3

N NO SCALE

Riverwalk Project Only Info

TABLE X-X

Project Only (Phase 1) Street Segment Volumes

Road	Segment	%	#
Friars Rd.	Sea World Dr. to Napa St.	18%	4265
	Napa St. to Calusa St.	36%	8531
	Calusa St. to Goshen St.	38%	9005
	Goshen St. to Via Las Cumbres	40%	10764
	Via Las Cumbres to Fashion Valley Rd.	30%	8073
	Fashion Valley Rd. to Via de la Moda	27%	6398
	Via de la Moda to Avenida de las Tiendas	27%	6398
	Avenida de las Tiendas to Ulric St.	27%	6398
	Ulric St. to SR-163 Northbound Ramps	15%	3555
	SR-163 Northbound Ramps to Frazee Rd.	12%	2844
	Frazee Rd. to Mission Center Rd.	8%	1896
	Mission Center Rd. to Qualcomm Way	5%	1185
	Qualcomm Way to River Run Dr.	3%	711
Sea World Drive	Sea World Way to South Shores Park Dr.	7%	1659
	South Shores Park Dr. to Friars Rd.	8%	1896
	Friars Rd. to E. Mission Bay Dr.	10%	2370
W. Morena Blvd.	Ashton St. to Morena Blvd.	3%	711
	Morena Blvd. to Vega St.	4%	948
	Vega St. to Buenos Ave.	4%	948
	Buenos Ave. to Morena Blvd.	8%	1896
Morena Blvd.	W. Morena Blvd.-Morena Blvd. to Napa St.	7%	1659
	Napa St. to Linda Vista Rd.	0%	0
	Linda Vista Rd. to Taylor St.	8%	1896
Napa St.	Morena Blvd. to Linda Vista Rd.	7%	1659
	Linda Vista Rd. to Riley St.	14%	3318
	Riley St. to Friars Rd.	18%	4265
Linda Vista Rd.	Morena Blvd. to Napa St.	7%	1659
	Via Las Cumbres to Alcalla Knolls Dr.	4%	948
	Alcalla Knolls Dr. to Glidden St.	4%	948
	Glidden St. to Kramer St.	3%	711
Taylor St.	Sunset St. to Morena Blvd.	3%	711
	Morena Blvd. to I-8 Eastbound Ramps	0%	0
	I-8 Eastbound Ramps to Hotel Circle S.	0%	0
Hotel Circle N.	Hotel Circle Place to I-8 Westbound Ramps	0%	0
	I-8 Westbound Ramps to Fashion Valley Rd.	7.5%	1777
	Fashion Valley Rd. to Camino De La Reina	4.5%	1066
Hotel Circle S.	Camino De La Reina to Bachman Place	4%	948
	Bachman Place to I-8 Eastbound Ramps	6%	1422
Camino De La Reina	Hotel Circle N. to Avenida Del Rio	1%	237
	Avenida Del Rio to Camino De La Siesta	8%	1896
	Camino De La Siesta to Camino Del Arroyo	6%	1422
	Camino Del Arroyo to Shopping Center Dwy.	5%	1185
	Shopping Center Dwy. to Mission Center Rd.	3%	711
Camino De La Siesta	Camino De La Reina to Camino Del Rio N.	2%	474
Camino Del Rio North	Camino De La Siesta to Mission Center Rd.	0%	0
Avenida Del Rio	Riverwalk Dr. to Camino De La Reina	7%	1659
Fashion Valley Rd.	Friars Rd. to Riverwalk Dr.	5%	1346
	Riverwalk Dr. to Hotel Circle N.	12%	2844
Mission Center Rd.	Friars Rd. to Hazard Center Dr.	1%	237
	Hazard Center Dr. to Camino De La Reina	0%	0
Hazard Center Dr.	Avenida Del Rio to Hazard Center W. Dwy.	0%	0
	Hazard Center W. Dwy. to Hazard Center E. Dwy.	0%	0
	Hazard Center E. Dwy. to Frazee Rd.	1%	237
	Frazee Rd. to Mission Center Rd.	1%	237
Frazee Rd.	Friars Rd. to Hazard Center Dr.	2%	474

Legend:

Class. = Functional Class

Cap. = Capacity

LOS = Level of Service

4-M = 4 Lane Major Arterial

2-Cc= 2 Lane Collector (commercial-industrial fronting)

2-Ca = 2 Lane Collector (no center lane, continous left-turn lane)

Notes:

Counts Conducted October 2014

Project Only

Intersection 45

Analyst: Henryk Pedersen
Intersection: Camino de la Reina / Avenida Del Rio
Future Condition: Project Only - PHASE 1
Date: 2/3/2015
Company: Urban Systems Associates, Inc.
Project Number: 001714

E/W Street Name: Camino de la Reina
N/S Street Name: Avenida Del Rio

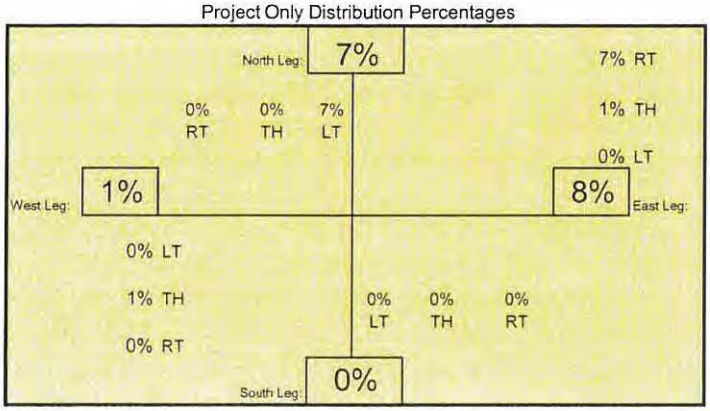
Direction of Project

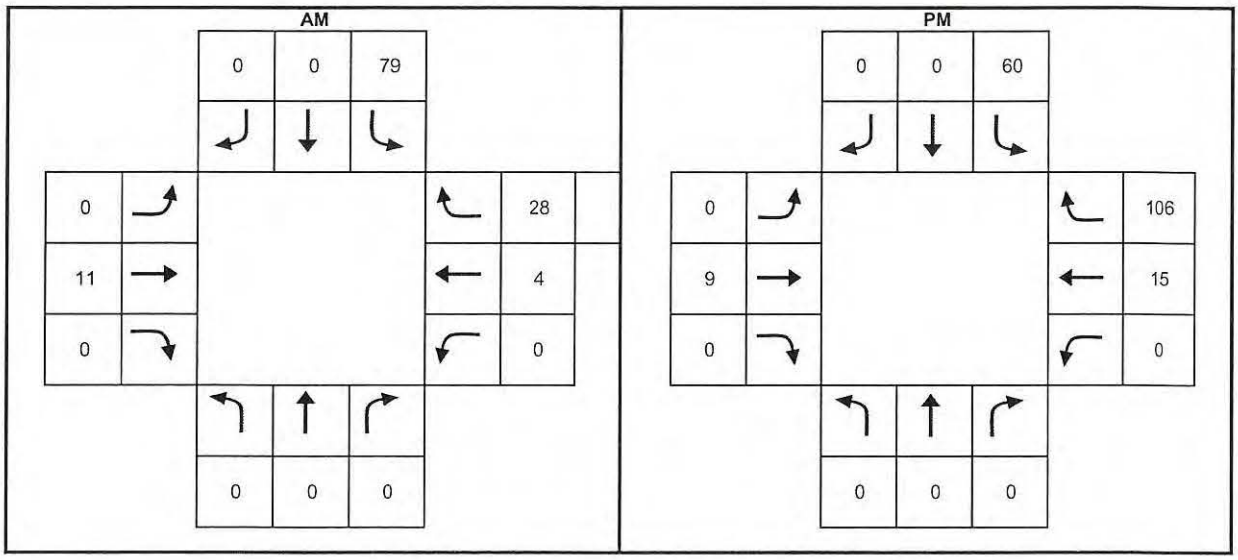


Cumulative Trip Rates Used

		AM Peak			PM Peak		
	ADT	#	In	Out	#	In	Out
	23,697	1521	394	1127	2370	1509	861

Project Only Distribution Percentages





Turn Movement	Project Only turn (v) AM	Project Only turn (v) PM
NLT	0	0
NTH	0	0
NRT	0	0
SLT	79	60
STH	0	0
SRT	0	0
ELT	0	0
ETH	11	9
ERT	0	0
WLT	0	0
WTH	4	15
WRT	28	106

Project Only

Intersection 46

Analyst: Henryk Pedersen
Intersection: Camino de la Reina / Camino de la Siesta
Future Condition: Project Only - PHASE 1
Date: 2/3/2015
Company: Urban Systems Associates, Inc.
Project Number: 001714

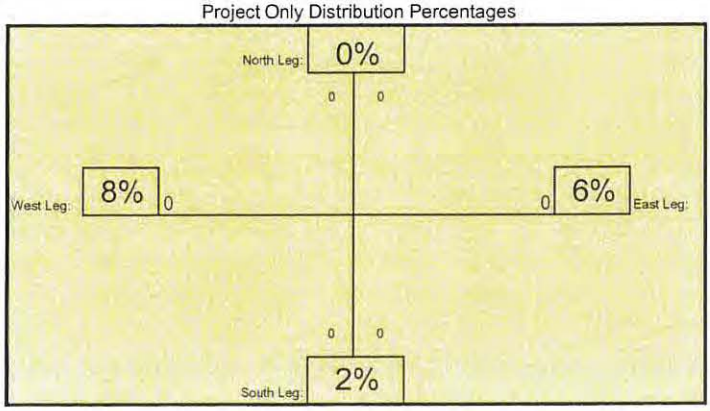
E/W Street Name: Camino de la Reina
N/S Street Name: Camino de la Siesta

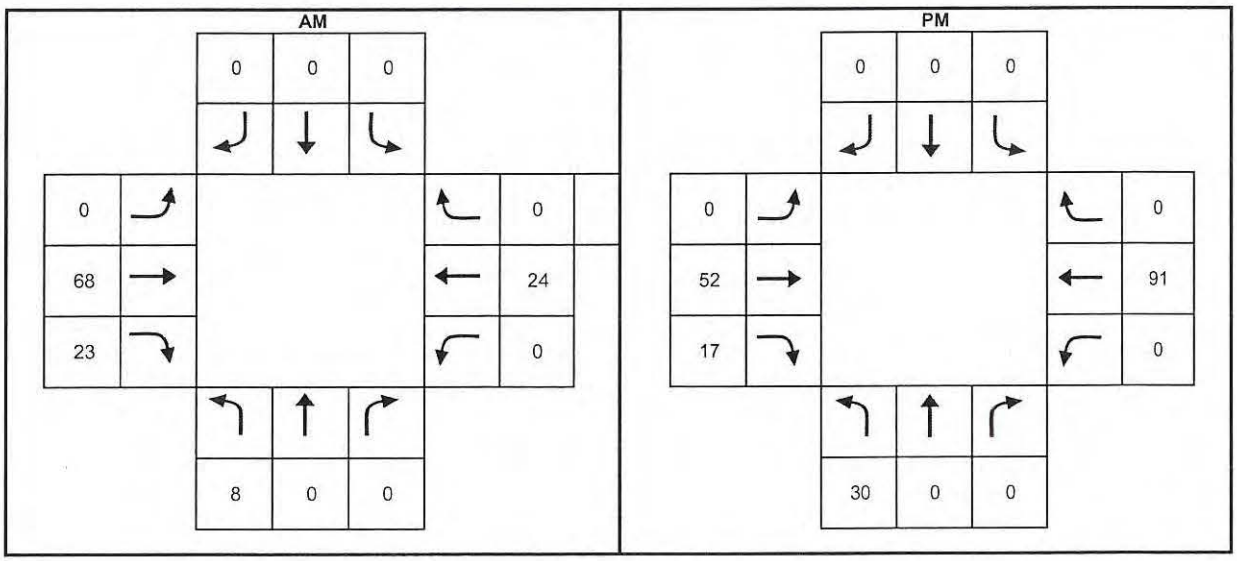
Direction of Project

Cumulative Trip Rates Used

		AM Peak			PM Peak		
	ADT	#	In	Out	#	In	Out
	23,697	1521	394	1127	2370	1509	861

Project Only Distribution Percentages





Turn Movement	Project Only turn (v) AM	Project Only turn (v) PM
NLT	8	30
NTH	0	0
NRT	0	0
SLT	0	0
STH	0	0
SRT	0	0
ELT	0	0
ETH	68	52
ERT	23	17
WLT	0	0
WTH	24	91
WRT	0	0

Project Only

Intersection 50

Analyst: Henryk Pedersen
Intersection: I-8 WB Ramp / Hotel Circle N. (unsignalized)
Future Condition: Project Only - PHASE 1
Date: 2/3/2015
Company: Urban Systems Associates, Inc.
Project Number: 001714

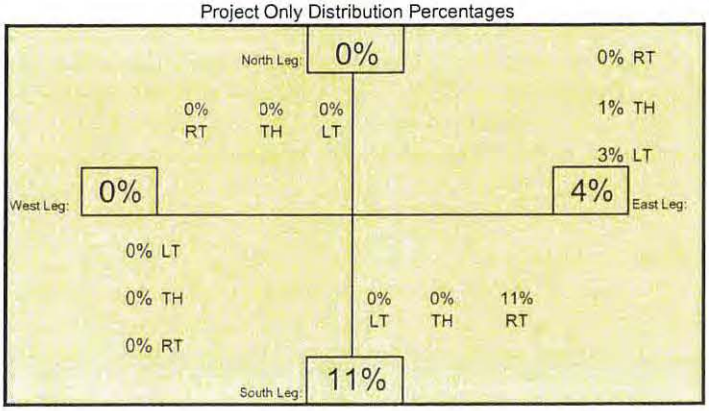
E/W Street Name: Hotel Circle North
N/S Street Name: I-8 WB Ramp

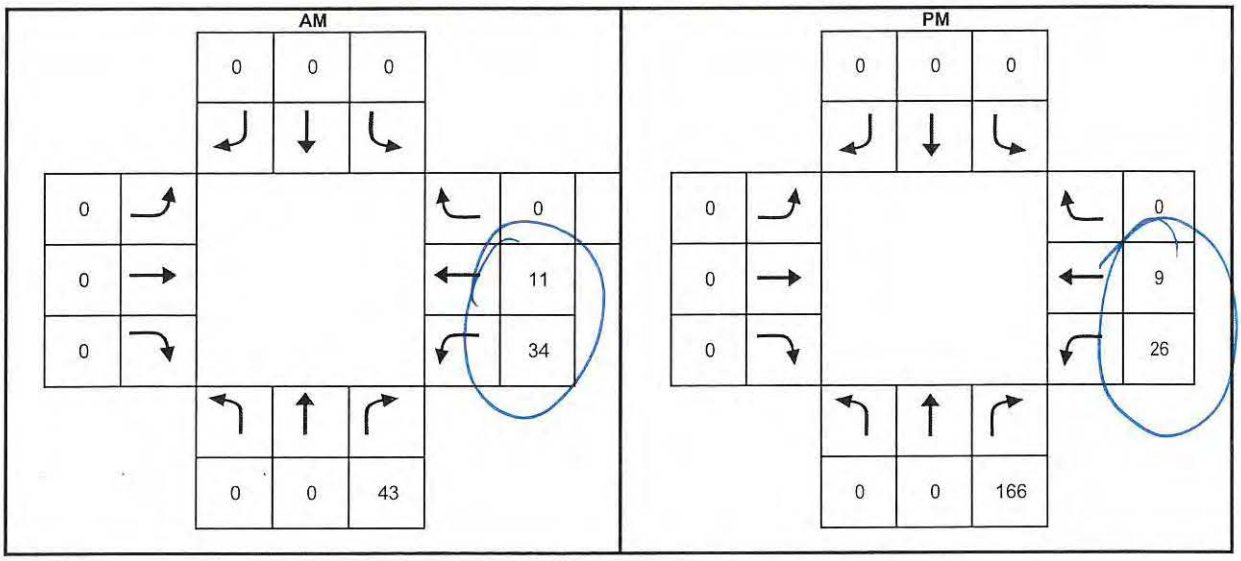
Direction of Project

Cumulative Trip Rates Used

		AM Peak			PM Peak		
	ADT	#	In	Out	#	In	Out
	23,697	1521	394	1127	2370	1509	861

Project Only Distribution Percentages





Turn Movement	Project Only turn (v) AM	Project Only turn (v) PM
NLT	0	0
NTH	0	0
NRT	43	166
SLT	0	0
STH	0	0
SRT	0	0
ELT	0	0
ETH	0	0
ERT	0	0
WLT	34	26
WTH	11	9
WRT	0	0

Project Only

Intersection 51

Analyst: Henryk Pedersen
Intersection: I-8 EB Ramp / Hotel Circle S. (unsignalized)
Future Condition: Project Only - PHASE 1
Date: 2/3/2015
Company: Urban Systems Associates, Inc.
Project Number: 001714

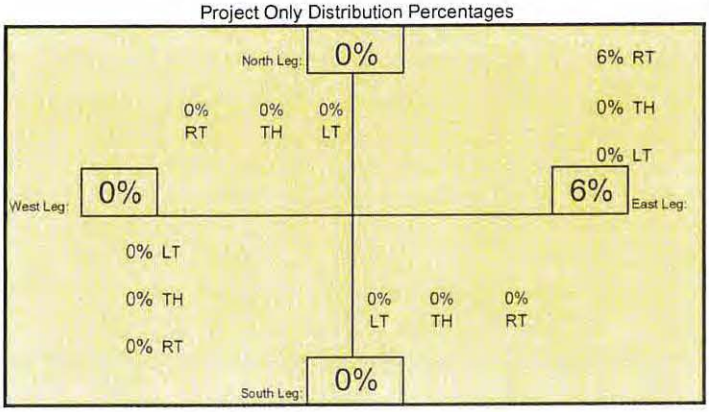
E/W Street Name: Hotel Circle South
N/S Street Name: I-8 EB Ramp

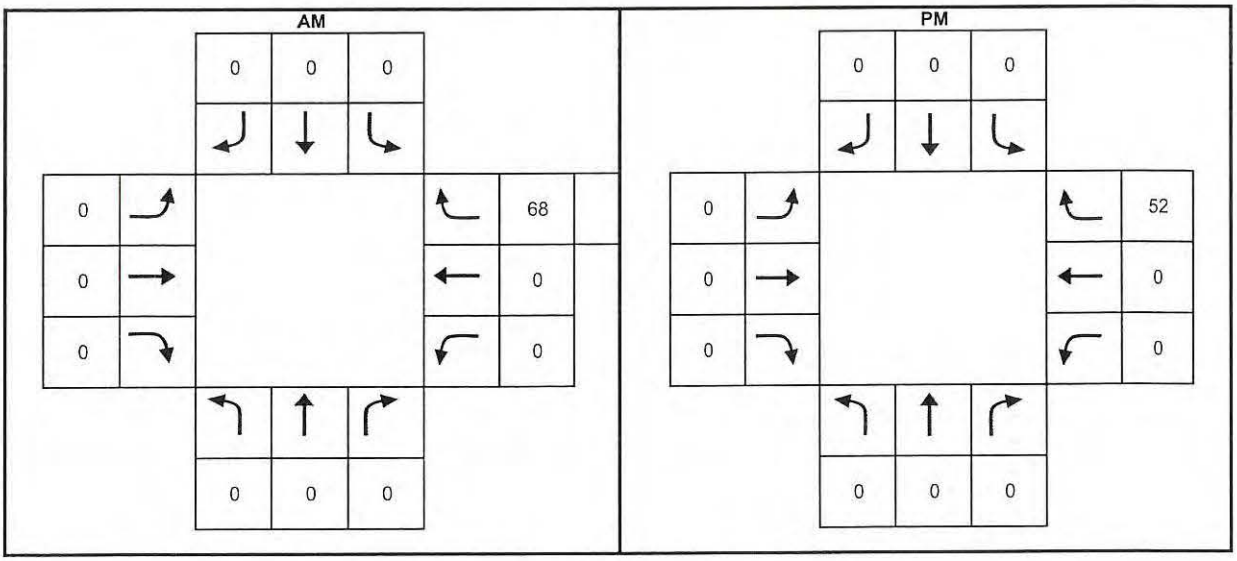
Direction of Project

Cumulative Trip Rates Used

		AM Peak			PM Peak		
	ADT	#	In	Out	#	In	Out
	23,697	1521	394	1127	2370	1509	861

Project Only Distribution Percentages





Turn Movement	Project Only turn (v) AM	Project Only turn (v) PM
NLT	0	0
NTH	0	0
NRT	0	0
SLT	0	0
STH	0	0
SRT	0	0
ELT	0	0
ETH	0	0
ERT	0	0
WLT	0	0
WTH	0	0
WRT	68	52

Project Only

Intersection 52

Analyst: Henryk Pedersen
Intersection: Fashion Valley Road / Hotel Circle N.
Future Condition: Project Only - PHASE 1
Date: 2/3/2015
Company: Urban Systems Associates, Inc.
Project Number: 001714

E/W Street Name: Hotel Circle North
N/S Street Name: Fashion Valley Road

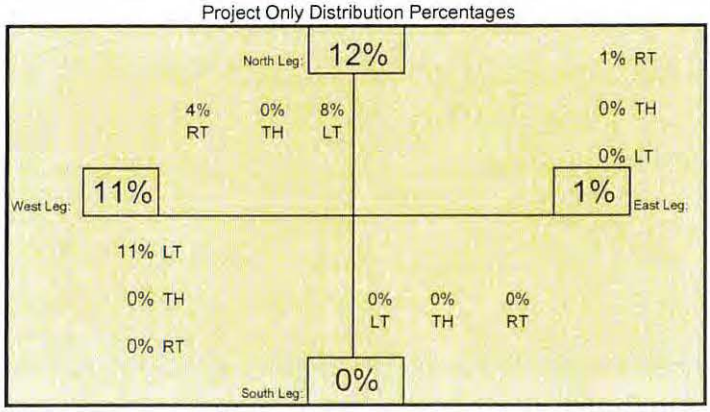
Direction of Project

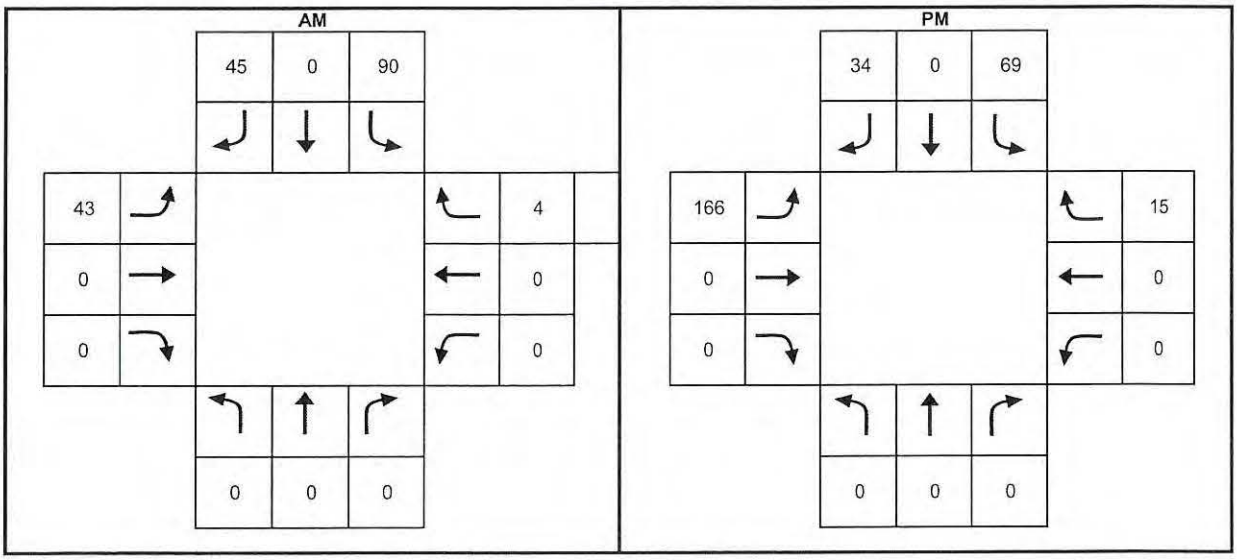


Cumulative Trip Rates Used

		AM Peak			PM Peak		
	ADT	#	In	Out	#	In	Out
	23,697	1521	394	1127	2370	1509	861

Project Only Distribution Percentages





Turn Movement	Project Only turn (v) AM	Project Only turn (v) PM
NLT	0	0
NTH	0	0
NRT	0	0
SLT	90	69
STH	0	0
SRT	45	34
ELT	43	166
ETH	0	0
ERT	0	0
WLT	0	0
WTH	0	0
WRT	4	15

Project Only

Intersection 53

Analyst: Henryk Pedersen
Intersection: Hotel Circle S. / Bachman Place
Future Condition: Project Only - PHASE 1
Date: 2/3/2015
Company: Urban Systems Associates, Inc.
Project Number: 001714

E/W Street Name: Hotel Circle South
N/S Street Name: Bachman Place

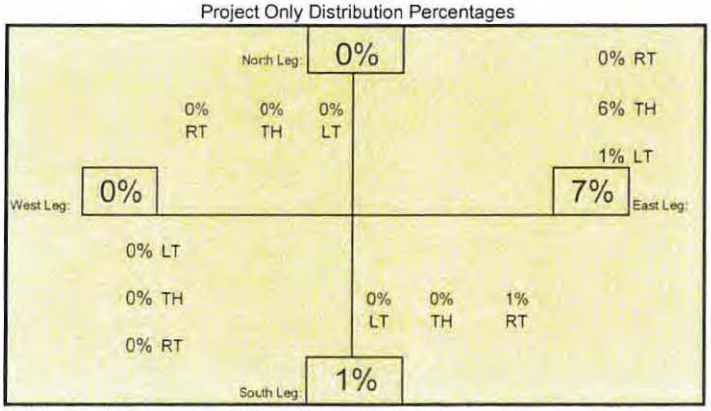
Direction of Project

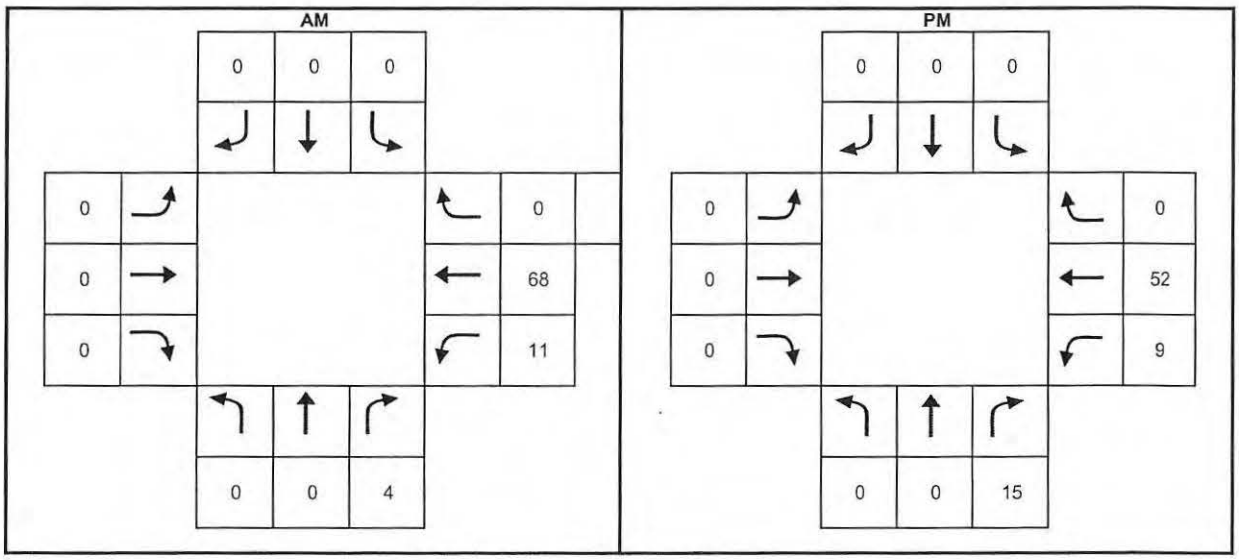


Cumulative Trip Rates Used

		AM Peak			PM Peak		
	ADT	#	In	Out	#	In	Out
	23,697	1521	394	1127	2370	1509	861

Project Only Distribution Percentages





Turn Movement	Project Only turn (v) AM	Project Only turn (v) PM
NLT	0	0
NTH	0	0
NRT	4	15
SLT	0	0
STH	0	0
SRT	0	0
ELT	0	0
ETH	0	0
ERT	0	0
WLT	11	9
WTH	68	52
WRT	0	0

Project Only

Intersection 54

Analyst: Henryk Pedersen
Intersection: Camino de la Reina-Hotel Circle N. / Hotel Circle S.
Future Condition: Project Only - PHASE 1
Date: 2/3/2015
Company: Urban Systems Associates, Inc.
Project Number: 001714

E/W Street Name: Hotel Circle North-Camino de l
N/S Street Name: Hotel Circle South

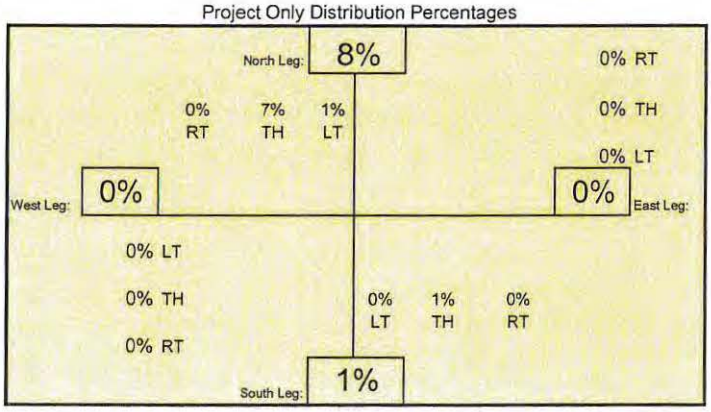
Direction of Project

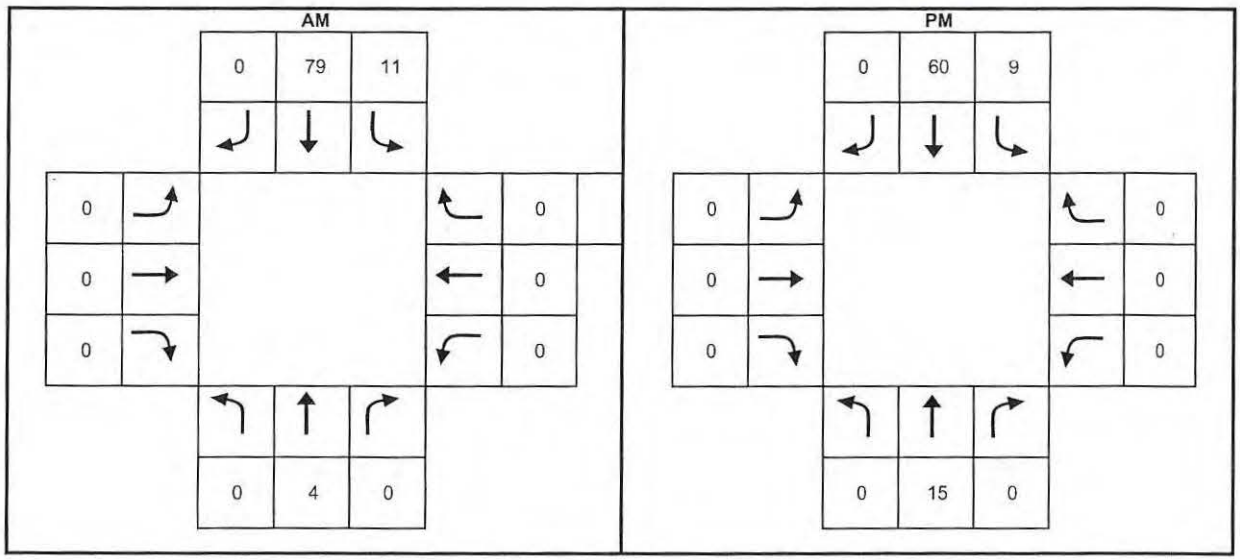


Cumulative Trip Rates Used

		AM Peak			PM Peak		
	ADT	#	In	Out	#	In	Out
	23,697	1521	394	1127	2370	1509	861

Project Only Distribution Percentages





Turn Movement	Project Only turn (v) AM	Project Only turn (v) PM
NLT	0	0
NTH	4	15
NRT	0	0
SLT	11	9
STH	79	60
SRT	0	0
ELT	0	0
ETH	0	0
ERT	0	0
WLT	0	0
WTH	0	0
WRT	0	0

Transportation Impact Analysis

Residence Inn-Mission Valley TIA

Revised Final Report

Prepared for:

T2 DEVELOPMENT

620 Newport Center Drive, 14th Floor
Newport Beach, CA 92660

Prepared by:

CHEN RYAN
239 Laurel Street, Suite 203
San Diego, CA 92101

January 15, 2014

3.0 Prposed Project

This section describes the proposed project, including land uses and estimated trip generation, trip distribution, and trip assignment.

3.1 Project Description

The proposed Residence Inn-Mission Valley project site is located in the City of San Diego at 445 Camino del Rio South in the Hotel Circle area of the Mission Valley community. According to the County Assessor records, the project site is currently occupied by a 9,216 square foot building (former El Torito restaurant). The project site currently has two access points both of which are located on Camino del Rio South. The northern access point is shared with an adjacent restaurant (Benihana's), and the southern access point is shared with the service access to the World Mark Timeshare complex. The project proposes to remove the existing building on the project site and develop a 118-room hotel (with no restaurant or convention facilities) in its place. The project proposes to take access via two driveways located on Camino del Rio South, with the northern driveway providing the primary point of access to the hotel. The southern driveway will be maintained in its current location while the northern driveway will be relocated approximately 30 feet to the north. **Figure 3-1** illustrates the project site plan.

3.2 Project Trip Generation, Distribution, and Assignment

Project Trip Generation

Project trip generation estimates were derived utilizing the trip generation rates outlined in *Table 1* of the *City of San Diego Land Development Code – Trip Generation Manual, May 2003*. Table 3.1 displays daily, as well as AM and PM peak hour project trip generation.

TABLE 3.1
RESIDENCE INN-MISSION VALLEY PROJECT TRIP GENERATION

Land Use	Units	Trip Rate	ADT	AM Peak					PM Peak				
				%	Trips	Split	In	Out	%	Trips	Split	In	Out
Motel	118 Room	9/Room	1,062	8	85	4:6	34	51	9	96	4:6	38	58

Source: City of San Diego Land Use Code – Trip Generation Manual, May 2003

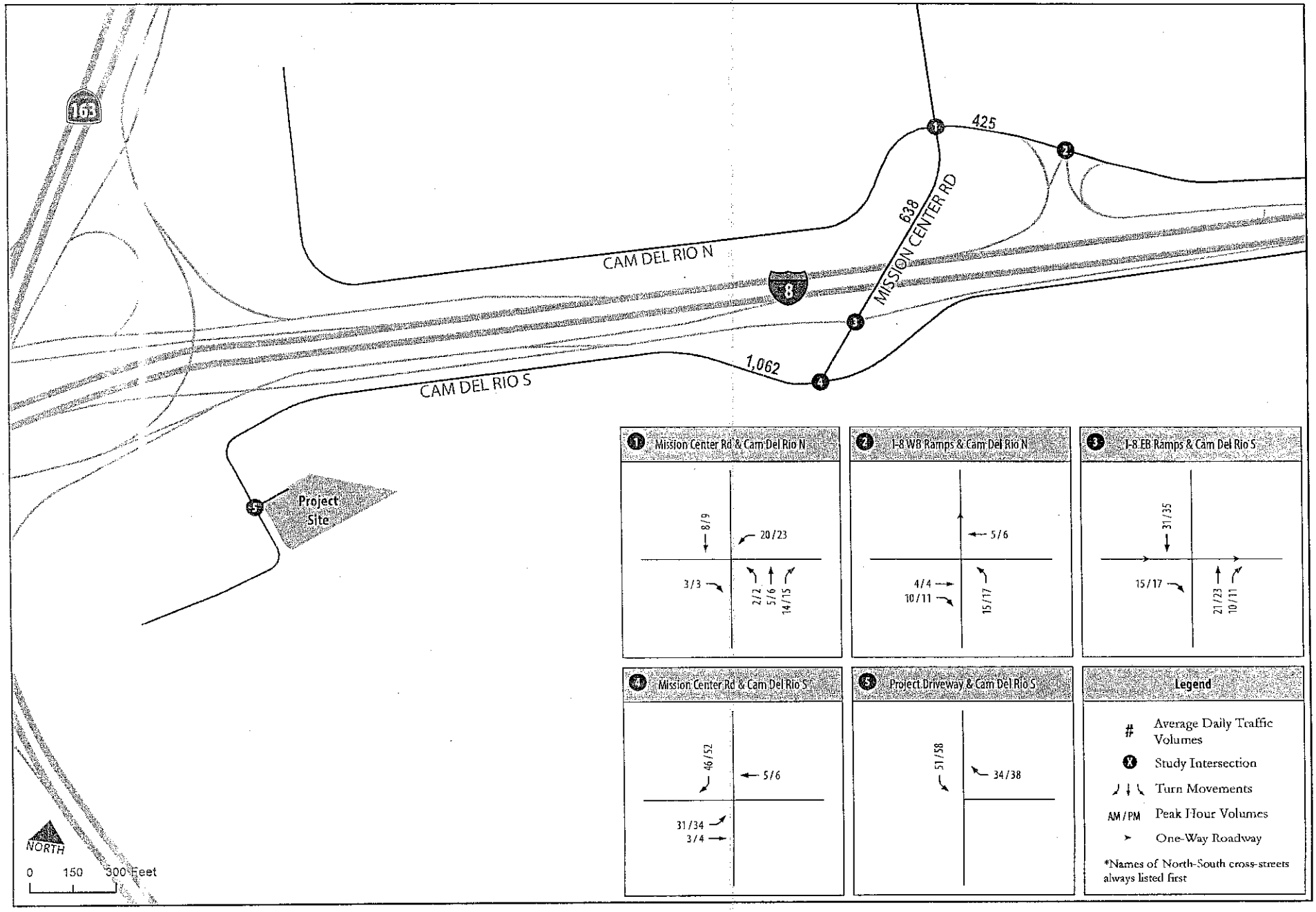
As shown in Table 4.1, the proposed Residence Inn-Mission Valley project would generate a total of 1,062 daily trips, including 85 (34-in / 51-out) AM peak hour trips and 96 (38-in / 58-out) PM peak hour trips.

Project Trip Distribution

The project trip distribution patterns were developed by examining existing traffic patterns as reflected primarily through existing traffic count data within the project area. **Figure 3-2** displays the trip distribution patterns associated with the proposed Residence Inn-Mission Valley project. Trip calculations used to determine project trip distribution are provided in **Appendix C**.

Project Trip Assignment

Based upon the assumed project trip distribution, daily and AM/PM peak hour project trips were assigned to the adjacent roadway network, as displayed in **Figure 3-3**.



Residence Inn - Mission Valley Transportation Impact Analysis

Figure 3-3

Project Trip Assignment

CHEN RYAN

URBAN SYSTEMS ASSOCIATES, INC.
PLANNING & TRAFFIC ENGINEERING, MARKETING & PROJECT SUPPORT
CONSULTANTS TO INDUSTRY AND GOVERNMENT

E-MEMO

ATTN:	*Mary Pampuch, Vice President* *Lankford & Associates, Inc.* *1050 Park Blvd., San Diego, Ca. 92101*	*E-Mail:* ▼	
FROM:	*Justin Schlaefli, V.P.* *Sam P. Kab, Project Mgr.*	*TOTAL PAGES:*	11
DATE:	*January 8, 2015*	*TIME: 9:00:58 AM*	*Project No.: 001214*

SUBJECT: Mission Valley Medical Office Bldg. – Initial Impact Evaluation

Confidential Communications
This transmittal is intended for the recipient named above. Unless otherwise expressly indicated, this entire communication is confidential and privileged information. If you are not the intended recipient, do not disclose, copy, distribute or use this information. If you received this transmission in error, please notify us immediately by telephone, at our expense and destroy the information.

Mary:

As you requested, Urban Systems Associates, Inc., is providing our initial assessment of possible significant traffic impacts and mitigation requirements for the approximately 92,000 square foot medical office building proposed at the westerly segment of Hotel Circle North.

Direct project traffic impacts were evaluated for Existing Conditions plus project traffic. Near-term conditions that would include traffic from other approved or pending projects that would add traffic to the study area at the same time as the project traffic were also evaluated with project traffic added.

Please be aware that this evaluation was based on a Select Zone Analysis from a Mission Valley traffic forecast that has not been reviewed or approved by City staff, so that the study area and project trip distribution percentages might change after City review. Provided below is a summary of our initial evaluation:

FREEWAYS

The project trip generation consists of driveway trips and cumulative trips. Cumulative trips are those new trips on the street system minus driveway trips already on the street that would be re-directed to the project. Freeway trips have been considered cumulative trips (at only 40% of driveway trips). With this assumption, there likely will be less than significant impacts to Interstate 8 and State Route 163.

ROADWAY SEGMENTS

The roadway segment levels of service for Existing and Existing Plus Project conditions, evaluated with average daily traffic volumes, are shown in **Tables 1 and 2**, respectively.

Table 2 includes a significance determination column (at the far right edge) that indicates which roadway segments are likely to have significant project impacts, as described below;

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Hotel Circle North from the project driveway to Fashion Valley Road would be significantly impacted. This three lane collector has historically been over capacity. There are no plans to improve these segments to four lane or otherwise add capacity.

Taylor Street west of the I-8 eastbound off-on ramps to Taylor Street would be significantly impacted. This two lane road has been historically over capacity with no plans for improvements.

There are no other large projects known that would add traffic to these segments at the same time as the project, so that in the Near-term there would not likely be other roadway segments that would be significantly impacted.

A segment peak hour analysis might show acceptable levels of service, since off-peak volumes, on an hourly basis, are high and results in a high total daily volume. City staff would need to agree to this analysis.

INTERSECTIONS

Table 3 includes Existing intersection peak hour levels of service without and with the project traffic added to the study area intersections, while the attached figure shows intersection locations.

As indicated in this table, the following intersections would have a significant project impact with project traffic added:

Intersection #4, Hotel Circle North at Hotel Circle Place.

This intersection is controlled by stop signs facing north and southbound traffic, while the eastbound movement turns right onto Hotel Circle North. The level of service and delay is cited for the northbound to westbound left turn that leads to the I-8 westbound on-ramp or to the Taylor Street overcrossing.

Possible mitigation would be to signalize this intersection, coordinated with the existing signal at the ramp. This is a Caltrans intersection and would require their approval.

No other intersection would have enough project traffic to create a significant impact.

However, in the Near-term if other projects add traffic to intersection #1, Taylor Street / Interstate 8 Eastbound Ramps, project traffic could create a significant impact, since this intersection would be at near capacity. This is a Caltrans intersection with no planned improvements.

Please review this initial significant impact evaluation and let us know if you have any questions. We will discuss other possible mitigation once you review this memo.

Attached:
1. Trip Generation comparison Table
2. Site Plan
3. City of San Diego Traffic Significance Thresholds, pg.71, 72,73.

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TABLE 1

Existing Street Segment Levels of Service

Road	Segment	# of Ln.	Class.	Cap.	Volume	V/C	LOS
Camino De La Reina	Hotel Circle North to Avenida Del Rio	3	3-C	15,000	14,925	0.995	E
Fashion Valley Road	Hotel Circle North to Fashion Valley Drwy.	4	4-SA	30,000	8,760	0.292	A
Hotel Circle North	Taylor Street to Project Driveway	3	3-C	15,000	6,203	0.414	B
	Project Driveway to I-8 WB Ramps	3	3-C	15,000	13,195	0.880	E
	I-8 WB Ramps to Fashion Valley Road	3	3-C	15,000	15550 [E]	1.033	F
	Fashion Valley Road to Camino De La Reina	3	3-C	15,000	9,631	0.642	C
Hotel Circle South	Taylor Street to 1,000 Feet East	2	2-CNFP	10,000	16,137	1.614	F
Taylor Street	Hotel Circle South to 1,000 Feet West	2	2-CNFP	10,000	17700 [E]	1.770	F

Legend:

Class. = Functional Class
Cap. = Capacity
LOS = Level of Service

4-SA = 4 Lane Secondary Arterial (30,000 ADT)
3-C = 4 Lane Collector with Two-Way Left Turn Lane (15,000 ADT)
2-CNFP = 2 Lane Collector with No Fronting Property (10,000 ADT)

Note:

Counts Taken on April 29, 2014

(E = Estimate @ 8% PM Peak Hour Volume)

TABLE 2

Existing + Project Street Segment Levels of Service

Road	Segment	# of Ln.	Class.	Cap.	Volume	V/C	LOS	ΔV/C	SIG?
Camino De La Reina	Hotel Circle North to Avenida Del Rio	3	3-C	15,000	14,961	0.997	E	0.002	No
Fashion Valley Road	Hotel Circle North to Fashion Valley Drwy.	4	4-SA	30,000	9,300	0.310	A	0.018	No
Hotel Circle North	Taylor Street to Project Driveway	3	3-C	15,000	10,028	0.669	C	0.255	No
	Project Driveway to I-8 WB Ramps	3	3-C	15,000	13,870	0.925	E	0.045	Yes
	I-8 WB Ramps to Fashion Valley Road	3	3-C	15,000	16,180	1.079	F	0.042	Yes
	Fashion Valley Road to Camino De La Reina	3	3-C	15,000	9,721	0.650	C	0.006	No
Hotel Circle South	Taylor Street to 1,000 Feet East	2	2-CNFP	10,000	16,182	1.618	F	0.004	No
Taylor Street	Hotel Circle South to 1,000 Feet West	2	2-CNFP	10,000	17,880	1.789	F	0.019	Yes

Legend:

Class. = Functional Class
Cap. = Capacity
LOS = Level of Service

4-SA = 4 Lane Secondary Arterial (30,000 ADT)
3-C = 4 Lane Collector with Two-Way Left Turn Lane (15,000 ADT)
2-CNFP = 2 Lane Collector with No Fronting Property (10,000 ADT)

TABLE 3

Existing Without & Existing With Project Intersection Comparison

#	Intersection	Existing				Existing Plus Project							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	Taylor Street / Interstate 8 Eastbound Ramps	29.7	C	44.9	D	42.7	D	13.0	No	53.4	D	8.5	No
2ST	Taylor Street / Hotel Circle South	8.7	A	13.7	B	9.4	A	0.7	No	14.2	B	0.5	No
3	Taylor Street / Interstate 8 Westbound Ramps	29.2	C	23.0	C	28.6	C	-0.6	No	25.0	C	2.0	No
4ST	Hotel Circle North / Hotel Circle Place	13.3	B	26.5	D	18.1	C	4.8	No	253.3	F	226.8	Yes
5ST	Hotel Circle North /Project Driveway	0.0	na	0.0	na	0.0	na	0.0	na	0.0	na	0.0	No
7ST	Hotel Circle North / I- 8 Westbound Ramps	10.1	A	14.9	B	10.3	B	0.2	No	16.5	B	1.6	No
8	Hotel Circle North / Fashion Valley Road	16.1	B	22.1	C	16.3	B	0.2	No	25.9	C	3.8	No
9	Hotel Circle North / Camino de le Reina	17.4	B	20.2	C	17.4	B	0.0	No	20.3	C	0.1	No
10	Hotel Circle South / Bachman Place	21.8	C	28.4	C	21.8	C	0.0	No	28.4	C	0.0	No
11ST	Hotel Circle South / I-8 Eastbound Ramps	12.4	B	55.6	F	12.4	B	0.0	No	55.6	F	0.0	No

Notes:

ST= Stop Signs

LOS = Level of Service

Δ = Change

S = Significant

D= Delay

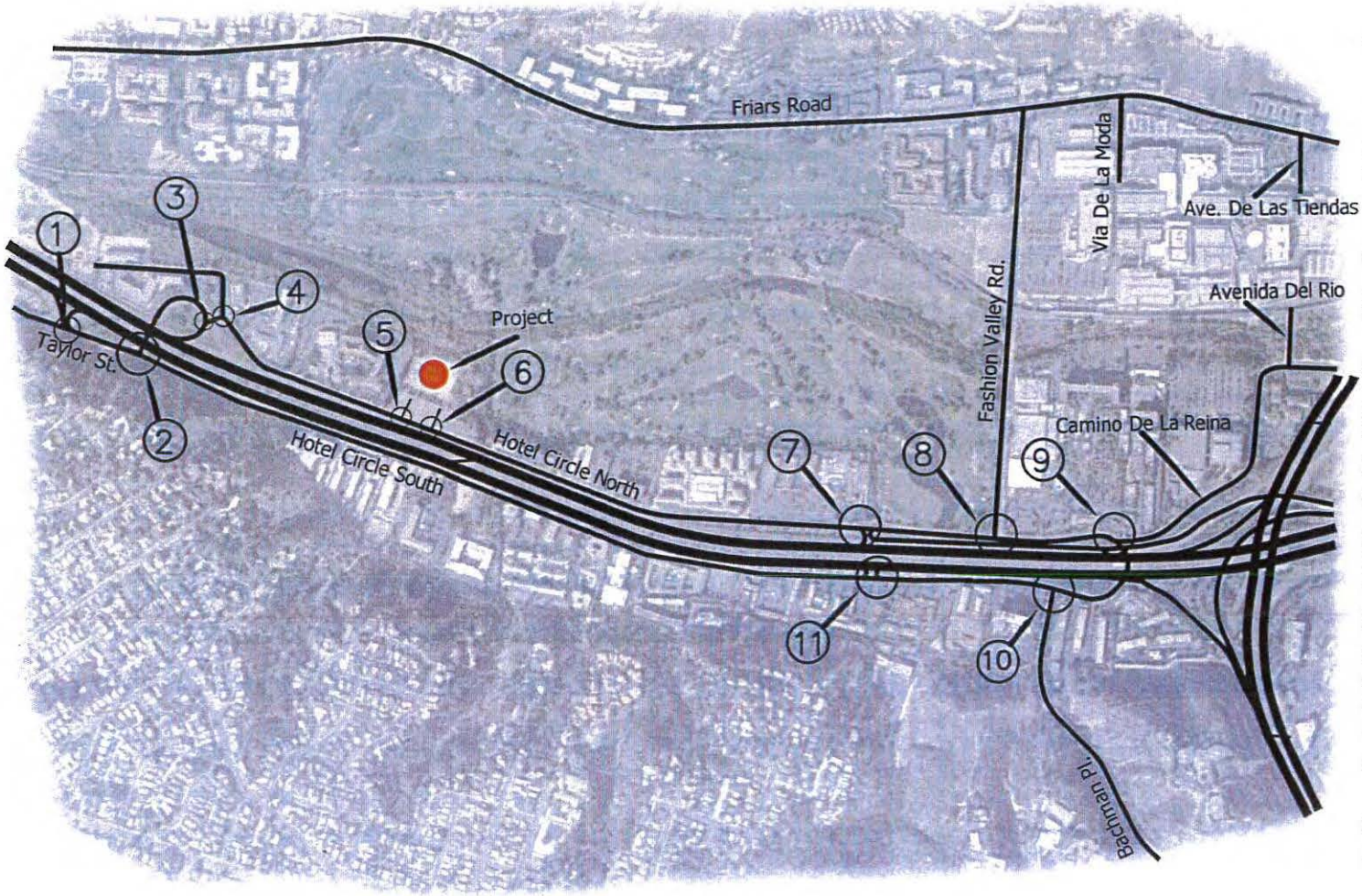


FIGURE 2-4

Study Area Boundary and Intersection Key (Short Term)

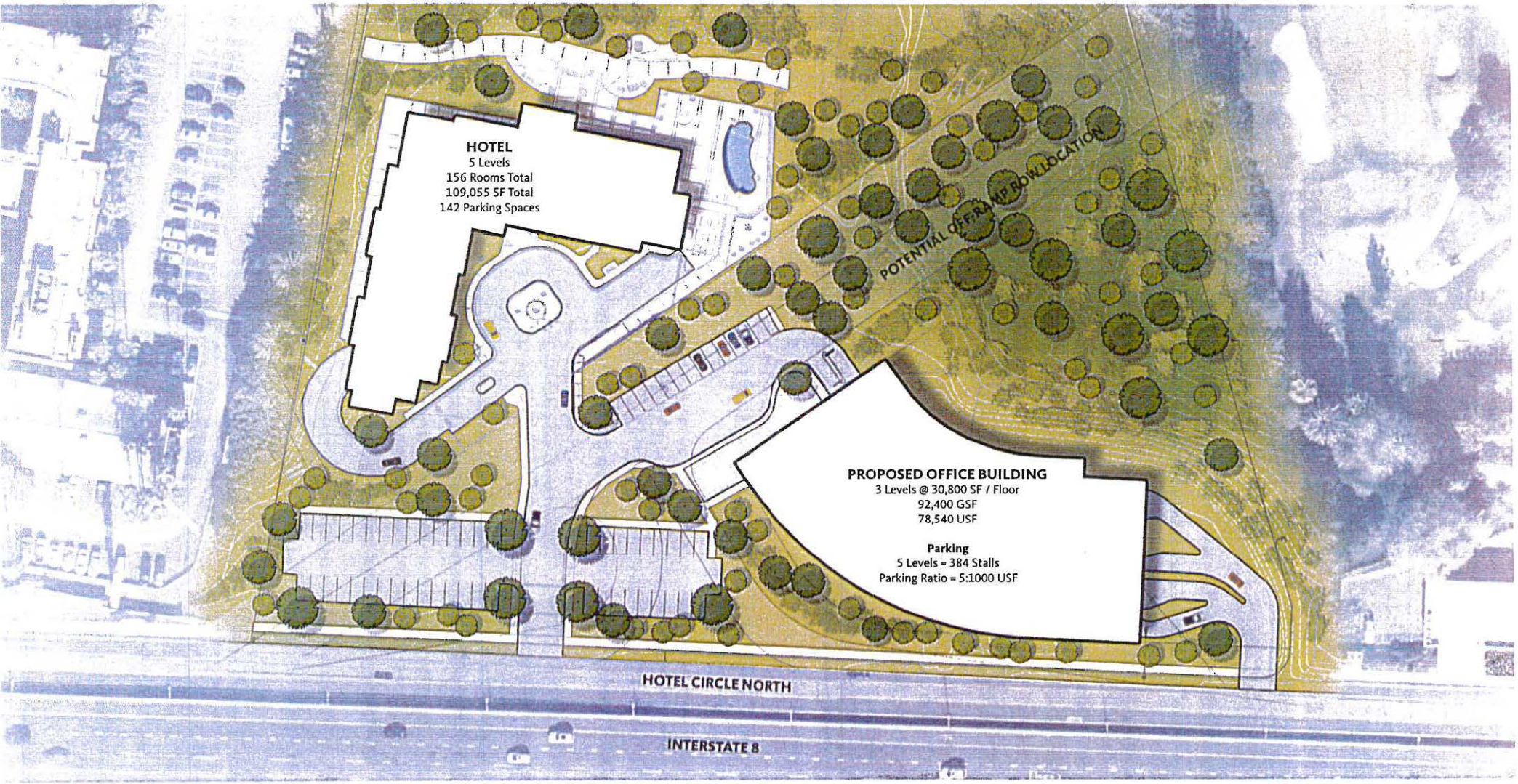
N

NO SCALE

TABLE

Trip Generation Comparison

				AM PEAK HOUR					PM PEAK HOUR				
Use	**Amount**	**Trip Rate***	**ADT**	**%***	**#**	**In/Out ***	**In**	**Out**	**%***	**#**	**In/Out ***	**In**	**Out**
Atlas-Commercial Office	157,500 SF	16 /SF	2,520	13	328	9 : 1	295	33	14	353	2 : 8	71	282
Medical Office Bldg.-Driveway	92,400 SF	50/KSF	4,620	6	277	8 : 2	222	55	10	462	3 : 7	139	323
Medical Office Bldg.-Cumulative	92,400 SF	20/KSF	1,848	6	111	8 : 2	89	22	10	185	3 : 7	56	129



SITE PLAN
SCALE: 1" = 60'

N

O. TRANSPORTATION / CIRCULATION and PARKING

Note: This section is to be applied for projects deemed complete on or after January 1, 2007. For projects deemed complete prior to January 1, 2007, the following Section O.1. on Page 73 is to be applied.

Project-related traffic impacts are one of the most commonly identified environmental impacts under the CEQA. Traffic operations and safety impacts are addressed in this section. Other environmental impacts associated with project- related traffic and transportation infrastructure improvements (e.g., air quality, noise, biology) are addressed in the applicable sections of this manual which pertain to such issues.

Direct traffic impacts are those projected to occur at the time a proposed development becomes operational, including other developments not presently operational but which are anticipated to be operational at that time (near term).

Cumulative traffic impacts are those projected to occur at some point after a proposed development becomes operational, such as during subsequent phases of a project and when additional proposed developments in the area become operational (short-term cumulative) or when the affected community plan area reaches full planned build out (long-term cumulative).

It is possible that a project's near term (direct) impacts may be reduced in the long term, as future projects develop and provide additional roadway improvements (for instance, through implementation of traffic phasing plans). In such a case, the project may have direct impacts but not contribute considerably to a cumulative impact.

For intersections and roadway segments affected by a project, level of service (LOS) D or better is considered acceptable under both direct and cumulative conditions.

INITIAL STUDY CHECKLIST QUESTIONS

The following are taken from the City's Initial Study Checklist. They provide guidance on determining the potential significance of impacts to transportation, circulation systems, and parking:

Would the proposal result in:

1. Traffic generation in excess of specific community plan allocation?
2. An increase in projected traffic which is substantial (see table on following page) in relation to the existing traffic load and capacity of the street system?
3. Addition of a substantial amount of traffic to a congested freeway segment, interchange, or ramp as shown in the table on the next page?
4. An increased demand for off-site parking?
5. Effects on existing parking?
6. Substantial impact upon existing or planned transportation systems?
7. Substantial alterations to present circulation movements including effects on existing public access to beaches, parks, or other open space areas?

8. Increase in traffic hazards for motor vehicles, bicyclists or pedestrians due to a proposed, non-standard design feature (e.g., poor sight distance or driveway onto an access-restricted roadway)?
9. A conflict with adopted policies, plans or programs supporting alternative transportation models (e.g., bus turnouts, bicycle racks)?

SIGNIFICANCE THRESHOLDS

The following thresholds have been established to determine significant traffic impacts:

1. If any intersection, roadway segment, or freeway segment affected by a project would operate at LOS E or F under either direct or cumulative conditions, the impact would be significant if the project exceeds the thresholds shown in the table below.

2. At any ramp meter location with delays above 15 minutes, the impact would be significant if the project exceeds the thresholds shown in the table below.

3. If a project would add a substantial amount of traffic to a congested freeway segment, interchange, or ramp, the impact may be significant.

4. Addition of a substantial amount of traffic to a congested freeway segment, interchange, or ramp as shown in the table below?

5. If a project would increase traffic hazards to motor vehicles, bicyclists or pedestrians due to proposed non-standard design features (e.g., poor sight distance, proposed driveway onto an access-restricted roadway), the impact would be significant. Note: analysts should refer readers to a discussion of this issue in the Health and Safety section of the environmental document.

5. If a project would result in the construction of a roadway which is inconsistent with the General Plan and/or a community plan, the impact would be significant if the proposed roadway would not properly align with other existing or planned roadways.

6. If a project would result in a substantial restriction in access to publicly or privately owned land, the impact would be significant.

Level of Service with Project *	Allowable Change Due To Project Impact **					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	*Speed (mph)*	*V/C*	*Speed (mph)*	*Delay (sec.)*	*Delay (min.)*
E (or ramp meter delays above 15 min.)	0.010	1.0	0.02	1.0	2.0	2.0
F (or ramp meter delays above 15 min.)	0.005	0.5	0.01	0.5	1.0	1.0

Note 1: The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 minutes.

Note 2: The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 minute.

* All LOS measurements are based upon Highway Capacity Manual procedures for peak-hour conditions. However, V/C ratios for roadway segments are estimated on an ADT/24-hour traffic volume basis (using Table 2 of the City's Traffic Impact Study Manual. The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped locations). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

** If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. The project applicant shall then identify feasible improvements (within the Traffic Impact Study) that will restore/and maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see above * note), or if the project adds a significant amount of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating the project's direct significant and/or cumulatively considerable traffic impacts.

KEY:

Delay	=	Average control delay per vehicle measured in seconds for intersections, or minutes for ramp meters
LOS	=	Level of Service
Speed	=	Speed measured in miles per hour
V/C	=	Volume to Capacity ratio

PARKING

Parking requirements vary by land use and location and are dictated by the City of San Diego Municipal Code and adopted by the City Council policies.

SIGNIFICANCE THRESHOLDS

Non-compliance with the City's parking ordinance does not necessarily constitute a significant environmental impact. However, it can lead to a decrease in the availability of existing public parking in the vicinity of the project. Generally, if a project is deficient by more than ten percent of the required amount of parking and at least one of the following criteria applies, then a significant impact may result:

1. The project's parking shortfall or displacement of existing parking would substantially affect the availability of parking in an adjacent residential area, including the availability of public parking.

2. The parking deficiency would severely impede the accessibility of a public facility, such as a park or beach.

TRAFFIC IMPACT ANALYSIS

For

THE DISCOVERY PLACE PROPERTY

Prepared for

THE CITY OF SAN DIEGO

1st Submittal Draft: April 11, 2013



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TRAFFIC PLANNING & ENGINEERING, MARKETING & PROJECT SUPPORT
CONSULTANTS TO INDUSTRY AND GOVERNMENT
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TABLE 3-1

Project Trip Generation

Cumulative Rates

Use	Intensity	Rate	ADT	AM						PM					
				Peak %	Vol.	In %	Out%	In	Out	Peak %	Vol.	In %	Out%	In	Out
Proposed Project															
Hotel*	111 rm	9 /rm.	**999**	8%	**80**	40% : 60%		**32**	**48**	9%	**90**	40% : 60%		**36**	**54**
Fast Food	1,800 ft^2	420 /KSF	**756**	4%	**30**	60% : 40%		**18**	**12**	8%	**60**	50% : 50%		**30**	**30**
Retail/Commercial	6,000 ft^2	36 /KSF	**216**	3%	**6**	60% : 40%		**4**	**3**	9%	**19**	50% : 50%		**10**	**10**
SUB-TOTAL			**1,971**		**117**			**54**	**63**		**170**			**76**	**94**
Discovery Center															
Undeveloped Park	18 acre	5 /acre	**90**	4%	**4**	50% : 50%		**2**	**2**	8%	**7**	50% : 50%		**4**	**4**
Discovery Center	8000 ft^2	20 /KSF	**160**	2%	**3**	70% : 30%		**2**	**1**	10%	**16**	50% : 50%		**8**	**8**
SUB-TOTAL			**250**		**7**			**4**	**3**		**23**			**12**	**12**
NET															
Total Trips (Proposed+ Existing)			**2,221**		**123**			**58**	**65**		**193**			**88**	**106**

Source:

Rates taken from the City of San Diego Trip Generation Manual, May 2003

Note:
rm= Occupied Room ADT= Average Daily Trips
KSF = 1,000 Square Feet *Average occupancy rate taken from ITE (83% average occupied rooms)

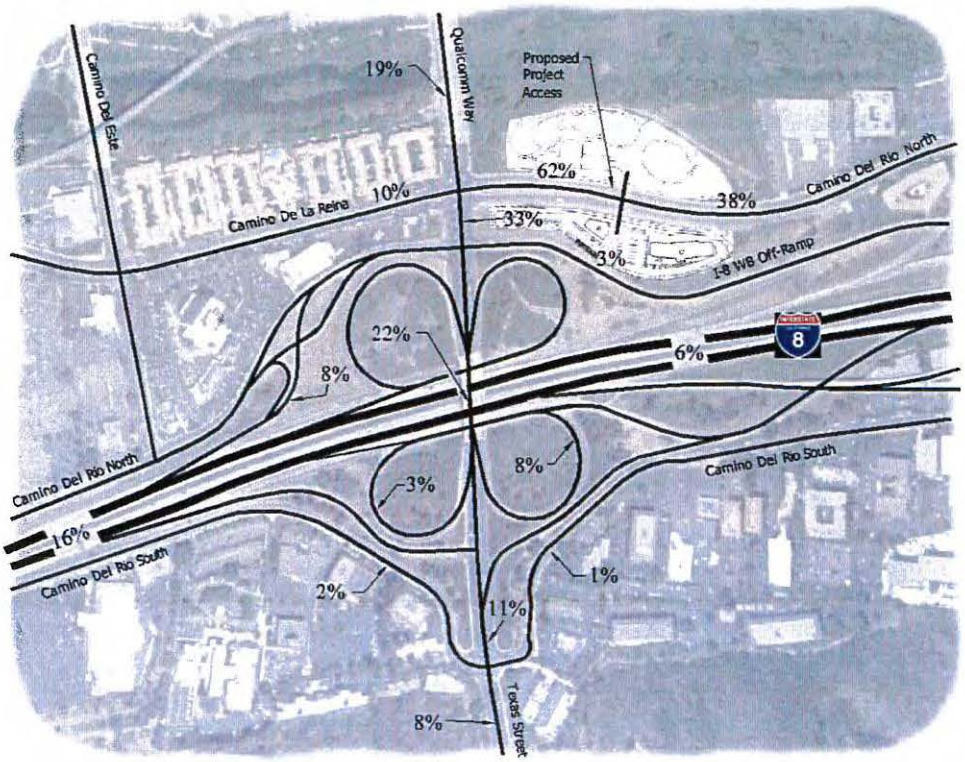
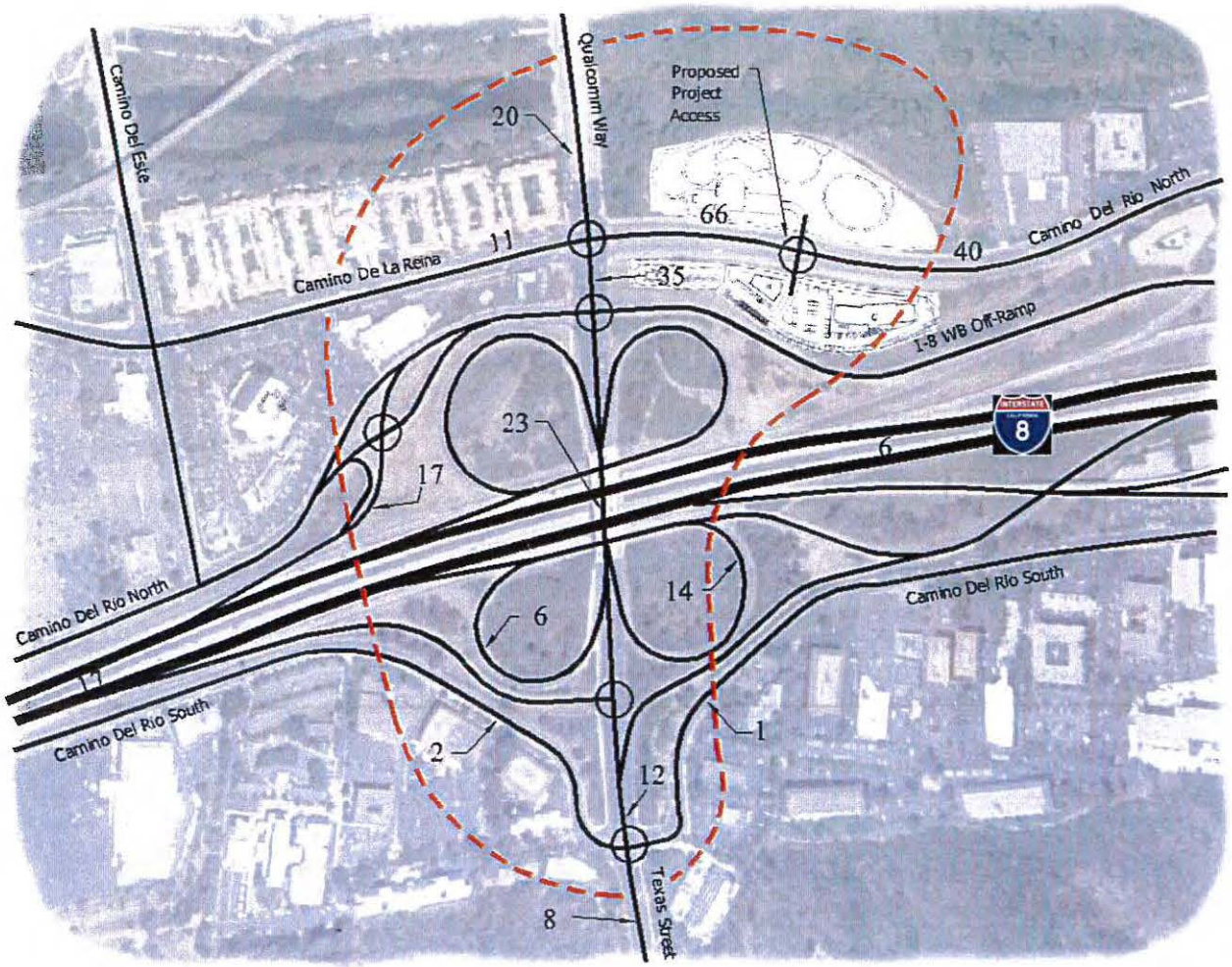


FIGURE 3-1

Project Only Traffic Distribution Percentages



LEGEND

XX = Peak Hour Volume in the Peak Direction

= Study Area Boundary

N
NO SCALE

FIGURE 3-2

Project Only Peak Hour Traffic in the Peak Direction

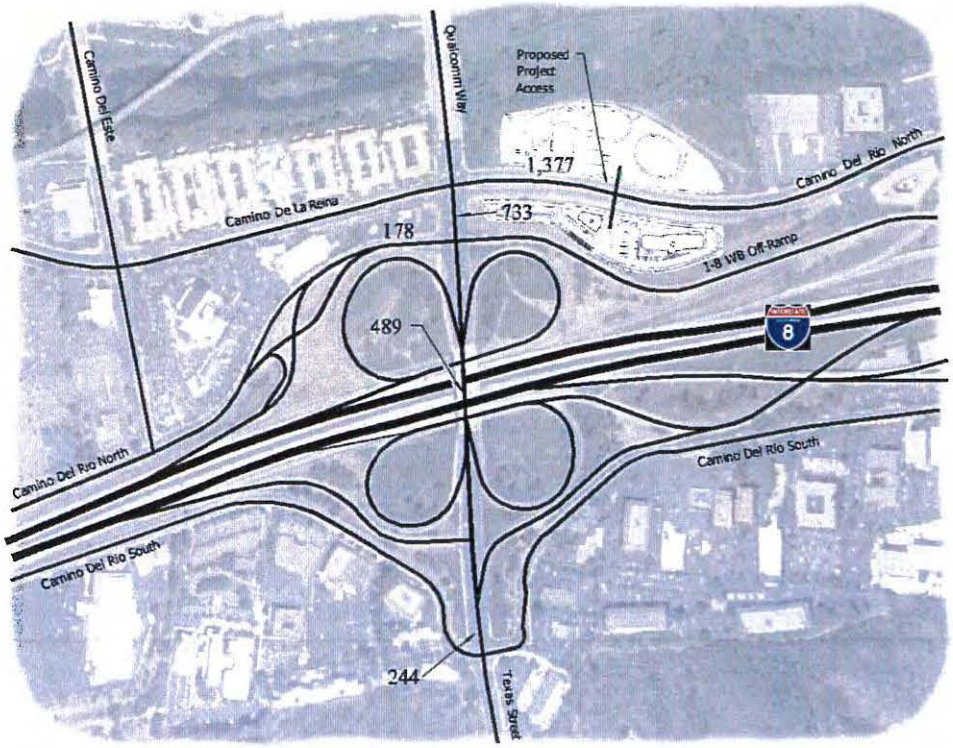


FIGURE 3-3

Project Only Average Daily Traffic

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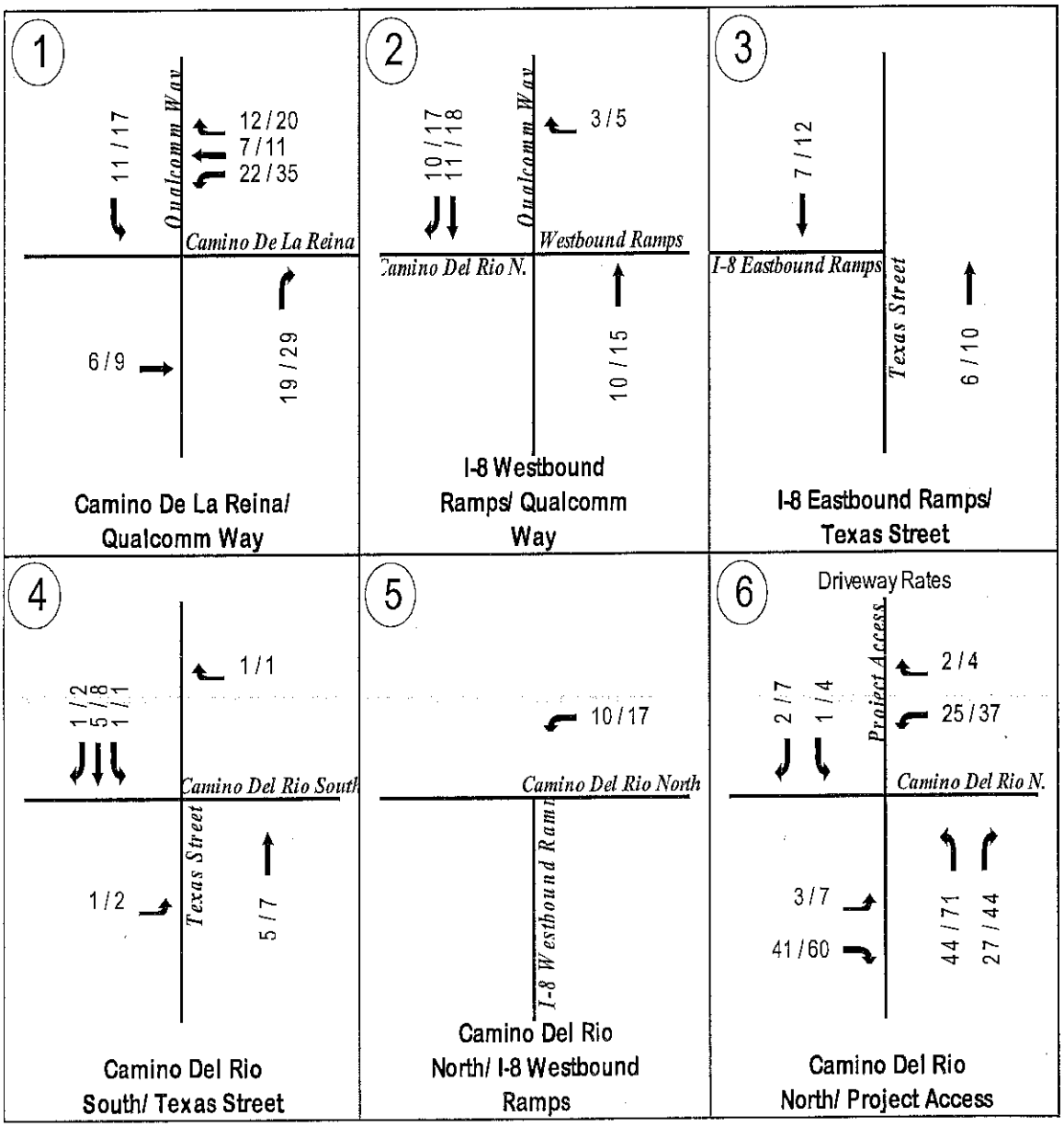

FIGURE 3-4

Project Only AM / PM Peak Hour Traffic

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CONSULTANTS TO INDUSTRY AND GOVERNMENT

E-MEMO

ATTN:	*Ann Gonsalves & Farah Mahzari*	*E-Mail:* ▼ *AGonsalves@sandiego.gov*	
FROM:	*Andrew Schlaefli & Jake Swim* *Cc Bobby Patel*	*TOTAL PAGES (Including Cover):*	4 + Attachments
DATE:	*July 16, 2014*	*TIME: 2:57:54 PM*	*JOB NUMBER: 003713*
SUBJECT:	***Vagabond Inn – Parking / Trip Generation / Analysis***		

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The purpose of this memo is to discuss parking, trip generation, and an Existing With Project analysis for the proposed Vagabond Inn Site Development Permit (SDP) Amendment. Based on our evaluation of parking on-site for the existing Vagabond Inn and proposed Holiday Inn Express, adequate parking is provided. In addition, the analysis shows the proposed Holiday Inn Express would have no environmental traffic impacts as a result of the proposed project.

PARKING

This study confirms that the existing use of Vagabond Inn's parking rates are more than adequate for the current business model and clientele staying at the motel. The motel is now moving toward expanding its target market by pursuing companies who will rent blocks of rooms rather than individual bookings. Some markets to be tapped:

- Airline Crews, arriving via shuttle
- Airline passengers that are stranded when flights are canceled
- Tour companies and groups which arrive via plane and tour California via tour bus
- Military recruits that are processed in San Diego who will arrive by shuttle bus
- Other hotel overflow patrons which walk to nearby convention facilities such as the Town & Country
- Blocks of tourists who use a motel shuttle, preferring to not rent a car

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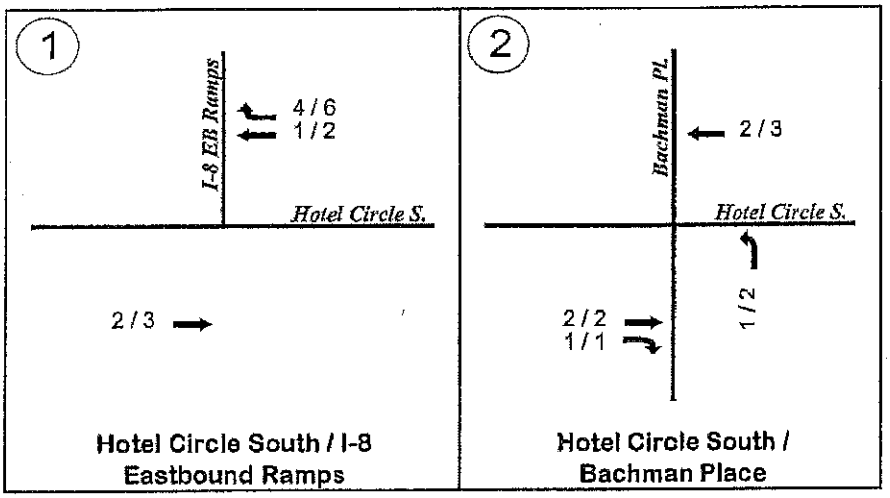


Project Only AM/PM Peak Hour Traffic

ATTACHMENT 4

Holiday Inn Express Trip Generation Table

Existing - Vagabond Inn																
Use	Amount		Trip[1]		ADT	AM Peak Hour[2]						PM Peak Hour[2]				
						%	#	In	: Out	In	Out	1%	#	In	: Out	In	Out
Motel	88	Rooms	6.24	/Room	549	5%	27	6	: 4	16	11	7%	38	6	: 4	23	15
TOTAL					549		27			16	11		38			23	15

SDP Amendment																
Use	Amount		Trip[1]		ADT	AM Peak Hour[2]						PM Peak Hour[2]				
						%	#	In	: Out	In	Out	%	#	In	: Out	In	Out
Vagabond Inn	76	Rooms	6.24	/Room	474	5%	24	6	: 4	14	9	7%	33	6	: 4	20	13
Holiday Inn Express	92	Rooms	6.24	/Room	574	5%	29	6	: 4	17	11	7%	40	6	: 4	24	16
SUB -TOTAL					1,048		52			31	21		73			44	29
Transit / Shuttle Reduction (10%)					105		5			3	2		7			4	3
TOTAL (168 Rooms)					943		47			28	19		66			40	26

Notes:

[1] = Source: Trip rate of 8 per room is consistent with Darnell Letter (Nov. 2008). Based on 78% Occupancy for motels, the trip generation rate used is 6.24 (8 x 0.78) per the Institute of Transportation Engineers, Trip Generation 9th Edition.

[2]= Source: City of San Diego Trip Generation Manual, May 2003.

12 Rooms from the Vagabond Inn are planned to be demolished, i.e. 88-12 = 76 rooms

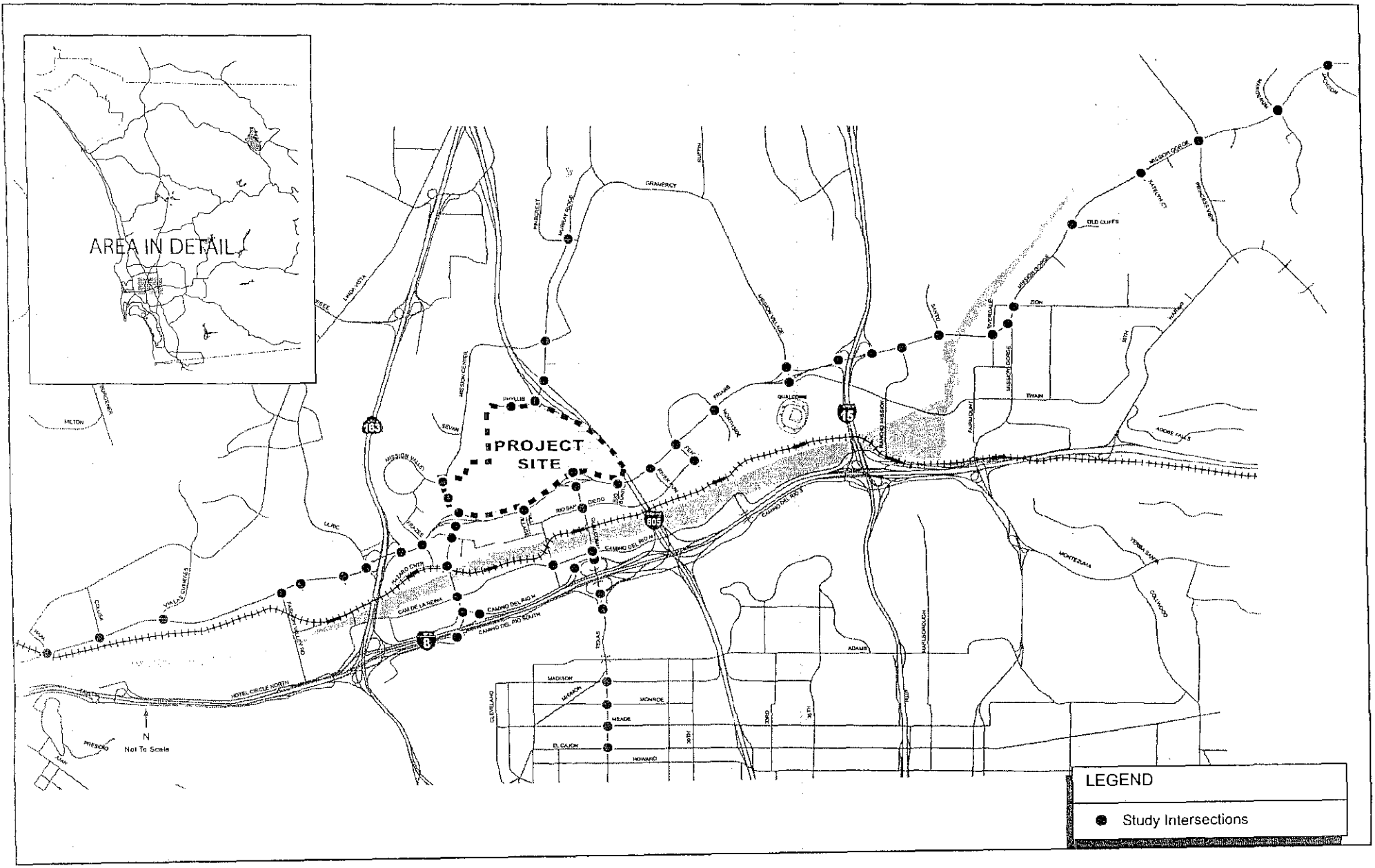
NET NEW TRAFFIC							
Condition	ADT	AM Peak Hour			PM Peak Hour		
		#	In	Out	#	In	Out
SDP Amendment	943	47	28	19	66	40	26
Existing - Vagabond Inn	549	27	16	11	38	23	15
NET NEW TRIPS	394	20	12	8	28	17	11

Quarry Falls
Traffic Impact Study

May 2007

Katz, Okitsu & Associates
Planning and Engineering

www.katzokitsu.com



May 2007
JA4425

Figure 1

Project Vicinity

Quarry Falls
Traffic Analysis

Katz, Okitsu & Associates
Engineers and Planners

Table 4-3
Existing Intersection Conditions

Intersection	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
Friars Rd/ Napa St	7.1	A	8.0	A
Friars Rd/ Colusa St	9.3	A	11.0	B
Friars Rd/ Via Las Cumbres	11.7	B	14.8	B
Friars Rd/ Fashion Valley Rd	12.2	B	40.8	D
Friars Rd/ Via Moda	3.9	A	13.7	B
Friars Rd/ Avenida de las Tiendas	2.7	A	12.0	B
Friars Rd/ SR-163 sb ramp/Ulric St	71.8	E	84.8	F
Friars Rd/ SR-163 nb ramp	3.5	A	70.5	E
Friars Rd/ Frazee Rd	24.9	C	73.6	E
Friars Rd wb ramp/ Mission Center Rd	11.9	B	8.7	A
Friars Rd eb ramp/ Mission Center Rd	13.2	B	13.6	B
Friars Rd/ Gill Village Wy*	10.8	B	29.8	D
Friars Rd wb ramp/ Qualcomm Wy	15.1	B	16.7	B
Friars Rd eb ramp/ Qualcomm Wy	6.3	A	6.7	A
Friars Rd/ Rio Bonito Wy*	9.9	A	19.5	C
Friars Rd/ River Run Rd	12.0	B	15.5	B
Friars Rd/ Fenton Pky	11.7	B	12.7	B
Friars Rd/ Northside Dr	17.0	B	24.5	C
Friars Rd wb ramp/ Mission Village Dr	8.1	A	13.9	B
Friars Rd eb ramp/ Mission Village Dr	15.1	B	16.1	B
Friars Rd/ I-15 sb ramp	19.8	B	49.0	D
Friars Rd/ I-15 nb ramp	5.3	A	15.5	B
Friars Rd/ Rancho Mission Rd	19.7	B	16.6	B
Friars Rd/ Santo Rd	5.4	A	6.2	A
Friars Rd/ Riverdale St	25.7	C	23.7	C
Friars Rd/ Mission Gorge Rd	10.2	B	14.3	B
Mission Gorge Rd/ Zion Ave	41.6	D	27.6	C
Mission Gorge Rd/ Old Cliffs Rd	12.8	B	9.0	A
Mission Gorge Rd/ Katelyn Ct	6.3	A	5.5	A
Mission Gorge Rd/ Princess View Dr	23.2	C	19.3	B
Mission Gorge Rd/ Margerum Ave	20.7	C	17.7	B
Mission Gorge Rd/ Jackson Dr	20.0	B	13.2	B
Mission Center Rd/ Quarry Falls Blvd	16.6	B	18.0	B
Mission Center Rd/ Mission Center Drwy	9.8	A	15.0	B
Mission Center Rd/ Mission Center Ct	11.3	B	18.9	B
Mission Center Rd/ Hazard Center Dr	13.2	B	20.4	C
Mission Center Rd/ Camino de la Reina	18.8	B	30.3	C
Mission Center Rd/ Camino del Rio North	18.7	B	25.7	C
Camino del Rio North/ I-8 wb ramp	15.2	B	22.2	C
Mission Center Rd/ I-8 eb ramp	18.7	B	82.7	F
Qualcomm Wy/ Rio San Diego Dr	18.1	B	24.3	C
Qualcomm Wy/ Camino de la Reina	15.0	B	28.0	C
Camino de la Reina/ Camino del Este	28.9	C	26.9	C
Qualcomm Wy/ I-8 wb ramp	9.8	A	15.3	B
Camino del Rio North/ I-8 wb ramp*	7.6	A	17.3	C

Intersection	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
Qualcomm Wy/ I-8 eb ramp	4.8	A	8.2	A
Texas St/ Camino del Rio South	30.3	C	47.5	D
Texas St/ Madison Ave	35.3	D	37.2	D
Texas St/ Monroe Ave*	13.5	B	21.6	C
Texas St/ Meade Ave	9.5	A	10.6	B
Texas St/ El Cajon Blvd	32.7	C	50.7	D
Rio San Diego Dr/ Fenton Pky	18.4	B	22.6	C
Phyllis Pl/ I-805 sb ramp*	61.3	F	150.7	F
Phyllis Pl/ I-805 nb ramp*	18.8	C	32.0	D
Murray Ridge Rd/ Mission Center Rd*	11.1	B	26.8	D
Murray Ridge Rd/ Pinecrest Ave*	16.7	C	30.7	D
SR-163 sb ramp/ Ulric St*	13.4	B	18.8	C

*Unsignalized intersection

TRAFFIC IMPACT ANALYSIS

For

HAZARD CENTER

Prepared for

OLIVER MCMILLAN

Final: July 28, 2009



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(858) 560-4911

TABLE 5-2

Trip Generation Table with Reduced Theater Credit

PROPOSED PROJECT

Use	Amount	*Trip	ADT	AM Peak Hour						PM Peak Hour					
				% *	#	In	: Out	In	Out	% *	#	In	: Out	In	Out
Hotel	300 Rm	10 /Rm	3,000	6%	180	6	: 4	108	72	8%	240	6	: 4	144	96
Residential	473 DU	6 /DU	2,838	8.0%	227	2	: 8	45	182	10%	284	7	: 3	199	85
Residential Mixed-Use Adjustment			10%		8%			8%	8%		10%			10%	10%
Residential Transit Adjustment			5%		9.0%			9.0%	9.0%		6%			6%	6%
Subtotal			2,412		188			38	151		238			167	72
Office	283,972 SF	Ln(T)=0.756 Ln(x)+3.95	3,717	13.0%	483	9	: 1	435	48	14%	520	2	: 8	104	416
Office Mixed-Use Adjustment			3%		5%			5%	5%		4%			4%	4%
Office Transit Adjustment			3%		5.5%			5.5%	5.5%		2%			2%	2%
Subtotal			3,494		432			389	43		489			98	391
Commercial/Retail	122,860 SF	49 /KSF	6,020	3.0%	181	6	: 4	108	72	10%	602	5	: 5	301	301
Commercial/Retail Mixed-Use Adjustment			395		42			25	17		49			24	25
Subtotal			5,625		138			83	55		553			277	276
TOTAL			14,531		939			618	321		1,520			686	835

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

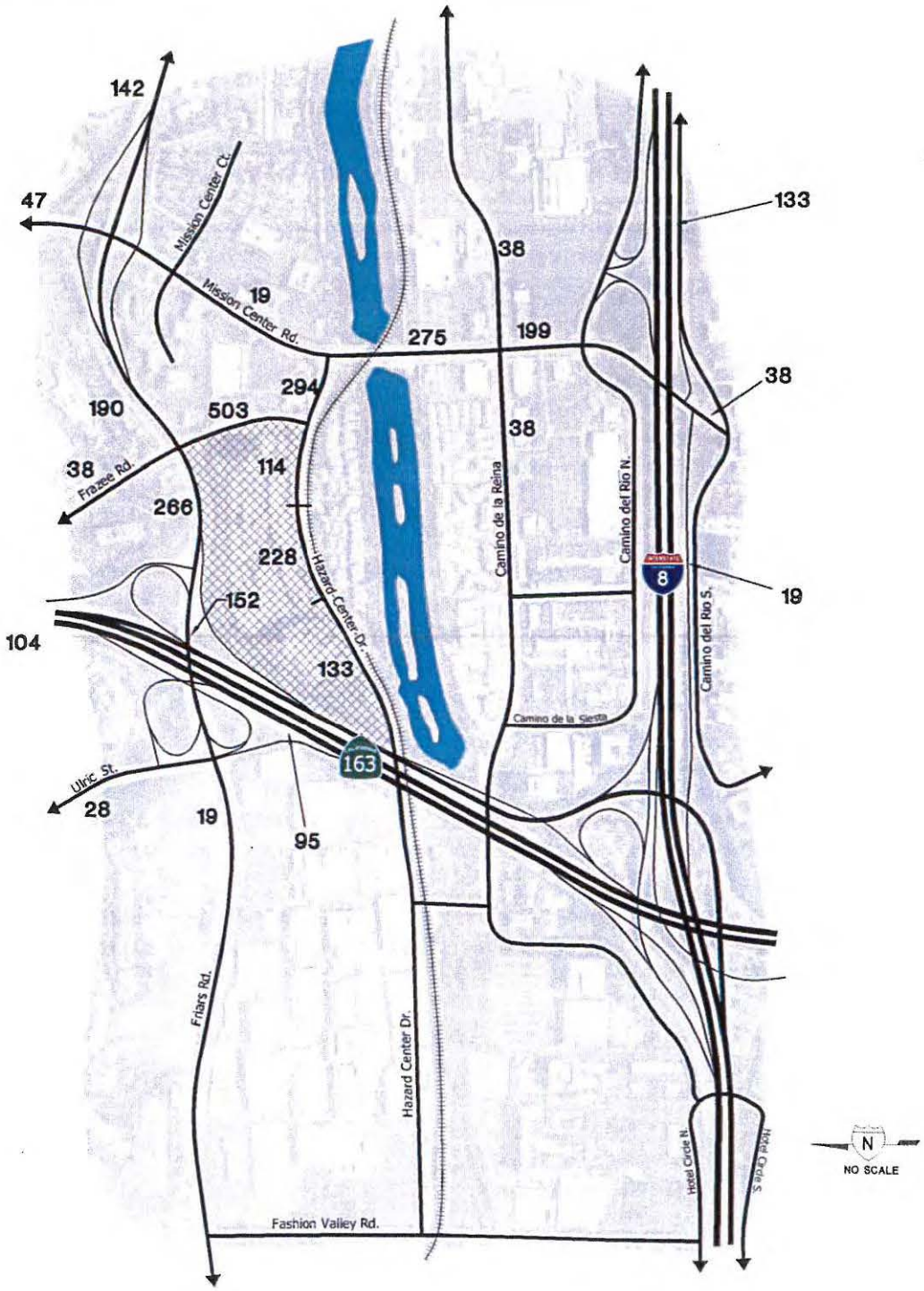


FIGURE 5-2

Project Only Average Daily Traffic

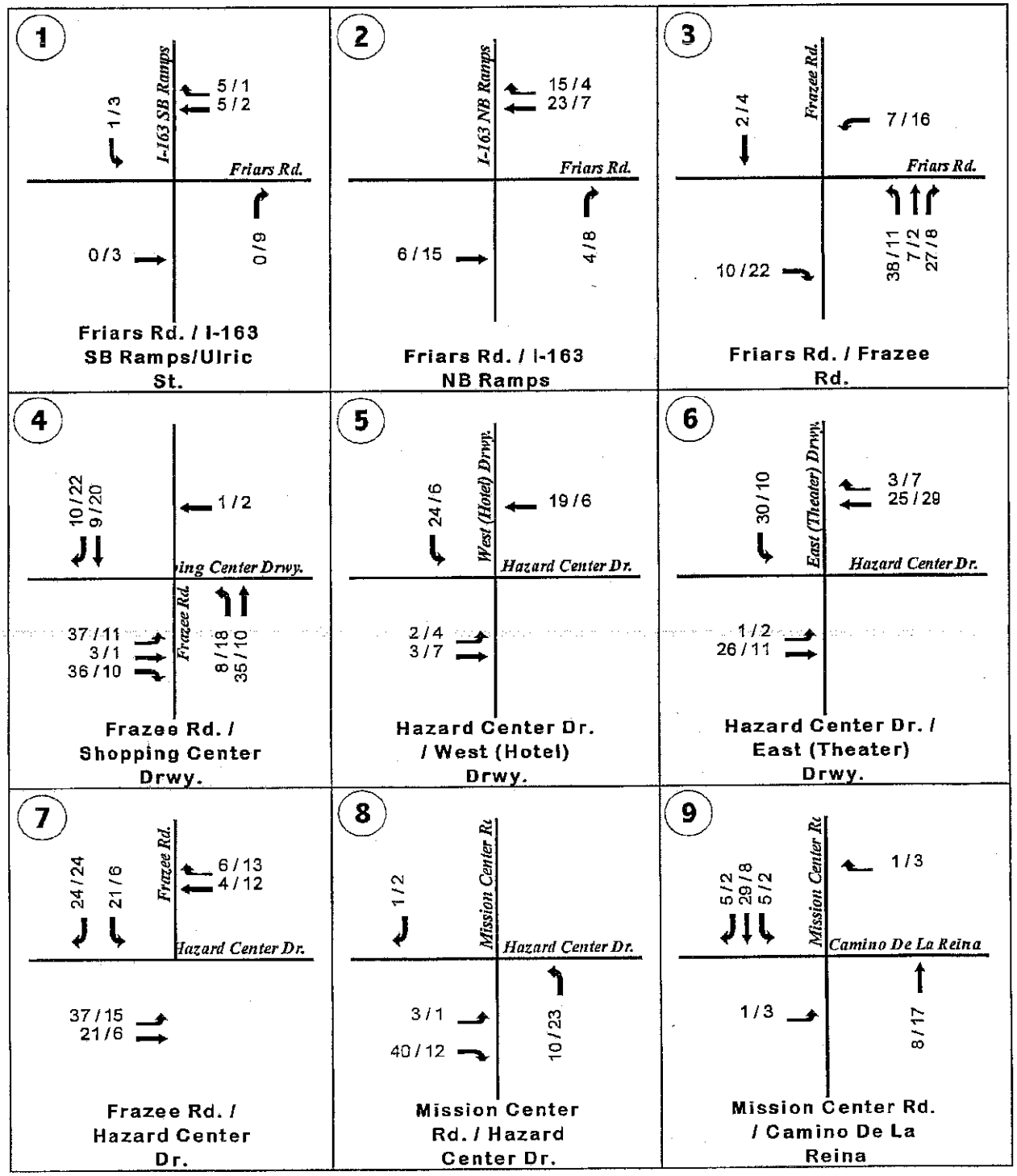


FIGURE 5-3

Project Only AM / PM Peak Hour Traffic

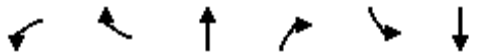
APPENDIX E

OPENING DAY SYNCHRO SHEETS

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	190	618	184	116	114	142
Future Volume (veh/h)	190	618	184	116	114	142
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	207	672	200	126	124	154
Adj No. of Lanes	1	1	1	0	1	1
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	261	1343	534	337	229	204
Arrive On Green	0.15	0.72	0.51	0.51	0.13	0.13
Sat Flow, veh/h	1774	1863	1055	665	1774	1583
Grp Volume(v), veh/h	207	672	0	326	124	154
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1719	1774	1583
Q Serve(g_s), s	7.4	10.3	0.0	7.5	4.3	6.1
Cycle Q Clear(g_c), s	7.4	10.3	0.0	7.5	4.3	6.1
Prop In Lane	1.00			0.39	1.00	1.00
Lane Grp Cap(c), veh/h	261	1343	0	871	229	204
V/C Ratio(X)	0.79	0.50	0.00	0.37	0.54	0.75
Avail Cap(c_a), veh/h	614	1714	0	871	546	487
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	1.00
Uniform Delay (d), s/veh	26.9	4.0	0.0	9.8	26.6	27.4
Incr Delay (d2), s/veh	2.1	0.1	0.0	1.2	0.7	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	5.3	0.0	3.8	2.1	5.3
LnGrp Delay(d),s/veh	29.0	4.1	0.0	11.0	27.4	29.6
LnGrp LOS	C	A		B	C	C
Approach Vol, veh/h		879	326		278	
Approach Delay, s/veh		10.0	11.0		28.6	
Approach LOS		A	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		52.0		13.3	14.0	38.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		60.1		20.1	22.6	33.1		
Max Q Clear Time (g_c+I1), s		12.3		8.1	9.4	9.5		
Green Ext Time (p_c), s		5.1		0.4	0.2	4.7		

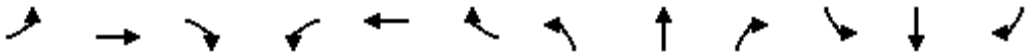
Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	0	341	76	0	264
Future Volume (Veh/h)	2	0	341	76	0	264
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	371	83	0	287
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						1155
pX, platoon unblocked						
vC, conflicting volume	700	412			454	
vC1, stage 1 conf vol	412					
vC2, stage 2 conf vol	287					
vCu, unblocked vol	700	412			454	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	591	640			1107	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	2	454	0	287
Volume Left	2	0	0	0
Volume Right	0	83	0	0
cSH	591	1700	1700	1700
Volume to Capacity	0.00	0.27	0.00	0.17
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	11.1	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	11.1	0.0	0.0	
Approach LOS	B			

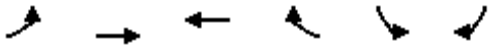
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	2	45	4	0	3	91	243	7	11	215	59
Future Volume (Veh/h)	27	2	45	4	0	3	91	243	7	11	215	59
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	29	2	49	4	0	3	99	264	8	12	234	64
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											731	
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	755	760	266	774	788	268	298			272		
vC1, stage 1 conf vol	290	290		466	466							
vC2, stage 2 conf vol	465	470		308	322							
vCu, unblocked vol	704	709	182	724	739	268	216			272		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	94	99	100	100	92			99		
cM capacity (veh/h)	477	462	806	449	444	771	1267			1291		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	31	49	7	99	272	12	298
Volume Left	29	0	4	99	0	12	0
Volume Right	0	49	3	0	8	0	64
cSH	476	806	547	1267	1700	1291	1700
Volume to Capacity	0.07	0.06	0.01	0.08	0.16	0.01	0.18
Queue Length 95th (ft)	5	5	1	6	0	1	0
Control Delay (s)	13.1	9.8	11.7	8.1	0.0	7.8	0.0
Lane LOS	B	A	B	A		A	
Approach Delay (s)	11.0		11.7	2.2		0.3	
Approach LOS	B		B				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	33.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	215	251	178	141	29
Future Volume (veh/h)	40	215	251	178	141	29
Number	5	2	6	16	7	14
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	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	43	234	273	193	153	32
Adj No. of Lanes	1	0	1	1	1	1
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	54	0	854	1257	594	531
Arrive On Green	0.03	0.54	0.46	0.46	0.34	0.34
Sat Flow, veh/h	1774	0	1863	1583	1774	1583
Grp Volume(v), veh/h	43	0	273	193	153	32
Grp Sat Flow(s),veh/h/ln	1774	0	1863	1583	1774	1583
Q Serve(g_s), s	1.9	0.0	7.5	2.3	5.1	1.1
Cycle Q Clear(g_c), s	1.9	0.0	7.5	2.3	5.1	1.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	54	0	854	1257	594	531
V/C Ratio(X)	0.79	0.00	0.32	0.15	0.26	0.06
Avail Cap(c_a), veh/h	254	0	854	1257	594	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	13.9	2.0	19.6	18.2
Incr Delay (d2), s/veh	9.2	0.0	1.0	0.3	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	4.1	2.7	2.6	1.2
LnGrp Delay(d),s/veh	48.1	0.0	14.9	2.2	20.6	18.5
LnGrp LOS	D		B	A	C	B
Approach Vol, veh/h		43	466		185	
Approach Delay, s/veh		48.1	9.6		20.2	
Approach LOS		D	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		48.9		32.0	6.9	42.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		53.1		27.1	11.6	37.1		
Max Q Clear Time (g_c+I1), s		0.0		7.1	3.9	9.5		
Green Ext Time (p_c), s		0.0		0.2	0.0	1.4		

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	334	22	34	429	2	5
Future Volume (Veh/h)	334	22	34	429	2	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	363	24	37	466	2	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	106					
pX, platoon unblocked						
vC, conflicting volume			387		682	375
vC1, stage 1 conf vol					375	
vC2, stage 2 conf vol					307	
vCu, unblocked vol			387		682	375
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	99
cM capacity (veh/h)			1168		563	623

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	387	37	233	233	7
Volume Left	0	37	0	0	2
Volume Right	24	0	0	0	5
cSH	1700	1168	1700	1700	604
Volume to Capacity	0.23	0.03	0.14	0.14	0.01
Queue Length 95th (ft)	0	2	0	0	1
Control Delay (s)	0.0	8.2	0.0	0.0	11.0
Lane LOS		A			B
Approach Delay (s)	0.0	0.6			11.0
Approach LOS					B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	245	117	67	324	1	130	3	19	5	10	5
Future Volume (veh/h)	0	245	117	67	324	1	130	3	19	5	10	5
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		0.96	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	0	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	266	127	73	352	1	141	3	21	5	11	5
Adj No. of Lanes	0	2	0	1	2	0	1	1	0	0	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, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	710	328	93	1532	4	703	86	600	198	416	171
Arrive On Green	0.00	0.30	0.30	0.05	0.42	0.42	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	0	2426	1078	1774	3620	10	1391	202	1411	306	977	401
Grp Volume(v), veh/h	0	200	193	73	172	181	141	0	24	21	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1641	1774	1770	1860	1391	0	1613	1685	0	0
Q Serve(g_s), s	0.0	5.8	6.1	2.7	4.1	4.1	3.7	0.0	0.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	5.8	6.1	2.7	4.1	4.1	4.1	0.0	0.6	0.5	0.0	0.0
Prop In Lane	0.00		0.66	1.00		0.01	1.00		0.88	0.24		0.24
Lane Grp Cap(c), veh/h	0	538	499	93	749	788	703	0	686	784	0	0
V/C Ratio(X)	0.00	0.37	0.39	0.78	0.23	0.23	0.20	0.00	0.03	0.03	0.00	0.00
Avail Cap(c_a), veh/h	0	538	499	204	854	898	703	0	686	784	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.0	18.1	30.9	12.2	12.2	12.1	0.0	11.1	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.0	2.3	5.3	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.1	3.1	1.5	2.0	2.1	1.7	0.0	0.3	0.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	20.0	20.4	36.2	12.3	12.3	12.2	0.0	11.1	11.1	0.0	0.0
LnGrp LOS		B	C	D	B	B	B		B	B		
Approach Vol, veh/h		393			426			165			21	
Approach Delay, s/veh		20.2			16.4			12.0			11.1	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.9	25.2		33.0		33.1		33.0
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9
Max Green Setting (Gmax), s	7.6	* 20		28.1		31.9		28.1
Max Q Clear Time (g_c+I1), s	4.7	8.1		2.5		6.1		6.1
Green Ext Time (p_c), s	0.0	3.2		0.6		4.2		0.6

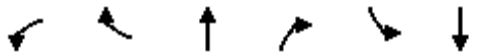
Intersection Summary	
HCM 2010 Ctrl Delay	17.1
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	241	709	303	323	306	228
Future Volume (veh/h)	241	709	303	323	306	228
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	262	771	329	351	333	248
Adj No. of Lanes	1	1	1	0	1	1
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	297	1270	377	402	368	328
Arrive On Green	0.17	0.68	0.46	0.46	0.21	0.21
Sat Flow, veh/h	1774	1863	810	865	1774	1583
Grp Volume(v), veh/h	262	771	0	680	333	248
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1675	1774	1583
Q Serve(g_s), s	12.8	19.9	0.0	32.4	16.2	13.0
Cycle Q Clear(g_c), s	12.8	19.9	0.0	32.4	16.2	13.0
Prop In Lane	1.00			0.52	1.00	1.00
Lane Grp Cap(c), veh/h	297	1270	0	778	368	328
V/C Ratio(X)	0.88	0.61	0.00	0.87	0.91	0.76
Avail Cap(c_a), veh/h	313	1287	0	778	383	342
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	1.00
Uniform Delay (d), s/veh	36.0	7.6	0.0	21.3	34.2	32.9
Incr Delay (d2), s/veh	22.4	0.6	0.0	13.0	23.0	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	10.3	0.0	17.7	10.3	11.6
LnGrp Delay(d),s/veh	58.4	8.2	0.0	34.3	57.2	40.8
LnGrp LOS	E	A		C	E	D
Approach Vol, veh/h		1033	680		581	
Approach Delay, s/veh		20.9	34.3		50.2	
Approach LOS		C	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		65.2		23.2	19.2	46.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		61.1		19.1	15.6	41.1		
Max Q Clear Time (g_c+I1), s		21.9		18.2	14.8	34.4		
Green Ext Time (p_c), s		9.1		0.1	0.0	3.9		

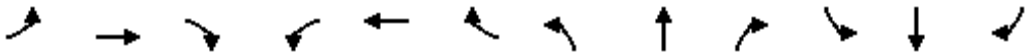
Intersection Summary	
HCM 2010 Ctrl Delay	32.3
HCM 2010 LOS	C



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	93	11	560	12	0	514
Future Volume (Veh/h)	93	11	560	12	0	514
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	101	12	609	13	0	559
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						1155
pX, platoon unblocked	0.88					
vC, conflicting volume	1174	616			622	
vC1, stage 1 conf vol	616					
vC2, stage 2 conf vol	559					
vCu, unblocked vol	1129	616			622	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	76	98			100	
cM capacity (veh/h)	427	491			959	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	113	622	0	559
Volume Left	101	0	0	0
Volume Right	12	13	0	0
cSH	433	1700	1700	1700
Volume to Capacity	0.26	0.37	0.00	0.33
Queue Length 95th (ft)	26	0	0	0
Control Delay (s)	16.2	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	16.2	0.0	0.0	
Approach LOS	C			

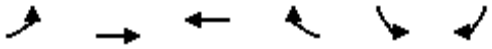
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	0	131	8	0	11	56	502	2	2	375	27
Future Volume (Veh/h)	42	0	131	8	0	11	56	502	2	2	375	27
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	46	0	142	9	0	12	61	546	2	2	408	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											731	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	1106	1096	422	1223	1110	547	437			548		
vC1, stage 1 conf vol	426	426		669	669							
vC2, stage 2 conf vol	680	670		554	441							
vCu, unblocked vol	1034	1022	225	1172	1038	547	242			548		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	79	97	100	98	95			100		
cM capacity (veh/h)	363	377	688	291	366	537	1119			1021		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	46	142	21	61	548	2	437
Volume Left	46	0	9	61	0	2	0
Volume Right	0	142	12	0	2	0	29
cSH	363	688	394	1119	1700	1021	1700
Volume to Capacity	0.13	0.21	0.05	0.05	0.32	0.00	0.26
Queue Length 95th (ft)	11	19	4	4	0	0	0
Control Delay (s)	16.3	11.6	14.7	8.4	0.0	8.5	0.0
Lane LOS	C	B	B	A		A	
Approach Delay (s)	12.7		14.7	0.8		0.0	
Approach LOS	B		B				

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	47.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	482	331	444	422	65
Future Volume (veh/h)	70	482	331	444	422	65
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	76	524	360	483	459	71
Adj No. of Lanes	1	1	1	1	1	1
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	98	858	659	1232	753	672
Arrive On Green	0.06	0.46	0.35	0.35	0.42	0.42
Sat Flow, veh/h	1774	1863	1863	1583	1774	1583
Grp Volume(v), veh/h	76	524	360	483	459	71
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1583
Q Serve(g_s), s	3.6	18.0	13.2	8.3	17.1	2.3
Cycle Q Clear(g_c), s	3.6	18.0	13.2	8.3	17.1	2.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	98	858	659	1232	753	672
V/C Ratio(X)	0.78	0.61	0.55	0.39	0.61	0.11
Avail Cap(c_a), veh/h	200	965	659	1232	753	672
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	39.7	17.2	22.0	3.0	19.0	14.8
Incr Delay (d2), s/veh	4.9	0.5	3.2	0.9	3.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	9.3	7.3	10.8	9.1	2.7
LnGrp Delay(d),s/veh	44.6	17.7	25.3	4.0	22.7	15.1
LnGrp LOS	D	B	C	A	C	B
Approach Vol, veh/h		600	843		530	
Approach Delay, s/veh		21.1	13.1		21.7	
Approach LOS		C	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.1		41.0	9.1	35.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		44.1		36.1	9.6	30.1		
Max Q Clear Time (g_c+I1), s		20.0		19.1	5.6	15.2		
Green Ext Time (p_c), s		4.9		0.8	0.0	4.4		

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	893	11	9	775	7	14
Future Volume (Veh/h)	893	11	9	775	7	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	971	12	10	842	8	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	106					
pX, platoon unblocked			0.79		0.79	0.79
vC, conflicting volume			983		1418	977
vC1, stage 1 conf vol					977	
vC2, stage 2 conf vol					441	
vCu, unblocked vol			846		1396	838
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	94
cM capacity (veh/h)			622		277	244

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	983	10	421	421	23
Volume Left	0	10	0	0	8
Volume Right	12	0	0	0	15
cSH	1700	622	1700	1700	255
Volume to Capacity	0.58	0.02	0.25	0.25	0.09
Queue Length 95th (ft)	0	1	0	0	7
Control Delay (s)	0.0	10.9	0.0	0.0	20.5
Lane LOS		B			C
Approach Delay (s)	0.0	0.1			20.5
Approach LOS					C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	730	165	23	565	9	189	15	87	6	4	3
Future Volume (veh/h)	0	730	165	23	565	9	189	15	87	6	4	3
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		0.96	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	0	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	793	179	25	614	10	205	16	95	7	4	3
Adj No. of Lanes	0	2	0	1	2	0	1	1	0	0	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, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1000	226	39	1557	25	704	97	575	353	198	128
Arrive On Green	0.00	0.35	0.35	0.02	0.44	0.44	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	0	2949	645	1774	3561	58	1402	233	1384	658	477	310
Grp Volume(v), veh/h	0	491	481	25	305	319	205	0	111	14	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1731	1774	1770	1850	1402	0	1617	1444	0	0
Q Serve(g_s), s	0.0	16.9	16.9	0.9	7.9	7.9	2.9	0.0	2.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	16.9	16.9	0.9	7.9	7.9	5.9	0.0	2.9	2.9	0.0	0.0
Prop In Lane	0.00		0.37	1.00		0.03	1.00		0.86	0.50		0.21
Lane Grp Cap(c), veh/h	0	619	606	39	774	809	704	0	671	679	0	0
V/C Ratio(X)	0.00	0.79	0.79	0.64	0.39	0.39	0.29	0.00	0.17	0.02	0.00	0.00
Avail Cap(c_a), veh/h	0	619	606	105	834	872	704	0	671	679	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	19.8	19.8	32.8	13.0	13.0	13.2	0.0	12.4	11.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	10.1	10.3	6.2	0.3	0.3	0.2	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.9	9.7	0.5	3.9	4.0	2.6	0.0	1.3	0.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	29.9	30.1	39.0	13.2	13.2	13.4	0.0	12.6	11.7	0.0	0.0
LnGrp LOS		C	C	D	B	B	B		B	B		
Approach Vol, veh/h		972			649			316			14	
Approach Delay, s/veh		30.0			14.2			13.1			11.7	
Approach LOS		C			B			B			B	

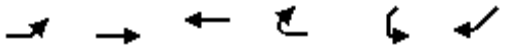
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	5.9	28.8		33.0		34.7		33.0
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9
Max Green Setting (Gmax), s	4.0	* 24		28.1		31.9		28.1
Max Q Clear Time (g_c+I1), s	2.9	18.9		4.9		9.9		7.9
Green Ext Time (p_c), s	0.0	3.4		1.3		9.9		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	21.9
HCM 2010 LOS	C

Notes

APPENDIX F

OPENING DAY WITH PROJECT SYNCHRO SHEETS



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	164	618	184	90	147	175
Future Volume (veh/h)	164	618	184	90	147	175
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	178	672	200	98	160	190
Adj No. of Lanes	1	1	1	0	1	1
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	231	1301	586	287	271	242
Arrive On Green	0.13	0.70	0.50	0.50	0.15	0.15
Sat Flow, veh/h	1774	1863	1167	572	1774	1583
Grp Volume(v), veh/h	178	672	0	298	160	190
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1739	1774	1583
Q Serve(g_s), s	6.4	11.2	0.0	6.8	5.5	7.6
Cycle Q Clear(g_c), s	6.4	11.2	0.0	6.8	5.5	7.6
Prop In Lane	1.00			0.33	1.00	1.00
Lane Grp Cap(c), veh/h	231	1301	0	873	271	242
V/C Ratio(X)	0.77	0.52	0.00	0.34	0.59	0.78
Avail Cap(c_a), veh/h	527	1612	0	873	621	554
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	1.00
Uniform Delay (d), s/veh	27.7	4.7	0.0	9.9	26.0	26.9
Incr Delay (d2), s/veh	2.1	0.1	0.0	1.1	0.8	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	5.6	0.0	3.5	2.8	6.5
LnGrp Delay(d),s/veh	29.8	4.8	0.0	10.9	26.8	29.0
LnGrp LOS	C	A		B	C	C
Approach Vol, veh/h		850	298		350	
Approach Delay, s/veh		10.0	10.9		28.0	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		51.0		15.0	13.0	38.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		57.1		23.1	19.6	33.1		
Max Q Clear Time (g_c+I1), s		13.2		9.6	8.4	8.8		
Green Ext Time (p_c), s		4.9		0.5	0.2	4.6		

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	55	0	354	33	0	286
Future Volume (Veh/h)	55	0	354	33	0	286
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	0	385	36	0	311
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						1155
pX, platoon unblocked						
vC, conflicting volume	714	403			421	
vC1, stage 1 conf vol	403					
vC2, stage 2 conf vol	311					
vCu, unblocked vol	714	403			421	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	100			100	
cM capacity (veh/h)	588	647			1138	

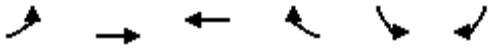
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	60	421	0	311
Volume Left	60	0	0	0
Volume Right	0	36	0	0
cSH	588	1700	1700	1700
Volume to Capacity	0.10	0.25	0.00	0.18
Queue Length 95th (ft)	8	0	0	0
Control Delay (s)	11.8	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	11.8	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	45	22	0	22	91	243	13	13	215	59
Future Volume (Veh/h)	27	0	45	22	0	22	91	243	13	13	215	59
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	29	0	49	24	0	24	99	264	14	14	234	64
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											731	
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	780	770	266	780	795	271	298			278		
vC1, stage 1 conf vol	294	294		469	469							
vC2, stage 2 conf vol	486	476		311	326							
vCu, unblocked vol	732	722	184	732	748	271	218			278		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	94	95	100	97	92			99		
cM capacity (veh/h)	452	457	805	447	441	768	1267			1285		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	29	49	48	99	278	14	298
Volume Left	29	0	24	99	0	14	0
Volume Right	0	49	24	0	14	0	64
cSH	452	805	565	1267	1700	1285	1700
Volume to Capacity	0.06	0.06	0.08	0.08	0.16	0.01	0.18
Queue Length 95th (ft)	5	5	7	6	0	1	0
Control Delay (s)	13.5	9.8	12.0	8.1	0.0	7.8	0.0
Lane LOS	B	A	B	A		A	
Approach Delay (s)	11.2		12.0	2.1		0.4	
Approach LOS	B		B				

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	39.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	52	222	246	178	141	19
Future Volume (veh/h)	52	222	246	178	141	19
Number	5	2	6	16	7	14
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	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	57	241	267	193	153	21
Adj No. of Lanes	1	0	1	1	1	1
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	73	0	868	1243	566	505
Arrive On Green	0.04	0.56	0.47	0.47	0.32	0.32
Sat Flow, veh/h	1774	0	1863	1583	1774	1583
Grp Volume(v), veh/h	57	0	267	193	153	21
Grp Sat Flow(s),veh/h/ln	1774	0	1863	1583	1774	1583
Q Serve(g_s), s	2.6	0.0	7.3	2.4	5.3	0.7
Cycle Q Clear(g_c), s	2.6	0.0	7.3	2.4	5.3	0.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	73	0	868	1243	566	505
V/C Ratio(X)	0.78	0.00	0.31	0.16	0.27	0.04
Avail Cap(c_a), veh/h	252	0	868	1243	566	505
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	0.0	13.6	2.1	20.7	19.2
Incr Delay (d2), s/veh	6.7	0.0	0.9	0.3	1.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	3.9	2.7	2.7	0.8
LnGrp Delay(d),s/veh	45.5	0.0	14.5	2.4	21.9	19.4
LnGrp LOS	D		B	A	C	B
Approach Vol, veh/h		57	460		174	
Approach Delay, s/veh		45.5	9.4		21.6	
Approach LOS		D	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		50.8		31.0	7.8	43.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		54.1		26.1	11.6	38.1		
Max Q Clear Time (g_c+I1), s		0.0		7.3	4.6	9.3		
Green Ext Time (p_c), s		0.0		0.2	0.0	1.3		

Intersection Summary	
HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	342	0	7	434	0	11
Future Volume (Veh/h)	342	0	7	434	0	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	372	0	8	472	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	106					
pX, platoon unblocked						
vC, conflicting volume			372		624	372
vC1, stage 1 conf vol					372	
vC2, stage 2 conf vol					252	
vCu, unblocked vol			372		624	372
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	98
cM capacity (veh/h)			1183		593	625

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	372	8	236	236	12
Volume Left	0	8	0	0	0
Volume Right	0	0	0	0	12
cSH	1700	1183	1700	1700	625
Volume to Capacity	0.22	0.01	0.14	0.14	0.02
Queue Length 95th (ft)	0	1	0	0	1
Control Delay (s)	0.0	8.1	0.0	0.0	10.9
Lane LOS		A			B
Approach Delay (s)	0.0	0.1			10.9
Approach LOS					B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	255	123	67	316	1	125	3	19	5	10	5
Future Volume (veh/h)	0	255	123	67	316	1	125	3	19	5	10	5
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		0.96	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	0	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	277	134	73	343	1	136	3	21	5	11	5
Adj No. of Lanes	0	2	0	1	2	0	1	1	0	0	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, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	706	331	93	1532	4	703	86	600	198	416	171
Arrive On Green	0.00	0.30	0.30	0.05	0.42	0.42	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	0	2414	1088	1774	3619	11	1391	202	1411	306	977	401
Grp Volume(v), veh/h	0	209	202	73	168	176	136	0	24	21	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1639	1774	1770	1860	1391	0	1613	1685	0	0
Q Serve(g_s), s	0.0	6.2	6.5	2.7	4.0	4.0	3.5	0.0	0.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.2	6.5	2.7	4.0	4.0	4.0	0.0	0.6	0.5	0.0	0.0
Prop In Lane	0.00		0.66	1.00		0.01	1.00		0.88	0.24		0.24
Lane Grp Cap(c), veh/h	0	538	499	93	749	788	703	0	686	784	0	0
V/C Ratio(X)	0.00	0.39	0.40	0.78	0.22	0.22	0.19	0.00	0.03	0.03	0.00	0.00
Avail Cap(c_a), veh/h	0	538	499	204	854	898	703	0	686	784	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.1	18.2	30.9	12.1	12.1	12.0	0.0	11.1	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.1	2.4	5.3	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.3	3.3	1.5	1.9	2.0	1.6	0.0	0.3	0.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	20.2	20.7	36.2	12.3	12.3	12.2	0.0	11.1	11.1	0.0	0.0
LnGrp LOS		C	C	D	B	B	B		B	B		
Approach Vol, veh/h		411			417			160			21	
Approach Delay, s/veh		20.5			16.5			12.0			11.1	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.9	25.2		33.0		33.1		33.0
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9
Max Green Setting (Gmax), s	7.6	* 20		28.1		31.9		28.1
Max Q Clear Time (g_c+I1), s	4.7	8.5		2.5		6.0		6.0
Green Ext Time (p_c), s	0.0	3.2		0.6		4.2		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	270	709	303	352	285	207
Future Volume (veh/h)	270	709	303	352	285	207
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	293	771	329	383	310	225
Adj No. of Lanes	1	1	1	0	1	1
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	326	1306	361	420	337	301
Arrive On Green	0.18	0.70	0.47	0.47	0.19	0.19
Sat Flow, veh/h	1774	1863	771	897	1774	1583
Grp Volume(v), veh/h	293	771	0	712	310	225
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1668	1774	1583
Q Serve(g_s), s	14.5	19.0	0.0	35.6	15.4	12.1
Cycle Q Clear(g_c), s	14.5	19.0	0.0	35.6	15.4	12.1
Prop In Lane	1.00			0.54	1.00	1.00
Lane Grp Cap(c), veh/h	326	1306	0	781	337	301
V/C Ratio(X)	0.90	0.59	0.00	0.91	0.92	0.75
Avail Cap(c_a), veh/h	327	1307	0	781	337	301
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	1.00
Uniform Delay (d), s/veh	35.9	6.9	0.0	22.2	35.7	34.4
Incr Delay (d2), s/veh	25.4	0.5	0.0	16.8	28.8	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	9.8	0.0	19.9	10.3	10.8
LnGrp Delay(d),s/veh	61.3	7.4	0.0	38.9	64.5	43.2
LnGrp LOS	E	A		D	E	D
Approach Vol, veh/h		1064	712		535	
Approach Delay, s/veh		22.2	38.9		55.5	
Approach LOS		C	D		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		67.9		22.0	20.9	47.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		63.1		17.1	16.6	42.1		
Max Q Clear Time (g_c+I1), s		21.0		17.4	16.5	37.6		
Green Ext Time (p_c), s		9.6		0.0	0.0	2.9		

Intersection Summary	
HCM 2010 Ctrl Delay	35.1
HCM 2010 LOS	D



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	0	583	59	0	530
Future Volume (Veh/h)	40	0	583	59	0	530
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	0	634	64	0	576
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						1155
pX, platoon unblocked	0.89					
vC, conflicting volume	1242	666			698	
vC1, stage 1 conf vol	666					
vC2, stage 2 conf vol	576					
vCu, unblocked vol	1210	666			698	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	100			100	
cM capacity (veh/h)	407	459			898	

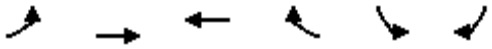
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	43	698	0	576
Volume Left	43	0	0	0
Volume Right	0	64	0	0
cSH	407	1700	1700	1700
Volume to Capacity	0.11	0.41	0.00	0.34
Queue Length 95th (ft)	9	0	0	0
Control Delay (s)	14.9	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	14.9	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	0	131	16	0	16	56	502	23	23	375	27
Future Volume (Veh/h)	42	0	131	16	0	16	56	502	23	23	375	27
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	46	0	142	17	0	17	61	546	25	25	408	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											731	
pX, platoon unblocked	0.85	0.85	0.85	0.85	0.85		0.85					
vC, conflicting volume	1158	1166	422	1280	1168	558	437			571		
vC1, stage 1 conf vol	472	472		680	680							
vC2, stage 2 conf vol	685	693		600	487							
vCu, unblocked vol	1098	1107	234	1242	1109	558	251			571		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	100	79	94	100	97	95			98		
cM capacity (veh/h)	334	346	685	268	348	529	1119			1002		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	46	142	34	61	571	25	437
Volume Left	46	0	17	61	0	25	0
Volume Right	0	142	17	0	25	0	29
cSH	334	685	356	1119	1700	1002	1700
Volume to Capacity	0.14	0.21	0.10	0.05	0.34	0.02	0.26
Queue Length 95th (ft)	12	19	8	4	0	2	0
Control Delay (s)	17.5	11.6	16.2	8.4	0.0	8.7	0.0
Lane LOS	C	B	C	A		A	
Approach Delay (s)	13.1		16.2	0.8		0.5	
Approach LOS	B		C				

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	49.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	62	478	337	444	422	76
Future Volume (veh/h)	62	478	337	444	422	76
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	67	520	366	483	459	83
Adj No. of Lanes	1	1	1	1	1	1
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	86	860	673	1243	751	671
Arrive On Green	0.05	0.46	0.36	0.36	0.42	0.42
Sat Flow, veh/h	1774	1863	1863	1583	1774	1583
Grp Volume(v), veh/h	67	520	366	483	459	83
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1583
Q Serve(g_s), s	3.2	17.8	13.3	8.0	17.2	2.7
Cycle Q Clear(g_c), s	3.2	17.8	13.3	8.0	17.2	2.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	86	860	673	1243	751	671
V/C Ratio(X)	0.78	0.60	0.54	0.39	0.61	0.12
Avail Cap(c_a), veh/h	185	964	673	1243	751	671
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	40.1	17.1	21.6	2.8	19.1	14.9
Incr Delay (d2), s/veh	5.6	0.5	3.1	0.9	3.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	9.2	7.4	10.6	9.2	3.2
LnGrp Delay(d),s/veh	45.7	17.6	24.8	3.8	22.8	15.3
LnGrp LOS	D	B	C	A	C	B
Approach Vol, veh/h		587	849		542	
Approach Delay, s/veh		20.8	12.8		21.6	
Approach LOS		C	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.2		41.0	8.5	35.7		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		44.1		36.1	8.9	30.8		
Max Q Clear Time (g_c+I1), s		19.8		19.2	5.2	15.3		
Green Ext Time (p_c), s		5.0		0.8	0.0	4.4		

Intersection Summary	
HCM 2010 Ctrl Delay	17.6
HCM 2010 LOS	B



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	899	0	12	783	0	8
Future Volume (Veh/h)	899	0	12	783	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	977	0	13	851	0	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	106					
pX, platoon unblocked			0.79		0.79	0.79
vC, conflicting volume			977		1428	977
vC1, stage 1 conf vol					977	
vC2, stage 2 conf vol					452	
vCu, unblocked vol			841		1410	841
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	96
cM capacity (veh/h)			627		276	244

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	977	13	426	426	9
Volume Left	0	13	0	0	0
Volume Right	0	0	0	0	9
cSH	1700	627	1700	1700	244
Volume to Capacity	0.57	0.02	0.25	0.25	0.04
Queue Length 95th (ft)	0	2	0	0	3
Control Delay (s)	0.0	10.9	0.0	0.0	20.3
Lane LOS		B			C
Approach Delay (s)	0.0	0.2			20.3
Approach LOS					C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	723	161	23	574	9	194	15	87	6	4	3
Future Volume (veh/h)	0	723	161	23	574	9	194	15	87	6	4	3
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		0.96	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	0	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	786	175	25	624	10	211	16	95	7	4	3
Adj No. of Lanes	0	2	0	1	2	0	1	1	0	0	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, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1003	223	39	1558	25	704	97	575	353	198	128
Arrive On Green	0.00	0.35	0.35	0.02	0.44	0.44	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	0	2957	638	1774	3563	57	1402	233	1384	658	477	310
Grp Volume(v), veh/h	0	486	475	25	310	324	211	0	111	14	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1732	1774	1770	1850	1402	0	1617	1444	0	0
Q Serve(g_s), s	0.0	16.6	16.6	0.9	8.1	8.1	3.2	0.0	2.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	16.6	16.6	0.9	8.1	8.1	6.1	0.0	2.9	2.9	0.0	0.0
Prop In Lane	0.00		0.37	1.00		0.03	1.00		0.86	0.50		0.21
Lane Grp Cap(c), veh/h	0	619	606	39	774	809	704	0	671	679	0	0
V/C Ratio(X)	0.00	0.78	0.78	0.64	0.40	0.40	0.30	0.00	0.17	0.02	0.00	0.00
Avail Cap(c_a), veh/h	0	619	606	105	834	872	704	0	671	679	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	19.7	19.7	32.8	13.0	13.0	13.2	0.0	12.4	11.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	9.6	9.8	6.2	0.3	0.3	0.2	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.7	9.6	0.5	3.9	4.1	2.7	0.0	1.3	0.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	29.3	29.5	39.0	13.3	13.3	13.5	0.0	12.6	11.7	0.0	0.0
LnGrp LOS		C	C	D	B	B	B		B	B		
Approach Vol, veh/h		961			659			322			14	
Approach Delay, s/veh		29.4			14.3			13.2			11.7	
Approach LOS		C			B			B			B	

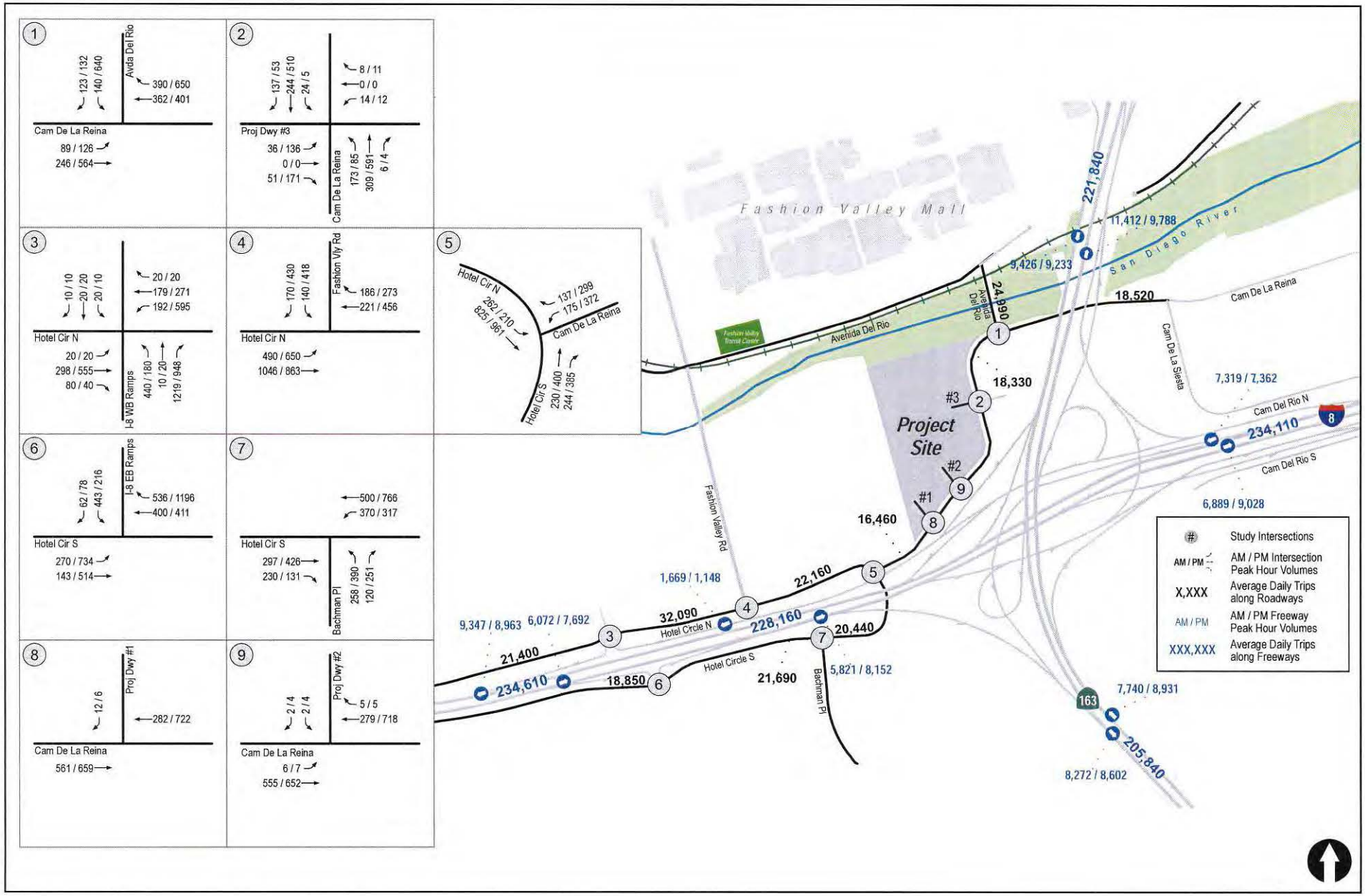
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	5.9	28.8		33.0		34.7		33.0
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9
Max Green Setting (Gmax), s	4.0	* 24		28.1		31.9		28.1
Max Q Clear Time (g_c+I1), s	2.9	18.6		4.9		10.1		8.1
Green Ext Time (p_c), s	0.0	3.5		1.3		9.8		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	21.5
HCM 2010 LOS	C

Notes

APPENDIX G

HORIZON YEAR 2035 FACTORING WORKSHEETS



LINSCOTT LAW & GREENSPAN engineers

N:\2095\Figures\November 2014
Date: 11/13/14

Figure 11-5

Year 2035 (Horizon Year) With Project Traffic Volumes

UNION TRIBUNE

INT #6

$$Y2035 = V_E \cdot 1.4 + V_{OP}$$

(AM) $NLT_{2035} = NLT_E \cdot 1.4 + NLT_{OP} = 129 \cdot 1.4 + 1 = 182$

$$n = \frac{AADT_{2035} - AADT_E}{AADT_E}$$

$$n = \frac{18520 - 13150}{13150} = 0.4 \rightarrow 40\%$$

RIVER SCENE

- DRIVEWAY NOT SCALED

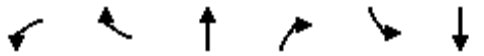
APPENDIX H

HORIZON YEAR 2035 WITHOUT PROJECT SYNCHRO WORKSHEETS

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	262	825	230	244	175	137
Future Volume (veh/h)	262	825	230	244	175	137
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	276	868	242	257	184	144
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	320	1384	411	437	231	206
Arrive On Green	0.18	0.74	0.51	0.51	0.13	0.13
Sat Flow, veh/h	1774	1863	813	863	1774	1583
Grp Volume(v), veh/h	276	868	0	499	184	144
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1676	1774	1583
Q Serve(g_s), s	11.7	17.3	0.0	16.2	7.8	6.7
Cycle Q Clear(g_c), s	11.7	17.3	0.0	16.2	7.8	6.7
Prop In Lane	1.00			0.52	1.00	1.00
Lane Grp Cap(c), veh/h	320	1384	0	848	231	206
V/C Ratio(X)	0.86	0.63	0.00	0.59	0.80	0.70
Avail Cap(c_a), veh/h	496	1569	0	848	347	309
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	1.00
Uniform Delay (d), s/veh	30.7	4.8	0.0	13.4	32.6	32.2
Incr Delay (d2), s/veh	5.9	0.4	0.0	3.0	4.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	8.8	0.0	8.0	4.0	5.9
LnGrp Delay(d),s/veh	36.7	5.2	0.0	16.4	36.7	33.8
LnGrp LOS	D	A		B	D	C
Approach Vol, veh/h		1144	499		328	
Approach Delay, s/veh		12.8	16.4		35.4	
Approach LOS		B	B		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		62.3		15.0	18.3	44.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		65.1		15.1	21.6	39.1		
Max Q Clear Time (g_c+I1), s		19.3		9.8	13.7	18.2		
Green Ext Time (p_c), s		8.5		0.3	0.3	7.2		

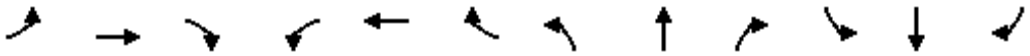
Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	0	494	76	0	304
Future Volume (Veh/h)	2	0	494	76	0	304
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	537	83	0	330
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						1155
pX, platoon unblocked						
vC, conflicting volume	908	578			620	
vC1, stage 1 conf vol	578					
vC2, stage 2 conf vol	330					
vCu, unblocked vol	908	578			620	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	501	515			960	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	2	620	0	330
Volume Left	2	0	0	0
Volume Right	0	83	0	0
cSH	501	1700	1700	1700
Volume to Capacity	0.00	0.36	0.00	0.19
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	12.2	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	12.2	0.0	0.0	
Approach LOS	B			

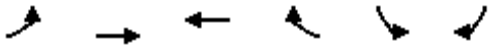
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	2	51	4	0	3	173	309	7	11	244	137
Future Volume (Veh/h)	36	2	51	4	0	3	173	309	7	11	244	137
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	39	2	55	4	0	3	188	336	8	12	265	149
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											731	
pX, platoon unblocked	0.91	0.91	0.91	0.91	0.91		0.91					
vC, conflicting volume	1078	1084	340	1061	1154	340	414			344		
vC1, stage 1 conf vol	364	364		716	716							
vC2, stage 2 conf vol	715	720		345	438							
vCu, unblocked vol	1039	1044	230	1020	1121	340	312			344		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	99	93	99	100	100	84			99		
cM capacity (veh/h)	317	324	739	304	295	702	1141			1215		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	41	55	7	188	344	12	414
Volume Left	39	0	4	188	0	12	0
Volume Right	0	55	3	0	8	0	149
cSH	318	739	402	1141	1700	1215	1700
Volume to Capacity	0.13	0.07	0.02	0.16	0.20	0.01	0.24
Queue Length 95th (ft)	11	6	1	15	0	1	0
Control Delay (s)	18.0	10.3	14.1	8.8	0.0	8.0	0.0
Lane LOS	C	B	B	A		A	
Approach Delay (s)	13.6		14.1	3.1		0.2	
Approach LOS	B		B				

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	44.8%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	89	246	362	390	140	123
Future Volume (veh/h)	89	246	362	390	140	123
Number	5	2	6	16	7	14
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	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	97	267	393	424	152	134
Adj No. of Lanes	1	0	1	1	1	1
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	124	0	920	1202	471	420
Arrive On Green	0.07	0.62	0.49	0.49	0.27	0.27
Sat Flow, veh/h	1774	0	1863	1583	1774	1583
Grp Volume(v), veh/h	97	0	393	424	152	134
Grp Sat Flow(s),veh/h/ln	1774	0	1863	1583	1774	1583
Q Serve(g_s), s	4.5	0.0	11.3	7.3	5.7	5.7
Cycle Q Clear(g_c), s	4.5	0.0	11.3	7.3	5.7	5.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	124	0	920	1202	471	420
V/C Ratio(X)	0.78	0.00	0.43	0.35	0.32	0.32
Avail Cap(c_a), veh/h	269	0	920	1202	471	420
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	0.0	13.5	3.3	24.6	24.5
Incr Delay (d2), s/veh	4.0	0.0	1.5	0.8	1.8	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	6.2	7.0	3.0	5.6
LnGrp Delay(d),s/veh	42.0	0.0	15.0	4.1	26.4	26.5
LnGrp LOS	D		B	A	C	C
Approach Vol, veh/h		97	817		286	
Approach Delay, s/veh		42.0	9.3		26.4	
Approach LOS		D	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		56.2		27.0	10.2	46.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		58.1		22.1	12.6	41.1		
Max Q Clear Time (g_c+I1), s		0.0		7.7	6.5	13.3		
Green Ext Time (p_c), s		0.0		0.4	0.1	2.4		

Intersection Summary	
HCM 2010 Ctrl Delay	16.1
HCM 2010 LOS	B



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	364	22	34	750	2	5
Future Volume (Veh/h)	364	22	34	750	2	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	383	23	36	789	2	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	106					
pX, platoon unblocked						
vC, conflicting volume			406		861	394
vC1, stage 1 conf vol					394	
vC2, stage 2 conf vol					466	
vCu, unblocked vol			406		861	394
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	99
cM capacity (veh/h)			1149		489	605

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	406	36	394	394	7
Volume Left	0	36	0	0	2
Volume Right	23	0	0	0	5
cSH	1700	1149	1700	1700	567
Volume to Capacity	0.24	0.03	0.23	0.23	0.01
Queue Length 95th (ft)	0	2	0	0	1
Control Delay (s)	0.0	8.2	0.0	0.0	11.4
Lane LOS		A			B
Approach Delay (s)	0.0	0.4			11.4
Approach LOS					B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	307	153	94	430	1	182	4	27	5	10	5
Future Volume (veh/h)	0	307	153	94	430	1	182	4	27	5	10	5
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		0.96	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	0	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	334	166	102	467	1	198	4	29	5	11	5
Adj No. of Lanes	0	2	0	1	2	0	1	1	0	0	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, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	671	326	130	1559	3	697	83	600	196	412	170
Arrive On Green	0.00	0.29	0.29	0.07	0.43	0.43	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	0	2384	1113	1774	3623	8	1391	195	1416	308	972	400
Grp Volume(v), veh/h	0	256	244	102	228	240	198	0	33	21	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1634	1774	1770	1861	1391	0	1612	1681	0	0
Q Serve(g_s), s	0.0	8.2	8.5	3.9	5.8	5.8	5.9	0.0	0.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.2	8.5	3.9	5.8	5.8	6.4	0.0	0.8	0.5	0.0	0.0
Prop In Lane	0.00		0.68	1.00		0.00	1.00		0.88	0.24		0.24
Lane Grp Cap(c), veh/h	0	518	478	130	762	801	697	0	683	777	0	0
V/C Ratio(X)	0.00	0.49	0.51	0.78	0.30	0.30	0.28	0.00	0.05	0.03	0.00	0.00
Avail Cap(c_a), veh/h	0	518	478	171	797	838	697	0	683	777	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	20.1	20.2	31.3	12.8	12.8	13.2	0.0	11.6	11.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.4	3.8	11.6	0.2	0.2	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.5	4.3	2.3	2.8	3.0	2.5	0.0	0.4	0.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	23.4	24.0	42.8	13.0	13.0	13.4	0.0	11.7	11.6	0.0	0.0
LnGrp LOS		C	C	D	B	B	B		B	B		
Approach Vol, veh/h		500			570			231			21	
Approach Delay, s/veh		23.7			18.3			13.2			11.6	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	9.4	25.2		34.0		34.6		34.0
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9
Max Green Setting (Gmax), s	6.6	* 20		29.1		30.9		29.1
Max Q Clear Time (g_c+I1), s	5.9	10.5		2.5		7.8		8.4
Green Ext Time (p_c), s	0.0	3.7		0.9		5.5		0.8

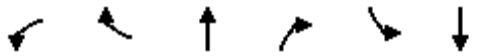
Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	210	961	400	385	372	299
Future Volume (veh/h)	210	961	400	385	372	299
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	221	1012	421	405	392	315
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	258	1245	405	390	389	347
Arrive On Green	0.15	0.67	0.47	0.47	0.22	0.22
Sat Flow, veh/h	1774	1863	858	826	1774	1583
Grp Volume(v), veh/h	221	1012	0	826	392	315
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1684	1774	1583
Q Serve(g_s), s	10.6	34.4	0.0	41.1	19.1	16.9
Cycle Q Clear(g_c), s	10.6	34.4	0.0	41.1	19.1	16.9
Prop In Lane	1.00			0.49	1.00	1.00
Lane Grp Cap(c), veh/h	258	1245	0	795	389	347
V/C Ratio(X)	0.86	0.81	0.00	1.04	1.01	0.91
Avail Cap(c_a), veh/h	318	1307	0	795	389	347
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	1.00
Uniform Delay (d), s/veh	36.3	10.5	0.0	23.0	34.0	33.1
Incr Delay (d2), s/veh	14.7	3.5	0.0	42.6	47.5	25.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	18.7	0.0	28.4	14.4	16.1
LnGrp Delay(d),s/veh	51.0	14.0	0.0	65.6	81.5	59.0
LnGrp LOS	D	B		F	F	E
Approach Vol, veh/h		1233	826		707	
Approach Delay, s/veh		20.7	65.6		71.5	
Approach LOS		C	E		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		63.1		24.0	17.1	46.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		61.1		19.1	15.6	41.1		
Max Q Clear Time (g_c+I1), s		36.4		21.1	12.6	43.1		
Green Ext Time (p_c), s		11.9		0.0	0.1	0.0		

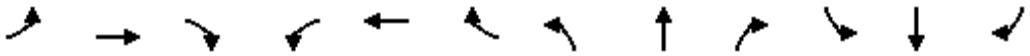
Intersection Summary	
HCM 2010 Ctrl Delay	47.1
HCM 2010 LOS	D



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	93	11	669	12	0	688
Future Volume (Veh/h)	93	11	669	12	0	688
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	101	12	727	13	0	748
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						1155
pX, platoon unblocked	0.81					
vC, conflicting volume	1482	734			740	
vC1, stage 1 conf vol	734					
vC2, stage 2 conf vol	748					
vCu, unblocked vol	1477	734			740	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	70	97			100	
cM capacity (veh/h)	340	420			867	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	113	740	0	748
Volume Left	101	0	0	0
Volume Right	12	13	0	0
cSH	347	1700	1700	1700
Volume to Capacity	0.33	0.44	0.00	0.44
Queue Length 95th (ft)	35	0	0	0
Control Delay (s)	20.3	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	20.3	0.0	0.0	
Approach LOS	C			

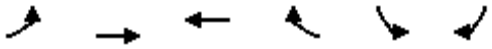
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	0	171	8	0	11	85	591	2	2	510	53
Future Volume (Veh/h)	136	0	171	8	0	11	85	591	2	2	510	53
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	148	0	186	9	0	12	92	642	2	2	554	58
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											731	
pX, platoon unblocked	0.78	0.78	0.78	0.78	0.78		0.78					
vC, conflicting volume	1425	1415	583	1571	1443	643	612			644		
vC1, stage 1 conf vol	587	587		827	827							
vC2, stage 2 conf vol	838	828		744	616							
vCu, unblocked vol	1403	1391	319	1591	1427	643	357			644		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	46	100	67	94	100	97	90			100		
cM capacity (veh/h)	273	292	560	161	270	473	934			941		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	148	186	21	92	644	2	612
Volume Left	148	0	9	92	0	2	0
Volume Right	0	186	12	0	2	0	58
cSH	273	560	258	934	1700	941	1700
Volume to Capacity	0.54	0.33	0.08	0.10	0.38	0.00	0.36
Queue Length 95th (ft)	74	36	7	8	0	0	0
Control Delay (s)	32.7	14.6	20.2	9.3	0.0	8.8	0.0
Lane LOS	D	B	C	A		A	
Approach Delay (s)	22.6		20.2	1.2		0.0	
Approach LOS	C		C				

Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	59.0%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	126	564	401	650	640	132
Future Volume (veh/h)	126	564	401	650	640	132
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	137	613	436	707	696	143
Adj No. of Lanes	1	1	1	1	1	1
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	169	817	547	1180	801	715
Arrive On Green	0.10	0.44	0.29	0.29	0.45	0.45
Sat Flow, veh/h	1774	1863	1863	1583	1774	1583
Grp Volume(v), veh/h	137	613	436	707	696	143
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1583
Q Serve(g_s), s	6.7	24.5	19.2	18.3	31.5	4.8
Cycle Q Clear(g_c), s	6.7	24.5	19.2	18.3	31.5	4.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	169	817	547	1180	801	715
V/C Ratio(X)	0.81	0.75	0.80	0.60	0.87	0.20
Avail Cap(c_a), veh/h	192	841	547	1180	801	715
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	39.4	20.9	28.9	5.2	22.0	14.7
Incr Delay (d2), s/veh	18.1	3.2	11.5	2.3	12.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	13.2	11.6	17.8	18.0	5.6
LnGrp Delay(d),s/veh	57.5	24.1	40.4	7.5	34.4	15.3
LnGrp LOS	E	C	D	A	C	B
Approach Vol, veh/h		750	1143		839	
Approach Delay, s/veh		30.2	20.0		31.1	
Approach LOS		C	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		43.8		45.0	12.8	31.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		40.1		40.1	9.6	26.1		
Max Q Clear Time (g_c+I1), s		26.5		33.5	8.7	21.2		
Green Ext Time (p_c), s		5.5		1.0	0.0	2.9		

Intersection Summary	
HCM 2010 Ctrl Delay	26.2
HCM 2010 LOS	C



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1193	11	9	1044	7	14
Future Volume (Veh/h)	1193	11	9	1044	7	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1256	12	9	1099	7	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	106					
pX, platoon unblocked			0.72		0.72	0.72
vC, conflicting volume			1268		1830	1262
vC1, stage 1 conf vol					1262	
vC2, stage 2 conf vol					568	
vCu, unblocked vol			1179		1956	1171
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	89
cM capacity (veh/h)			425		172	134

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	1268	9	550	550	22
Volume Left	0	9	0	0	7
Volume Right	12	0	0	0	15
cSH	1700	425	1700	1700	144
Volume to Capacity	0.75	0.02	0.32	0.32	0.15
Queue Length 95th (ft)	0	2	0	0	13
Control Delay (s)	0.0	13.6	0.0	0.0	34.4
Lane LOS		B			D
Approach Delay (s)	0.0	0.1			34.4
Approach LOS					D

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	991	223	32	747	9	263	21	122	6	4	3
Future Volume (veh/h)	0	991	223	32	747	9	263	21	122	6	4	3
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		0.96	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	0	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	1077	242	35	812	10	286	23	133	7	4	3
Adj No. of Lanes	0	2	0	1	2	0	1	1	0	0	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, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1000	223	50	1583	19	698	98	567	329	184	118
Arrive On Green	0.00	0.35	0.35	0.03	0.44	0.44	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	0	2955	640	1774	3578	44	1402	239	1380	608	448	288
Grp Volume(v), veh/h	0	664	655	35	402	420	286	0	156	14	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1732	1774	1770	1853	1402	0	1618	1344	0	0
Q Serve(g_s), s	0.0	23.8	23.8	1.3	11.2	11.2	5.0	0.0	4.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	23.8	23.8	1.3	11.2	11.2	9.3	0.0	4.3	4.3	0.0	0.0
Prop In Lane	0.00		0.37	1.00		0.02	1.00		0.85	0.50		0.21
Lane Grp Cap(c), veh/h	0	618	605	50	783	820	698	0	665	631	0	0
V/C Ratio(X)	0.00	1.07	1.08	0.69	0.51	0.51	0.41	0.00	0.23	0.02	0.00	0.00
Avail Cap(c_a), veh/h	0	618	605	104	831	870	698	0	665	631	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	22.2	22.2	32.8	13.7	13.7	14.4	0.0	13.1	12.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	57.6	61.2	6.2	0.4	0.4	0.4	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	21.4	21.5	0.7	5.5	5.7	4.0	0.0	1.9	0.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	79.8	83.4	39.0	14.2	14.1	14.8	0.0	13.3	12.0	0.0	0.0
LnGrp LOS		F	F	D	B	B	B		B	B		
Approach Vol, veh/h		1319			857			442			14	
Approach Delay, s/veh		81.6			15.2			14.3			12.0	
Approach LOS		F			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	6.3	28.9		32.9		35.2		32.9
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9
Max Green Setting (Gmax), s	4.0	* 24		28.0		32.0		28.0
Max Q Clear Time (g_c+I1), s	3.3	25.8		6.3		13.2		11.3
Green Ext Time (p_c), s	0.0	0.0		1.9		12.6		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	48.3
HCM 2010 LOS	D

Notes

APPENDIX I

HORIZON YEAR 2035 WITH PROJECT SYNCHRO WORKSHEETS
&
FAIR SHARE CALCULATIONS

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	236	825	230	218	208	170
Future Volume (veh/h)	236	825	230	218	208	170
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	248	868	242	229	219	179
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	292	1342	432	408	268	239
Arrive On Green	0.16	0.72	0.50	0.50	0.15	0.15
Sat Flow, veh/h	1774	1863	866	820	1774	1583
Grp Volume(v), veh/h	248	868	0	471	219	179
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1686	1774	1583
Q Serve(g_s), s	10.4	18.6	0.0	14.9	9.1	8.3
Cycle Q Clear(g_c), s	10.4	18.6	0.0	14.9	9.1	8.3
Prop In Lane	1.00			0.49	1.00	1.00
Lane Grp Cap(c), veh/h	292	1342	0	840	268	239
V/C Ratio(X)	0.85	0.65	0.00	0.56	0.82	0.75
Avail Cap(c_a), veh/h	455	1513	0	840	420	375
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	1.00
Uniform Delay (d), s/veh	31.0	5.6	0.0	13.4	31.4	31.1
Incr Delay (d2), s/veh	5.2	0.5	0.0	2.7	3.4	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	9.6	0.0	7.4	4.7	7.1
LnGrp Delay(d),s/veh	36.2	6.1	0.0	16.1	34.9	32.8
LnGrp LOS	D	A		B	C	C
Approach Vol, veh/h		1116	471		398	
Approach Delay, s/veh		12.8	16.1		33.9	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		60.0		16.5	17.0	43.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		62.1		18.1	19.6	38.1		
Max Q Clear Time (g_c+I1), s		20.6		11.1	12.4	16.9		
Green Ext Time (p_c), s		8.1		0.4	0.2	7.0		

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	55	0	507	33	0	326
Future Volume (Veh/h)	55	0	507	33	0	326
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	0	551	36	0	354
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						1155
pX, platoon unblocked						
vC, conflicting volume	923	569			587	
vC1, stage 1 conf vol	569					
vC2, stage 2 conf vol	354					
vCu, unblocked vol	923	569			587	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	100			100	
cM capacity (veh/h)	500	522			988	

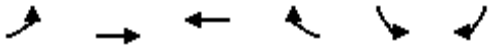
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	60	587	0	354
Volume Left	60	0	0	0
Volume Right	0	36	0	0
cSH	500	1700	1700	1700
Volume to Capacity	0.12	0.35	0.00	0.21
Queue Length 95th (ft)	10	0	0	0
Control Delay (s)	13.2	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	13.2	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	0	51	22	0	22	173	309	13	13	244	137
Future Volume (Veh/h)	36	0	51	22	0	22	173	309	13	13	244	137
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	39	0	55	24	0	24	188	336	14	14	265	149
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											731	
pX, platoon unblocked	0.91	0.91	0.91	0.91	0.91		0.91					
vC, conflicting volume	1104	1094	340	1067	1161	343	414			350		
vC1, stage 1 conf vol	368	368		719	719							
vC2, stage 2 conf vol	736	726		348	442							
vCu, unblocked vol	1063	1052	222	1023	1127	343	304			350		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	93	92	100	97	84			99		
cM capacity (veh/h)	298	320	742	303	293	700	1141			1209		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	39	55	48	188	350	14	414
Volume Left	39	0	24	188	0	14	0
Volume Right	0	55	24	0	14	0	149
cSH	298	742	423	1141	1700	1209	1700
Volume to Capacity	0.13	0.07	0.11	0.16	0.21	0.01	0.24
Queue Length 95th (ft)	11	6	10	15	0	1	0
Control Delay (s)	18.9	10.2	14.6	8.8	0.0	8.0	0.0
Lane LOS	C	B	B	A		A	
Approach Delay (s)	13.8		14.6	3.1		0.3	
Approach LOS	B		B				

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	50.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	101	253	357	390	140	113
Future Volume (veh/h)	101	253	357	390	140	113
Number	5	2	6	16	7	14
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	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	110	275	388	424	152	123
Adj No. of Lanes	1	0	1	1	1	1
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	140	0	890	1183	479	427
Arrive On Green	0.08	0.61	0.48	0.48	0.27	0.27
Sat Flow, veh/h	1774	0	1863	1583	1774	1583
Grp Volume(v), veh/h	110	0	388	424	152	123
Grp Sat Flow(s),veh/h/ln	1774	0	1863	1583	1774	1583
Q Serve(g_s), s	5.0	0.0	11.3	7.6	5.6	5.0
Cycle Q Clear(g_c), s	5.0	0.0	11.3	7.6	5.6	5.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	140	0	890	1183	479	427
V/C Ratio(X)	0.78	0.00	0.44	0.36	0.32	0.29
Avail Cap(c_a), veh/h	316	0	890	1183	479	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	0.0	14.1	3.6	23.9	23.7
Incr Delay (d2), s/veh	3.6	0.0	1.6	0.8	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	6.1	7.1	3.0	5.0
LnGrp Delay(d),s/veh	40.6	0.0	15.7	4.4	25.6	25.4
LnGrp LOS	D		B	A	C	C
Approach Vol, veh/h		110	812		275	
Approach Delay, s/veh		40.6	9.8		25.5	
Approach LOS		D	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		54.9		27.0	10.9	44.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		58.1		22.1	14.6	39.1		
Max Q Clear Time (g_c+I1), s		0.0		7.6	7.0	13.3		
Green Ext Time (p_c), s		0.0		0.4	0.1	2.4		

Intersection Summary	
HCM 2010 Ctrl Delay	16.2
HCM 2010 LOS	B



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	372	0	7	755	0	11
Future Volume (Veh/h)	372	0	7	755	0	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	392	0	7	795	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	106					
pX, platoon unblocked						
vC, conflicting volume			392		804	392
vC1, stage 1 conf vol					392	
vC2, stage 2 conf vol					412	
vCu, unblocked vol			392		804	392
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	98
cM capacity (veh/h)			1163		522	607

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	392	7	398	398	12
Volume Left	0	7	0	0	0
Volume Right	0	0	0	0	12
cSH	1700	1163	1700	1700	607
Volume to Capacity	0.23	0.01	0.23	0.23	0.02
Queue Length 95th (ft)	0	0	0	0	2
Control Delay (s)	0.0	8.1	0.0	0.0	11.1
Lane LOS		A			B
Approach Delay (s)	0.0	0.1			11.1
Approach LOS					B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	317	159	94	422	1	177	4	27	5	10	5
Future Volume (veh/h)	0	317	159	94	422	1	177	4	27	5	10	5
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		0.96	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	0	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	345	173	102	459	1	192	4	29	5	11	5
Adj No. of Lanes	0	2	0	1	2	0	1	1	0	0	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, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	668	328	130	1559	3	697	83	600	196	412	170
Arrive On Green	0.00	0.29	0.29	0.07	0.43	0.43	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	0	2375	1120	1774	3623	8	1391	195	1416	308	972	400
Grp Volume(v), veh/h	0	266	252	102	224	236	192	0	33	21	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1632	1774	1770	1861	1391	0	1612	1681	0	0
Q Serve(g_s), s	0.0	8.6	8.9	3.9	5.7	5.7	5.7	0.0	0.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.6	8.9	3.9	5.7	5.7	6.2	0.0	0.8	0.5	0.0	0.0
Prop In Lane	0.00		0.69	1.00		0.00	1.00		0.88	0.24		0.24
Lane Grp Cap(c), veh/h	0	518	478	130	762	801	697	0	683	777	0	0
V/C Ratio(X)	0.00	0.51	0.53	0.78	0.29	0.29	0.28	0.00	0.05	0.03	0.00	0.00
Avail Cap(c_a), veh/h	0	518	478	171	797	838	697	0	683	777	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	20.2	20.3	31.3	12.8	12.8	13.1	0.0	11.6	11.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.6	4.1	11.6	0.2	0.2	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.7	4.5	2.3	2.8	2.9	2.4	0.0	0.4	0.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	23.8	24.4	42.8	12.9	12.9	13.3	0.0	11.7	11.6	0.0	0.0
LnGrp LOS		C	C	D	B	B	B		B	B		
Approach Vol, veh/h		518			562			225			21	
Approach Delay, s/veh		24.1			18.4			13.1			11.6	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	9.4	25.2		34.0		34.6		34.0
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9
Max Green Setting (Gmax), s	6.6	* 20		29.1		30.9		29.1
Max Q Clear Time (g_c+I1), s	5.9	10.9		2.5		7.7		8.2
Green Ext Time (p_c), s	0.0	3.7		0.8		5.6		0.8

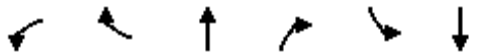
Intersection Summary	
HCM 2010 Ctrl Delay	19.6
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	239	961	400	414	351	278
Future Volume (veh/h)	239	961	400	414	351	278
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	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	252	1012	421	436	369	293
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	248	1285	413	428	357	318
Arrive On Green	0.14	0.69	0.50	0.50	0.20	0.20
Sat Flow, veh/h	1774	1863	824	854	1774	1583
Grp Volume(v), veh/h	252	1012	0	857	369	293
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1678	1774	1583
Q Serve(g_s), s	12.6	33.2	0.0	45.1	18.1	16.3
Cycle Q Clear(g_c), s	12.6	33.2	0.0	45.1	18.1	16.3
Prop In Lane	1.00			0.51	1.00	1.00
Lane Grp Cap(c), veh/h	248	1285	0	841	357	318
V/C Ratio(X)	1.01	0.79	0.00	1.02	1.03	0.92
Avail Cap(c_a), veh/h	248	1285	0	841	357	318
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	1.00
Uniform Delay (d), s/veh	38.7	9.5	0.0	22.5	36.0	35.2
Incr Delay (d2), s/veh	60.9	3.1	0.0	35.9	56.8	30.2
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	18.0	0.0	28.9	14.4	15.8
LnGrp Delay(d),s/veh	99.7	12.5	0.0	58.3	92.7	65.4
LnGrp LOS	F	B		F	F	E
Approach Vol, veh/h		1264	857		662	
Approach Delay, s/veh		29.9	58.3		80.6	
Approach LOS		C	E		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		67.0		23.0	17.0	50.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		62.1		18.1	12.6	45.1		
Max Q Clear Time (g_c+I1), s		35.2		20.1	14.6	47.1		
Green Ext Time (p_c), s		12.7		0.0	0.0	0.0		

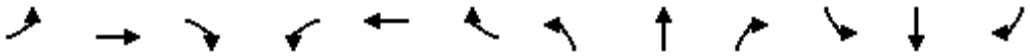
Intersection Summary	
HCM 2010 Ctrl Delay	50.7
HCM 2010 LOS	D



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	0	692	59	0	704
Future Volume (Veh/h)	40	0	692	59	0	704
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	0	752	64	0	765
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						1155
pX, platoon unblocked	0.82					
vC, conflicting volume	1549	784			816	
vC1, stage 1 conf vol	784					
vC2, stage 2 conf vol	765					
vCu, unblocked vol	1560	784			816	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	100			100	
cM capacity (veh/h)	325	393			812	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	43	816	0	765
Volume Left	43	0	0	0
Volume Right	0	64	0	0
cSH	325	1700	1700	1700
Volume to Capacity	0.13	0.48	0.00	0.45
Queue Length 95th (ft)	11	0	0	0
Control Delay (s)	17.8	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	17.8	0.0	0.0	
Approach LOS	C			

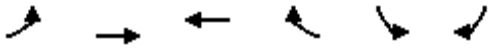
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	0	171	16	0	16	85	591	23	28	510	53
Future Volume (Veh/h)	136	0	171	16	0	16	85	591	23	28	510	53
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	148	0	186	17	0	17	92	642	25	30	554	58
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)											731	
pX, platoon unblocked	0.78	0.78	0.78	0.78	0.78		0.78					
vC, conflicting volume	1486	1494	583	1638	1510	654	612			667		
vC1, stage 1 conf vol	643	643		838	838							
vC2, stage 2 conf vol	843	851		800	672							
vCu, unblocked vol	1482	1492	330	1677	1513	654	367			667		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	39	100	67	88	100	96	90			97		
cM capacity (veh/h)	243	261	558	137	251	466	934			923		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	148	186	34	92	667	30	612
Volume Left	148	0	17	92	0	30	0
Volume Right	0	186	17	0	25	0	58
cSH	243	558	212	934	1700	923	1700
Volume to Capacity	0.61	0.33	0.16	0.10	0.39	0.03	0.36
Queue Length 95th (ft)	90	36	14	8	0	3	0
Control Delay (s)	40.5	14.6	25.2	9.3	0.0	9.0	0.0
Lane LOS	E	B	D	A		A	
Approach Delay (s)	26.1		25.2	1.1		0.4	
Approach LOS	D		D				

Intersection Summary				
Average Delay	6.0			
Intersection Capacity Utilization	59.1%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	118	560	407	650	640	143
Future Volume (veh/h)	118	560	407	650	640	143
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	128	609	442	707	696	155
Adj No. of Lanes	1	1	1	1	1	1
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	159	823	565	1190	796	710
Arrive On Green	0.09	0.44	0.30	0.30	0.45	0.45
Sat Flow, veh/h	1774	1863	1863	1583	1774	1583
Grp Volume(v), veh/h	128	609	442	707	696	155
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1774	1583
Q Serve(g_s), s	6.3	24.2	19.4	17.9	31.8	5.3
Cycle Q Clear(g_c), s	6.3	24.2	19.4	17.9	31.8	5.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	159	823	565	1190	796	710
V/C Ratio(X)	0.81	0.74	0.78	0.59	0.87	0.22
Avail Cap(c_a), veh/h	171	836	565	1190	796	710
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	39.9	20.7	28.5	5.0	22.4	15.1
Incr Delay (d2), s/veh	20.7	3.0	10.4	2.2	12.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	13.0	11.6	18.0	18.3	6.1
LnGrp Delay(d),s/veh	60.7	23.7	38.8	7.2	35.2	15.8
LnGrp LOS	E	C	D	A	D	B
Approach Vol, veh/h		737	1149		851	
Approach Delay, s/veh		30.2	19.3		31.7	
Approach LOS		C	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.4		45.0	12.4	32.0		
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9		
Max Green Setting (Gmax), s		40.1		40.1	8.6	27.1		
Max Q Clear Time (g_c+I1), s		26.2		33.8	8.3	21.4		
Green Ext Time (p_c), s		5.6		1.0	0.0	3.2		

Intersection Summary	
HCM 2010 Ctrl Delay	26.1
HCM 2010 LOS	C



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1199	0	12	1052	0	8
Future Volume (Veh/h)	1199	0	12	1052	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1262	0	13	1107	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	106					
pX, platoon unblocked			0.73		0.73	0.73
vC, conflicting volume			1262		1842	1262
vC1, stage 1 conf vol					1262	
vC2, stage 2 conf vol					580	
vCu, unblocked vol			1172		1970	1172
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	94
cM capacity (veh/h)			430		172	134

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	1262	13	554	554	8
Volume Left	0	13	0	0	0
Volume Right	0	0	0	0	8
cSH	1700	430	1700	1700	134
Volume to Capacity	0.74	0.03	0.33	0.33	0.06
Queue Length 95th (ft)	0	2	0	0	5
Control Delay (s)	0.0	13.6	0.0	0.0	33.5
Lane LOS		B			D
Approach Delay (s)	0.0	0.2			33.5
Approach LOS					D

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	984	219	32	756	9	268	21	122	6	4	3
Future Volume (veh/h)	0	984	219	32	756	9	268	21	122	6	4	3
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		0.96	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	0	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	1070	238	35	822	10	291	23	133	7	4	3
Adj No. of Lanes	0	2	0	1	2	0	1	1	0	0	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, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1002	222	50	1583	19	698	98	567	329	184	118
Arrive On Green	0.00	0.35	0.35	0.03	0.44	0.44	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	0	2961	635	1774	3579	44	1402	239	1380	608	448	288
Grp Volume(v), veh/h	0	658	650	35	406	426	291	0	156	14	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1733	1774	1770	1853	1402	0	1618	1344	0	0
Q Serve(g_s), s	0.0	23.8	23.8	1.3	11.3	11.3	5.2	0.0	4.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	23.8	23.8	1.3	11.3	11.3	9.5	0.0	4.3	4.3	0.0	0.0
Prop In Lane	0.00		0.37	1.00		0.02	1.00		0.85	0.50		0.21
Lane Grp Cap(c), veh/h	0	618	605	50	783	820	698	0	665	631	0	0
V/C Ratio(X)	0.00	1.06	1.07	0.69	0.52	0.52	0.42	0.00	0.23	0.02	0.00	0.00
Avail Cap(c_a), veh/h	0	618	605	104	831	870	698	0	665	631	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	22.2	22.2	32.8	13.8	13.8	14.5	0.0	13.1	12.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	54.7	58.0	6.2	0.5	0.4	0.4	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	20.9	21.0	0.7	5.6	5.9	4.0	0.0	1.9	0.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	76.8	80.1	39.0	14.2	14.2	14.9	0.0	13.3	12.0	0.0	0.0
LnGrp LOS		F	F	D	B	B	B		B	B		
Approach Vol, veh/h		1308			867			447			14	
Approach Delay, s/veh		78.5			15.2			14.3			12.0	
Approach LOS		E			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	6.3	28.9		32.9		35.2		32.9
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9
Max Green Setting (Gmax), s	4.0	* 24		28.0		32.0		28.0
Max Q Clear Time (g_c+I1), s	3.3	25.8		6.3		13.3		11.5
Green Ext Time (p_c), s	0.0	0.0		1.9		12.5		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	46.4
HCM 2010 LOS	D

Notes

Fair Share Calculations

Camino De La Reina between Hotel Circle N. and Driveway 1

$$\text{Percentage of Fair-Share} = \frac{C-B}{C-A} \times 100$$

A = Existing ADT Volumes = 8,886

B = Year 2035 ADT Volumes = 16,460

C = Year 2035 With Project ADT Volumes = 17,017

$$= \frac{17{,}017-16{,}460}{17{,}017-8{,}886} \times 100$$

$$= \frac{557}{8{,}131} \times 100$$

Percentage of Fair-Share = **6.85%**

Fair Share Calculations

Camino De La Reina between Driveway 2 and Avenida Del Rio

$$\text{Percentage of Fair-Share} = \frac{C-B}{C-A} \times 100$$

A = Existing ADT Volumes = 8,886

B = Year 2035 ADT Volumes = 18,330

C = Year 2035 With Project ADT Volumes = 18,489

$$= \frac{18{,}489-18{,}330}{18{,}489-8{,}886} \times 100$$

$$= \frac{519}{9{,}603} \times 100$$

Percentage of Fair-Share = **5.40%**

APPENDIX J

CLIMATE ACTION PLAN TDM CHECKLIST

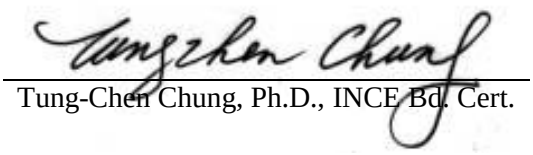
Step 2: CAP Strategies Consistency			
Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
7. *Designated Parking Spaces* If the project includes an employment use in a TPA, would the project provide designated parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles in accordance with the following table? **Number of Required Parking Spaces** / **Number of Designated Parking Spaces** 0-9 / 0 10-25 / 2 26-50 / 4 51-75 / 6 76-100 / 9 101-150 / 11 151-200 / 18 201 and over / At least 10% of total This measure does not cover electric vehicles. See Question 4 for electric vehicle parking requirements. Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces. The required designated parking spaces are to be provided within the overall minimum parking requirement, not in addition to it. Check "N/A" only if the project is a residential project, or if it does not include an employment use in a TPA.	☐	☐	☐
8. *Transportation Demand Management Program* If the project would accommodate over 50 tenant-occupants (employees), would it include a transportation demand management program that would be applicable to existing tenants and future tenants that includes: At least one of the following components: • Parking cash out program • Parking management plan that includes charging employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools • Unbundled parking whereby parking spaces would be leased or sold separately from the rental or purchase fees for the development for the life of the development And at least three of the following components: • Commitment to maintaining an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees • On-site carsharing vehicle(s) or bikesharing • Flexible or alternative work hours • Telework program • Transit, carpool, and vanpool subsidies	☒	☐	☐

Step 2: CAP Strategies Consistency			
Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
• Pre-tax deduction for transit or vanpool fares and bicycle commute costs • Access to services that reduce the need to drive, such as cafes, commercial stores, banks, post offices, restaurants, gyms, or childcare, either onsite or within 1,320 feet (1/4 mile) of the structure/use? Check "N/A" only if the project is a residential project or if it would not accommodate over 50 tenant-occupants (employees).			

NOISE IMPACT ANALYSIS

ALEXAN FASHION VALLEY PROJECT

CITY OF SAN DIEGO, CALIFORNIA



Tung-Chen Chung, Ph.D., INCE Bd. Cert.

LSA

August 2016

NOISE IMPACT ANALYSIS

ALEXAN FASHION VALLEY PROJECT

CITY OF SAN DIEGO, CALIFORNIA

Submitted to:

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Project No. TCC1504

LSA

August 2016

SUMMARY OF FINDINGS

This noise impact analysis has been prepared to evaluate the potential noise impacts on the environment and mitigation measures associated with the development of the Alexan Fashion Valley Project (project) in the City of San Diego (City), California.

The project proposes to construct 236 multifamily dwelling units, 48 residential work lofts units, 3,145 square feet (sf) of restaurant use, 8,150 sf of office use, 2,865 sf of leasing space, and street improvements. The project site is bounded by Camino De La Reina to the west and north, and State Route 163 (SR-163) to the south and east.

The primary existing noise sources in the project area are transportation facilities. Traffic on SR-163, Camino De La Reina, Hotel Circle, Interstate 8 (I-8), Riverwalk Drive, and other local streets in the project vicinity is a steady source of ambient noise in the project vicinity. In addition, aircraft take-offs and landings at the San Diego International Airport southwest of the project site also contribute to the ambient noise in the project area.

Project construction activities will comply with the hours set by the City's Municipal Code. Construction noise levels measured at or beyond the property lines of any property zoned residential shall not exceed an average sound level greater than 75 decibels (dB) during the 12-hour period from 7:00 a.m. to 7:00 p.m. In addition, construction activity is prohibited between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with the exception of Columbus Day and Washington's Birthday, or on Sundays, that would create disturbing, excessive, or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator, in conformance with San Diego Municipal Code Section 59.5.0404. The following project features would be implemented to reduce potential project construction noise impacts on nearby sensitive receptors:

- During all site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between the construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.

Dwelling units fronting SR-163 (and I-8) and Camino De La Reina that would be exposed to exterior noise levels exceeding 65 dBA CNEL (Community Noise Equivalent Level in A-weighted decibels) would have project-designed features implemented to comply with the California Building Code, Title 24, Section 1208A requirements for interior noise in habitable rooms. Air conditioning, a form

of mechanical ventilation, would be implemented for all on-site dwelling units to ensure that windows can remain closed for prolonged periods of time.

Windows with sound transmission class (STC) ratings higher than those provided by standard building construction (STC-24 to STC-28) would be implemented for bedrooms and living rooms along and directly exposed to traffic on SR-163 and/or Camino De La Reina, as shown in Table K, to comply with the City's requirements for interior noise levels.

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LIST OF ABBREVIATIONS AND ACRONYMS

ADT	average daily traffic
Caltrans	California Department of Transportation
CCR	California Code of Regulations
City	City of San Diego
CNEL	Community Noise Equivalent Level
County	County of San Diego
dB	decibels
dBA	A-weighed decibels
EPA	United States Environmental Protection Agency
FHWA	Federal Highway Administration
ft	feet
I-8	Interstate 8
L_{dn}	day-night average level
L_{eq}	equivalent continuous sound level
$L_{eq}(1)$	equivalent continuous sound level over 1 hour
L_{max}	maximum instantaneous noise level
project	Alexan Fashion Valley Project
sf	square feet
SR-163	State Route 163
STC	sound transmission class

INTRODUCTION

This report is intended to satisfy the City of San Diego's (City) requirement for a project-specific final noise impact analysis by examining the short-term and long-term impacts from the Alexan Fashion Valley Project (project) site to the environment and by evaluating the effectiveness of project design features incorporated as part of the project designs to eliminate or minimize these potential noise impacts.

PROJECT DESCRIPTION

The project site is bounded by Camino De La Reina to the west and north, and State Route 163 (SR-163) to the south and east.

Figure 1 illustrates the location and vicinity of the proposed project. Figure 2 illustrates the project's site plan. As shown on Figure 2, access to the project site will be provided via driveways off Camino De La Reina to the west.

The proposed project is a mixed-use development (multiple use development option) comprised of 236 (rental) dwelling units (197,690 square feet [ft]), 48 residential work lofts units (37,099 sf), commercial-restaurant (3,145 sf), commercial-office (8,150 sf), and commercial-leasing office associated with the residential use (2,865 sf). The structure is a hybrid of four stories that are type iii-a wood-framed over a type 1a concrete podium and a five-story type iii-a wood-framed building wrapped around a six-story type 1a parking structure. The parking structure contains 404 parking stalls, with an additional 65 stalls on-grade for a total of 469 parking stalls (468 stalls required).

The project's design relates to the unique contextual constraints of the property, including the irregular shape, proximity to the freeway, location within a floodplain, and proximity to the San Diego River Park. Residential-work units that have been coupled with a shared open-office amenity to create a creative work environment have been aligned along the freeway frontage to buffer the more acoustically sensitive residential units. The residential units open to west- and south-facing courtyards, with the sole exception of the east-facing courtyard. This courtyard is wrapped by a single loaded residential wing on the freeway edge to shield the courtyard from freeway noise. The landscape design will be influenced by its proximity to the riparian ecology of the San Diego River, including plant selections and hardscape materials. The project provides accessible points of connection to alternate modes of transportation, including bus, light rail transit, and bike paths.

The proposed project will meet the City's Municipal Code open space requirements per Section 143.0420 (City of San Diego 2016b) and the private open space required per Section 131.0455(c) (City of San Diego 2016a).

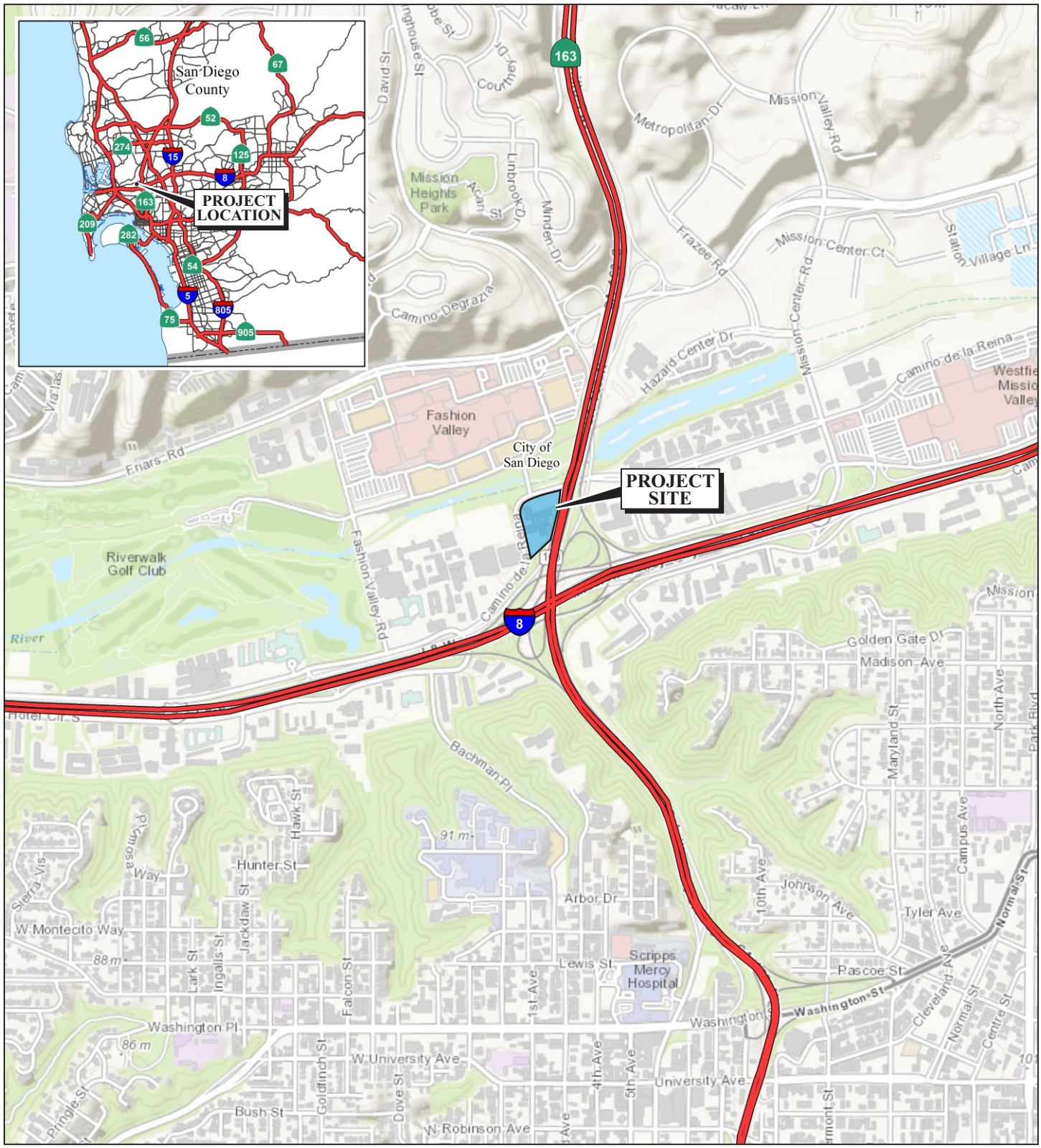

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FIGURE 1

N

0 750 1500

FEET

SOURCE: ESRI

Mission Valley Apartments

Project Location

I:\TCC1504\G\Location.cdr (8/3/15)

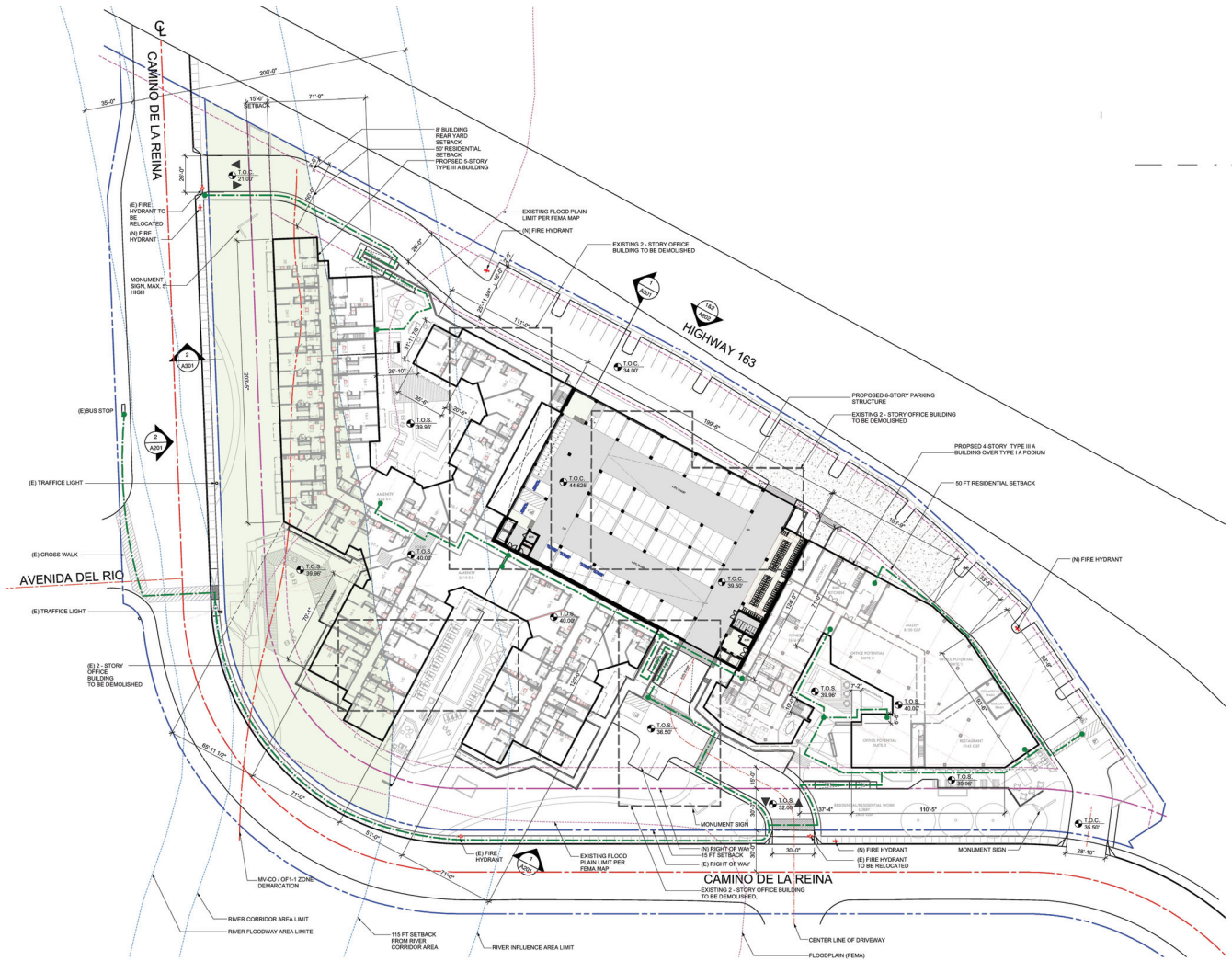

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FIGURE 2

N

0 60 120

FEET

SOURCE: Design ARC

Mission Valley Apartments

Site Plan

I:\TCC1504\G\Site Plan.cdr (8/26/2016)

METHODOLOGY RELATED TO NOISE IMPACT ASSESSMENT

Evaluation of noise impacts associated with the proposed project includes the following:

- Determination of the noise impacts associated with short-term construction of the proposed project on adjacent noise-sensitive uses;
- Determination of the long-term mobile and stationary sources noise impacts on noise-sensitive uses adjacent to the project site;
- Determination of the project design features required to reduce short-term and long-term project noise impacts on adjacent noise-sensitive land uses; and
- Determination of the project design features required to eliminate or minimize noise impacts from surrounding sources to ensure project compliance with the City's General Plan.

This noise impact analysis utilizes the City's noise standards, including the City's General Plan Noise Element (updated June 2015), City of San Diego CEQA Significance Determination Thresholds, and San Diego Municipal Code Chapter 5 Article 9.5: Noise Abatement and Control, as thresholds against which potential noise impacts are evaluated.

CHARACTERISTICS OF SOUND

Sound is increasing in the environment and can affect quality of life. Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave, resulting in the tone's range from high to low. Loudness is the strength of a sound and describes a noisy or quiet environment; it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves, combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

MEASUREMENT OF SOUND

Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units, such as inches or pounds, decibels (dB) are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 dB are 10 times more intense than 1 dB, 20 dB are 100 times more intense, and 30 dB are 1,000 times more intense. Thirty decibels (30 dB) represent 1,000 times more acoustic energy than 1 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 (very quiet) to 100 A-weighted decibels (dBA) (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source, such as highway traffic or railroad operations, the sound decreases 3 dB for each doubling of distance in a hard site environment. Line source noise, when produced within a relatively flat environment with absorptive vegetation, decreases 4.5 dB for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoyance effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and Community Noise Equivalent Level (CNEL) or the day-night average level (L_{dn}) based on A-weighted decibels. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within 1 dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

Other noise rating scales of importance when assessing the annoyance factor include the maximum instantaneous noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of maximum levels denoted by L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions and addresses the annoyance aspects of intermittent noise.

Another noise scale often used together with the L_{max} in noise ordinances for enforcement purposes is noise standards in terms of percentile noise levels. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first is audible impacts, which refers to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3 dB or greater, since this level has been found to be barely perceptible in exterior

environments. The second category, potentially audible, refers to a change in the noise level between 1 dB and 3 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise level of less than 1 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

PHYSIOLOGICAL EFFECTS OF NOISE

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 160 to 165 dBA will result in dizziness or loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying, less developed areas.

Table A lists definitions of acoustical terms, Table B shows common sound levels and their noise sources, and Table C shows the City of San Diego land use noise compatibility guidelines.

Table A: Definitions of Acoustical Terms

Term	Definition
Decibel, dB	A unit of level that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.
L_{02}, L_{08}, L_{50}, L_{90}	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.
Equivalent Continuous Noise Level, L_{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dB to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dB to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L_{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dB to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L_{max}, L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time, usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: *Handbook of Acoustical Measurement and Noise Control* (Harris 1991).

Table B: Common Sound Levels and Their Noise Sources

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	
Near Freeway Auto Traffic	70	Moderately Loud	Reference Level
Average Office	60	Quiet	½ as loud
Suburban Street	55	Quiet	
Light Traffic; Soft Radio Music in Apartment	50	Quiet	¼ as loud
Large Transformer	45	Quiet	
Average Residence without Stereo Playing	40	Faint	⅛ as loud
Soft Whisper	30	Faint	
Rustling Leaves	20	Very Faint	
Human Breathing	10	Very Faint	Threshold of Hearing
	0	Very Faint	

Source: Compiled by LSA Associates, Inc. (2004).

Table C: City of San Diego Land Use Noise Compatibility Guidelines

Land Use Category	Exterior Noise Exposure (dBA CNEL) 60	65	70	75
Parks and Recreational				
Parks, Active and Passive Recreation				
Outdoor Spectator Sports, Golf Courses; Water Recreational Facilities; Indoor Recreation Facilities				
Agricultural				
Crop Raising & Farming; Community Gardens, Aquaculture, Dairies; Horticulture Nurseries & Greenhouses; Animal Raising, Maintain & Keeping; Commercial Stables				
Residential				
Single Dwelling Units; Mobile Homes		45		
Multiple Dwelling Units **For uses affected by aircraft noise, refer to Policies NE-D.2. & NE-D.3.*		45	45*	
Institutional				
Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12Educational Facilities; Libraries; Museums; Child Care Facilities		45		
Other Educational Facilities including Vocational/Trade Schools and Colleges and Universities		45	45	
Cemeteries				
Retail Sales				
Building Supplies/Equipment; Food, Beverages & Groceries; Pets & Pet Supplies; Sundries Pharmaceutical, & Convenience Sales; Wearing Apparel & Accessories			50	50
Commercial Services				
Building Services; Business Support; Eating & Drinking; Financial Institutions; Maintenance & Repair; Personal Services; Assembly & Entertainment (includes public and religious assembly); Radio & Television Studios; Golf Course Support			50	50
Visitor Accommodations		45	45	45
Offices				
Business & Professional; Government; Medical, Dental & Health Practitioner; Regional & Corporate Headquarters			50	50
Vehicle and Vehicular Equipment Sales and Services Use				
Commercial or Personal Vehicle Repair & Maintenance; Commercial or Personal Vehicle Sales & Rentals; Vehicle Equipment & Supplies Sales & Rentals; Vehicle Parking				

Table C: City of San Diego Land Use Noise Compatibility Guidelines

Land Use Category	Exterior Noise Exposure (dBA CNEL) 60	65	70	75
Wholesale, Distribution, Storage Use Category				
Equipment & Materials Storage Yards; Moving & Storage Facilities; Warehouse; Wholesale Distribution				
Industrial				
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking & Transportation Terminals; Mining & Extractive Industries				
Research & Development			50	

	Compatible	**Indoor Uses**	Standard construction methods should attenuate exterior noise to an acceptable indoor noise level. Refer to Section I.
		Outdoor Uses	Activities associated with the land use may be carried out.
45, 50	**Conditionally Compatible**	**Indoor Uses**	Building structure must attenuate exterior noise to the indoor noise level indicated by the number (45 or 50) for occupied areas. Refer to Section I.
		Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable. Refer to Section I.
	Incompatible	**Indoor Uses**	New construction should not be undertaken.
		Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.

Source: City of San Diego General Plan, Noise Element (2015).

SETTING

EXISTING SENSITIVE LAND USES IN THE PROJECT AREA

Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to noise. There are no existing noise-sensitive uses located in the immediate vicinity of the project site. The closest noise sensitive receivers are condominiums to the northeast across SR-163 and hotels to the southwest beyond Interstate 8 (I-8). There are commercial uses to the west of the project site across Camino De La Reina, to the north across Riverwalk Drive beyond the San Diego River, and to the east across SR-163.

EXISTING NOISE ENVIRONMENT IN THE PROJECT AREA

Ambient Noise Survey

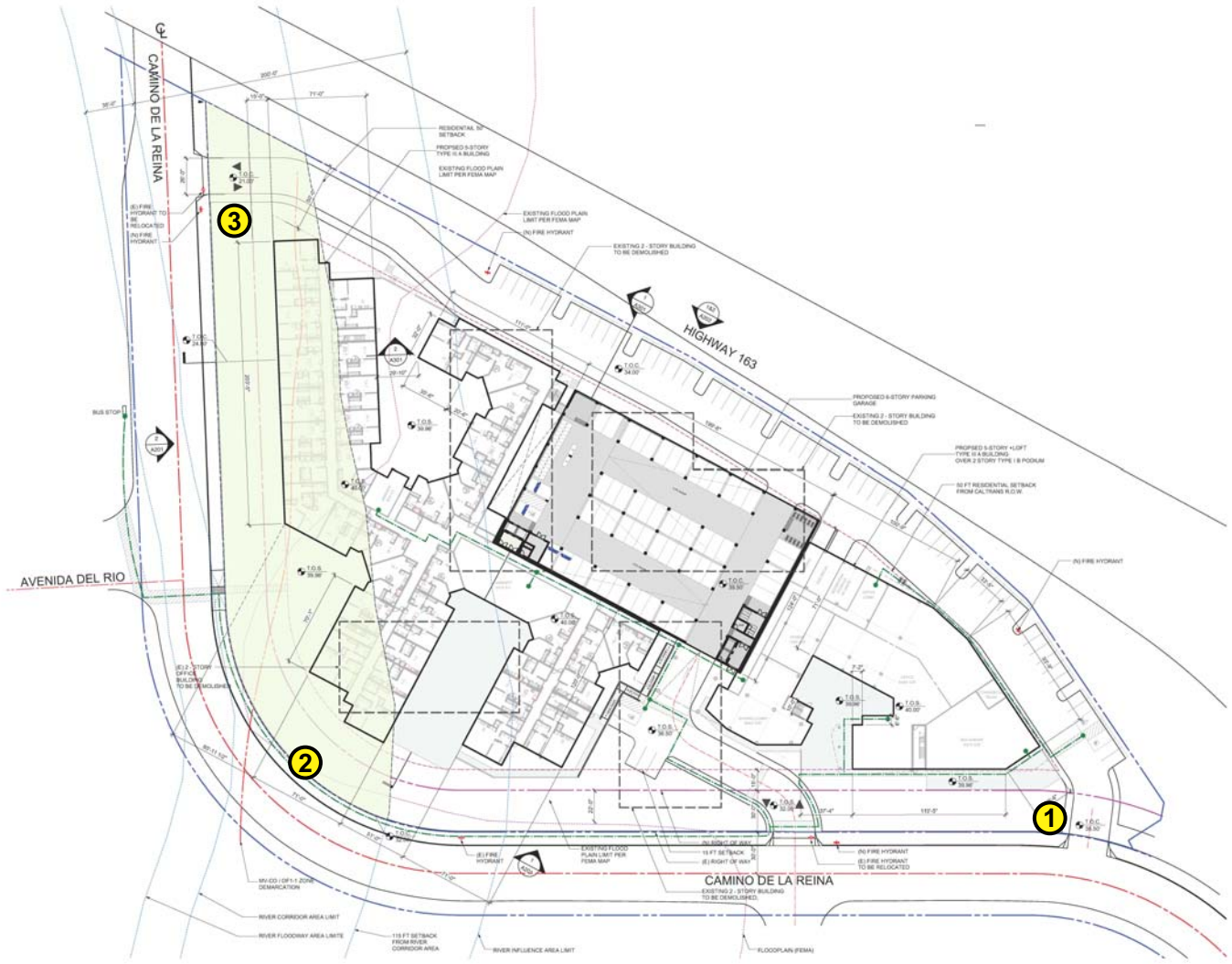
An ambient noise survey was conducted on the project site near the western boundary along Hotel Circle, at the southern end and northern end of the project site, on July 31, 2015. Another ambient noise measurement was conducted near the northeastern project boundary along Camino De La Reina and SR-163. Table D lists the short-term ambient noise monitoring results. Table E describes the physical locations of the noise level measurements. Ambient noise sources in the project area include vehicular traffic on local streets and State highway. As shown in Table D, ambient traffic noise level ranges from 61.7 dBA at Site 2 (where it is farthest from SR-163) to 68.2 dBA at Site 3 (where it is closest to SR-163). It should be noted that ambient noise levels measured over a short period of time (L_{eq}) represent a snapshot in time of the noise environment, and should not be confused with the 24-hour weighted average noise level of the CNEL. Figure 3 depicts these noise monitoring locations.

Existing Airport Noise

The San Diego International Airport is located southwest of the project site. Based on the noise contour map in the San Diego International Airport Land Use Compatibility Plan (San Diego County Regional Airport Authority 2014), the project site is located in an area outside the 60 dBA CNEL contours.

Existing Traffic Noise

The primary existing noise sources in the project area are transportation facilities. Traffic on Cabrillo Freeway/SR-163, I-8, Camino De La Reina, and Avenida del Rio in the project vicinity is the source of ambient noise. The existing (2015) average daily traffic (ADT) volumes for roadway segments in the project vicinity are obtained from the *Focused Traffic Impact Analysis* prepared for the proposed project (Urban Systems Associates, Inc. 2016). The ADT volumes for SR-163 and I-8 in the project area were obtained from the California Department of Transportation (Caltrans) website for the



LSA

FIGURE 3

LEGEND

1 Noise Monitoring Location

N

0 60 120

FEET

SOURCE: Design ARC

Mission Valley Apartments

Noise Monitoring Locations

I:\TCC1504\G\Noise Monitoring Locs.cdr (5/31/2016)

Table D: Short-Term Ambient Noise Monitoring Results

Monitor No.	Date	Start Time	Duration	dBA L_{eq}
M-1	7/31/2015	10:18 AM	20 minutes	66.2
M-2	7/31/2015	10:51 AM	20 minutes	61.7
M-3	7/31/2015	11:33 PM	20 minutes	68.2

Source: Compiled by LSA Associates, Inc. (August 2015).
dBA = A-weighted decibels
L_{eq} = equivalent continuous noise level

Table E: Physical Location of Noise Level Measurements

Monitor No.	Location Description	Noise Sources
M-1	Southern project boundary along Camino De La Reina	• Traffic on SR-163, Camino De La Reina, and I-8 • 5 cars entering the driveway to the project site • Project site about at grade with Camino De La Reina
M-2	Northwestern project boundary along Camino De La Reina; meter is 11 ft from edge of street	• Traffic on Camino De La Reina and SR-163 • Project site is approximately 6 ft above Camino De La Reina
M-3	The northeastern project boundary along Camino De La Reina	• Traffic on SR-163 and Camino De La Reina • SR-163 is approximately 12 ft above the project site, which is approximately 3–4 ft above Camino De La Reina

Source: Compiled by LSA Associates, Inc. (August 2015).
ft = feet
I-8 = Interstate 8
SR-163 = State Route 163

existing (2015) condition. These freeway traffic volumes were then projected to the opening year (2018) conditions, assuming a 1 percent annual growth along freeway segments in the project vicinity.

Guidelines provided in the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108) were used to evaluate highway traffic-related noise conditions in the vicinity of the project site. This approach requires various parameters including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values.

Traffic noise is dependent on vehicle mix and distribution over the daytime and nighttime hours. Traffic on these roads is typical of roadway traffic in the County of San Diego (County). Based on the County traffic count history,[1] local traffic mix has a day/night distribution of 87 percent/13 percent in the County. In addition, a daily vehicle mix of 89.5/8.5/2 for automobiles/medium trucks/heavy-duty trucks was used for State Street, Grape Street, Columbia Street, and Hawthorn Street as a worst-case scenario. Combining these two mixes, LSA obtained a distribution of vehicle percentages for day/evening/night as 66.75/11.12/11.63 for automobiles, 6.99/0.40/1.11 for medium trucks, and

[1] Personal communication with Maria Lopez, (858) 874-4030.

1.69/0.05/0.26 for heavy-duty trucks.[1] In order to be consistent, these day/night and vehicle mixes are used for all roadway segments in the project vicinity. For traffic on the SR-163 and I-8, vehicle mix was obtained for automobiles/medium trucks/heavy trucks, respectively, from the Caltrans website. When combined with the County's day/night distribution for vehicles, the percentages for each vehicle category and day/evening/night distribution can be estimated.

Table F provides the existing (2015) traffic noise levels adjacent to roadway segments in the project vicinity. These noise levels represent worst-case scenarios, which assume that no shielding is provided between the traffic and the location where the noise contours are drawn. The specific assumptions used in developing these noise levels and the model printouts are provided in Appendix A. Traffic noise is generally moderate to high along existing street segments in the project vicinity and is high on SR-163 and I-8.

Table F: Existing Traffic Noise Levels

Roadway Segment	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane
Camino De La Reina south of project driveways	8,900	< 50	60	130	65.5
Camino De La Reina from project driveways to Avenida Del Rio	8,900	< 50	60	130	65.5
Camino De La Reina from Avenida Del Rio to Camino De La Siesta	13,700	< 50	80	173	67.4
I-8	209,200	483	1,037	2,233	81.8
SR-163	148,000	409	878	1,890	80.8

Source 1: Compiled by LSA Associates, Inc. (May 2016)
Source 2: *Focused Traffic Impact Analysis* (Urban System Associates, Inc. 2016).
Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information. Noise modeling performed using San Diego County traffic mix. I-8 and SR-163 traffic data from Caltrans for 2013.
ADT = average daily traffic
Caltrans = California Department of Transportation
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
ft = feet
I-8 = Interstate 8
SR-163 = State Route 163

THRESHOLDS OF SIGNIFICANCE

A project will normally have a significant noise-related effect on the environment if it will substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of the community in which it is located. In addition, the project is required to be consistent with the City's General Plan for land use policies. The applicable noise standards governing the project site are the criteria in the City's General Plan Noise Element (updated June 2015), City of San Diego CEQA Significance Determination Thresholds, and San Diego Municipal Code, Chapter 5, Article 9.5: Noise Abatement and Control.

[1] Personal communication with Maria Lopez, (858) 874-4030.

City of San Diego General Plan Noise Element

The City has adopted traffic noise significance thresholds for various land uses. Noise standards for the proposed project are as follows:

- Noise-sensitive uses such as public parks and multifamily residences are considered significantly impacted by traffic noise in excess of 65 dBA CNEL in their required exterior usable space. For interior noise-sensitive space, the noise standard is 45 dBA CNEL per Title 24 of the California Code of Regulations (CCR).
- Commercial/restaurant uses are considered significantly impacted by traffic noise in excess of 75 dBA CNEL. There is no interior noise standard established for commercial/restaurant uses.
- New single-family and multifamily uses that are subject to airport noise above 45 dBA CNEL in the interior noise sensitive space would be considered significant.
- Temporary construction noise that exceeds 75 dBA $L_{eq}(1)$ (equivalent continuous noise level over 1 hour in A-weighted decibels) at a sensitive receptor would be considered significant. Construction noise levels measured at or beyond the property lines of any property zoned residential shall not exceed an average sound level greater than 75 dB during the 12-hour period from 7:00 a.m. to 7:00 p.m. In addition, construction activity is prohibited between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with the exception of Columbus Day and Washington's Birthday, or on Sundays, that would create disturbing, excessive, or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator, in conformance with San Diego Municipal Code Section 59.5.0404.

City of San Diego Noise Abatement Contract Compliance Ordinance

The City of San Diego Municipal Code, Chapter 5, Article 9.5, Noise Abatement Contract Compliance, governs stationary sources and operational noise. The applicable sound level is a function of the time of day and land use zone. Sound levels are measured at the property line of the noise source. As stated in the City's Noise Abatement Contract Compliance ordinance:

> It shall be unlawful for any person to cause noise by any means to the extent that the one-hour average sound level exceeds the applicable limit given in the following table [Table G], at any location in the City of San Diego on or beyond the boundaries of the property on which the noise is produced. The noise subject to these limits is that part of the total noise at the specified location that is due solely to the action of said person.

Table G: Applicable Noise Limits

Zone	Time	1-Hour Average Sound Level, dBA $L_{eq}(1)$
Single-Family Residential	7:00 a.m.–7:00 p.m.	50
	7:00 p.m.–10:00 p.m.	45
	10:00 p.m.–17:00 a.m.	40
Multifamily Residential (up to a maximum density of 1/2000)	7:00 a.m.–7:00 p.m.	55
	7:00 p.m.–10:00 p.m.	50
	10:00 p.m.–7:00 a.m.	45
All other Residential	7:00 a.m.–7:00 p.m.	60
	7:00 p.m.–10:00 p.m.	55
	10:00 p.m.–7:00 a.m.	50
Commercial	7:00 a.m.–7:00 p.m.	65
	7:00 p.m.–10:00 p.m.	60
	10:00 p.m.–7:00 a.m.	60
Industrial or Agricultural	Anytime	75

Source: Municipal Code, Chapter 5, Article 9.5: Noise Abatement Contract Compliance (City of San Diego 2000).
dBA = A-weighted decibels
Leq(1) = equivalent continuous noise level over 1 hour

Table G summarizes the applicable hourly noise limits for various receiving land uses. For the proposed project, the multifamily dwellings and work loft units are subject to the noise standards of 55 dBA $L_{eq}(1)$ from 7:00 a.m. to 7:00 p.m., 50 dBA $L_{eq}(1)$ from 7:00 p.m. to 10:00 p.m., and 45 dBA $L_{eq}(1)$ from 10:00 p.m. to 7:00 a.m. The commercial/restaurant uses are subject to the noise standards of 65 dBA $L_{eq}(1)$ from 7:00 a.m. to 7:00 p.m., 60 dBA $L_{eq}(1)$ from 7:00 p.m. to 10:00 p.m., and 60 dBA $L_{eq}(1)$ from 10:00 p.m. to 7:00 a.m.

The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts.

California Building Code

Title 24 CCR, also referred to as the California Building Code, requires that interior noise levels in multifamily residences caused by exterior sources not exceed 45 dBA CNEL. This is also considered a desirable noise exposure standard for single-family residences. Title 24 CCR further specifies that if exterior noise levels exceed 60 dBA CNEL for multifamily residential uses, an acoustical analysis shall be required to demonstrate that the design would achieve the prescribed interior noise standard.

The noise level of 65 dBA CNEL is also the threshold where noise interferes noticeably with the ability to carry on a quiet conversation. Therefore, exterior noise exposure of 65 dBA CNEL is the most common noise/land use compatibility guideline for new residential construction in California.

PROJECT IMPACTS

CONSTRUCTION NOISE

Short-term noise impacts would be associated with excavation, grading, and erecting of buildings on site during construction of the proposed project. Construction-related, short-term noise levels would be higher than existing ambient noise levels in the project area today but would no longer occur once construction of the project is completed.

Two types of short-term noise impacts could occur during the construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally increase noise levels on access roads leading to the site. There will be a relatively high single-event noise exposure potential at a maximum level of 87 dBA L_{max} with trucks passing at 50 feet (ft). However, the projected construction traffic will be small when compared to the existing traffic volumes on Camino De La Reina, SR-163, and I-8, and its associated noise level change over an hour or a day will not be perceptible. Therefore, short-term construction-related worker commutes and equipment transport noise impacts would not be substantial.

The second type of short-term noise impact is related to noise generated during excavation, grading, and construction on the project site. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table H lists maximum noise levels recommended for noise impact assessments for typical construction equipment based on a distance of 50 ft between the equipment and a noise receptor, taken from the FHWA Roadway Construction Noise Model (FHWA 2006). Typical maximum composite noise levels range up to 90 dBA L_{max} at 50 ft during the noisiest construction phases. The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels, because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings.

Construction of the proposed project is expected to require the use of scrapers, bulldozers, and water and pickup trucks. This equipment would be used on site. Based on Table H, the maximum noise level generated by each scraper on the proposed project site is assumed to be 84 dBA L_{max} at 50 ft from the scraper. Each bulldozer would also generate 82 dBA L_{max} at 50 ft. The maximum noise level generated by water and pickup trucks is approximately 76 dBA L_{max} at 50 ft from these vehicles.

Table H: RCNM Default Noise Emission Reference Levels and Usage Factors

Equipment Description	Impact Device?	Acoustical Usage Factor	Spec. 721.560 L_{max} at 50 ft (dBA, slow)	Actual Measured L_{max} at 50 ft (dBA, slow)	No. of Actual Data Samples (Count)
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Blasting	Yes	N/A	94	N/A	0
Chain Saw	No	20	85	84	46
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Mixer Truck	No	40	85	79	40
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19
Generator (< 25 kVA, VMS Signs)	No	50	70	73	74
Grader	No	40	85	N/A	0
Jackhammer	Yes	20	85	89	133
Paver	No	50	85	77	9
Pickup Truck	No	40	55	75	1
Pneumatic Tools	No	50	85	85	90
Pumps	No	50	77	81	17
Refrigerator Unit	No	100	82	73	3
Rock Drill	No	20	85	81	3
Roller	No	20	85	80	16
Sand Blasting (single nozzle)	No	20	85	96	9
Scraper	No	40	85	84	12
Tractor	No	40	84	N/A	0
Vacuum Excavator (Vac-Truck)	No	40	85	85	149
Vibratory Concrete Mixer	No	20	80	80	1
Vibratory Pile Driver	No	20	95	101	44
Warning Horn	No	5	85	83	12
Welder/Torch	No	40	73	74	5

Source: *Highway Construction Noise Handbook* (FHWA 2006).
dBA = A-weighted decibels
FHWA = Federal Highway Administration
ft = foot/feet
kVA = kilovolt-amperes
L_{max} = maximum instantaneous noise level
N/A = Not Applicable
RCNM = Roadway Construction Noise Model
VMS = variable message sign

Each doubling of a sound source with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, the worst-case combined noise level at each individual residence during this phase of construction would be 90 dBA L_{max} at a distance of 50 ft from the active construction area.

Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to noise. There are no existing noise-sensitive uses located in the immediate vicinity of the project site. The closest noise-sensitive receivers are condominiums to the northeast across SR-163 and hotels to the southwest beyond I-8. There are commercial uses to the west of the project site across Camino De La Reina, to the north across Riverwalk Drive beyond the San Diego River, and to the east across

SR-163. There are freeway traffic and intervening structures between these receptors and the project site. These closest noise-sensitive receptors would not be subject to short-term noise exceeding 70 dBA L_{max} that is generated by traffic on these freeways near the project boundary. In addition, this range of maximum construction noise would occur only intermittently when construction activity occurs near the project's boundary, and it would not exceed the 75 dBA $L_{eq}(1)$ noise standard over a 1-hour period for construction noise. Therefore, compliance with the construction hours and maximum noise level specified in the City's Municipal Code Noise Abatement and Control ordinance would be sufficient for off-site sensitive human receptors.

AIRPORT NOISE IMPACT

The project site is not located near the San Diego International Airport. Aircraft activities contribute very little to the ambient noise levels in the project vicinity. Based on the noise contour map in the San Diego International Airport Land Use Compatibility Plan (San Diego County Regional Airport Authority 2014), the project site is located in an area outside the 60 dBA CNEL contours.

TRAFFIC NOISE IMPACT

The primary existing noise sources in the project area are transportation facilities. Traffic on local streets in the project vicinity is the source of ambient noise. The 2015 and opening year (2018) ADT volumes for roadway segments in the project vicinity are obtained from the *Focused Traffic Impact Analysis* prepared for the proposed project (Urban Systems Associates, Inc. 2016) and the Caltrans website. The freeway traffic volumes were then projected to the future opening year (2018) conditions, assuming a 1 percent annual growth along roadway segments in the project vicinity.

Guidelines provided in the FHWA Highway Traffic Noise Prediction Model (FHWA RD-77-108) were used to evaluate highway traffic-related noise conditions in the vicinity of the project site. Tables I and J provide the existing (2015) and opening year (2018) traffic noise levels for the without and with project scenarios along roadway segments in the project vicinity. These noise levels represent worst-case scenarios, which assume that no shielding is provided between the traffic and the location where the noise contours are drawn. The specific assumptions used in developing these noise levels and the model printouts are provided in Appendix A. Traffic noise continues to be low to moderate along street segments in the project vicinity.

Potential Off-Site Noise Impacts

As a rule of thumb, a doubling of the traffic volumes would increase the traffic noise level by 3 dBA. Based on traffic volumes presented in Tables I and J and the number of daily vehicle trips generated by the proposed project, it is shown that project-related traffic volumes would add 0.3 dBA or less on these roadways adjacent to the project site. Therefore, project-related traffic noise level increases would be less than 3 dBA increase along roadway segments in the project vicinity. This range of traffic noise level increases is not perceptible by the human ear in an outdoor environment. In addition, traffic noise levels along roadway segments in the project vicinity would continue to remain moderate to high. Therefore, no significant project-related traffic noise impacts would occur for off-site land uses in the project vicinity. The proposed project would not result in significant traffic noise impacts on the environment surrounding the project site and its vicinity.

Table I: Existing (2015) Traffic Noise Levels Without and With Project

Roadway Segment	Existing (2015) Without Project					Existing (2015) With Project						
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Change in ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase over Existing CNEL (dBA) 50 ft from Centerline of Outermost Lane
Camino De La Reina from south of project site to project driveways	8,900	< 50	60	130	65.5	9,500	600	< 50	63	135	65.8	0.3
Camino De La Reina from project driveways to Avenida Del Rio	8,900	< 50	60	130	65.5	9,100	200	< 50	61	131	65.6	0.1
Camino De La Reina from Avenida Del Rio to Camino De La Siesta	13,700	< 50	80	173	67.4	13,800	100	< 50	81	173	67.4	0
I-8	209,200	483	1,037	2,233	81.8	209,200	0	483	1,037	2,218	81.8	0
SR-163	148,000	409	878	1,890	80.8	148,000	0	409	878	1,877	80.7	0

Source 1: Compiled by LSA Associates, Inc. (May 2016).
Source 2: *Focused Traffic Impact Analysis* (Urban Systems Associates, Inc. 2016).
Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information. Noise modeling performed using San Diego County traffic mix. I-8 and SR-163 traffic data from Caltrans for 2013.
ADT = average daily traffic
Caltrans = California Department of Transportation
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
ft = feet
I-8 = Interstate 8
SR-163 = State Route 163

Table J: Opening Year (2018) Traffic Noise Levels Without and With Project

Roadway Segment	Opening Year (2018) Without Project					Opening Year (2018) With Project						
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Change in ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase over Existing CNEL (dBA) 50 ft from Centerline of Outermost Lane
Camino De La Reina from south of project site to project driveways	10,600	< 50	68	145	66.3	11,100	500	< 50	70	150	66.5	0.2
Camino De La Reina from project driveways to Avenida Del Rio	10,100	< 50	66	141	66.0	10,300	200	< 50	66	143	66.1	0.1
Camino De La Reina from Avenida Del Rio to Camino De La Siesta	16,300	< 50	90	194	68.1	16,500	200	< 50	91	195	68.2	0.1
I-8	213,400	489	1,051	2,263	81.9	213,400	0	489	1,051	2,263	81.9	0.0
SR-163	150,900	414	889	1,914	80.8	150,900	0	414	889	1,914	80.8	0.0

Source 1: Compiled by LSA Associates, Inc. (May 2016).
Source 2: *Focused Traffic Impact Analysis* (Urban Systems Associates, Inc. 2016).
Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information. Noise modeling performed using San Diego County traffic mix. I-8 and SR-163 traffic data from Caltrans for 2013.
ADT = average daily traffic
Caltrans = California Department of Transportation
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
ft = feet
I-8 = Interstate 8
SR-163 = State Route 163

Potential On-Site Noise Impacts

The noise evaluation is based on the project's preliminary building footprints. Since there would be outdoor active use areas such as patios/balconies associated with each of the dwelling units, they would be potentially impacted by exterior noise levels exceeding the 65 dBA CNEL noise standard. However, implementation of the project design features that would avoid dwelling units exposed to traffic noise level above 65 dBA CNEL to have any outdoor active use areas such as balconies along and directly facing SR-163 would ensure that the proposed project is consistent with the City's General Plan land use policies regarding noise.

Receivers along the North-South Leg of Camino De La Reina. Based on the preliminary site plan, except for portions of the proposed restaurant, office, and leasing office buildings, none of the proposed residential units along the north-south leg of Camino de la Reina would have their outdoor living areas within this noise impact zone. Therefore, the proposed land uses are consistent with the City's General Plan.

Receivers along East-West Leg of Camino De La Reina. Similarly, based on Table J, any outdoor active use areas proposed along the northern boundary of the project site along the east-west leg of Camino De La Reina that are within 91 ft of the roadway centerline would be potentially exposed to exterior noise levels higher than 65 dBA CNEL and exceeding the City's 65 dBA CNEL noise standard for noise-sensitive uses. Based on the preliminary site plan, none of the proposed residential units would have their outdoor living areas within this noise impact zone. Therefore, the proposed land uses are consistent with the City's General Plan.

Receivers along SR-163 and I-8. Outdoor active use areas on the eastern and southern portions of the project site along SR-163 that are within 889 ft of the SR-163 centerline would be exposed to exterior noise levels higher than 65 dBA CNEL.

The eastern portion of the on-site development is approximately 150 ft from the centerline of SR-163 and would potentially be exposed to traffic noise levels reaching 77 dBA CNEL. This portion of the project site is also potentially exposed to traffic noise level exceeding 65 dBA CNEL for areas within 1,051 ft of the I-8 centerline. Since the project site is approximately 700 ft (southern portion) to 1,200 ft (northern portion) from the I-8 centerline, the contribution of I-8 traffic noise to the on-site noise levels would range from 68 dBA CNEL to the southern portion (restaurant/office) to 64 dBA CNEL to the northern portion (residential uses) when no intervening structural shielding is considered. Assuming a worst-case scenario that no structural shielding is provided for the I-8 traffic to the project site, contribution of the I-8 traffic noise level to the project site would result in a combined ground-floor exterior noise level of 77.5 dBA CNEL on the southern portion and 77.2 dBA CNEL on the northern portion of the project site.

Since there are no outdoor living/dining areas associated with the proposed restaurant and/or office building on the southern portion of the project site that are within the impact zone of the SR-163/I-8 traffic, these proposed commercial land uses would be consistent with the City's General Plan land use policies regarding noise.

The multifamily dwelling units with outdoor living areas (patios and balconies) facing east or south that would be directly exposed to traffic on SR-163/I-8 would experience traffic noise levels exceeding the City's 65 dBA CNEL exterior noise standard for residential uses without any noise attenuation schemes implemented. However, SR-163 is approximately 12 ft higher in elevation than the building pad on the project site in this portion of the project site. The elevation difference functions as a noise barrier for the ground-floor receivers in their patios or other noise-sensitive use areas. It is estimated that the elevation difference would provide a minimum of 12 dBA in noise reduction for the ground-floor receivers at these dwelling units. Therefore, exterior noise level would be reduced to 65 dBA CNEL or lower for the ground-floor receivers, and they would be consistent with the City's General Plan land use policies regarding noise.

For upper level receivers, it is estimated the receivers would not benefit as much from the edge of freeway shielding with only a portion of the reductions received by the ground-floor receivers. However, there are no balconies associated with dwelling units on the upper floors of the buildings that are directly adjacent to the SR-163/I-8 traffic noise. Therefore, no significant traffic noise impacts would occur and no mitigation measures are required.

Title 24 CCR—known as the California Building Code—contains standards for allowable interior noise levels associated with exterior noise sources (California Building Code 1998). The standards apply to new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family residences.

The California Building Code standards state that:

> Interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either the Day-Night Average Sound Level (L_{dn}) or the Community Noise Equivalent Level (CNEL), consistent with the noise element of the local general plan. Worst-case noise levels, either existing or future, shall be used as the basis for determining compliance with [these standards]. Future noise levels shall be predicted for a period of at least 10 years from the time of building permit application.

Based on United States Environmental Protection Agency (EPA) Protective Noise Levels (EPA 1978), with windows or doors open, interior noise levels at the interior spaces of the dwelling units with bedrooms and/or living rooms fronting the streets would potentially exceed the 45 dBA CNEL (i.e., 70 dBA - 12 dBA = 68 dBA) interior noise standard. With windows closed, interior noise levels in the interior spaces of the dwelling units with bedrooms and/or living rooms fronting the streets would also exceed the 45 dBA CNEL (70 dBA - 24 dBA = 46 dBA) standard for noise-sensitive uses.

Therefore, windows with sound transmission class (STC) ratings higher than those provided by standard building construction (STC-24 to STC-28) would be implemented as part of the project design features for these dwelling units adjacent to the SR-163. In addition, air conditioning, a form of mechanical ventilation, would be installed for dwelling units directly exposed to traffic noise. Because the proposed project would provide air conditioning as a standard feature, and windows with STC ratings sufficient to provide building exterior-to-interior noise attenuation would be implemented for the building facade exposed to exterior noise exceeding 69 dBA CNEL (thereby achieving the goal of meeting the 45 dBA CNEL interior noise standard identified in the City's General Plan), the proposed project would be consistent with the General Plan land use policies regarding noise. Table K lists the projected exterior noise levels and the minimum STC ratings recommended for windows associated with bedrooms and living rooms in the respective areas. It should be noted that the south-facing interior dwelling units (i.e., second row dwelling units from the north along SR-163) with direct line-of-sight to traffic on SR-163/I-6 are also recommended to have windows upgrade as shown in Table K for the front-row dwelling units, due to traffic noise coming through the opening to the east. For other interior dwelling units, due to the limited direct exposure to traffic noise from SR-163, with the front row dwelling units functioning as noise barriers providing at least 5 dBA in noise reduction when the line of sight is blocked, traffic noise levels would be reduced to 65 dBA or lower and they would be consistent with the City's General Plan land use policies regarding noise.

As a rule of thumb, it takes a doubling of the noise source strength to increase the noise level by 3 dBA. Since the interior dwelling units would be exposed to only a small segment of the traffic on SR-163, the estimated traffic noise level inside this opening in the courtyard would be lower than those that are directly exposed to a much larger segment of SR-163. Noise reduction due to the limited exposure could result in a reduction of 5 dBA or more since the reduction in the number of vehicles on SR-163 would be high and only a small portion of the total traffic volume would be accounted for the traffic noise exposure inside this opening in the courtyard. Even with the reflected traffic noise inside the opening in the courtyard, which would be a small portion of the traffic noise energy entering this opening, the estimated increase in traffic noise as a result of reflection would be less than 1 dBA and would be more than offset by the shielding reduction provided by the front row dwelling units, which would be 5 dBA or more. Therefore, the so-called echoing effect through the opening in the courtyard associated with the residential building would not result in any substantial noise effects based on the above analysis.

Table K: Minimum STC Ratings for Windows at Bedrooms and Living Rooms

Street	Floor	Exterior Noise Level (dBA CNEL)	Minimum STC Rating
Camino de la Reina, North-South Leg	Ground Floor	64[1]	STC-24
	Second Floor	64	STC-24
	Third Floor and Above	64	STC-24
Camino De La Reina, East-West Leg	Ground Floor	64[2]	STC-24
	Second Floor	64	STC-24
	Third Floor and Above	64	STC-24
SR-163/I-8	Ground Floor	65[3]	STC-28
	Second Floor	77[4]	STC-36
	Third Floor and Above	77	STC-36

Source: Compiled by LSA Associates, Inc. (May 2016).

[1] West-facing along Hotel Circle.

[2] West-facing along Camino De La Reina.

[3] East-facing/south-facing along SR-163.

[4] Include the second row from north along SR-163 that are the south-facing interior dwelling units, which are at the north end of the building opening.

CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
I-8 = Interstate 8
SR-163 = State Route 163
STC = sound transmission class

PROJECT DESIGN FEATURES

CONSTRUCTION IMPACTS

Construction activities must comply with the hours set by the City's Municipal Code. Construction noise levels measured at or beyond the property lines of any property zoned residential shall not exceed an average sound level greater than 75 dB during the 12-hour period from 7:00 a.m. to 7:00 p.m. In addition, construction activity is prohibited between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with exception of Columbus Day and Washington's Birthday, or on Sundays, that would create disturbing, excessive, or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator, in conformance with San Diego Municipal Code Section 59.5.0404.

The project would comply with the City's Municipal Code construction hours, and would not result in any significant construction noise impacts. The following project design features will be implemented to further reduce potential construction noise impacts on nearby sensitive receptors:

1. During all site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
2. The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.
3. The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.

AIRPORT NOISE IMPACT

The project site is outside the 60 dBA CNEL noise contour from the San Diego International Airport, and aircraft noise would not contribute measurably to the 24-hour weighted CNEL noise levels. No additional measures are required for aircraft noise impacts.

TRAFFIC NOISE IMPACTS

Air conditioning, a form of mechanical ventilation, will be installed for all on-site dwelling units to ensure that windows can remain closed for prolonged periods of time.

Windows with STC ratings higher than those provided by standard building construction (STC-24 to STC-28) would be installed as part of the project design features for bedrooms and living rooms along SR-163 as shown in Table K.

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APPENDIX A

FHWA HIGHWAY TRAFFIC NOISE MODEL PRINTOUTS

TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Hotel Circle North/South to Project Driveways
NOTES: Fashion Valley - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.50

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	60.4	129.5	278.8

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Project Driveways to Avenida Del Rio
NOTES: Fashion Valley - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.50

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	60.4	129.5	278.8

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Avenida Del Rio to Camino De La Siesta
NOTES: Fashion Valley - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13700 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.37

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	80.3	172.6	371.6

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: I-8 Freeway
NOTES: Fashion Valley - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 209200 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.34	12.54	9.32
M-TRUCKS	2.09	0.12	0.25
H-TRUCKS	0.29	0.01	0.04

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 81.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
482.6	1037.2	2233.1	4809.6

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: SR-163 Freeway
NOTES: Fashion Valley - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 148000 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.64	12.43	9.23
M-TRUCKS	2.50	0.14	0.31
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 80.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
408.8	877.8	1889.6	4069.6

TABLE Existing with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Hotel Circle North/South to Project Driveways
NOTES: Fashion Valley - Existing with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	63.0	135.3	291.1

TABLE Existing with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Project Driveways to Avenida Del Rio
NOTES: Fashion Valley - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.59

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	61.3	131.5	282.9

TABLE Existing with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Avenida Del Rio to Camino De La Siesta
NOTES: Fashion Valley - Existing with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13800 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.40

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL 70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	80.7	173.4	373.4

TABLE Existing with Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: I-8 Freeway
NOTES: Fashion Valley - Existing with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 209200 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.34	12.54	9.32
M-TRUCKS	2.09	0.12	0.25
H-TRUCKS	0.29	0.01	0.04

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 81.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
482.6	1037.2	2233.1	4809.6

TABLE Existing with Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: SR-163 Freeway
NOTES: Fashion Valley - Existing with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 148000 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.64	12.43	9.23
M-TRUCKS	2.50	0.14	0.31
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 80.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
408.8	877.8	1889.6	4069.6

TABLE 2018 Cumulative w/o Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Hotel Circle North/South to Project Driveways
NOTES: Fashion Valley - 2018 Cumulative w/o Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10600 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	67.8	145.5	313.2

TABLE 2018 Cumulative w/o Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Project Driveways to Avenida Del Rio
NOTES: Fashion Valley - 2018 Cumulative w/o Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.05

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	65.6	140.9	303.3

TABLE 2018 Cumulative w/o Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Avenida Del Rio to Camino De La Siesta
NOTES: Fashion Valley - 2018 Cumulative w/o Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.12

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	90.1	193.8	417.2

TABLE 2018 Cumulative w/o Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: I-8 Freeway
NOTES: Fashion Valley - 2018 Cumulative w/o Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 213400 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.34	12.54	9.32
M-TRUCKS	2.09	0.12	0.25
H-TRUCKS	0.29	0.01	0.04

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 81.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
489.0	1051.0	2262.9	4873.7

TABLE 2018 Cumulative w/o Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: SR-163 Freeway
NOTES: Fashion Valley - 2018 Cumulative w/o Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 150900 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.64	12.43	9.23
M-TRUCKS	2.50	0.14	0.31
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 80.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
414.1	889.2	1914.2	4122.6

TABLE 2018 Cumulative with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Hotel Circle North/South to Project Driveways
NOTES: Fashion Valley - 2018 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	69.9	150.0	323.0

TABLE 2018 Cumulative with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Project Driveways to Avenida Del Rio
NOTES: Fashion Valley - 2018 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10300 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	66.5	142.7	307.3

TABLE 2018 Cumulative with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Avenida Del Rio to Camino De La Siesta
NOTES: Fashion Valley - 2018 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16500 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	90.8	195.3	420.6

TABLE 2018 Cumulative with Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: I-8 Freeway
NOTES: Fashion Valley - 2018 Cumulative with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 213400 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.34	12.54	9.32
M-TRUCKS	2.09	0.12	0.25
H-TRUCKS	0.29	0.01	0.04

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 81.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
489.0	1051.0	2262.9	4873.7

TABLE 2018 Cumulative with Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: SR-163 Freeway
NOTES: Fashion Valley - 2018 Cumulative with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 150900 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.64	12.43	9.23
M-TRUCKS	2.50	0.14	0.31
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 80.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
414.1	889.2	1914.2	4122.6

TABLE 2035 Cumulative w/o Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Hotel Circle North/South to Project Driveways
NOTES: Fashion Valley - 2035 Cumulative w/o Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	90.8	195.3	420.6

TABLE 2035 Cumulative w/o Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Project Driveways to Avenida Del Rio
NOTES: Fashion Valley - 2035 Cumulative w/o Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18400 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	97.7	210.1	452.3

TABLE 2035 Cumulative w/o Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Avenida Del Rio to Camino De La Siesta
NOTES: Fashion Valley - 2035 Cumulative w/o Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.70

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	98.4	211.6	455.6

TABLE 2035 Cumulative w/o Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: I-8 Freeway
NOTES: Fashion Valley - 2035 Cumulative w/o Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 252700 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.34	12.54	9.32
M-TRUCKS	2.09	0.12	0.25
H-TRUCKS	0.29	0.01	0.04

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 82.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
547.0	1176.3	2532.7	5455.1

TABLE 2035 Cumulative w/o Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: SR-163 Freeway
NOTES: Fashion Valley - 2035 Cumulative w/o Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 178700 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.64	12.43	9.23
M-TRUCKS	2.50	0.14	0.31
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 81.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
463.1	995.2	2142.5	4614.5

TABLE 2035 Cumulative with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Hotel Circle North/South to Project Driveways
NOTES: Fashion Valley - 2035 Cumulative with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	93.0	200.0	430.8

TABLE 2035 Cumulative with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Project Driveways to Avenida Del Rio
NOTES: Fashion Valley - 2035 Cumulative with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18500 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	98.0	210.8	453.9

TABLE 2035 Cumulative with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: Camino De La Reina from Avenida Del Rio to Camino De La Siesta
NOTES: Fashion Valley - 2035 Cumulative with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18700 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	66.75	11.12	11.63
M-TRUCKS	6.99	0.40	1.11
H-TRUCKS	1.69	0.05	0.26

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	98.7	212.3	457.2

TABLE 2035 Cumulative with Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: I-8 Freeway
NOTES: Fashion Valley - 2035 Cumulative with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 252700 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.34	12.54	9.32
M-TRUCKS	2.09	0.12	0.25
H-TRUCKS	0.29	0.01	0.04

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 82.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
547.0	1176.3	2532.7	5455.1

TABLE 2035 Cumulative with Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/10/2016
ROADWAY SEGMENT: SR-163 Freeway
NOTES: Fashion Valley - 2035 Cumulative with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 178700 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.64	12.43	9.23
M-TRUCKS	2.50	0.14	0.31
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 81.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
463.1	995.2	2142.5	4614.5

Air Quality Technical Report

for the

Fashion Valley Apartments Project

Submitted To:

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Carlsbad, CA 92008

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July 6, 2016

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Glossary of Terms and Acronyms

APCD	Air Pollution Control District
AQIA	Air Quality Impact Assessment
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
BACM	Best Available Control Measure
BACT	Best Available Control Technology
BMPs	Best Management Practices
CAA	Clean Air Act (Federal)
CAAQS	California Ambient Air Quality Standard
CALINE4	California Line Source Dispersion Model (Version 4)
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CO	Carbon Monoxide
EPA	United States Environmental Protection Agency
H_2S	Hydrogen Sulfide
HARP	HotSpots Analysis and Reporting Program
HI	Hazard Index
ISCST	Industrial Source Complex Short Term Model
mg/m^3	Milligrams per Cubic Meter
$\mu g/m^3$	Micrograms per Cubic Meter
NAAQS	National Ambient Air Quality Standard
NOx	Oxides of Nitrogen
NO_2	Nitrogen Dioxide
O_3	Ozone
$PM_{2.5}$	Fine Particulate Matter (particulate matter with an aerodynamic diameter of 2.5 microns or less
PM_{10}	Respirable Particulate Matter (particulate matter with an aerodynamic diameter of 10 microns or less
ppm	Parts per million
PSD	Prevention of Significant Deterioration
RAQS	San Diego County Regional Air Quality Strategy
ROCs	Reactive Organic Compounds
ROG	Reactive Organic Gases
SANDAG	San Diego Association of Governments
SCAQMD	South Coast Air Quality Management District
SCAB	South Coast Air Basin
SDAB	San Diego Air Basin
SDAPCD	San Diego County Air Pollution Control District
SIP	State Implementation Plan
SOx	Oxides of Sulfur
SO_2	Sulfur Dioxide
TACs	Toxic Air Contaminants

T-BACT	Toxics Best Available Control Technology
VOCs	Volatile Organic Compounds

1.0 Introduction

This report presents an assessment of potential air quality impacts associated with the Fashion Valley Apartments project in the Mission Valley area of the City of San Diego. The project proposes to construct a mixed-use development, including 284 multi-family dwelling units, 8,480 square feet of commercial office spaces, and 3,275 square feet of restaurant uses at a 4.92-acre site located on Camino de la Reina in Mission Valley. The project proposes the demolition of an existing 69,651-square foot office building.

This Air Quality Technical Report includes an evaluation of existing conditions in the project vicinity, an assessment of potential impacts associated with project construction, and an evaluation of project operational impacts.

2.0 Existing Conditions

The following section provides information about the existing air quality regulatory framework, climate, air pollutants and sources, and sensitive receptors in the project area.

2.1 Regulatory Framework

2.1.1 Federal Regulations

Air quality is defined by ambient air concentrations of specific pollutants identified by the United States Environmental Protection Agency (EPA) to be of concern with respect to health and welfare of the general public. The EPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The CAA required the EPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the EPA established both primary and secondary standards for seven pollutants (called "criteria" pollutants). The seven pollutants regulated under the NAAQS are as follows: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), respirable particulate matter (or particulate matter with an aerodynamic diameter of 10 microns or less, PM_{10}), fine particulate matter (or particulate matter with an aerodynamic diameter of 2.5 microns or less, $PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and the public welfare from air pollutants in the atmosphere. Areas that do not meet the NAAQS for a particular pollutant are considered to be "nonattainment areas" for that pollutant. The SDAB has been designated as a moderate O_3 nonattainment area for the 8-hour O_3 standard. The SDAB is in attainment for the NAAQS for all other criteria pollutants.

The following specific descriptions of health effects for each of the criteria air pollutants associated with project construction and operations are based on EPA (EPA 2007) and the California Air Resources Board (ARB) (ARB 2005).

Ozone. O_3 is considered a photochemical oxidant, which is a chemical that is formed when reactive organic gases (ROG) and oxides of nitrogen (NOx), both by-products of combustion, react in the presence of ultraviolet light. O_3 is considered a respiratory irritant and prolonged exposure can reduce lung function, aggravate asthma and increase susceptibility to respiratory infections. Children and those with existing respiratory diseases are at greatest risk from exposure to O_3.

Carbon Monoxide. CO is a product of combustion, and the main source of CO in the SDAB is from motor vehicle exhaust. CO is an odorless, colorless gas. CO affects red blood cells in the body by binding to hemoglobin and reducing the amount of oxygen that can be carried to the body's organs and tissues. CO can cause health effects to those with cardiovascular disease, and can also affect mental alertness and vision.

Nitrogen Dioxide. NO_2 is also a by-product of fuel combustion, and is formed both directly as a product of combustion and in the atmosphere through the reaction of nitrogen oxide (NO) with oxygen. NO_2 is a respiratory irritant and may affect those with existing respiratory illness, including asthma. NO_2 can also increase the risk of respiratory illness.

Respirable Particulate Matter and Fine Particulate Matter. Respirable particulate matter, or PM_{10}, refers to particulate matter with an aerodynamic diameter of 10 microns or less. Fine particulate matter, or $PM_{2.5}$, refers to particulate matter with an aerodynamic diameter of 2.5 microns or less. Particulate matter in this size range has been determined to have the potential to lodge in the lungs and contribute to respiratory problems. PM_{10} and $PM_{2.5}$ arise from a variety of sources, including road dust, diesel exhaust, combustion, tire and brake wear, construction operations and windblown dust. PM_{10} and $PM_{2.5}$ can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases such as asthma and chronic bronchitis. $PM_{2.5}$ is considered to have the potential to lodge deeper in the lungs.

Sulfur dioxide. SO_2 is a colorless, reactive gas that is produced from the burning of sulfur-containing fuels such as coal and oil, and by other industrial processes. Generally, the highest concentrations of SO_2 are found near large industrial sources. SO_2 is a respiratory irritant that can

cause narrowing of the airways leading to wheezing and shortness of breath. Long-term exposure to SO_2 can cause respiratory illness and aggravate existing cardiovascular disease.

Lead. Pb in the atmosphere occurs as particulate matter. Pb has historically been emitted from vehicles combusting leaded gasoline, as well as from industrial sources. With the phase-out of leaded gasoline, large manufacturing facilities are the sources of the largest amounts of lead emissions. Pb has the potential to cause gastrointestinal, central nervous system, kidney and blood diseases upon prolonged exposure. Pb is also classified as a probable human carcinogen.

2.1.2 State Regulations

California Clean Air Act. The California Clean Air Act was signed into law on September 30, 1988, and became effective on January 1, 1989. The Act requires that local air districts implement regulations to reduce emissions from mobile sources through the adoption and enforcement of transportation control measures. The California Clean Air Act required the SDAB to achieve a five percent annual reduction in ozone precursor emissions from 1987 until the standards are attained. If this reduction cannot be achieved, all feasible control measures must be implemented. Furthermore, the California Clean Air Act required local air districts to implement a Best Available Control Technology rule and to require emission offsets for nonattainment pollutants.

The ARB is the state regulatory agency with authority to enforce regulations to both achieve and maintain air quality in the state. The ARB is responsible for the development, adoption, and enforcement of the state's motor vehicle emissions program, as well as the adoption of the California Ambient Air Quality Standards (CAAQS). The ARB also reviews operations and programs of the local air districts, and requires each air district with jurisdiction over a nonattainment area to develop its own strategy for achieving the NAAQS and CAAQS. The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. The ARB has established the more stringent CAAQS for the six criteria pollutants through the California Clean Air Act of 1988, and also has established CAAQS for additional pollutants, including sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. The SDAB is currently classified as a nonattainment area under the CAAQS

for O_3, $PM_{10,}$ and $PM_{2.5}$. It should be noted that the ARB does not differentiate between attainment of the 1-hour and 8-hour CAAQS for O_3; therefore, if an air basin records exceedances of either standard the area is considered a nonattainment area for the CAAQS for O_3. The SDAB has recorded exceedances of both the 1-hour and 8-hour CAAQS for O_3. The following specific descriptions of health effects for the additional California criteria air pollutants are based on the ARB (ARB 2001).

Sulfates. Sulfates are the fully oxidized ionic form of sulfur. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features. The ARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and due to fact that they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide. H_2S is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. Breathing H_2S at levels above the standard would result in exposure to a very disagreeable odor. In 1984, an ARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance.

Vinyl Chloride. Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants and hazardous waste sites, due to microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness and headaches. Long-

term exposure to vinyl chloride through inhalation and oral exposure causes liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer, in humans.

Visibility Reducing Particles. Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. The CAAQS is intended to limit the frequency and severity of visibility impairment due to regional haze. A separate standard for visibility-reducing particles that is applicable only in the Lake Tahoe Air Basin is based on reduction in scenic quality.

Table 1 presents a summary of the ambient air quality standards adopted by the federal and California Clean Air Acts.

Table 1 Ambient Air Quality Standards						
POLLUTANT	**AVERAGE TIME**	**CALIFORNIA STANDARDS**		**NATIONAL STANDARDS**		
		Concentration	**Method**	**Primary**	**Secondary**	**Method**
Ozone (O_3)	1 hour	0.09 ppm (176 µg/m^3)	Ultraviolet Photometry	--	--	Ethylene Chemiluminescence
	8 hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	
Carbon Monoxide (CO)	8 hours	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Spectroscopy (NDIR)	9 ppm (10 mg/m^3)	--	Non-Dispersive Infrared Spectroscopy (NDIR)
	1 hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm (56 µg/m^3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	--	Gas Phase Chemiluminescence
	1 hour	0.18 ppm (338 µg/m^3)		0.100 ppm (188 µg/m^3)	--	
Sulfur Dioxide (SO_2)	24 hours	0.04 ppm (105 µg/m^3)	Ultraviolet Fluorescence	--	--	Pararosaniline
	3 hours	--		--	0.5 ppm (1300 µg/m^3)	
	1 hour	0.25 ppm (655 µg/m^3)		0.075 ppm (196 µg/m^3)	--	
Respirable Particulate Matter (PM_{10})	24 hours	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	150 µg/m^3	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		--	--	
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	Inertial Separation and Gravimetric Analysis
	24 hours	--		35 µg/m^3	--	
Sulfates	24 hours	25 µg/m^3	Ion Chromatography	--	--	--
Lead	30-day Average	1.5 µg/m^3	Atomic Absorption	--	--	Atomic Absorption
	Calendar Quarter	--		1.5 µg/m^3	1.5 µg/m^3	
	3-Month Rolling Average	--		0.15 µg/m^3	0.15 µg/m^3	
Hydrogen Sulfide	1 hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence	--	--	--
Vinyl Chloride	24 hours	0.010 ppm (26 µg/m^3)	Gas Chromatography	--	--	--

ppm= parts per million; µg/m^3 = micrograms per cubic meter ; mg/m^3= milligrams per cubic meter
Source: California Air Resources Board, www.arb.ca.gov, 2016, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf

Toxic Air Contaminants. In 1983, the California Legislature enacted a program to identify the health effects of Toxic Air Contaminants (TACs) and to reduce exposure to these contaminants to

protect the public health (AB 1807: Health and Safety Code sections 39650-39674). The Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The State of California has identified diesel particulate matter as a TAC. Diesel particulate matter is emitted from on- and off-road vehicles that utilize diesel as fuel. Following identification of diesel particulate matter as a TAC in 1998, the ARB has worked on developing strategies and regulations aimed at reducing the emissions and associated risk from diesel particulate matter. The overall strategy for achieving these reductions is found in the *Risk Reduction Plan to Reduce Particulate Matter from Diesel-Fueled Engines and Vehicles* (State of California 2000). A stated goal of the plan is to reduce the cancer risk statewide arising from exposure to diesel particulate matter by 75 percent by 2010 and by 85 percent by 2020. The *Risk Reduction Plan* contains the following three components:

- New regulatory standards for all new on-road, off-road and stationary diesel-fueled engines and vehicles to reduce diesel particulate matter emissions by about 90 percent overall from current levels;
- New retrofit requirements for existing on-road, off-road and stationary diesel-fueled engines and vehicles where determined to be technically feasible and cost-effective; and
- New Phase 2 diesel fuel regulations to reduce the sulfur content levels of diesel fuel to no more than 15 ppm to provide the quality of diesel fuel needed by the advanced diesel particulate matter emission controls.

A number of programs and strategies to reduce diesel particulate matter are in place or are in the process of being developed as part of the ARB's Diesel Risk Reduction Program. Some of these programs and strategies include those that would apply to construction and operation of the project, including the following:

- In 2001, the ARB adopted new particulate matter and NOx emission standards to clean up large diesel engines that power big-rig trucks, trash trucks, delivery vans and other large vehicles. The new standard for particulate matter takes effect in 2007 and reduces

emissions to 0.01 gram of particulate matter per brake horsepower-hour (g/bhp-hr.) This is a 90 percent reduction from the existing particulate matter standard. New engines will meet the 0.01 g/bhp-hr particulate matter standard with the aid of diesel particulate filters that trap the particulate matter before exhaust leaves the vehicle.

- ARB has worked closely with the United States Environmental Protection Agency (U.S. EPA) on developing new particulate matter and NOx standards for engines used in offroad equipment such as backhoes, graders, and farm equipment. U.S EPA has proposed new standards that would reduce the emission from off-road engines to similar levels to the on-road engines discussed above by 2010 – 2012. These new engine standards were adopted as part of the Clean Air Nonroad Diesel Final Rule in 2004. Once approved by U.S. EPA, ARB will adopt these as the applicable state standards for new off-road engines. These standards will reduce diesel particulate matter emission by over 90 percent from new off-road engines currently sold in California.
- The ARB has adopted several regulations that will reduce diesel emissions from in-use vehicles and engines throughout California. In some cases, the particulate matter reduction strategies also reduce smog-forming emissions such as NOx.

As an ongoing process, the ARB reviews air contaminants and identifies those that are classified as TACs. The ARB also continues to establish new programs and regulations for the control of TACs, including diesel particulate matter, as appropriate.

The local air pollution control district (APCD) has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. The San Diego APCD is the local agency responsible for the administration and enforcement of air quality regulations in San Diego County.

The APCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The San Diego County Regional Air Quality Strategy (RAQS) was initially adopted in 1991, and is updated on a triennial basis. The RAQS was updated in 1995, 1998, 2001, 2004 and most recently in 2009 (APCD 2009). The RAQS outlines APCD's plans and control measures designed to attain the state air quality standards for O_3. The RAQS does not address the state air quality standards for PM_{10} or $PM_{2.5}$. The APCD has also developed the air basin's input to the State Implementation Plan (SIP), which is required under the Federal Clean

Air Act for areas that are out of attainment of air quality standards. The SIP includes the APCD's plans and control measures for attaining the O_3 NAAQS. The SIP is also updated on a triennial basis. The latest SIP update is the *Eight-Hour Ozone Attainment Plan for San Diego County* (hereinafter referred to as the Attainment Plan) (APCD 2007). The Attainment Plan forms the basis for the SIP update, as it contains documentation on emission inventories and trends, the APCD's emission control strategy, and an attainment demonstration that shows that the SDAB will meet the NAAQS for O_3. Emission inventories, projections, and trends in the Attainment Plan are based on the latest O_3 SIP planning emission projections compiled and maintained by ARB. Supporting data were developed jointly by stakeholder agencies, including ARB, the APCD, the South Coast Air Quality Management District (SCAQMD), the Southern California Association of Governments (SCAG), and SANDAG. Each agency plays a role in collecting and reviewing data as necessary to generate comprehensive emission inventories. The supporting data include socio-economic projections, industrial and travel activity levels, emission factors, and emission speciation profiles. These projections are based on data submitted by stakeholder agencies including projections in municipal General Plans.

The ARB compiles annual statewide emission inventories in its emission-related information database, the California Emission Inventory Development and Reporting System (CEIDARS). Emission projections for past and future years were generated using the California Emission Forecasting System (CEFS), developed by ARB to project emission trends and track progress towards meeting emission reduction goals and mandates. CEFS utilizes the most current growth and emissions control data available and agreed upon by the stakeholder agencies to provide comprehensive projections of anthropogenic (human activity-related) emissions for any year from 1975 through 2030. Local air districts are responsible for compiling emissions data for all point sources and many stationary area-wide sources. For mobile sources, CEFS integrates emission estimates from ARB's EMFAC2007 and OFFROAD models. SANDAG incorporates data regarding highway and transit projects into their Travel Demand Models for estimating and projecting vehicle miles traveled (VMT) and speed.

Because the ARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County as

part of the development of General Plans, projects that propose development that is consistent with the growth anticipated by the general plans would be consistent with the RAQS and the Attainment Plan. In the event that a project would propose development which is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS and the Attainment Plan. If a project proposes development that is greater than that anticipated in the general plan and SANDAG's growth projections, the project might be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality.

2.1.3 Local Regulations

In San Diego County, the SDAPCD is the regulatory agency that is responsible for maintaining air quality, including implementation and enforcement of state and federal regulations. The project site is located in the City of San Diego. The City of San Diego has not adopted specific regulations to govern air quality. The Conservation Element of the City's General Plan (City of San Diego 2008) includes policies that encourage development in a manner that benefits San Diego's environment and economy. These policies encourage green building practices and sustainable development. The policies also promote infill development, which reduces emissions from vehicles.

2.2 Climate and Meteorology

The project site is located in the SDAB. The climate of the SDAB is dominated by a semi-permanent high pressure cell located over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. Figure 1 provides a graphic representation of the prevailing winds in the project vicinity, as measured at MCAS Miramar, which is the closest meteorological monitoring station to the site, and provides general wind trends in the County. The high pressure cell also creates two types of temperature inversions that may act to degrade local air quality.

Subsidence inversions occur during the warmer months as descending air associated with the Pacific high pressure cell comes into contact with cool marine air. The boundary between the two

layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce ozone, commonly known as smog.

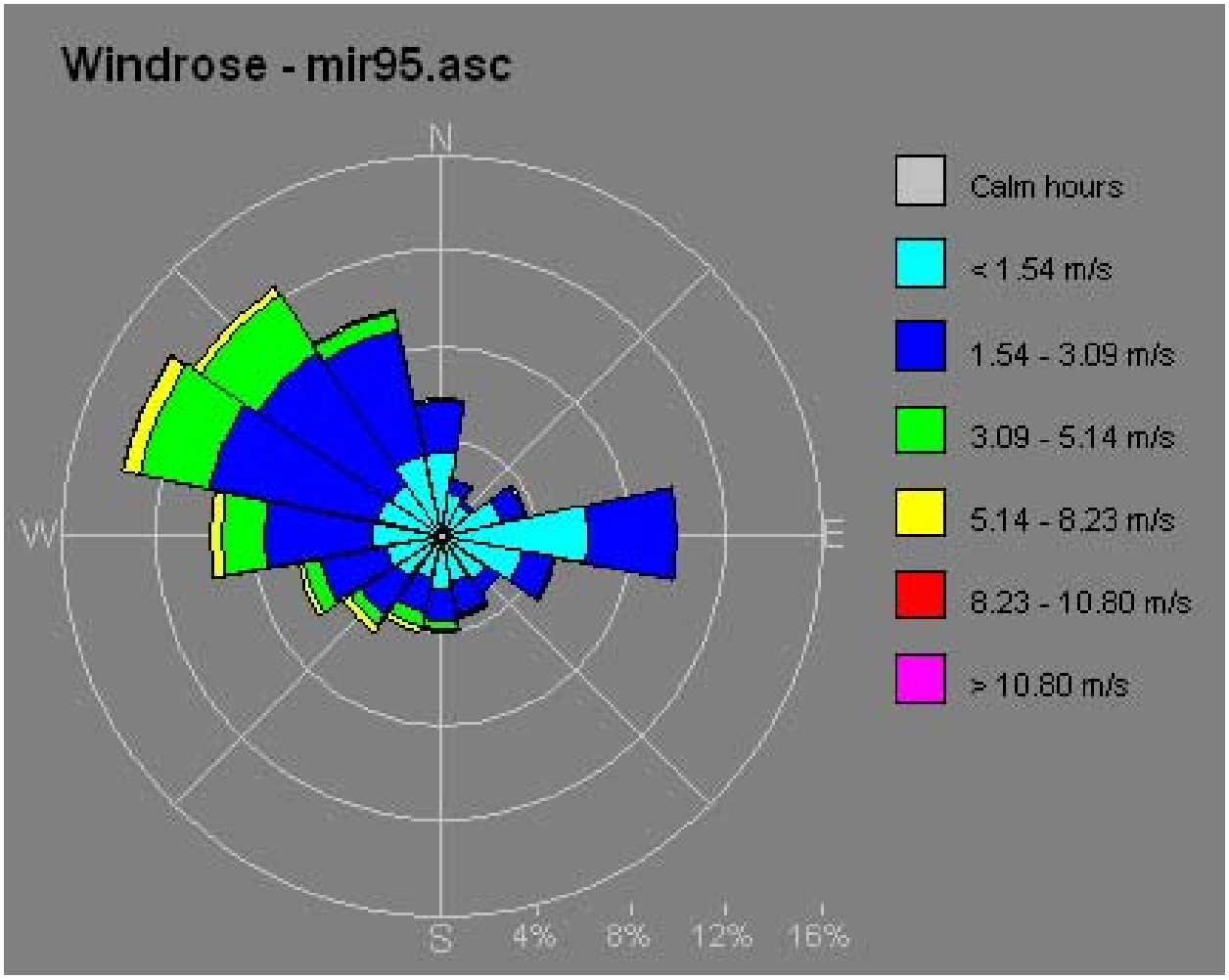

Figure 1. Wind Rose, MCAS Miramar

2.3 Background Air Quality

The APCD operates a network of ambient air monitoring stations throughout San Diego County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The nearest

ambient monitoring station to the project site is the downtown San Diego monitoring station, which measures O_3, NO_2, PM_{10}, $PM_{2.5}$, and CO. Ambient concentrations of pollutants over the most recent three-year period for which data are available (2012-2014) are presented in Table 2.

The San Diego monitoring station did not measure any exceedances of the 8-hour ozone NAAQS from 2012 through 2014, which predates the adoption of the new 8-hour ozone NAAQS of 0.070 ppm. The monitoring data indicate there were two exceedances of the CAAQS in 2014. The San Diego monitoring station did not measure any exceedances of the state 1-hour ozone standard and the state 8-hour ozone standards in the period from 2012 through 2014. While the San Diego monitoring station measured individual 24-hour values of $PM_{2.5}$ above 35 $\mu g/m^3$, these values do not constitute an exceedance because the $PM_{2.5}$ standard is set in terms of the 98th percentile of three years of data. The annual CAAQS for PM_{10} was exceeded from 2012 to 2014, and the 24-hour CAAQS for PM_{10} was exceeded once in 2013. The data from the monitoring station indicates that air quality is in attainment of all other air quality standards.

Table 2
Ambient Background Concentrations
(ppm unless otherwise indicated)

Pollutant	Averaging Time	2012	2013	2014	CAAQS	NAAQS	Monitoring Station
Ozone	8 hour	0.065	0.053	0.072	0.070	0.075	San Diego
	1 hour	0.071	0.063	0.093	0.09	--	San Diego
PM_{10}	Annual	22.2	25.4	23.8	20 $\mu g/m^3$	--	San Diego
	24 hour	45	90	40	50 $\mu g/m^3$	150 $\mu g/m^3$	San Diego
$PM_{2.5}$	Annual	11.0	10.3	10.1	12 $\mu g/m^3$	15 $\mu g/m^3$	San Diego
	24 hour	39.8	37.4	36.7	--	35 $\mu g/m^3$	San Diego
NO_2	Annual	NA	NA	0.011	0.030	0.053	San Diego
	1 hour	0.073	0.057	0.067	0.18	0.100	San Diego
CO	8 hour	1.9	2.1	1.9	9.0	9	San Diego
	1 hour	2.6	3.0	2.7	20.0	35	San Diego
NA = Data Not Available							

3.0 Thresholds of Significance

The City of San Diego has adopted its Significance Determination Thresholds (City of San Diego 2011) that are based on Appendix G of the State CEQA Guidelines. According to the Significance Determination Thresholds, a project would have a significant environmental impact if the project would result in:

- A conflict with or obstruct the implementation of the applicable air quality plan;
- A violation of any air quality standard or contribute substantially to an existing or projected air quality violation;
- Exposing sensitive receptors to substantial pollutant concentrations;
- Creating objectionable odors affecting a substantial number of people;
- Exceeding 100 pounds per day of particulate matter (PM) (dust); or

In their Significance Determination Thresholds, the City of San Diego has adopted emission thresholds based on the thresholds for an Air Quality Impact Assessment in the San Diego Air Pollution Control District's Rule 20.2. These thresholds are shown in Table 3.

Table 3
Significance Criteria for Air Quality Impacts

Pollutant	Emission Rate		
	Lbs/Hr	Lbs/Day	Tons/Year
Carbon Monoxide (CO)	100	550	100
Oxides of Nitrogen (NOx)	25	250	40
Respirable Particulate Matter (PM_{10})	--	100	15
Oxides of Sulfur (SOx)	25	250	40
Lead and Lead Compounds	--	3.2	0.6
Fine Particulate Matter ($PM_{2.5}$)	--	--	--
Volatile Organic Compounds (VOCs)	--	137	15

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as toxic air contaminants (TACs) or Hazardous Air Pollutants (HAPs). If a project has the potential to result in emissions of any TAC or HAP which may expose sensitive receptors to substantial pollutant concentrations, the project would be

deemed to have a potentially significant impact. With regard to evaluating whether a project would have a significant impact on sensitive receptors, air quality regulators typically define sensitive receptors as schools (Preschool-12th Grade), hospitals, resident care facilities, or day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality.

With regard to odor impacts, a project that proposes a use which would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of offsite receptors.

The impacts associated with construction and operation of the project were evaluated for significance based on these significance criteria.

4.0 Impacts

The Fashion Valley Apartments Project would result in both construction and operational impacts. Construction impacts include emissions associated with the construction of the project. Operational impacts include emissions associated with the project, including traffic, at full buildout.

4.1 Consistency with the RAQS and SIP

The Proposed Project would have a significant impact if it conflicts with or obstructs implementation of the applicable air quality plans (the RAQS and SIP).

As discussed in Section 2.1, the SIP is the document that sets forth the state's strategies for attaining and maintaining the NAAQS. The APCD is responsible for developing the San Diego portion of the SIP, and has developed an attainment plan for attaining the 8-hour NAAQS for O_3. The RAQS sets forth the plans and programs designed to meet the state air quality standards. Through the RAQS and SIP planning processes, the APCD adopts rules, regulations, and programs designed to achieve attainment of the ambient air quality standards and maintain air quality in the SDAB.

Conformance with the RAQS and SIP determines whether a Project will conflict with or obstruct implementation of the applicable air quality plans. The basis for the RAQS and SIP is the distribution of population in the San Diego region as projected by SANDAG. Growth forecasting is based in part on the land uses established by the General Plan.

The project is replacing an existing office building with a mixed-use development, which is consistent with the City's plans for developing a mix of uses. The project would be consistent with the Mission Valley Community Plan and is, therefore, consistent with the General Plan. The General Plan designation includes Neighborhood Commercial – Residential Permitted uses, in which category the project falls.

Accordingly the proposed Project is consistent with the applicable air quality plans, and would not result in a significant impact.

4.2 Violation of an Air Quality Standard

The Proposed Project would have a significant impact if it violates any air quality standard or contributes substantially to an existing or projected air quality violation.

To address this significance threshold, an evaluation of emissions associated with both the construction and operational phases of the Project was conducted.

4.2.1 Construction Impacts

Emissions of pollutants such as fugitive dust and heavy equipment exhaust that are generated during construction are generally highest near the construction site. Emissions from the construction of the project were estimated using the CalEEMod Model (ENVIRON 2013). It was assumed that construction would require the following phases: fine grading, utilities installation, building construction, paving, and architectural coatings application.

The CalEEMod Model provides default assumptions regarding horsepower rating, load factors for heavy equipment, and hours of operation per day. Default assumptions within the CalEEMod Model and assumptions for similar projects were used to represent operation of heavy construction equipment.

Construction calculations within the CalEEMod Model utilize the number and type of equipment shown in Table 4 to calculate emissions from heavy construction equipment. The methodology used involves multiplication of the number of pieces of each type of equipment times the equipment horsepower rating, load factor, and OFFROAD emission factor, as shown in the equation below:

Emissions, lbs/day = (Number of pieces of equipment) x (equipment horsepower) x (load factor) x (hours of operation per day) x (OFFROAD emission factor, lbs/hp-hr)

In addition to calculating emissions from heavy construction equipment, the CalEEMod Model contains calculation modules to estimate emissions of fugitive dust, based on the amount of earthmoving or surface disturbance required; emissions from heavy-duty truck trips or vendor trips during construction activities; emissions from construction worker vehicles during daily commutes; emissions of ROG from paving using asphalt; and emissions of ROG during application of architectural coatings. As part of the project design features, it was assumed that standard dust control measures (watering three times daily; using soil stabilizers on unpaved roads) and architectural coatings that comply with SDAPCD Rule 67.0.1 (assumed to meet a VOC content of 50 g/l for flat coatings and 100 g/l for non-flat coatings) would be used during construction.

Table 4 provides the detailed emission estimates for each phase of construction as calculated with the CalEEMod Model for each of the construction phases of the project, without mitigation. Appendix A provides CalEEMod Model outputs showing the construction calculations. As shown in Table 4, emissions of criteria pollutants during construction would be below the thresholds of significance for all project construction phases. Project criteria pollutant emissions during construction would be temporary. Impacts during construction are less than significant.

Table 4
Estimated Maximum Daily Construction Emissions
Fashion Valley Apartments Project

Emission Source	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Demolition						
Fugitive Dust	-	-	-	-	1.18	0.18
Offroad Equipment	4.05	42.70	33.89	0.04	2.13	1.98
Onroad Emissions	0.25	3.44	2.63	0.01	0.29	0.11
Worker Trips	0.05	0.06	0.61	0.00	0.12	0.03
Subtotal	**4.35**	**46.20**	**37.13**	**0.05**	**3.72**	**2.29**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Grading						
Fugitive Dust	-	-	-	-	2.46	1.31
Offroad Equipment	3.46	35.98	25.38	0.03	2.04	1.88
	3.49	47.54	36.29	0.14	3.95	1.50
Worker Trips	0.05	0.06	0.61	0.00	0.12	0.03
Subtotal	**6.90**	**83.58**	**62.28**	**0.17**	**8.57**	**4.72**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*

Table 4
Estimated Maximum Daily Construction Emissions
Fashion Valley Apartments Project

Emission Source	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Building Construction						
Offroad Equipment	3.10	26.41	18.13	0.03	1.78	1.67
Vendor Trips	0.31	2.71	3.34	0.01	0.25	0.10
Worker Trips	0.66	0.78	8.46	0.02	1.73	0.47
Subtotal	**4.07**	**29.90**	**29.93**	**0.06**	**3.76**	**2.24**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Paving						
Offroad Equipment	1.41	14.32	12.26	0.02	0.83	0.76
Worker Trips	0.06	0.07	0.73	0.00	0.17	0.04
Subtotal	**1.47**	**14.39**	**12.99**	**0.02**	**1.00**	**0.80**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Architectural Coatings Application						
Architectural Coatings	21.00	-	-	-	-	-
Offroad Equipment	0.30	2.01	1.85	0.00	0.15	0.15
Worker Trips	0.12	0.14	1.54	0.00	0.35	0.09
Subtotal	**21.42**	**2.15**	**3.39**	**0.00**	**0.50**	**0.24**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Maximum Daily Emissions[a]	**26.45**	**83.57**	**62.28**	**0.17**	**8.58**	**4.71**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*

[a]Maximum daily PM_{10} emissions occur during demolition. Maximum emissions of other criteria pollutants occur during simultaneous building construction, paving, and architectural coatings application.

4.2.2 Operational Impacts

Operational impacts associated with the Fashion Valley Apartments Project would include impacts associated with vehicular traffic, as well as area sources such as energy use, landscaping, consumer products use, and architectural coatings use for maintenance purposes.

The *Fashion Valley Apartments Traffic Impact Analysis* (Urban Systems Associates 2016) calculated project trip generation rates based on the proposed development. According to the Traffic Impact Analysis, accounting for transit reductions and mixed use reductions, the project will generate 2,119 ADT. These trip generation rates were accounted for within the CalEEMod

Model runs for vehicular emissions. It should be noted that the existing office building generates 1,245 ADT, for a net increase in trips of 874 ADT.

Operational impacts associated with vehicular traffic and area sources including energy use, landscaping, consumer products use, hearth emissions, and architectural coatings use for maintenance purposes were estimated using the CalEEMod Model. The CalEEMod Model calculates vehicle emissions based on emission factors from the EMFAC2011 model. It was assumed that the first year of full occupancy would be 2017. Based on the results of the EMFAC2011 model for subsequent years, emissions would decrease on an annual basis from 2016 onward due to phase-out of higher polluting vehicles and implementation of more stringent emission standards that are taken into account in the EMFAC2011 model. Table 5 presents the results of the operational emission calculations, in lbs/day, along with a comparison with the significance criteria.

Table 5
Operational Emissions

	ROG	**NOx**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Summer Day, Lbs/day						
Area Sources	9.54	0.27	23.51	0.00	0.13	0.13
Energy Use	0.06	0.49	0.28	0.00	0.04	0.04
Vehicular Emissions	7.99	14.45	68.78	0.11	7.65	2.18
TOTAL	**17.59**	**15.21**	**92.57**	**0.12**	**7.82**	**2.34**
Significance Screening Criteria	137	250	550	250	100	55
Above Screening Criteria?	*No*	*No*	*No*	*No*	*No*	*No*
Winter Day, Lbs/day						
Area Sources	9.54	0.27	23.51	0.00	0.13	0.13
Energy Use	0.06	0.49	0.28	0.00	0.04	0.04
Vehicular Emissions	8.69	15.33	75.37	0.11	7.66	2.18
TOTAL	**18.29**	**16.09**	**99.16**	**0.11**	**7.82**	**2.35**
Significance Screening Criteria	137	250	550	250	100	55
Above Screening Criteria?	*No*	*No*	*No*	*No*	*No*	*No*

Based on the estimates of the emissions associated with Project operations, the emissions of all criteria pollutants are below the significance thresholds.

Projects involving traffic impacts may result in the formation of locally high concentrations of CO, known as CO "hot spots." To verify that the project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO "hot spots" was conducted. The Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1998) were followed to determine whether a CO "hot spot" is likely to form due to project-generated traffic. In accordance with the Protocol, CO "hot spots" are typically evaluated when (a) the LOS of an intersection or roadway decreases to a LOS E or worse; (b) signalization and/or channelization is added to an intersection; and (c) sensitive receptors such as residences, commercial developments, schools, hospitals, etc. are located in the vicinity of the affected intersection or roadway segment.

The Traffic Impact Analysis evaluated whether or not there would be a decrease in the level of service at the intersections affected by the Project. The Traffic Impact Analysis studied six intersections in the project study area, and concluded that the project would not cause a degradation in LOS and would not result in significant impacts to traffic due to congestion at intersections. Accordingly, the project would not cause a CO "hot spot" and no significant impacts would result.

4.3 Cumulatively Considerable Net Increase of Nonattainment Pollutants

The Proposed Project would have a significant impact if it results in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors.

As discussed in Section 2.0, the SDAB is considered a nonattainment area for the 8-hour NAAQS for O_3, and is considered a nonattainment area for the CAAQS for O_3, PM_{10}, and $PM_{2.5}$. An evaluation of emissions of nonattainment pollutants was conducted in Section 4.2, and it was determined that emissions of all nonattainment pollutants would be below the screening-level thresholds.

The region surrounding the Fashion Valley Apartments Project is already developed; the project provides infill development. Because the project provides infill development, it would not be anticipated to increase vehicle trips in the region; rather, the project would serve the needs of providing a mix of uses, including residential uses and local retail to the community. Furthermore,

the project provides a mix of uses which is consistent with the City's goals. The project would therefore not result in a cumulatively considerable increase emissions of ozone precursors (NOx and VOCs).

It is unlikely that several projects within the immediate vicinity of the project will be constructed simultaneously with the project given that the area is already developed; however, should construction occur simultaneously, standard dust control measures would ensure that cumulative impacts would not result. Cumulative impacts are less than significant.

4.4 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

The Proposed Project would have a significant impact if it exposes sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, parks, or day-care centers) to substantial pollutant concentrations.

The threshold concerns whether the project could expose sensitive receptors to substantial pollutant concentrations of TACs. If a project has the potential to result in emissions of any TAC which result in a cancer risk of greater than 10 in 1 million or substantial non-cancer risk, the project would be deemed to have a potentially significant impact.

Air quality regulators typically define sensitive receptors as schools (Preschool-12th Grade), hospitals, resident care facilities, or day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. Residential land uses may also be considered sensitive receptors. The nearest sensitive receptors to the site are the residents located to the east of the project site, approximately 0.2 miles from the project site.

Emissions of TACs are attributable to temporary emissions from construction emissions, and minor emissions associated with diesel truck traffic used for deliveries at the site. Truck traffic may result in emissions of diesel particulate matter, which is characterized by the State of California as a toxic air contaminant (TAC). Certain types of projects are recommended to be evaluated for impacts associated with TACs. In accordance with the SCAQMD's "Health Risk

Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis" (SCAQMD 2003), projects that should be evaluated for diesel particulate emissions include truck stops, distribution centers, warehouses, and transit centers which diesel vehicles would utilize and which would be sources of diesel particulate matter from heavy-duty diesel trucks. Residential mixed-use projects such as the Fashion Valley Apartments Project would not attract a disproportionate amount of diesel trucks and would not be considered a source of TAC emissions. Based on the CalEEMod Model, heavy-duty diesel trucks would account for only 0.9 percent of the total trips associated with the project. Impacts to sensitive receptors from TAC emissions would therefore be less than significant.

4.5 Objectionable Odors

The Proposed Project would have a significant impact if it creates objectionable odors affecting a substantial number of people.

Project construction could result in minor amounts of odor compounds associated with diesel heavy equipment exhaust. These compounds would be emitted in various amounts and at various locations during construction. Sensitive receptors located in the vicinity of the construction site include the residences to the east of the site. Odors are highest near the source and would quickly dissipate offsite; any odors associated with construction would be temporary.

The Project is a residential/mixed use development and would not include land uses that would be sources of nuisance odors. Thus the potential for odor impacts associated with the project is less than significant.

5.0 Conclusions

As discussed in Section 4.0, impacts are less than significant. Standard dust control measures will be employed during construction. These standard dust control measures include the following:

- Watering active grading sites a minimum of three times daily
- Apply soil stabilizers to inactive construction sites
- Replace ground cover in disturbed areas as soon as possible
- Control dust during equipment loading/unloading (load moist material, ensure at least 12 inches of freeboard in haul trucks
- Reduce speeds on unpaved roads to 15 mph or less
- Water unpaved roads a minimum of three times daily

These dust control measures will reduce the amount of fugitive dust generated during construction. In addition to dust control measures, architectural coatings applied to interior and exterior surfaces will be required to meet the ROG limitations of SDAPCD Rule 67.0, which limits the ROG content of most coatings to 150 grams/liter. Coatings will also be applied using high volume, low pressure spray equipment to reduce overspray to the extent possible.

In summary, the proposed project would result in emissions of air pollutants for both the construction phase and operational phase of the project. The air quality impact analysis evaluated the potential for adverse impacts to the ambient air quality due to construction and operational emissions. Construction emissions would include emissions associated with fugitive dust, heavy construction equipment and construction worker commuting to and from the site. The project would employ dust control measures such as watering to control emissions during construction and use of low-ROG paints. Emissions are less than the significance thresholds for all pollutants during construction.

Operational emissions would include emissions associated with residential and retail operations, including area sources, energy use, and vehicle traffic. As discussed in Section 4.0, the impacts would be below the significance thresholds for all pollutants. Impacts from project-related traffic

were evaluated to assess whether the project could result in CO “hot spots” due to project-related traffic. Impacts are less than significant.

Emissions of TACs or odors would not result in a significant impact to the project, and project emissions of TACs and odors would be less than significant.

6.0 References

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U.S. EPA. 2007. *The Plain English Guide to the Clean Air Act*. http://www.epa.gov/air/caa/peg/index.html.

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Appendix A

CalEEMod Model Output

Fashion Valley Apartments

San Diego Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	8.48	1000sqft	0.46	8,480.00	0
High Turnover (Sit Down Restaurant)	3.27	1000sqft	0.46	3,275.00	0
Apartments Mid Rise	284.00	Dwelling Unit	4.00	284,000.00	812

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	525.96	**CH4 Intensity (lb/MWhr)**	0.021	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Trips and VMT -

Architectural Coating - Rule 67.0.1 coatings

Vehicle Trips - Based on traffic report

Area Coating - Rule 67.0.1

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00

tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblConstructionPhase	NumDays	18.00	109.00
tblConstructionPhase	NumDays	230.00	390.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	8.00	66.00
tblConstructionPhase	NumDays	18.00	109.00
tblConstructionPhase	PhaseEndDate	7/31/2019	2/28/2019
tblConstructionPhase	PhaseEndDate	7/31/2019	2/28/2019
tblConstructionPhase	PhaseStartDate	3/1/2019	10/1/2018
tblConstructionPhase	PhaseStartDate	3/1/2019	10/1/2018
tblEnergyUse	T24E	160.77	92.48
tblEnergyUse	T24E	5.69	3.12
tblEnergyUse	T24E	10.06	5.51
tblEnergyUse	T24NG	3,820.47	2,756.47
tblEnergyUse	T24NG	16.83	9.80
tblEnergyUse	T24NG	37.80	22.02
tblFireplaces	NumberGas	156.20	0.00
tblFireplaces	NumberNoFireplace	28.40	284.00
tblFireplaces	NumberWood	99.40	0.00
tblGrading	AcresOfGrading	33.00	4.92
tblGrading	MaterialExported	0.00	100,443.00
tblLandUse	LandUseSquareFeet	3,270.00	3,275.00
tblLandUse	LotAcreage	0.19	0.46
tblLandUse	LotAcreage	0.08	0.46
tblLandUse	LotAcreage	7.47	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.021
tblProjectCharacteristics	CO2IntensityFactor	720.49	525.96
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblProjectCharacteristics	OperationalYear	2014	2020

tblVehicleTrips	CC_TL	7.30	5.80
tblVehicleTrips	CC_TL	7.30	5.80
tblVehicleTrips	CNW_TL	7.30	5.80
tblVehicleTrips	CNW_TL	7.30	5.80
tblVehicleTrips	CW_TL	9.50	5.80
tblVehicleTrips	CW_TL	9.50	5.80
tblVehicleTrips	HO_TL	7.50	5.80
tblVehicleTrips	HS_TL	7.30	5.80
tblVehicleTrips	HW_TL	10.80	5.80
tblVehicleTrips	ST_TR	7.16	5.10
tblVehicleTrips	ST_TR	2.37	28.89
tblVehicleTrips	ST_TR	158.37	130.00
tblVehicleTrips	SU_TR	6.07	5.10
tblVehicleTrips	SU_TR	0.98	28.89
tblVehicleTrips	SU_TR	131.84	130.00
tblVehicleTrips	WD_TR	6.59	5.10
tblVehicleTrips	WD_TR	11.01	28.89
tblVehicleTrips	WD_TR	127.15	130.00
tblWoodstoves	NumberCatalytic	14.20	0.00
tblWoodstoves	NumberNoncatalytic	14.20	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					

2017	6.9955	83.5734	62.2792	0.1733	9.7530	2.6798	12.4328	4.2915	2.4653	6.7568	0.0000	17,261.7500	17,261.7500	1.1204	0.0000	17,285.2789
2018	26.4502	42.9575	44.7877	0.0842	2.4386	2.5249	4.9635	0.6511	2.3668	3.0179	0.0000	7,652.1356	7,652.1356	1.3311	0.0000	7,680.0880
2019	25.8732	38.4715	43.3110	0.0842	2.4386	2.1751	4.6136	0.6511	2.0393	2.6903	0.0000	7,502.7572	7,502.7572	1.3110	0.0000	7,530.2883
Total	**59.3190**	**165.0024**	**150.3778**	**0.3417**	**14.6301**	**7.3798**	**22.0099**	**5.5936**	**6.8714**	**12.4651**	**0.0000**	**32,416.6428**	**32,416.6428**	**3.7625**	**0.0000**	**32,495.6552**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	6.9955	83.5734	62.2792	0.1733	5.9009	2.6798	8.5807	2.2473	2.4653	4.7126	0.0000	17,261.7500	17,261.7500	1.1204	0.0000	17,285.2789
2018	26.4502	42.9575	44.7877	0.0842	2.4386	2.5249	4.9635	0.6511	2.3668	3.0179	0.0000	7,652.1356	7,652.1356	1.3311	0.0000	7,680.0880
2019	25.8732	38.4715	43.3110	0.0842	2.4386	2.1751	4.6136	0.6511	2.0393	2.6903	0.0000	7,502.7572	7,502.7572	1.3110	0.0000	7,530.2883
Total	**59.3190**	**165.0024**	**150.3778**	**0.3417**	**10.7780**	**7.3798**	**18.1578**	**3.5494**	**6.8714**	**10.4209**	**0.0000**	**32,416.6428**	**32,416.6428**	**3.7625**	**0.0000**	**32,495.6552**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**26.33**	**0.00**	**17.50**	**36.55**	**0.00**	**16.40**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Area	9.5429	0.2719	23.5095	1.2400e-003		0.1293	0.1293		0.1293	0.1293	0.0000	42.1914	42.1914	0.0412	0.0000	43.0555
Energy	0.0561	0.4899	0.2802	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1313	612.1313	0.0117	0.0112	615.8567
Mobile	7.9910	14.4471	68.7822	0.1125	7.4505	0.2032	7.6536	1.9888	0.1864	2.1752		10,354.3657	10,354.3657	0.5065		10,365.0015
Total	**17.5900**	**15.2089**	**92.5718**	**0.1168**	**7.4505**	**0.3712**	**7.8217**	**1.9888**	**0.3545**	**2.3432**	**0.0000**	**11,008.6884**	**11,008.6884**	**0.5594**	**0.0112**	**11,023.9136**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.5429	0.2719	23.5095	1.2400e-003		0.1293	0.1293		0.1293	0.1293	0.0000	42.1914	42.1914	0.0412	0.0000	43.0555
Energy	0.0561	0.4899	0.2802	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1313	612.1313	0.0117	0.0112	615.8567
Mobile	7.9910	14.4471	68.7822	0.1125	7.4505	0.2032	7.6536	1.9888	0.1864	2.1752		10,354.3657	10,354.3657	0.5065		10,365.0015
Total	**17.5900**	**15.2089**	**92.5718**	**0.1168**	**7.4505**	**0.3712**	**7.8217**	**1.9888**	**0.3545**	**2.3432**	**0.0000**	**11,008.6884**	**11,008.6884**	**0.5594**	**0.0112**	**11,023.9136**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2017	5/31/2017	5	23	
2	Grading	Grading	6/1/2017	8/31/2017	5	66	

3	Building Construction	Building Construction	9/1/2017	2/28/2019	5	390	
4	Paving	Paving	10/1/2018	2/28/2019	5	109	
5	Architectural Coating	Architectural Coating	10/1/2018	2/28/2019	5	109	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4.92

Acres of Paving: 0

Residential Indoor: 575,100; Residential Outdoor: 191,700; Non-Residential Indoor: 17,633; Non-Residential Outdoor: 5,878 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	2	6.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	317.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	12,555.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	209.00	32.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	42.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0181	0.0000	3.0181	0.4571	0.0000	0.4571			0.0000			0.0000
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797		4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**	**3.0181**	**2.1252**	**5.1433**	**0.4571**	**1.9797**	**2.4368**		**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2530	3.4441	2.6294	0.0103	0.2402	0.0464	0.2865	0.0658	0.0427	0.1084		1,021.0732	1,021.0732	7.0700e-003		1,021.2216
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0477	0.0559	0.6070	1.5600e-003	0.1232	9.0000e-004	0.1241	0.0327	8.3000e-004	0.0335		125.2526	125.2526	6.0400e-003		125.3794
Total	**0.3007**	**3.5000**	**3.2364**	**0.0119**	**0.3634**	**0.0473**	**0.4107**	**0.0984**	**0.0435**	**0.1419**		**1,146.3258**	**1,146.3258**	**0.0131**		**1,146.6011**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1771	0.0000	1.1771	0.1783	0.0000	0.1783			0.0000			0.0000
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797	0.0000	4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**	**1.1771**	**2.1252**	**3.3023**	**0.1783**	**1.9797**	**2.1580**	**0.0000**	**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2530	3.4441	2.6294	0.0103	0.2402	0.0464	0.2865	0.0658	0.0427	0.1084		1,021.0732	1,021.0732	7.0700e-003		1,021.2216

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0477	0.0559	0.6070	1.5600e-003	0.1232	9.0000e-004	0.1241	0.0327	8.3000e-004	0.0335		125.2526	125.2526	6.0400e-003		125.3794
Total	**0.3007**	**3.5000**	**3.2364**	**0.0119**	**0.3634**	**0.0473**	**0.4107**	**0.0984**	**0.0435**	**0.1419**		**1,146.3258**	**1,146.3258**	**0.0131**		**1,146.6011**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.3150	0.0000	6.3150	3.3512	0.0000	3.3512			0.0000			0.0000
Off-Road	3.4555	35.9825	25.3812	0.0297		2.0388	2.0388		1.8757	1.8757		3,043.6667	3,043.6667	0.9326		3,063.2507
Total	**3.4555**	**35.9825**	**25.3812**	**0.0297**	**6.3150**	**2.0388**	**8.3538**	**3.3512**	**1.8757**	**5.2269**		**3,043.6667**	**3,043.6667**	**0.9326**		**3,063.2507**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.4924	47.5350	36.2910	0.1420	3.3148	0.6401	3.9549	0.9077	0.5888	1.4965		14,092.8307	14,092.8307	0.0976		14,094.8792
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0477	0.0559	0.6070	1.5600e-003	0.1232	9.0000e-004	0.1241	0.0327	8.3000e-004	0.0335		125.2526	125.2526	6.0400e-003		125.3794
Total	**3.5400**	**47.5909**	**36.8980**	**0.1436**	**3.4380**	**0.6410**	**4.0790**	**0.9403**	**0.5896**	**1.5300**		**14,218.0833**	**14,218.0833**	**0.1036**		**14,220.2586**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4629	0.0000	2.4629	1.3070	0.0000	1.3070			0.0000			0.0000
Off-Road	3.4555	35.9825	25.3812	0.0297		2.0388	2.0388		1.8757	1.8757	0.0000	3,043.6667	3,043.6667	0.9326		3,063.2507
Total	**3.4555**	**35.9825**	**25.3812**	**0.0297**	**2.4629**	**2.0388**	**4.5017**	**1.3070**	**1.8757**	**3.1827**	**0.0000**	**3,043.6667**	**3,043.6667**	**0.9326**		**3,063.2507**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.4924	47.5350	36.2910	0.1420	3.3148	0.6401	3.9549	0.9077	0.5888	1.4965		14,092.8307	14,092.8307	0.0976		14,094.8792
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0477	0.0559	0.6070	1.5600e-003	0.1232	9.0000e-004	0.1241	0.0327	8.3000e-004	0.0335		125.2526	125.2526	6.0400e-003		125.3794
Total	**3.5400**	**47.5909**	**36.8980**	**0.1436**	**3.4380**	**0.6410**	**4.0790**	**0.9403**	**0.5896**	**1.5300**		**14,218.0833**	**14,218.0833**	**0.1036**		**14,220.2586**

3.4 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**		**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3060	2.7120	3.3412	7.6000e-003	0.2124	0.0398	0.2522	0.0606	0.0366	0.0972		750.5852	750.5852	5.5800e-003		750.7023
Worker	0.6640	0.7792	8.4570	0.0218	1.7169	0.0125	1.7294	0.4554	0.0115	0.4669		1,745.1865	1,745.1865	0.0842		1,746.9536
Total	**0.9700**	**3.4912**	**11.7982**	**0.0294**	**1.9293**	**0.0523**	**1.9816**	**0.5160**	**0.0481**	**0.5641**		**2,495.7717**	**2,495.7717**	**0.0897**		**2,497.6559**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730	0.0000	2,639.8053	2,639.8053	0.6497		2,653.4490

Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**	**0.0000**	**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3060	2.7120	3.3412	7.6000e-003	0.2124	0.0398	0.2522	0.0606	0.0366	0.0972		750.5852	750.5852	5.5800e-003		750.7023
Worker	0.6640	0.7792	8.4570	0.0218	1.7169	0.0125	1.7294	0.4554	0.0115	0.4669		1,745.1865	1,745.1865	0.0842		1,746.9536
Total	**0.9700**	**3.4912**	**11.7982**	**0.0294**	**1.9293**	**0.0523**	**1.9816**	**0.5160**	**0.0481**	**0.5641**		**2,495.7717**	**2,495.7717**	**0.0897**		**2,497.6559**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048		2,609.9390	2,609.9390	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**		**2,609.9390**	**2,609.9390**	**0.6387**		**2,623.3517**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2880	2.4497	3.1839	7.5900e-003	0.2124	0.0370	0.2494	0.0606	0.0340	0.0946		737.6964	737.6964	5.4700e-003		737.8112
Worker	0.6053	0.7110	7.6766	0.0218	1.7169	0.0123	1.7291	0.4554	0.0113	0.4667		1,679.7252	1,679.7252	0.0783		1,681.3689
Total	**0.8934**	**3.1607**	**10.8605**	**0.0293**	**1.9293**	**0.0492**	**1.9785**	**0.5160**	**0.0453**	**0.5613**		**2,417.4216**	**2,417.4216**	**0.0837**		**2,419.1801**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048	0.0000	2,609.9389	2,609.9389	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**	**0.0000**	**2,609.9389**	**2,609.9389**	**0.6387**		**2,623.3517**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2880	2.4497	3.1839	7.5900e-003	0.2124	0.0370	0.2494	0.0606	0.0340	0.0946		737.6964	737.6964	5.4700e-003		737.8112
Worker	0.6053	0.7110	7.6766	0.0218	1.7169	0.0123	1.7291	0.4554	0.0113	0.4667		1,679.7252	1,679.7252	0.0783		1,681.3689
Total	**0.8934**	**3.1607**	**10.8605**	**0.0293**	**1.9293**	**0.0492**	**1.9785**	**0.5160**	**0.0453**	**0.5613**		**2,417.4216**	**2,417.4216**	**0.0837**		**2,419.1801**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Off-Road	2.3516	20.9650	17.1204	0.0268		1.2850	1.2850		1.2083	1.2083		2,580.7618	2,580.7618	0.6279		2,593.9479
Total	**2.3516**	**20.9650**	**17.1204**	**0.0268**		**1.2850**	**1.2850**		**1.2083**	**1.2083**		**2,580.7618**	**2,580.7618**	**0.6279**		**2,593.9479**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2697	2.2302	3.0254	7.5800e-003	0.2124	0.0344	0.2467	0.0606	0.0316	0.0922		724.9903	724.9903	5.3300e-003		725.1022

Worker	0.5626	0.6571	7.0797	0.0217	1.7169	0.0122	1.7291	0.4554	0.0113	0.4667		1,619.0236	1,619.0236	0.0736		1,620.5696
Total	**0.8323**	**2.8872**	**10.1051**	**0.0293**	**1.9293**	**0.0465**	**1.9758**	**0.5160**	**0.0429**	**0.5589**		**2,344.0139**	**2,344.0139**	**0.0790**		**2,345.6718**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3516	20.9650	17.1204	0.0268		1.2850	1.2850		1.2083	1.2083	0.0000	2,580.7618	2,580.7618	0.6279		2,593.9479
Total	**2.3516**	**20.9650**	**17.1204**	**0.0268**		**1.2850**	**1.2850**		**1.2083**	**1.2083**	**0.0000**	**2,580.7618**	**2,580.7618**	**0.6279**		**2,593.9479**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2697	2.2302	3.0254	7.5800e-003	0.2124	0.0344	0.2467	0.0606	0.0316	0.0922		724.9903	724.9903	5.3300e-003		725.1022
Worker	0.5626	0.6571	7.0797	0.0217	1.7169	0.0122	1.7291	0.4554	0.0113	0.4667		1,619.0236	1,619.0236	0.0736		1,620.5696
Total	**0.8323**	**2.8872**	**10.1051**	**0.0293**	**1.9293**	**0.0465**	**1.9758**	**0.5160**	**0.0429**	**0.5589**		**2,344.0139**	**2,344.0139**	**0.0790**		**2,345.6718**

3.5 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4060	14.3192	12.2631	0.0187		0.8272	0.8272		0.7628	0.7628		1,845.0348	1,845.0348	0.5587		1,856.7667
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4060**	**14.3192**	**12.2631**	**0.0187**		**0.8272**	**0.8272**		**0.7628**	**0.7628**		**1,845.0348**	**1,845.0348**	**0.5587**		**1,856.7667**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0579	0.0680	0.7346	2.0800e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		160.7393	160.7393	7.4900e-003		160.8966
Total	**0.0579**	**0.0680**	**0.7346**	**2.0800e-003**	**0.1643**	**1.1700e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**160.7393**	**160.7393**	**7.4900e-003**		**160.8966**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Off-Road	1.4060	14.3192	12.2631	0.0187		0.8272	0.8272		0.7628	0.7628	0.0000	1,845.0348	1,845.0348	0.5587		1,856.7667
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4060**	**14.3192**	**12.2631**	**0.0187**		**0.8272**	**0.8272**		**0.7628**	**0.7628**	**0.0000**	**1,845.0348**	**1,845.0348**	**0.5587**		**1,856.7667**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0579	0.0680	0.7346	2.0800e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		160.7393	160.7393	7.4900e-003		160.8966
Total	**0.0579**	**0.0680**	**0.7346**	**2.0800e-003**	**0.1643**	**1.1700e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**160.7393**	**160.7393**	**7.4900e-003**		**160.8966**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2520	12.5889	12.1441	0.0187		0.7111	0.7111		0.6560	0.6560		1,816.2490	1,816.2490	0.5585		1,827.9782
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Total	**1.2520**	**12.5889**	**12.1441**	**0.0187**		**0.7111**	**0.7111**		**0.6560**	**0.6560**		**1,816.2490**	**1,816.2490**	**0.5585**		**1,827.9782**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0538	0.0629	0.6775	2.0800e-003	0.1643	1.1600e-003	0.1655	0.0436	1.0800e-003	0.0447		154.9305	154.9305	7.0400e-003		155.0784
Total	**0.0538**	**0.0629**	**0.6775**	**2.0800e-003**	**0.1643**	**1.1600e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**154.9305**	**154.9305**	**7.0400e-003**		**155.0784**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2520	12.5889	12.1441	0.0187		0.7111	0.7111		0.6560	0.6560	0.0000	1,816.2490	1,816.2490	0.5585		1,827.9782
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2520**	**12.5889**	**12.1441**	**0.0187**		**0.7111**	**0.7111**		**0.6560**	**0.6560**	**0.0000**	**1,816.2490**	**1,816.2490**	**0.5585**		**1,827.9782**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0538	0.0629	0.6775	2.0800e-003	0.1643	1.1600e-003	0.1655	0.0436	1.0800e-003	0.0447		154.9305	154.9305	7.0400e-003		155.0784
Total	**0.0538**	**0.0629**	**0.6775**	**2.0800e-003**	**0.1643**	**1.1600e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**154.9305**	**154.9305**	**7.0400e-003**		**155.0784**

3.6 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	21.0040					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.0102
Total	**21.3026**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.0102**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1217	0.1429	1.5427	4.3700e-003	0.3450	2.4600e-003	0.3475	0.0915	2.2800e-003	0.0938		337.5524	337.5524	0.0157		337.8828
Total	**0.1217**	**0.1429**	**1.5427**	**4.3700e-003**	**0.3450**	**2.4600e-003**	**0.3475**	**0.0915**	**2.2800e-003**	**0.0938**		**337.5524**	**337.5524**	**0.0157**		**337.8828**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	21.0040					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.0102
Total	**21.3026**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.0102**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1217	0.1429	1.5427	4.3700e-003	0.3450	2.4600e-003	0.3475	0.0915	2.2800e-003	0.0938		337.5524	337.5524	0.0157		337.8828

Total	**0.1217**	**0.1429**	**1.5427**	**4.3700e-003**	**0.3450**	**2.4600e-003**	**0.3475**	**0.0915**	**2.2800e-003**	**0.0938**		**337.5524**	**337.5524**	**0.0157**		**337.8828**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	21.0040					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		281.9473
Total	**21.2704**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**281.9473**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1131	0.1321	1.4227	4.3700e-003	0.3450	2.4400e-003	0.3475	0.0915	2.2700e-003	0.0938		325.3540	325.3540	0.0148		325.6647
Total	**0.1131**	**0.1321**	**1.4227**	**4.3700e-003**	**0.3450**	**2.4400e-003**	**0.3475**	**0.0915**	**2.2700e-003**	**0.0938**		**325.3540**	**325.3540**	**0.0148**		**325.6647**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	21.0040					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		281.9473
Total	**21.2704**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**281.9473**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1131	0.1321	1.4227	4.3700e-003	0.3450	2.4400e-003	0.3475	0.0915	2.2700e-003	0.0938		325.3540	325.3540	0.0148		325.6647
Total	**0.1131**	**0.1321**	**1.4227**	**4.3700e-003**	**0.3450**	**2.4400e-003**	**0.3475**	**0.0915**	**2.2700e-003**	**0.0938**		**325.3540**	**325.3540**	**0.0148**		**325.6647**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.9910	14.4471	68.7822	0.1125	7.4505	0.2032	7.6536	1.9888	0.1864	2.1752		10,354.3657	10,354.3657	0.5065		10,365.0015
Unmitigated	7.9910	14.4471	68.7822	0.1125	7.4505	0.2032	7.6536	1.9888	0.1864	2.1752		10,354.3657	10,354.3657	0.5065		10,365.0015

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,448.40	1,448.40	1448.40	2,715,434	2,715,434
General Office Building	244.99	244.99	244.99	423,182	423,182
High Turnover (Sit Down Restaurant)	425.10	425.10	425.10	383,592	383,592
Total	2,118.49	2,118.49	2,118.49	3,522,207	3,522,207

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	5.80	5.80	5.80	41.60	18.80	39.60	86	11	3
General Office Building	5.80	5.80	5.80	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	5.80	5.80	5.80	8.50	72.50	19.00	37	20	43

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.509376	0.073655	0.192210	0.135105	0.037177	0.005354	0.012300	0.020284	0.001820	0.002092	0.006537	0.000620	0.003469

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0561	0.4899	0.2802	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1313	612.1313	0.0117	0.0112	615.8567
NaturalGas Unmitigated	0.0561	0.4899	0.2802	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1313	612.1313	0.0117	0.0112	615.8567

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	325.26	3.5100e-003	0.0319	0.0268	1.9000e-004		2.4200e-003	2.4200e-003		2.4200e-003	2.4200e-003		38.2659	38.2659	7.3000e-004	7.0000e-004	38.4988
High Turnover (Sit Down Restaurant)	1439.92	0.0155	0.1412	0.1186	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.4027	169.4027	3.2500e-003	3.1100e-003	170.4337
Apartments Mid Rise	3437.93	0.0371	0.3168	0.1348	2.0200e-003		0.0256	0.0256		0.0256	0.0256		404.4627	404.4627	7.7500e-003	7.4200e-003	406.9242
Total		**0.0561**	**0.4899**	**0.2802**	**3.0600e-003**		**0.0388**	**0.0388**		**0.0388**	**0.0388**		**612.1313**	**612.1313**	**0.0117**	**0.0112**	**615.8567**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.32526	3.5100e-003	0.0319	0.0268	1.9000e-004		2.4200e-003	2.4200e-003		2.4200e-003	2.4200e-003		38.2659	38.2659	7.3000e-004	7.0000e-004	38.4988
High Turnover (Sit Down Restaurant)	1.43992	0.0155	0.1412	0.1186	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.4027	169.4027	3.2500e-003	3.1100e-003	170.4337
Apartments Mid Rise	3.43793	0.0371	0.3168	0.1348	2.0200e-003		0.0256	0.0256		0.0256	0.0256		404.4627	404.4627	7.7500e-003	7.4200e-003	406.9242
Total		**0.0561**	**0.4899**	**0.2802**	**3.0600e-003**		**0.0388**	**0.0388**		**0.0388**	**0.0388**		**612.1313**	**612.1313**	**0.0117**	**0.0112**	**615.8567**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.5429	0.2719	23.5095	1.2400e-003		0.1293	0.1293		0.1293	0.1293	0.0000	42.1914	42.1914	0.0412	0.0000	43.0555
Unmitigated	9.5429	0.2719	23.5095	1.2400e-003		0.1293	0.1293		0.1293	0.1293	0.0000	42.1914	42.1914	0.0412	0.0000	43.0555

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.4978					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Consumer Products	6.3292					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.7160	0.2719	23.5095	1.2400e-003		0.1293	0.1293		0.1293	0.1293		42.1914	42.1914	0.0412		43.0555
Total	**9.5429**	**0.2719**	**23.5095**	**1.2400e-003**		**0.1293**	**0.1293**		**0.1293**	**0.1293**	**0.0000**	**42.1914**	**42.1914**	**0.0412**	**0.0000**	**43.0555**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.4978					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.3292					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.7160	0.2719	23.5095	1.2400e-003		0.1293	0.1293		0.1293	0.1293		42.1914	42.1914	0.0412		43.0555
Total	**9.5429**	**0.2719**	**23.5095**	**1.2400e-003**		**0.1293**	**0.1293**		**0.1293**	**0.1293**	**0.0000**	**42.1914**	**42.1914**	**0.0412**	**0.0000**	**43.0555**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Fashion Valley Apartments

San Diego Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	8.48	1000sqft	0.46	8,480.00	0
High Turnover (Sit Down Restaurant)	3.27	1000sqft	0.46	3,275.00	0
Apartments Mid Rise	284.00	Dwelling Unit	4.00	284,000.00	812

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	525.96	**CH4 Intensity (lb/MWhr)**	0.021	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Trips and VMT -

Architectural Coating - Rule 67.0.1 coatings

Vehicle Trips - Based on traffic report

Area Coating - Rule 67.0.1

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00

tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblConstructionPhase	NumDays	18.00	109.00
tblConstructionPhase	NumDays	230.00	390.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	8.00	66.00
tblConstructionPhase	NumDays	18.00	109.00
tblConstructionPhase	PhaseEndDate	7/31/2019	2/28/2019
tblConstructionPhase	PhaseEndDate	7/31/2019	2/28/2019
tblConstructionPhase	PhaseStartDate	3/1/2019	10/1/2018
tblConstructionPhase	PhaseStartDate	3/1/2019	10/1/2018
tblEnergyUse	T24E	160.77	92.48
tblEnergyUse	T24E	5.69	3.12
tblEnergyUse	T24E	10.06	5.51
tblEnergyUse	T24NG	3,820.47	2,756.47
tblEnergyUse	T24NG	16.83	9.80
tblEnergyUse	T24NG	37.80	22.02
tblFireplaces	NumberGas	156.20	0.00
tblFireplaces	NumberNoFireplace	28.40	284.00
tblFireplaces	NumberWood	99.40	0.00
tblGrading	AcresOfGrading	33.00	4.92
tblGrading	MaterialExported	0.00	100,443.00
tblLandUse	LandUseSquareFeet	3,270.00	3,275.00
tblLandUse	LotAcreage	0.19	0.46
tblLandUse	LotAcreage	0.08	0.46
tblLandUse	LotAcreage	7.47	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.021
tblProjectCharacteristics	CO2IntensityFactor	720.49	525.96
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblProjectCharacteristics	OperationalYear	2014	2020

tblVehicleTrips	CC_TL	7.30	5.80
tblVehicleTrips	CC_TL	7.30	5.80
tblVehicleTrips	CNW_TL	7.30	5.80
tblVehicleTrips	CNW_TL	7.30	5.80
tblVehicleTrips	CW_TL	9.50	5.80
tblVehicleTrips	CW_TL	9.50	5.80
tblVehicleTrips	HO_TL	7.50	5.80
tblVehicleTrips	HS_TL	7.30	5.80
tblVehicleTrips	HW_TL	10.80	5.80
tblVehicleTrips	ST_TR	7.16	5.10
tblVehicleTrips	ST_TR	2.37	28.89
tblVehicleTrips	ST_TR	158.37	130.00
tblVehicleTrips	SU_TR	6.07	5.10
tblVehicleTrips	SU_TR	0.98	28.89
tblVehicleTrips	SU_TR	131.84	130.00
tblVehicleTrips	WD_TR	6.59	5.10
tblVehicleTrips	WD_TR	11.01	28.89
tblVehicleTrips	WD_TR	127.15	130.00
tblWoodstoves	NumberCatalytic	14.20	0.00
tblWoodstoves	NumberNoncatalytic	14.20	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					

2017	7.3804	85.1111	73.1372	0.1731	9.7530	2.6815	12.4345	4.2915	2.4669	6.7584	0.0000	17,221.0191	17,221.0191	1.1205	0.0000	17,244.5501
2018	26.5349	43.1268	45.5680	0.0824	2.4386	2.5253	4.9639	0.6511	2.3672	3.0183	0.0000	7,513.6571	7,513.6571	1.3312	0.0000	7,541.6127
2019	25.9498	38.6259	44.0556	0.0824	2.4386	2.1754	4.6140	0.6511	2.0396	2.6906	0.0000	7,369.0692	7,369.0692	1.3112	0.0000	7,396.6037
Total	**59.8650**	**166.8638**	**162.7608**	**0.3379**	**14.6301**	**7.3822**	**22.0124**	**5.5936**	**6.8736**	**12.4673**	**0.0000**	**32,103.7454**	**32,103.7454**	**3.7629**	**0.0000**	**32,182.7665**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	7.3804	85.1111	73.1372	0.1731	5.9009	2.6815	8.5824	2.2473	2.4669	4.7142	0.0000	17,221.0191	17,221.0191	1.1205	0.0000	17,244.5501
2018	26.5349	43.1268	45.5680	0.0824	2.4386	2.5253	4.9639	0.6511	2.3672	3.0183	0.0000	7,513.6571	7,513.6571	1.3312	0.0000	7,541.6127
2019	25.9498	38.6259	44.0556	0.0824	2.4386	2.1754	4.6140	0.6511	2.0396	2.6906	0.0000	7,369.0692	7,369.0692	1.3112	0.0000	7,396.6037
Total	**59.8650**	**166.8638**	**162.7608**	**0.3379**	**10.7780**	**7.3822**	**18.1602**	**3.5494**	**6.8736**	**10.4231**	**0.0000**	**32,103.7454**	**32,103.7454**	**3.7629**	**0.0000**	**32,182.7665**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**26.33**	**0.00**	**17.50**	**36.55**	**0.00**	**16.40**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Area	9.5429	0.2719	23.5095	1.2400e-003		0.1293	0.1293		0.1293	0.1293	0.0000	42.1914	42.1914	0.0412	0.0000	43.0555
Energy	0.0561	0.4899	0.2802	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1313	612.1313	0.0117	0.0112	615.8567
Mobile	8.6893	15.3281	75.3704	0.1070	7.4505	0.2054	7.6559	1.9888	0.1885	2.1772		9,850.0120	9,850.0120	0.5069		9,860.6566
Total	**18.2883**	**16.0899**	**99.1600**	**0.1113**	**7.4505**	**0.3735**	**7.8239**	**1.9888**	**0.3565**	**2.3453**	**0.0000**	**10,504.3348**	**10,504.3348**	**0.5598**	**0.0112**	**10,519.5688**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.5429	0.2719	23.5095	1.2400e-003		0.1293	0.1293		0.1293	0.1293	0.0000	42.1914	42.1914	0.0412	0.0000	43.0555
Energy	0.0561	0.4899	0.2802	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1313	612.1313	0.0117	0.0112	615.8567
Mobile	8.6893	15.3281	75.3704	0.1070	7.4505	0.2054	7.6559	1.9888	0.1885	2.1772		9,850.0120	9,850.0120	0.5069		9,860.6566
Total	**18.2883**	**16.0899**	**99.1600**	**0.1113**	**7.4505**	**0.3735**	**7.8239**	**1.9888**	**0.3565**	**2.3453**	**0.0000**	**10,504.3348**	**10,504.3348**	**0.5598**	**0.0112**	**10,519.5688**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2017	5/31/2017	5	23	
2	Grading	Grading	6/1/2017	8/31/2017	5	66	

3	Building Construction	Building Construction	9/1/2017	2/28/2019	5	390	
4	Paving	Paving	10/1/2018	2/28/2019	5	109	
5	Architectural Coating	Architectural Coating	10/1/2018	2/28/2019	5	109	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4.92

Acres of Paving: 0

Residential Indoor: 575,100; Residential Outdoor: 191,700; Non-Residential Indoor: 17,633; Non-Residential Outdoor: 5,878 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	2	6.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	317.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	12,555.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	209.00	32.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	42.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0181	0.0000	3.0181	0.4571	0.0000	0.4571			0.0000			0.0000
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797		4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**	**3.0181**	**2.1252**	**5.1433**	**0.4571**	**1.9797**	**2.4368**		**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2807	3.5550	3.4176	0.0103	0.2402	0.0465	0.2867	0.0658	0.0428	0.1085		1,018.6750	1,018.6750	7.1700e-003		1,018.8255
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0504	0.0628	0.5868	1.4700e-003	0.1232	9.0000e-004	0.1241	0.0327	8.3000e-004	0.0335		117.6222	117.6222	6.0400e-003		117.7491
Total	**0.3311**	**3.6177**	**4.0043**	**0.0118**	**0.3634**	**0.0474**	**0.4108**	**0.0984**	**0.0436**	**0.1421**		**1,136.2972**	**1,136.2972**	**0.0132**		**1,136.5745**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1771	0.0000	1.1771	0.1783	0.0000	0.1783			0.0000			0.0000
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797	0.0000	4,036.4674	4,036.4674	1.1073		4,059.7211
Total	**4.0482**	**42.6971**	**33.8934**	**0.0399**	**1.1771**	**2.1252**	**3.3023**	**0.1783**	**1.9797**	**2.1580**	**0.0000**	**4,036.4674**	**4,036.4674**	**1.1073**		**4,059.7211**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2807	3.5550	3.4176	0.0103	0.2402	0.0465	0.2867	0.0658	0.0428	0.1085		1,018.6750	1,018.6750	7.1700e-003		1,018.8255

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0504	0.0628	0.5868	1.4700e-003	0.1232	9.0000e-004	0.1241	0.0327	8.3000e-004	0.0335		117.6222	117.6222	6.0400e-003		117.7491
Total	**0.3311**	**3.6177**	**4.0043**	**0.0118**	**0.3634**	**0.0474**	**0.4108**	**0.0984**	**0.0436**	**0.1421**		**1,136.2972**	**1,136.2972**	**0.0132**		**1,136.5745**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.3150	0.0000	6.3150	3.3512	0.0000	3.3512			0.0000			0.0000
Off-Road	3.4555	35.9825	25.3812	0.0297		2.0388	2.0388		1.8757	1.8757		3,043.6667	3,043.6667	0.9326		3,063.2507
Total	**3.4555**	**35.9825**	**25.3812**	**0.0297**	**6.3150**	**2.0388**	**8.3538**	**3.3512**	**1.8757**	**5.2269**		**3,043.6667**	**3,043.6667**	**0.9326**		**3,063.2507**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.8745	49.0659	47.1693	0.1419	3.3148	0.6418	3.9566	0.9077	0.5904	1.4980		14,059.7302	14,059.7302	0.0989		14,061.8073
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0504	0.0628	0.5868	1.4700e-003	0.1232	9.0000e-004	0.1241	0.0327	8.3000e-004	0.0335		117.6222	117.6222	6.0400e-003		117.7491
Total	**3.9248**	**49.1287**	**47.7560**	**0.1433**	**3.4380**	**0.6427**	**4.0807**	**0.9403**	**0.5912**	**1.5315**		**14,177.3524**	**14,177.3524**	**0.1050**		**14,179.5564**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4629	0.0000	2.4629	1.3070	0.0000	1.3070			0.0000			0.0000
Off-Road	3.4555	35.9825	25.3812	0.0297		2.0388	2.0388		1.8757	1.8757	0.0000	3,043.6667	3,043.6667	0.9326		3,063.2507
Total	**3.4555**	**35.9825**	**25.3812**	**0.0297**	**2.4629**	**2.0388**	**4.5017**	**1.3070**	**1.8757**	**3.1827**	**0.0000**	**3,043.6667**	**3,043.6667**	**0.9326**		**3,063.2507**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.8745	49.0659	47.1693	0.1419	3.3148	0.6418	3.9566	0.9077	0.5904	1.4980		14,059.7302	14,059.7302	0.0989		14,061.8073
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0504	0.0628	0.5868	1.4700e-003	0.1232	9.0000e-004	0.1241	0.0327	8.3000e-004	0.0335		117.6222	117.6222	6.0400e-003		117.7491
Total	**3.9248**	**49.1287**	**47.7560**	**0.1433**	**3.4380**	**0.6427**	**4.0807**	**0.9403**	**0.5912**	**1.5315**		**14,177.3524**	**14,177.3524**	**0.1050**		**14,179.5564**

3.4 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**		**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3529	2.7762	4.5376	7.5600e-003	0.2124	0.0402	0.2526	0.0606	0.0370	0.0976		744.8124	744.8124	5.7300e-003		744.9326
Worker	0.7016	0.8743	8.1755	0.0204	1.7169	0.0125	1.7294	0.4554	0.0115	0.4669		1,638.8696	1,638.8696	0.0842		1,640.6367
Total	**1.0545**	**3.6505**	**12.7131**	**0.0280**	**1.9293**	**0.0527**	**1.9820**	**0.5160**	**0.0485**	**0.5645**		**2,383.6820**	**2,383.6820**	**0.0899**		**2,385.5694**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730	0.0000	2,639.8053	2,639.8053	0.6497		2,653.4490

Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**	**0.0000**	**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3529	2.7762	4.5376	7.5600e-003	0.2124	0.0402	0.2526	0.0606	0.0370	0.0976		744.8124	744.8124	5.7300e-003		744.9326
Worker	0.7016	0.8743	8.1755	0.0204	1.7169	0.0125	1.7294	0.4554	0.0115	0.4669		1,638.8696	1,638.8696	0.0842		1,640.6367
Total	**1.0545**	**3.6505**	**12.7131**	**0.0280**	**1.9293**	**0.0527**	**1.9820**	**0.5160**	**0.0485**	**0.5645**		**2,383.6820**	**2,383.6820**	**0.0899**		**2,385.5694**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048		2,609.9390	2,609.9390	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**		**2,609.9390**	**2,609.9390**	**0.6387**		**2,623.3517**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3308	2.5065	4.3444	7.5500e-003	0.2124	0.0373	0.2497	0.0606	0.0343	0.0949		732.0090	732.0090	5.6200e-003		732.1271
Worker	0.6376	0.7978	7.3834	0.0204	1.7169	0.0123	1.7291	0.4554	0.0113	0.4667		1,577.3144	1,577.3144	0.0783		1,578.9580
Total	**0.9685**	**3.3043**	**11.7278**	**0.0280**	**1.9293**	**0.0496**	**1.9789**	**0.5160**	**0.0457**	**0.5617**		**2,309.3234**	**2,309.3234**	**0.0839**		**2,311.0851**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048	0.0000	2,609.9389	2,609.9389	0.6387		2,623.3517
Total	**2.6687**	**23.2608**	**17.5327**	**0.0268**		**1.4943**	**1.4943**		**1.4048**	**1.4048**	**0.0000**	**2,609.9389**	**2,609.9389**	**0.6387**		**2,623.3517**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3308	2.5065	4.3444	7.5500e-003	0.2124	0.0373	0.2497	0.0606	0.0343	0.0949		732.0090	732.0090	5.6200e-003		732.1271
Worker	0.6376	0.7978	7.3834	0.0204	1.7169	0.0123	1.7291	0.4554	0.0113	0.4667		1,577.3144	1,577.3144	0.0783		1,578.9580
Total	**0.9685**	**3.3043**	**11.7278**	**0.0280**	**1.9293**	**0.0496**	**1.9789**	**0.5160**	**0.0457**	**0.5617**		**2,309.3234**	**2,309.3234**	**0.0839**		**2,311.0851**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Off-Road	2.3516	20.9650	17.1204	0.0268		1.2850	1.2850		1.2083	1.2083		2,580.7618	2,580.7618	0.6279		2,593.9479
Total	**2.3516**	**20.9650**	**17.1204**	**0.0268**		**1.2850**	**1.2850**		**1.2083**	**1.2083**		**2,580.7618**	**2,580.7618**	**0.6279**		**2,593.9479**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3085	2.2807	4.1538	7.5400e-003	0.2124	0.0347	0.2471	0.0606	0.0319	0.0925		719.3888	719.3888	5.4900e-003		719.5040

Worker	0.5917	0.7372	6.7837	0.0204	1.7169	0.0122	1.7291	0.4554	0.0113	0.4667		1,520.2411	1,520.2411	0.0736		1,521.7871
Total	**0.9002**	**3.0179**	**10.9375**	**0.0280**	**1.9293**	**0.0469**	**1.9761**	**0.5160**	**0.0432**	**0.5592**		**2,239.6298**	**2,239.6298**	**0.0791**		**2,241.2911**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3516	20.9650	17.1204	0.0268		1.2850	1.2850		1.2083	1.2083	0.0000	2,580.7618	2,580.7618	0.6279		2,593.9479
Total	**2.3516**	**20.9650**	**17.1204**	**0.0268**		**1.2850**	**1.2850**		**1.2083**	**1.2083**	**0.0000**	**2,580.7618**	**2,580.7618**	**0.6279**		**2,593.9479**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3085	2.2807	4.1538	7.5400e-003	0.2124	0.0347	0.2471	0.0606	0.0319	0.0925		719.3888	719.3888	5.4900e-003		719.5040
Worker	0.5917	0.7372	6.7837	0.0204	1.7169	0.0122	1.7291	0.4554	0.0113	0.4667		1,520.2411	1,520.2411	0.0736		1,521.7871
Total	**0.9002**	**3.0179**	**10.9375**	**0.0280**	**1.9293**	**0.0469**	**1.9761**	**0.5160**	**0.0432**	**0.5592**		**2,239.6298**	**2,239.6298**	**0.0791**		**2,241.2911**

3.5 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4060	14.3192	12.2631	0.0187		0.8272	0.8272		0.7628	0.7628		1,845.0348	1,845.0348	0.5587		1,856.7667
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4060**	**14.3192**	**12.2631**	**0.0187**		**0.8272**	**0.8272**		**0.7628**	**0.7628**		**1,845.0348**	**1,845.0348**	**0.5587**		**1,856.7667**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0610	0.0763	0.7065	1.9500e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		150.9392	150.9392	7.4900e-003		151.0965
Total	**0.0610**	**0.0763**	**0.7065**	**1.9500e-003**	**0.1643**	**1.1700e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**150.9392**	**150.9392**	**7.4900e-003**		**151.0965**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Off-Road	1.4060	14.3192	12.2631	0.0187		0.8272	0.8272		0.7628	0.7628	0.0000	1,845.0348	1,845.0348	0.5587		1,856.7667
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4060**	**14.3192**	**12.2631**	**0.0187**		**0.8272**	**0.8272**		**0.7628**	**0.7628**	**0.0000**	**1,845.0348**	**1,845.0348**	**0.5587**		**1,856.7667**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0610	0.0763	0.7065	1.9500e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		150.9392	150.9392	7.4900e-003		151.0965
Total	**0.0610**	**0.0763**	**0.7065**	**1.9500e-003**	**0.1643**	**1.1700e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**150.9392**	**150.9392**	**7.4900e-003**		**151.0965**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2520	12.5889	12.1441	0.0187		0.7111	0.7111		0.6560	0.6560		1,816.2490	1,816.2490	0.5585		1,827.9782
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Total	**1.2520**	**12.5889**	**12.1441**	**0.0187**		**0.7111**	**0.7111**		**0.6560**	**0.6560**		**1,816.2490**	**1,816.2490**	**0.5585**		**1,827.9782**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0566	0.0705	0.6492	1.9500e-003	0.1643	1.1600e-003	0.1655	0.0436	1.0800e-003	0.0447		145.4776	145.4776	7.0400e-003		145.6256
Total	**0.0566**	**0.0705**	**0.6492**	**1.9500e-003**	**0.1643**	**1.1600e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**145.4776**	**145.4776**	**7.0400e-003**		**145.6256**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2520	12.5889	12.1441	0.0187		0.7111	0.7111		0.6560	0.6560	0.0000	1,816.2490	1,816.2490	0.5585		1,827.9782
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2520**	**12.5889**	**12.1441**	**0.0187**		**0.7111**	**0.7111**		**0.6560**	**0.6560**	**0.0000**	**1,816.2490**	**1,816.2490**	**0.5585**		**1,827.9782**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0566	0.0705	0.6492	1.9500e-003	0.1643	1.1600e-003	0.1655	0.0436	1.0800e-003	0.0447		145.4776	145.4776	7.0400e-003		145.6256
Total	**0.0566**	**0.0705**	**0.6492**	**1.9500e-003**	**0.1643**	**1.1600e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**145.4776**	**145.4776**	**7.0400e-003**		**145.6256**

3.6 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	21.0040					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.0102
Total	**21.3026**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.0102**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1281	0.1603	1.4837	4.1000e-003	0.3450	2.4600e-003	0.3475	0.0915	2.2800e-003	0.0938		316.9723	316.9723	0.0157		317.3026
Total	**0.1281**	**0.1603**	**1.4837**	**4.1000e-003**	**0.3450**	**2.4600e-003**	**0.3475**	**0.0915**	**2.2800e-003**	**0.0938**		**316.9723**	**316.9723**	**0.0157**		**317.3026**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	21.0040					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.0102
Total	**21.3026**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.0102**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1281	0.1603	1.4837	4.1000e-003	0.3450	2.4600e-003	0.3475	0.0915	2.2800e-003	0.0938		316.9723	316.9723	0.0157		317.3026

Total	**0.1281**	**0.1603**	**1.4837**	**4.1000e-003**	**0.3450**	**2.4600e-003**	**0.3475**	**0.0915**	**2.2800e-003**	**0.0938**		**316.9723**	**316.9723**	**0.0157**		**317.3026**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	21.0040					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		281.9473
Total	**21.2704**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**281.9473**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1189	0.1481	1.3632	4.1000e-003	0.3450	2.4400e-003	0.3475	0.0915	2.2700e-003	0.0938		305.5030	305.5030	0.0148		305.8137
Total	**0.1189**	**0.1481**	**1.3632**	**4.1000e-003**	**0.3450**	**2.4400e-003**	**0.3475**	**0.0915**	**2.2700e-003**	**0.0938**		**305.5030**	**305.5030**	**0.0148**		**305.8137**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	21.0040					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		281.9473
Total	**21.2704**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**281.9473**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1189	0.1481	1.3632	4.1000e-003	0.3450	2.4400e-003	0.3475	0.0915	2.2700e-003	0.0938		305.5030	305.5030	0.0148		305.8137
Total	**0.1189**	**0.1481**	**1.3632**	**4.1000e-003**	**0.3450**	**2.4400e-003**	**0.3475**	**0.0915**	**2.2700e-003**	**0.0938**		**305.5030**	**305.5030**	**0.0148**		**305.8137**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.6893	15.3281	75.3704	0.1070	7.4505	0.2054	7.6559	1.9888	0.1885	2.1772		9,850.0120	9,850.0120	0.5069		9,860.6566
Unmitigated	8.6893	15.3281	75.3704	0.1070	7.4505	0.2054	7.6559	1.9888	0.1885	2.1772		9,850.0120	9,850.0120	0.5069		9,860.6566

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,448.40	1,448.40	1448.40	2,715,434	2,715,434
General Office Building	244.99	244.99	244.99	423,182	423,182
High Turnover (Sit Down Restaurant)	425.10	425.10	425.10	383,592	383,592
Total	2,118.49	2,118.49	2,118.49	3,522,207	3,522,207

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	5.80	5.80	5.80	41.60	18.80	39.60	86	11	3
General Office Building	5.80	5.80	5.80	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	5.80	5.80	5.80	8.50	72.50	19.00	37	20	43

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.509376	0.073655	0.192210	0.135105	0.037177	0.005354	0.012300	0.020284	0.001820	0.002092	0.006537	0.000620	0.003469

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0561	0.4899	0.2802	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1313	612.1313	0.0117	0.0112	615.8567
NaturalGas Unmitigated	0.0561	0.4899	0.2802	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1313	612.1313	0.0117	0.0112	615.8567

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	3437.93	0.0371	0.3168	0.1348	2.0200e-003		0.0256	0.0256		0.0256	0.0256		404.4627	404.4627	7.7500e-003	7.4200e-003	406.9242
General Office Building	325.26	3.5100e-003	0.0319	0.0268	1.9000e-004		2.4200e-003	2.4200e-003		2.4200e-003	2.4200e-003		38.2659	38.2659	7.3000e-004	7.0000e-004	38.4988
High Turnover (Sit Down Restaurant)	1439.92	0.0155	0.1412	0.1186	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.4027	169.4027	3.2500e-003	3.1100e-003	170.4337
Total		**0.0561**	**0.4899**	**0.2802**	**3.0600e-003**		**0.0388**	**0.0388**		**0.0388**	**0.0388**		**612.1313**	**612.1313**	**0.0117**	**0.0112**	**615.8567**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.32526	3.5100e-003	0.0319	0.0268	1.9000e-004		2.4200e-003	2.4200e-003		2.4200e-003	2.4200e-003		38.2659	38.2659	7.3000e-004	7.0000e-004	38.4988
High Turnover (Sit Down Restaurant)	1.43992	0.0155	0.1412	0.1186	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.4027	169.4027	3.2500e-003	3.1100e-003	170.4337
Apartments Mid Rise	3.43793	0.0371	0.3168	0.1348	2.0200e-003		0.0256	0.0256		0.0256	0.0256		404.4627	404.4627	7.7500e-003	7.4200e-003	406.9242
Total		**0.0561**	**0.4899**	**0.2802**	**3.0600e-003**		**0.0388**	**0.0388**		**0.0388**	**0.0388**		**612.1313**	**612.1313**	**0.0117**	**0.0112**	**615.8567**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.5429	0.2719	23.5095	1.2400e-003		0.1293	0.1293		0.1293	0.1293	0.0000	42.1914	42.1914	0.0412	0.0000	43.0555
Unmitigated	9.5429	0.2719	23.5095	1.2400e-003		0.1293	0.1293		0.1293	0.1293	0.0000	42.1914	42.1914	0.0412	0.0000	43.0555

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.4978					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Consumer Products	6.3292					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.7160	0.2719	23.5095	1.2400e-003		0.1293	0.1293		0.1293	0.1293		42.1914	42.1914	0.0412		43.0555
Total	**9.5429**	**0.2719**	**23.5095**	**1.2400e-003**		**0.1293**	**0.1293**		**0.1293**	**0.1293**	**0.0000**	**42.1914**	**42.1914**	**0.0412**	**0.0000**	**43.0555**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.4978					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.3292					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.7160	0.2719	23.5095	1.2400e-003		0.1293	0.1293		0.1293	0.1293		42.1914	42.1914	0.0412		43.0555
Total	**9.5429**	**0.2719**	**23.5095**	**1.2400e-003**		**0.1293**	**0.1293**		**0.1293**	**0.1293**	**0.0000**	**42.1914**	**42.1914**	**0.0412**	**0.0000**	**43.0555**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Greenhouse Gas Evaluation

for the

Fashion Valley Apartments Project

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Appendix A Greenhouse Gas Emission Calculations

List of Acronyms

APCD	Air Pollution Control District
AB	Assembly Bill
AB 32	Assembly Bill 32, Global Warming Solutions Act of 2006
ARB	Air Resources Board
CAPCOA	California Air Pollution Control Officers Association
CCAP	Center for Clean Air Policy
CCAR	California Climate Action Registry
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	Methane
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DWR	Department of Water Resources
EPA	U.S. Environmental Protection Agency
GCC	Global Climate Change
GHG	Greenhouse Gas
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
LCFS	Low Carbon Fuel Standard
LEED	Leadership in Energy and Environmental Design
MMT	Million Metric Tons
MW	Megawatts
N_2O	Nitrous Oxide
OPR	State Office of Planning and Research
PFCs	Perfluorocarbons
RPS	Renewable Portfolio Standards
SB	Senate Bill
SDCGHGI	San Diego County Greenhouse Gas Inventory
UNFCCC	United Nations Framework Convention on Climate Change
URBEMIS	Urban Emissions Model
USBGC	U.S. Green Building Council
VMT	Vehicle Miles Traveled

1.0 INTRODUCTION

This report presents an assessment of potential greenhouse gas (GHG) impacts associated with the Fashion Valley Apartments project in the Mission Valley area of the City of San Diego. The project proposes to construct a mixed-use development, including 284 multi-family dwelling units, 8,480 square feet of commercial office spaces, and 3,275 square feet of restaurant uses at a 4.92-acre site located on Camino de la Reina in Mission Valley. The project proposes the demolition of an existing 69,651-square foot office building.

This Greenhouse Gas Analysis analysis includes an evaluation of existing conditions in the project vicinity, an assessment of potential GHG emissions associated with project construction and operations, and project design features and other regulatory actions that will reduce greenhouse gas emissions.

1.1 General Principles and Existing Conditions

Global Climate Change (GCC) refers to changes in average climatic conditions on Earth as a whole, including temperature, wind patterns, precipitation and storms. GCC may result from natural factors, natural processes, and/or human activities that change the composition of the atmosphere and alter the surface and features of land. Historical records indicate that global climate changes have occurred in the past due to natural phenomena (such as during previous ice ages). Some data indicate that the current global conditions differ from past climate changes in rate and magnitude.

Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), which are known as greenhouse gases (GHGs). These gases allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere, much like a greenhouse. GHGs are emitted by both natural processes and human activities. Without these natural GHGs, the Earth's temperature would be about 61º Fahrenheit cooler (California Environmental Protection Agency 2006). Emissions from human activities, such as electricity

production and vehicle use, have elevated the concentration of these gases in the atmosphere. For example, data from ice cores indicate that CO_2 concentrations remained steady prior to the current period for approximately 10,000 years; however, concentrations of CO_2 have increased in the atmosphere since the industrial revolution.

GCC and GHGs have been at the center of a widely contested political, economic, and scientific debate. Although the conceptual existence of GCC is generally accepted, the extent to which GHGs generally and anthropogenic-induced GHGs (mainly CO_2, CH_4 and N_2O) contribute to it remains a source of debate. The State of California has been at the forefront of developing solutions to address GCC.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. The IPCC concluded that a stabilization of GHGs at 400 to 450 ppm CO_2 equivalent concentration is required to keep global mean warming below 3.6º Fahrenheit (2º Celsius), which is assumed to be necessary to avoid dangerous climate change (Association of Environmental Professionals 2007).

State law defines greenhouse gases as any of the following compounds: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) (California Health and Safety Code Section 38505(g).) CO_2, followed by CH_4 and N_2O, are the most common GHGs that result from human activity.

1.2 Sources and Global Warming Potentials of GHG

Anthropogenic sources of CO_2 include combustion of fossil fuels (coal, oil, natural gas, gasoline and wood). CH_4 is the main component of natural gas and also arises naturally from anaerobic decay of organic matter. Accordingly, anthropogenic sources of CH_4 include landfills, fermentation of manure and cattle farming. Anthropogenic sources of N_2O include combustion of fossil fuels and industrial processes such as nylon production and production of nitric acid. Other

GHGs are present in trace amounts in the atmosphere and are generated from various industrial or other uses.

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effect of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas" (USEPA 2006). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main greenhouse gases that have been attributed to human activity include CH_4, which has a GWP of 28, and N_2O, which has a GWP of 265. Table 1 presents the GWP and atmospheric lifetimes of common GHGs. In order to account for each GHG's respective GWP, all types of GHG emissions are expressed in terms of CO_2 equivalents (CO_2e) and are typically quantified in metric tons (MT) or millions of metric tons (MMT).

Table 1
Global Warming Potentials and Atmospheric Lifetimes of GHGs

GHG	Formula	100-Year Global Warming Potential	Atmospheric Lifetime (Years)
Carbon Dioxide	CO_2	1	Variable
Methane	CH_4	28	12
Nitrous Oxide	N_2O	265	121
Sulfur Hexafluoride	SF_6	23,500	3,200
Hydrofluorocarbons	HFCs	100 to 12,000	1 to 100
Perfluorocarbons	PFCs	7,000 to 11,000	3.000 to 50,000
Nitrogen Trifluoride	NF_3	16,100	500

Source:First Update to the Climate Change Scoping Plan, ARB 2014

The California Air Resources Board (ARB) compiled a statewide inventory of anthropogenic GHG emissions and sinks that includes estimates for CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs. The current inventory covers the years 1990 to 2012, and is summarized in Table 2. Data sources used to calculate this GHG inventory include California and federal agencies, international organizations, and industry associations. The calculation methodologies are consistent with guidance from the IPCC. The 1990 emissions level is the sum total of sources and sinks from all sectors and categories in the inventory. The inventory is divided into seven broad sectors and categories in

the inventory. These sectors include: Agriculture; Commercial; Electricity Generation; Forestry; Industrial; Residential; and Transportation.

Table 2
State of California GHG Emissions by Sector

Sector	Total 1990 Emissions ($MMTCO_2e$)	Percent of Total 1990 Emissions	Total 2012 Emissions ($MMTCO_2e$)	Percent of Total 2012 Emissions
Agriculture	23.4	5%	37.86	8%
Commercial	14.4	3%	14.20	3%
Electricity Generation	110.6	26%	95.09	21%
Forestry (excluding sinks)	0.2	<1%		
Industrial	103.0	24%	89.16	19%
Residential	29.7	7%	28.09	6%
Transportation	150.7	35%	167.38	36%
Recycling and Waste			8.49	2%
High GWP Gases			18.41	4%
Forestry Sinks	(6.7)			

In addition to the statewide GHG inventory prepared by the ARB, a GHG inventory was prepared by the University of San Diego School of Law Energy Policy Initiative Center (EPIC) for the San Diego region (University of San Diego 2008). The San Diego County Greenhouse Gas Inventory (SDCGHGI) takes into account the unique characteristics of the region when estimating emissions, and estimated emissions for years 1990, 2006, and 2020. Based on this inventory and the emission projections for the region, EPIC found that GHG emissions must be reduced by 33 percent below business as usual conditions for year 2020 in order for San Diego County to return to 1990 emission levels. "Business as usual" is defined as the emissions that would occur without any greenhouse gas reduction measures[1]. For example, construction of buildings using 2005 Title 24 building standards, and not subsequently enacted more rigorous standards, would create "business as usual" emissions.

[1] As defined in the California Air Resources Board's *Climate Change Proposed Scoping Plan*, October 2008, page 11.

Areas where feasible reductions could occur and the strategies for achieving those reductions are outlined in the SDCGHGI. A summary of the various sectors that contribute GHG emissions in San Diego County for year 2006 is provided in Table 3. Total GHGs in San Diego County are estimated at 34 $MMTCO_2e$.

Table 3
San Diego County 2006 GHG Emissions by Category

Sector	Total Emissions ($MMTCO_2e$)	Percent of Total Emissions
On-Road Transportation	16	46%
Electricity	9	25%
Natural Gas Consumption	3	9%
Civil Aviation	1.7	5%
Industrial Processes & Products	1.6	5%
Other Fuels/Other	1.1	4%
Off-Road Equipment & Vehicles	1.3	4%
Waste	0.7	2%
Agriculture/Forestry/Land Use	0.7	2%
Rail	0.3	1%
Water-Born Navigation	0.13	0.4%

Source: EPIC's SDCGHGI, 2008.

According to the SDCGHGI, a majority of the region's emissions are attributable to on-road transportation, with the next largest source of GHG emissions attributable to electricity generation. The SDCGHGI states that emission reductions from on-road transportation will be achieved in a variety of ways, including through regulations aimed at increasing fuel efficiency standards and decreasing vehicle emissions. These regulations are outside the control of project applicants for land use development. The SDCGHGI also indicates that emission reductions from electricity generation will be achieved in a variety of ways, including through a 10 percent reduction in electricity consumption, implementation of the renewable portfolio standard (RPS), cleaner electricity purchases by San Diego Gas & Electric, replacement of the Boardman Contract (which allows the purchase of electricity from coal-fired power plants), and implementation of 400 MW of photovoltaics. Many of these measures are also outside the control of project applicants.

In its Draft Climate Action Plan (City of San Diego 2015), the City identified the 2010 baseline for GHG emissions of 13,091,591 MT CO_2e. Based on the community-wide emissions inventory, 55% of the baseline emissions are attributable to transportation, 23% are attributable to electricity

use, 17% are attributable to natural gas use, and 5% are attributable to solid waste and wastewater handling and treatment.

1.3 Regulatory Framework

All levels of government have some responsibility for the protection of air quality, and each level (Federal, State, and regional/local) has specific responsibilities relating to air quality regulation. GHG emissions and the regulation of GHGs is a relatively new component of this air quality regulatory framework.

1.3.1 National and International Efforts

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis for human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change. Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of global climate change. The U.S. Supreme Court rules in *Massachusetts v. Environmental Protection Agency*, 549 U.S. 497 (2007), that USEPA has the ability to regulate GHG emissions. In addition to the national and international efforts described above, many local jurisdictions have adopted climate change policies and programs.

On December 7, 2009, the USEPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the federal CAA:

> **Endangerment Finding:** USEPA found that the current and projected concentrations of the six key well-mixed GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations.
>
> **Cause or Contribute Finding:** USEPA found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action was a prerequisite to finalizing the EPA's proposed greenhouse gas emission standards for light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009 and adopted on April 1, 2010. As finalized in April 2010, the emissions standards rule for vehicles will improve average fuel economy standards to 35.5 miles per gallon by 2016. In addition, the rule will require model year 2016 vehicles to meet an estimated combined average emission level of 250 grams of carbon dioxide per mile.

Mandatory GHG Reporting Rule. On March 10, 2009, in response to the FY2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), the EPA proposed a rule that requires mandatory reporting of greenhouse gas (GHG) emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of Greenhouse Gases Rule was signed, and was published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. The rule will collect accurate and comprehensive emissions data to inform future policy decisions.

The EPA is requiring suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA. The gases covered by the proposed rule are carbon dioxide

(CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF_6), and other fluorinated gases, including nitrogen trifluoride (NF_3) and hydrofluorinated ethers (HFE).

1.3.2 State Regulations and Standards

The following subsections describe regulations and standards that have been adopted by the State of California to address GCC issues.

Assembly Bill 32, the California Global Warming Solutions Act of 2006. In September 2006, Governor Schwarzenegger signed AB 32 into law. AB 32 directed the ARB to do the following:

- Make publicly available a list of discrete early action GHG emission reduction measures that can be implemented prior to the adoption of the statewide GHG limit and the measures required to achieve compliance with the statewide limit.
- Make publicly available a GHG inventory for the year 1990 and determine target levels for 2020.
- On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures.
- On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020, to become operative on January 1, 2012, at the latest. The emission reduction measures may include direct emission reduction measures, alternative compliance mechanisms, and potential monetary and non-monetary incentives that reduce GHG emissions from any sources or categories of sources that ARB finds necessary to achieve the statewide GHG emissions limit.
- Monitor compliance with and enforce any emission reduction measure adopted pursuant to AB 32.

AB 32 required that, by January 1, 2008, the ARB determine what the statewide GHG emissions

level was in 1990, and approve a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020. The ARB adopted its Scoping Plan in December 2008 (ARB 2008a), which provided estimates of the 1990 GHG emissions level and identified sectors for the reduction of GHG emissions. The ARB estimated that the 1990 GHG emissions level was 427 MMT net CO_2e (ARB 2007). The ARB estimates that a reduction of 173 MMT net CO_2e emissions below business-as-usual would be required by 2020 to meet the 1990 levels. This amounts to roughly a 28.35 percent reduction from projected business-as-usual levels in 2020. In 2011, the ARB developed a supplement to the AB 32 Scoping Plan (ARB 2011). The Supplement updated the emissions inventory based on current projections for "business as usual" emissions to 506.8 metric tons of CO_2e. The updated projection included adopted measures (Pavley 1 fuel efficiency standards, 20% Renewable Portfolio Standard requirement), and estimated that an additional 16 percent reduction below the estimated "business as usual" levels would be necessary to return to 1990 levels by 2020.

In 2014, the ARB published its First Update to the Climate Change Scoping Plan (ARB 2014). The Update indicates that the State is on target to meet the goal of reducing GHG emissions to 1990 level by 2020. The First Update tracks progress in achieving the goals of AB 32, and lays out a new set of actions that will move the State further along the path to achieving the 2050 goal of reducing emissions to 80% below 1990 levels. While the Update discusses setting a mid-term target, the plan does not yet set a quantifiable target toward meeting the 2050 goal.

Senate Bill 97. Senate Bill (SB) 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. SB 97 directed the Governor's Office of Planning and Research (OPR) to develop draft CEQA guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009, and directed the California Natural Resources Agency (CNRA) to certify and adopt the CEQA guidelines by January 1, 2010.

OPR published a technical advisory on CEQA and climate change on June 19, 2008. The guidance did not include a suggested threshold, but stated that the OPR had asked the ARB to "recommend a method for setting thresholds which will encourage consistency and uniformity in the CEQA

analysis of greenhouse gas emissions throughout the state." The OPR technical advisory does recommend that CEQA analyses include the following components:

- Identification of greenhouse gas emissions;
- Determination of significance; and
- Mitigation of impacts, as needed and as feasible.

On December 31, 2009, the CNRA adopted the proposed amendments to the State CEQA Guidelines. These amendments became effective on March 18, 2010.

Executive Order S-3-05. Executive Order S-3-05, signed by Governor Schwarzenegger on June 1, 2005, calls for a reduction in GHG emissions to 1990 levels by 2020 and for an 80 percent reduction in GHG emissions below 1990 levels by 2050. Executive Order S-3-05 also calls for the California EPA (CalEPA) to prepare biennial science reports on the potential impact of continued GCC on certain sectors of the California economy. The first of these reports, "Our Changing Climate: Assessing Risks to California", and its supporting document "Scenarios of Climate Change in California: An Overview" were published by the California Climate Change Center in 2006.

Executive Order B-30-15. Executive Order B-30-15 was enacted by the Governor on April 29, 2015. Executive Order B-30-15 establishes an interim GHG emission reduction goal for the state of California to reduce GHG emissions to 40 percent below 1990 levels by the year 2030. This Executive Order directs all state agencies with jurisdiction over GHG-emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in Executive Order S-3-05 to reduce GHG emissions to 80 percent below 1990 levels by the year 2050. The Executive Order directs ARB to update its Scoping Plan to address the 2030 goal. It is anticipated that ARB will develop statewide inventory projection data for 2030 and commence efforts to identify reduction strategies capable of securing emission reductions that allow for achievement of the new interim goal for 2030.

Executive Order S-21-09. Executive Order S-21-09 was enacted by the Governor on September

15, 2009. Executive Order S-21-09 requires that the ARB, under its AB 32 authority, adopt a regulation by July 31, 2010 that sets a 33 percent renewable energy target. Under Executive Order S-21-09, the ARB will work with the Public Utilities Commission and California Energy Commission to encourage the creation and use of renewable energy sources, and will regulate all California utilities. The ARB will also consult with the Independent System Operator and other load balancing authorities on the impacts on reliability, renewable integration requirements, and interactions with wholesale power markets in carrying out the provisions of the Executive Order. The order requires the ARB to establish highest priority for those resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health.

California Code of Regulations Title 24. Although not originally intended to reduce greenhouse gas emissions, Title 24 of the California Code of Regulations, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow for the consideration and possible incorporation of new energy efficiency technologies and methods. Energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in greenhouse gas emissions. Therefore, increased energy efficiency results in decreased greenhouse gas emissions.

The GHG emission inventory was based on Title 24 standards as of October 2005; however, Title 24 has been updated as of 2008 and 2013. The 2013 standards require buildings to be 15% more energy-efficient than 2008 standards.

Senate Bill 1078, Senate Bill 107, and Executive Order S-14-08. SB 1078 initially set a target of 20% of energy to be sold from renewable sources by the year 2017. The schedule for implementation of the RPS was accelerated in 2006 with the Governor's signing of SB 107, which accelerated the 20% RPS goal from 2017 to 2010. On November 17, 2008, the Governor signed Executive Order S-14-08, which requires all retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020. The Governor signed Executive Order S-21-09 on

September 15, 2009, which directed ARB to implement a regulation consistent with the 2020 33% renewable energy target by July 31, 2010. The 33% RPS was adopted in 2010.

State Standards Addressing Vehicular Emissions. California Assembly Bill 1493 (Pavley) enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. Regulations adopted by ARB would apply to 2009 and later model year vehicles. ARB estimated that the regulation would reduce climate change emissions from light duty passenger vehicle fleet by an estimated 18% in 2020 and by 27% in 2030 (AEP 2007). Once implemented, emissions from new light-duty vehicles are expected to be reduced in San Diego County by up to 21 percent by 2020[2].

The ARB has adopted amendments to the Pavley regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments, approved by the ARB Board on September 24, 2009, are part of California's commitment toward a nation-wide program to reduce new passenger vehicle GHGs from 2012 through 2016, and prepare California to harmonize its rules with the federal rules for passenger vehicles.

Executive Order S-01-07. Executive Order S-01-07 was enacted by the Governor on January 18, 2007, and mandates that: 1) a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and 2) a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California. According to the SDCGHGI, the effects of the LCFS would be a 10% reduction in GHG emissions from fuel use by 2020[3]. On April 23, 2009, the ARB adopted regulations to implement the LCFS.

Senate Bill 375. SB 375 finds that GHG from autos and light trucks can be substantially reduced by new vehicle technology, but even so "it will be necessary to achieve significant additional greenhouse gas reductions from changed land use patterns and improved transportation. Without

[2] SDCGHGI, An Analysis of Regional Emissions and Strategies to Achieve AB 32 Targets, On-Road Transportation Report. Sean Tanaka, Tanaka Research and Consulting, September 2008, Page 7.
[3] SDCGHGI, An Analysis of Regional Emissions and Strategies to Achieve AB 32 Targets, On-Road Transportation Report. Sean Tanaka, Tanaka Research and Consulting, September 2008, Page 7.

improved land use and transportation policy, California will not be able to achieve the goals of AB 32." Therefore, SB 375 requires that regions with metropolitan planning organizations adopt sustainable communities strategies, as part of their regional transportation plans, which are designed to achieve certain goals for the reduction of GHG emissions from mobile sources.

SB 375 also includes CEQA streamlining provisions for "transit priority projects" that are consistent with an adopted sustainable communities strategy. As defined in SB 375, a "transit priority project" shall: (1) contain at least 50 percent residential use, based on total building square footage and, if the project contains between 26 and 50 percent nonresidential uses, a floor area ratio of not less than 0.75; (2) provide a maximum net density of at least 20 dwelling units per acre; and (3) be within 0.5 mile of a major transit stop or high quality transit corridor. The project is therefore categorized as a "transit priority project."

1.3.3 Local Regulations and Standards

The City of San Diego adopted a Climate Protection Action Plan (City of San Diego 2005) that identified early goals for the reduction of GHG emissions for City facilities. The plan did not address City development, but rather focused on how the City itself could reduce emissions through implementing policies such as recycling, energy efficiency and alternative energy programs, and transportation programs. The City has also adopted guidance for evaluating GHG impacts in its *Memorandum: UPDATED – Addressing Greenhouse Gas Emissions from Projects subject to CEQA* (City of San Diego 2010). Although the City of San Diego has not formally adopted thresholds of significance or guidance in determining the significance of GHG emissions, the City is currently utilizing an interim GHG emission threshold for commercial and residential land use development projects subject to CEQA. This interim threshold is based on the 900 MT screening threshold in the California Air Pollution Control Officers Association (CAPCOA) report "CEQA & Climate Change" (CAPCOA 2008) and serves as a conservative screening threshold for requiring further analysis for projects subject to CEQA.

In December 2015, the City of San Diego adopted its Climate Action Plan (CAP). The CAP established a baseline for 2010, sets goals for GHG reductions for the milestone years 2020 and

2035, and details the implementation actions and phasing for achieving the goals. To implement the state's goals of reducing emissions to 15% below 2010 levels by 2020, and 49% below 2010 levels by 2035, the City would be required to implement strategies that would reduce emissions to approximately 10.6 MMT CO2e by 2020 and to 6.4 MMT CO2e by 2035. The CAP determined that, with implementation of the measures identified therein, the City would exceed the state's targets for 2020 and 2035.

The City of San Diego has adopted policies in the Conservation Element of their General Plan (City of San Diego 2008) that address state and federal efforts to reduce GHG emissions. The General Plan policies that are identified as GHG reduction strategies in the City of San Diego Climate Action Plan and applicable to the Fashion Valley Apartments project include the following:

Policy CE-A.5 Employ sustainable or "green" building techniques for the construction and operation of buildings.

(a) Develop and implement sustainable building standards for new and significant remodels of residential and commercial buildings to maximize energy efficiency, and to achieve overall net zero energy consumption by 2020 for new residential buildings and2030 for new commercial buildings. This can be accomplished through factors including, but not limited to:

- Designing mechanical and electrical systems that achieve greater energy efficiency with currently available technology;
- Minimizing energy use through innovative site design and building orientation that addresses factors such as sun-shade patterns, prevailing winds, landscape, and sun-screens;
- Employing self generation of energy using renewable technologies;
- Combining energy efficient measures that have longer payback periods with measures that have shorter payback periods;
- Reducing levels of non-essential lighting, heating and cooling; and
- Using energy efficient appliances and lighting.

(b) Provide technical services for "green" buildings in partnership with other agencies and organizations.

Policy CE-A-7 Construct and operate buildings using materials, methods, and mechanical and electrical systems that ensure a healthful indoor air quality. Avoid contamination by carcinogens, volatile organic compounds, fungi, molds, bacteria, and other known toxins.

(a) Eliminate the use of chlorofluorocarbon-based refrigerants in newly constructed facilities and major building renovations and retrofits for all heating, ventilation, air conditioning, and refrigerant-based building systems.

(b) Reduce the quantity of indoor air contaminants that are odorous or potentially irritating to protect installers and occupants' health and comfort. Where feasible, select low-emitting adhesives, paints, coatings, carpet systems, composite wood, agri-fiber products, and others.

Policy CE-A.8 Reduce construction and demolition waste in accordance with Public Facilities Element, Policy PF-I.2, or be renovating or adding on to existing buildings, rather than constructing new buildings.

Policy CE-A.9 Reuse building materials, use materials that have recycled content, or use materials that are derived from sustainable or rapidly renewable sources to the extent possible, through factors including:

- Scheduling time for deconstruction and recycling activities to take place during project demolition and construction phases;
- Using life cycle costing in decision making for materials and construction techniques. Life cycle costing analyzes the costs and benefits over the life of a particular product, technology, or system;
- Removing code obstacles to using recycled materials and for construction; and
- Implementing effective economic incentives to recycle construction and demolition debris.

Policy CE-A.10 Include features in buildings to facilitate recycling of waste generated by building occupants and associated refuse storage areas.

- Provide permanent, adequate, and convenient space for individual building occupants to collect refuse and recyclable material.

- Provide a recyclables collection area that serves the entire building or project. The space should allow for the separation, collection and storage of paper, glass, plastic, metals, yard waste, and other materials as needed.

Policy CE-A.11 Implement sustainable landscape design and maintenance.

(a) Use integrated pest management techniques, where feasible, to delay, reduce, or eliminate dependence on the use of pesticides, herbicides, and synthetic fertilizers.

(b) Encourage composting efforts through education, incentives, and other activities.

(c) Decrease the amount of impervious surfaces in developments, especially where public places, plazas and amenities are proposed to serve as recreation opportunities.

(d) Strategically plant deciduous shade trees, evergreen trees, and drought tolerant native vegetation, as appropriate, to contribute to sustainable development goals.

(e) Reduce use of lawn types that require high levels of irrigation.

(f) Strive to incorporate existing mature trees and native vegetation into site designs.

(g) Minimize the use of landscape equipment powered by fossil fuels.

(h) Implement water conservation measures in site/building design and landscaping.

(i) Encourage the use of high efficiency irrigation technology, and recycled site water to reduce the use of potable water for irrigation. Use recycled water to meet the needs of development projects to the maximum extent feasible.

Policy CE-E.6 Continue to encourage "Pollution Control" measures to promote proper collection and disposal of pollutants at the source, rather than allowing them to enter the storm drain system.

(a) Promote the provision of used oil recycling and/or hazardous waste recycling facilities and drop-off locations

(b) Review plans for new development and redevelopment for connections to the storm drain system.

(c) Follow up on complaints of illegal discharges and accidental spills to storm drains, waterways, and canyons.

Policy CE-I.5 Support the installation of photovoltaic panels, and other renewable energy production.

(a) Seek funding to incorporate renewable energy alternatives in public buildings.

(b) Promote the use and installation of renewable energy alternatives in new and existing development.

Policy CE-I.10 Use renewable energy sources to generate electricity to the extent feasible.

Policy CE-J.1 Develop, nurture, and protect a sustainable urban/community forest.

(a) Seek resources and take actions needed to plant, care for, and protect trees in the public right-of-way and parks and those of significant importance in our communities.

(b) Plant large canopy shade trees, where appropriate and with consideration of habitat and water conservation goals, in order to maximize environmental benefits.

(c) Seek to retain significant and mature trees.

(d) Provide forest linkages to connect and enhance public parks, plazas, recreation and open space areas.

Policy CE-J.4 Continue to require the planting of trees through the development permit process.

(a) Consider tree planting as mitigation for air pollution emissions, storm water runoff, and other environmental impacts as approriate.

Policy ME-B.9 Make transit planning an integral component of long range planning documents and the development review process.

(a) Identify recommended transit routes and stops/stations as a part of the preparation of community plans and community plan amendments, and through the development review process.

(b) Plan for transit-supportive villages, transit corridors, and other higher-intensity uses in areas that are served by existing or planned higher-quality transit services, in accordance with Land Use and Community Planning Element, Sections A and C.

(c) Proactively seek reservations or dedications of right-of-way along transit routes and stations through the planning and development review process.

(d) Locate new public facilities that generate large numbers of person trips, such as libraries, community service centers, and some recreational facilities in areas with existing or planned transit access.

(e) Design for walkability in accordance with the Urban Design Element, as pedestrian supportive design also helps create a transit supportive environment.

(f) Address rail corridor safety in the design of development adjacent to or near railroad rights-of-way.

Policy ME-C.4 Improve operations and maintenance on City streets and sidewalks.

(a) Regularly optimize traffic signal timing and coordination to improve circulation. Implement new signal and intersection technologies that improve pedestrian, bicycle, and vehicular safety while improving overall circulation.

(b) Adequately maintain the transportation system through regular preventative maintenance and repair, and life cycle replacement.

(c) Encourage community participation in planning, assessing, and prioritizing the life cycle management of the circulation system.

(d) When new streets and sidewalks are built and as existing streets and sidewalks are modified - design, construct, operate, and maintain them to accommodate and balance service to all users/modes (including walking, bicycling, transit, high occupancy vehicles (HOVs), autos, trucks, automated waste and recycling collection vehicles, and emergency vehicles).

(e) Continue to pursue adequate maintenance of sidewalks by property owners and investigate new approaches to facilitate improved sidewalk maintenance citywide.

Policy ME-E.6 Require new development to have site designs and on-site amenities that support alternative modes of transportation. Emphasize pedestrian and bicycle-friendly design, accessibility to transit, and provision of amenities that are supportive and conducive to implementing TDM strategies such as car sharing vehicles and parking spaces, bike lockers, preferred rideshare parking, showers and lockers, on-site food service, and child care, where appropriate.

Policy UD-A.4 Use sustainable building methods in accordance with the sustainable development policies in the Conservation Element.

Policy UD-C.5 Design village centers as civic focal points for public gatherings with public spaces.

(a) Establish build-to lines to frame and define village center public space and pedestrian streets.

(b) Ensure public spaces are easily accessible and open to the public. The mechanisms used to provide the public space will vary as appropriate and could include, but are not limited to: land dedications, joint use agreements, and public access easements. Public space areas may include reasonable hours of use restrictions, demarcation of private and publicly accessible areas, and other signage to communicate public access rights, responsibilities and limitations.

(c) Encourage provision of public space in the earliest possible phase of development, as determined by the public's ability to use and access the space.

(j)

2.0 POTENTIAL CLIMATE CHANGE IMPACTS TO PROJECT SITE

2.1 Existing Conditions

The site is currently occupied by a 69,651 square foot office building. The existing office building would be demolished and replaced with the proposed project. The site as it exists is a source of GHG emissions.

2.2 Typical Adverse Effects

The Climate Scenarios Report (CCCC 2006), uses a range of emissions scenarios developed by the IPCC to project a series of potential warming ranges (i.e., temperature increases) that may occur in California during the 21st century. Three warming ranges were identified: Lower warming range (3.0 to 5.5 degrees Fahrenheit (ºF)); medium warming range (5.5 to 8.0 ºF); and higher warming range (8.0 to 10.5 ºF). The Climate Scenarios Report then presents an analysis of the future projected climate changes in California under each warming range scenario.

According to the report, substantial temperature increases would result in a variety of impacts to the people, economy, and environment of California. These impacts would result from a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming. These impacts are described below.

Public Health. Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to O_3 formation are projected to increase by 25 to 35 percent under the lower warming range and 75 to 85 percent under the medium warming range. In addition, if global background O_3 levels increase as is predicted in some scenarios, it may become impossible to meet local air quality standards. An increase in wildfires could also occur, and the corresponding increase in the release of pollutants including $PM_{2.5}$ could further compromise air quality. The Climate Scenarios Report indicates that large wildfires could become up to 55 percent more frequent of GHG emissions are not significantly reduced.

Potential health effects from GCC may arise from temperature increases, climate-sensitive diseases, extreme events, and air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems (e.g., heat rash and heat stroke). In addition, climate sensitive diseases (such as malaria, dengue fever, yellow fever, and encephalitis) may increase, such as those spread by mosquitoes and other disease-carrying insects.

Water Resources. A vast network of reservoirs and aqueducts capture and transport water throughout the State from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada mountain snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages. In addition, if temperatures continue to rise more precipitation would fall as rain instead of snow, further reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. The State's water resources are also at risk from rising sea levels. An influx of seawater would degrade California's estuaries, wetlands, and groundwater aquifers.

Agriculture. Increased GHG and associated increases in temperature are expected to cause widespread changes to the agricultural industry, reducing the quantity and quality of agricultural products statewide. Significant reductions in available water supply to support agriculture would also impact production. Crop growth and development will change as will the intensity and frequency of pests and diseases.

Ecosystems/Habitats. Continued global warming will likely shift the ranges of existing invasive plants and weeds, thus alternating competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Continued global warming is also likely to increase the populations of and types of pests. Continued global warming would also affect natural ecosystems and biological habitats throughout the State.

Wildland Fires. Global warming is expected to increase the risk of wildfire and alter the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the State.

Rising Sea Levels. Rising sea levels, more intense coastal storms, and warmer water temperatures will increasing threaten the State's coastal regions. Under the high warming scenario, sea level is anticipated to rise 22 to 35 inches by 2100. A sea level risk of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten levees and inland water systems, and disrupt wetlands and natural habitats.

Sea levels rose approximately 7 inches during the last century (IPCC 2007) and the State of California predicts an additional rise of 10 to 17 inches by 2050 and a rise of 31–69 inches by 2100, depending on the future levels of GHG emissions (State of California 2010). If this occurs, resultant effects could include increased coastal flooding. Sea level rise adaptation strategies include strategies that involve construction of hard structures as barriers, such as seawalls and levees; soft structure strategies such as wetland enhancement, detention basins, and other natural strategies; accommodation strategies that include grade elevations, elevated structures, and other building design options; and withdrawal strategies that limit development to areas unaffected by sea level rise.

Compliance with IBMC Section 15.50.160, Flood Hazard Reduction Standards, would require development within coastal high hazard areas to be elevated above the base flood level and be adequately anchored to resist flotation, collapse, and lateral movement as detailed in the regulatory setting section. The Project is not within the coastal high hazard area, and is therefore not subject to the standards. It is not anticipated that the levels of sea level rise predicted for the area would affect the project.

3.0 CLIMATE CHANGE SIGNIFICANCE CRITERIA

According to the California Natural Resources Agency[4], "due to the global nature of GHG emissions and their potential effects, GHG emissions will typically be addressed in a cumulative impacts analysis." According to Appendix G of the CEQA Guidelines, the following criteria may be considered to establish the significance of GCC emissions:

Would the project:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As discussed in Section 15064.4 of the CEQA Guidelines, the determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency, consistent with the provisions in Section 15064. Section 15064.4 further provides that a lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

(1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or

(2) Rely on a qualitative analysis or performance based standards.

Section 15064.4 also advises a lead agency to consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

[4] California Natural Resources Agency, Initial Statement of Reasons for Regulatory Action, Proposed Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gases Pursuant to SB 97. July 2009.

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

The California Air Pollution Control Officers Association proposed a screening threshold of 900 metric tons of CO_2e to evaluate whether a project requires further analysis. As stated in Section 1.3.3, the City of San Diego has not adopted GHG significance thresholds; therefore, the analysis is based on recommendations of the California Air Pollution Control Officers Association (CAPCOA 2008) and the ARB's Scoping Plan (ARB 2008). The 900 metric ton level is a screening threshold to determine if further analysis is required.

4.0 GREENHOUSE GAS INVENTORY

GHG emissions associated with the Fashion Valley Apartments Project were estimated separately for five categories of emissions: (1) construction; (2) energy use, including electricity and natural gas usage; (3) water consumption; (4) solid waste handling; and (5) transportation. The analysis includes a baseline estimate assuming Title 24-compliant buildings. Emissions were estimated based on the CalEEMod Model (ENVIRON 2013).

4.1 Existing Conditions

The site is currently occupied by a 69,651 square foot office building and associated uses. Based on the Traffic Impact Analysis (Urban Systems 2016), it is estimated that an office building of this size would generate 1,245 average daily trips (ADT). Vehicles are a source of existing GHG emissions. The CalEEMod calculations were adjusted to account for the proximity of the project to the San Diego Trolley transit station because, as discussed in the Traffic Impact Analysis, the Green Line of the MTS Trolley System stops at the Fashion Valley Transit Center approximately every 15 minutes. A crosswalk from the project site allows access to the trolley station. In addition to GHGs generated by vehicles, indirect GHG emissions are generated from electricity, natural gas, and water use.

Emissions were estimated using default assumptions regarding energy use and vehicle trips for the existing building. The default energy use in the CalEEMod Model represents buildings that are compliant with 2008 Title 24 standards. Because the existing building was constructed prior to adoption of these energy efficiency standards, the energy use values were adjusted to reflect energy efficiency for Title 24 as of 2005 based on the California Energy Commission's study (Architectural Energy Corporation 2007).

Water use and energy use are often closely linked. The provision of potable water to commercial consumers requires large amounts of energy associated with five stages: (1) source and conveyance, (2) treatment, (3) distribution, (4) end use and (5) wastewater treatment. Existing water use was estimated based on the CalEEMod Model (ENVIRON 2013). The existing ndoor

water use was estimated at 12,379,200 gallons and the existing outdoor water use was estimated at 7,587,220 gallons for a total of 19,966,420 gallons.

Solid waste generation will also contribute to emissions of GHGs, through waste collection and management activities and emissions of GHGs from landfilling. Solid waste generation rates and GHG emissions from solid waste handling were estimated using the CalEEMod Model.

Emissions from vehicles were estimated based on data from the CalEEMod model.

Estimated GHG emissions associated with existing uses are presented in Table 4.

Table 4
SUMMARY OF ESTIMATED EXISTING
OPERATIONAL GREENHOUSE GAS EMISSIONS

Emission Source	Annual Emissions (Metric tons/year)			
	CO_2	CH_4	N_2O	CO_2e
Operational Emissions				
Area Sources	0.0012	0.0000	0.0000	0
Electricity Use	348	0.0140	0.0029	349
Natural Gas Use	85	0.0016	0.0016	85
Water Use	84	0.4066	0.0102	98
Solid Waste Management	13	0.7770	0.0000	35
Vehicle Emissions	1,118	0.0493	0.0000	1,119
Total	**1,648**	**1.2485**	**0.0147**	**1,687**
Global Warming Potential Factor	**1**	**28**	**265**	
CO_2 Equivalent Emissions	1,648	35	4	1,687
TOTAL Existing CO_2 Equivalent Emissions	**1,687**			

4.2 Construction Greenhouse Gas Emissions

Construction GHG emissions include emissions from heavy construction equipment, truck traffic, and worker trips. Emissions were calculated using the CalEEMod Model, which is the newest land use emissions model developed by ENVIRON and the SCAQMD (ENVIRON 2013), for completed and proposed construction. CalEEMod contains emission factors from the OFFROAD

model for heavy construction equipment, and from the EMFAC2011 model for on-road vehicles. Table 5 presents the construction-related emissions associated with construction of the project.

Table 5
Construction GHG Emissions
Metric tons/year

Construction Phase	CO_2 Emissions, metric tons
Construction	1,578

The City of San Diego recommends that construction emissions be amortized over a 30-year period to account for the contribution of construction emissions over the lifetime of the project. Amortizing the emissions from construction of the Proposed Project over a 30-year period would result in an annual contribution of 53 metric tons of CO_2e. These emissions are added to operational emissions to account for the contribution of construction to GHG emissions for the lifetime of the project.

4.3 Operational Greenhouse Gas Emissions

The proposed project involves construction of a 284 multi-family dwelling units, 8,480 square feet of commercial office spaces, and 3,275 square feet of restaurant uses, along with a 7-level parking garage with automobile, motorcycle, and bicycle parking. As for the existing development, GHG emissions for the project were estimated for five categories of emissions: (1) construction; (2) energy use, including electricity and natural gas usage; (3) water consumption; (4) solid waste management, and (5) transportation. GHG emissions were calculated with the CalEEMod Model, accounting for the following GHG reduction measures:

- The 33% Renewable Portfolio Standard would be achieved with the City of San Diego, resulting in a reduction in GHG emissions of 27% from the default values within the CalEEMod Model.
- Buildings would meet the energy efficiency requirements of Title 24 as of 2013, which results in a 21.8% decrease in electricity use over Title 24 as of 2008, and a 16.8% decrease in natural gas use over Title 24 as of 2008 for non-residential buildings; and a 23.3% decrease in electricity use over Title 24 as of 2008, and a 3.8% decrease in natural gas use

over Title 24 as of 2008 for multi-family residential buildings (CEC 2013). The decreases in energy use were accounted for in the model.

- According to the CEC (CEC 2014), the Title 24 2016 standards will result in a further reduction in energy use of 25% for residential uses and 30% for nonresidential uses. The decreases in energy use were accounted for in the model.
- The project will utilize solar panels to provide 3% of the electricity.
- Vehicles would meet the Pavley I, Low Carbon Fuel Standard, and Advanced Clean Cars standards. The default emission factors within the CalEEMod model were adjusted by 3% downward to account for the Advanced Clean Cars program (ARB 2011).
- The project would include low-flow plumbing fixtures, including hybrid waterless urinals, low-flow toilets, low-flow sinks, and low-flow showers.
- The project would reduce outdoor water use for irrigation by 6%.
- The project is located in a transit priority corridor, with access to transit, with the San Diego Trolley station located within 0.1 mile of the site. As discussed in the Traffic Impact Analysis, the Green Line of the MTS Trolley System stops at the Fashion Valley Transit Center approximately every 15 minutes. A crosswalk from the project site allows access to the trolley station. It should be noted that the reduction for access to the trolley that was accounted for within the Traffic Impact Analysis applies both to the existing use and the proposed project. In addition, the project contributes to the mix of uses within the vicinity. Based on the CAPCOA reference document (CAPCOA 2014) calculation of the land use index, the mix of uses reduces vehicle miles traveled by 2.76%.
- The project would meet the City's goal of 50% solid waste diversion through recycling and waste reduction programs.

These measures were taken into account within the CalEEMod Model.

Mobile source greenhouse gas emissions were estimated based on projected ADTs from the Traffic Impact Analysis (Urban Systems 2016). The Traffic Impact Analysis indicated that the project would generate 2,119 trips. It was assumed that the average trip length would be 5.8 miles based on SANDAG averages for the region. Total vehicle miles traveled were based on estimates from

the CalEEMod Model. To account for the mix of uses on the site, the land use index calculation from the CAPCOA reference document was used (CAPCOA 2014), which provides an estimate of 2.76% reduction in VMT.

The results of the inventory for operational emissions for business as usual are presented in Table 6. These include GHG emissions associated with area sources (landscaping, etc.), buildings (natural gas, purchased electricity), water consumption (energy embodied in potable water), solid waste management (including transport and landfill gas generation), and vehicles. Table 6 summarizes projected emissions using the methodologies noted above.

Table 6
SUMMARY OF ESTIMATED OPERATIONAL GREENHOUSE GAS EMISSIONS
PROPOSED PROJECT

Emission Source	**Annual Emissions (Metric tons/year)**			
	CO_2	**CH_4**	**N_2O**	**CO_2e**
Operational Emissions				
Area Sources	3	0.0034	0.0000	3
Electricity Use	260	0.0104	0.0019	261
Natural Gas Use	101	0.0019	0.0019	102
Water Use	89	0.5508	0.0136	108
Solid Waste Management	18	1.0643	0.0000	48
Vehicle Emissions	1,081	0.0516	0.0000	1,083
Amortized Construction Emissions	53	0.0000	0.0000	53
Total	**1,605**	**1.6824**	**0.0174**	**1,657**
Global Warming Potential Factor	**1**	**28**	**265**	
CO_2 Equivalent Emissions	1,605	47	5	1,657
TOTAL CO_2 Equivalent Emissions	**1,657**			
Existing CO_2 Equivalent Emissions	**1,687**			
Net CO_2 Equivalent Emissions	**(30)**			

As shown in Table 6, the Fashion Valley Apartments Project would result in a decrease in GHG emissions of 30 metric tons of CO2e. Accordingly, the Fashion Valley Apartments Project will meet the goals of AB 32 and would not result in cumulatively considerable significant global climate impacts.

4.4 City of San Diego Plans, Policies, and Regulations

The project will meet the goals of and be consistent with the City's Climate Action Plan. The following strategies from the plan that apply to the project:

Strategy 1: Water and Energy Efficient Buildings

The project will be constructed in compliance with the applicable energy and water efficiency measures. In addition, the project will use recycled water for outdoor irrigation and will use water-efficient irrigation systems. By implementing these project design features, the project will comply with various policies from the Conservation Element of the General Plan that are cited under this plan strategy, including CE-I.5b, CE-A.11e, CE-A.11h, and CE-A.11i. The project will therefore comply with Strategy 1.

Strategy 2: Clean and Renewable Energy

The project will purchase energy from San Diego Gas and Electric, which will be responsible for providing customers with clean and renewable energy to meet the state of California's goals. By purchasing clean power, the project will comply with various policies from the Conservation Element of the General Plan that are cited under this plan strategy, including CE-A.5, CE-A.6, CE-I.5, and CE-I.10, as well as Urban Design Element policy UD-A.4. The project will therefore comply with Strategy 2.

Strategy 3: Bicycling, Walking, Transit, and Land Use

The project includes project design features that provide bicycle and pedestrian access to the site and through the project area, including connections to the Friars Road bike path and local trails. The project is a mixed-use project that reduces VMT by providing on-site services to residents, reducing their need to travel off-site for jobs, shopping and entertainment. By implementing these project design features, the project will comply with various policies from the Mobility Element

of the General Plan that are cited under this plan strategy, including ME-E.6, ME-B.9 and ME-C.4. The project will therefore comply with Strategy 3.

Strategy 4: Zero Waste (Gas & Waste Management)

While the project is not involved in the operation of landfills or wastewater treatment, the project will meet the City's goals for recycling solid waste through the provision of recycling containers, which will divert waste from the landfill, consistent with policy CE-A.11 in the Conservation Element of the General Plan. In addition, during project construction debris will be diverted, as required by the City's Construction and Demolition Debris Ordinance, consistent with policy CE-A.9 from the Conservation Element of the General Plan, as cited in the Climate Action Plan. The project will use materials that have recycled content, or use materials that are derived from sustainable or rapidly renewable sources to the extent possible, in accordance with CE-A.9 of the Conservation Element. The project will therefore comply with Strategy 4.

Strategy 5: Climate Resiliency

The project will use drought-resistant landscaping and will plant vegetation as appropriate within the landscape design for the mixed-use development, as envisioned in Conservation Element policy CE-J.1. The project will therefore comply with Strategy 5.

The project will also meet the goals of the City's Conservation Element in the City's General Plan, and will therefore be consistent with the local GHG reduction plans and policies. The following specific policies shown in Table 10 will be implemented by the project.

Table 7
FASHION VALLEY APARTMENT PROJECT
CONSISTENCY WITH APPLICABLE CITY GENERAL PLAN POLICIES

General Plan Policy	Description	Project Consistency
Policy CE-A.5	Employ sustainable or "green" building techniques for the construction and operation of buildings.	The Fashion Valley Apartments Project will meet the most recent Title 24 energy efficiency standards, which are estimated to exceed Title 24 standards as of 2008 by 15%. The project is therefore employing sustainable building development practices to maximize energy efficiency.
Policy CE-A.7	Construct and operate buildings using materials, methods, and mechanical and electrical systems that ensure a healthful indoor air quality. Avoid contamination by carcinogens, volatile organic compounds, fungi, molds, bacteria, and other known toxins.	The Fashion Valley Apartments Project will be constructed in a manner that will ensure healthful indoor air quality.
Policy CE-A.8	Reduce construction and demolition waste in accordance with Public Facilities Element, Policy PF-I.2, or by renovating or adding on to existing buildings, rather than constructing new buildings.	The Fashion Valley Apartments Project will reduce construction and demolition waste to the extent feasible.
Policy CE-A.9	Reuse building materials, use materials that have recycled content, or use materials that are derived from sustainable or rapidly renewable sources to the extent possible.	The Fashion Valley Apartments Project will use recycled/sustainable materials for construction and during operation to the extent feasible. The project will recycle construction and demolition debris as appropriate.
Policy CE-A.10	Include features in buildings to facilitate recycling of waste generated by building occupants and associated refuse storage areas.	The Fashion Valley Apartments Project will provide space for individual building occupants to implement recycling practices within their buildings.
Policy CE-A.11	Implement sustainable landscape design and maintenance.	The Fashion Valley Apartments Project will use landscaping that minimizes water use, utilizes efficient irrigation practices, and reduces the use of pesticides.
Policy CE-E.6	Continue to encourage "Pollution Control" measures to promote proper collection and disposal of pollutants at the source, rather than allowing them to enter the storm drain system.	The Fashion Valley Apartments Project will promote proper collection and disposal of pollutants and will implement a storm water management plan.
Policy ME-B.9	Make transit planning an integral component of long range planning	The Fashion Valley Apartments Project includes access to transit

Table 7 FASHION VALLEY APARTMENT PROJECT CONSISTENCY WITH APPLICABLE CITY GENERAL PLAN POLICIES		
General Plan Policy	**Description**	**Project Consistency**
	documents and the development review process.	due to its proximity to the trolley and transportation demand management (TDM) measures designed to reduce vehicle trips.
Policy ME-C.4	Improve operations and maintenance on City streets and sidewalks.	The Fashion Valley Apartments Project includes pedestrian and bicycle-friendly design and traffic calming measures.
Policy ME-E.6	Require new development to have site designs and on-site amenities that support alternative modes of transportation. Emphasize pedestrian and bicycle-friendly design, accessibility to transit, and provision of amenities that are supportive and conducive to implementing TDM strategies such as car sharing vehicles and parking spaces, bike lockers, preferred rideshare parking, showers and lockers, on-site food service, and child care, where appropriate.	The Fashion Valley Apartments Project includes pedestrian and bicycle-friendly design and traffic calming measures. The project also includes a TDM program that will reduce vehicle trips.
Policy UD-A.4	Use sustainable building methods in accordance with the sustainable development policies in the Conservation Element.	The Fashion Valley Apartments Project will use sustainable building methods that are consistent with the Conservation Element policies, as discussed above.
Policy UD-C.5	Design village centers as civic focal points for public gatherings with public spaces.	The Fashion Valley Apartments Project includes a mix of uses with a village center that can be used as a focal point for public gatherings.

Through implementation of these practices, the Fashion Valley Apartments Project will not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

5.0 CONCLUSIONS

Emissions of GHGs were quantified for both construction and operation of the Fashion Valley Apartments Project. Operational emissions were calculated using the CalEEMod Model. Based on the analysis, the project would result in a decrease of 30 metric tons of CO2e from the existing office building. This level is below the CAPCOA-recommended screening threshold of 900 metric tons and the project results in a net reduction in overall GHG emissions. The project would therefore not:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The Fashion Valley Apartments Project will be consistent with the goals of AB 32, and would not result in a significant global climate change impact.

6.0 REFERENCES

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Appendix A

Greenhouse Gas Emission Calculations

Commercial	General Office Building	8.48	1000sqft	0.46	8480	0
Recreational	Restaurant	3.275	1000sqft	0.46	3275	0
Residential	Apartments Low Rise	284	Dwelling U	4	284000	812
					295755	

Land Use Type	Symbol	Value	LNValue	ai x LN(ai)
Single Family	a1	0.01	-4.60517	-0.04605
Multifamily	a2	0.960254	-0.04056	-0.03895
Commercial	a3	0.039746	-3.22525	-0.12819
Industrial	a4	0.01	-4.60517	-0.04605
Institutional	a5	0.01	-4.60517	-0.04605
Park	a6	0.01	-4.60517	-0.04605
	a			-0.35134
Land Use Index	-a/LN(6)			0.196088
Land Use	(land use index - .15)/.15			0.307252
				0.027653

Fashion Valley Apartments Existing

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	69.65	1000sqft	4.92	69,651.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2016
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Area Coating -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	250	0
tblEnergyUse	T24E	5.69	5.98
tblEnergyUse	T24NG	16.83	18.58
tblGrading	AcresOfGrading	4.00	0.00
tblGrading	AcresOfGrading	2.50	0.00
tblLandUse	LandUseSquareFeet	69,650.00	69,651.00

tblLandUse	LotAcreage	1.60	4.92
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	WorkerTripNumber	18.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	5.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	22.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	18.00
tblTripsAndVMT	WorkerTripNumber	4.00	0.00
tblVehicleTrips	ST_TR	2.37	17.87
tblVehicleTrips	WD_TR	11.01	17.87

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.3247	2.7049	2.0737	3.1000e-003	0.0575	0.1728	0.2304	0.0291	0.1632	0.1924	0.0000	274.8851	274.8851	0.0580	0.0000	276.1032
2018	0.8248	0.1581	0.1423	2.3000e-004	1.4100e-003	9.2800e-003	0.0107	3.8000e-004	8.7200e-003	9.1000e-003	0.0000	19.9964	19.9964	4.8400e-003	0.0000	20.0979
Total	**1.1495**	**2.8629**	**2.2160**	**3.3300e-003**	**0.0589**	**0.1821**	**0.2410**	**0.0295**	**0.1720**	**0.2015**	**0.0000**	**294.8815**	**294.8815**	**0.0628**	**0.0000**	**296.2011**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.3247	2.7049	2.0737	3.1000e-003	0.0575	0.1728	0.2304	0.0291	0.1632	0.1924	0.0000	274.8849	274.8849	0.0580	0.0000	276.1029
2018	0.8248	0.1581	0.1423	2.3000e-004	1.4100e-003	9.2800e-003	0.0107	3.8000e-004	8.7200e-003	9.1000e-003	0.0000	19.9964	19.9964	4.8400e-003	0.0000	20.0979
Total	**1.1495**	**2.8629**	**2.2160**	**3.3300e-003**	**0.0589**	**0.1821**	**0.2410**	**0.0295**	**0.1720**	**0.2015**	**0.0000**	**294.8812**	**294.8812**	**0.0628**	**0.0000**	**296.2008**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3528	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Energy	8.5600e-003	0.0778	0.0653	4.7000e-004		5.9100e-003	5.9100e-003		5.9100e-003	5.9100e-003	0.0000	432.4816	432.4816	0.0156	4.4500e-003	434.1887
Mobile	0.7076	1.5638	7.1355	0.0141	0.9674	0.0194	0.9868	0.2587	0.0178	0.2766	0.0000	1,118.3068	1,118.3068	0.0493	0.0000	1,119.3419
Waste						0.0000	0.0000		0.0000	0.0000	13.1477	0.0000	13.1477	0.7770	0.0000	29.4649
Water						0.0000	0.0000		0.0000	0.0000	3.9273	80.2260	84.1534	0.4066	0.0102	95.8518
Total	**1.0689**	**1.6416**	**7.2015**	**0.0146**	**0.9674**	**0.0253**	**0.9927**	**0.2587**	**0.0237**	**0.2825**	**17.0751**	**1,631.0156**	**1,648.0906**	**1.2485**	**0.0146**	**1,678.8486**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3528	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Energy	8.5600e-003	0.0778	0.0653	4.7000e-004		5.9100e-003	5.9100e-003		5.9100e-003	5.9100e-003	0.0000	432.4816	432.4816	0.0156	4.4500e-003	434.1887
Mobile	0.7076	1.5638	7.1355	0.0141	0.9674	0.0194	0.9868	0.2587	0.0178	0.2766	0.0000	1,118.3068	1,118.3068	0.0493	0.0000	1,119.3419
Waste						0.0000	0.0000		0.0000	0.0000	13.1477	0.0000	13.1477	0.7770	0.0000	29.4649
Water						0.0000	0.0000		0.0000	0.0000	3.9273	80.2260	84.1534	0.4065	0.0102	95.8455
Total	**1.0689**	**1.6416**	**7.2015**	**0.0146**	**0.9674**	**0.0253**	**0.9927**	**0.2587**	**0.0237**	**0.2825**	**17.0751**	**1,631.0156**	**1,648.0906**	**1.2485**	**0.0146**	**1,678.8424**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e

Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	1/27/2017	5	20	
2	Site Preparation	Site Preparation	1/28/2017	2/3/2017	5	5	
3	Grading	Grading	2/4/2017	2/15/2017	5	8	
4	Building Construction	Building Construction	2/16/2017	1/3/2018	5	230	
5	Paving	Paving	1/4/2018	1/29/2018	5	18	
6	Architectural Coating	Architectural Coating	1/30/2018	2/22/2018	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 104,477; Non-Residential Outdoor: 34,826 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	162	0.38

Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	125	0.42
Paving	Paving Equipment	2	6.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	7	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	5	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	0.00	11.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0229	0.2253	0.1885	2.8000e-004		0.0132	0.0132		0.0124	0.0124	0.0000	25.4701	25.4701	6.6300e-003	0.0000	25.6093
Total	**0.0229**	**0.2253**	**0.1885**	**2.8000e-004**		**0.0132**	**0.0132**		**0.0124**	**0.0124**	**0.0000**	**25.4701**	**25.4701**	**6.6300e-003**	**0.0000**	**25.6093**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	4.1000e-004	3.8900e-003	1.0000e-005	8.0000e-004	1.0000e-005	8.1000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.7184	0.7184	4.0000e-005	0.0000	0.7192
Total	**3.1000e-004**	**4.1000e-004**	**3.8900e-003**	**1.0000e-005**	**8.0000e-004**	**1.0000e-005**	**8.1000e-004**	**2.1000e-004**	**1.0000e-005**	**2.2000e-004**	**0.0000**	**0.7184**	**0.7184**	**4.0000e-005**	**0.0000**	**0.7192**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	0.0229	0.2253	0.1885	2.8000e-004		0.0132	0.0132		0.0124	0.0124	0.0000	25.4701	25.4701	6.6300e-003	0.0000	25.6093
Total	**0.0229**	**0.2253**	**0.1885**	**2.8000e-004**		**0.0132**	**0.0132**		**0.0124**	**0.0124**	**0.0000**	**25.4701**	**25.4701**	**6.6300e-003**	**0.0000**	**25.6093**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	4.1000e-004	3.8900e-003	1.0000e-005	8.0000e-004	1.0000e-005	8.1000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.7184	0.7184	4.0000e-005	0.0000	0.7192
Total	**3.1000e-004**	**4.1000e-004**	**3.8900e-003**	**1.0000e-005**	**8.0000e-004**	**1.0000e-005**	**8.1000e-004**	**2.1000e-004**	**1.0000e-005**	**2.2000e-004**	**0.0000**	**0.7184**	**0.7184**	**4.0000e-005**	**0.0000**	**0.7192**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0121	0.1307	0.0926	9.0000e-005		6.5200e-003	6.5200e-003		6.0000e-003	6.0000e-003	0.0000	8.3595	8.3595	2.5600e-003	0.0000	8.4133
Total	**0.0121**	**0.1307**	**0.0926**	**9.0000e-005**	**0.0452**	**6.5200e-003**	**0.0517**	**0.0248**	**6.0000e-003**	**0.0308**	**0.0000**	**8.3595**	**8.3595**	**2.5600e-003**	**0.0000**	**8.4133**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0898	0.0898	0.0000	0.0000	0.0899
Total	**4.0000e-005**	**5.0000e-005**	**4.9000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0898**	**0.0898**	**0.0000**	**0.0000**	**0.0899**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0121	0.1307	0.0926	9.0000e-005		6.5200e-003	6.5200e-003		6.0000e-003	6.0000e-003	0.0000	8.3595	8.3595	2.5600e-003	0.0000	8.4132
Total	**0.0121**	**0.1307**	**0.0926**	**9.0000e-005**	**0.0452**	**6.5200e-003**	**0.0517**	**0.0248**	**6.0000e-003**	**0.0308**	**0.0000**	**8.3595**	**8.3595**	**2.5600e-003**	**0.0000**	**8.4132**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0898	0.0898	0.0000	0.0000	0.0899
Total	**4.0000e-005**	**5.0000e-005**	**4.9000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0898**	**0.0898**	**0.0000**	**0.0000**	**0.0899**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0100e-003	0.0000	3.0100e-003	1.6600e-003	0.0000	1.6600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.0965	0.0674	9.0000e-005		5.8600e-003	5.8600e-003		5.4900e-003	5.4900e-003	0.0000	8.5735	8.5735	2.1600e-003	0.0000	8.6188
Total	**0.0101**	**0.0965**	**0.0674**	**9.0000e-005**	**3.0100e-003**	**5.8600e-003**	**8.8700e-003**	**1.6600e-003**	**5.4900e-003**	**7.1500e-003**	**0.0000**	**8.5735**	**8.5735**	**2.1600e-003**	**0.0000**	**8.6188**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	1.6000e-004	1.5600e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2874	0.2874	1.0000e-005	0.0000	0.2877

Total	**1.2000e-004**	**1.6000e-004**	**1.5600e-003**	**0.0000**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2874**	**0.2874**	**1.0000e-005**	**0.0000**	**0.2877**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0100e-003	0.0000	3.0100e-003	1.6600e-003	0.0000	1.6600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.0965	0.0674	9.0000e-005		5.8600e-003	5.8600e-003		5.4900e-003	5.4900e-003	0.0000	8.5735	8.5735	2.1600e-003	0.0000	8.6188
Total	**0.0101**	**0.0965**	**0.0674**	**9.0000e-005**	**3.0100e-003**	**5.8600e-003**	**8.8700e-003**	**1.6600e-003**	**5.4900e-003**	**7.1500e-003**	**0.0000**	**8.5735**	**8.5735**	**2.1600e-003**	**0.0000**	**8.6188**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	1.6000e-004	1.5600e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2874	0.2874	1.0000e-005	0.0000	0.2877
Total	**1.2000e-004**	**1.6000e-004**	**1.5600e-003**	**0.0000**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2874**	**0.2874**	**1.0000e-005**	**0.0000**	**0.2877**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2662	2.1427	1.5579	2.3200e-003		0.1457	0.1457		0.1379	0.1379	0.0000	204.9057	204.9057	0.0464	0.0000	205.8801
Total	**0.2662**	**2.1427**	**1.5579**	**2.3200e-003**		**0.1457**	**0.1457**		**0.1379**	**0.1379**	**0.0000**	**204.9057**	**204.9057**	**0.0464**	**0.0000**	**205.8801**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0130	0.1090	0.1615	3.0000e-004	8.1200e-003	1.5600e-003	9.6800e-003	2.3200e-003	1.4300e-003	3.7600e-003	0.0000	26.4807	26.4807	2.0000e-004	0.0000	26.4849
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0130**	**0.1090**	**0.1615**	**3.0000e-004**	**8.1200e-003**	**1.5600e-003**	**9.6800e-003**	**2.3200e-003**	**1.4300e-003**	**3.7600e-003**	**0.0000**	**26.4807**	**26.4807**	**2.0000e-004**	**0.0000**	**26.4849**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	0.2662	2.1427	1.5579	2.3200e-003		0.1457	0.1457		0.1379	0.1379	0.0000	204.9055	204.9055	0.0464	0.0000	205.8799
Total	**0.2662**	**2.1427**	**1.5579**	**2.3200e-003**		**0.1457**	**0.1457**		**0.1379**	**0.1379**	**0.0000**	**204.9055**	**204.9055**	**0.0464**	**0.0000**	**205.8799**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0130	0.1090	0.1615	3.0000e-004	8.1200e-003	1.5600e-003	9.6800e-003	2.3200e-003	1.4300e-003	3.7600e-003	0.0000	26.4807	26.4807	2.0000e-004	0.0000	26.4849
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0130**	**0.1090**	**0.1615**	**3.0000e-004**	**8.1200e-003**	**1.5600e-003**	**9.6800e-003**	**2.3200e-003**	**1.4300e-003**	**3.7600e-003**	**0.0000**	**26.4807**	**26.4807**	**2.0000e-004**	**0.0000**	**26.4849**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0400e-003	0.0251	0.0200	3.0000e-005		1.6200e-003	1.6200e-003		1.5400e-003	1.5400e-003	0.0000	2.6818	2.6818	6.0000e-004	0.0000	2.6943
Total	**3.0400e-003**	**0.0251**	**0.0200**	**3.0000e-005**		**1.6200e-003**	**1.6200e-003**		**1.5400e-003**	**1.5400e-003**	**0.0000**	**2.6818**	**2.6818**	**6.0000e-004**	**0.0000**	**2.6943**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	1.3000e-003	2.0400e-003	0.0000	1.1000e-004	2.0000e-005	1.3000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.3440	0.3440	0.0000	0.0000	0.3440
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6000e-004**	**1.3000e-003**	**2.0400e-003**	**0.0000**	**1.1000e-004**	**2.0000e-005**	**1.3000e-004**	**3.0000e-005**	**2.0000e-005**	**5.0000e-005**	**0.0000**	**0.3440**	**0.3440**	**0.0000**	**0.0000**	**0.3440**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0400e-003	0.0251	0.0200	3.0000e-005		1.6200e-003	1.6200e-003		1.5400e-003	1.5400e-003	0.0000	2.6818	2.6818	6.0000e-004	0.0000	2.6943
Total	**3.0400e-003**	**0.0251**	**0.0200**	**3.0000e-005**		**1.6200e-003**	**1.6200e-003**		**1.5400e-003**	**1.5400e-003**	**0.0000**	**2.6818**	**2.6818**	**6.0000e-004**	**0.0000**	**2.6943**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	1.3000e-003	2.0400e-003	0.0000	1.1000e-004	2.0000e-005	1.3000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.3440	0.3440	0.0000	0.0000	0.3440
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6000e-004**	**1.3000e-003**	**2.0400e-003**	**0.0000**	**1.1000e-004**	**2.0000e-005**	**1.3000e-004**	**3.0000e-005**	**2.0000e-005**	**5.0000e-005**	**0.0000**	**0.3440**	**0.3440**	**0.0000**	**0.0000**	**0.3440**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0113	0.1130	0.0979	1.5000e-004		6.2800e-003	6.2800e-003		5.8000e-003	5.8000e-003	0.0000	13.5526	13.5526	3.9600e-003	0.0000	13.6358
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0113**	**0.1130**	**0.0979**	**1.5000e-004**		**6.2800e-003**	**6.2800e-003**		**5.8000e-003**	**5.8000e-003**	**0.0000**	**13.5526**	**13.5526**	**3.9600e-003**	**0.0000**	**13.6358**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	6.1000e-004	5.7000e-003	2.0000e-005	1.3000e-003	1.0000e-005	1.3100e-003	3.5000e-004	1.0000e-005	3.5000e-004	0.0000	1.1202	1.1202	6.0000e-005	0.0000	1.1213

Total	**4.6000e-004**	**6.1000e-004**	**5.7000e-003**	**2.0000e-005**	**1.3000e-003**	**1.0000e-005**	**1.3100e-003**	**3.5000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.1202**	**1.1202**	**6.0000e-005**	**0.0000**	**1.1213**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0113	0.1130	0.0979	1.5000e-004		6.2800e-003	6.2800e-003		5.8000e-003	5.8000e-003	0.0000	13.5525	13.5525	3.9600e-003	0.0000	13.6358
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0113**	**0.1130**	**0.0979**	**1.5000e-004**		**6.2800e-003**	**6.2800e-003**		**5.8000e-003**	**5.8000e-003**	**0.0000**	**13.5525**	**13.5525**	**3.9600e-003**	**0.0000**	**13.6358**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	6.1000e-004	5.7000e-003	2.0000e-005	1.3000e-003	1.0000e-005	1.3100e-003	3.5000e-004	1.0000e-005	3.5000e-004	0.0000	1.1202	1.1202	6.0000e-005	0.0000	1.1213
Total	**4.6000e-004**	**6.1000e-004**	**5.7000e-003**	**2.0000e-005**	**1.3000e-003**	**1.0000e-005**	**1.3100e-003**	**3.5000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.1202**	**1.1202**	**6.0000e-005**	**0.0000**	**1.1213**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8071					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6900e-003	0.0181	0.0167	3.0000e-005		1.3500e-003	1.3500e-003		1.3500e-003	1.3500e-003	0.0000	2.2979	2.2979	2.2000e-004	0.0000	2.3025
Total	**0.8098**	**0.0181**	**0.0167**	**3.0000e-005**		**1.3500e-003**	**1.3500e-003**		**1.3500e-003**	**1.3500e-003**	**0.0000**	**2.2979**	**2.2979**	**2.2000e-004**	**0.0000**	**2.3025**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Archit. Coating	0.8071					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6900e-003	0.0181	0.0167	3.0000e-005		1.3500e-003	1.3500e-003		1.3500e-003	1.3500e-003	0.0000	2.2979	2.2979	2.2000e-004	0.0000	2.3025
Total	**0.8098**	**0.0181**	**0.0167**	**3.0000e-005**		**1.3500e-003**	**1.3500e-003**		**1.3500e-003**	**1.3500e-003**	**0.0000**	**2.2979**	**2.2979**	**2.2000e-004**	**0.0000**	**2.3025**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7076	1.5638	7.1355	0.0141	0.9674	0.0194	0.9868	0.2587	0.0178	0.2766	0.0000	1,118.3068	1,118.3068	0.0493	0.0000	1,119.3419
Unmitigated	0.7076	1.5638	7.1355	0.0141	0.9674	0.0194	0.9868	0.2587	0.0178	0.2766	0.0000	1,118.3068	1,118.3068	0.0493	0.0000	1,119.3419

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	1,244.65	1,244.65	68.26	2,572,784	2,572,784
Total	1,244.65	1,244.65	68.26	2,572,784	2,572,784

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.510118	0.073510	0.192396	0.133166	0.036737	0.005265	0.012605	0.021642	0.001847	0.002083	0.006548	0.000610	0.003471

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	347.8119	347.8119	0.0140	2.9000e-003	349.0038
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	347.8119	347.8119	0.0140	2.9000e-003	349.0038
NaturalGas Mitigated	8.5600e-003	0.0778	0.0653	4.7000e-004		5.9100e-003	5.9100e-003		5.9100e-003	5.9100e-003	0.0000	84.6697	84.6697	1.6200e-003	1.5500e-003	85.1850

NaturalGas Unmitigated	8.5600e-003	0.0778	0.0653	4.7000e-004		5.9100e-003	5.9100e-003		5.9100e-003	5.9100e-003	0.0000	84.6697	84.6697	1.6200e-003	1.5500e-003	85.1850

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	1.58665e+006	8.5600e-003	0.0778	0.0653	4.7000e-004		5.9100e-003	5.9100e-003		5.9100e-003	5.9100e-003	0.0000	84.6697	84.6697	1.6200e-003	1.5500e-003	85.1850
Total		**8.5600e-003**	**0.0778**	**0.0653**	**4.7000e-004**		**5.9100e-003**	**5.9100e-003**		**5.9100e-003**	**5.9100e-003**	**0.0000**	**84.6697**	**84.6697**	**1.6200e-003**	**1.5500e-003**	**85.1850**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	1.58665e+006	8.5600e-003	0.0778	0.0653	4.7000e-004		5.9100e-003	5.9100e-003		5.9100e-003	5.9100e-003	0.0000	84.6697	84.6697	1.6200e-003	1.5500e-003	85.1850
Total		**8.5600e-003**	**0.0778**	**0.0653**	**4.7000e-004**		**5.9100e-003**	**5.9100e-003**		**5.9100e-003**	**5.9100e-003**	**0.0000**	**84.6697**	**84.6697**	**1.6200e-003**	**1.5500e-003**	**85.1850**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	1.06427e+006	347.8119	0.0140	2.9000e-003	349.0038
Total		**347.8119**	**0.0140**	**2.9000e-003**	**349.0038**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	1.06427e+006	347.8119	0.0140	2.9000e-003	349.0038
Total		**347.8119**	**0.0140**	**2.9000e-003**	**349.0038**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Mitigated	0.3528	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Unmitigated	0.3528	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0807					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2720					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Total	**0.3528**	**1.0000e-005**	**6.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2400e-003**	**1.2400e-003**	**0.0000**	**0.0000**	**1.3200e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0807					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2720					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003

Total	**0.3528**	**1.0000e-005**	**6.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2400e-003**	**1.2400e-003**	**0.0000**	**0.0000**	**1.3200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	84.1534	0.4065	0.0102	95.8455
Unmitigated	84.1534	0.4066	0.0102	95.8518

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	12.3792 / 7.58722	84.1534	0.4066	0.0102	95.8518
Total		**84.1534**	**0.4066**	**0.0102**	**95.8518**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	12.3792 / 7.58722	84.1534	0.4065	0.0102	95.8455
Total		**84.1534**	**0.4065**	**0.0102**	**95.8455**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	13.1477	0.7770	0.0000	29.4649
Unmitigated	13.1477	0.7770	0.0000	29.4649

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e

Land Use	tons	MT/yr			
General Office Building	64.77	13.1477	0.7770	0.0000	29.4649
Total		**13.1477**	**0.7770**	**0.0000**	**29.4649**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	64.77	13.1477	0.7770	0.0000	29.4649
Total		**13.1477**	**0.7770**	**0.0000**	**29.4649**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Fashion Valley Apartments

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	8.48	1000sqft	0.46	8,480.00	0
High Turnover (Sit Down Restaurant)	3.27	1000sqft	0.46	3,275.00	0
Apartments Mid Rise	284.00	Dwelling Unit	4.00	284,000.00	812

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	525.96	**CH4 Intensity (lb/MWhr)**	0.021	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Trips and VMT -

Architectural Coating - Rule 67.0.1 coatings

Vehicle Trips - Based on traffic report

Area Coating - Rule 67.0.1

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00

tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblConstructionPhase	NumDays	18.00	109.00
tblConstructionPhase	NumDays	230.00	390.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	8.00	66.00
tblConstructionPhase	NumDays	18.00	109.00
tblConstructionPhase	PhaseEndDate	7/31/2019	2/28/2019
tblConstructionPhase	PhaseEndDate	7/31/2019	2/28/2019
tblConstructionPhase	PhaseStartDate	3/1/2019	10/1/2018
tblConstructionPhase	PhaseStartDate	3/1/2019	10/1/2018
tblEnergyUse	T24E	160.77	92.48
tblEnergyUse	T24E	5.69	3.12
tblEnergyUse	T24E	10.06	5.51
tblEnergyUse	T24NG	3,820.47	2,756.47
tblEnergyUse	T24NG	16.83	9.80
tblEnergyUse	T24NG	37.80	22.02
tblFireplaces	NumberGas	156.20	0.00
tblFireplaces	NumberNoFireplace	28.40	284.00
tblFireplaces	NumberWood	99.40	0.00
tblGrading	AcresOfGrading	33.00	4.92
tblGrading	MaterialExported	0.00	100,443.00
tblLandUse	LandUseSquareFeet	3,270.00	3,275.00
tblLandUse	LotAcreage	0.19	0.46
tblLandUse	LotAcreage	0.08	0.46
tblLandUse	LotAcreage	7.47	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.021
tblProjectCharacteristics	CO2IntensityFactor	720.49	525.96
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblProjectCharacteristics	OperationalYear	2014	2020

tblVehicleTrips	CC_TL	7.30	5.80
tblVehicleTrips	CC_TL	7.30	5.80
tblVehicleTrips	CNW_TL	7.30	5.80
tblVehicleTrips	CNW_TL	7.30	5.80
tblVehicleTrips	CW_TL	9.50	5.80
tblVehicleTrips	CW_TL	9.50	5.80
tblVehicleTrips	HO_TL	7.50	5.80
tblVehicleTrips	HS_TL	7.30	5.80
tblVehicleTrips	HW_TL	10.80	5.80
tblVehicleTrips	ST_TR	7.16	5.10
tblVehicleTrips	ST_TR	2.37	28.89
tblVehicleTrips	ST_TR	158.37	130.00
tblVehicleTrips	SU_TR	6.07	5.10
tblVehicleTrips	SU_TR	0.98	28.89
tblVehicleTrips	SU_TR	131.84	130.00
tblVehicleTrips	WD_TR	6.59	5.10
tblVehicleTrips	WD_TR	11.01	28.89
tblVehicleTrips	WD_TR	127.15	130.00
tblWoodstoves	NumberCatalytic	14.20	0.00
tblWoodstoves	NumberNoncatalytic	14.20	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					

2017	0.4643	4.6401	4.0356	8.6800e-003	0.4393	0.1923	0.6316	0.1691	0.1787	0.3478	0.0000	766.8761	766.8761	0.0716	0.0000	768.3791
2018	1.2213	4.0137	4.3027	8.0900e-003	0.2623	0.2338	0.4961	0.0703	0.2195	0.2898	0.0000	662.4354	662.4354	0.1038	0.0000	664.6143
2019	0.5563	0.8305	0.9387	1.7800e-003	0.0512	0.0468	0.0980	0.0137	0.0439	0.0575	0.0000	144.1759	144.1759	0.0256	0.0000	144.7129
Total	**2.2419**	**9.4844**	**9.2770**	**0.0186**	**0.7528**	**0.4729**	**1.2257**	**0.2531**	**0.4420**	**0.6951**	**0.0000**	**1,573.4874**	**1,573.4874**	**0.2009**	**0.0000**	**1,577.7063**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.4643	4.6401	4.0356	8.6800e-003	0.2910	0.1923	0.4833	0.0985	0.1787	0.2771	0.0000	766.8758	766.8758	0.0716	0.0000	768.3789
2018	1.2213	4.0137	4.3027	8.0900e-003	0.2623	0.2338	0.4961	0.0703	0.2195	0.2898	0.0000	662.4350	662.4350	0.1038	0.0000	664.6138
2019	0.5563	0.8305	0.9387	1.7800e-003	0.0512	0.0468	0.0980	0.0137	0.0439	0.0575	0.0000	144.1758	144.1758	0.0256	0.0000	144.7128
Total	**2.2419**	**9.4843**	**9.2770**	**0.0186**	**0.6045**	**0.4729**	**1.0774**	**0.1824**	**0.4420**	**0.6244**	**0.0000**	**1,573.4865**	**1,573.4865**	**0.2009**	**0.0000**	**1,577.7055**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**19.70**	**0.00**	**12.10**	**27.92**	**0.00**	**10.17**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Area	1.6754	0.0245	2.1159	1.1000e-004		0.0116	0.0116		0.0116	0.0116	0.0000	3.4448	3.4448	3.3600e-003	0.0000	3.5153
Energy	0.0102	0.0894	0.0511	5.6000e-004		7.0800e-003	7.0800e-003		7.0800e-003	7.0800e-003	0.0000	384.7690	384.7690	0.0133	4.0100e-003	386.2916
Mobile	1.5695	1.6723	8.1476	0.0173	1.3145	0.0220	1.3365	0.3504	0.0201	0.3705	0.0000	1,111.8337	1,111.8337	0.0531	0.0000	1,112.9489
Waste						0.0000	0.0000		0.0000	0.0000	36.0187	0.0000	36.0187	2.1287	0.0000	80.7203
Water						0.0000	0.0000		0.0000	0.0000	6.6634	98.7819	105.4453	0.6883	0.0169	125.1430
Total	**3.2551**	**1.7861**	**10.3146**	**0.0179**	**1.3145**	**0.0407**	**1.3552**	**0.3504**	**0.0388**	**0.3892**	**42.6822**	**1,598.8294**	**1,641.5116**	**2.8867**	**0.0209**	**1,708.6191**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.6754	0.0245	2.1159	1.1000e-004		0.0116	0.0116		0.0116	0.0116	0.0000	3.4448	3.4448	3.3600e-003	0.0000	3.5153
Energy	0.0102	0.0894	0.0511	5.6000e-004		7.0800e-003	7.0800e-003		7.0800e-003	7.0800e-003	0.0000	368.9764	368.9764	0.0126	3.8900e-003	370.4486
Mobile	1.5695	1.6723	8.1476	0.0173	1.3145	0.0220	1.3365	0.3504	0.0201	0.3705	0.0000	1,111.8337	1,111.8337	0.0531	0.0000	1,112.9489
Waste						0.0000	0.0000		0.0000	0.0000	18.0094	0.0000	18.0094	1.0643	0.0000	40.3601
Water						0.0000	0.0000		0.0000	0.0000	5.3308	83.6870	89.0177	0.5508	0.0136	104.7850
Total	**3.2551**	**1.7861**	**10.3146**	**0.0179**	**1.3145**	**0.0407**	**1.3552**	**0.3504**	**0.0388**	**0.3892**	**23.3401**	**1,567.9419**	**1,591.2820**	**1.6842**	**0.0174**	**1,632.0579**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**45.32**	**1.93**	**3.06**	**41.66**	**16.63**	**4.48**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2017	5/31/2017	5	23	
2	Grading	Grading	6/1/2017	8/31/2017	5	66	
3	Building Construction	Building Construction	9/1/2017	2/28/2019	5	390	
4	Paving	Paving	10/1/2018	2/28/2019	5	109	
5	Architectural Coating	Architectural Coating	10/1/2018	2/28/2019	5	109	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4.92

Acres of Paving: 0

Residential Indoor: 575,100; Residential Outdoor: 191,700; Non-Residential Indoor: 17,633; Non-Residential Outdoor: 5,878 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	125	0.42

Paving	Paving Equipment	2	6.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	317.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	12,555.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	209.00	32.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	42.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0347	0.0000	0.0347	5.2600e-003	0.0000	5.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0466	0.4910	0.3898	4.6000e-004		0.0244	0.0244		0.0228	0.0228	0.0000	42.1110	42.1110	0.0116	0.0000	42.3536
Total	**0.0466**	**0.4910**	**0.3898**	**4.6000e-004**	**0.0347**	**0.0244**	**0.0592**	**5.2600e-003**	**0.0228**	**0.0280**	**0.0000**	**42.1110**	**42.1110**	**0.0116**	**0.0000**	**42.3536**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.1000e-003	0.0410	0.0363	1.2000e-004	2.7000e-003	5.3000e-004	3.2400e-003	7.4000e-004	4.9000e-004	1.2300e-003	0.0000	10.6420	10.6420	7.0000e-005	0.0000	10.6435
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	7.1000e-004	6.7200e-003	2.0000e-005	1.3800e-003	1.0000e-005	1.3900e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.2393	1.2393	6.0000e-005	0.0000	1.2406
Total	**3.6400e-003**	**0.0418**	**0.0430**	**1.4000e-004**	**4.0800e-003**	**5.4000e-004**	**4.6300e-003**	**1.1100e-003**	**5.0000e-004**	**1.6100e-003**	**0.0000**	**11.8813**	**11.8813**	**1.3000e-004**	**0.0000**	**11.8842**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0135	0.0000	0.0135	2.0500e-003	0.0000	2.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0466	0.4910	0.3898	4.6000e-004		0.0244	0.0244		0.0228	0.0228	0.0000	42.1109	42.1109	0.0116	0.0000	42.3535
Total	**0.0466**	**0.4910**	**0.3898**	**4.6000e-004**	**0.0135**	**0.0244**	**0.0380**	**2.0500e-003**	**0.0228**	**0.0248**	**0.0000**	**42.1109**	**42.1109**	**0.0116**	**0.0000**	**42.3535**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.1000e-003	0.0410	0.0363	1.2000e-004	2.7000e-003	5.3000e-004	3.2400e-003	7.4000e-004	4.9000e-004	1.2300e-003	0.0000	10.6420	10.6420	7.0000e-005	0.0000	10.6435
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	7.1000e-004	6.7200e-003	2.0000e-005	1.3800e-003	1.0000e-005	1.3900e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.2393	1.2393	6.0000e-005	0.0000	1.2406
Total	**3.6400e-003**	**0.0418**	**0.0430**	**1.4000e-004**	**4.0800e-003**	**5.4000e-004**	**4.6300e-003**	**1.1100e-003**	**5.0000e-004**	**1.6100e-003**	**0.0000**	**11.8813**	**11.8813**	**1.3000e-004**	**0.0000**	**11.8842**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2084	0.0000	0.2084	0.1106	0.0000	0.1106	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1140	1.1874	0.8376	9.8000e-004		0.0673	0.0673		0.0619	0.0619	0.0000	91.1185	91.1185	0.0279	0.0000	91.7048
Total	**0.1140**	**1.1874**	**0.8376**	**9.8000e-004**	**0.2084**	**0.0673**	**0.2757**	**0.1106**	**0.0619**	**0.1725**	**0.0000**	**91.1185**	**91.1185**	**0.0279**	**0.0000**	**91.7048**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1229	1.6253	1.4386	4.6900e-003	0.1071	0.0212	0.1283	0.0294	0.0195	0.0489	0.0000	421.4822	421.4822	2.9400e-003	0.0000	421.5439

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5400e-003	2.0400e-003	0.0193	5.0000e-005	3.9700e-003	3.0000e-005	4.0000e-003	1.0500e-003	3.0000e-005	1.0800e-003	0.0000	3.5563	3.5563	1.8000e-004	0.0000	3.5601
Total	**0.1244**	**1.6273**	**1.4579**	**4.7400e-003**	**0.1111**	**0.0212**	**0.1323**	**0.0304**	**0.0195**	**0.0499**	**0.0000**	**425.0385**	**425.0385**	**3.1200e-003**	**0.0000**	**425.1040**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0813	0.0000	0.0813	0.0431	0.0000	0.0431	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1140	1.1874	0.8376	9.8000e-004		0.0673	0.0673		0.0619	0.0619	0.0000	91.1184	91.1184	0.0279	0.0000	91.7047
Total	**0.1140**	**1.1874**	**0.8376**	**9.8000e-004**	**0.0813**	**0.0673**	**0.1486**	**0.0431**	**0.0619**	**0.1050**	**0.0000**	**91.1184**	**91.1184**	**0.0279**	**0.0000**	**91.7047**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1229	1.6253	1.4386	4.6900e-003	0.1071	0.0212	0.1283	0.0294	0.0195	0.0489	0.0000	421.4822	421.4822	2.9400e-003	0.0000	421.5439
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5400e-003	2.0400e-003	0.0193	5.0000e-005	3.9700e-003	3.0000e-005	4.0000e-003	1.0500e-003	3.0000e-005	1.0800e-003	0.0000	3.5563	3.5563	1.8000e-004	0.0000	3.5601
Total	**0.1244**	**1.6273**	**1.4579**	**4.7400e-003**	**0.1111**	**0.0212**	**0.1323**	**0.0304**	**0.0195**	**0.0499**	**0.0000**	**425.0385**	**425.0385**	**3.1200e-003**	**0.0000**	**425.1040**

3.4 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1334	1.1354	0.7796	1.1500e-003		0.0766	0.0766		0.0719	0.0719	0.0000	102.9760	102.9760	0.0253	0.0000	103.5082
Total	**0.1334**	**1.1354**	**0.7796**	**1.1500e-003**		**0.0766**	**0.0766**		**0.0719**	**0.0719**	**0.0000**	**102.9760**	**102.9760**	**0.0253**	**0.0000**	**103.5082**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0143	0.1202	0.1780	3.3000e-004	8.9500e-003	1.7200e-003	0.0107	2.5600e-003	1.5800e-003	4.1400e-003	0.0000	29.1850	29.1850	2.2000e-004	0.0000	29.1896
Worker	0.0279	0.0370	0.3499	8.9000e-004	0.0721	5.4000e-004	0.0726	0.0192	5.0000e-004	0.0197	0.0000	64.5659	64.5659	3.2800e-003	0.0000	64.6348
Total	**0.0423**	**0.1572**	**0.5278**	**1.2200e-003**	**0.0810**	**2.2600e-003**	**0.0833**	**0.0217**	**2.0800e-003**	**0.0238**	**0.0000**	**93.7508**	**93.7508**	**3.5000e-003**	**0.0000**	**93.8244**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1334	1.1354	0.7796	1.1500e-003		0.0766	0.0766		0.0719	0.0719	0.0000	102.9759	102.9759	0.0253	0.0000	103.5081
Total	**0.1334**	**1.1354**	**0.7796**	**1.1500e-003**		**0.0766**	**0.0766**		**0.0719**	**0.0719**	**0.0000**	**102.9759**	**102.9759**	**0.0253**	**0.0000**	**103.5081**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0143	0.1202	0.1780	3.3000e-004	8.9500e-003	1.7200e-003	0.0107	2.5600e-003	1.5800e-003	4.1400e-003	0.0000	29.1850	29.1850	2.2000e-004	0.0000	29.1896
Worker	0.0279	0.0370	0.3499	8.9000e-004	0.0721	5.4000e-004	0.0726	0.0192	5.0000e-004	0.0197	0.0000	64.5659	64.5659	3.2800e-003	0.0000	64.6348
Total	**0.0423**	**0.1572**	**0.5278**	**1.2200e-003**	**0.0810**	**2.2600e-003**	**0.0833**	**0.0217**	**2.0800e-003**	**0.0238**	**0.0000**	**93.7508**	**93.7508**	**3.5000e-003**	**0.0000**	**93.8244**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3483	3.0355	2.2880	3.5000e-003		0.1950	0.1950		0.1833	0.1833	0.0000	308.9844	308.9844	0.0756	0.0000	310.5723

Total	**0.3483**	**3.0355**	**2.2880**	**3.5000e-003**		**0.1950**	**0.1950**		**0.1833**	**0.1833**	**0.0000**	**308.9844**	**308.9844**	**0.0756**	**0.0000**	**310.5723**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0408	0.3293	0.5163	9.9000e-004	0.0272	4.8400e-003	0.0320	7.7700e-003	4.4600e-003	0.0122	0.0000	87.0513	87.0513	6.5000e-004	0.0000	87.0651
Worker	0.0770	0.1025	0.9605	2.6900e-003	0.2187	1.6000e-003	0.2203	0.0581	1.4800e-003	0.0596	0.0000	188.5917	188.5917	9.2700e-003	0.0000	188.7863
Total	**0.1179**	**0.4318**	**1.4767**	**3.6800e-003**	**0.2459**	**6.4400e-003**	**0.2523**	**0.0659**	**5.9400e-003**	**0.0718**	**0.0000**	**275.6430**	**275.6430**	**9.9200e-003**	**0.0000**	**275.8514**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3483	3.0355	2.2880	3.5000e-003		0.1950	0.1950		0.1833	0.1833	0.0000	308.9841	308.9841	0.0756	0.0000	310.5720
Total	**0.3483**	**3.0355**	**2.2880**	**3.5000e-003**		**0.1950**	**0.1950**		**0.1833**	**0.1833**	**0.0000**	**308.9841**	**308.9841**	**0.0756**	**0.0000**	**310.5720**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0408	0.3293	0.5163	9.9000e-004	0.0272	4.8400e-003	0.0320	7.7700e-003	4.4600e-003	0.0122	0.0000	87.0513	87.0513	6.5000e-004	0.0000	87.0651
Worker	0.0770	0.1025	0.9605	2.6900e-003	0.2187	1.6000e-003	0.2203	0.0581	1.4800e-003	0.0596	0.0000	188.5917	188.5917	9.2700e-003	0.0000	188.7863
Total	**0.1179**	**0.4318**	**1.4767**	**3.6800e-003**	**0.2459**	**6.4400e-003**	**0.2523**	**0.0659**	**5.9400e-003**	**0.0718**	**0.0000**	**275.6430**	**275.6430**	**9.9200e-003**	**0.0000**	**275.8514**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0506	0.4508	0.3681	5.8000e-004		0.0276	0.0276		0.0260	0.0260	0.0000	50.3364	50.3364	0.0123	0.0000	50.5936
Total	**0.0506**	**0.4508**	**0.3681**	**5.8000e-004**		**0.0276**	**0.0276**		**0.0260**	**0.0260**	**0.0000**	**50.3364**	**50.3364**	**0.0123**	**0.0000**	**50.5936**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.2800e-003	0.0494	0.0812	1.6000e-004	4.4700e-003	7.4000e-004	5.2200e-003	1.2800e-003	6.8000e-004	1.9600e-003	0.0000	14.0947	14.0947	1.1000e-004	0.0000	14.0969
Worker	0.0118	0.0156	0.1456	4.4000e-004	0.0360	2.6000e-004	0.0363	9.5800e-003	2.4000e-004	9.8200e-003	0.0000	29.9466	29.9466	1.4400e-003	0.0000	29.9768
Total	**0.0181**	**0.0650**	**0.2267**	**6.0000e-004**	**0.0405**	**1.0000e-003**	**0.0415**	**0.0109**	**9.2000e-004**	**0.0118**	**0.0000**	**44.0413**	**44.0413**	**1.5500e-003**	**0.0000**	**44.0737**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0506	0.4508	0.3681	5.8000e-004		0.0276	0.0276		0.0260	0.0260	0.0000	50.3363	50.3363	0.0123	0.0000	50.5935
Total	**0.0506**	**0.4508**	**0.3681**	**5.8000e-004**		**0.0276**	**0.0276**		**0.0260**	**0.0260**	**0.0000**	**50.3363**	**50.3363**	**0.0123**	**0.0000**	**50.5935**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.2800e-003	0.0494	0.0812	1.6000e-004	4.4700e-003	7.4000e-004	5.2200e-003	1.2800e-003	6.8000e-004	1.9600e-003	0.0000	14.0947	14.0947	1.1000e-004	0.0000	14.0969

Worker	0.0118	0.0156	0.1456	4.4000e-004	0.0360	2.6000e-004	0.0363	9.5800e-003	2.4000e-004	9.8200e-003	0.0000	29.9466	29.9466	1.4400e-003	0.0000	29.9768
Total	**0.0181**	**0.0650**	**0.2267**	**6.0000e-004**	**0.0405**	**1.0000e-003**	**0.0415**	**0.0109**	**9.2000e-004**	**0.0118**	**0.0000**	**44.0413**	**44.0413**	**1.5500e-003**	**0.0000**	**44.0737**

3.5 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0464	0.4725	0.4047	6.2000e-004		0.0273	0.0273		0.0252	0.0252	0.0000	55.2350	55.2350	0.0167	0.0000	55.5862
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0464**	**0.4725**	**0.4047**	**6.2000e-004**		**0.0273**	**0.0273**		**0.0252**	**0.0252**	**0.0000**	**55.2350**	**55.2350**	**0.0167**	**0.0000**	**55.5862**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8600e-003	2.4800e-003	0.0232	7.0000e-005	5.2900e-003	4.0000e-005	5.3300e-003	1.4100e-003	4.0000e-005	1.4400e-003	0.0000	4.5636	4.5636	2.2000e-004	0.0000	4.5683
Total	**1.8600e-003**	**2.4800e-003**	**0.0232**	**7.0000e-005**	**5.2900e-003**	**4.0000e-005**	**5.3300e-003**	**1.4100e-003**	**4.0000e-005**	**1.4400e-003**	**0.0000**	**4.5636**	**4.5636**	**2.2000e-004**	**0.0000**	**4.5683**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0464	0.4725	0.4047	6.2000e-004		0.0273	0.0273		0.0252	0.0252	0.0000	55.2349	55.2349	0.0167	0.0000	55.5861
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0464**	**0.4725**	**0.4047**	**6.2000e-004**		**0.0273**	**0.0273**		**0.0252**	**0.0252**	**0.0000**	**55.2349**	**55.2349**	**0.0167**	**0.0000**	**55.5861**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8600e-003	2.4800e-003	0.0232	7.0000e-005	5.2900e-003	4.0000e-005	5.3300e-003	1.4100e-003	4.0000e-005	1.4400e-003	0.0000	4.5636	4.5636	2.2000e-004	0.0000	4.5683
Total	**1.8600e-003**	**2.4800e-003**	**0.0232**	**7.0000e-005**	**5.2900e-003**	**4.0000e-005**	**5.3300e-003**	**1.4100e-003**	**4.0000e-005**	**1.4400e-003**	**0.0000**	**4.5636**	**4.5636**	**2.2000e-004**	**0.0000**	**4.5683**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road	0.0269	0.2707	0.2611	4.0000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	35.4250	35.4250	0.0109	0.0000	35.6538
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0269**	**0.2707**	**0.2611**	**4.0000e-004**		**0.0153**	**0.0153**		**0.0141**	**0.0141**	**0.0000**	**35.4250**	**35.4250**	**0.0109**	**0.0000**	**35.6538**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1300e-003	1.4900e-003	0.0139	4.0000e-005	3.4500e-003	3.0000e-005	3.4700e-003	9.2000e-004	2.0000e-005	9.4000e-004	0.0000	2.8657	2.8657	1.4000e-004	0.0000	2.8686
Total	**1.1300e-003**	**1.4900e-003**	**0.0139**	**4.0000e-005**	**3.4500e-003**	**3.0000e-005**	**3.4700e-003**	**9.2000e-004**	**2.0000e-005**	**9.4000e-004**	**0.0000**	**2.8657**	**2.8657**	**1.4000e-004**	**0.0000**	**2.8686**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0269	0.2707	0.2611	4.0000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	35.4249	35.4249	0.0109	0.0000	35.6537
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	**0.0269**	**0.2707**	**0.2611**	**4.0000e-004**		**0.0153**	**0.0153**		**0.0141**	**0.0141**	**0.0000**	**35.4249**	**35.4249**	**0.0109**	**0.0000**	**35.6537**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1300e-003	1.4900e-003	0.0139	4.0000e-005	3.4500e-003	3.0000e-005	3.4700e-003	9.2000e-004	2.0000e-005	9.4000e-004	0.0000	2.8657	2.8657	1.4000e-004	0.0000	2.8686
Total	**1.1300e-003**	**1.4900e-003**	**0.0139**	**4.0000e-005**	**3.4500e-003**	**3.0000e-005**	**3.4700e-003**	**9.2000e-004**	**2.0000e-005**	**9.4000e-004**	**0.0000**	**2.8657**	**2.8657**	**1.4000e-004**	**0.0000**	**2.8686**

3.6 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6931					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.8500e-003	0.0662	0.0612	1.0000e-004		4.9700e-003	4.9700e-003		4.9700e-003	4.9700e-003	0.0000	8.4258	8.4258	8.0000e-004	0.0000	8.4426
Total	**0.7030**	**0.0662**	**0.0612**	**1.0000e-004**		**4.9700e-003**	**4.9700e-003**		**4.9700e-003**	**4.9700e-003**	**0.0000**	**8.4258**	**8.4258**	**8.0000e-004**	**0.0000**	**8.4426**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9100e-003	5.2100e-003	0.0488	1.4000e-004	0.0111	8.0000e-005	0.0112	2.9500e-003	8.0000e-005	3.0300e-003	0.0000	9.5836	9.5836	4.7000e-004	0.0000	9.5935
Total	**3.9100e-003**	**5.2100e-003**	**0.0488**	**1.4000e-004**	**0.0111**	**8.0000e-005**	**0.0112**	**2.9500e-003**	**8.0000e-005**	**3.0300e-003**	**0.0000**	**9.5836**	**9.5836**	**4.7000e-004**	**0.0000**	**9.5935**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6931					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.8500e-003	0.0662	0.0612	1.0000e-004		4.9700e-003	4.9700e-003		4.9700e-003	4.9700e-003	0.0000	8.4257	8.4257	8.0000e-004	0.0000	8.4426
Total	**0.7030**	**0.0662**	**0.0612**	**1.0000e-004**		**4.9700e-003**	**4.9700e-003**		**4.9700e-003**	**4.9700e-003**	**0.0000**	**8.4257**	**8.4257**	**8.0000e-004**	**0.0000**	**8.4426**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9100e-003	5.2100e-003	0.0488	1.4000e-004	0.0111	8.0000e-005	0.0112	2.9500e-003	8.0000e-005	3.0300e-003	0.0000	9.5836	9.5836	4.7000e-004	0.0000	9.5935
Total	**3.9100e-003**	**5.2100e-003**	**0.0488**	**1.4000e-004**	**0.0111**	**8.0000e-005**	**0.0112**	**2.9500e-003**	**8.0000e-005**	**3.0300e-003**	**0.0000**	**9.5836**	**9.5836**	**4.7000e-004**	**0.0000**	**9.5935**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4516					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7300e-003	0.0395	0.0396	6.0000e-005		2.7700e-003	2.7700e-003		2.7700e-003	2.7700e-003	0.0000	5.4895	5.4895	4.6000e-004	0.0000	5.4992
Total	**0.4573**	**0.0395**	**0.0396**	**6.0000e-005**		**2.7700e-003**	**2.7700e-003**		**2.7700e-003**	**2.7700e-003**	**0.0000**	**5.4895**	**5.4895**	**4.6000e-004**	**0.0000**	**5.4992**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3700e-003	3.1400e-003	0.0293	9.0000e-005	7.2400e-003	5.0000e-005	7.2900e-003	1.9200e-003	5.0000e-005	1.9700e-003	0.0000	6.0180	6.0180	2.9000e-004	0.0000	6.0240

Total	**2.3700e-003**	**3.1400e-003**	**0.0293**	**9.0000e-005**	**7.2400e-003**	**5.0000e-005**	**7.2900e-003**	**1.9200e-003**	**5.0000e-005**	**1.9700e-003**	**0.0000**	**6.0180**	**6.0180**	**2.9000e-004**	**0.0000**	**6.0240**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4516					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7300e-003	0.0395	0.0396	6.0000e-005		2.7700e-003	2.7700e-003		2.7700e-003	2.7700e-003	0.0000	5.4895	5.4895	4.6000e-004	0.0000	5.4992
Total	**0.4573**	**0.0395**	**0.0396**	**6.0000e-005**		**2.7700e-003**	**2.7700e-003**		**2.7700e-003**	**2.7700e-003**	**0.0000**	**5.4895**	**5.4895**	**4.6000e-004**	**0.0000**	**5.4992**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3700e-003	3.1400e-003	0.0293	9.0000e-005	7.2400e-003	5.0000e-005	7.2900e-003	1.9200e-003	5.0000e-005	1.9700e-003	0.0000	6.0180	6.0180	2.9000e-004	0.0000	6.0240
Total	**2.3700e-003**	**3.1400e-003**	**0.0293**	**9.0000e-005**	**7.2400e-003**	**5.0000e-005**	**7.2900e-003**	**1.9200e-003**	**5.0000e-005**	**1.9700e-003**	**0.0000**	**6.0180**	**6.0180**	**2.9000e-004**	**0.0000**	**6.0240**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5695	1.6723	8.1476	0.0173	1.3145	0.0220	1.3365	0.3504	0.0201	0.3705	0.0000	1,111.8337	1,111.8337	0.0531	0.0000	1,112.9489
Unmitigated	1.5695	1.6723	8.1476	0.0173	1.3145	0.0220	1.3365	0.3504	0.0201	0.3705	0.0000	1,111.8337	1,111.8337	0.0531	0.0000	1,112.9489

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,448.40	1,448.40	1448.40	2,715,434	2,715,434
General Office Building	244.99	244.99	244.99	423,182	423,182
High Turnover (Sit Down Restaurant)	425.10	425.10	425.10	383,592	383,592
Total	2,118.49	2,118.49	2,118.49	3,522,207	3,522,207

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	5.80	5.80	5.80	41.60	18.80	39.60	86	11	3
General Office Building	5.80	5.80	5.80	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	5.80	5.80	5.80	8.50	72.50	19.00	37	20	43

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.511000	0.225000	0.164000	0.064000	0.002000	0.001000	0.007000	0.005000	0.000000	0.001000	0.012000	0.001000	0.007000

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	267.6312	267.6312	0.0107	2.0400e-003	268.4866
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	283.4238	283.4238	0.0113	2.1600e-003	284.3296
NaturalGas Mitigated	0.0102	0.0894	0.0511	5.6000e-004		7.0800e-003	7.0800e-003		7.0800e-003	7.0800e-003	0.0000	101.3452	101.3452	1.9400e-003	1.8600e-003	101.9620
NaturalGas Unmitigated	0.0102	0.0894	0.0511	5.6000e-004		7.0800e-003	7.0800e-003		7.0800e-003	7.0800e-003	0.0000	101.3452	101.3452	1.9400e-003	1.8600e-003	101.9620

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	118720	6.4000e-004	5.8200e-003	4.8900e-003	3.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004	0.0000	6.3354	6.3354	1.2000e-004	1.2000e-004	6.3739
High Turnover (Sit Down Restaurant)	525572	2.8300e-003	0.0258	0.0216	1.5000e-004		1.9600e-003	1.9600e-003		1.9600e-003	1.9600e-003	0.0000	28.0465	28.0465	5.4000e-004	5.1000e-004	28.2172
Apartments Mid Rise	1.25485e+006	6.7700e-003	0.0578	0.0246	3.7000e-004		4.6700e-003	4.6700e-003		4.6700e-003	4.6700e-003	0.0000	66.9633	66.9633	1.2800e-003	1.2300e-003	67.3709

Total		**0.0102**	**0.0894**	**0.0511**	**5.5000e-004**		**7.0700e-003**	**7.0700e-003**		**7.0700e-003**	**7.0700e-003**	**0.0000**	**101.3452**	**101.3452**	**1.9400e-003**	**1.8600e-003**	**101.9620**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	118720	6.4000e-004	5.8200e-003	4.8900e-003	3.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004	0.0000	6.3354	6.3354	1.2000e-004	1.2000e-004	6.3739
High Turnover (Sit Down Restaurant)	525572	2.8300e-003	0.0258	0.0216	1.5000e-004		1.9600e-003	1.9600e-003		1.9600e-003	1.9600e-003	0.0000	28.0465	28.0465	5.4000e-004	5.1000e-004	28.2172
Apartments Mid Rise	1.25485e+006	6.7700e-003	0.0578	0.0246	3.7000e-004		4.6700e-003	4.6700e-003		4.6700e-003	4.6700e-003	0.0000	66.9633	66.9633	1.2800e-003	1.2300e-003	67.3709
Total		**0.0102**	**0.0894**	**0.0511**	**5.5000e-004**		**7.0700e-003**	**7.0700e-003**		**7.0700e-003**	**7.0700e-003**	**0.0000**	**101.3452**	**101.3452**	**1.9400e-003**	**1.8600e-003**	**101.9620**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	962130	229.5366	9.1600e-003	1.7500e-003	230.2702
General Office Building	105322	25.1267	1.0000e-003	1.9000e-004	25.2070
High Turnover (Sit Down Restaurant)	120553	28.7604	1.1500e-003	2.2000e-004	28.8524
Total		**283.4238**	**0.0113**	**2.1600e-003**	**284.3296**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	902709	215.3607	8.6000e-003	1.6400e-003	216.0490
General Office Building	102162	24.3729	9.7000e-004	1.9000e-004	24.4508
High Turnover (Sit Down Restaurant)	116936	27.8976	1.1100e-003	2.1000e-004	27.9868
Total		**267.6312**	**0.0107**	**2.0400e-003**	**268.4866**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.6754	0.0245	2.1159	1.1000e-004		0.0116	0.0116		0.0116	0.0116	0.0000	3.4448	3.4448	3.3600e-003	0.0000	3.5153
Unmitigated	1.6754	0.0245	2.1159	1.1000e-004		0.0116	0.0116		0.0116	0.0116	0.0000	3.4448	3.4448	3.3600e-003	0.0000	3.5153

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4558					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0644	0.0245	2.1159	1.1000e-004		0.0116	0.0116		0.0116	0.0116	0.0000	3.4448	3.4448	3.3600e-003	0.0000	3.5153
Total	**1.6754**	**0.0245**	**2.1159**	**1.1000e-004**		**0.0116**	**0.0116**		**0.0116**	**0.0116**	**0.0000**	**3.4448**	**3.4448**	**3.3600e-003**	**0.0000**	**3.5153**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4558					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0644	0.0245	2.1159	1.1000e-004		0.0116	0.0116		0.0116	0.0116	0.0000	3.4448	3.4448	3.3600e-003	0.0000	3.5153
Total	**1.6754**	**0.0245**	**2.1159**	**1.1000e-004**		**0.0116**	**0.0116**		**0.0116**	**0.0116**	**0.0000**	**3.4448**	**3.4448**	**3.3600e-003**	**0.0000**	**3.5153**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	89.0177	0.5508	0.0136	104.7850
Unmitigated	105.4453	0.6883	0.0169	125.1430

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	18.5037 / 11.6654	94.2706	0.6065	0.0149	111.6284
General Office Building	1.50718 / 0.923757	7.6086	0.0494	1.2100e-003	9.0222
High Turnover (Sit Down Restaurant)	0.992555 / 0.0633546	3.5661	0.0325	7.9000e-004	4.4925
Total		**105.4453**	**0.6883**	**0.0169**	**125.1431**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.803 / 10.9538	79.7143	0.4853	0.0120	93.6092
General Office Building	1.20575 / 0.867408	6.4272	0.0395	9.7000e-004	7.5588
High Turnover (Sit Down Restaurant)	0.794044 / 0.05949	2.8762	0.0260	6.3000e-004	3.6171
Total		**89.0177**	**0.5508**	**0.0136**	**104.7850**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	18.0094	1.0643	0.0000	40.3601
Unmitigated	36.0187	2.1287	0.0000	80.7203

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

Apartments Mid Rise	130.64	26.5187	1.5672	0.0000	59.4302
General Office Building	7.89	1.6016	0.0947	0.0000	3.5893
High Turnover (Sit Down Restaurant)	38.91	7.8984	0.4668	0.0000	17.7008
Total		**36.0187**	**2.1286**	**0.0000**	**80.7203**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	65.32	13.2594	0.7836	0.0000	29.7151
General Office Building	3.945	0.8008	0.0473	0.0000	1.7946
High Turnover (Sit Down Restaurant)	19.455	3.9492	0.2334	0.0000	8.8504
Total		**18.0094**	**1.0643**	**0.0000**	**40.3601**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

GEOTECHNICAL INVESTIGATION
FASHION VALLEY
SAN DIEGO, CALIFORNIA

Prepared for:

Maple Multi-Family Land CA, LP
c/o Trammell Crow Residential
5790 Fleet Street, Suite 140
Carlsbad, California 92008

Project No. 10949.001

February 24, 2016

Leighton and Associates, Inc.
A LEIGHTON GROUP COMPANY

Leighton and Associates, Inc.
A LEIGHTON GROUP COMPANY

February 24, 2016

Project No. 10949.001

Maple Multi-Family Land CA, LP
c/o Trammel Crow Residential
5790 Fleet Street, Suite 140
Carlsbad, California 92008

Attention: Mr. Lawrence Howard

Subject: Geotechnical Investigation
Fashion Valley, San Diego, California

In accordance with your request and authorization, we have conducted a geotechnical investigation of the property for the design and construction of the proposed residential development project.

Based on the results of our study, it is our professional opinion that the site is suitable to receive the proposed improvements provided mitigation of the underlying liquefiable soils is implemented prior to construction. The accompanying report presents a summary of our investigation and provides geotechnical conclusions and recommendations relative to the proposed site development.

If you have any questions regarding our report, please do not hesitate to contact this office. We appreciate this opportunity to be of service.

Respectfully submitted,

LEIGHTON AND ASSOCIATES, INC.

Bob Stroh, CEG 2099
Senior Project Geologist

PROFESSIONAL GEOLOGIST
ROBERT C. STROH
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GEOTECHNICAL
STATE OF CALIFORNIA

Distribution: (1) Addressee

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Leighton

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Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you —* should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/The Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE THE GEOPROFESSIONAL BUSINESS ASSOCIATION

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1.0 INTRODUCTION

We recommend that all individuals utilizing this report read the preceding information sheet prepared by ASFE (the Association of Engineering Firms Practicing in the Geosciences) and the Limitations, Section 7.0, located at the end of this report.

1.1 Purpose and Scope

This report presents the results of our geotechnical investigation for the site located at 123 Camino De La Reina in the City of San Diego, California (Figure 1). The intent of this report is to provide specific geotechnical conclusions and recommendations for the currently proposed project.

1.2 Site Location and Description

The site is located northwest of Highway 163 and south and east of Camino De La Reina in the Fashion Valley neighborhood of San Diego, California (Figure 1). The site is currently utilized as a business park with 4 existing structures and pavement parking areas with associated drive aisles.

The site is roughly triangular shaped with the long axis oriented north-south along Camino De La Reina and with the diagonal along the southeast side of the property which is bound by Highway 163. The site is approximately 5 acres in area. The San Diego River is located approximately 200 feet north of the site and a commercial property currently consisting of the San Diego Union Tribune building is located west of the site.

Site elevations vary between 26 feet above mean sea level (msl) and 40 feet msl with topography across the site gently sloping away from the center of the property toward the north, west, and south.

Site Latitude and Longitude
32.765º N
117.164º W

1.3 Proposed Development

Based on our review of the preliminary site plan (DesignARC, 2016), we understand that the project will consist of demolition of the existing site improvements and replacement with a multi-building, multi-story residential project. Specifically, development is currently proposed to include three 6-story, Type III apartment structures with approximately 284 units and an associated 6-story parking garage. The ground floor of one of the residential structures will likely consist of Retail/Leasing with the remaining upper floors consisting of residential units. In addition, the plans indicate an asphalt concrete paved surface access roadways from the north, west, and southwest off Camino De La Reina and surface parking along the east side of the property adjacent to Highway 163. Other surface improvements may include two swimming pools with associated patio/common areas.

2.0 SUBSURFACE EXPLORATION AND LABORATORY TESTING

2.1 Current Site Investigation

Our subsurface exploration of the site was performed on February 25, 2015, and consisted of advancing four small diameter, hollow-stem-auger, exploratory borings, with a conventional truck mounted, CME-75, drilling rig. The exploratory borings (B-1 through B-4) were advanced to characterize the onsite soils, including those likely to be encountered at and below the proposed foundation elevations for this project. In addition, we advanced five cone penetration tests (CPTs) to further characterize the onsite soils for the purpose of evaluating liquefaction potential. Depths of exploration for the CPTs ranged between 60 and 82 feet. The approximate locations of the borings and CPTs are presented on the Boring Location Map (Figure 2) and the boring logs and CPT profiles are presented in Appendix B.

A geologist from our firm visually logged the soil types encountered in accordance to ASTM D2488. Soil samples were obtained using either a SPT sampler (2-inch O.D. and 1.4-inch I.D.) or a California Modified sampler (3-inch O.D. and 2.4-inch I.D.) with 1-inch tall sample rings. The samplers were driven into the subsurface soils using a 140 pound automated hammer vertically dropping 30 inches. Soil samples of bulk and relatively undisturbed in-situ samples were packaged, sealed, and transported to our laboratory for physical analysis. Blow counts were recorded at 6-inch intervals for each sample, except where sampler refusal was encountered at a lesser increment (greater than 50 blows per 6 inches). A discussion of the laboratory test program and a summary of the laboratory test results are presented in Appendix C. After logging and sampling, the exploratory borings were backfilled with native soil and, where appropriate, were resurfaced with concrete patch.

The blow counts recorded on the boring logs represent the raw field data and have not been corrected for the effects of overburden pressure, rod effects, borehole diameter, variation in sampler size, or hammer energy correction. Soil samples obtained from the borings were packaged and sealed in the field to reduce moisture loss and disturbance, and returned to our San Diego laboratory for further testing.

2.2 Previous Site Investigation

As part of our study, we reviewed one study pertinent to the subject site. Specifically, we reviewed a report by Christian Wheeler Engineering titled Preliminary Geotechnical Evaluation, dated November 21, 2013.

The scope of services for that report included the completion of a field exploration program that included the completion of eight CPT explorations across the site parking lots. CPT soundings from that study are shown on Figure 2 and are presented in Appendix B. It should be noted that we concur with the results of their CPT explorations and have utilized that data in completing our recommendations and analysis for this report.

2.3 Laboratory Testing

Laboratory testing was performed on soil samples to evaluate particle size and distribution, maximum bulk density and optimum moisture content, in-situ moisture and density, and direct shear. A discussion of the laboratory tests performed and a summary of the laboratory test results are presented in Appendix C.

3.0 SUMMARY OF GEOTECHNICAL CONDITIONS

3.1 Regional Geologic Setting

The project area is situated in the Peninsular Ranges Geomorphic Province of California. This geomorphic province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California, and varies in width from approximately 30 to 100 miles (Norris and Webb, 1990). The province is characterized by mountainous terrain on the east composed mostly of Mesozoic igneous and metamorphic rocks, and relatively low-lying coastal terraces to the west underlain by late Cretaceous-age, Tertiary-age, and Quaternary-age sedimentary units. Most of the coastal region of the County of San Diego, including the site, occurs within this coastal region and is underlain by sedimentary units. More locally, the site generally consists of subdued landforms underlain by sedimentary bedrock.

3.2 Site-Specific Geology

Based on our subsurface exploration and review of geologic literature and maps (Appendix A), the geologic units underlying the site consist of localized undocumented artificial fill overlying surficial alluvial floodplain deposits (Quaternary-aged Young Alluvial Floodplain Deposits) in turn underlain by Tertiary-age Friars Formation. Although the Friars Formation was not encountered during exploration drilling it is believed to have been encountered in CPT-1 at a depth of approximately 75 feet (Figure 2). A brief description of the geologic units encountered on the site is presented below.

3.2.1 Undocumented Fill – (Afu)

During our subsurface exploration, on the order of up to approximately 10 to 11 feet of undocumented artificial fill soil was encountered at the exploration locations. In general, based on previously completed explorations and the recent explorations, undocumented fill averages approximately 10 feet in thickness across the site, and thins towards the north, west and south. The fill was apparently placed during the site's initial construction and deeper fills may exist that were not observed during our or the previous exploration. An as-graded report was not available for our review, and it is assumed that no engineering

observations of these fill soils were provided at the time of grading. As encountered, the fill soils generally consisted of reddish brown to medium brown, moist, medium dense, clayey to silty sand with scattered gravel and some debris such as brick and glass.

3.2.2 Quaternary Young Alluvial Flood-Plain Deposits (Qya)

Quaternary-aged Young Alluvial Flood-Plain Deposits underlie the site. As encountered, young alluvial flood-plain deposits underlay the fill and consist of materials that range from silty sand to sandy silt; and silts to clays. At one location, the alluvium immediately underlying the fill contained abundant organics. The base of the alluvial flood-plain deposits consists of a gravel lag layer at a depth of approximately 70 to 75 feet. As encountered, the materials are generally unconsolidated, loose to medium dense and soft to firm. The young alluvium generally consists of interbedded layers of gray-brown to dark-brown, friable, medium dense, clayey and silty sand, and moderately to very stiff, clay and sandy to silty clay and silt.

3.3 Surface and Ground Water

Ground water was observed in all of the explorations at the site. Specifically, at the time of drilling, ground water was observed in our exploration borings at a depth of between approximately 8 to 21 feet below the ground surface (bgs); i.e. 17 to 20 feet above mean sea level (msl). It should be noted that perched ground water levels may develop and fluctuate during periods of precipitation or increased landscape irrigation. Therefore, we anticipate the conventional foundations will be located above the existing static ground water table at the site. However, it should be noted that any deep foundations will likely encounter ground water underlying the site.

3.4 Engineering Characteristics of On-site Soils

Based on the results of our laboratory testing of representative on-site soils, and our professional experience on similar sites with similar soils conditions, the engineering characteristics of the on-site soils are discussed below.

3.4.1 Expansion Potential

Based on our visual observations performed during our site reconnaissance, subsurface investigation, laboratory testing, and similar projects in the site vicinity, we anticipate the near surface soils to have a generally low to medium expansion potential. However, soils with greater expansion potential may be encountered during grading and additional testing may be warranted. Nevertheless, expansive soils are not anticipated to impact the proposed site development.

3.4.2 Compressible Soils

Based on the results of our and previous subsurface explorations at the site, and review of other projects in the area, we expect that the upper 10 to 15 feet of the site is underlain by undocumented fill and alluvial deposits which are considered compressible. These soils are not considered suitable for support of foundation loads in their present condition. Recommendations for remedial grading of these soils are provided in Section 6 of this report.

3.4.3 Soil Corrosivity

A preliminary corrosive soil screening for the on-site materials was completed to evaluate their potential effect on concrete and ferrous metals. The corrosion potential was evaluated using the results of laboratory testing on one representative soil sample obtained during our subsurface evaluation.

Laboratory testing was performed to evaluate pH, minimum electrical resistivity, and chloride and soluble sulfate content. The sample tested had measured pH value of 7.28, and a measured minimum electrical resistivity of 1,570 ohm-cm. Test results also indicated that the sample had a chloride content of 86 parts per million (ppm), and a soluble sulfate content of less than 0.0150 percent by weight in soil.

3.4.4 Excavation Characteristics

The site is underlain by undocumented fill and Young Alluvial Floodplain Deposits generally consisting of silty to clayey sands with gravel and

cobbles to clays and sandy to silty clays. With regards to the proposed project, it is anticipated these on-site soils can be excavated with conventional heavy-duty construction equipment. Oversize cobble material, if encountered, should be placed in non-structural areas or hauled off-site.

4.0 SEISMIC AND GEOLOGIC HAZARDS

4.1 Regional Tectonic Setting and Seismicity

The site is considered to lie within a seismically active region, as can all of Southern California. During the late Pliocene, several new faults developed in Southern California, creating a new tectonic regime superposed on the flat-lying section of Tertiary and late Cretaceous rocks in the San Diego region.

The principal known onshore faults which collectively account for the majority of seismic hazard in southernmost California are the San Andreas, San Jacinto, Elsinore, Imperial and Rose Canyon faults. The balance of seismic hazard is taken by the offshore zone of faults which include the Coronado Bank, San Diego Trough, and San Clemente faults off of the San Diego. Most of the offshore faults coalesce south of the international border, where they come onshore as the Agua Blanca fault which transects the Baja California peninsula south of Ensenada (Jennings, 2010).

The primary seismic hazard for San Diego is the Rose Canyon fault zone which is located approximately 1.8 miles west of the site and is the 'active' seismogenic fault considered having the most significant effect at the site from a design standpoint.

4.2 Local Faulting

Our review of available geologic literature (Appendix A) indicates that there are no known active or potentially active faults transecting, or projecting toward the site.

4.3 Seismic Hazards

Severe ground shaking is most likely to occur during an earthquake on one of the regional active faults in Southern California that are mentioned above. The effect of seismic shaking may be mitigated by adhering to the California Building Code or state-of-the-art seismic design parameters of the Structural Engineers Association of California.

4.3.1 Shallow Ground Rupture

As previously discussed, no faults are mapped transecting or projecting toward the site. Therefore, surface rupture hazard due to faulting is considered very low. Ground cracking due to shaking from a seismic event is not considered a significant hazard either, since the site is not located near slopes.

4.3.2 Mapped Seismic Hazard Zones

The site is not located within a State mapped Earthquake Fault Zone (EFZ). However, the site is located within a City mapped geologic Hazard Category Number 31 for Liquefaction (High Potential - shallow groundwater, major drainages, hydraulic fills). The results of our analysis regarding secondary seismic hazards at the site are summarized in Section 4.4 below.

4.3.3 Site Class

Utilizing 2013 California Building Code (CBC) procedures, we have characterized the site soil profile to be Site Class D based on our experience with similar sites in the project area and the results of our subsurface evaluation.

4.3.4 Building Code Mapped Spectral Acceleration Parameters

The effect of seismic shaking may be mitigated by adhering to the California Building Code and state-of-the-art seismic design practices of the Structural Engineers Association of California. Provided below in Table 1 are the risk-targeted spectral acceleration parameters for the project determined in accordance with the 2013 California Building Code (CBSC, 2013) and the USGS U.S. Seismic Design Map tool (Version 3.1.0).

Table 1 CBC Mapped Spectral Acceleration Parameters			
Site Class	D		
Site Coefficients	F_a	=	1.030
	F_v	=	1.547
Mapped MCE_R Spectral Accelerations	S_S	=	1.176g
	S_1	=	0.453g
Site Modified MCE_R Spectral Accelerations	S_{MS}	=	1.211g
	S_{M1}	=	0.701g
Design Spectral Accelerations	S_{DS}	=	0.807g
	S_{D1}	=	0.467g

Utilizing ASCE Standard 7-10, in accordance with Section 11.8.3, the following additional parameters for the peak horizontal ground acceleration are associated with the Geometric Mean Maximum Considered Earthquake (MCE_G). The mapped MCE_G peak ground acceleration (PGA) is 0.519g for the site. For a Site Class D, the F_{PGA} is 1.000 and the mapped peak ground acceleration adjusted for Site Class effects (PGA_M) is 0.519g for the site.

4.4 Secondary Seismic Hazards

In general, secondary seismic hazards can include soil liquefaction, seismically-induced settlement, lateral displacement, surface manifestations of liquefaction, landsliding, seiches, and tsunamis. The potential for secondary seismic hazards at the subject site is discussed below.

4.4.1 Liquefaction and Dynamic Settlement

Liquefaction and dynamic settlement of soils can be caused by strong vibratory motion due to earthquakes. Granular soils tend to densify when subjected to shear strains induced by ground shaking during earthquakes. Research and historical data indicate that loose granular soils underlain by a near surface ground water table are most susceptible to liquefaction, while the most clayey materials are not susceptible to liquefaction. Liquefaction is characterized by a loss of shear strength in the affected

soil layer, thereby causing the soil to behave as a viscous liquid. This effect may be manifested at the ground surface by settlement and, possibly, sand boils where insufficient confining overburden is present over liquefied layers. Where sloping ground conditions are present, liquefaction-induced instability can result.

In our preliminary liquefaction analysis utilizing the computer program CLiq Version 1.7.6.34, used the Maximum Considered Earthquake event with a mean magnitude M6.68 (i.e., associated with the Design Earthquake Ground Motion). The peak horizontal ground acceleration associated with the Maximum Considered Earthquake Ground Motion is 0.519g. Based on the results of the liquefaction analysis, several discontinuous and variable thickness liquefiable layers of saturated alluvial materials are located between a depth of approximately 10 to 75 feet. As encountered in the CPT explorations, the saturated layers located above 50 feet are considered susceptible to liquefaction at the design earthquake ground motion.

Total dynamic settlement at the site as a result of the Design Earthquake Ground Motion is roughly estimated at between approximately 5 to 10.5 inches. Differential dynamic settlement at the site is anticipated to be on the order of 2 inches over 50 feet considering the depth and nature of the liquefied zones. A summary plot showing idealized profile, relevant CPT data, calculated cyclic stress and resistance ratio, factor of safety, and liquefaction-induced settlement is provided in Appendix D.

4.4.2 Lateral Spread

Empirical relationships have been derived (Youd et al., 1999) to estimate the magnitude of lateral spread due to liquefaction. These relationships include parameters such as earthquake magnitude, distance of the earthquake from the site, slope height and angle, the thickness of liquefiable soil, and gradation characteristics of the soil.

The susceptibility to earthquake-induced lateral spread is considered to be moderate for the site because of the nature of the underlying liquefiable layers, topography, and proximity to the San Diego River. It should be noted that the nearest distance from the site to an open slope face is

approximately 100 feet at the edge of the San Diego River where the face of the river channel is modified to an approximately 10 feet high 2:1 (horizontal:vertical) slope.

It is anticipated that lateral spreading can be mitigated through implementation of the recommended ground improvement program. Additional subsurface characterization and analysis would be required to further evaluate and quantify lateral spreading potential.

4.4.3 Tsunamis and Seiches

Based on a site elevation of approximately 25 to 40 feet msl, the distance of the site from the Pacific coastline, and the CGS Tsunami Inundation Map of the area (CGS, 2009) the potential for flood damage to occur at the site from a tsunami or seiche is considered nil.

4.5 Landslides

Several formations within the San Diego region are particularly prone to landsliding. These formations generally have high clay content and mobilize when they become saturated with water. Other factors, such as steeply dipping bedding that project out of the face of the slope and/or the presence of fracture planes, will also increase the potential for landsliding.

No landslides or indications of deep-seated landsliding were indicated at the site during our field exploration or our review of available geologic literature, topographic maps, and stereoscopic aerial photographs. Furthermore, our field reconnaissance and the local geologic maps indicate the site is generally underlain by favorable oriented geologic structure, consisting of massively bedded silty to clayey sands and sandy to silty clays. Therefore, the potential for significant landslides or large-scale slope instability at the site is considered nil.

4.6 Flood Hazard

According to a Federal Emergency Management Agency (FEMA) flood insurance rate map (FEMA, 2012); the entire site is located within a Zone X floodplain, and the northeastern portion of the site is located with a Zone AE (100-year) floodplain. Based on our review of topographic maps, the site is also located downstream of a dam(s) (El Capitan and San Vicente Reservoirs) and is within a

mapped dam inundation area. However, based on this review and our site reconnaissance, the potential for flooding of the site is considered low since the adjacent portion of the San Diego River has been channelized.

5.0 CONCLUSIONS

Based on the results of our geotechnical investigation of the site, it is our opinion that the proposed development is feasible from a geotechnical standpoint, provided the following conclusions and recommendations are incorporated into the project plans and specifications.

- Generally loose surficial soils consisting of fill and alluvium having depths of up to approximately 10 to 15 feet locally underlie the site and are considered compressible. Therefore, in their present condition, these soils are not considered suitable for the support of structural loads or the support of engineered fill soils and settlement sensitive site improvements. Section 6.1.2 of this report provides specific recommendations regarding mitigation of these soil materials.
- The underlying alluvial deposits to depths of up to 50 feet are subject to localized liquefaction, seismic settlement, and lateral spreading. Total dynamic settlement at the site as a result of the Design Earthquake Ground Motion is roughly estimated at between approximately 5 to 10 inches. Differential dynamic settlement at the site is anticipated to be on the order of 2 inches over 50 feet considering the depth and nature of the liquefied zones. Seismic settlement and lateral spreading should be mitigated by ground improvement. Section 6.1.5 of this report provides specific recommendations regarding mitigation of seismic settlement using ground improvement.
- Based on the results of our subsurface explorations and available geologic references, ground water is not anticipated to be a constraint during site construction, and we do not anticipate that temporary dewatering will be necessary. However, at the time of drilling, ground water was observed in our exploration borings at a depth of between approximately 8 to 21 feet below the ground surface (bgs); i.e. 17 to 20 feet above mean sea level (msl). It should be noted that ground water will be encountered during the construction of ground improvement.
- Based on the results of our subsurface investigation, we anticipate that the onsite materials should be generally rippable with conventional heavy-duty earthwork equipment. Although, localized areas of cobbles were encountered during our exploration, the existing onsite soils are suitable for reuse as engineered fill provided they are relatively free of organic material, debris, and rock fragments larger than 6 inches in maximum dimension. In addition, unknown items such as buried concrete

footings and demolition debris left from previous site development should be anticipated.

- Based on visual classification, materials derived from the on-site soil materials possess a low to medium expansion potential, although locally more expansive materials may be encountered.

- Although Leighton does not practice corrosion engineering, laboratory test results indicate the soils present on the site have a negligible potential for sulfate attack on normal concrete. The onsite soils are considered to be corrosive to buried uncoated ferrous metals.

- Based on the silty to sandy character of the near surface on-site soils, the existing onsite soils are anticipated to provide low to moderate infiltration rates of surface water. However, additional investigation regarding the infiltration characteristics of the site soils will be required before recommendations for the use of infiltration type devices for Low Impact Development (LID) can be provided. In addition, surface and subsurface improvements could be affected by some proposed LID measures and should therefore be fully evaluated before implementation.

6.0 RECOMMENDATIONS

6.0 Earthwork

We anticipate that earthwork at the site will consist of site preparation, excavation and fill operations, and ground improvement. We recommend that earthwork on the site be performed in accordance with the following recommendations and the General Earthwork and Grading Specifications for Rough Grading included in Appendix E. In case of conflict, the following recommendations supersede those in Appendix E.

6.1.1 Site Preparation

Prior to grading, all areas to receive structural fill, engineered structures, or hardscape should be stripped of vegetation and cleared of surface and subsurface obstructions, including any existing debris and undocumented, loose, compressible, or unsuitable soils. Removed vegetation and debris should be properly disposed off site. All areas to receive fill and/or other surface improvements should be scarified to a minimum depth of 8 inches, brought to optimum or above-optimum moisture conditions, and recompacted to at least 90 percent relative compaction based on ASTM Test Method D1557.

6.1.2 Removal of Compressible Soils

Potentially compressible undocumented fill and surficial alluvial soils at the site may settle as a result of wetting or settle under the surcharge of engineered fill and/or structural loads supported on conventional foundations. These soils should be removed to undisturbed dense to stiff alluvium and replaced as moisture conditioned engineered fill. In general, removal depths will range from 10 to 15 feet below the existing ground surface across the site. Additionally, removal depths should extend to a minimum of 3 feet below bottom of foundation footings. The lateral limits of the removal bottom should extend a length equal to the removal depth where possible. If the recommended lateral removal limits cannot be accommodated, temporary shoring or slot removals may be necessary. The bottom of all removals should be evaluated by a Certified Engineering Geologist to confirm conditions are as anticipated.

As an alternative to the above recommended 10 to 15-foot deep removals, these soils may be improved utilizing the ground improvement that is recommended for improvement of the underlying alluvial soils. In that case, removal depths should extend to a minimum of 3 feet below bottom of foundation footings or a depth equal to 2 times the foundation width, whichever is greater. Section 6.1.5 of this report provides specific recommendations regarding mitigation of seismic settlement using ground improvement.

In areas of proposed pavements, hardscape and landscaping features, removals should be performed to a depth of 2 feet below proposed subgrade elevation and extend at least 2 feet beyond the limits of the proposed improvements. The bottom of all removals should be evaluated by a Certified Engineering Geologist to confirm conditions are as anticipated.

In general, the soil that is removed may be reused and placed as engineered fill provided the material is moisture conditioned to above optimum moisture content, and then recompacted prior to additional fill placement or construction. Soil with an expansion index greater than 50 should not be used within 5 feet of finish grade in the building pad. The actual depth and extent of the required removals should be confirmed during grading operations by the geotechnical consultant.

6.1.3 Excavations and Oversize Material

Excavations of the onsite materials may generally be accomplished with conventional heavy-duty earthwork equipment. Due to the generally friable nature of the fill and alluvium, temporary excavations, such as utility trenches with vertical sides, may slough over time.

In accordance with OSHA requirements, excavations deeper than 5 feet should be shored or be laid back if workers are to enter such excavations. Temporary sloping gradients should be determined in the field by a “competent person” as defined by OSHA. For preliminary planning, sloping of fill soils at 1:1 (horizontal to vertical) may be assumed. Excavations supporting structures greater than 20 feet in height will

require an alternative sloping plan or shoring plan prepared by a California registered civil engineer.

6.1.4 Ground Improvement

Stone columns may be considered to mitigate the effects of liquefaction and seismic settlement at the site and also reduce compressibility and improve bearing capacity. The area recommended for mitigation will be the areas under proposed apartment structures, parking structures, and any other settlement sensitive structures. The following recommendations are made for ground improvement using stone columns at the site.

We recommend that a site-specific ground improvement plan be drafted that will contain the location of stone columns including design diameter and spacing. The ground improvement program should be designed by the specialty ground improvement contractor performing the work with the goal of mitigating liquefaction and reducing anticipated settlements to a level that is acceptable to the project structural engineer.

The area ratio (area of stone column divided by area beneath footing) of stone column reinforcement should be at least 25 percent, with at least four columns at isolated footings. Stone columns should be at least 2 feet in diameter and embedded at least 50 feet below ground surface or 45 feet below the bottom of the footing, whichever is deeper. Based on the density and consistency of the materials beneath the site, we do not anticipate predrilling will be required.

To shorten the length of the stone column, the contractor may terminate the upper portion of the stone columns a few feet below the bottom of the foundation level. The cutoff elevation of the stone columns should allow placement of a minimum of 2 feet of engineered/compacted fill immediately below the foundation level. The onsite soil or concrete generated from the demolition of the existing buildings may be used as fill. If the onsite concrete is used, the gradation of the crushed concrete should conform to the gradation of Caltrans' Crushed Miscellaneous Base.

We recommend the selected method be “bottom feed” where stone is introduced to the bottom of the column by tremie. Shop drawings should include the following:

- Plans showing building foundation outline and stone column diameters, depths and locations.
- Stone column installation equipment
- Stone column aggregate specifications
- Field verification procedures for stone column should include:
  - Aggregate quality
  - Stone column diameter
  - Stone column density
  - Stone column modulus
  - Embedment into native materials

A field verification program using CPTs should be used to provide data to estimate the post ground improvement settlement. CPTs should be used prior to placement of ground improvement and following ground improvement. If the total static and seismic settlement after ground improvement is determined to be greater than 1.5 inches, a mat foundation may be required. Otherwise conventional foundations may be used. Field verification procedures should be reviewed by and be acceptable to the Geotechnical Engineer.

In addition, a field test or trial installation program is recommended to verify the ground improvement success (i.e., verified by ASTM D1586 (SPT) and/or ASTM D3441 (CPT)). Field test or trial installation procedures should be reviewed by and be acceptable to the Geotechnical Engineer.

6.1.5 Engineered Fill

In areas proposed to receive engineered fill, the existing upper 8 inches of subgrade soils should be scarified then moisture conditioned to moisture content at or above the optimum content and compacted to 90 percent or more relative to the maximum laboratory dry density, as evaluated by ASTM D 1557. Soil materials utilized as fill should be free of oversized rock, organic materials, and deleterious debris. Rocks greater than 6

inches in diameter should not be placed within 2 feet of finished grade. Fill should be moisture conditioned to at least 2 percent above the optimum moisture content and compacted to 90 percent or more relative to the maximum laboratory dry density, as evaluated by ASTM D 1557. Although the optimum lift thickness for fill soils will be dependent on the type of compaction equipment utilized, fill should generally be placed in uniform lifts not exceeding approximately 8 inches in loose thickness.

In vehicle pavement and trash enclosure areas the upper 12 inches of subgrade soils should be scarified then moisture conditioned to a moisture content above optimum content and compacted to 95 percent or more relative to the maximum laboratory dry density, as evaluated by ASTM D 1557.

Placement and compaction of fill should be performed in general accordance with current City of San Diego grading ordinances, California Building Code, sound construction practice, these recommendations and the General Earthwork and Grading Specifications for Rough Grading presented in Appendix E.

6.1.6 Earthwork Shrinkage/Bulking

The volume change of excavated onsite materials upon recompaction as fill is expected to vary with material and location. Typically, the surficial soils vary significantly in natural and compacted density, and therefore, accurate earthwork shrinkage/bulking estimates cannot be determined. However, based on our experience, a 5 to 10 percent shrinkage factor is considered appropriate for the artificial fill and surficial alluvium at the site.

6.1.7 Import Soils

If import soils are necessary to bring the site up to the proposed grades, these soils should be granular in nature, environmentally clean, have an expansion index less than 50 (per ASTM Test Method D4829) and have a low corrosion impact to the proposed improvements. Import soils and/or the borrow site location should be evaluated by the geotechnical consultant prior to import.

6.1.8 Expansive Soils and Selective Grading

Based on our visual observations, we anticipate the onsite soil materials possess a moderate to high expansion potential. Although not anticipated, should an abundance of highly expansive materials be encountered, selective grading may need to be performed. In addition, to accommodate conventional foundation design, the upper 5 feet of materials within the building pad and 5 feet outside the limits of the building foundation should have a very low to low expansion potential (EI<50).

6.2 Foundation and Slab Considerations

At the time of drafting this report, loads for continuous footings and isolated footings, were not known. However, based on our understanding of the project, the proposed building may be constructed with conventional foundations after successful completion of a ground improvement program and verification testing. Foundations and slabs should be designed in accordance with structural considerations and the following recommendations. These recommendations assume that the soils encountered within 5 feet of pad grade have a low potential for expansion (EI<50). If more expansive materials are encountered and selective grading cannot be accomplished, revised foundation recommendations may be necessary. The foundation recommendations below assume that the all building foundations will be underlain by properly compacted engineered fill in accordance to Section 6.1.6 of this report, with ground improvement performed to the recommended depth.

6.2.1 Conventional Foundations

Proposed structures may be supported by spread footings founded in properly compacted engineered fill. Footings should extend a minimum of 24 inches beneath the lowest adjacent finish subgrade. At these depths, footings may be designed for a maximum allowable (FS >3) bearing pressure of 3,000 pounds per square foot. This capacity may also be increased by 500 psf per each additional foot of embedment up to a maximum of 4,000 psf. The allowable pressures may be increased by one-third when considering loads of short duration such as wind or seismic forces. The minimum recommended width of footings is 18 inches for continuous footings and 24 inches for square or round footings. Continuous footings should be designed in accordance with the structural engineer's

requirements and have a minimum reinforcement of four No. 5 reinforcing bars (two top and two bottom). Reinforcement of individual column footings should be per the structural requirements.

6.2.2 Foundation Setback

We recommend a minimum horizontal setback distance from retaining walls or slopes for all structural foundations, footings, and other settlement-sensitive structures as indicated on the Table 2 below. The minimum recommended setback distance from the most proximal foundation of retaining wall is equal to the height of the retaining wall. This distance is measured from the outside bottom edge of the structural footing, horizontally to the slope or retaining wall rear face, and is based on the slope or wall height. However, the foundation setback distance may be revised by the geotechnical consultant on a case-by-case basis if the geotechnical conditions are different than anticipated.

Table 2
Minimum Foundation Setback from Retaining walls

Slope Height	Setback
less than 5 feet	5 feet
5 to 15 feet	7 feet

Please note that the soils within the structural setback area possess poor lateral stability, and improvements (such as retaining walls, sidewalks, fences, pavements, etc.) constructed within this setback area may be subject to lateral movement and/or differential settlement. Potential distress to such improvements may be mitigated by providing a deepened footing or a grade beam foundation system to support the improvement.

In addition, open or backfilled utility trenches that parallel or nearly parallel structure footings should not encroach within an imaginary 1:1 (horizontal to vertical) downward sloping line starting from the bottom edge of the footing and should also not be located closer than 18 inches from the face of the footing. Deepened footings should meet the setbacks as described above. Also, over-excavation should be accomplished such that deepening

of footings to accomplish the setback will not introduce a cut/fill transition bearing condition.

Where pipes cross under footings, the footings should be specially designed. Pipe sleeves should be provided where pipes cross through footings or footing walls and sleeve clearances should provide for possible footing settlement, but not less than 1 inch around the pipe.

6.2.3 Floor Slabs

Slab-on-grade should be at least 5 inches thick and be reinforced with No. 4 rebar 18 inches on center each way (minimum) placed at mid-height in the slab. We recommend control joints be provided across the slab at a maximum spacing of 10 feet on center or at appropriate intervals as designed by the project architect. Where moisture-sensitive finishes are planned, underslab moisture protection (i.e. vapor barriers) should be designed by the project architect in accordance with Section 4.505 of the 2013 California Green Building Standards Code (CBC, 2013).

The potential for slab cracking may be reduced by careful control of water/cement ratios. The contractor should take appropriate curing precautions during the pouring of concrete in hot weather to minimize cracking of the slabs. We recommend that a slipsheet (or equivalent) be utilized if grouted tile, marble tile, or other crack-sensitive floor covering is planned directly on concrete slabs. All slabs should be designed in accordance with structural considerations. If heavy vehicle or equipment loading is proposed for the slabs, greater thickness and increased reinforcing may be required. The additional measures should be designed by the structural engineer using a modulus of subgrade reaction of 150 pounds per cubic inch. Additional moisture/waterproofing measures that may be needed to accomplish desired serviceability of the building finishes should be designed by the project architect.

6.2.4 Settlement

For conventional footings, the recommended allowable-bearing capacity is based on a maximum total and differential static settlement of 1-inch and 3/4-inch, respectively. Since settlements are a function of footing size and

contact bearing pressures, some differential settlement can be expected where a large differential loading condition exists.

Differential dynamic settlement at the site is anticipated to be on the order of 2 inches over 50 feet considering the depth and nature of the liquefied zones.

6.2.5 Moisture Conditioning

The slab subgrade soils underlying the foundation systems should be presoaked in accordance with the recommendations presented in Table 3 prior to placement of the moisture barrier and slab concrete. The subgrade soil moisture content should be checked by a representative of Leighton prior to slab construction.

Presoaking or moisture conditioning may be achieved in a number of ways. But based on our professional experience, we have found that minimizing the moisture loss on pads that has been completed (by periodic wetting to keep the upper portion of the pad from drying out) and/or berming the lot and flooding for a short period of time (days to a few weeks) are some of the more efficient ways to meet the presoaking recommendations. If flooding is performed, a couple of days to let the upper portion of the pad dry out and form a crust so equipment can be utilized should be anticipated.

Table 3 Presoaking Recommendations Based on Finish Grade Soil Expansion Potential	
Expansion Potential	Presoaking Recommendations
Very Low	Near-optimum moisture content to a minimum depth of 6 inches
Low	120 percent of the optimum moisture content to a minimum depth of 12 inches below slab subgrade
Medium	130 percent of the optimum moisture content to a minimum depth of 18 inches below slab subgrade
High	130 percent of the optimum moisture content to a minimum depth of 24 inches below slab subgrade

6.2.6 Post-Tension Foundation Recommendations

As an alternative to the conventional foundations for the buildings, post-tensioned foundations may be used. We recommend that post-tensioned foundations be designed using the geotechnical parameters presented in table below and criteria of the 2013 California Building Code and the Third Edition of Post-Tension Institute Manual. A post-tensioned foundation system designed and constructed in accordance with these recommendations is expected to be structurally adequate for the support of the buildings planned at the site provided our recommendations for surface drainage and landscaping are carried out and maintained through the design life of the project. Based on an evaluation of the depths of fill beneath the building pads, the attached Table 4 presents the recommended post-tension foundation category for residential buildings on subject site.

Table 4 Post-Tensioned Foundation Design Recommendations				
Design Criteria		Category I Very Low to Low Expansion Potential (EI 0 to 50)	Category II Medium Expansion Potential (EI 50 to 90)	Category III High Expansion Potential (EI 90 to 130)
Edge Moisture Variation, e_m	Center Lift:	9.0 feet	8.3 feet	7.0 feet
	Edge Lift:	4.8 feet	4.2 feet	3.7 feet
Differential Swell, y_m	Center Lift:	0.46 inches	0.75 inches	1.09 inches
	Edge Lift:	0.78 inches	1.32 inches	1.99 inches
Perimeter Footing Depth:		18 inches	24 inches	30 inches
Allowable Bearing Capacity		2,500 psf		

The post-tensioned (PT) foundation and slab should also be designed in accordance with structural considerations. For a ribbed PT foundation, the concrete slabs section should be at least 5 inches thick. Continuous footings (ribs or thickened edges) with a minimum width of 12 inches and a minimum depth of 12 inches below lowest adjacent soil grade may be designed for a maximum allowable bearing pressure of 2,500 pounds per square foot. For a uniform thickness “mat” PT foundation, the perimeter cut off wall should be at least 8 inches below the lowest adjacent grade. However, note that where a foundation footing or perimeter cut off wall is within 3 feet (horizontally) of adjacent drainage swales, the adjacent footing should be embedded a minimum depth of 12 inches below the swale flow line. The allowable bearing capacity may be increased by one-third for short-term loading. The slab subgrade soils should be presoaked in accordance with the recommendation presented in Table 3 above prior to placement of the moisture barrier.

The slab should be underlain by a moisture barrier as discussed in Section 6.2.3 above. Note that moisture barriers can retard, but not eliminate moisture vapor movement from the underlying soils up through the slabs. We recommend that the floor covering installer test the moisture vapor flux rate prior to attempting applications of the flooring. "Breathable" floor coverings should be considered if the vapor flux rates are high. A slip-sheet or equivalent should be utilized above the concrete slab if crack-sensitive floor coverings (such as ceramic tiles, etc.) are to be placed directly on the concrete slab. Additional guidance is provided in ACI Publications 302.1R-04 Guide for Concrete Floor and Slab Construction and 302.2R-06 Guide for Concrete Slabs that Receive Moisture-Sensitive Floor Materials.

6.3 Lateral Earth Pressures and Retaining Wall Design

Should retaining walls be added to the project, Table 5 presents the lateral earth pressure values for level or sloping backfill for walls backfilled with and bearing against fully drained soils of very low to low expansion potential (less than 50 per ASTM D4829).

Table 5
Static Equivalent Fluid Weight (pcf)

Conditions	Level	2:1 Slope
Active	35	55
At-Rest	55	65
Passive	350 (Maximum of 3 ksf)	150 (sloping down)

Walls up to 10 feet in height should be designed for the applicable pressure values provided above. If conditions other than those covered herein are anticipated, the equivalent fluid pressure values should be provided on an individual case-by-case basis by the geotechnical engineer. A surcharge load for a restrained or unrestrained wall resulting from automobile traffic may be assumed to be equivalent to a uniform lateral pressure of 75 psf which is in addition to the equivalent fluid pressure given above. For other uniform surcharge loads, a uniform pressure equal to 0.35q should be applied to the wall. The wall pressures assume walls are backfilled with free draining materials and water is not allowed to accumulate behind walls. A typical drainage design is

contained in Appendix E. Wall backfill should be compacted by mechanical methods to at least 90 percent relative compaction (based on ASTM D1557). If foundations are planned over the backfill, the backfill should be compacted to 95 percent. Wall footings should be designed in accordance with the foundation design recommendations and reinforced in accordance with structural considerations. For all retaining walls, we recommend a minimum horizontal distance from the outside base of the footing to daylight as outlined in Section 6.2.2.

Lateral soil resistance developed against lateral structural movement can be obtained from the passive pressure value provided above. Further, for sliding resistance, the friction coefficient of 0.35 may be used at the concrete and soil interface. These values may be increased by one-third when considering loads of short duration including wind or seismic loads. The total resistance may be taken as the sum of the frictional and passive resistance provided that the passive portion does not exceed two-thirds of the total resistance.

To account for potential redistribution of forces during a seismic event, retaining walls providing lateral support where exterior grades on opposites sides differ by more than 6 feet fall under the requirements of 2013 CBC Section 1803.5.12 and/or ASCE 7-10 Section 15.6.1 and should also be analyzed for seismic loading. For that analysis, an additional uniform lateral seismic force of 9H should be considered for the design of the retaining walls with level backfill, where H is the height of the wall. This value should be increased by 150% for restrained walls.

6.4 Geochemical Considerations

Concrete in direct contact with soil or water that contains a high concentration of soluble sulfates can be subject to chemical deterioration commonly known as “sulfate attack.” Soluble sulfate results (Appendix C) indicated a negligible soluble sulfate content. We recommend that concrete in contact with earth materials be designed in accordance with Section 4 of ACI 318-11 (ACI, 2011). In addition, the electrical resistivity characteristics of the tested soil sample indicate a moderately corrosive site environment to ferrous materials in contact with earth materials. We recommend measures to mitigate corrosion be implemented during design and construction.

6.5 Concrete Flatwork

Concrete sidewalks and other flatwork (including construction joints) should be designed by the project civil engineer and should have a minimum thickness of 4 inches. For all concrete flatwork, the upper 12 inches of subgrade soils should be moisture conditioned to at least 2 percent above optimum moisture content and compacted to at least 90 percent relative compaction based on ASTM Test Method D1557 prior to the concrete placement.

6.6 Preliminary Pavement Design

The pavement section design below is based on an assumed Traffic Index (TI), our visual classification of the subject site soils, and our limited laboratory testing (we have estimated an R-value of 15). The TI values were chosen based on our experience with similar projects. Actual pavement recommendations should be based on R-value tests performed on bulk samples of the soils that are exposed at the finished subgrade elevations across the site at the completion of the mass grading operations. Flexible pavement sections have been evaluated in general accordance with the Caltrans method for flexible pavement design. The recommended flexible pavement section for this condition is given in Table 6 below:

Table 6
Preliminary Pavement Sections

Assumed Traffic Index (TI)	Asphalt Concrete (inches)	Aggregate Base (inches)
4.5	3.0	7.0
5.0	4.0	6.0
6.0	4.0	10.0

Flexible pavements should be constructed in accordance with current Caltrans Standard Specifications. Aggregate base should comply with the Caltrans Standard Specifications of Section 26. Aggregate base should be compacted to a minimum of 95 percent relative compaction based on ASTM Method D 1557.

For areas subject to regular truck loading (i.e., trash truck apron), we recommend a full depth of Portland Cement Concrete (P.C.C.) section of 7 inches with appropriate steel reinforcement and crack-control joints as designed by the project

structural engineer. We recommend that sections be as nearly square as possible. A 3,500-psi mix that produces a 550-psi modulus of rupture should be utilized.

All pavement section materials conform to and be placed in accordance with the latest revision of the California Department of Transportation Standard Specifications (Caltrans) and American Concrete Institute (ACI) codes. The upper 12 inches of subgrade soil and all aggregate base should be compacted to a relative compaction of at least 95 percent (based on ASTM Test Method D1557).

If pavement areas are adjacent to heavily watered landscape areas, we recommend some measure of moisture control be taken to prevent the subgrade soils from becoming saturated. It is recommended that the concrete curing separating the landscaping area from the pavement extend below the aggregate base to help seal the ends of the sections where heavy landscape watering may have access to the aggregate base. Concrete swales should be designed in roadway or parking areas subject to concentrated surface runoff.

6.7 Control of Ground Water and Surface Waters

Regarding Low Impact Development (LID) measures, we are of the opinion that infiltration basins, and other onsite storm water retention and infiltration systems can potentially create adverse perched ground water conditions when not installed using proper design recommendations (such as the use of liners) and infiltration design parameters. Nevertheless, based on the visual consistency of the near surface on-site soils, the existing onsite soils are anticipated to provide low to moderate infiltration of surface water. However, additional investigation regarding the infiltration characteristics of the site soils will be required before the use of LID infiltration devices may be recommend for the site.

Surface drainage should be controlled at all times and carefully taken into consideration during precise grading, landscaping, and construction of site improvements. Positive drainage (e.g., roof gutters, downspouts, area drains, etc.) should be provided to direct surface water away from structures and improvements and towards the street or suitable drainage devices. Ponding of water adjacent to structures or pavements should be avoided. Roof gutters, downspouts, and area drains should be aligned so as to transport surface water to a minimum distance of 5 feet away from structures. The performance of structural foundations is dependent upon maintaining adequate surface drainage away from structures.

Water should be transported off the site in approved drainage devices or unobstructed swales. We recommend a minimum flow gradient for unpaved drainage within 5 feet of structures of 2 percent sloping away.

The impact of heavy irrigation or inadequate runoff gradient can create perched water conditions, resulting in seepage or shallow ground water conditions where previously none existed. Maintaining adequate surface drainage and controlled irrigation will significantly reduce the potential for nuisance-type moisture problems. To reduce differential earth movements such as heaving and shrinkage due to the change in moisture content of foundation soils, which may cause distress to a structure and improvements, moisture content of the soils surrounding the structure should be kept as relatively constant as possible. Below grade planters should not be situated adjacent to structures or pavements unless provisions for drainage such as catch basins and drains are made.

All area drain inlets should be maintained and kept clear of debris in order to function properly. In addition, landscaping should not cause any obstruction to site drainage. Rerouting of drainage patterns and/or installation of area drains should be performed, if necessary, by a qualified civil engineer or a landscape architect.

6.8 Construction Observation

The recommendations provided in this report are based on preliminary design information and subsurface conditions disclosed by widely spaced excavations. The interpolated subsurface conditions should be checked by Leighton and Associates, Inc. in the field during construction. Construction observation of all onsite excavations and field density testing of all compacted fill should be performed by a representative of this office. We recommend that all excavations be mapped by the geotechnical consultant during grading to determine if any potentially adverse geologic conditions exist at the site.

6.9 Plan Review

Final project grading and foundation plans should be reviewed by Leighton as part of the design development process to ensure that recommendations in this report are incorporated in project plans.

7.0 LIMITATIONS

The conclusions and recommendations presented in this report are based in part upon data that were obtained from a limited number of observations, site visits, excavations, samples, and tests. Such information is by necessity incomplete. The nature of many sites is such that differing geotechnical or geological conditions can occur within small distances and under varying climatic conditions. Changes in subsurface conditions can and do occur over time. Therefore, the findings, conclusions, and recommendations presented in this report can be relied upon only if Leighton has the opportunity to observe the subsurface conditions during grading and construction of the project, in order to confirm that our preliminary findings are representative for the site.

Figures



Project: 10949.001	Eng/Geol: DBN/RCS
Scale: 1 " = 2,000 '	Date: March 2015

Base Map: ESRI ArcGIS Online 2015
Thematic Information: Leighton
Author: (mmurphy)

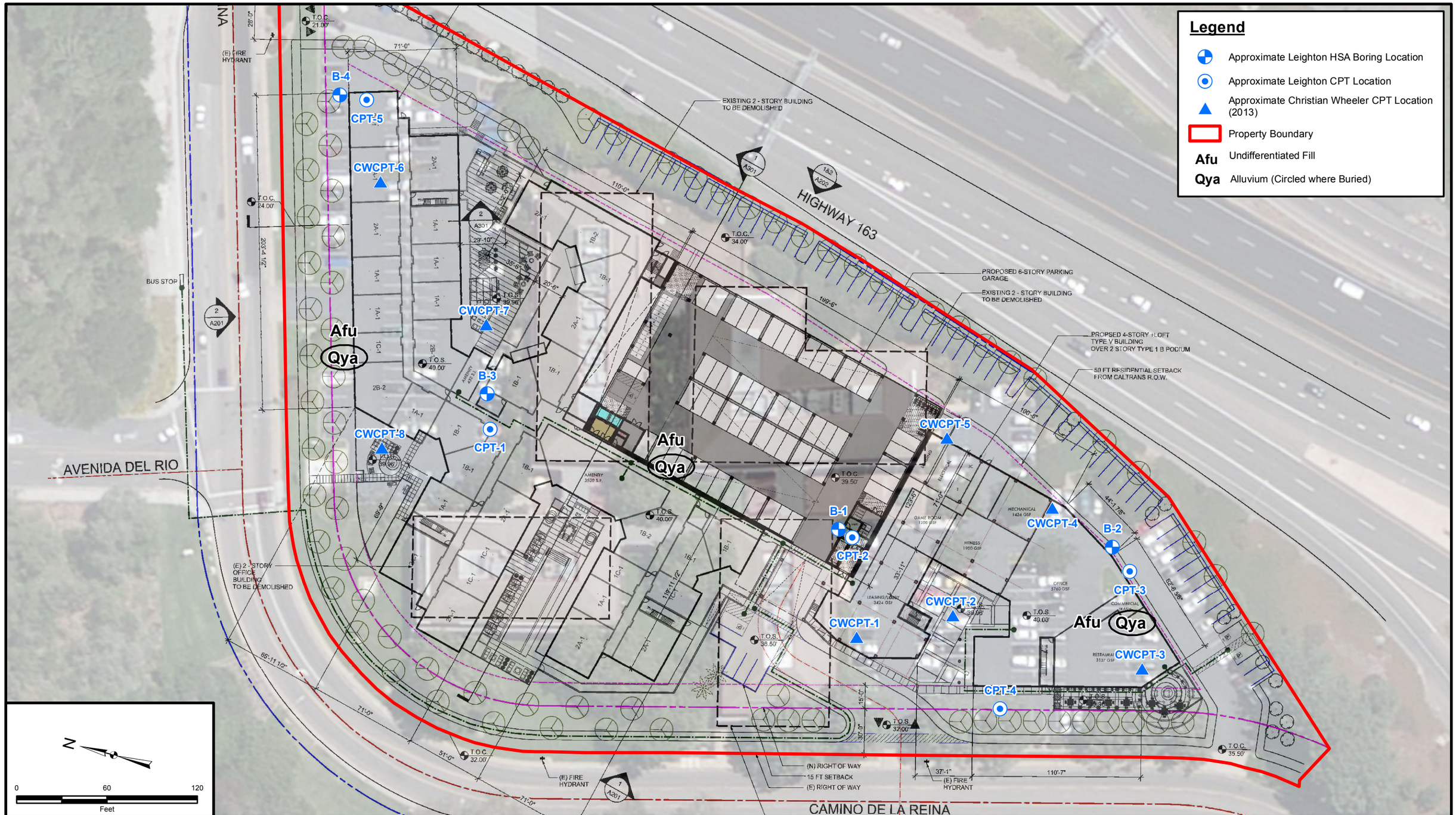
SITE LOCATION MAP

Fashion Valley
San Diego, California

Figure 1

Leighton

Map Saved as V:\drafting\10949\001\Maps\10949-001_F01_SLM_2015-03-30.mxd on 3/30/2015 9:43:02 AM



Project: 10949.001	Eng/Geol: DBN/RCS
Scale: 1 " = 60 '	Date: February 2016

Base Map: ESRI ArcGIS Online 2016
Sheet AS03 Site Planl by Trammell Crow Residential

Author: (mmurphy)

EXPLORATION MAP

Fashion Valley
San Diego, California

Figure 2

Leighton

Map Saved as P:\Drafting\10949\001\Maps\10949-001_F02_EM_2016-02-23.mxd on 2/24/2016 10:07:43 AM

Appendix A
References

APPENDIX A

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APPENDIX A

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Appendix B
Boring Logs/CPT Logs

GEOTECHNICAL BORING LOG KEY

Project No.		**Date Drilled**	
Project	KEY TO BORING LOG GRAPHICS	**Logged By**	
Drilling Co.		**Hole Diameter**	
Drilling Method		**Ground Elevation**	
Location		**Sampled By**	

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0								Asphaltic concrete	
									Portland cement concrete	
								CL	Inorganic clay of low to medium plasticity; gravelly clay; sandy clay; silty clay; lean clay	
								CH	Inorganic clay; high plasticity, fat clays	
								OL	Organic clay; medium to plasticity, organic silts	
	5							ML	Inorganic silt; clayey silt with low plasticity	
								MH	Inorganic silt; diatomaceous fine sandy or silty soils; elastic silt	
								ML-CL	Clayey silt to silty clay	
								GW	Well-graded gravel; gravel-sand mixture, little or no fines	
								GP	Poorly graded gravel; gravel-sand mixture, little or no fines	
	10							GM	Silty gravel; gravel-sand-silt mixtures	
								GC	Clayey gravel; gravel-sand-clay mixtures	
								SW	Well-graded sand; gravelly sand, little or no fines	
								SP	Poorly graded sand; gravelly sand, little or no fines	
								SM	Silty sand; poorly graded sand-silt mixtures	
	15							SC	Clayey sand; sand-clay mixtures	
									Bedrock	
▽									Ground water encountered at time of drilling	
				B-1					Bulk Sample	
	20			C-1					Core Sample	
				G-1					Grab Sample	
				R-1					Modified California Sampler (3" O.D., 2.5 I.D.)	
				SH-1					Shelby Tube Sampler (3" O.D.)	
				S-1					Standard Penetration Test SPT (Sampler (2" O.D., 1.4" I.D.)	
	25			PUSH					Sampler Penetrates without Hammer Blow	
	30									

The Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:

B	BULK SAMPLE
C	CORE SAMPLE
G	GRAB SAMPLE
R	RING SAMPLE
S	SPLIT SPOON SAMPLE
T	TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	TR	THERMAL RESISTIVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG B-1

Project No.	10949.001	**Date Drilled**	2-25-15
Project	Fashion Valley	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	39'
Location	South End of Bldg	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
35	0								6" Asphalt Concrete over 6" Aggregate Base	
				B-1 2'-5'				SC	UNDOCUMENTED FILL (Afu) @ 1': Well-graded CLAYEY SAND, medium dense, dark to medium brown, moist, medium to very fine-grained	
	5			R-1	10 12 12			SC/SM	@ 3.5': Poorly-graded CLAYEY SILTY SAND, dense, light brown, moist, medium to very fine-grained	DS, MD
30				B-2 7'-10'						
	10			R-2	6 13 21				ALLUVIUM (Qya)	
				B-3 11'-15'				SC/SM	@ 10.5': Poorly-graded CLAYEY SAND/SANDY CLAY, very dense, dark grayish brown to brown, medium to very fine-grained, last 5" contained wood debris, organic odor, soil becomes black at 11'	
25	15			S-1	4 7 8			ML	@ 15': Poorly-graded SILT, medium dense, dark grayish brown to black, damp, fine-grained, micaceous, organic odor	
				B-4 17'-19'						
20	20			S-2	4 5 7				@ 20': Soil becomes saturated	
15								SM/ML	@ 24': Well-graded SILTY SAND/SANDY SILT, loose, dark brown, wet to saturated, moderate to very fine-grained, micaceous	-200
	25			S-3	5 2 3					
10				B-5 27'-30'						
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH



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GEOTECHNICAL BORING LOG B-1

Project No.	10949.001	**Date Drilled**	2-25-15
Project	Fashion Valley	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	39'
Location	South End of Bldg	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
	30			S-4	5 4 5			ML/CL	@ 30': CLAY content increases	
5										
	35			S-5	4 6 9					-200
0										
	40			S-6	4 5 4			SM	@ 40': Well-graded SILTY SAND, medium dense, dark, gray, wet to saturated, medium to very fine-grained, micaceous	
				B-6 42'-45'						
-5										
	45			S-7	5 6 6					
				B-7 46'50'						
-10										
	50			S-8	5 4 5					
									Total Depth = 51.5 Feet **Groundwater encountered at 21 feet at time of drilling** **Backfilled with bentonite grout on 2/25/15**	
-15										
	55									
-20										
	60									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH



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GEOTECHNICAL BORING LOG B-2

Project No.	10949.001	**Date Drilled**	2-25-15
Project	Fashion Valley	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	36'
Location	South End of Lot, Adjacent to Interstate 8	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
35	0								6" Asphalt Concrete over 6" Aggregate Base	
				B-1 2'-5'				SC	UNDOCUMENTED FILL (Afu) @ 1': Well-graded CLAYEY SAND, medium dense, light to medium reddish brown to red, medium to fine-grained, micaceous, trace glass and brick	
30	5			R-1 B-2 6'-10'	11 17 18					
								SC	ALLUVIUM (Qya)	
25	10			R-2 B-3 11.5'-14'	4 6 8			ML	@ 9': Well-graded SLIGHTLY CLAYEY SAND, medium dense, dark brown, damp to moist, medium to fine-grained, micaceous @ 10': Poorly-graded SANDY SILT, loose, dark gray-brown, damp to moist, fine-grained, micaceous	
20	15			S-1 15'-16.5' B-4 16.5'-20'	4 4 6					-200
15	20			S-2	6 9 11			ML/CL	@ 17': Poorly-graded CLAYEY SILT, dense, dark gray-brown, moist, fine-grained, micaceous, trace sands	
10	25			S-3 B-5 26'-30'	4 4 13			SM	@ 23': Well-graded SILTY SAND with CLAY, medium dense to dense, wet to saturated, coarse to fine-grained, micaceous	
	30									

SAMPLE TYPES:

B	BULK SAMPLE
C	CORE SAMPLE
G	GRAB SAMPLE
R	RING SAMPLE
S	SPLIT SPOON SAMPLE
T	TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		



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GEOTECHNICAL BORING LOG B-2

Project No.	10949.001	**Date Drilled**	2-25-15
Project	Fashion Valley	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	36'
Location	South End of Lot, Adjacent to Interstate 8	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
5	30			S-4	5 10 15			SM		
									Total Depth = 31.5 Feet **Groundwater encountered at 19 feet at time of drilling** **Backfilled with bentonite grout on 2/25/15**	
0	35									
-5	40									
-10	45									
-15	50									
-20	55									
	60									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH



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GEOTECHNICAL BORING LOG B-3

Project No.	10949.001	**Date Drilled**	2-25-15
Project	Fashion Valley	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	34'
Location	N Side, Adjacent to Bldg	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
30	0								6" Asphalt Concrete over 6" Aggregate Base	
								SC	UNDOCUMENTED FILL (Afu)	
				B-1 2'-4'					@ 1': Well-graded CLAYEY SAND, medium dense, light brown, coarse to fine-grained, cobbles throughout, trace brick	EI, CR
	5			R-1	10 50/3"				@ 5': Rock in sampler, sample disturbed	
25				B-2 8'-10'						
	10			R-1	9 10 12			SM	ALLUVIUM (Qya)	
20				B-3 13'-15'					@ 11': Poorly-graded SILTY SAND, loose to medium dense; dark gray, moist, medium to fine-grained, micaceous	
	15			S-1	3 2 3				@ 15': Well-graded SILTY SAND, loose, light gray-brown, wet to saturated, medium to fine grained, micaceous	-200
15										
	20			S-2	7 6 5			ML	@ 20': Well-graded SILT with SAND, loose to medium dense, dark gray, wet to saturated, moderate to fine-grained, micaceous	
10				B-4 23'-24'						
	25			S-3	3 6 17					
								SM	@ 27': Well-graded SILTY SAND, medium dense, dark gray, wet to saturated, coarse to fine-grained, micaceous	
5				B-5 28'-29'						
30										

SAMPLE TYPES:

B	BULK SAMPLE
C	CORE SAMPLE
G	GRAB SAMPLE
R	RING SAMPLE
S	SPLIT SPOON SAMPLE
T	TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		



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GEOTECHNICAL BORING LOG B-3

Project No.	10949.001	**Date Drilled**	2-25-15
Project	Fashion Valley	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	34'
Location	N Side, Adjacent to Bldg	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30	N S		S-4	2 6 10			SM		
0	35								**Total Depth = 31.5 Feet** **Groundwater encountered at 14 feet at time of drilling** **Backfilled with bentonite grout on 2/25/15**	
-5	40									
-10	45									
-15	50									
-20	55									
-25	60									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH



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GEOTECHNICAL BORING LOG B-4

Project No.	10949.001	**Date Drilled**	2-25-15
Project	Fashion Valley	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	26'
Location	Far North End, Adjacent to Street	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
25	0								6" Asphalt Concrete over 6" Aggregate Base	
								SM	UNDOCUMENTED FILL (Afu) @ 1': Well-graded SILTY SAND, loose, light brownish gray to gray, damp, medium coarse to fine-grained, micaceous	
				B-1						
								ML	ALLUVIUM (Qya) @ 3.5': Dark gray SILT from approximately 3 to 5' moist, soft	
20	5			R-1	4 5 5			SM		
									@ 8': Groundwater encountered	
15	10			R-2	4 5 9				@ 10': Well-graded SILTY SAND, loose, dark gray, wet to saturated, coarse to fine-grained, micaceous	
				B-2 13'-14'						
10	15			S-1	3 5 10					
				B-3 17'-18'						
								ML	@ 19': Poorly-graded SILT with SAND, loose to medium dense, wet to saturated, fine-grained, micaceous	
5	20			S-2	3 6 9					
				B-4 23'-24'						
0	25			S-3	7 8 5			SM	@ 25': Becomes SILTY SAND, coarse to fine-grained	
	30									

SAMPLE TYPES:

B	BULK SAMPLE
C	CORE SAMPLE
G	GRAB SAMPLE
R	RING SAMPLE
S	SPLIT SPOON SAMPLE
T	TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		



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GEOTECHNICAL BORING LOG B-4

Project No.	10949.001	**Date Drilled**	2-25-15
Project	Fashion Valley	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	26'
Location	Far North End, Adjacent to Street	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			S-4	1 1 1			SM	@ 30': Well-graded SILTY SAND, loose, dark to medium gray, saturated, coarse to fine-grained, micaceous	-200
-5										
	35			S-5	3 2 2					
-10										
				B-5 38'-40'						
	40			S-6	5 6 6			ML	@ 40': Poorly-graded SANDY SILT, dark to medium brownish gray, wet to saturated, medium to very fine-grained, micaceous	
-15										
	45			S-7	4 6 8					
-20										
				B-6 48-50'						
	50			S-8				SP	@ 50': Sample disturbed due to flowing sands	
-25										
									Total Depth = 51.5 Feet **Groundwater encountered at 8 feet at time of drilling** **Backfilled with bentonite grout on 2/25/15**	
	55									
-30										
	60									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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SUMMARY

OF

CONE PENETRATION TEST DATA

Project:

Fashion Valley Geot
123 Camino De La Reina
San Diego, CA
February 25, 2015

Prepared for:

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3. **FIELD EQUIPMENT & PROCEDURES**
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- CPT Classification/Soil Behavior Chart
- Interpretation Output (CPeT-IT)
- CPeT-IT Calculation Formulas

SUMMARY
OF
CONE PENETRATION TEST DATA

1. INTRODUCTION

This report presents the results of a Cone Penetration Test (CPT) program carried out for the Fashion Valley Geot project located at 123 Camino De La Reina in San Diego, California. The work was performed by Kehoe Testing & Engineering (KTE) on February 25, 2015. The scope of work was performed as directed by Leighton & Associates personnel.

2. SUMMARY OF FIELD WORK

The fieldwork consisted of performing CPT soundings at five locations to determine the soil lithology. Groundwater measurements and hole collapse depths provided in **TABLE 2.1** are for information only. The readings indicate the apparent depth to which the hole is open and the apparent water level (if encountered) in the CPT probe hole at the time of measurement upon completion of the CPT. KTE does not warranty the accuracy of the measurements and the reported water levels may not represent the true or stabilized groundwater levels.

LOCATION	DEPTH OF CPT (ft)	COMMENTS/NOTES:
CPT-1	82	Refusal, hole open to 13 ft (dry)
CPT-2	60	Hole open to 10 ft (dry)
CPT-3	60	Hole open to 14 ft (dry)
CPT-4	60	Hole open to 15 ft (dry)
CPT-5	60	Hole open to 5 ft (dry)

TABLE 2.1 - Summary of CPT Soundings

3. FIELD EQUIPMENT & PROCEDURES

The CPT soundings were carried out by **KTE** using an integrated electronic cone system manufactured by Vertek. The CPT soundings were performed in accordance with ASTM standards (D5778). The cone penetrometers were pushed using a 30-ton CPT rig. The cone used during the program was a 15 cm^2 cone and recorded the following parameters at approximately 2.5 cm depth intervals:

- Cone Resistance (qc)
- Sleeve Friction (fs)
- Dynamic Pore Pressure (u)
- Inclination
- Penetration Speed

The above parameters were recorded and viewed in real time using a laptop computer. Data is stored at the KTE office for future analysis and reference. A complete set of baseline readings was taken prior to each sounding to determine temperature shifts and any zero load offsets. Monitoring base line readings ensures that the cone electronics are operating properly.

4. CONE PENETRATION TEST DATA & INTERPRETATION

The Cone Penetration Test data is presented in graphical form in the attached Appendix. These plots were generated using the CPeT-IT program. Penetration depths are referenced to ground surface. The soil classification on the CPT plots is derived from the attached CPT Classification Chart (Robertson) and presents major soil lithologic changes. The stratigraphic interpretation is based on relationships between cone resistance (qc), sleeve friction (fs), and penetration pore pressure (u). The friction ratio (Rf), which is sleeve friction divided by cone resistance, is a calculated parameter that is used along with cone resistance to infer soil behavior type. Generally, cohesive soils (clays) have high friction ratios, low cone resistance and generate excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing and generate little (or negative) excess pore water pressures.

Tables of basic CPT output from the interpretation program CPeT-IT are provided for CPT data averaged over one foot intervals in the Appendix. Spreadsheet files of the averaged basic CPT output and averaged estimated geotechnical parameters are also included for use in further geotechnical analysis. We recommend a geotechnical engineer review the assumed input parameters and the calculated output from the CPeT-IT program. A summary of the equations used for the tabulated parameters is provided in the Appendix.

It should be noted that it is not always possible to clearly identify a soil type based on qc, fs and u. In these situations, experience, judgement and an assessment of the pore pressure data should be used to infer the soil behavior type.

If you have any questions regarding this information, please do not hesitate to call our office at (714) 901-7270.

Sincerely,

KEHOE TESTING & ENGINEERING



Richard W. Koester, Jr.
General Manager

02/27/15-ms-5705

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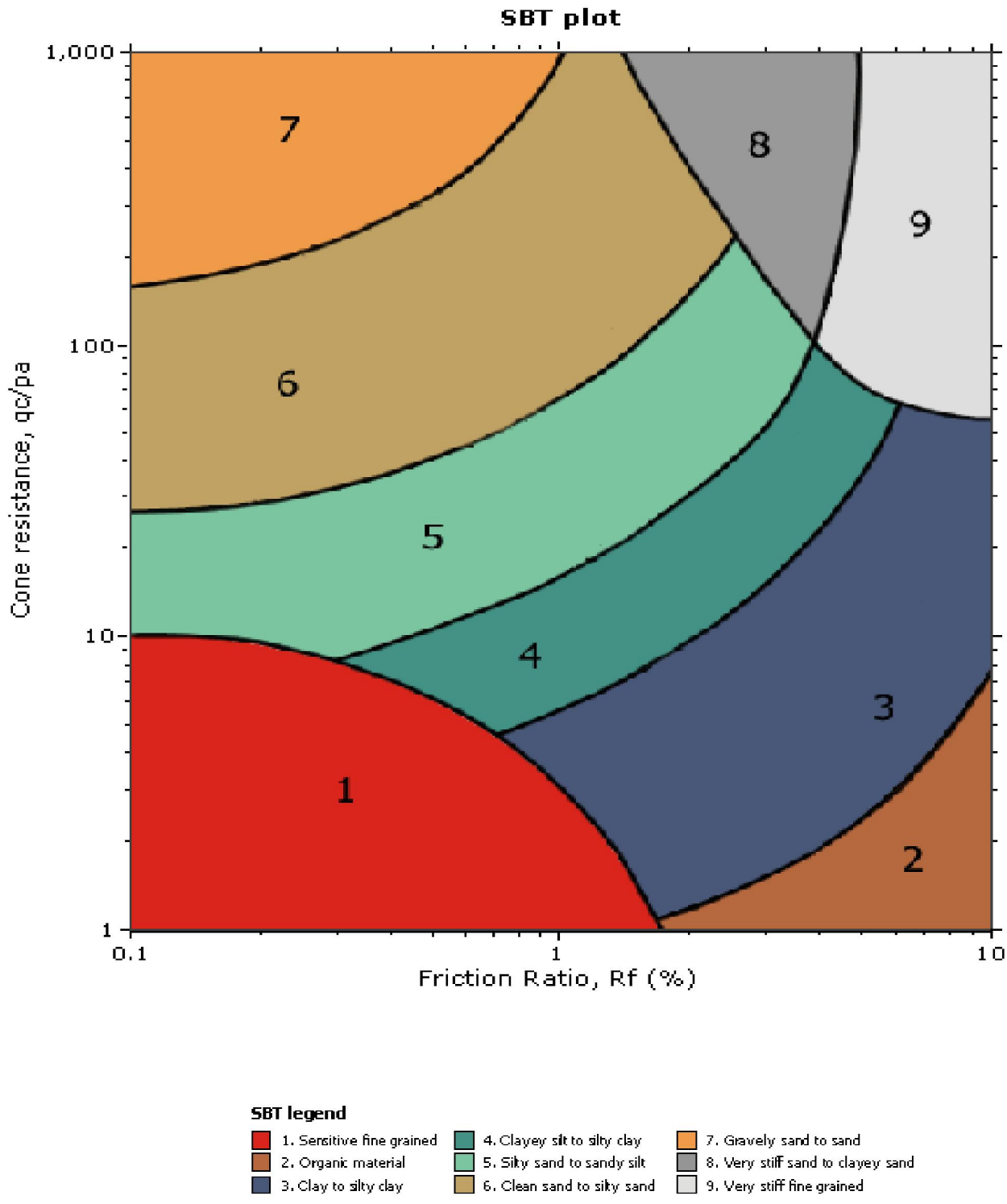


Presented below is a list of formulas used for the estimation of various soil properties. The formulas are presented in SI unit system and assume that all components are expressed in the same units.

:: Unit Weight, g (kN/m³) ::

$$g = g_w \cdot \left(0.27 \cdot \log(R_f) + 0.36 \cdot \log(\frac{q_t}{p_a}) + 1.236 \right)$$

where g_w = water unit weight

:: Permeability, k (m/s) ::

$I_c < 3.27$ and $I_c > 1.00$ then $k = 10^{0.952-3.04 \cdot I_c}$

$I_c \leq 4.00$ and $I_c > 3.27$ then $k = 10^{-4.52-1.37 \cdot I_c}$

:: N_{SPT} (blows per 30 cm) ::

$$N_{60} = \left(\frac{q_c}{P_a} \right) \cdot \frac{1}{10^{1.1268-0.2817 \cdot I_c}}$$

$$N_{1(60)} = Q_{tn} \cdot \frac{1}{10^{1.1268-0.2817 \cdot I_c}}$$

:: Young's Modulus, Es (MPa) ::

$(q_t - \sigma_v) \cdot 0.015 \cdot 10^{0.55 \cdot I_c + 1.68}$

(applicable only to $I_c < I_{c\_cutoff}$)

:: Relative Density, Dr (%) ::

$100 \cdot \sqrt{\frac{Q_{tn}}{k_{DR}}}$ (applicable only to SBT_n: 5, 6, 7 and 8 or $I_c < I_{c\_cutoff}$)

:: State Parameter, ψ ::

$\psi = 0.56 - 0.33 \cdot \log(Q_{tn,cs})$

:: Peak drained friction angle, φ (°) ::

$\varphi = 17.60 + 11 \cdot \log(Q_{tn})$

(applicable only to SBT_n: 5, 6, 7 and 8)

:: 1-D constrained modulus, M (MPa) ::

If $I_c > 2.20$

$\alpha = 14$ for $Q_{tn} > 14$

$\alpha = Q_{tn}$ for $Q_{tn} \leq 14$

$M_{CPT} = \alpha \cdot (q_t - \sigma_v)$

If $I_c \leq 2.20$

$M_{CPT} = (q_t - \sigma_v) \cdot 0.0188 \cdot 10^{0.55 \cdot I_c + 1.68}$

:: Small strain shear Modulus, Go (MPa) ::

$G_0 = (q_t - \sigma_v) \cdot 0.0188 \cdot 10^{0.55 \cdot I_c + 1.68}$

:: Shear Wave Velocity, Vs (m/s) ::

$$V_s = \left(\frac{G_0}{\rho} \right)^{0.50}$$

:: Undrained peak shear strength, Su (kPa) ::

$N_{kt} = 10.50 + 7 \cdot \log(F_r)$ or user defined

$$S_u = \frac{(q_t - \sigma_v)}{N_{kt}}$$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Remolded undrained shear strength, Su(rem) (kPa) ::

$S_{u(rem)} = f_s$ (applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Overconsolidation Ratio, OCR ::

$$k_{OCR} = \left[\frac{Q_{tn}^{0.20}}{0.25 \cdot (10.50 \cdot +7 \cdot \log(F_r))} \right]^{1.25}$$ or user defined

$OCR = k_{OCR} \cdot Q_{tn}$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: In situ Stress Ratio, Ko ::

$K_O = (1 - \sin\varphi') \cdot OCR^{\sin\varphi'}$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Soil Sensitivity, S_t ::

$$S_t = \frac{N_S}{F_r}$$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Effective Stress Friction Angle, φ' (°) ::

$\varphi' = 29.5° \cdot B_q^{0.121} \cdot (0.256 + 0.336 \cdot B_q + \log Q_t)$

(applicable for $0.10 < B_q < 1.00$)

References

- Robertson, P.K., Cabal K.L., Guide to Cone Penetration Testing for Geotechnical Engineering, Gregg Drilling & Testing, Inc., 5th Edition, November 2012
- Robertson, P.K., Interpretation of Cone Penetration Tests - a unified approach., Can. Geotech. J. 46(11): 1337–1355 (2009)

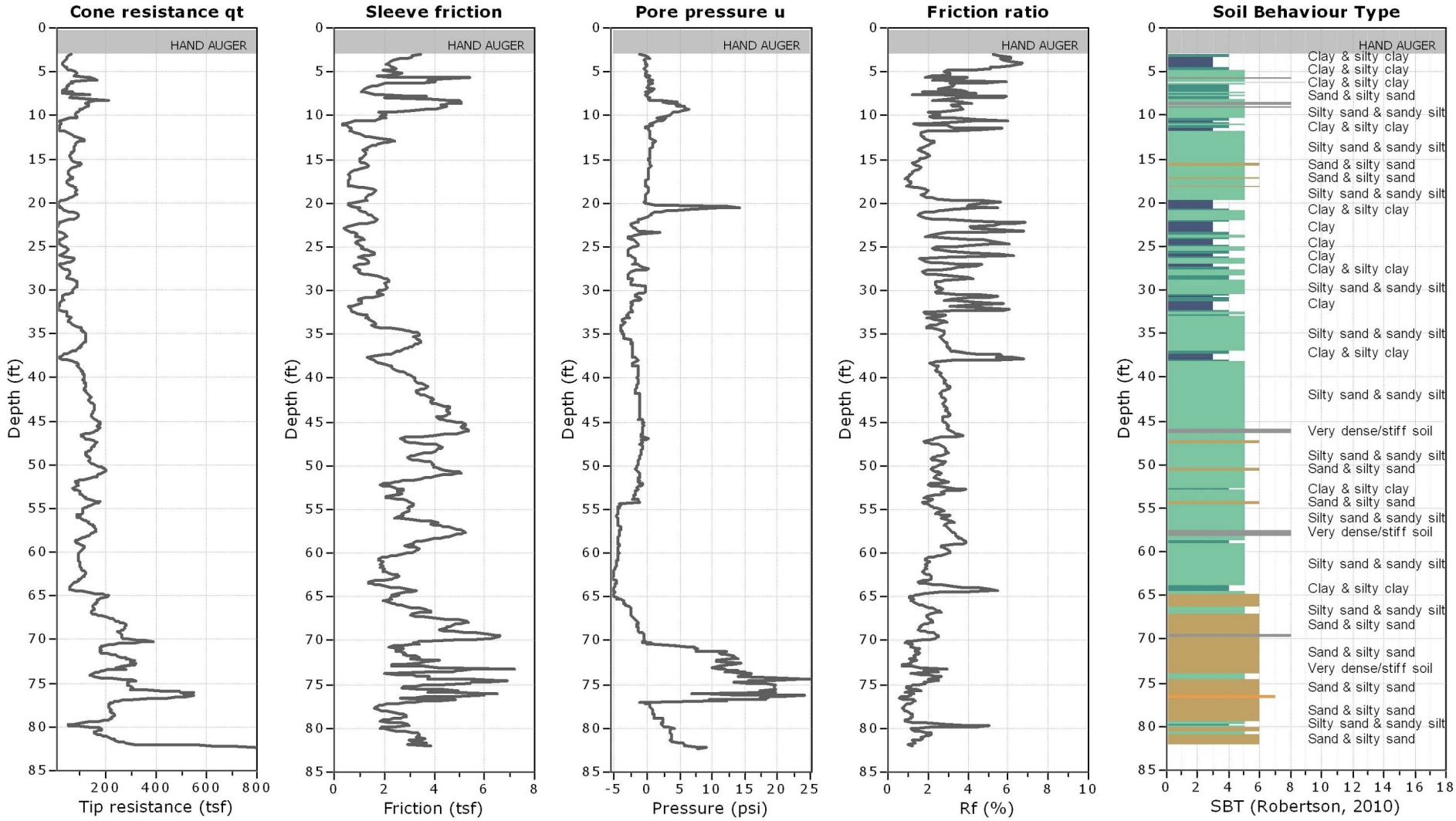
APPENDIX

Kehoe Testing and Engineering
714-901-7270
rich@kehoetesting.com
www.kehoetesting.com

CPT: CPT-1

Project: **Leighton & Associates, Inc.\ Fashion Valley Geot**
Location: **123 Camino De Le Reina, San Diego, CA**

Total depth: 82.31 ft, Date: 2/25/2015
Cone Type: Vertek

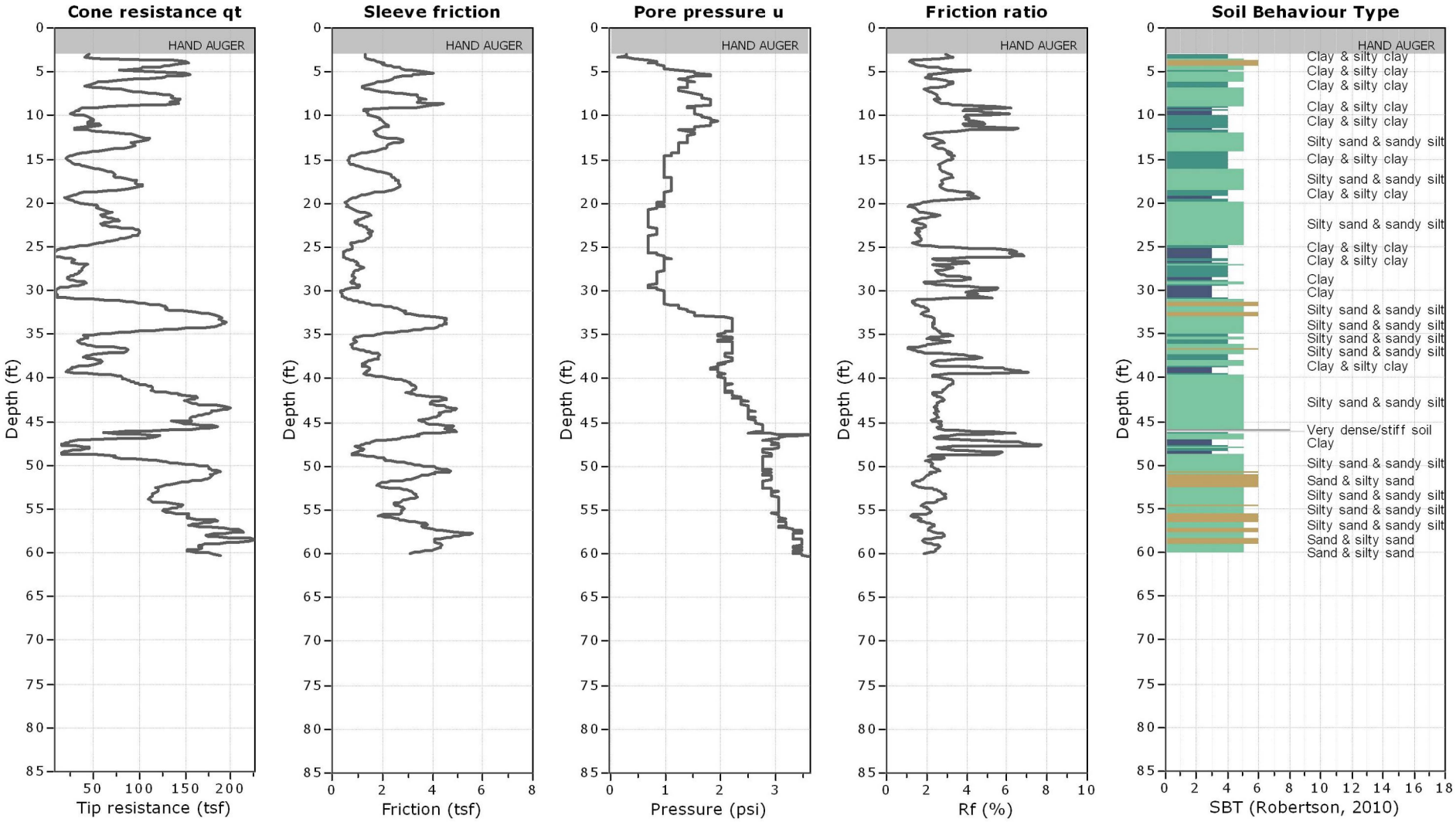


Kehoe Testing and Engineering
714-901-7270
rich@kehoetesting.com
www.kehoetesting.com

CPT: CPT-2

Project: **Leighton & Associates, Inc.\ Fashion Valley Geot**
Total depth: 60.34 ft, Date: 2/25/2015

Location: **123 Camino De Le Reina, San Diego, CA**
Cone Type: Vertek

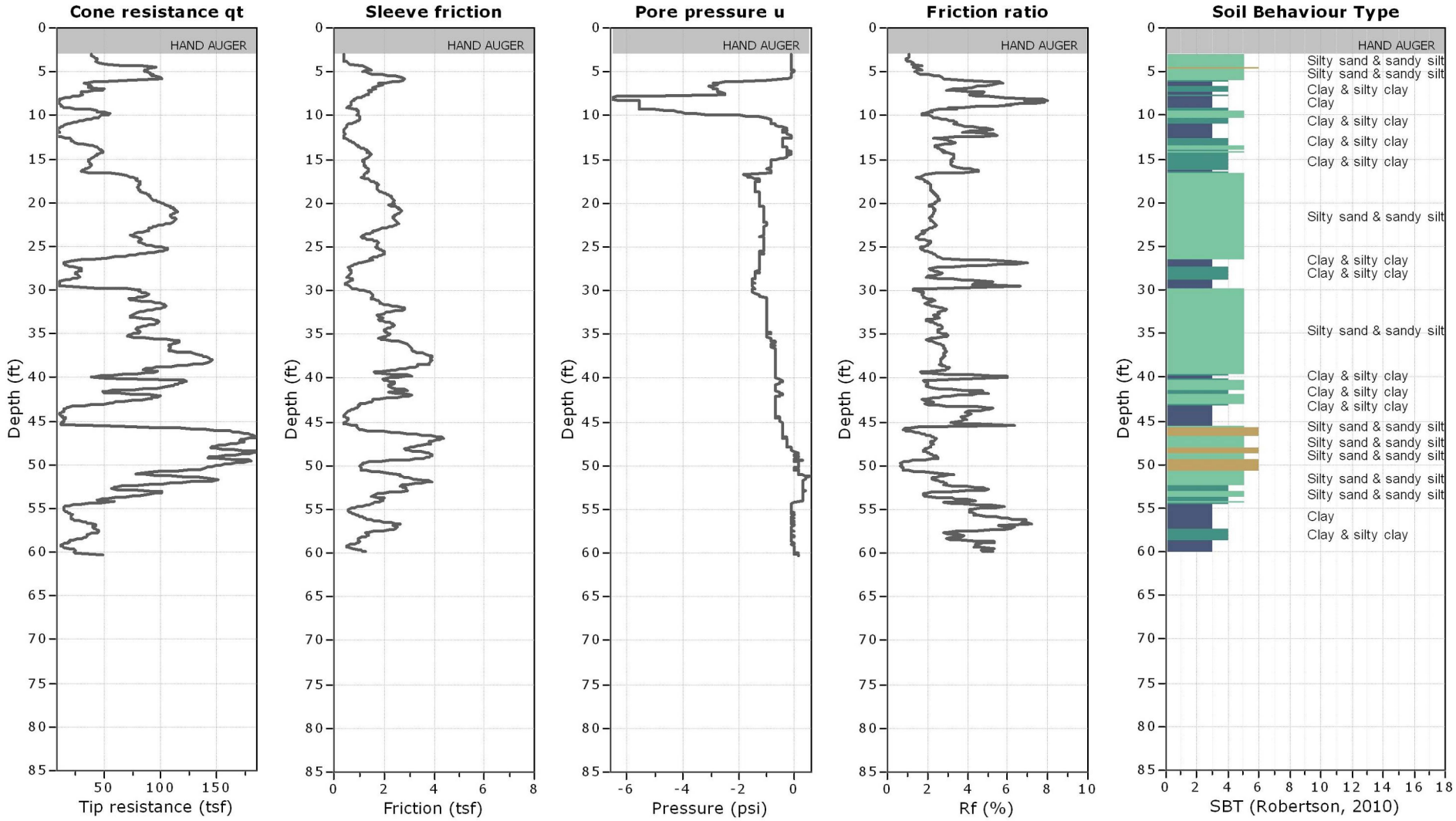


Kehoe Testing and Engineering
714-901-7270
rich@kehoetesting.com
www.kehoetesting.com

CPT: CPT-3

Project: **Leighton & Associates, Inc.\ Fashion Valley Geot**
Total depth: 60.26 ft, Date: 2/25/2015

Location: **123 Camino De Le Reina, San Diego, CA**
Cone Type: Vertek

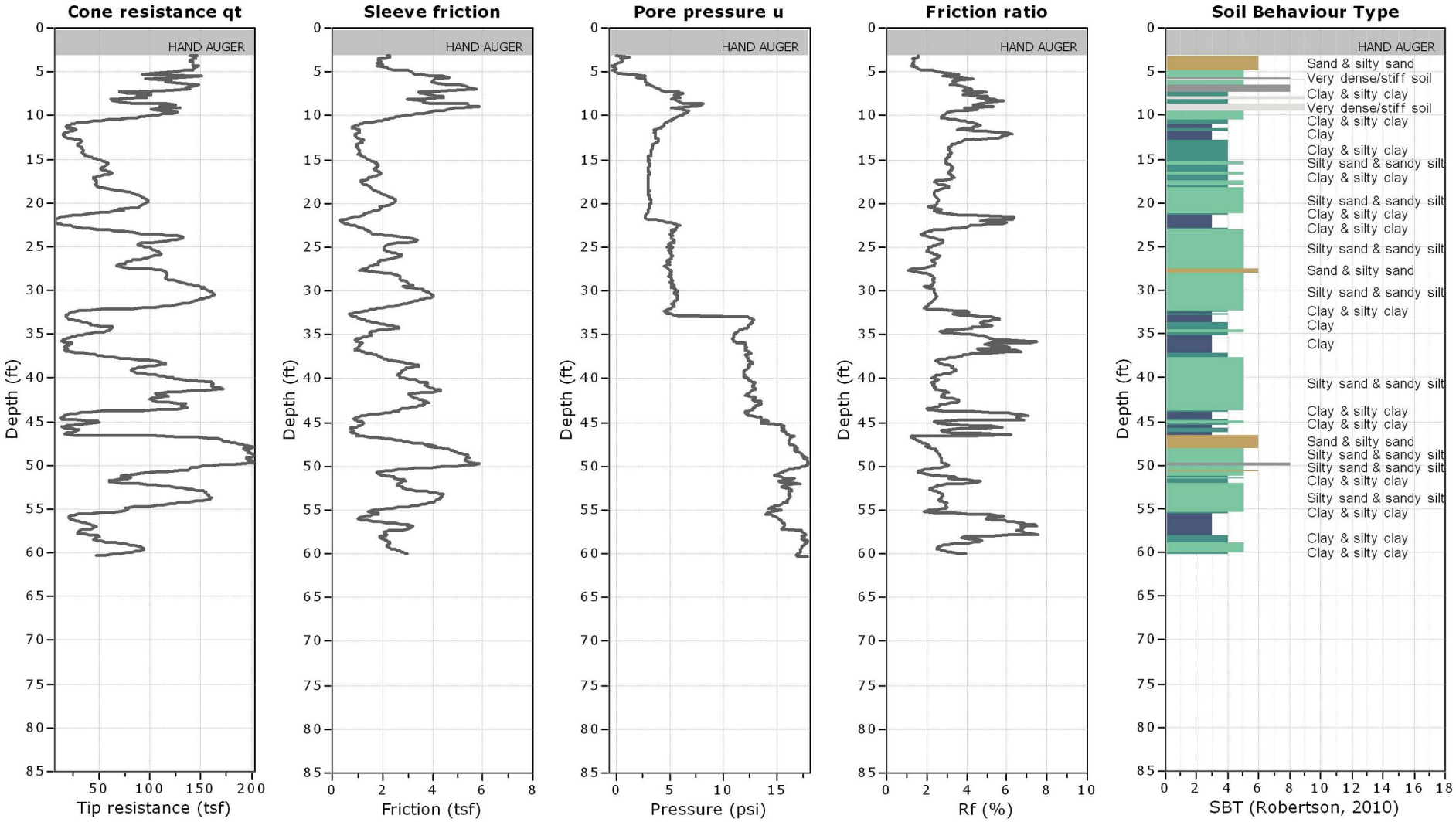


Kehoe Testing and Engineering
714-901-7270
rich@kehoetesting.com
www.kehoetesting.com

CPT: CPT-4

Project: **Leighton & Associates, Inc.\ Fashion Valley Geot**
Total depth: 60.37 ft, Date: 2/25/2015

Location: **123 Camino De Le Reina, San Diego, CA**
Cone Type: Vertek

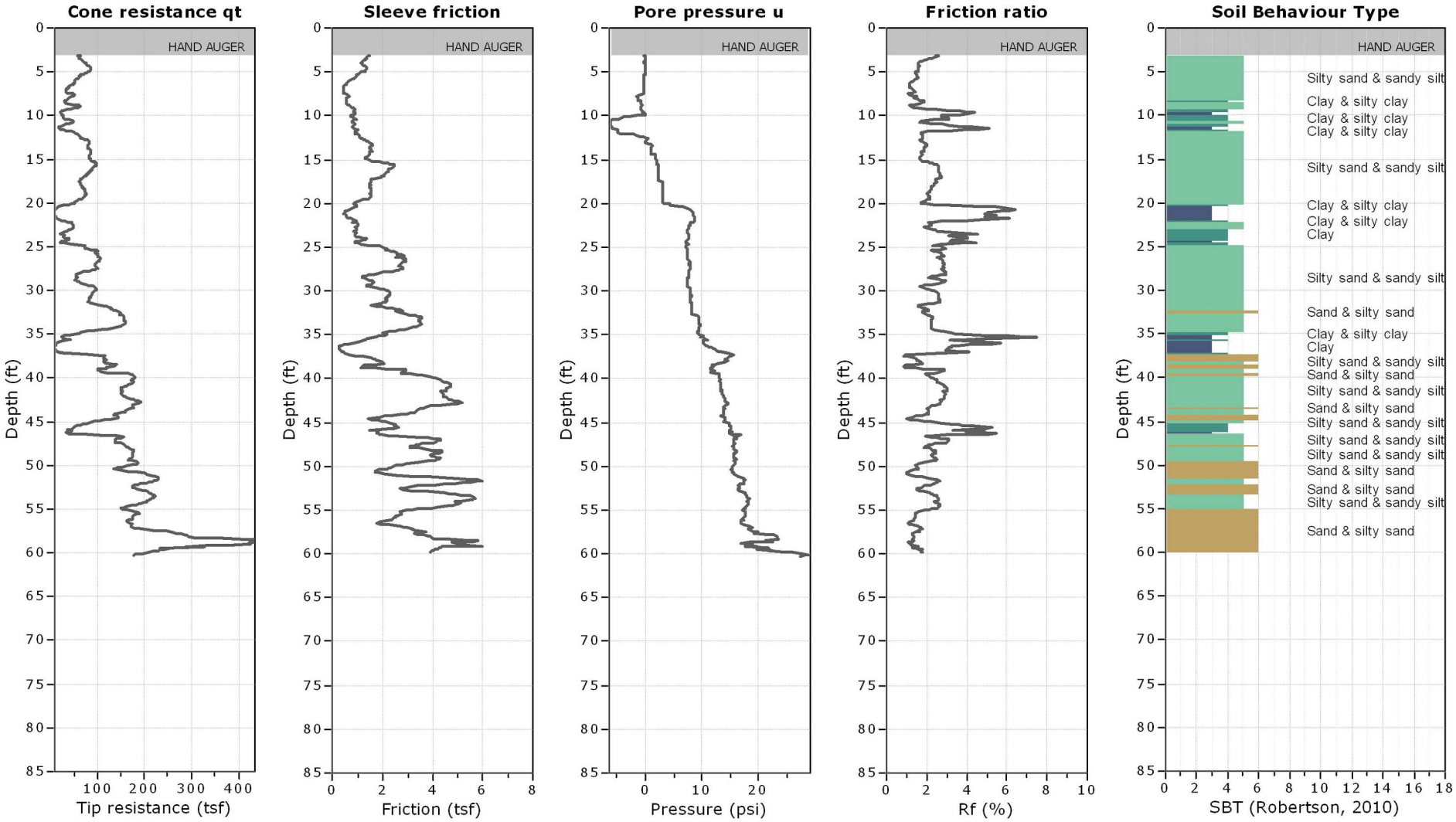


Kehoe Testing and Engineering
714-901-7270
rich@kehoetesting.com
www.kehoetesting.com

CPT: CPT-5

Project: **Leighton & Associates, Inc.\ Fashion Valley Geot**
Total depth: 60.27 ft, Date: 2/25/2015

Location: **123 Camino De Le Reina, San Diego, CA**
Cone Type: Vertek

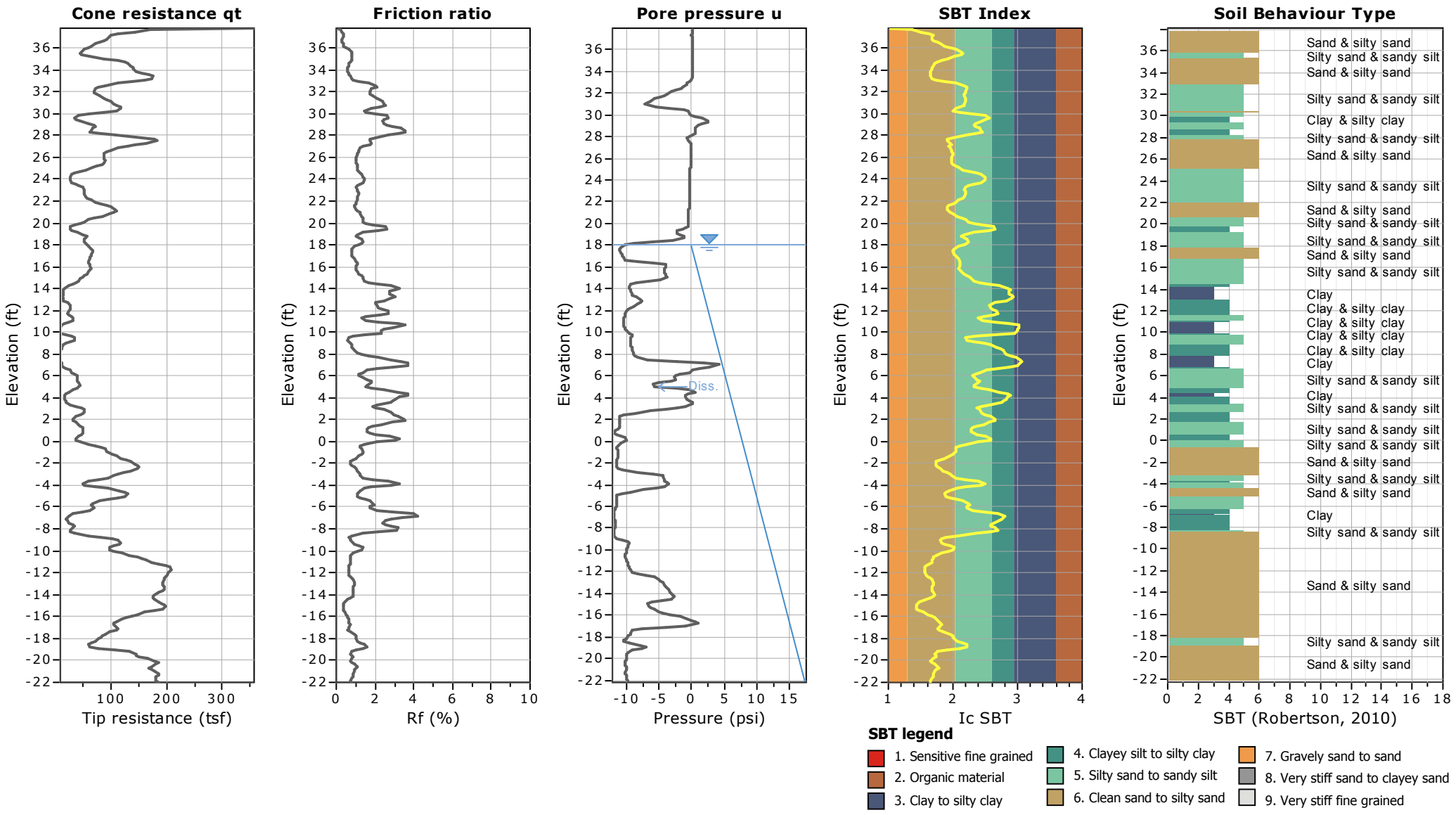


CHRISTIAN WHEELER CPT DATA

Christian Wheeler Engineering
3980 Home Avenue
San Diego, CA 92109

CPT: CPT-01
Total depth: 60.04 ft, Date: 11/16/2013
Surface Elevation: 38.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Vertek
Cone Operator: Kehoe Testing & Engineering

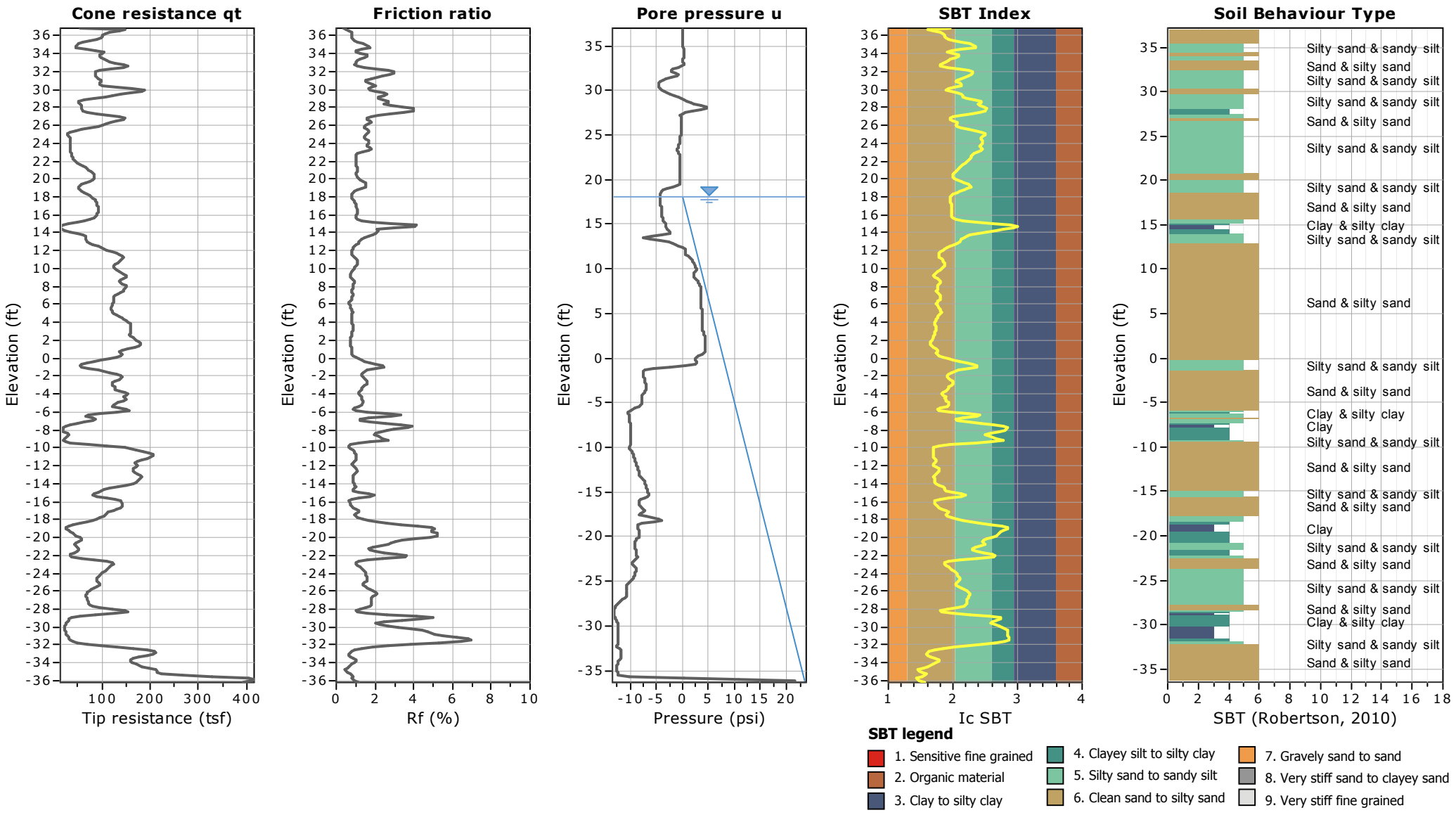
Project: **Preliminary Geotechnical Evaluation**
Location: **123 Camino De La Reina, San Diego, CA**



Christian Wheeler Engineering
3980 Home Avenue
San Diego, CA 92109

CPT: CPT-02
Total depth: 73.16 ft, Date: 11/16/2013
Surface Elevation: 37.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Vertek
Cone Operator: Kehoe Testing & Engineering

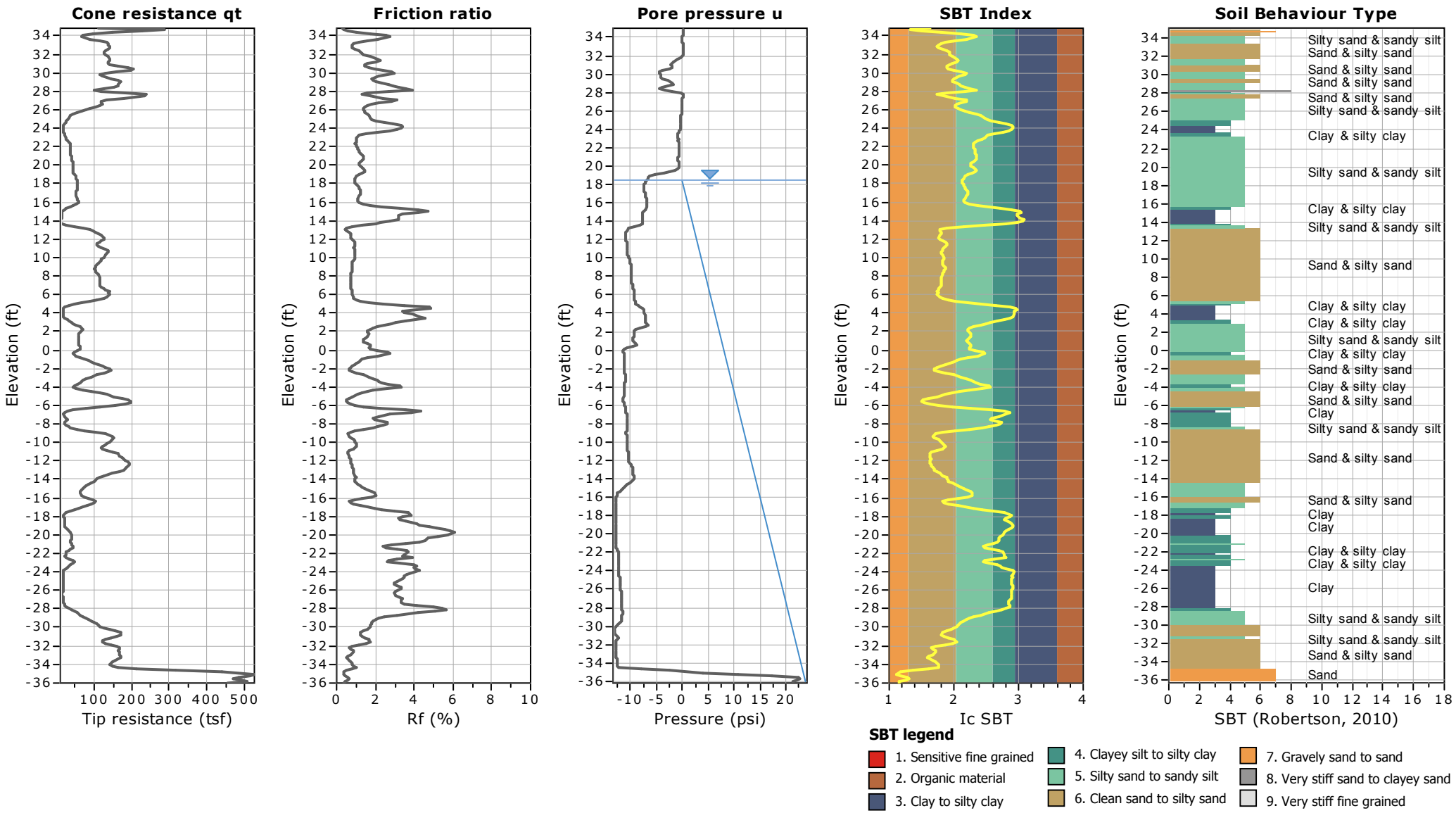
Project: **Preliminary Geotechnical Evaluation**
Location: **123 Camino De La Reina, San Diego, CA**



Christian Wheeler Engineering
3980 Home Avenue
San Diego, CA 92109

CPT: CPT-03
Total depth: 71.03 ft, Date: 11/16/2013
Surface Elevation: 35.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Vertek
Cone Operator: Kehoe Testing & Engineering

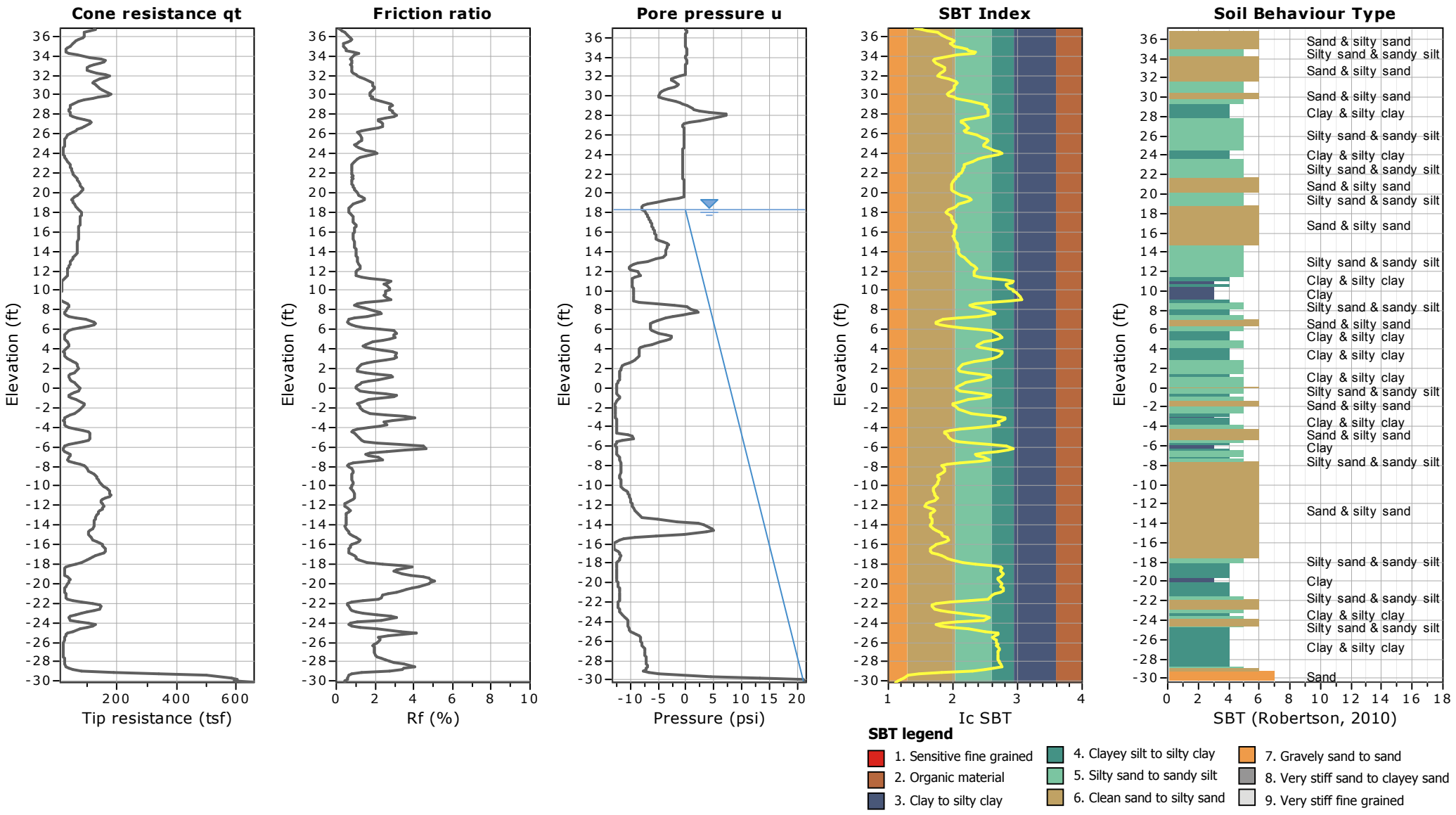
Project: **Preliminary Geotechnical Evaluation**
Location: **123 Camino De La Reina, San Diego, CA**



Christian Wheeler Engineering
3980 Home Avenue
San Diego, CA 92109

CPT: CPT-04
Total depth: 67.09 ft, Date: 11/16/2013
Surface Elevation: 37.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Vertek
Cone Operator: Kehoe Testing & Engineering

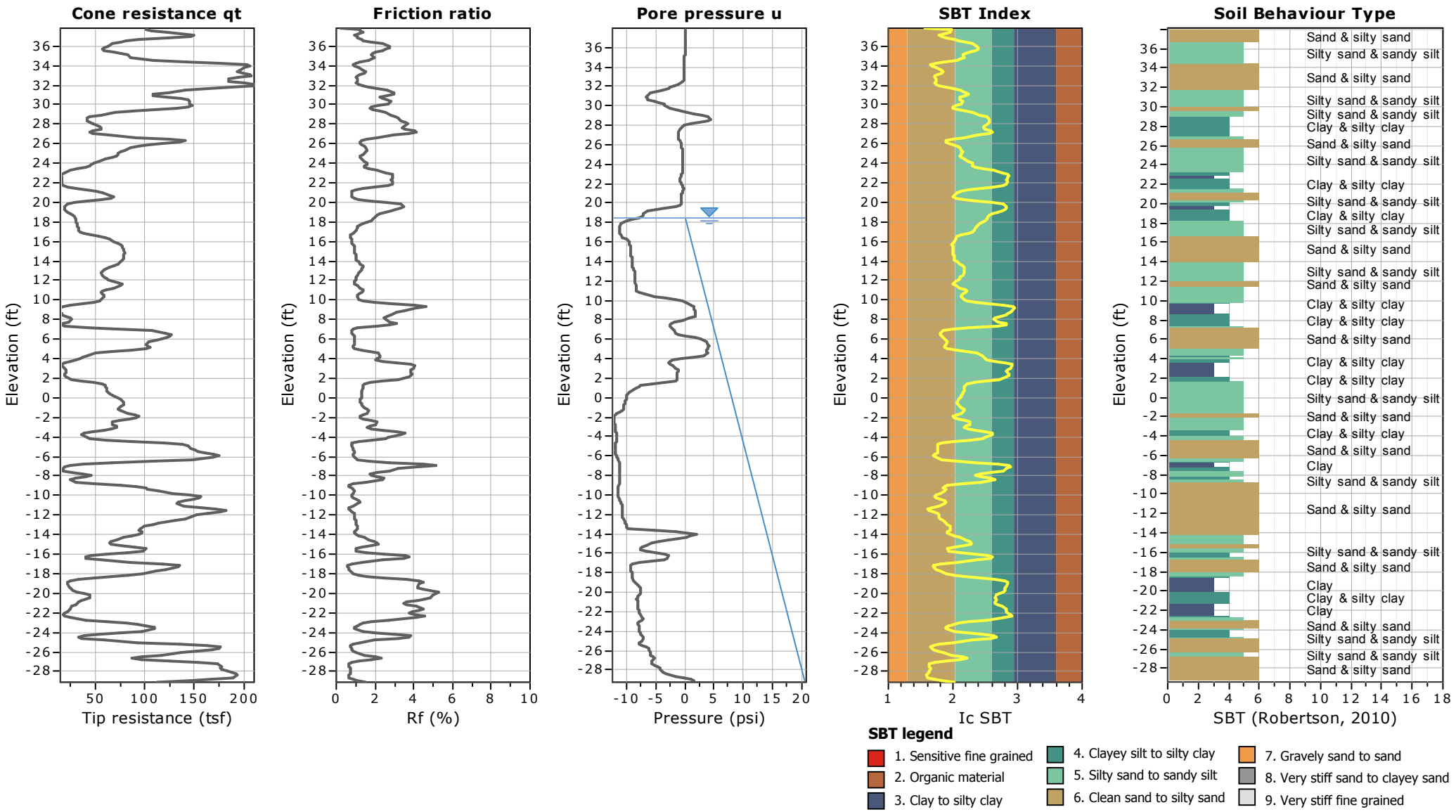
Project: **Preliminary Geotechnical Evaluation**
Location: **123 Camino De La Reina, San Diego, CA**



Christian Wheeler Engineering
3980 Home Avenue
San Diego, CA 92109

CPT: CPT-05
Total depth: 67.09 ft, Date: 11/16/2013
Surface Elevation: 38.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Vertek
Cone Operator: Kehoe Testing & Engineering

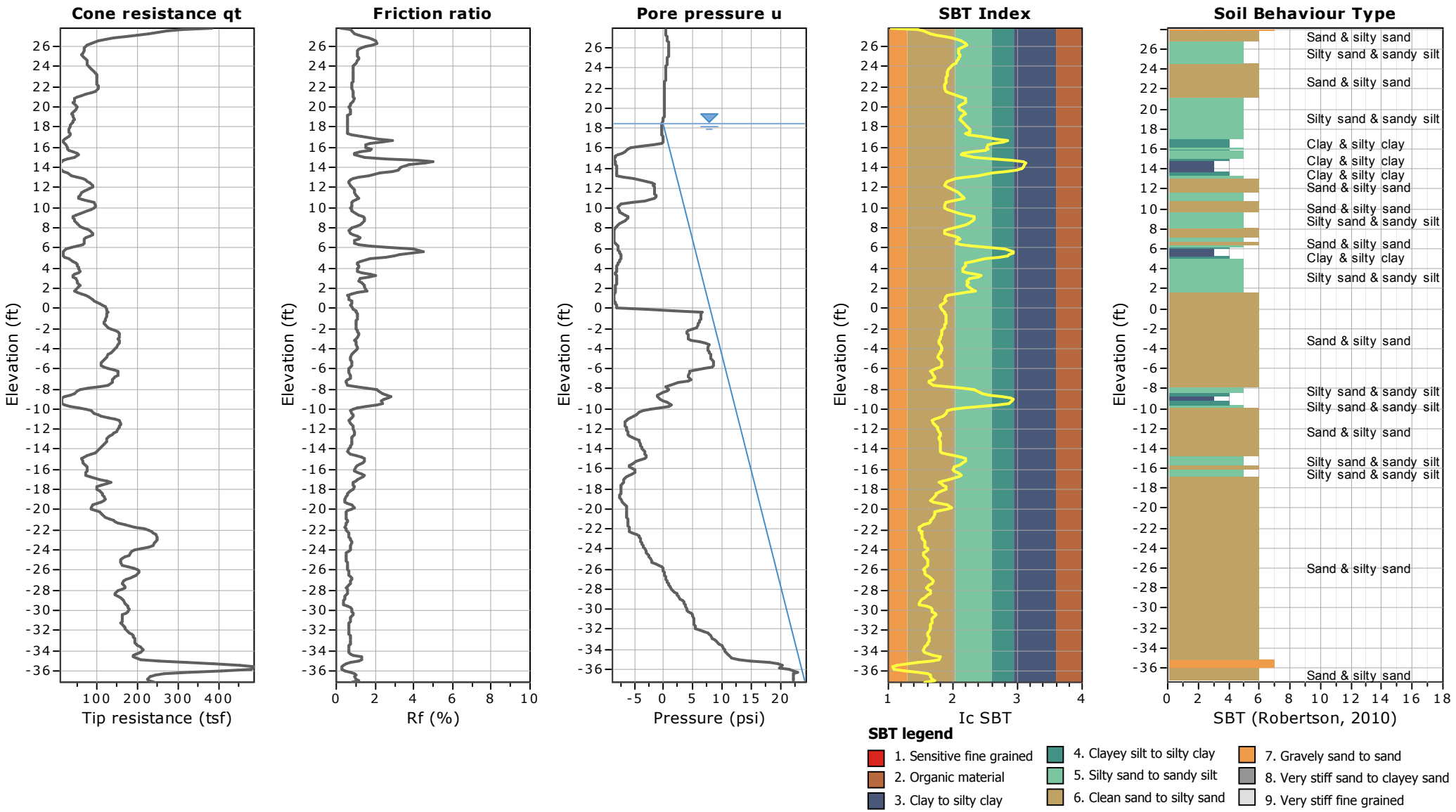
Project: **Preliminary Geotechnical Evaluation**
Location: **123 Camino De La Reina, San Diego, CA**



Christian Wheeler Engineering
3980 Home Avenue
San Diego, CA 92109

CPT: CPT-06
Total depth: 65.12 ft, Date: 11/16/2013
Surface Elevation: 28.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Vertek
Cone Operator: Kehoe Testing & Engineering

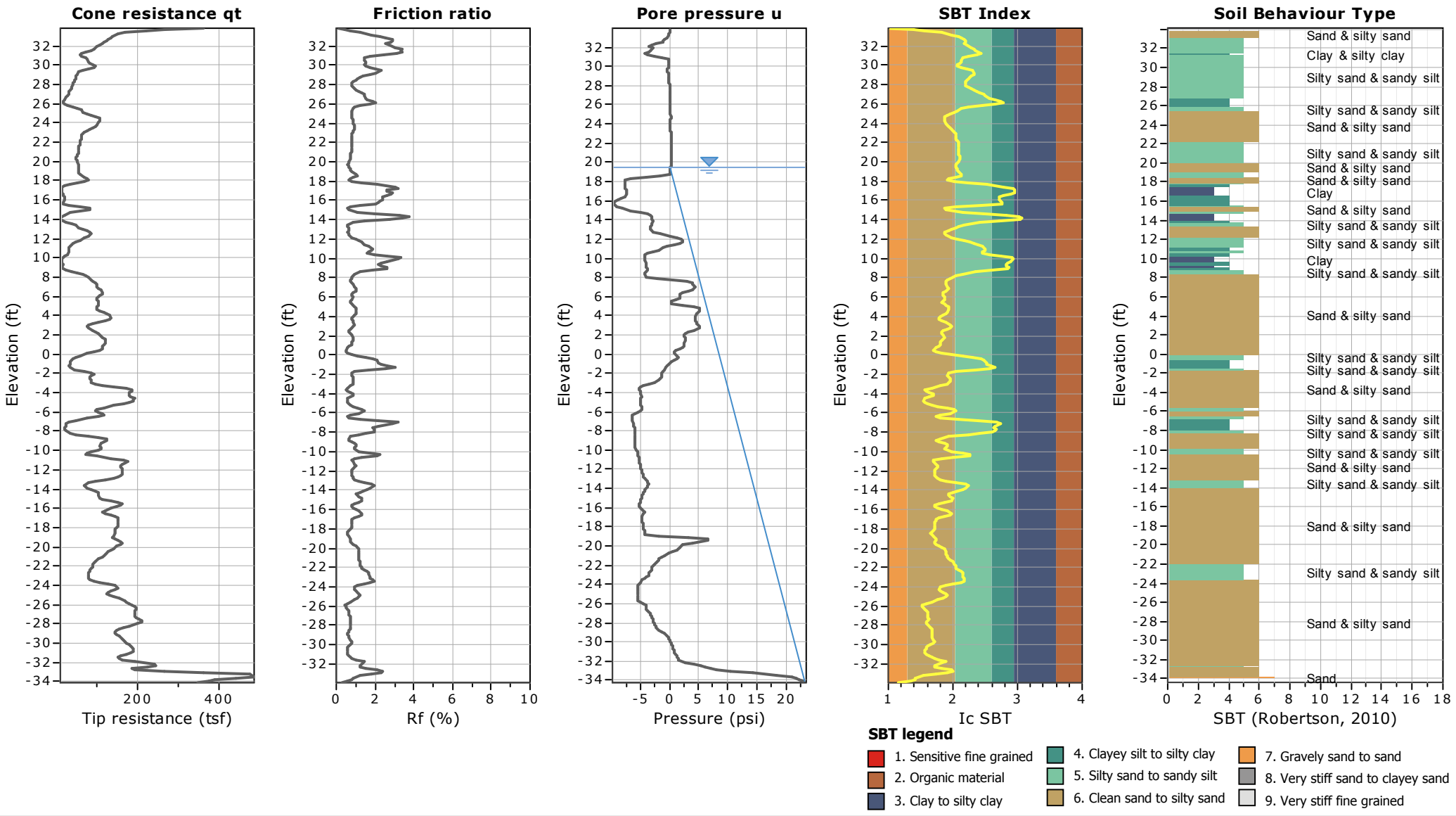
Project: **Preliminary Geotechnical Evaluation**
Location: **123 Camino De La Reina, San Diego, CA**



Christian Wheeler Engineering
3980 Home Avenue
San Diego, CA 92109

CPT: CPT-07
Total depth: 68.08 ft, Date: 11/16/2013
Surface Elevation: 34.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Vertek
Cone Operator: Kehoe Testing & Engineering

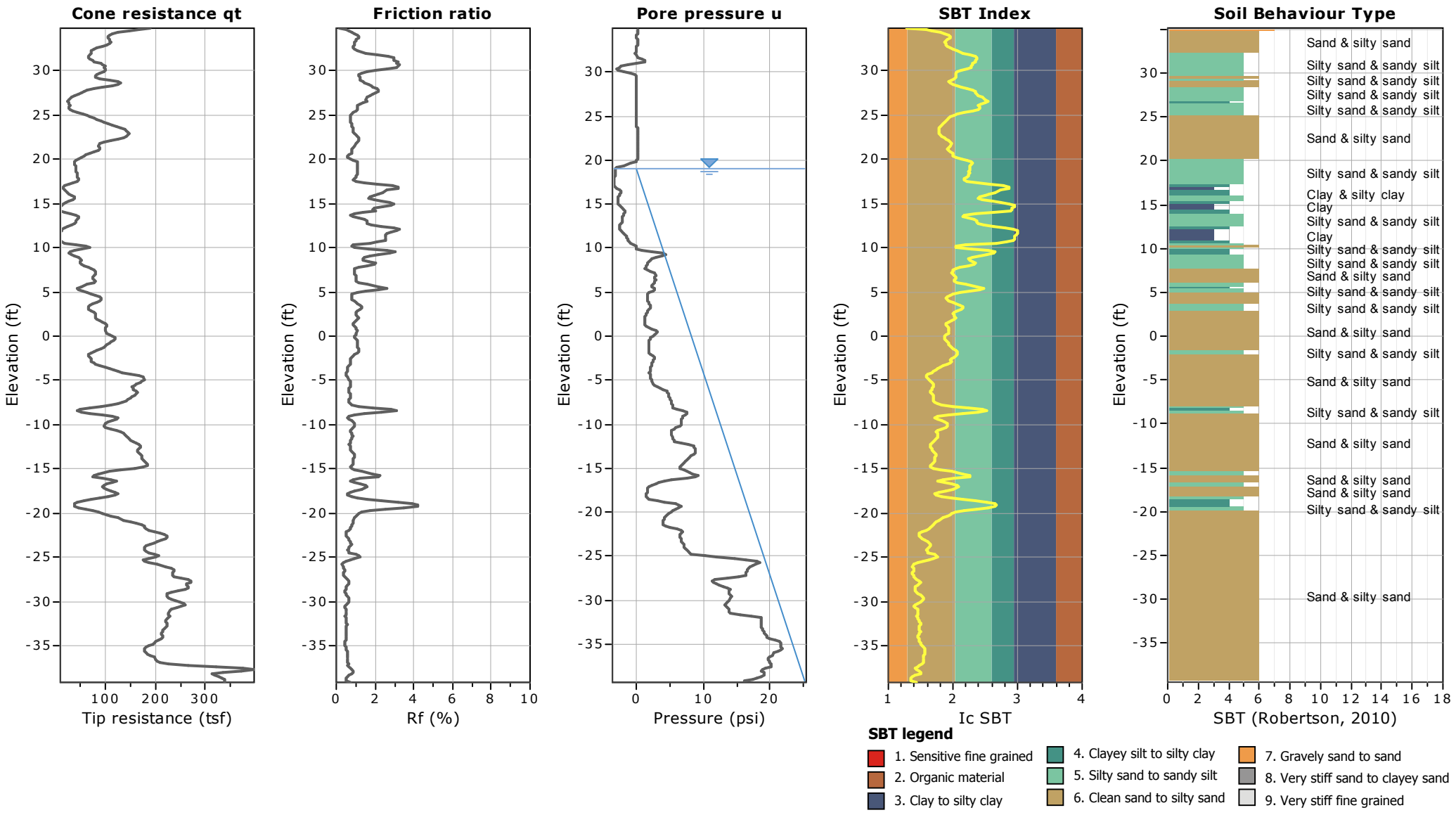
Project: **Preliminary Geotechnical Evaluation**
Location: **123 Camino De La Reina, San Diego, CA**



Christian Wheeler Engineering
3980 Home Avenue
San Diego, CA 92109

CPT: CPT-08
Total depth: 74.15 ft, Date: 11/16/2013
Surface Elevation: 35.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Vertek
Cone Operator: Kehoe Testing & Engineering

Project: **Preliminary Geotechnical Evaluation**
Location: **123 Camino De La Reina, San Diego, CA**



Appendix C
Laboratory Testing Procedures and Test Results

APPENDIX C

Laboratory Testing Procedures and Test Results

Moisture and Density Determination Tests: Moisture content and dry density determinations were performed on relatively undisturbed samples obtained from the soil borings. The results of these tests are presented in the boring logs. Where applicable, only moisture content was determined from disturbed samples.

Direct Shear Test: A direct shear test was performed on selected remolded sample which were soaked for a minimum of 24 hours under a surcharge equal to the applied normal force during testing. After transfer of the sample to the shear box and reloading of the sample, the pore pressures set up in the sample (due to the transfer) were allowed to dissipate for a period of approximately 1 hour prior to application of shearing force. The samples were tested under various normal loads utilizing a motor-driven, strain-controlled, direct-shear testing apparatus at a strain rate of 0.05 inches per minute. The test result is presented on the attached figure.

Maximum Dry Density and Optimum Moisture Content Tests: The maximum dry density and optimum moisture content of a selected representative soil sample was evaluated in general accordance with ASTM D 1557. The test results are presented on the attached figures.

Expansion Index Tests: The expansion index of selected materials was evaluated in general accordance with ASTM D 4829. A specimens was molded under a specified compactive energy at approximately 50 percent saturation (plus or minus 1 percent). The prepared 1-inch thick by 4-inch diameter specimen was loaded with a surcharge of 144 pounds per square foot and were inundated with tap water. Readings of volumetric swell were made for a period of 24 hours. The results of test indicated an expansion index of 8 which is classified as Very Low.

APPENDIX C (Continued)

Minimum Resistivity and pH Tests: Minimum resistivity and pH tests were performed in general accordance with Caltrans Test Method CT643. The results are presented in the table below:

Sample Location	Sample Description	pH	Minimum Resistivity (ohms-cm)
B-3 @ 2-4’	Clayey Sand trace scattered Cobbles, Light Brown	7.28	1,570

Chloride Content: Chloride content was tested in accordance with Caltrans Test Method CT422. The results are presented below:

Sample Location	Sample Description	Chloride Content, ppm
B-3 @ 2-4’	Clayey Sand trace scattered Cobbles, Light Brown	86

Soluble Sulfates: The soluble sulfate contents of selected samples were determined by standard geochemical methods (Caltrans Test Method CT417). The test results are presented in the table below:

Sample Location	Sample Description	Sulfate Content (%)	Potential Degree of Sulfate Attack*
B-3 @ 2-4’	Clayey Sand trace scattered Cobbles, Light Brown	Less than 0.0150	Not Applicable

* Based on the 2011 edition of American Concrete Institute (ACI) Committee 318R, Table No. 4.2.1.

APPENDIX C (Continued)

Particle/Grain Size Analysis: Particle size analysis was performed by mechanical sieving, wash sieving, and hydrometer methods according to ASTM D422, D 1140, and D6913. The percent fine particles from these analyses are summarized below. Plots of the sieve and hydrometer results are provided on the figures at the end of this Appendix.

Sample	Percent Passing No. 200 Sieve
B-1 @ 26.5	10
B-1 @ 36.5	19
B-2 @ 16.5	20
B-3 @ 16.5	4
B-4 @ 31.5	18

Leighton

COMPACTION TEST

ASTM D 1557

Project Name:	FASHION VALLEY	Tested By :	BCC	Date:	26-Mar-2015
Project No.:	10949.001	Calculated By :	BCC	Date:	3/26/2015
Boring No.:	B-1	Depth (ft.):	2.0-5.0		
Sample No. :	B-1	Notes:	Remolded Correc +#4: **2.4%**		
Sample Description	SM: REDDISH-BROWN SILTY SAND				

Preparation Method: [ ] **Moist** [X] **Dry** [X] **Mechanical Ram** [ ] **Manual Ram**

Mold Volume (ft ³) 0.03308 *Ram Weight 10 LBS Drop 18 inches*

Moisture Added	0	50	100	150		
TEST NO.	1	2	3	4		
Wt. Comp. Soil + Mold (g)	3678	3872	3972	3950		
Wt. of Mold (g)	1862	1862	1862	1862		AS
Net Wt. of Soil (g)	1816	2010	2110	2088		REC'D
Wet Wt. of Soil + Cont. (g)	497.0	499.1	496.0	504.5		497.0
Dry Wt. of Soil + Cont. (g)	473.5	467.0	455.0	454.1		473.5
Wt. of Container (g)	0.0	0.0	0.0	0.0		0.0
Moisture Content (%)	5.0	6.9	9.0	11.1		5.0
Wet Density (pcf)	121.0	134.0	140.6	139.2		
Dry Density (pcf)	115.3	125.3	129.0	125.3		

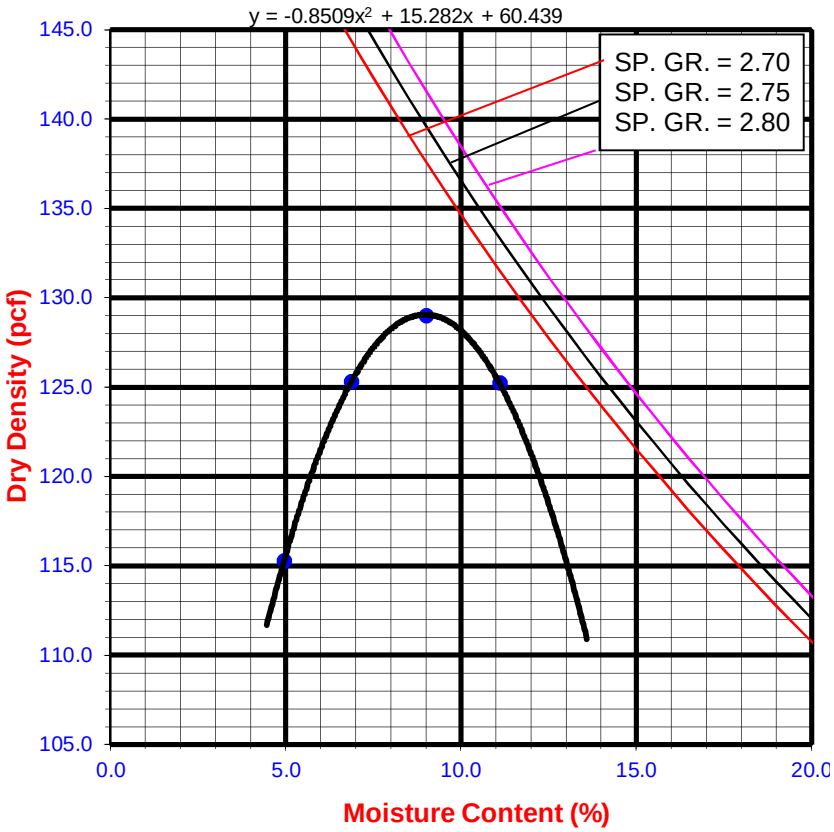
Maximum Dry Density (pcf) **129.0** **Optimum Moisture Content (%)** **9.0**

PROCEDURE USED

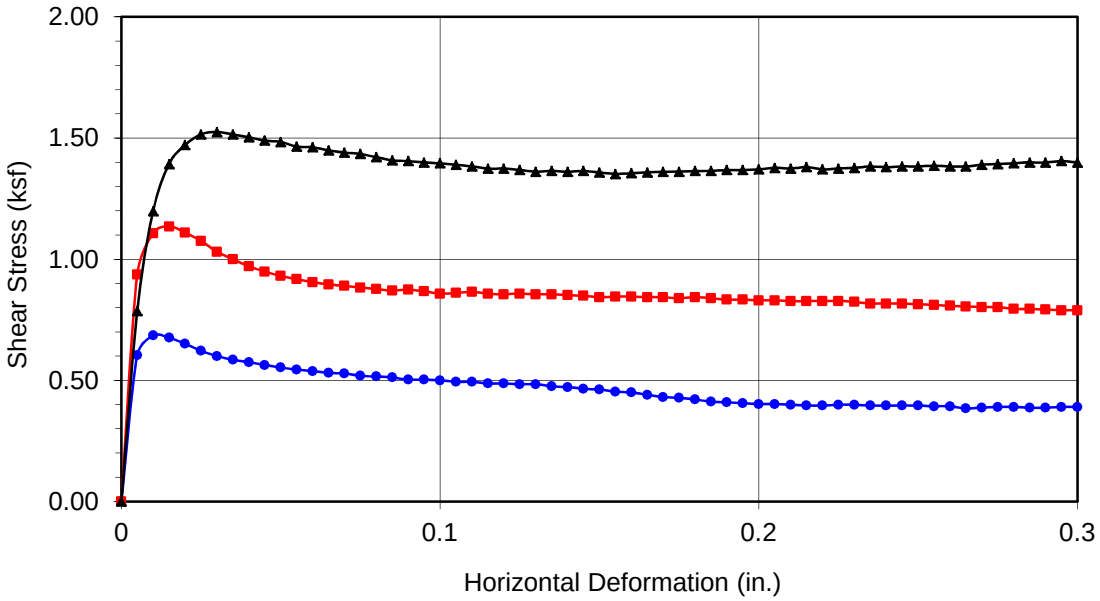
[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold: 4 in. (101.6 mm) diameter
Layers: 5 (Five)
Blows per layer: 25 (twenty-five)
May be used if No. 4 retained <25%

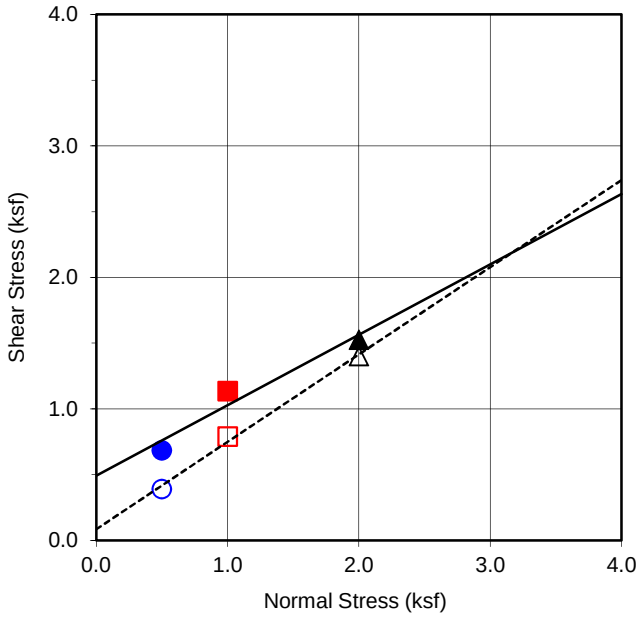
[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold: 4 in. (101.6 mm) diameter
Layers: 5 (Five)
Blows per layer: 25 (twenty-five)
Use if +No. 4 >25% and +3/8 in. <25%

[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold: 6 in. (152.4 mm) diameter
Layers: 5 (Five)
Blows per layer: 56 (fifty-six)
Use if +3/8 in. >25% and +¾ in. <30%



Rev. 04-08





Boring No.	**B-1**
Sample No.	**B-1**
Depth (ft)	**2.0-5.0**
Sample Type:	90% REMOLD
Soil Identification:	SM: REDDISH-BROWN SILTY SAND

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	490.0	28.2
Ultimate	85.0	33.6

Normal Stress (kip/ft²)	0.500	1.000	2.000
Peak Shear Stress (kip/ft²)	● 0.685	■ 1.135	▲ 1.525
Shear Stress @ End of Test (ksf)	○ 0.390	□ 0.789	△ 1.399
Deformation Rate (in./min.)	0.0500	0.0500	0.0500
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	8.89	8.89	8.89
Dry Density (pcf)	116.4	116.3	116.3
Saturation (%)	53.5	53.5	53.5
Soil Height Before Shearing (in.)	0.9999	0.9940	0.9885
Final Moisture Content (%)	15.1	14.5	13.9

Leighton

DIRECT SHEAR TEST RESULTS

Consolidated Undrained

Project No.: 10949.001

FASHION VALLEY

03-15

Appendix D
Liquefaction Analysis

GeoLogismiki
Geotechnical Engineers
Merarhias 56
http://www.geologismiki.gr

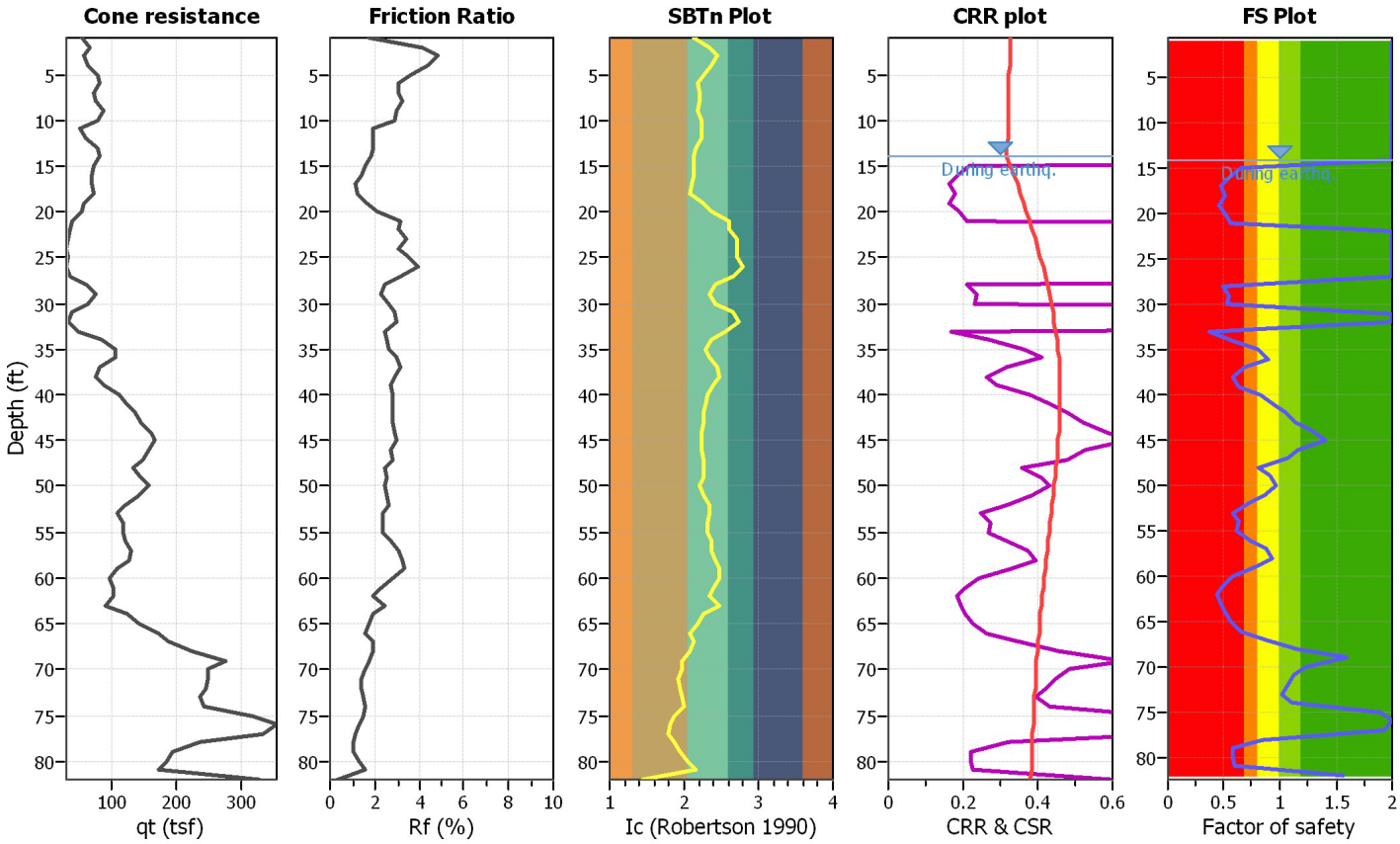
LIQUEFACTION ANALYSIS REPORT

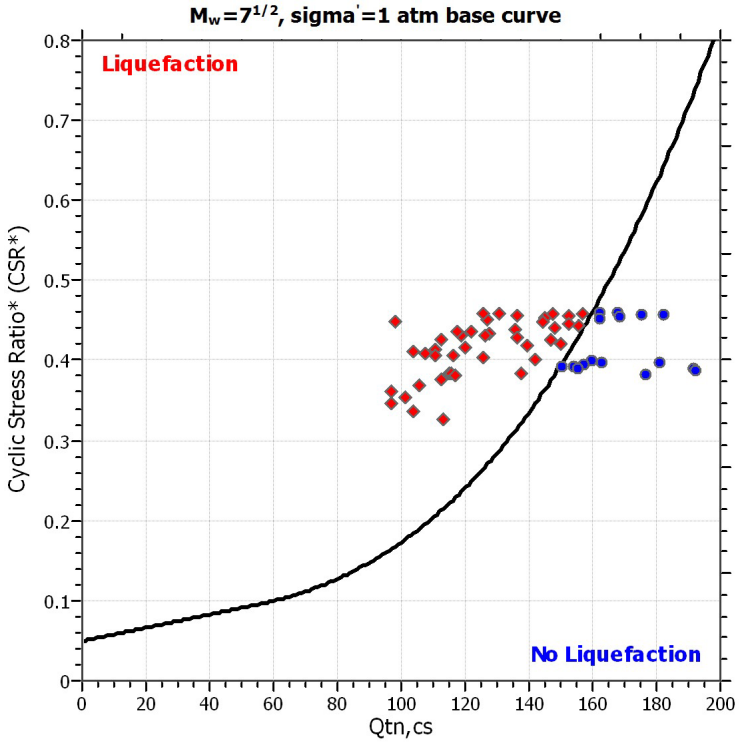
Project title : **Location :**

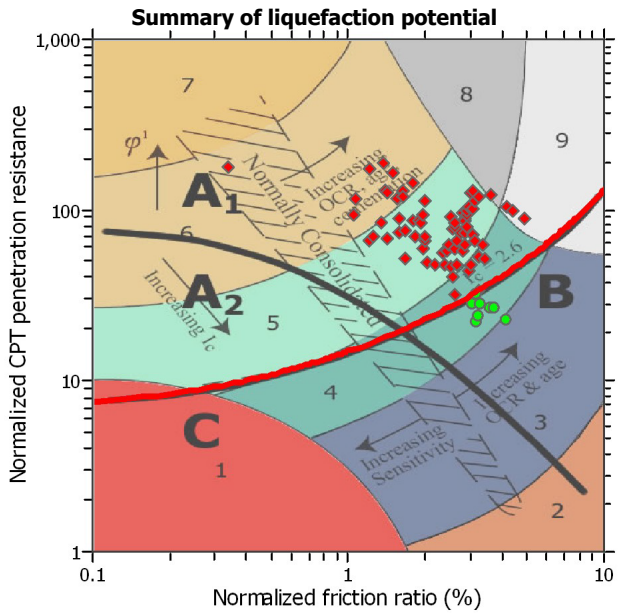
CPT file : CPT-1

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	14.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	14.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.68	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.52	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

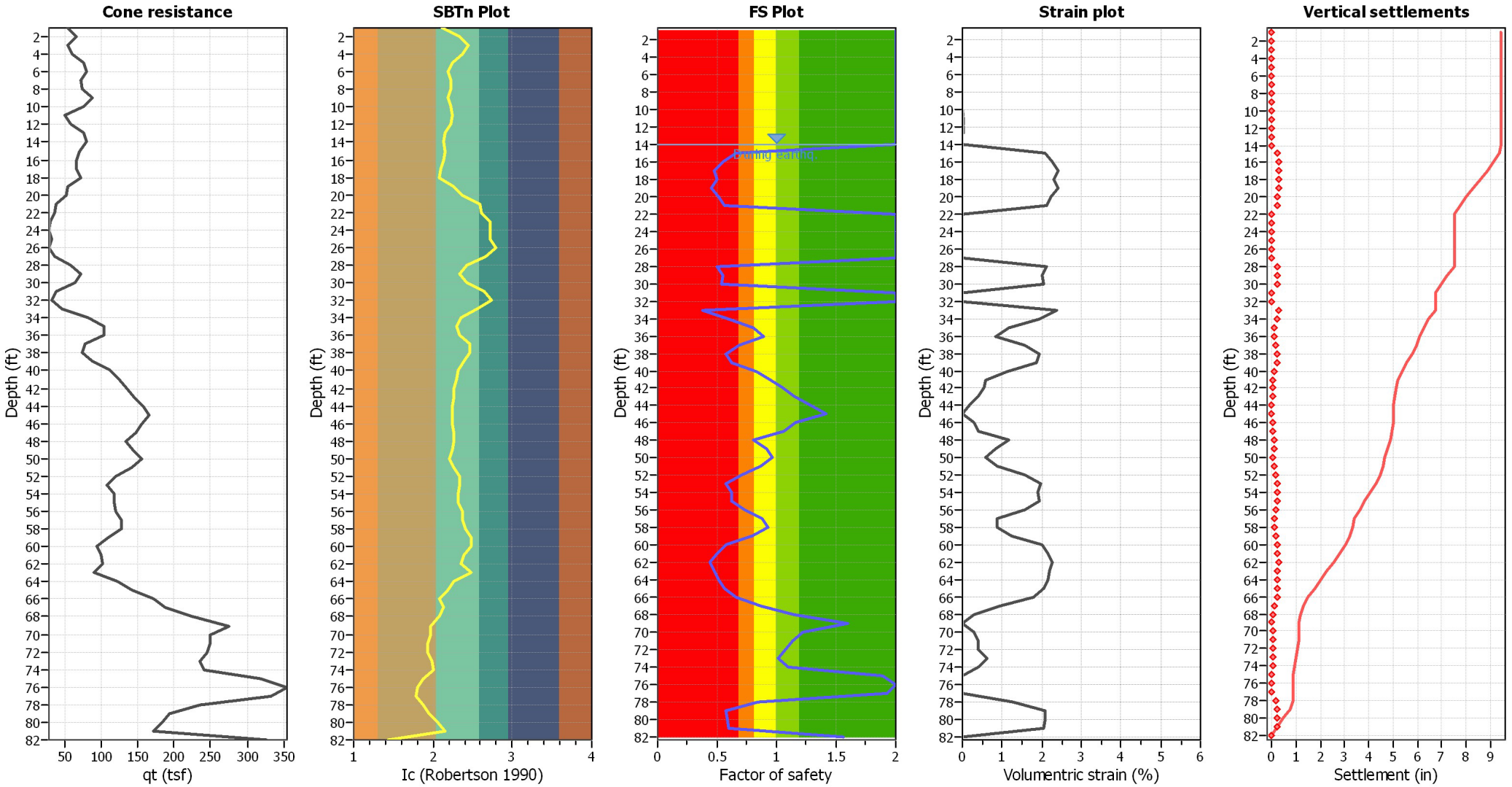






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

GeoLogismiki
Geotechnical Engineers
Merarhias 56
http://www.geologismiki.gr

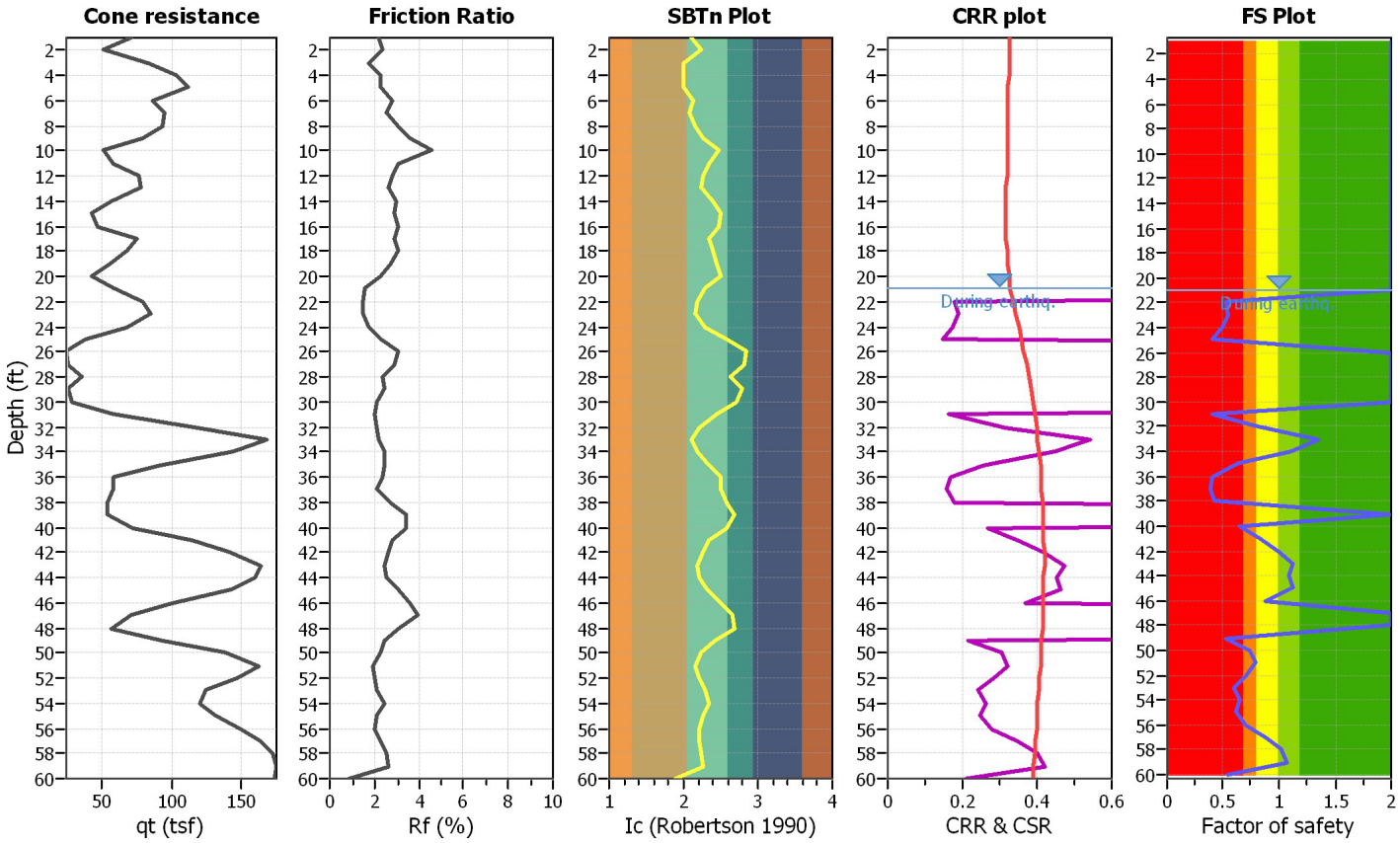
LIQUEFACTION ANALYSIS REPORT

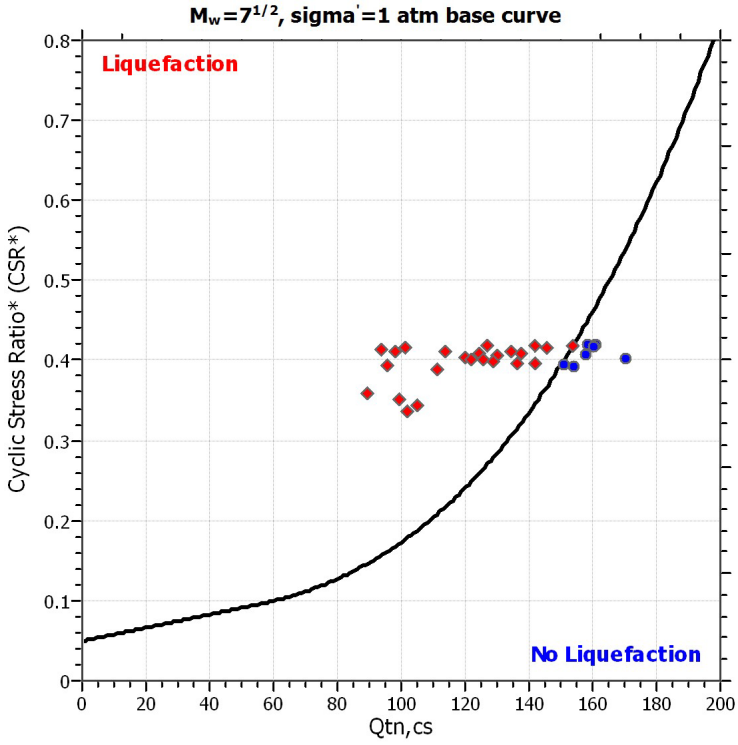
Project title : **Location :**

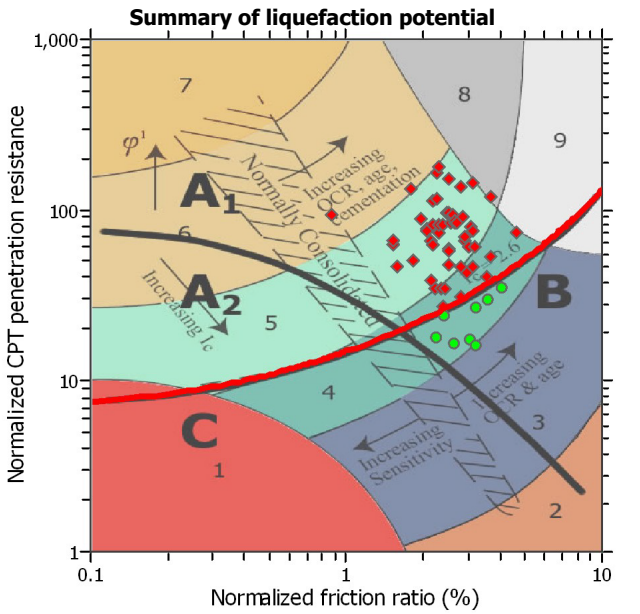
CPT file : CPT-2

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	21.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	21.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.68	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.52	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

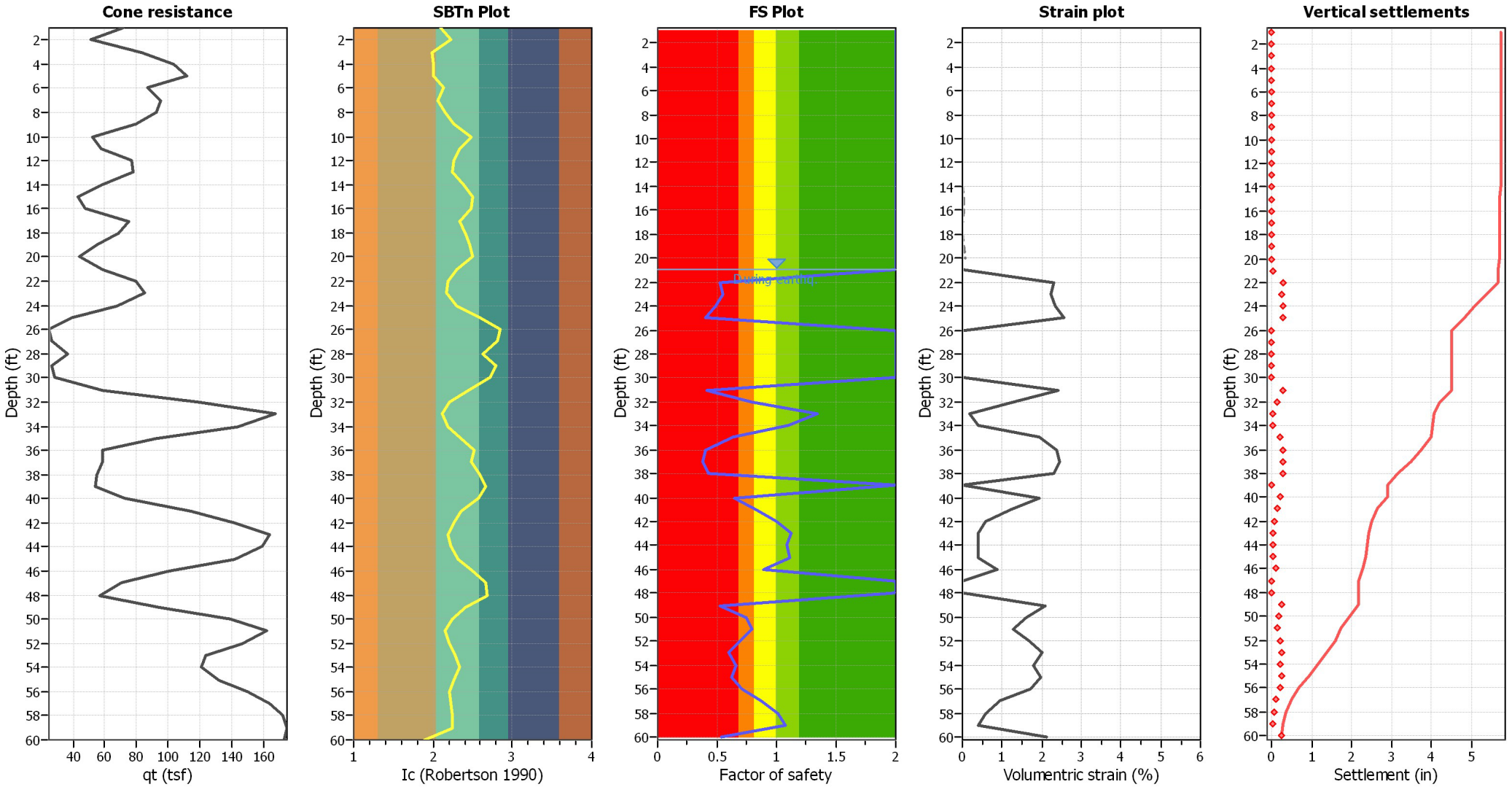






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

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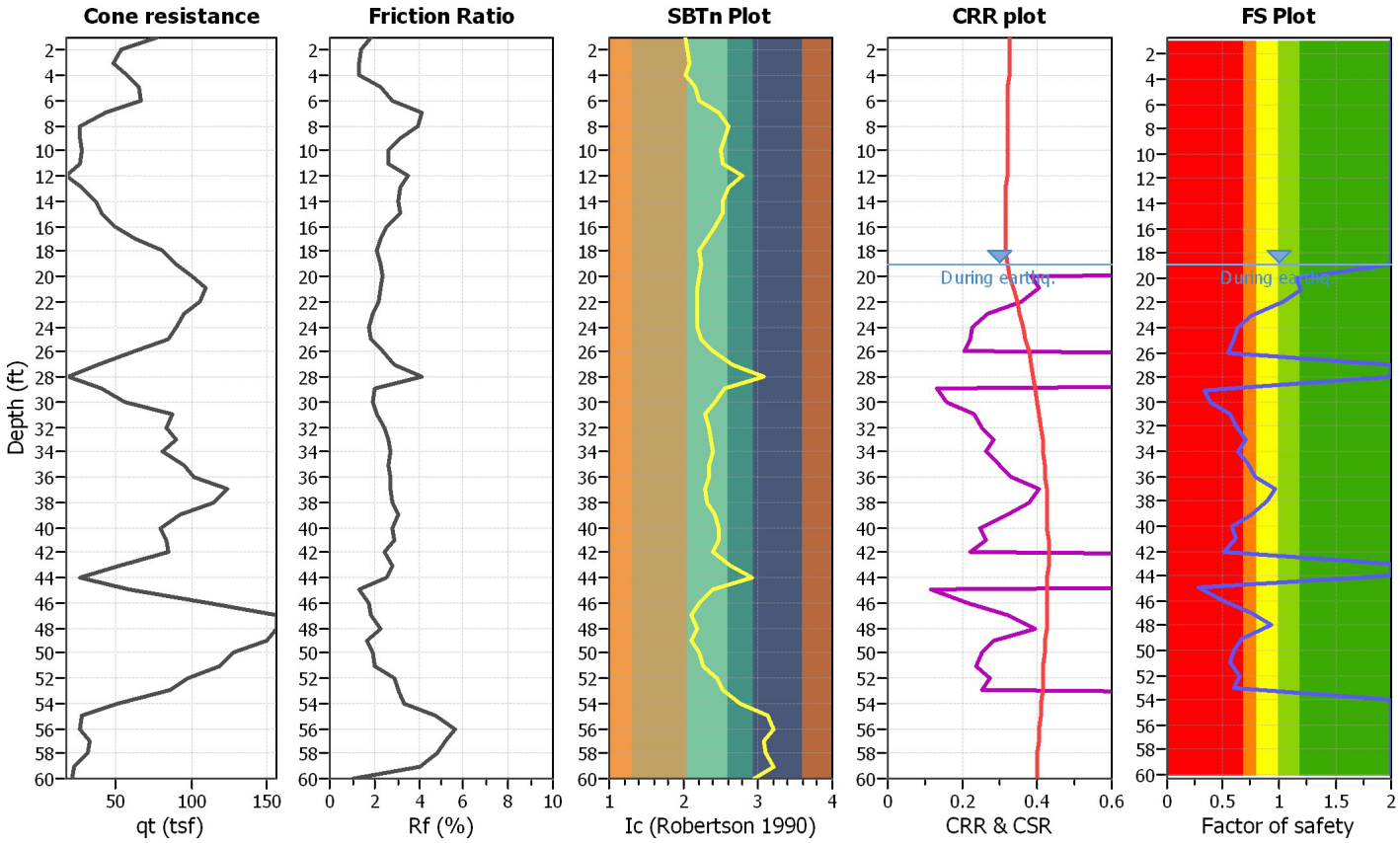
LIQUEFACTION ANALYSIS REPORT

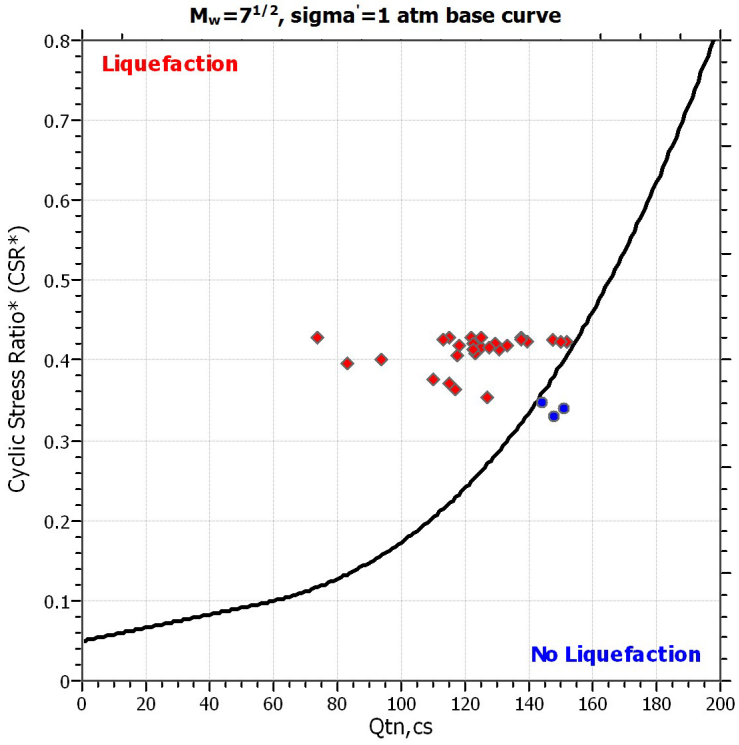
Project title : **Location :**

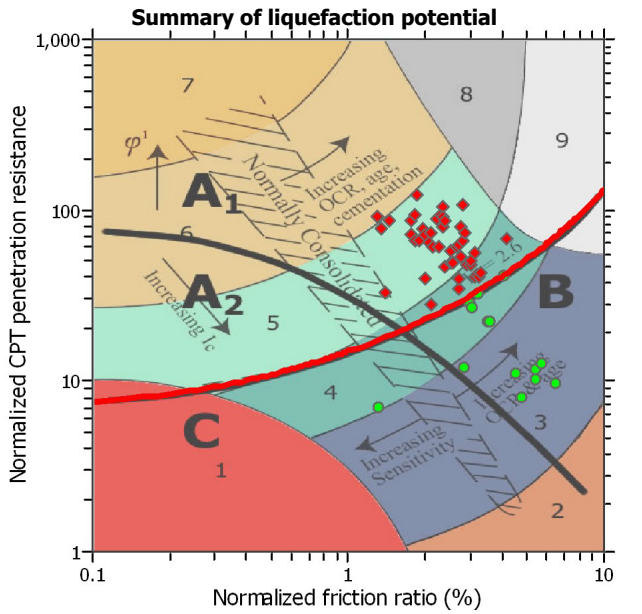
CPT file : CPT-3

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	19.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	19.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.68	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.52	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

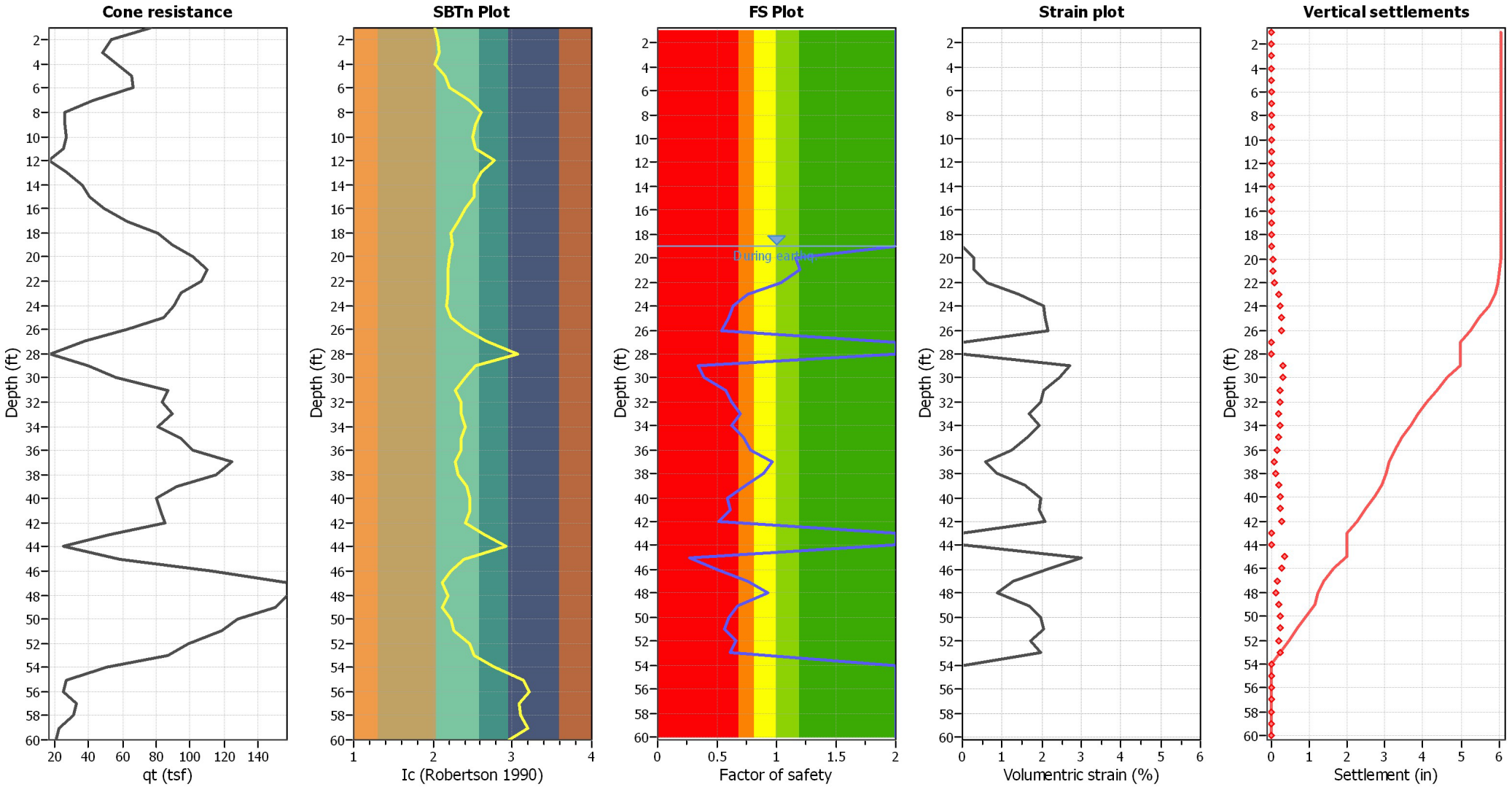






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Estimation of post-earthquake settlements



Abbreviations

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Volumentric strain:	Post-liquefaction volumentric strain

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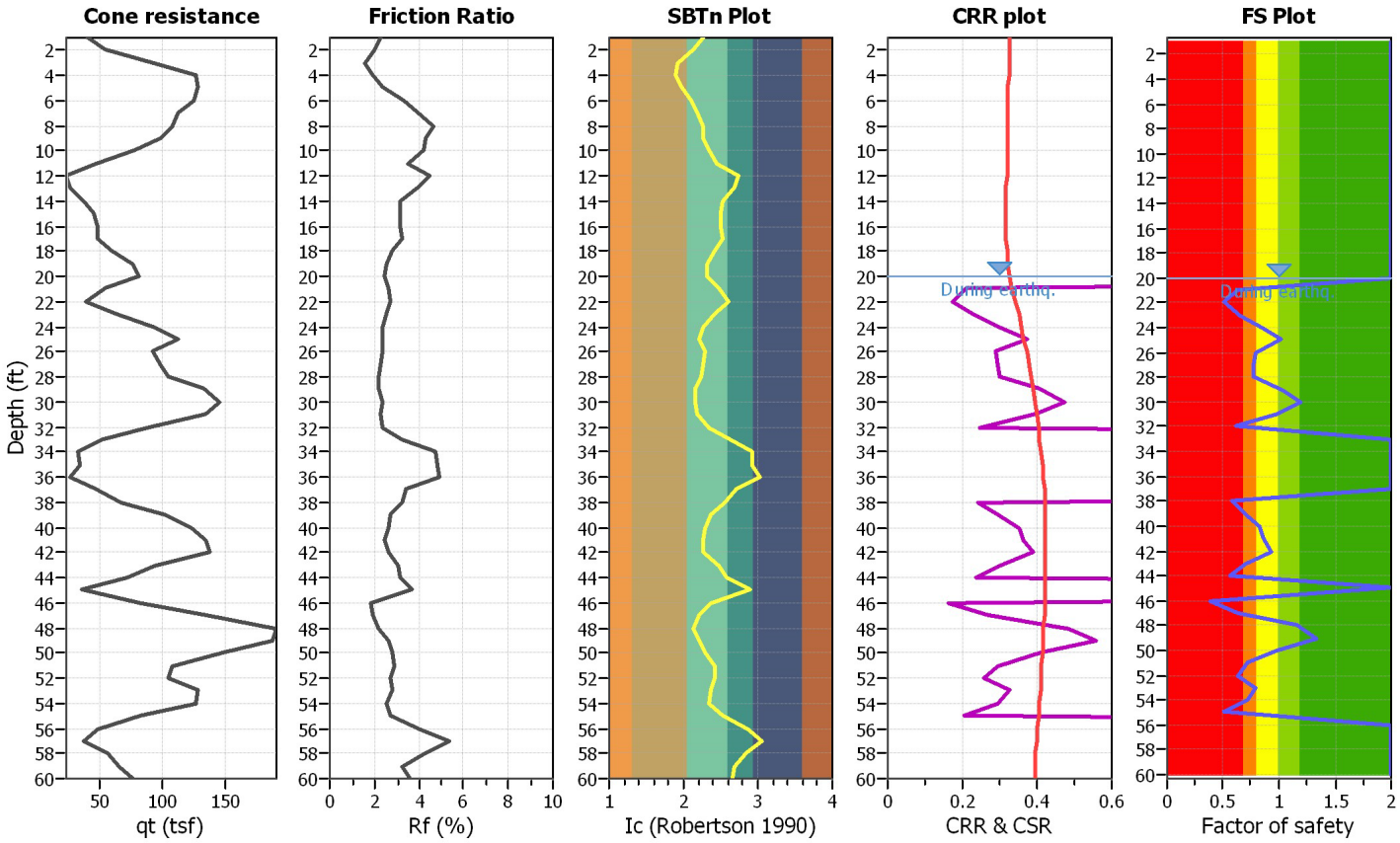
LIQUEFACTION ANALYSIS REPORT

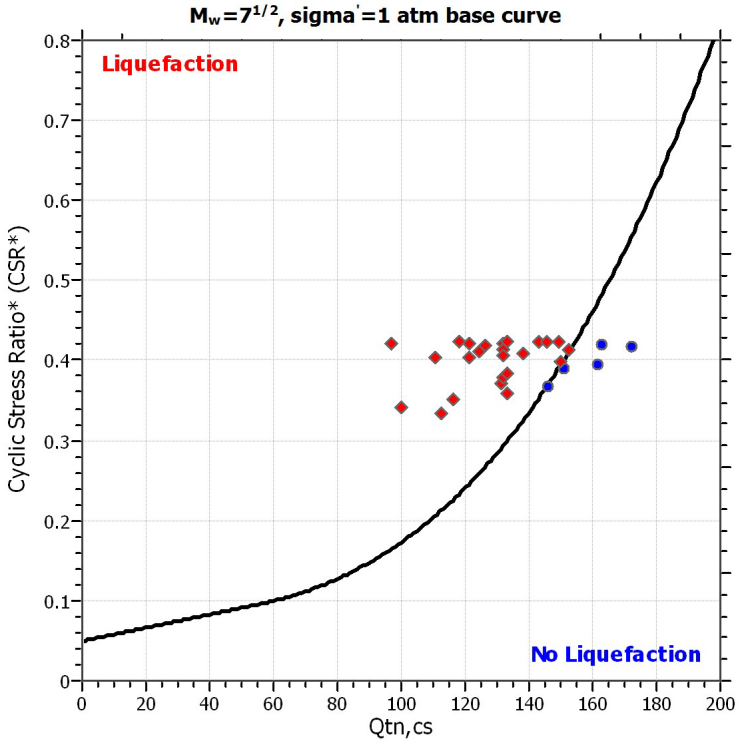
Project title : **Location :**

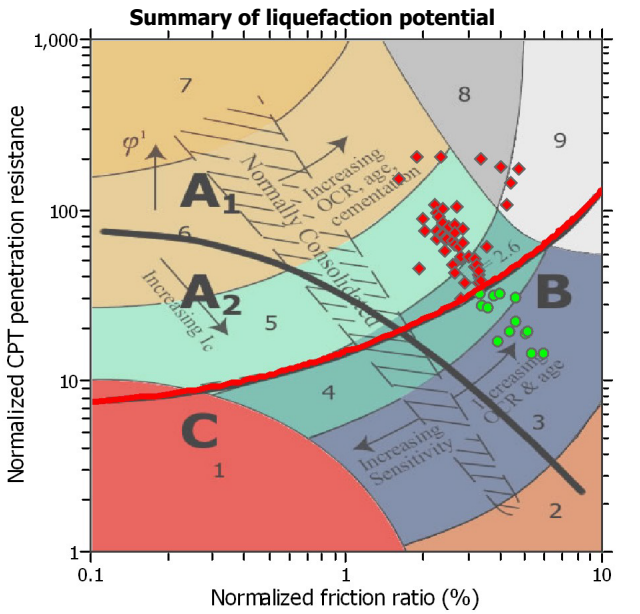
CPT file : CPT-4

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	20.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	20.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.68	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.52	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

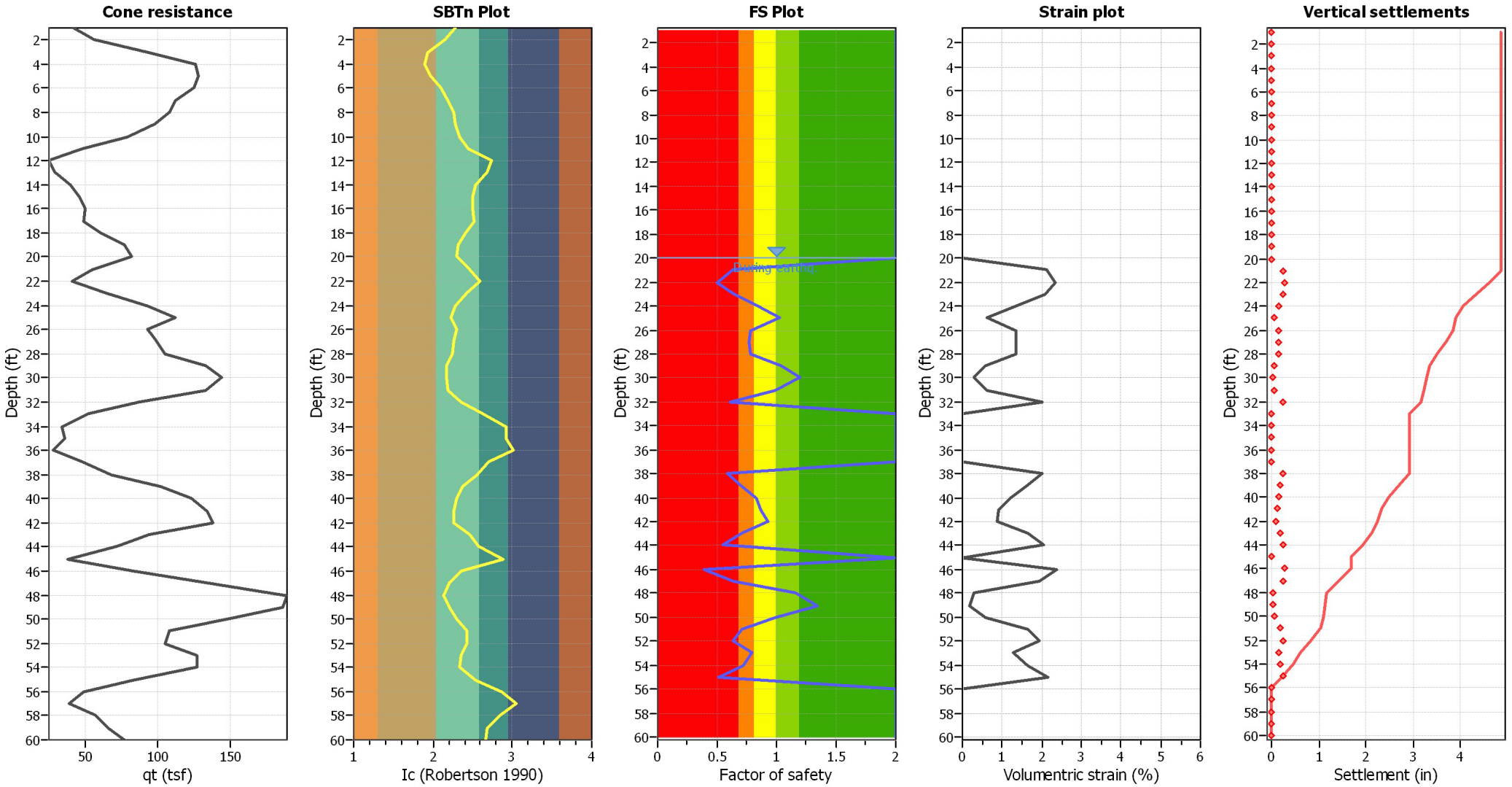






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

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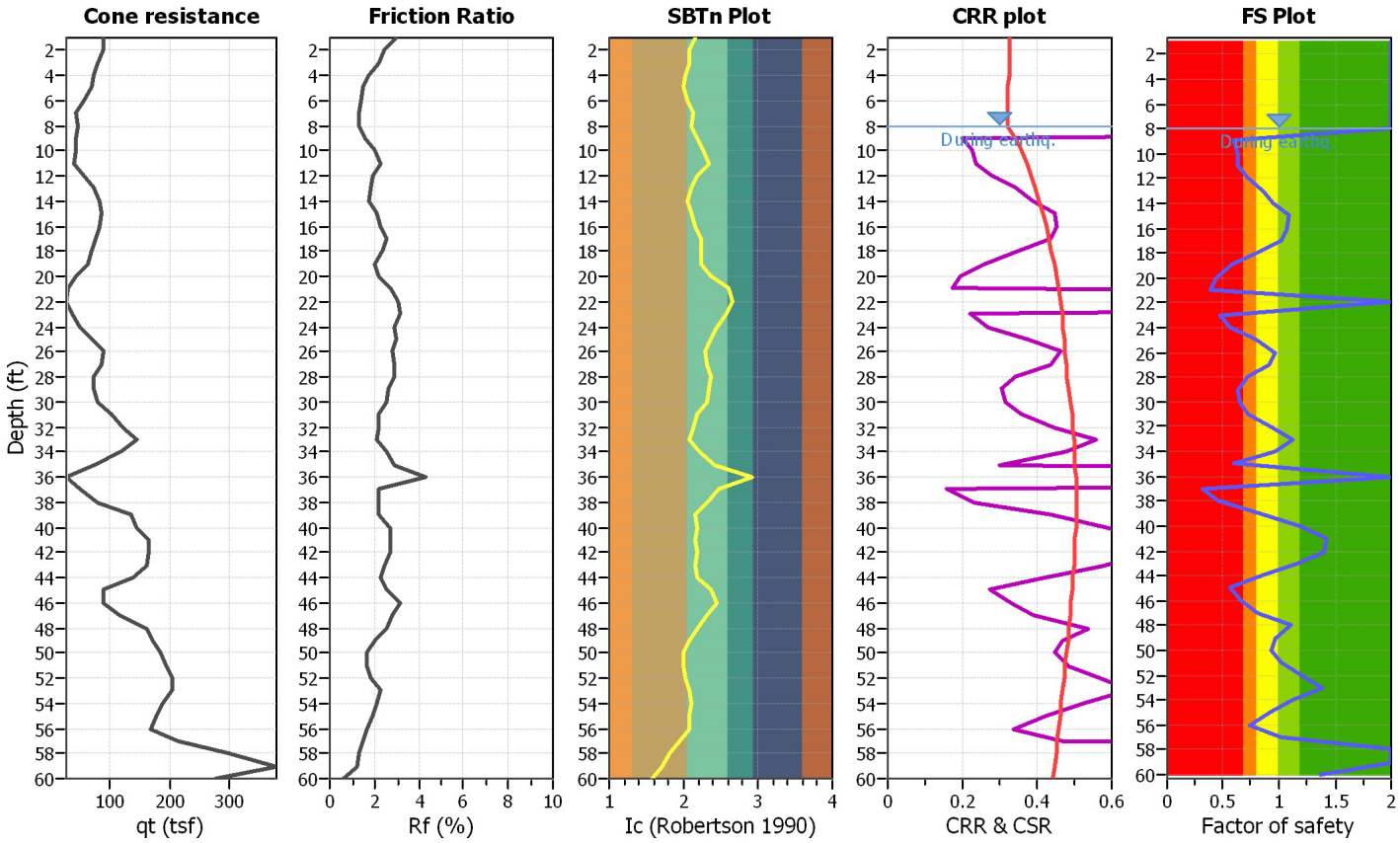
LIQUEFACTION ANALYSIS REPORT

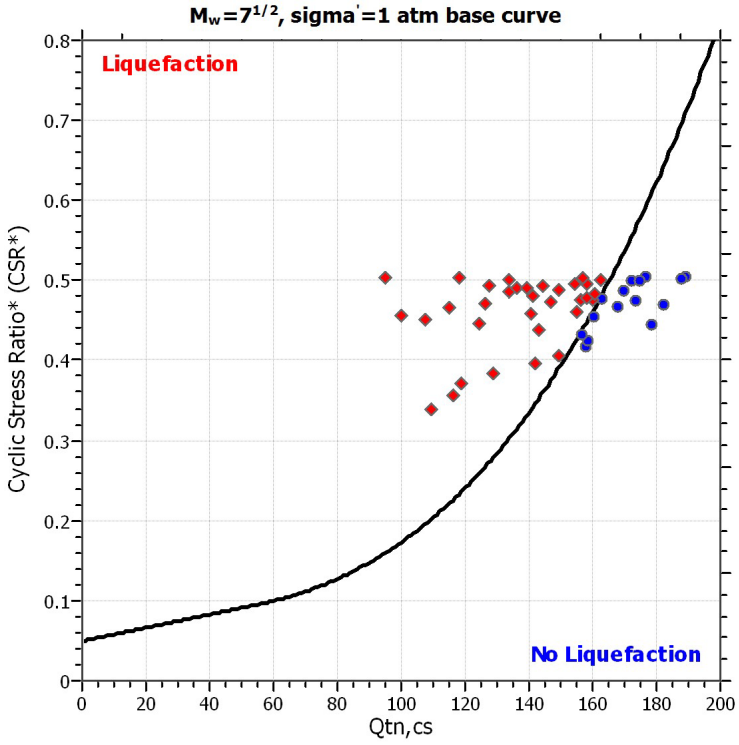
Project title : **Location :**

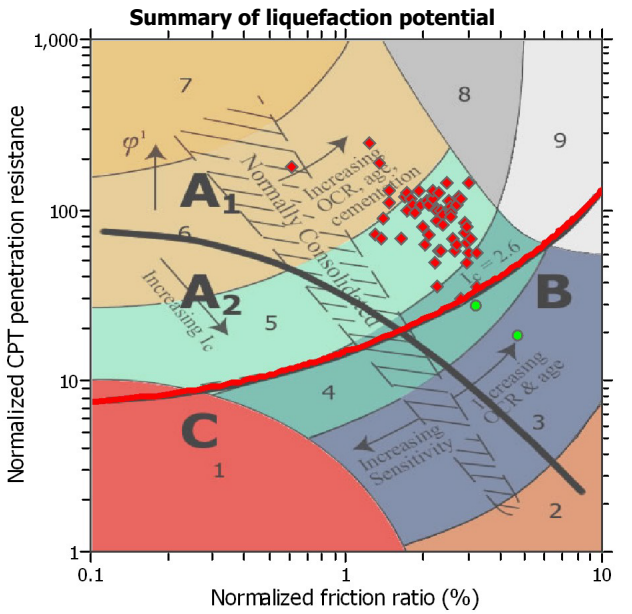
CPT file : CPT-5

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	8.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.68	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.52	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		







Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
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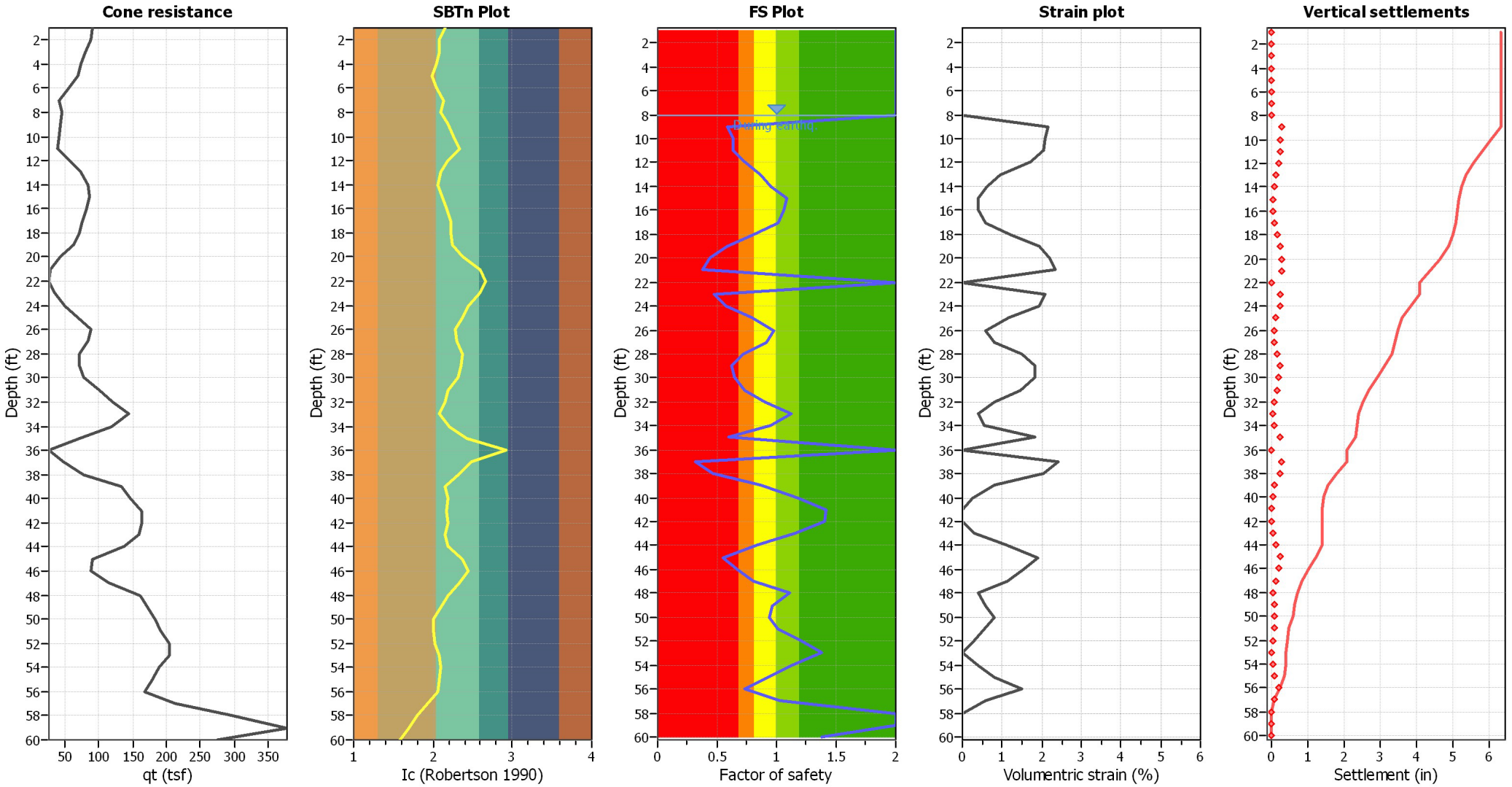
Estimation of post-earthquake settlements



Abbreviations

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I_c:	Soil Behaviour Type Index
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Volumentric strain:	Post-liquefaction volumentric strain

Appendix E
General Earthwork and Grading Specifications for Rough Grading

1.0 General

1.1 Intent

These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record

Prior to commencement of work, the owner shall employ the Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultants shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required. Subsurface areas to be geotechnically observed, mapped, elevations recorded, and/or tested include natural ground after it has been cleared for receiving fill but before fill is placed, bottoms of all "remedial removal" areas, all key bottoms, and benches made on sloping ground to receive fill.

The Geotechnical Consultant shall observe the moisture-conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to determine the attained level of compaction. The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor

The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the plans and specifications.

The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "spreads" of work and the estimated quantities of daily earthwork contemplated for the site prior to commencement of grading. The Contractor shall inform the owner and the Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate observations and tests can be planned and accomplished. The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified.

2.0 Preparation of Areas to be Filled

2.1 Clearing and Grubbing

Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). No fill lift shall contain more than 5 percent of organic matter. Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed.

2.2 Processing

Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Existing ground that is not satisfactory shall be overexcavated as specified in the following section. Scarification shall continue until soils are broken down and free of large clay lumps or clods and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.

2.3 Overexcavation

In addition to removals and overexcavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be overexcavated to competent ground as evaluated by the Geotechnical Consultant during grading.

2.4 Benching

Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. Please see the Standard Details for a graphic illustration. The lowest bench or key shall be a minimum of 15 feet wide and at least 2 feet deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 4 feet into competent material or as otherwise recommended by the Geotechnical

Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise overexcavated to provide a flat subgrade for the fill.

2.5 Evaluation/Acceptance of Fill Areas

All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 Fill Material

3.1 General

Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soils to achieve satisfactory fill material.

3.2 Oversize

Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 8 inches, shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 vertical feet of finish grade or within 2 feet of future utilities or underground construction.

3.3 Import

If importing of fill material is required for grading, proposed import material shall meet the requirements of Section 3.1. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed.

4.0 Fill Placement and Compaction

4.1 Fill Layers

Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 8 inches in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

4.2 Fill Moisture Conditioning

Fill soils shall be watered, dried back, blended, and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557).

4.3 Compaction of Fill

After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.

4.4 Compaction of Fill Slopes

In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557.

4.5 Compaction Testing

Field-tests for moisture content and relative compaction of the fill soils shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to

inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

4.6 Frequency of Compaction Testing

Tests shall be taken at intervals not exceeding 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soils embankment. In addition, as a guideline, at least one test shall be taken on slope faces for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 Compaction Test Locations

The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two grade stakes within a horizontal distance of 100 feet and vertically less than 5 feet apart from potential test locations shall be provided.

5.0 Subdrain Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan, and the Standard Details. The Geotechnical Consultant may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

6.0 Excavation

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by the Geotechnical Consultant during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, evaluated, and accepted by the Geotechnical Consultant prior to placement of materials for construction of the fill portion of the slope, unless otherwise recommended by the Geotechnical Consultant.

7.0 Trench Backfills

7.1 Safety

The Contractor shall follow all OSHA and Cal/OSHA requirements for safety of trench excavations.

7.2 Bedding and Backfill

All bedding and backfill of utility trenches shall be performed in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall have a Sand Equivalent greater than 30 (SE>30). The bedding shall be placed to 1 foot over the top of the conduit and densified. Backfill shall be placed and densified to a minimum of 90 percent of relative compaction from 1 foot above the top of the conduit to the surface.

The Geotechnical Consultant shall test the trench backfill for relative compaction. At least one test should be made for every 300 feet of trench and 2 feet of fill.

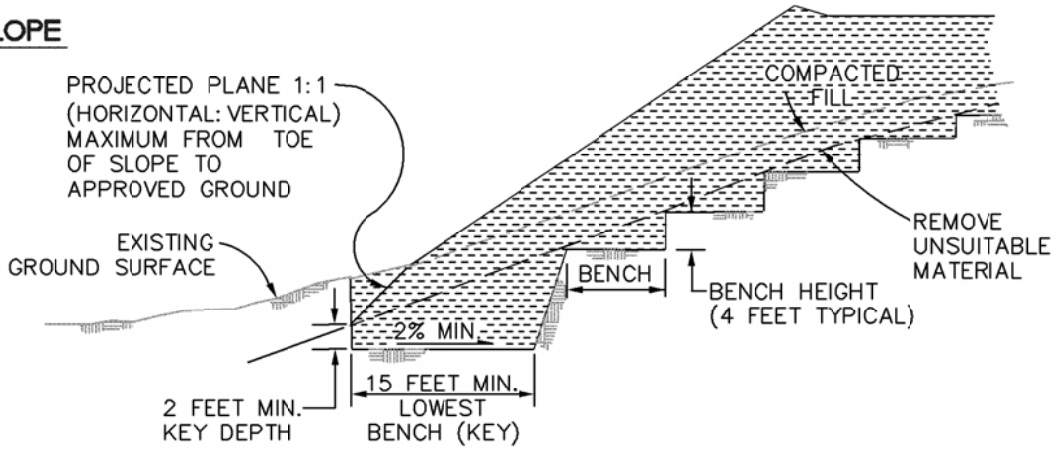
7.3 Lift Thickness

Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method.

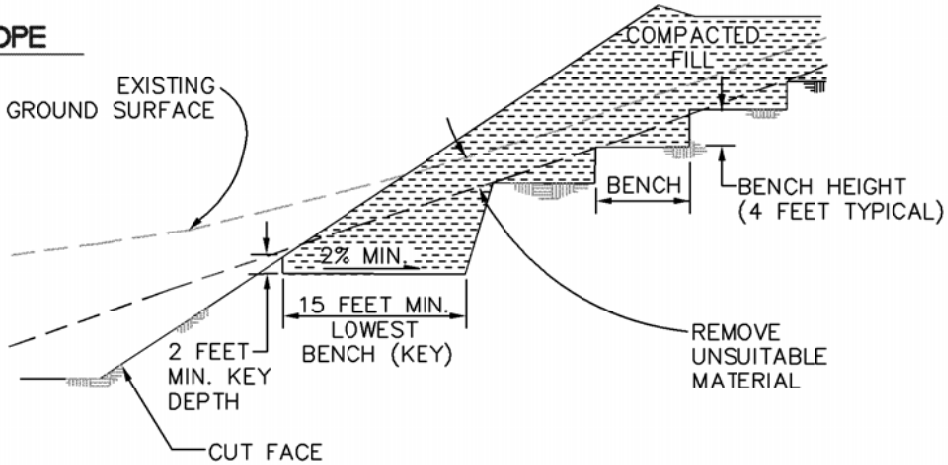
7.4 Observation and Testing

The densification of the bedding around the conduits shall be observed by the Geotechnical Consultant.

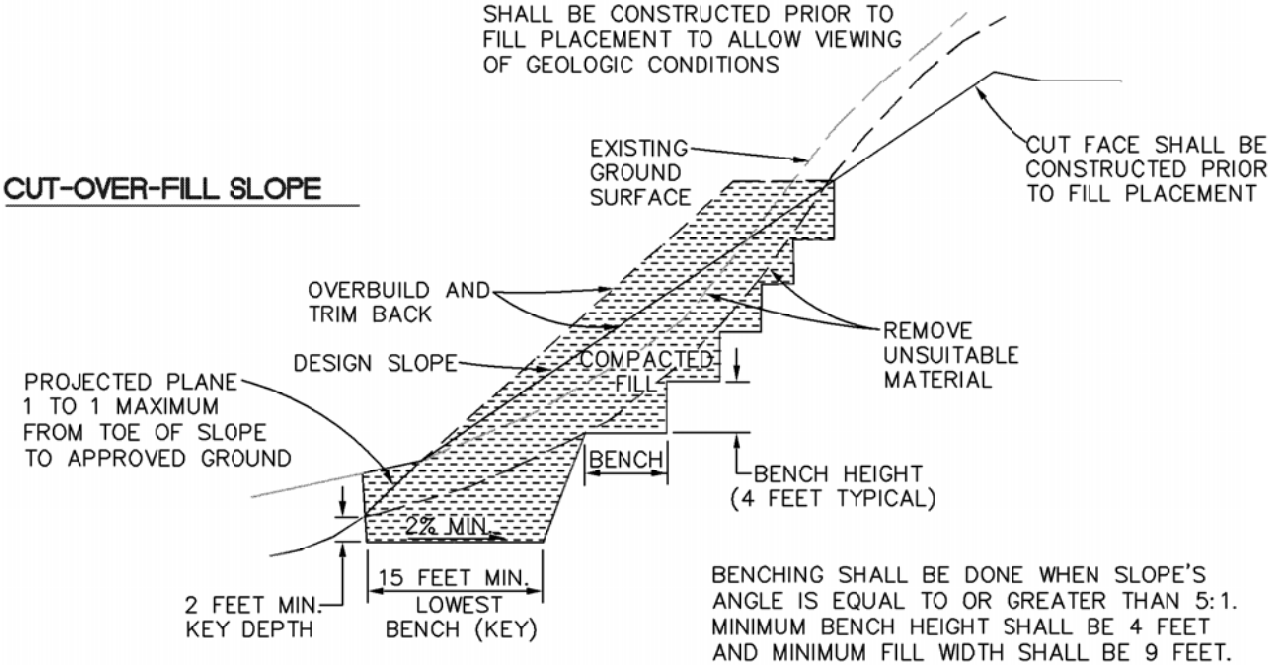
FILL SLOPE



FILL-OVER-CUT SLOPE



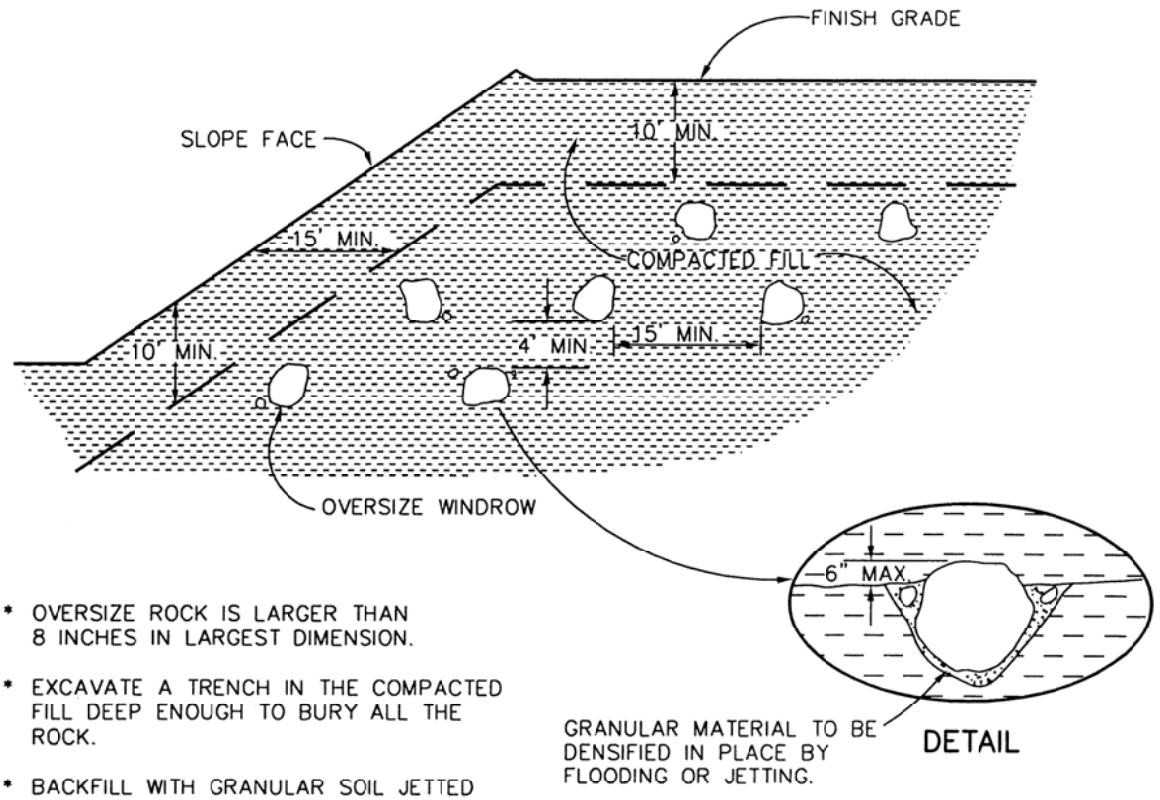
CUT-OVER-FILL SLOPE



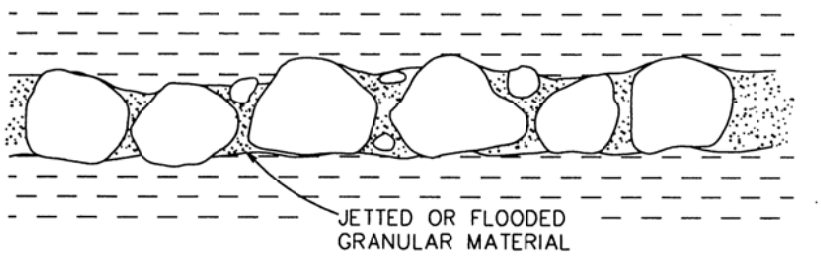
BENCHING SHALL BE DONE WHEN SLOPE'S ANGLE IS EQUAL TO OR GREATER THAN 5:1. MINIMUM BENCH HEIGHT SHALL BE 4 FEET AND MINIMUM FILL WIDTH SHALL BE 9 FEET.

KEYING AND BENCHING

GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL A



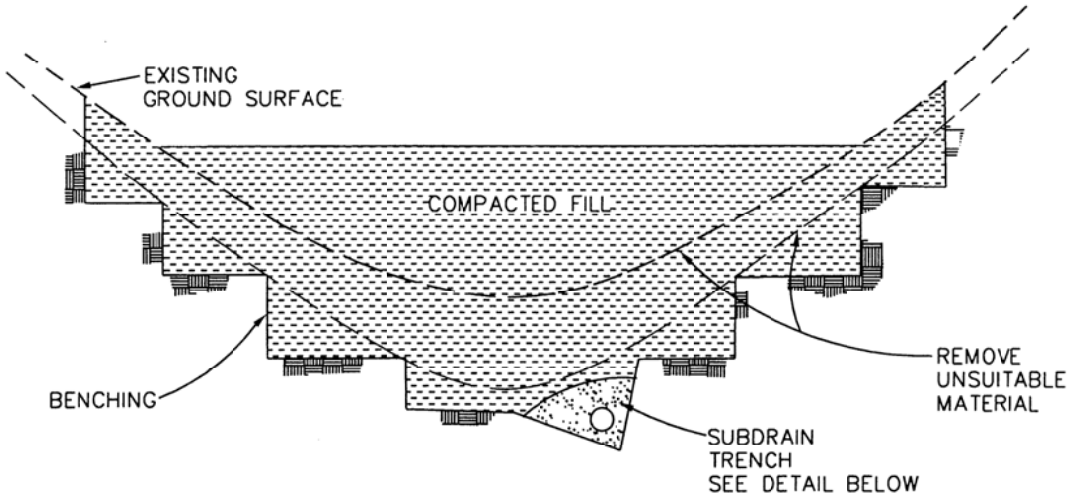
* OVERSIZE ROCK IS LARGER THAN 8 INCHES IN LARGEST DIMENSION.
* EXCAVATE A TRENCH IN THE COMPACTED FILL DEEP ENOUGH TO BURY ALL THE ROCK.
* BACKFILL WITH GRANULAR SOIL JETTED OR FLOODED IN PLACE TO FILL ALL THE VOIDS.
* DO NOT BURY ROCK WITHIN 10 FEET OF FINISH GRADE.
* WINDROW OF BURIED ROCK SHALL BE PARALLEL TO THE FINISHED SLOPE.

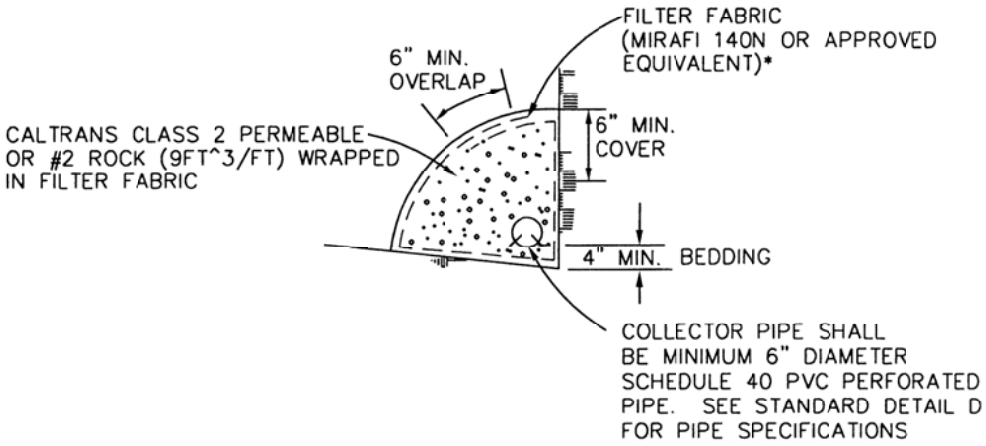


TYPICAL PROFILE ALONG WINDROW

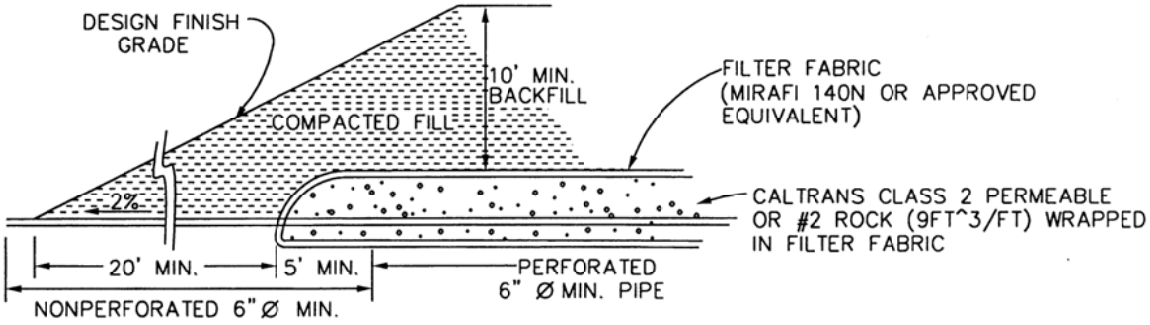
OVERSIZE ROCK DISPOSAL

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
STANDARD DETAIL B





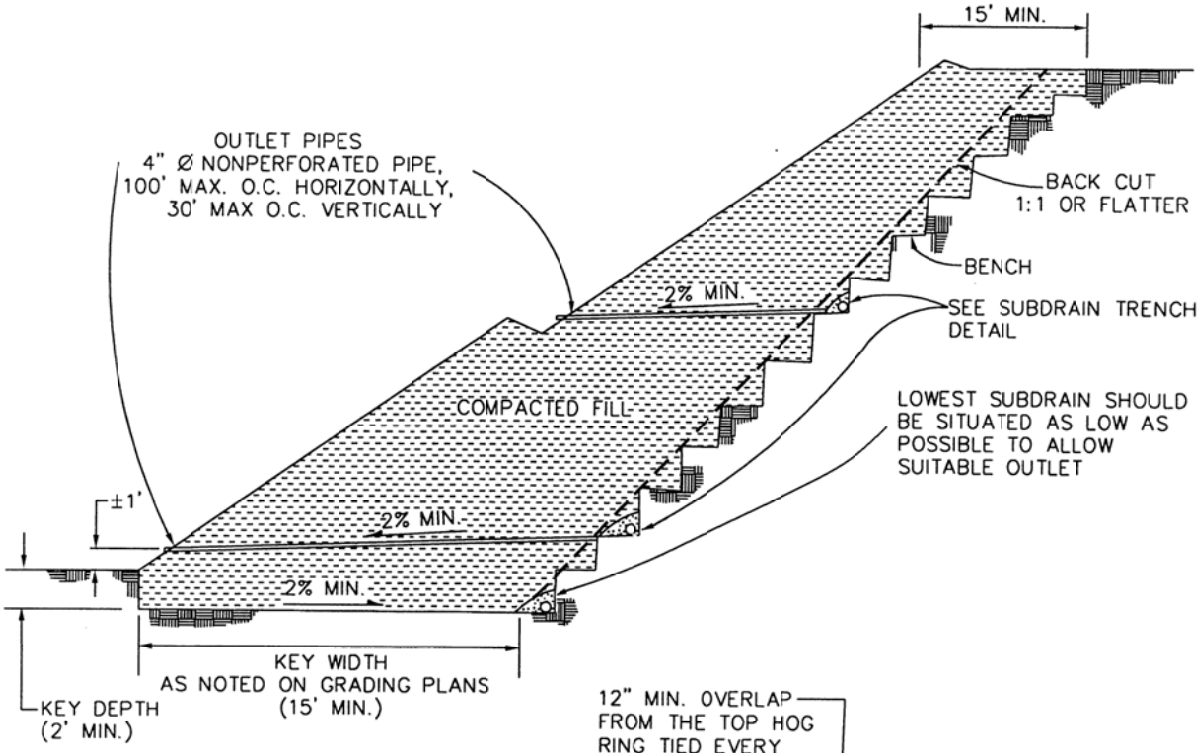
SUBDRAIN DETAIL

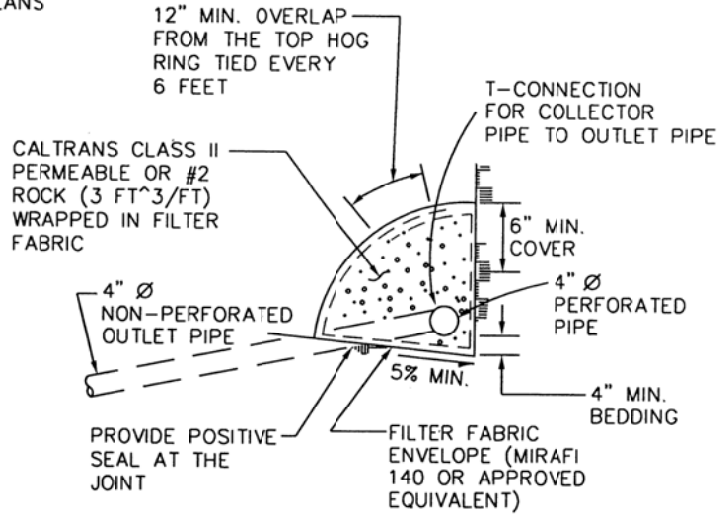


DETAIL OF CANYON SUBDRAIN OUTLET

CANYON SUBDRAINS

GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL C





SUBDRAIN TRENCH DETAIL

SUBDRAIN INSTALLATION – subdrain collector pipe shall be installed with perforation down or, unless otherwise designated by the geotechnical consultant. Outlet pipes shall be non-perforated pipe. The subdrain pipe shall have at least 8 perforations uniformly spaced per foot. Perforation shall be 1/4" to 1/2" if drill holes are used. All subdrain pipes shall have a gradient of at least 2% towards the outlet.

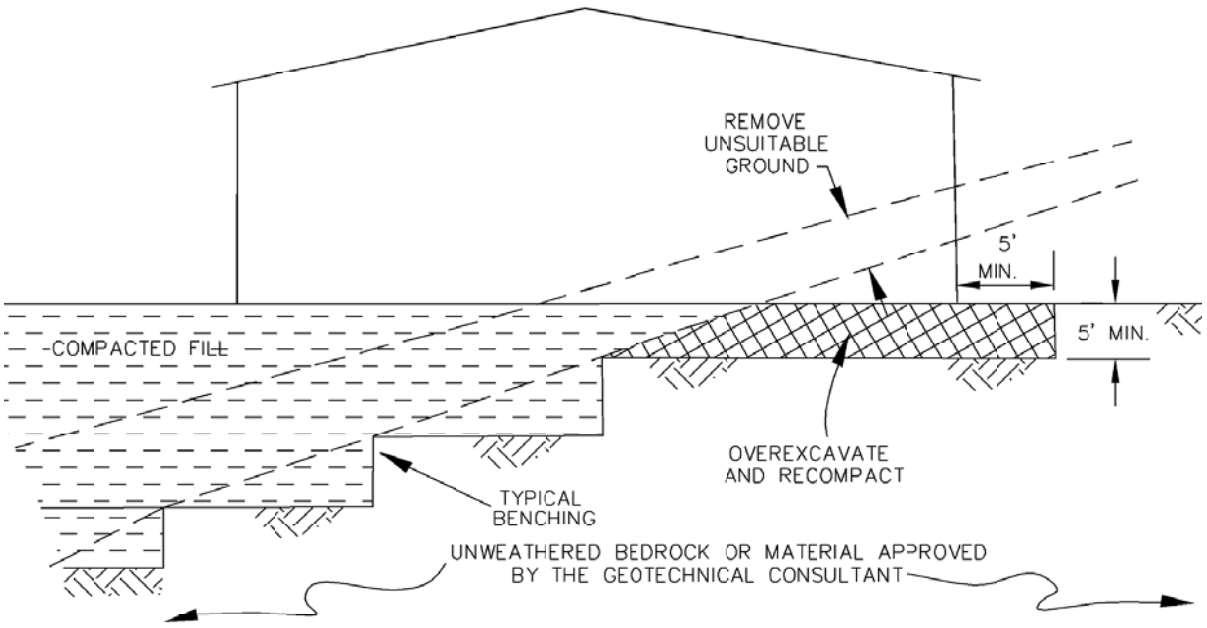
SUBDRAIN PIPE – Subdrain pipe shall be ASTM D2751, SDR 23.5 or ASTM D1527, Schedule 40, or ASTM D3034, SDR 23.5, Schedule 40 Polyvinyl Chloride Plastic (PVC) pipe.

All outlet pipe shall be placed in a trench no wider than twice the subdrain pipe.

BUTTRESS OR REPLACEMENT FILL SUBDRAINS

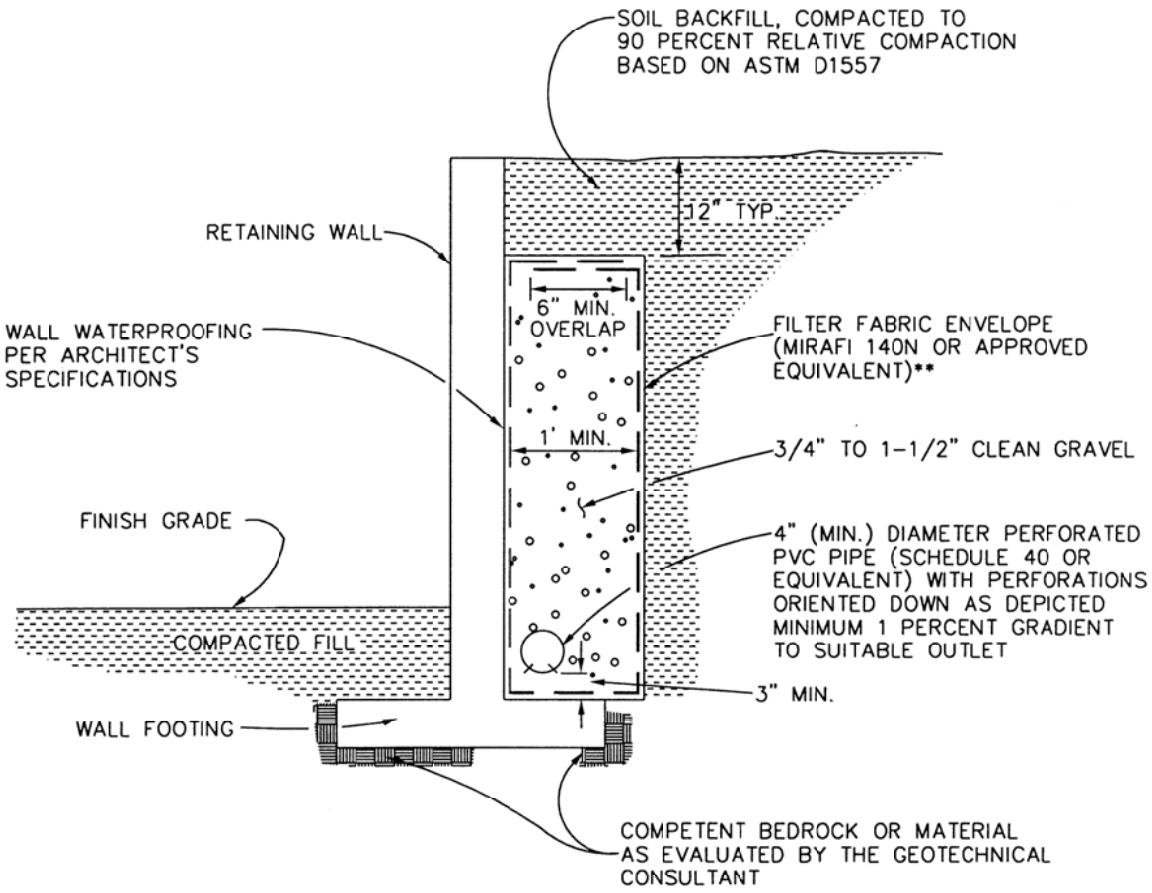
GENERAL EARTHWORK AND GRADING SPECIFICATIONS
STANDARD DETAIL D

CUT–FILL TRANSITION LOT OVEREXCAVATION



TRANSITION LOT FILLS

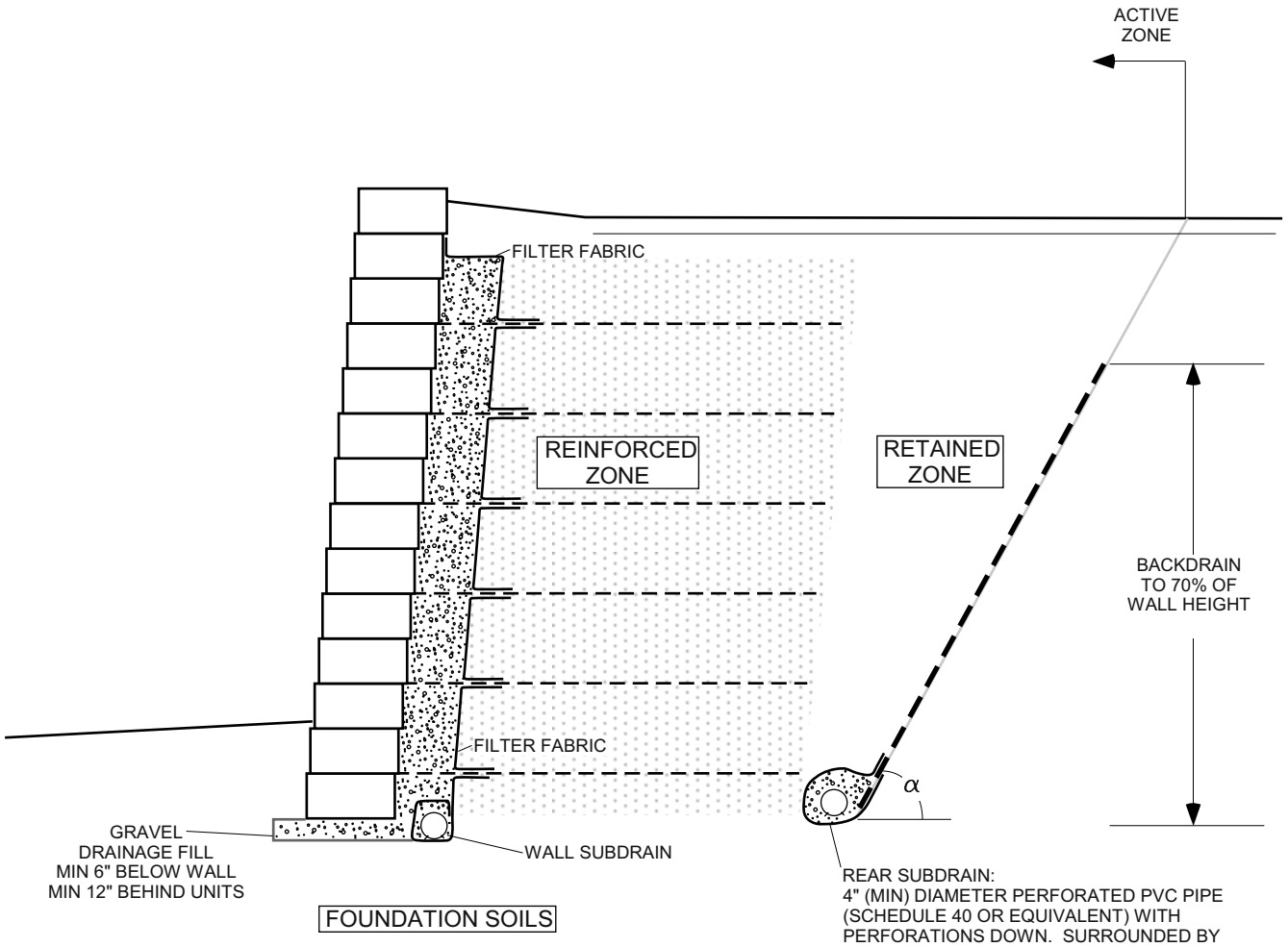
GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL E



NOTE: UPON REVIEW BY THE GEOTECHNICAL CONSULTANT, COMPOSITE DRAINAGE PRODUCTS SUCH AS MIRADRAIN OR J-DRAIN MAY BE USED AS AN ALTERNATIVE TO GRAVEL OR CLASS 2 PERMEABLE MATERIAL. INSTALLATION SHOULD BE PERFORMED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

RETAINING WALL DRAINAGE

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
STANDARD DETAIL F



NOTES:

1) MATERIAL GRADATION AND PLASTICITY

REINFORCED ZONE:

SIEVE SIZE	% PASSING
1 INCH	100
NO. 4	20-100
NO. 40	0-60
NO. 200	0-35

GRAVEL DRAINAGE FILL:

SIEVE SIZE	% PASSING
1 INCH	100
3/4 INCH	75-100
NO. 4	0-60
NO. 40	0-50
NO. 200	0-5

FOR WALL HEIGHT < 10 FEET, PLASTICITY INDEX < 20
FOR WALL HEIGHT 10 TO 20 FEET, PLASTICITY INDEX < 10
FOR TIERED WALLS, USE COMBINED WALL HEIGHTS
WALL DESIGNER TO REQUEST SITE-SPECIFIC CRITERIA FOR WALL HEIGHT > 20 FEET

2) CONTRACTOR TO USE SOILS WITHIN THE RETAINED AND REINFORCED ZONES THAT MEET THE STRENGTH REQUIREMENTS OF WALL DESIGN.

3) GEOGRID REINFORCEMENT TO BE DESIGNED BY WALL DESIGNER CONSIDERING INTERNAL, EXTERNAL, AND COMPOUND STABILITY.

3) GEOGRID TO BE PRETENSIONED DURING INSTALLATION.

4) IMPROVEMENTS WITHIN THE ACTIVE ZONE ARE SUSCEPTIBLE TO POST-CONSTRUCTION SETTLEMENT. ANGLE $\alpha = 45+\phi/2$, WHERE ϕ IS THE FRICTION ANGLE OF THE MATERIAL IN THE RETAINED ZONE.

5) BACKDRAIN SHOULD CONSIST OF J-DRAIN 302 (OR EQUIVALENT) OR 6-INCH THICK DRAINAGE FILL WRAPPED IN FILTER FABRIC. PERCENT COVERAGE OF BACKDRAIN TO BE PER GEOTECHNICAL REVIEW.

SEGMENTAL RETAINING WALLS

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
STANDARD DETAIL G

Preliminary Hydrology Study

For

Alexan

Fashion Valley
123 Camino De La Reina
San Diego, CA 92108

PTS #: 474568

Prepared for
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5790 Fleet Street, Suite 140
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4740 Ruffner Street
San Diego, Ca. 92111
(858) 292-7770
N.E. Job No. 114-088.2

July 5, 2016



07-05-2016

Cory Schrack **R.C.E. 65976** **Date**

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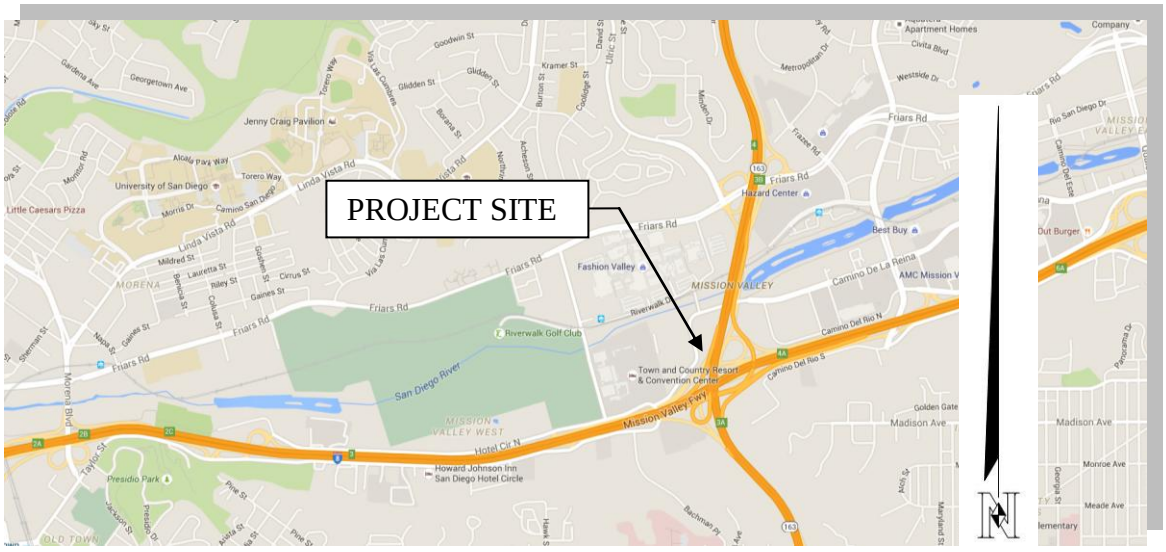
PURPOSE:

The purpose of this hydrology study is to show that the proposed Alexan project will not negatively impact existing hydrologic conditions. This report will calculate, analyze and compare storm water runoff for both the existing and proposed site conditions in order to ensure that the existing hydrologic regime is not negatively impacted by the project.

DESCRIPTION:

The Alexan project is located in the block bounded by Camino De La Reina underneath the Highway 163 and Interstate 8 in the Fashion Valley area of San Diego, California. The proposed project would construct multiple residential buildings consisting of a total of 236 dwelling units in 3 5-story buildings, and an unassociated 6 story parking garage. The project will also consist of 48 live-work units, commercial office space, a leasing office, and a commercial restaurant. The project will be confined to an area encompassing approximately 4.94 acres. The general direction of the storm water flow for this site is shown on the attached hydrology exhibits (Existing Conditions and Proposed Conditions Exhibits). This project is not subject to requirements set forth in CWA 401/404 because it does discharge to navigable waters.

VICINITY MAP



Source: Google Maps

EXISTING DRAINAGE:

The existing site encompasses approximately 4.94 acres and consists of 4 buildings, and two open parking lots. The existing conditions are considered to be four separate basins. Storm water from Basin 1 flows through the landscaped area on the east side of the property, sheet flows south towards a curb inlet, and ultimately outlets to an existing 60" storm drain main on Camino De La Reina. Basin 2 flows west through a pipe centered between the four buildings and outlets into landscaped areas, ultimately discharging onto Camino De La Reina. Basin 3 flows west into landscaping and discharges to existing curb inlet on Camino De La Reina. Basin 4 sheet flows northeast and outlets onto Camino De La Reina and ultimately enters a curb inlet.

See **Appendix A – Existing Hydrologic Conditions Exhibit,** for further information.

PROPOSED DRAINAGE:

The proposed conditions are considered to be divided into 17 drainage basins and will consist of 289 units in 3 5-story buildings, and an unassociated 6 story parking garage. Basins 1 through 6 are impervious runoff from the roof, which account for approximately 91,069 SF. Basins 1, 3, 4, and 5 will be routed via downspouts directly to proposed bio-filtration planters. Basins 2 and 6 will be discharged from the roof downspouts which will connect to curb outlets, and ultimately drain to a planter via concrete swales. All of these planters will be discharged to existing storm drains on Camino De La Reina when overflow capacity is met. Basin 7 is the northeast driveway; on-site drainage consists of impervious flow from the asphalt, which will flow towards a curb inlet and bio-infiltration basin within the landscaped portion in the right-of-way. Overflow will outlet to a proposed offsite 24" RCP storm drain that connects to an existing curb inlet along Camino De La Reina. Basin 8 consists of the entire drive aisle and parking stalls along the eastern property. Storm water will flow away from the buildings towards the stalls at a 3% grade and filter through proposed permeable pavement. This treated water will discharge to one of the 60" RCP storm drains along Camino De La Reina via perforated pipe and PVC line. Basin 9 is the landscaped portion along Camino De La Reina and surface flows towards the street, where it runs along curb and gutter towards an existing curb inlet northeast of the property. Basin 10 consists of main driveway that leads to the parking garage, some landscaping, and walkways. Impervious flow from the driveway will be routed to a bio-filtration basin within the landscaped area. Overflow will discharge to a 60" RCP storm drain on Camino De La Reina via PVC. Basins 11 and 12 are concrete courtyards that flow towards bio-filtration basins. Basin 11 will overflow to a 60" RCP storm drain on Camino De La Reina via PVC. Basin 12 will overflow back to Camino De La Reina via proposed storm drains along the main back drive aisle. Basin 13 consists of the pool area, and drains towards a bio-filtration basin to the east, ultimately discharging to an existing curb inlet along Camino De La Reina. Basins 14 and 15 are self-mitigating landscaped areas that surface flow to Camino De La Reina and end in the same inlet as Basin 13. Basin 16 and 17 are considered to be de minims areas that will flow back to Camino De la Reina.

See **Appendix B – Proposed Hydrologic Conditions Exhibit,** for further information.

HYDROLOGY METHODOLOGY/DESIGN CRITERIA:

Storm water runoff for both the existing and proposed site conditions is calculated, analyzed and compared in order to ensure that the proposed conditions do not negatively affect the existing hydrologic regime. Runoff is calculated by utilizing methods outlined in the City of San Diego Drainage Design Manual. Topographical information has been obtained from Nasland. Hydrologic basin boundaries, landscape areas, and flow path characteristics such as change in elevation and length of flow are obtained from the Existing and Proposed Conditions Maps which are drafted in AutoCAD Civil 3D 2013 software. This information is utilized to determine the basin area, runoff coefficient and inlet time for each basin.

CALCULATIONS:

Calculations have been performed per Rational Method guidelines set forth in Appendix I of the City of San Diego Drainage Design Manual.

- Runoff Coefficients have been calculated per Table 2 of the Drainage Design Manual.
- Land Use type was used per Table 2 of the Drainage Design Manual. The existing condition was considered Commercial and therefore the coefficient used was 0.85. The proposed condition is considered Residential Multi-Family and the coefficient is 0.70, however a tabulated C value was used for the proposed conditions due to the significant difference in imperviousness.
- Stormwater runoff is considered to be in an Overland Flow condition until it reaches a drainage structure such as a drainage ditch, gutter, or storm drain. Time of concentration for Urban Area Overland Flow is determined per the equation published on the "Urban Areas Overland Time of Flow Curves" located in Appendix I-E of the City of San Diego Drainage Design Manual
- Time of concentration for storm water runoff flowing in a drainage ditch, gutter or storm drain is determined per the “Gutter & Roadway Discharge- Velocity Chart” located in Appendix I-F of the City of San Diego Drainage Design Manual.
- For hydrology calculations refer to the pages following. For attachments and references to the calculations see **Appendix C – Hydrology References**

Alexan – Existing & Proposed Time of Concentrations

Alexan - Existing & Proposed Time of Concentrations

Existing Site Conditions																	
Basin	Runoff Coefficient	[1] Urban Area Overland Flow Tc						[2] Gutter & Roadway Flow TC								T_c
		High Point	Low Point	ΔE	Length	Avg Slope	$T_{overland}$	High	Low	ΔE	Length	Ave Slope	Flowrate	Velocity	T_{gutter}	
	(C)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(min)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(cfs)	(fps)	(min)	(min)
1	0.85	42.0	35.5	6.6	310	0.021	6.2									6.2
2	0.50							39.3	37.5	1.8	300.0	0.006	0.44	2.22	2.0	5.0
3	0.85	40.3	31.6	8.7	110	0.079	2.4									5.0
4	0.85	39.3	21.3	18.0	411	0.044	5.6									5.6
Proposed Site Conditions																
Basin	Runoff Coefficient	[1] Urban Area Overland Flow Tc						[2] Gutter & Roadway Flow TC								T_c
		High Point	Low Point	ΔE	Length	Avg Slope	$T_{overland}$	High	Low	ΔE	Length	Ave Slope	Flowrate	Velocity	T_{gutter}	
	(C)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(min)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(cfs)	(fps)	(min)	(min)
1	0.85	100.5	100.0	0.5	70	0.007	4.2									5.0
2	0.85	100.5	100.0	0.5	85	0.006	4.9									5.0
3	0.85	100.5	100.0	0.5	125	0.004	6.8									6.8
4	0.85	100.5	100.0	0.5	170	0.003	8.8									8.8
5	0.85	100.5	100.0	0.5	80	0.006	4.7									5.0
6	0.85	100.5	100.0	0.5	155	0.003	8.1									8.1
7	0.85	38.5	22.0	16.5	190	0.087	3.0									5.0
8	0.85	39.9	38.5	1.4	45	0.032	2.1	35.0	29.0	6.0	662.0	0.009	0.90	4.58	2.0	5.0
9	0.10	39.5	23.0	16.5	138	0.120	9.3									9.3
10	0.85	39.5	34.0	5.5	135	0.041	3.3									5.0
11	0.85	39.6	39.0	0.6	125	0.005	6.4									6.4
12	0.85	39.6	39.0	0.6	90	0.007	4.9									5.0
13	0.85	40.0	39.2	0.8	91	0.009	4.5									5.0
14	0.85	39.5	33.0	6.5	185	0.035	4.0									5.0
15	0.85	39.0	36.6	2.4	155	0.015	4.9									5.0
16	0.85	37.0	36.4	0.6	40	0.015	2.5									5.0
17	0.85	23.5	21.7	1.8	21	0.086	1.0									5.0

1. Stormwater runoff is considered to be in an Overland Flow condition until it reaches a drainage structure such as a drainage ditch, gutter, or storm drain. Time of concentration for Ubran Area Overland Flow is determined per the equation published on the "Urban Areas Overland Time of Flow Curves" located in Appendix I-E of the City of San Diego Drainage Design Manual. The time of concentration is determined using the "Nomigraph for Determination of Time of Concentration for Natural Watersheds" located in Appendix I-E in the City of San Diego Drainage Design Manual.

2. Time of concentration for stormwater runoff flowing in a drainage ditch, gutter or storm drain is determined per the "Gutter & Roadway Discharge-Velocity Chart" located in Appendix I-F of the City of San Diego Drainage Design Manual.

Alexan - Existing & Proposed Surface Runoff

Existing Site Conditions																
Basin	Basin Area	Basin Acreage (A)	Pervious Area	Impervious Area	% Pervious	% Impervious	[1]Runoff Coefficient	[2]Tc	[3]Intensity 2-year	Q_2	[3]Intensity 10-year	Q_{10}	[3]Intensity 50-year	Q_{50}	[3]Intensity 100-year	Q_{100}
	(sf)	(ac)	(sf)	(sf)	%	%	(C)	(min)	(in/hr)	(cfs)	(in/hr)	(cfs)	(in/hr)	(cfs)	(in/hr)	(cfs)
1	82,578	1.90	23,185	59,393	28%	72%	0.85	6.2	2.30	3.71	3.25	5.24	3.95	6.36	4.00	6.45
2	36,626	0.84	11,350	25,276	31%	69%	0.50	5.0	2.40	1.01	3.40	1.43	4.10	1.72	4.40	1.85
3	14,476	0.33	10,045	4,431	69%	31%	0.85	5.0	2.40	0.68	3.40	0.96	4.10	1.16	4.40	1.24
4	80,792	1.85	27,535	53,257	34%	66%	0.85	5.6	2.25	3.55	3.30	5.20	4.00	6.31	4.15	6.54
Total	214,472	4.92	72,115	142,357	34%	66%				8.94		12.83		15.55		16.08
Proposed Site Conditions																
Basin	Basin Area	Basin Acreage (A)	Pervious Area	Impervious Area	% Pervious	% Impervious	[1]Runoff Coefficient	[2]Tc	[3]Intensity 2-year	Q_2	[3]Intensity 10-year	Q_{10}	[3]Intensity 50-year	Q_{50}	[3]Intensity 100-year	Q_{100}
	(sf)	(ac)	(sf)	(sf)	%	%	(C)	(min)	(in/hr)	(cfs)	(in/hr)	(cfs)	(in/hr)	(cfs)	(in/hr)	(cfs)
1	13,794	0.32	0	13,794	0%	100%	0.85	5.0	2.40	0.65	3.40	0.92	4.10	1.10	4.40	1.18
2	7,014	0.16	0	7,014	0%	100%	0.85	5.0	2.40	0.33	3.40	0.47	4.10	0.56	4.40	0.60
3	26,337	0.60	0	26,337	0%	100%	0.85	6.8	2.20	1.13	3.20	1.64	3.90	2.00	4.20	2.16
4	13,260	0.30	0	13,260	0%	100%	0.85	8.8	2.00	0.52	3.00	0.78	3.70	0.96	4.00	1.03
5	10,488	0.24	0	10,448	0%	100%	0.85	5.0	2.40	0.49	3.40	0.70	4.10	0.84	4.40	0.90
6	20,176	0.46	0	20,176	0%	100%	0.85	8.1	2.10	0.83	3.10	1.22	3.80	1.50	4.10	1.61
7	8,353	0.19	1,915	6,438	23%	77%	0.85	5.0	2.40	0.39	3.40	0.55	4.10	0.67	4.40	0.72
8	34,071	0.78	13,115	20,956	38%	62%	0.85	5.0	2.40	1.60	3.40	2.26	4.10	2.73	4.40	2.93
9	27,006	0.62	1,558	25,448	6%	94%	0.10	9.3	1.95	0.12	2.95	0.18	3.50	0.22	3.75	0.23
10	10,842	0.25	1,534	9,308	14%	86%	0.85	5.0	2.40	0.51	3.40	0.72	4.10	0.87	4.40	0.93
11	6,761	0.16	735	6,026	11%	89%	0.85	6.4	2.20	0.29	3.20	0.42	3.90	0.51	4.20	0.55
12	7,667	0.18	0	7,667	0%	100%	0.85	5.0	2.40	0.36	3.40	0.51	4.10	0.61	4.40	0.66
13	6,415	0.15	1,354	5,061	21%	79%	0.85	5.0	2.40	0.30	3.40	0.43	4.10	0.51	4.40	0.55
14	14,236	0.33	13,545	691	95%	5%	0.10	5.0	2.40	0.08	3.40	0.11	4.10	0.13	4.40	0.14
15	5,338	0.12	5,338	0	100%	0%	0.10	5.0	2.40	0.03	3.40	0.04	4.10	0.05	4.40	0.05
16	1,259	0.03	510	749	41%	59%	0.85	5.0	2.40	0.06	3.40	0.08	4.10	0.10	4.40	0.11
17	1,455	0.03	777	678	53%	47%	0.85	5.0	2.40	0.07	3.40	0.10	4.10	0.12	4.40	0.12
Total	214,472	4.92	40,381	174,051	19%	81%				7.74		11.12		13.48		14.49
									Change in Site Surface Runoff (CFS)	**-1.20**		**-1.71**		**-2.07**		**-1.59**

1. Runoff coefficients have been been determined by Table 3-1 in the San Diego County Hydrology Manual

2. See Existing and Proposed Tc Table for time of concentration calculations.

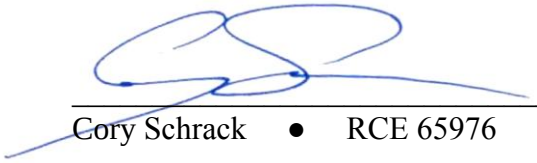
3. Intensity values have been calculated per the ""Intensity-Duration Design Chart" figure 3-2 of the San Diego County Hydrology Manual.

CONCLUSION:

The Outfall Summary shows that the proposed Alexan will not increase the peak runoff discharge in a potential 50-year or 100-year storm event. In a responsible effort to minimize the negative impact on the environment, it is evident that the Alexan project should not be seen as a detrimental impact to existing hydrologic basin and drainage system.

ENGINEER OF WORK:

This report was prepared under the supervision of Cory Schrack, PE, Project Manager for Nasland Engineering.



Cory Schrack ● RCE 65976 ● Expires 06-30-18

APPENDICES

APPENDIX A

Existing Hydrologic Conditions

HIGHWAY 163

BASIN 4 ULTIMATE DISCHAGE TO EXISTING INLET

BASIN 4 OUTFALL Q100 = 6.54 CFS

APPROXIMATE 100 YEAR FLOOD PLAIN LIMIT. SEE FEMA MAPS FOR ADDITIONAL INFORMATION

BASIN 4
80,770 SQ FT
1.85 ACRES

BASIN 2
36,626 SQ FT
0.84 ACRES

BASIN 3
14,476 SQ FT
0.33 ACRES

BASIN 1
82,578 SQ FT
1.90 ACRES

BASIN 1 OUTFALL Q100 = 6.45 CFS

BASIN 1 ULTIMATE DISCHAGE TO EXISTING 60" STORM DRAIN MAIN

BASIN 2 ULTIMATE DISCHAGE TO CAMINO DE LA REINA Q100 = 3.14 CFS

BASIN 3 ULTIMATE DISCHAGE TO EXISTING CURB INLET Q100 = 1.24 CFS

CAMINO DEL RIO

CAMINO DE LA REINA

(N 12°53'16" E 396.95')

(N16°17'30" E 183.87')

(N 27°15'41" E 115.29')

(N 41°08'34" E 178.50')

(D = 87°43'41" L = 260.23')

(D = 19°16'54" L = 77.40')

PARCEL MAP NO. 17795

LOTS 1 THRU 5 PARCEL MAP NO. 17795

GOLDEN VALLEY UNIT NO. 1

LOT 2 GOLDEN VALLEY WEST UNIT NO. 2 MAP NO. 6860

SCALE: 1" = 30'

LEGEND

- BASIN LIMITS
- BASIN DRAINAGE FLOW
- 100 YR FLOOD LIMIT

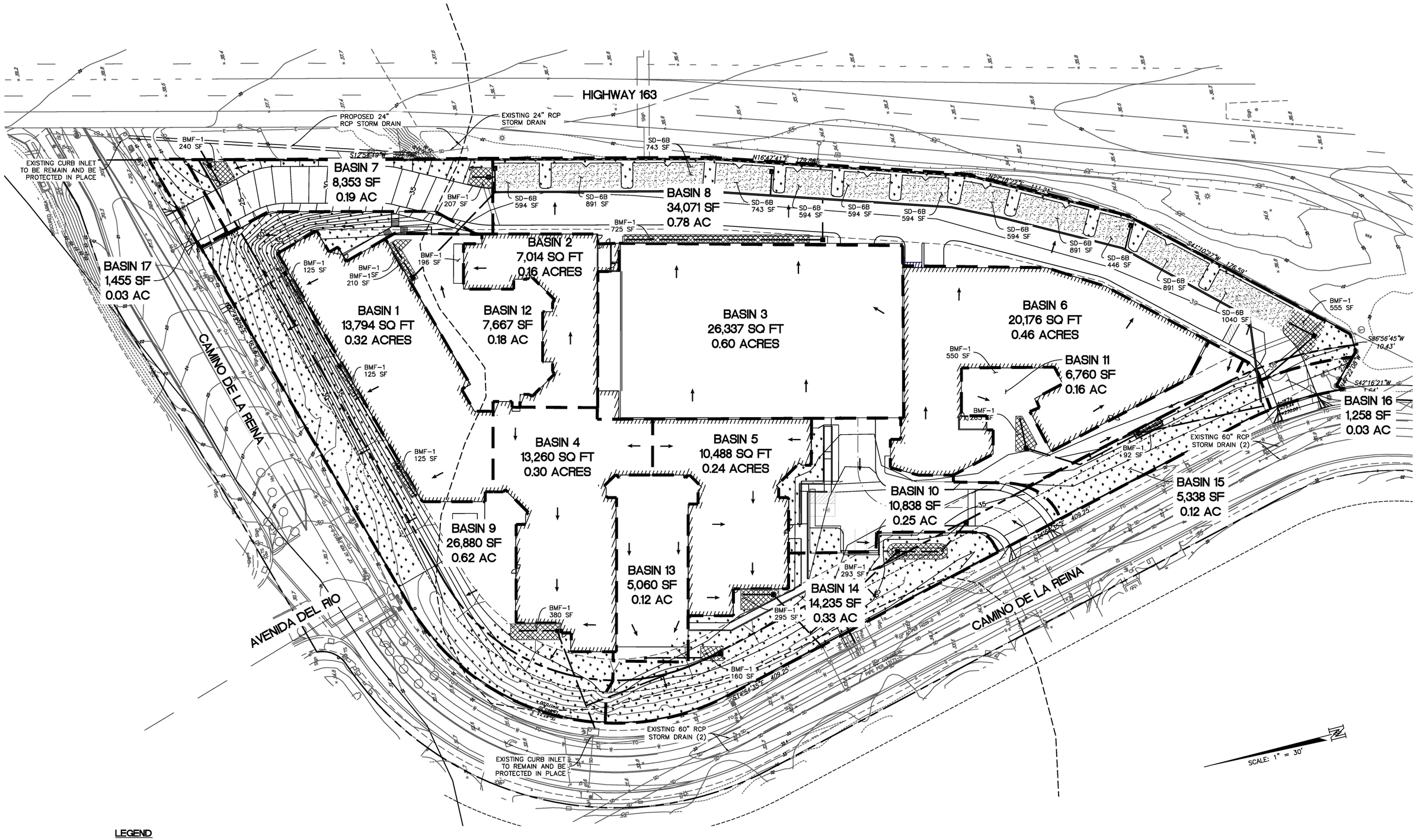
30 0 30 60 90 120

SCALE 1" = 30'

EXISTING HYDROLOGY

APPENDIX B

Proposed Hydrologic Conditions



LEGEND

- BASIN LIMITS
- BASIN DRAINAGE FLOW
- 100 YR FLOOD LIMIT
- LANDSCAPE AREA
- FLOW THROUGH PLANTER
- PERVIOUS PAVEMENT
- IMPERVIOUS AREA

30 0 30 60 90 120

SCALE 1" = 30'

PROPOSED HYDROLOGY

APPENDIX C

Hydrology References

TABLE 2

RUNOFF COEFFICIENTS (RATIONAL METHOD)

DEVELOPED AREAS (URBAN)

Land Use	Coefficient, C Soil Type (1)
Residential:	D
Single Family	.55
Multi-Units	.70
Mobile Homes	.65
Rural (lots greater than 1/2 acre)	.45
Commercial (2) 80% Impervious	.85
Industrial (2) 90% Impervious	.95

NOTES:

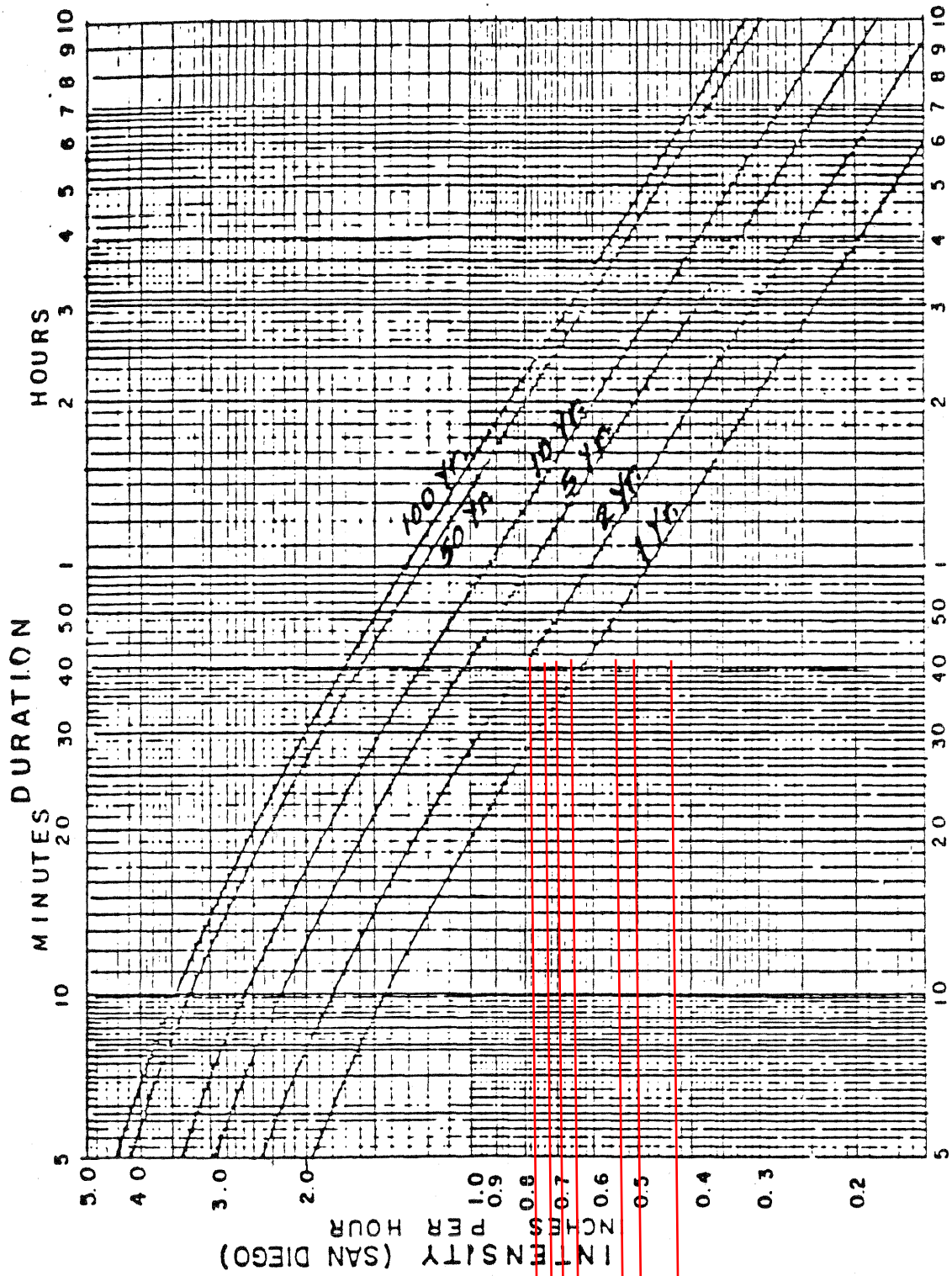
(1) Type D soil to be used for all areas.

(2) Where actual conditions deviate significantly from the tabulated imperviousness values of 80% or 90%, the values given for coefficient C, may be revised by multiplying 80% or 90% by the ratio of actual imperviousness to the tabulated imperviousness. However, in no case shall the final coefficient be less than 0.50. For example: Consider commercial property on D soil.

Actual imperviousness = 50%

Tabulated imperviousness = 80%

Revised C = $\frac{50}{80}$ x 0.85 = 0.53



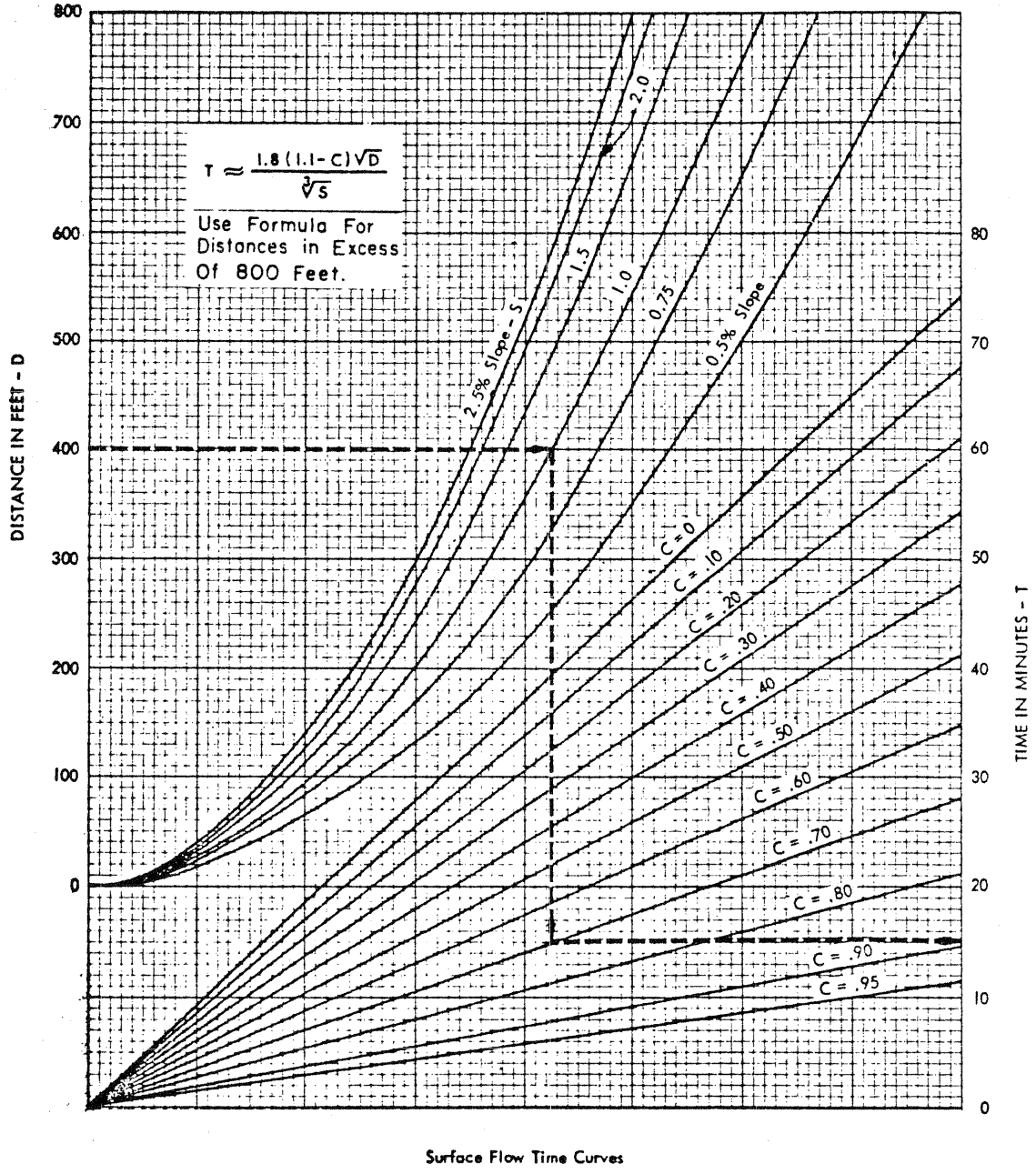
ELEV.	FACTOR
0–1500	1.00
1500–3000	1.25
3000–4000	1.42
4000–5000	1.60
5000–6000	1.70
DESERT	1.25

To obtain correct intensity, multiply intensity on chart by factor for design elevation.

RAINFALL INTENSITY - DURATION - FREQUENCY CURVES for COUNTY OF SAN DIEGO

APPENDIX I-I

URBAN AREAS OVERLAND TIME OF FLOW CURVES



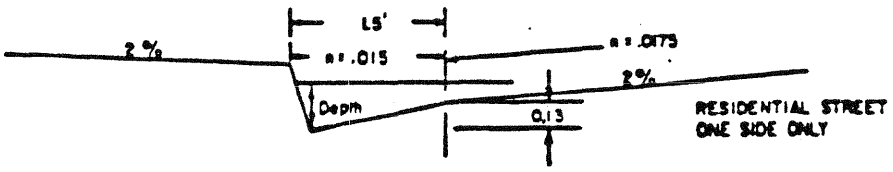
Surface Flow Time Curves

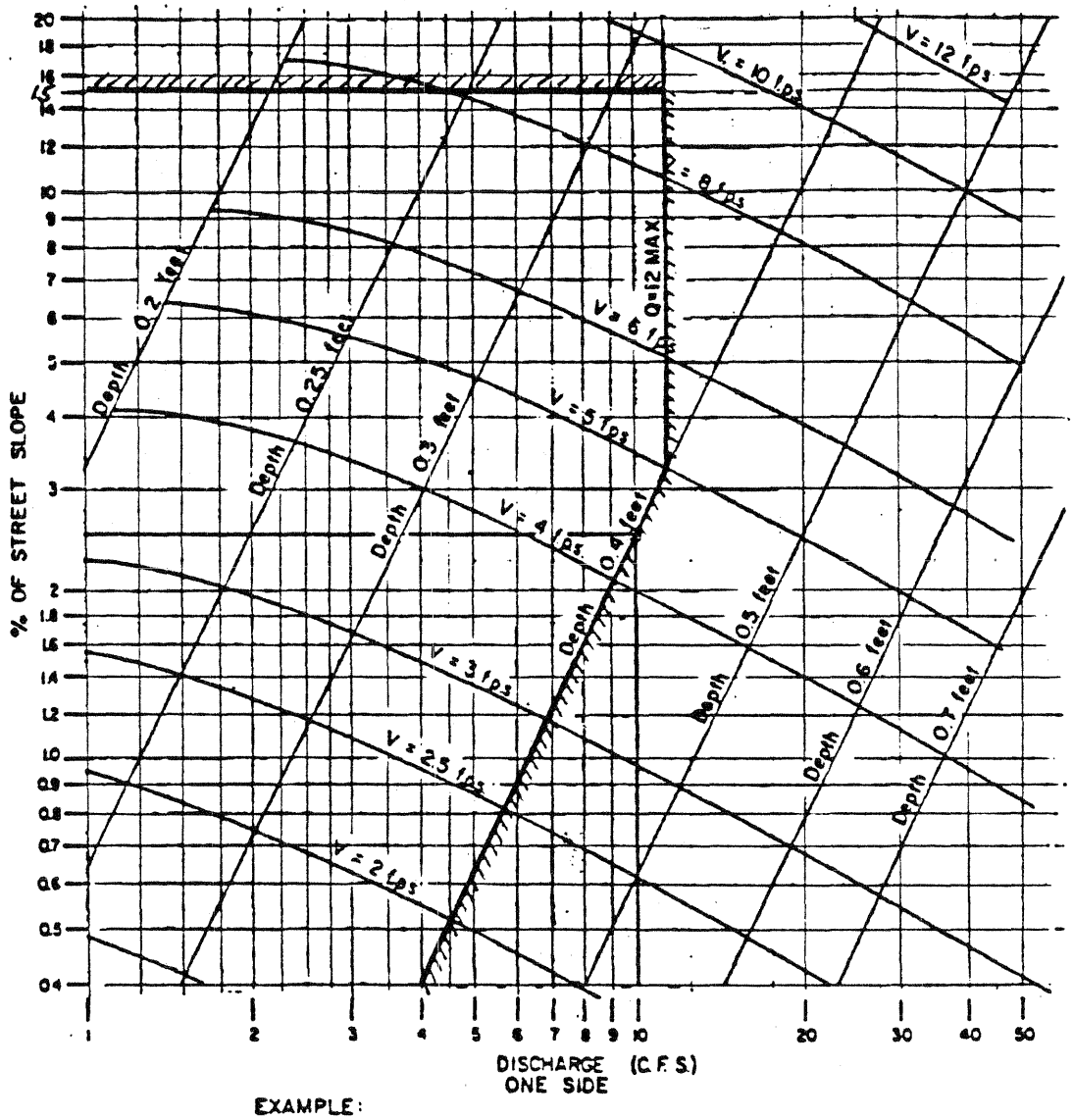
EXAMPLE:

GIVEN: LENGTH OF FLOW = 400 FT.
SLOPE = 1.0 %
COEFFICIENT OF RUNOFF C = .70

READ: OVERLAND FLOWTIME = 15 MINUTES

CHART I-104.12





EXAMPLE:

Given: Q = 10 S = 2.5%
Chart gives: Depth = 0.4, Velocity = 4.4 f.p.s.

REV.		CITY OF SAN DIEGO - DESIGN GUIDE	SHT. NO.
		GUTTER AND ROADWAY DISCHARGE-VELOCITY CHART	

KLR planning

P.O. Box 882676
San Diego, CA 92168-2676
karen@klrplanning.com
619.578.9505

July 26, 2016

Sarah Hudson
Demographer
San Diego Unified School District
4100 Normal Street
Annex 2, Room 101
San Diego, CA 92103-2682

SUBJECT: SCHOOL SERVICE TO A PROJECT PROPOSED IN THE MISSION VALLEY COMMUNITY OF THE CITY OF SAN DIEGO

Dear Ms. Hudson:

Trammell Crow (applicant) is proposing the *Alexan Fashion Valley* project on an approximate 4.92-acre site in the Mission Valley community. The project site is located at 123 Camino de la Reina and is currently developed with commercial office buildings, surface parking, and landscaping. Regional access to the site is provided by Interstate 8 (I-8), located immediately south of the project; State Route 163 (SR-163), located immediately east of the project site; and Interstate 805 (I-805), located approximately two miles east of the project site. Local access to the site is via Camino de la Reina.

The site is zoned MV-CR (Mission Valley – Commercial Retail), Development Intensity District (DID) G, and is designated Commercial Retail in the Mission Valley Community Plan. The project proposes to use the Multiple Use Option allowed by the Community Plan to redevelop the project site as a mixed-use project.

The proposed project would redevelop a 4.92-acre in-fill site within the Mission Valley Community Plan. The project would build 284 residential dwelling units, including 48 units with a home-business focus, constructed in "wrap design"; 8,470 square feet of commercial office use and 3,275 square feet of restaurant use. The structures would range in height from six stories to seven stories. A total of 406 parking spaces would be provided in a six-story, above ground parking structure, in addition to 65 surface parking spaces, for a total of 471 parking spaces.

The City of San Diego has requested that we provide information relative to the ability for existing utilities and public services to serve the project. This information will be used in the environmental documentation.

In order to adequately assess the project's potential impacts on school services, we would like to request the following information from your office:

1. Which schools would serve the project site? Please provide addresses, design capacity, and present and projected enrollments at these schools.
2. How many portable/relocatable classrooms are utilized at these schools? Are there any identified deficiencies in school services and facilities?
3. Has the District implemented reduced class sizes? If so, what has been the effect on the District in terms of providing classroom space, teachers, and other components necessary for the District to provide adequate educational facilities and service to the community?
4. According to the District's generation rates, how many students would the project generate? What are the generation rates?
5. Based on the District's calculation of the project's student generation, would the project result in a need for additional school facilities?
6. Please describe any developer fee assessment program, which has been implemented by the District. Who is responsible, how is the amount determined, and what is the payment method?
7. Please describe any agreements the District has with the City regarding use of school fields and game courts by the public?
8. Does the District anticipate or expect any long-term (10-year, 20-year, 30-year, or longer) impacts associated with school services due to anticipated development within Mission Valley? If so, please describe the nature of these impacts and how this project may contribute to those impacts. If impact would occur, what suggestions do you have to minimize their effects?

Please include any other information concerning your services and other issues that may be relevant to the proposed project. We would appreciate receiving this information prior to *August 10, 2016*. If you prefer to e-mail information, my e-mail address is brittany@klrplanning.com. If you need additional information about the project, or if there are fees associated with this request, please call me at 619.204.9757. Thank you for your assistance.

Sincerely,

KLR Planning

Brittany Erin Ruggels, Planner

San Diego Unified
SCHOOL DISTRICT

Office of Facility Planning and Design
Instructional Facilities Planning Department
Sarah Hudson/Demographer
TEL.: (619) 725-7369
FAX: (619) 725-7382
shudson@sandi.net

September 19, 2016

Ms. Brittany Erin Ruggels, MCP
KLR Planning
P.O. Box 882676
San Diego, CA 92168-2676

Submitted via email to: brittany@klrplanning.com

Subject: ALEXAN FASHION VALLEY PROJECT
4.92 acre site located at 123 Camino de la Reina, San Diego, CA 92108
284 residential units, 8,470 sf commercial office space, and 3,275 sf restaurant space

Dear Ms. Ruggels:

We are in receipt of your September 12, 2016 letter requesting school information for the above referenced redevelopment. In this letter we address your questions and provide requested information.

1. *The following schools serve the project site:*

School	Address	Estimated Capacity	2015-16 Enrollment	2016-17 Enrollment	2017-18 Projection
Carson Elementary	6905 Kramer St San Diego, CA 92111	616	462	418	Not yet available
Montgomery Middle	2470 Ulric St San Diego, CA 92111	979	439	450	Not yet available
Kearny High Complex	1954 Komet Way San Diego, CA 92111	1,662	1,478	1,480	Not yet available

Capacities are approximate and are calculated using current class size ratios; if class sizes ratios change, additional or less capacity may be available.

2. *How many portables/relocatable classrooms are utilized at these schools? Are there any identified deficiencies in school services and facilities?*

Carson Elementary has 2 portable and 32 permanent classrooms. Montgomery Middle has zero portable and 43 permanent classrooms. Kearny High Complex has 8 portable and 64 permanent classrooms. There are no identified deficiencies at these schools.

3. *Has the district implemented reduced class sizes?*

Not at the schools serving this development at this time.

4. *According to the district's generation rates, how many students would the project generate? What are the generation rates?*

Student generation rates vary based on the type of project, number of units, bedroom mix, neighborhood, and other factors. There are not district standard rates. The information available indicates this project will be **284 residential units**; information on the bedroom mix is not available at this time. Once this information is available, we can update generation rates and numbers.

In order to estimate the number of students generated by this project, we reference existing similar developments in the vicinity. Table 1 below lists nearby developments and the number of students generated by each. The Civita development is ongoing; many more units are expected to be built over the next several years, likely resulting in an ongoing increase in students attending district schools.

TABLE 1. Existing Similar Developments

Existing Similar Development	Address	Number of Units	2015-16 students (K-5, 6-8, 9-12, and K-12 total)	Student Generation Rate
Presidio View apartments	1440 Hotel Circle North San Diego, CA 92108	350	K-5: 5 6-8: 0 9-12: 2 **K-12: 7**	K-5: 0.014 6-8: 0 9-12: 0.006 **K-12: 0.020**
River Scene condos	510-580 Camino de la Reina San Diego, CA 92108	108	K-5: 5 6-8: 1 9-12: 2 **K-12: 8**	K-5: 0.046 6-8: 0.009 9-12: 0.019 **K-12: 0.074**
Rio Del Oro condos	640-680 Camino de la Reina San Diego, CA 92108	103	K-5: 4 6-8: 0 9-12: 1 **K-12: 5**	K-5: 0.039 6-8: 0 9-12: 0.010 **K-12: 0.049**
River Front apartments	710-790 Camino de la Reina San Diego, CA 92108	229	K-5: 18 6-8: 0 9-12: 5 **K-12: 23**	K-5: 0.079 6-8: 0 9-12: 0.022 **K-12: 0.101**
Mission Gate condos	910-978 Camino de la Reina San Diego, CA 92108	98	K-5: 6 6-8: 0 9-12: 2 **K-12: 8**	K-5: 0.061 6-8: 0 9-12: 0.020 **K-12: 0.081**
Civita apartments and single-family	North of Friars Road, west of 805 freeway, and east of Mission Center Road	Approximately 1,280; construction ongoing	K-5: 16 6-8: 2 9-12: 4 **K-12: 22**	K-5: 0.013 6-8: 0.002 9-12: 0.003 **K-12: 0.018**

In addition, in the past three years this office has been asked to prepare school information letters for three proposed projects in the immediate vicinity of Alexan Fashion Valley project.

- **Union Tribune mixed use project**, 200 multi-family units, located immediately west of Alexan Fashion Valley (October 2014 letter to BRG Consulting). The Union Tribune proposed project is served by the same schools as Alexan Fashion Valley: Carson, Montgomery, and Kearny.
- **Camino Del Rio mixed use project**, 291 residential units, located at 730 Camino Del Rio North, about 0.2 miles east of Alexan Fashion Valley (November 2013 letter to KLR Planning). The Camino Del Rio project is served by different elementary and middle schools, but the same high school (Kearny). **The Camino Del Rio Mixed Use project is currently under construction.**

- **Town & Country Hotel master plan project**, 840 multi-family residential units, located 0.1 mile west of Alexan Fashion Valley (September 2015 letter to AECOM). The Town & Country project is served by the same schools as Alexan Fashion Valley: Carson, Montgomery, and Kearny.

Estimated student generation rates for the three nearby proposed developments are shown in Table 2.

TABLE 2. Nearby Proposed Developments

Nearby Proposed Development	Address	Number of Units	Estimated Student Generation Rates provided in letters	Estimated number of students
Union Tribune mixed use project (pending)	350 Camino de la Reina San Diego, CA 92108	200	K-5: 0.023-0.045 6-8: 0.004-0.007 9-12: 0.011-0.022 **K-12: 0.037-0.073**	K-5: 5-9 6-8: 1-2 9-12: 2-4 **K-12: 8-15**
Camino Del Rio mixed use project (under construction)	730 Camino Del Rio North San Diego, CA 92108	291	K-5: 0.027-0.054 6-8: 0.007-0.014 9-12: 0.008-0.016 **K-12: 0.042-0.084**	K-5: 8-16 6-8: 2-4 9-12: 3-5 **K-12: 13-25**
Town & Country Hotel master plan project (pending)	500 Hotel Circle North San Diego, CA 92108	840	K-5: 0.026-0.052 6-8: 0.004-0.008 9-12: 0.011-0.021 **K-12: 0.040-0.080**	K-5: 22-44 6-8: 3-6 9-12: 9-18 **K-12: 34-68**

Based on the above information in Tables 1 and 2, proposed student generation rates for the project that is the subject of this letter, Alexan Fashion Valley Project, are shown in Table 3. The student generation rates are the average from the existing developments and proposed developments, with a low and high range.

TABLE 3. Estimated Generation Rates for Alexan Fashion Valley Project

Proposed Development	Address	Number of Units	Student Generation Rate	Estimated number of students
Alexan Fashion Valley	123 Camino de la Reina San Diego, CA 92108	284	K-5: 0.036-0.073 6-8: 0.003-0.006 9-12: 0.012-0.024 **K-12: 0.051-0.103**	K-5: 10-20 6-8: 1-2 9-12: 3-7 **K-12: 14-29**

5. *Based on the district's calculation of the project's student generation, would the project result in a need for additional school facilities?*

Based on the above information, the number of students generated by the proposed project is not specifically expected to be significant and would not be expected to have an adverse impact upon district schools. **However, in combination with ongoing development at Civita, the Union Tribune mixed use project, the Camino Del Rio mixed use project, and the Town and Country Hotel master plan project, the cumulative potential increase in students could impact district schools to the point of reaching capacity. This scenario would require additional planning for sufficient facilities.**

6. *Please describe any developer fee assessment program which has been implemented by the district. Who is responsible, how is the amount determined, and what is the payment method?*

For information on developer fees please contact Frank Webb at (619) 725-7529 or developer-fees@sandi.net.

7. *Please describe any agreements the district has with the city regarding use of school fields and game courts by the public.*

   For information on Joint Use please contact Debbie Beaver at (619) 725-7281 or dbeaver@sandi.net.

8. *Does the district anticipate or expect any long-term (10-year, 20-year, 30-year or longer) impacts associated with school services due to anticipated development within Mission Valley? If so, please describe the nature of these impacts and how this project may contribute to those impacts.*

   As noted in the response to question 5, the Alexan Fashion Valley project in particular is not expected to generate a large number of students. However, in combination with the other ongoing and projected developments, the cumulative potential increase in students could impact district schools to the point of reaching capacity. This scenario would require additional planning for sufficient facilities.

   Please keep us apprised of revisions to the development plan as new information may result in changes to the information stated in this letter. Thank you.

Sincerely,

Sarah Hudson
Demographer

THE CITY OF SAN DIEGO

M E M O R A N D U M

DATE: **January 27, 2017**

TO: **Jeffrey Szymanski, Senior Planner, Development Services Department**

FROM: **Kenneth Impellizeri, Acting Lieutenant, Operational Support**

SUBJECT: **Alexan Fashion Valley (Project 474586)**

Listed below are the Police Department's findings for the Alexan Fashion Valley Project.

Area Station

Police service for the Alexan Fashion Valley Project will be provided by officers from Western Division located at 5215 Gaines Street in the City of San Diego. The service area for the project is Beat 623. Western Division provides police services to the following communities: Linda Vista, Morena, Mission Valley West, University Heights, North Park, Burlingame, Hillcrest, Midtown, Mission Hills, Midway District, Loma Portal, Point Loma Heights, Ocean Beach, Sunset Cliffs, Roseville/Fleet Ridge, La Playa and Wooded Area.

The San Diego Police Department has mutual aid agreements with all other Law Enforcement Agencies in San Diego County.

Current Staffing / Officer Availability

Western Division is currently staffed with 108 sworn personnel and two civilian employees. Officers work ten-hour shifts. Staffing is comprised of three shifts which operate from 6:00 a.m. - 4:00 p.m. (First Watch), 2:00 p.m. - Midnight (Second Watch) and from 9:00 p.m. - 7:00 a.m. (Third Watch). Western Division currently deploys a minimum of 15 patrol officers on First Watch, 18 patrol officers on Second Watch, and 11 patrol officers on Third Watch.

The San Diego Police Department does not staff individual stations based on ratios of sworn officers per 1,000 population ratio. The goal citywide is to maintain 1.48 officers per 1,000 population ratio.

Current Response Times

The 2016 average response times for Beat 623 were 6.6 minutes for emergency calls, 13.4 minutes for priority one calls, 37.3 minutes for priority two calls, 108.8 minutes for priority three calls and 1169.5 minutes for priority four calls.

The San Diego Police Department's Citywide response time goals are 7 minutes for emergency calls, 14 minutes for priority one calls, 27 minutes for priority two calls, 80 minutes for priority three calls and 90 minutes for priority four calls. The citywide average response times, for the same period, were 7 minutes for emergency calls, 16 minutes for priority one calls, 42.5 minutes for priority two calls, 100.9 minutes for priority three calls and 150.6 minutes for priority four calls during that same time period. The Department strives to maintain the response time goals as one of various other measures used to assess the level of service to the community.

Potential Mitigation Measures to Response Time

The Department is currently staffing 1.3 sworn officers per 1,000 residents based on 2016 estimate residential population of 1,391,676. The ratio is calculated to take into account all support and investigative positions within the Department. This ratio does not include the significant population increase resulting from citizens who commute to work from outside of the city of San Diego or those visiting.

The Alexan Fashion Valley Update

There are no current plans for additional police sub-stations in the immediate area. Police response times in this community will continue to increase with the build-out of community plans and the increase of traffic generated by new growth. A Crime Prevention through Environmental Design (CPTED) review is recommended by the Department to address general security concerns.

Kenneth Impellizeri
Acting Police Lieutenant

cc: Charles Kaye, Acting Assistant Chief, Neighborhood Policing
Thomas Underwood, Acting Captain, Operational Support
Paul Connelly, Acting Captain, Western Division

SDGE
A Sempra Energy utility

FILE NO. PLA 580

July 12, 2017

Karen L Ruggels
KLR Planning
P.O. Box 882676
San Diego, CA 92168

Dear Ms. Ruggels:

Subject: **Alexan Fashion Valley Project**

In accordance with our "RULES FOR THE SALE OF ELECTRIC ENERGY" and "RULES FOR THE SALE OF GAS", filed with and approved by the California Public Utilities Commission, gas and electric facilities can be made available to 123 Camino De La Reina, San Diego, CA 92108.

If purchaser is to pay any cost for the installation and/or extension of utility service, the costs will be calculated in conformance with our extension and service rules.

Evidence of financial arrangements for the installation of gas and electricity can be obtained from the developer and/or owner based on correspondence from SDG&E on this project.

Our ability to serve future projects in our service territory will depend on the supply of fuel and other essential materials available to us and on our obtaining government authorization to construct the facilities required.

For additional general information, please visit our website at http://sdge.com/index.html.

Sincerely,

Brian Lawless

Brian Lawless
Sr. Customer Project Planner
Telephone: (858) 636-6856