

SYPHON RESERVOIR IMPROVEMENT PROJECT

Final Environmental Impact Report
State Clearinghouse #2019080009

Prepared for
Irvine Ranch Water District

July 2021



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State Clearinghouse #2019080009

Prepared for
Irvine Ranch Water District

July 2021

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2019080009

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CHAPTER 8

Introduction

This Final Environmental Impact Report (EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) as amended (Public Resources Code Section 21000 et seq.) and CEQA Guidelines (California Administrative Code Section 15000 et seq.). In addition, this Final EIR has been prepared in accordance with the CEQA-Plus requirements of the U.S. Environmental Protection Agency, to fulfill the requirement of potential federal funding partners to comply with the National Environmental Policy Act (NEPA). This Final EIR incorporates, by reference, the Draft EIR prepared by the Irvine Ranch Water District (IRWD) for the Syphon Reservoir Improvement Project (proposed project) (State Clearinghouse No. 2019080009) as it was originally published. Revisions to the Draft EIR are provided in Chapters 10 and 11 of this Final EIR.

8.1 CEQA Requirements

According to the CEQA Guidelines Section 15132, the Final EIR shall consist of the following:

- The Draft EIR or a revision of that draft;
- Comments and recommendations received on the Draft EIR either verbatim or in summary;
- A list of persons, organizations, and public agencies commenting on the Draft EIR;
- The responses of the lead agency to significant environmental points raised in the review and consultation process; and
- Any other information added by the lead agency.

This Final EIR document for the Syphon Reservoir Improvement Project presents:

- The written comments received on the Draft EIR and the list of commenting parties (Chapter 9) along with a response to each comment (Chapter 10); and
- Revisions made to the Draft EIR in response to comments received or otherwise added by IRWD (Chapter 11).

8.2 Public Participation Process

Pursuant to CEQA Guidelines Section 15082, the lead agency is required to send a Notice of Preparation (NOP) stating that an EIR will be prepared to the State Office of Planning and Research (OPR), Responsible and Trustee agencies, and federal agencies involved in funding or approving the project. The NOP must provide sufficient information in order for responsible

agencies to make a meaningful response. At a minimum, the NOP must include a description of the project, location of the project, and probable environmental effects of the project (CEQA Guidelines Section 15082(a)(1)). Within 30 days after receiving the NOP, Responsible and Trustee agencies and OPR shall provide the lead agency with specific detail about the scope and content of the environmental information related to that agency's area of statutory responsibility that should be included in this Draft EIR (CEQA Guidelines Section 15082(b)).

On August 2, 2019, IRWD published the NOP of an EIR for a 45-day review period and circulated it to OPR and local, state, and federal agencies, including Responsible and Trustee agencies, as well as organizations and persons who expressed interest in the proposed project. The NOP comment period extended through September 16, 2019. The NOP provided a general description of the proposed project, a description of the proposed project areas, and an overview of environmental topics that will be evaluated within the EIR. The NOP was made available on the IRWD website. A copy of the NOP and comment letters are included in the Draft EIR in Appendix A. Thirty-five comment letters were received in response to the NOP. As a result of specific public comments received, IRWD engaged the services of HDR to evaluate alternative project scenarios and associated life cycle costs in meeting IRWD's goals for future recycled water storage and distribution management. HDR's evaluation is documented in a Technical Memorandum titled *Technical Memorandum: Evaluation of Syphon Reservoir Expansion in Response to EIR Notice of Preparation Comments* referenced in this EIR as "(HDR, 2020)." A copy of HDR's Technical Memorandum is available from IRWD's District Secretary.

On August 21, 2019, in accordance with CEQA Guidelines Section 15082, IRWD held a public scoping meeting to describe the proposed project, to identify the environmental topics that would be addressed, and to describe the CEQA process for preparation of the EIR. To notify the public of the Scoping Meeting, IRWD published the legal notification in the *Orange County Register* in five languages, mailed a notification to area residents and posted information about the meeting on IRWD's website. IRWD provided an opportunity for attendees to submit written comments on the scope of the environmental evaluation; the written comments received at the scoping meeting are included in the Draft EIR in Appendix A. Verbal comments raised during the scoping meeting included concerns over public safety in a potential inundation zone, property values and flood insurance costs for residences in a potential inundation zone, an increase in traffic, length of the new dam, and impacts to daily operations and safety at nearby schools. These verbal comments were summarized and are included in the scoping comments set forth in the Draft EIR in Appendix A.

Once the Draft EIR was complete, a Notice of Completion (NOC) was submitted to the OPR as required by CEQA (CEQA Guidelines Section 15085), along with copies of the Draft EIR for distribution to public agencies via the State Clearinghouse (CEQA Guidelines Section 15087(f)). At the same time, a Notice of Availability (NOA) of the Draft EIR was posted with the Orange County Clerk (CEQA Guidelines Section 15087(d)). The NOA also was published in the *Orange County Register* (per CEQA Guidelines Section 15087(d)).

The NOA and Draft EIR were available at the following IRWD project website address: <http://www.syphonreservoir.com>. Printed copies of the Draft EIR were available for public review at the following public library and the IRWD office as permitted if/when the restrictions

due to facility closures and the need for social distancing required in response to the COVID-19 pandemic were lifted by the appropriate governmental agencies: Heritage Park Library, 14361 Yale Ave, Irvine CA 92604; and IRWD, 15600 Sand Canyon Avenue, Irvine, California 92618.

The Draft EIR was circulated for a 60-day public review period from March 19, 2021 to May 18, 2021. During this public review period, IRWD held one virtual public meeting via Zoom and telephonically, in accordance with State directives regarding public meetings held during the COVID-19 pandemic, to receive public comments on the environmental analysis in the Draft EIR. The virtual public meeting included a brief presentation providing an overview of the proposed project and findings of the Draft EIR. The virtual meeting was held at 6:00 P.M. on April 21, 2021. Responses to all comments received on the Draft EIR, either in writing or verbally during the public meeting, are addressed in this document, which together with the Draft EIR and changes and corrections to the Draft EIR constitute the Final EIR.

During the public review period, public outreach and notification efforts were conducted to raise awareness about the availability and contents of the Draft EIR and to encourage public participation. Outreach efforts included the following:

- Information was included in an IRWD newsletter that was mailed or emailed to all 128,334 IRWD customer households;
- A Syphon Reservoir Improvement Project overview video, offered in English, Korean and Chinese, was posted to YouTube and targeted to IRWD customers and surrounding residents (the videos received more than 41,000 views in a four-week timeframe);
- Individual postcard mailers were sent to more than 2,000 households;
- More than 100 email notifications were sent to elected officials and stakeholder organizations, including the offer for a briefing;
- Briefings with stakeholders;
- Coordination with the City of Irvine to notice the public meeting and comment period; and
- Social media and website notifications.

Public outreach materials were also developed in English, Chinese and Korean to enhance public awareness. Materials included the following:

- Project Overview brochure;
- Frequently Asked Questions handout;
- Project Overview fact sheet;
- Draft EIR Summary brochure;
- Dam Safety fact sheet; and
- Dam Safety videos.

8.3 Final EIR Certification and Approval

As the lead agency, IRWD has the option to make the Final EIR available for public review prior to considering the project for approval (CEQA Guidelines Section 15089(b)). The Final EIR must be available to commenting agencies at least 10 days prior to consideration for approval.

Prior to considering the proposed project for approval, the IRWD Board of Directors will review and consider the information presented in the Final EIR and may certify that the Final EIR has been adequately prepared in accordance with CEQA. Once the Final EIR is certified, IRWD's Board may proceed to consider project approval (CEQA Guidelines Section 15090, Section 15096(f)). Prior to approving the proposed project, IRWD must make written findings and adopt statements of overriding considerations for each unmitigated significant environmental effect identified in the Final EIR in accordance with Section 15091 of the CEQA Guidelines. There were no unmitigated significant environmental effects identified in the Draft EIR.

8.4 Notice of Determination

Pursuant to Section 15094 of the CEQA Guidelines, IRWD will file a Notice of Determination (NOD) with the Orange County Clerk and State Office of Planning and Research within five working days of certification of the EIR and project approval.

8.5 Mitigation Monitoring and Reporting Program

CEQA requires lead agencies to “adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects” (CEQA Guidelines Section 15097). The mitigation measures and project features described in this Final EIR will be included in the Mitigation Monitoring and Reporting Program (MMRP) for the proposed project and implemented by IRWD. Upon approval of the project, the IRWD Board of Directors will adopt the MMRP.

CHAPTER 9

Public Comments

This chapter contains the comments received during the public review period for the Syphon Reservoir Improvement Project Draft EIR. The commenting persons and/or agencies are listed below in **Table 9-1**. The comments have been bracketed and numbered, and responses to comments are provided in Chapter 10. The responses are labeled to correspond to the comment letters and numbers that appear in the margins of the comment letters.

TABLE 9-1
AGENCIES, ORGANIZATIONS, AND PERSONS THAT PROVIDED PUBLIC COMMENTS

Letter	Commenting Person/Agency	Date of Comment
1	Phong Huynh	March 26, 2021
2	Orange County Fire Authority	April 6, 2021
3	Scott Turner	April 18, 2021
4	City of Irvine	May 14, 2021
5	City of Newport Beach	May 18, 2021
6	California Department of Transportation	May 18, 2021
7	California Department of Fish and Wildlife	May 18, 2021
8	Foothill/ Eastern Transportation Corridor Agency	May 18, 2021
9	Irvine Unified School District	May 18, 2021
10	Orange County Public Works	May 18, 2021
11	Peer Swan	May 18, 2021
12	Public Meeting Comment Transcript	April 21, 2021

Reply all Delete Junk Block ...

Fw: [EXTERNAL] Syphon Reservoir Improvement Project

S

SyphonEIR

Wed 3/31/2021 9:47 PM

To: Jo Ann Corey



Comments sent to Syphon EIR email.

From: phong huynh <phhuynh@gmail.com>
Sent: Friday, March 26, 2021 10:05 PM
To: SyphonEIR <SyphonEIR@irwd.com>
Subject: [EXTERNAL] Syphon Reservoir Improvement Project

Caution: This email originated from outside IRWD. Do not click links or open attachments unless you know the sender

Will the city consider paying all deductible IF there is a disaster or damage to local housing caused by the Reservoir?

1-1

Will the city work with insurance companies to ensure no rates increase due to increased risk of flooding?

1-2

Will the city consider trails and/or stocking the Reservoir with fish for local fishing and community enjoyment?

1-3

Will there be increased noise and traffic during construction?

1-4

Thank you,
Local Irvine Resident

Reply | Forward

4/14/2021

Mail - SyphonEIR - Outlook

Reply all Delete Junk Block ...

Re: Draft EIR for Syphon Reservoir Upgrade

S

SyphonEIR

Tue 4/13/2021 2:46 PM

To: Distaso, Robert <RobertDistaso@ocfa.org>

Cc: Rivers, Tamy <TamyRivers@ocfa.org>

Like Reply Reply all Forward ...

This email serves as receipt of your agency comment towards this CEQA document. Thank you.

From: Distaso, Robert <RobertDistaso@ocfa.org>

Sent: Tuesday, April 6, 2021 4:14 PM

To: SyphonEIR <SyphonEIR@irwd.com>

Cc: Rivers, Tamy <TamyRivers@ocfa.org>; Distaso, Robert <RobertDistaso@ocfa.org>

Subject: [EXTERNAL] Draft EIR for Syphon Reservoir Upgrade

Caution: This email originated from outside IRWD. Do not click links or open attachments unless you know the sender

Jo Ann Corey,

Thank you for the opportunity to review the Draft EIR for the Syphon project. We have no comments on the project report.

2-1

Robert



[ocfa.org]

Robert J Distaso PE

Fire Safety Engineer

Orange County Fire Authority

1 Fire Authority Rd., Irvine CA 92602

Office Phone 714-573-6253

Cell Phone 714-745-3422

Reply | Reply all | Forward

From: [Scott Turner](#)
Sent: Sunday, April 18, 2021 6:01 PM
To: [Sarah Spano](#)
Subject: Siphon Reservoir improvement

Hello,

How will the recycled water be treated before storage in the Siphon Reservoir? What treatment facility will the water be treated at? I 3-1

Thank you,
Scott - Irvine resident



May 14, 2021

SyphonEIR@irwd.com

Attn: Ms. Jo Ann Corey
Environmental Compliance Analyst
Irvine Ranch Water District Water Resources & Policy Department
P.O. Box 57000
Irvine, California 92619-7000

Subject: Syphon Reservoir Improvement Project Draft Environmental Impact Report (DEIR) (State Clearinghouse No. 2019080009) located in the County of Orange.

Dear Ms. Corey:

Staff is in receipt of a Notice of Availability of a DEIR for the Syphon Reservoir Improvement Project located northeast of Portola Parkway between Bee Canyon Access Road and SR-133 in the County of Orange. The surrounding land uses to the project site include Crean Lutheran High School Athletics Complex and residential homes in the City of Irvine to the south, Rattlesnake Reservoir to the west, the I-133 to the east, and open space to the north.

The proposed project would replace the existing engineered dam with a new engineered dam, increasing the existing 59-foot dam height to 136 feet and increasing the elevation of the dam crest from the existing 388 feet above mean sea level (amsl) to 466 feet amsl. A spillway would be included with the new dam to protect the reservoir from overtopping. The replacement dam would result in an increase in the reservoir's maximum water surface elevation from the existing 376 feet amsl to 456 feet amsl and increase the reservoir's capacity from approximately the existing 500 acre feet to 5,000 acre feet.

4-1

Ms. Jo Ann Corey
May 14, 2021
Page 2

Staff reviewed the Draft EIR and enclosed comments. If you have any questions, please contact Justin Equina, Associate Planner, at 949-724-6364 or at jequina@cityofirvine.org

↑
4-1

Sincerely,



Justin Equina
Associate Planner

cc: Pete Carmichael, Director of Community Development
Mark Steuer, Director of Public Works and Transportation
Tim Gehrich, Deputy Director of Community Development
Jaimee Bourgeois, Deputy Director of Transportation
Kerwin Lau, Manager of Development Services
Sun-Sun Murillo, Project Development Administrator
Lisa Thai, Supervising Transportation Analyst
Marika Poynter, Principal Planner
Steve Sherwood, Assistant City Engineer
Thomas Lo, Water Quality Administrator
Andrew Pham, Senior Civil Engineer
Stan Ng, Associate Engineer



**ENCLOSURE
CITY OF IRVINE COMMENTS**

GENERAL COMMENTS

- 1. Provide a Construction Management Plan and coordinate closely with City staff on the implementation of the plan. | 4-2

CH.2 – PROJECT DESCRIPTION

- 2. Confirm whether the proposed trail will be open to the public. Additionally, identify the maintenance responsibility of the trail. | 4-3

- 3. Include language that IRWD will coordinate with the City during the design and development of the proposed walking trail. | 4-4

- 4. On page ES-3, Objectives, clarify and elaborate on the third bullet point objective “Reduce sewage diversions to OCSD.” | 4-5

Is Michelson WRP at operational capacity for sewage treatment because there are no opportunities to pump the tertiary treated effluent to Syphon Reservoir and Rattlesnake Reservoir? Please clarify

- 5. On page 2-25, Table 2-1, Discretionary Permits or Approvals Potentially Required, please note that IRWD may be required by the County of Orange (since the project site is within County of Orange jurisdiction) to have an approved Water Quality Management Plan (WQMP). | 4-6

The WQMP depends on whether the project adds or replaces 5,000 square feet or more of impervious surface due to the construction of maintenance access roads or other impervious surface areas pertinent to upgrade or new facilities.

- 6. In Section 2.5, include a robust public outreach plan to ensure adjacent residents’ and property owners are well informed of the project as well as of the pre-construction and construction schedule and activities. | 4-7

3.1 - AESTHETICS

- 7. In Figure 3.1-2, include viewpoints of the Stonegate neighborhood and analyze the visual quality, affected views and exposure quality, and visual sensitivity from this viewpoint. | 4-8

Ms. Jo Ann Corey
 May 14, 2021
 Page 4

While the document evaluates viewpoints by Stonegate Park and Stonegate Elementary School, there are existing neighborhoods directly north of the park and school, which are closer to the project site, which should be analyzed.

↑
 4-8
 cont.

- 8. On page 3.1-23, Mitigation Measure AES-1, incorporate landscaping and vegetation, similar to the existing vegetation surrounding the project site, to mitigate the appearance of increasing the dam height from 59-feet to 136-feet. Specify the plant and vegetation type that will be used for the project.

↑
 4-9

Currently, it only states that the buildings, structures, and retaining walls shall be designed to have earth tone color palettes that blend with the surrounding landscape and vegetation.

↑

CH. 3.9 – HYDROLOGY AND WATER

- 9. The EIR states that the cost of flood insurance will not increase for property owners adjacent to the reservoir. Flood insurance is dependent on the Flood Maps produced by FEMA. Confirm whether this has been verified with FEMA.

↑
 4-10

- 10. On page 3.9-3 to 4, identify the location of the 7-ft high by 10-foot wide box culvert located north of Portola Parkway, as depicted in Figure 3.9-2.

↑
 4-11

- 11. On page 3.9-13, page 3.9.2, under Groundwater Dewatering Permit for Santa Ana Region, please note that the DEIR-referenced Order No. R8-2007-041 was rescinded and is now superseded by General Waste Discharge Requirements Order No. R8-2019-0061 (Santa Ana RWQCB adoption was December 6, 2019).

↑
 4-12

- 12. On page 3.9-15 - 3.9-16, Orange County Municipal Storm Water Permit (MS4), the DEIR makes references to the applicability of the County of Orange Municipal Separate Storm Sewer System (MS4) permit to the proposed project as a municipal operation.

↑
 4-13

The Syphon project is not a municipal project. Municipal operations in context of the MS4 permit refer to the operations of municipal permittees such as the County or cities. The potential impact from the Syphon project is from stormwater or recycled water discharging to the MS4 system operated by the City of Irvine and to County of Orange flood control drainage facilities located further downstream.

Any stormwater runoff from outside of the reservoir catchment area (as described on P.3.9-3) from surface runoff presumably discharging via bench drains southwest of the dam or any recycled water discharge from the reservoir in the event of an emergency requiring release from the 48-inch IRWD pipe (as described on P. ES-11) would then flow directly to the City of Irvine’s MS4 not that of the

↑
 ↓

Ms. Jo Ann Corey
 May 14, 2021
 Page 5

County of Orange. The MS4 system is comprised of an interconnected storm drain network to include roadway gutter, catch basins, and below ground storm drains.

↑ 4-13
 cont.

13. On page 3.9-31, in the second paragraph of the Water Quality Control Plan or Sustainable Groundwater Management Plan, Construction, correct the reference of the storm drains at Portola Parkway.

4-14

Any storm drains systems located at Portola Parkway would be operated by the City of Irvine not Orange County Flood Control District.

CH. 3.10 – NOISE

14. On page 3.10-19, in Table 3.10-8, arrange the sensitive receptors according to distance (in ascending order) for readability purposes.

4-15

15. On page 3.10-19 and 20, include mitigation measures to show how the project will attenuate noise to an acceptable level that is consistent with the City’s Noise Ordinance.

4-16

In Table 3.10-8, all the proposed construction activities exceed the noise levels for each sensitive receptor. Additionally, the EIR states construction noise levels are estimated to reach a maximum of 89 dBA Leq at the nearest sensitive receptor. A dBA of 89 exceeds the City’s Noise Ordinance standards for Noise Zone 1. The maximum allowed is 70 dBA for only one minute between the hours of 7:00 am to 10:00 pm.

16. On page 3.10-21, this section claims “the City has not established numerical thresholds for construction noise... the proposed project construction activities would comply with the hours allowed by the City... thus, a significant noise impact would not occur during project construction and construction noise impacts would be less than significant.”

4-17

This is an incorrect statement as the City’s Noise Ordinance provides established noise thresholds for any noise measurement, which includes construction activities. Further, all the construction-related noise exceed the noise thresholds for Noise Zone 1 in the City’s Noise Ordinance; therefore, significant noise impacts would occur.

Correct the statement to say that the City establishes numerical thresholds for construction noise. Additionally, include mitigation measures to attenuate the noise to a less than significant impact.

Ms. Jo Ann Corey
 May 14, 2021
 Page 6

- 17. On page 3.10-21, identify the estimated length of time for each construction related noise level in order to determine if it complies with the City’s Noise Ordinance. If it exceeds the City’s noise standards, propose mitigation measures to attenuate the noise levels.

4-18

Table 3.10-9 states the construction noise levels generated by truck trips range from 57.5 to 72.7 dBA. A dBA over 70 exceeds the noise levels in Noise Zone 1 in the City’s Noise Ordinance. Further, anything between 55-70 dBA is only permissible in Noise Zone 1 depending on length of time.

- 18. On page 3.10-26 and 3.10-27, Section 3.10-4 - Cumulative Impacts, analyze the potential noise impacts of all three projects (IRWD Syphon Reservoir, Gateway Community Park and Truck Route Roadway Rehabilitation (CIP 311902)) should construction activities occur simultaneously. Additionally, include mitigation measures addressing how IRWD would attenuate the noise levels if it exceeds the City’s noise standards.

4-19

CH. 3.12.2 TRANSPORTATION

- 19. In Section 3.12.2, Regulatory Framework - City of Irvine, it states there are potential full lane closures. Add language to include “Full lane closures shall be avoided if there is a feasible partial lane closure alternative.”

4-20

- 20. Add language to state that if any repaving is required for Sand Canyon Ave and Portola Pkwy, fiber-reinforced AC shall be used for repaving.

4-21

- 21. In Mitigation Measure TRA-1, include language stating that during the span of the project, any proposed non-standard working hours of traffic control staging and/or permanent closures shall require prior review and approval by City staff.

4-22

APPENDIX E: TRAFFIC STUDY

- 22. On page 3. Study Area Boundary, revise Route 1A and Route 1B to show “north on Sand Canyon Avenue” rather than “south on Sand Canyon Avenue”, similar to how it is referenced on page 21.

4-23

- 23. On page 20, Construction Period Trip Generation, the last paragraph appears to be from previous edits.

4-24

Delete this paragraph if it is no longer applicable. Otherwise, clarify the number of daily trips from which 30 daily trips were subtracted from to derive 154 daily trips.

- 24. On page 20, add discussion on the construction timeline.

4-25

Ms. Jo Ann Corey
 May 14, 2021
 Page 7

- 25. In the Site Access Analysis, provide a site plan showing the location of the gate with dimensions from the intersection of Sand Canyon/Portola to demonstrate how the project meets the intent of TDP-14.

4-26
- 26. Note that the City is planning pavement rehabilitation work on Sand Canyon at Portola. Coordinate with City staff to ensure that both agencies are aware of the timing of projects to avoid overlaps between City and IRWD construction projects. Please contact Allison Tran, Associate Engineer, at (949) 724-7547 or atran@cityofirvine.org for more information

4-27
- 27. On pages 59 and 60, incorporate the recommendations from pages 54 and 55. This includes improvements to facilitate bicycle circulation, such as: “BIKES MAY USE FULL LANE” signage, shared arrow advance warning signage, and other suggested methods that provide advance warning to both vehicular drivers and bicyclists. Please coordinate these additional improvements with City Staff.

4-28
- 28. EIR page 3.12-3: Revise Portola Parkway and Irvine Blvd to describe directions of the sidewalks to be on the east and westbound side since Sand Canyon, perpendicular to these two, is also described as north and southbound direction.

4-29
- 29. EIR page 3.12-3: The last sentence in the Portola Parkway paragraph should be revised to state “the only sidewalk on the northbound side is between Sand Canyon and the Crean Lutheran School Sports Complex.”

4-30
- 30. The EIR incorrectly discusses on Pages 3.12-12 and 4-12 that trucks will utilize Portola between Jeffrey and Sand Canyon, Sand Canyon between Irvine Blvd and Portola and Irvine between Jeffrey and Sand Canyon. These segments were not part of the traffic analysis. Revise the EIR so that it is consistent with the traffic study analysis of the truck routes.

4-31
- 31. Figure 2 - Figure 2 shows a proposed walking trail as part of the project. Will this be open to the public and identify the maintenance responsibility of this trail.

4-32



CITY OF NEWPORT BEACH

100 Civic Center Drive
Newport Beach, California 92660
949 644-3001 | 949 644-3020 FAX
newportbeachca.gov

May 18, 2021

Irvine Ranch Water District
Paul Cook, General Manager
15600 Sand Canyon Ave.
Irvine, CA 92618-3100

Dear Mr. Cook:

**RE: City of Newport Beach Support for the Syphon Recycled Water Reservoir Project;
Comments on Draft Environmental Impact Report**

The City of Newport Beach is in support of Irvine Ranch Water District's efforts to increase its recycled water reservoir storage capacity. Recycled water provides many benefits to our community and to the region. It preserves our drinking water supplies and reduces the amount of treated sewage from being discharged into the watershed.

The City and the District have had a long-standing agreement regarding the protection of water quality in the San Diego Creek Watershed. One of the goals and understandings of the agreement was that IRWD would continue to work towards increasing its reservoir storage capacity. Increasing the storage capacity reduces the risk of an emergency situation where IRWD must divert recycled water into the San Diego Creek Watershed (and into Newport Harbor). The improvement and expansion of Syphon Recycled Water Reservoir has been an important project to alleviate this risk and something the City has supported for some time.

The improvement and expansion of the Syphon Recycled Water Reservoir is now undergoing a public review of its Draft Environmental Impact Report. The key features of the project are to replace the dam to the latest safety standards and to raise its height. This will increase the recycled water storage capacity from 500 acre-feet to 5,000 acre-feet. The City of Newport Beach supports the proposed Syphon Reservoir Improvement Project and supports the Draft Environmental Impact Report.

Thank you for the opportunity to comment on the plan and report. If you have any questions, please feel free to contact me at (949) 644-3001 or Mark Vukojevic, Utilities Director at (949) 644-3011.

Sincerely,


Grace Leung, City Manager
City of Newport Beach

5-1

DEPARTMENT OF TRANSPORTATION

DISTRICT 12
 1750 EAST 4TH STREET, SUITE 100
 SANTA ANA, CA 92705
 PHONE (657) 328-6000
 FAX (657) 328-6522
 TTY 711
www.dot.ca.gov/caltrans-near-me/district12



Making Conservation
 a California Way of Life.

May 18, 2021

Ms. Jo Ann Corey
 Irvine Ranch Water District
 15600 Sand Canyon Ave
 Irvine, CA 92618

File: IGR/CEQA
 IGR#: 2019-01613
 SCH#: 2019080009
 SR 133 PM 12.906
 SR 241 PM 27.496

Dear Ms. Corey,

Thank you for including the California Department of Transportation (Caltrans) in the review of the Draft Environmental Impact Report (DEIR) for the Syphon Reservoir Improvement Project in the Irvine Ranch Water District. The mission of Caltrans is to provide a safe and reliable transportation network that serves all people and respects the environment.

The proposed Syphon Reservoir Improvement Project (proposed project) would increase the capacity of the existing recycled water reservoir from approximately 500 acre-feet (AF) to 5,000 AF. The proposed project would replace the existing engineered dam with a new engineered dam, increasing the existing 59-foot dam height to 136 feet and increasing the elevation of the dam crest from the existing 388 feet above mean sea level (amsl) to 466 feet amsl. A spillway would be included with the new dam to protect the reservoir from overtopping. As part of the new design, the engineered embankment dam would include a seepage control drainage system and a circulation system for the reservoir. The existing strainer and disinfection facilities would be demolished, reconstructed, and expanded at the toe of the new dam to provide filtration and disinfection. Additional project features include new onsite access and maintenance roads; wetland and riparian mitigation areas; and a potential recreational facility.

The proposed project would be built within the Irvine Ranch Water District (IRWD) service area at the site of the existing Syphon Reservoir, which is currently a recycled water storage reservoir. Syphon Reservoir is located in the

6-1

"Provide a safe and reliable transportation network that serves all people and respects the environment"

Irvine Ranch Water District
 May 18, 2021
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unincorporated County of Orange, California, on the northeast side of Portola Parkway between Bee Canyon Access Road, State Route 133 (SR 133), and State Route (SR 241). The majority of the property bounded by these thoroughfares is owned by IRWD, however, both SR 133 and SR 241 are owned and operated by Caltrans. Caltrans is a responsible agency and has the following comments:

↑
 6-1
 cont.

Advanced Planning

1. Please coordinate any construction work that may affect traffic flow on SR-133 with Caltrans Project Management.

6-2

Transportation Planning

2. Figure 3.12-1 Map legend – please add freeway/highway (I-5, SR-261, SR-241) leg.
3. Consider including a discussion on general transportation safety improvements, especially for vulnerable road users such as bicyclists and pedestrians.

6-3

6-4

Permits:

4. Please coordinate with Caltrans to meet the requirements for any work within or near State Right-of-Way. A fee may apply. If the cost of work within the State right of way is below one Million Dollars, the Encroachment Permit process will be handled by our Permits Branch; otherwise the permit should be authorized through the Caltrans's Project Development Department. When applying for Encroachment Permit, please incorporate all Environmental Documentation, SWPPP/ WPCP, Hydraulic Calculations, R/W certification and all relevant design details including design exception approvals. For specific details for Encroachment Permits procedure, please refer to Caltrans' Encroachment Permits Manual. The latest edition of the Manual is available on the web site:
<http://www.dot.ca.gov/hq/traffops/developserv/permits/>

6-5

"Provide a safe and reliable transportation network that serves all people and respects the environment"

Irvine Ranch Water District
May 18, 2021
Page 3

Please continue to coordinate with Caltrans for any future developments that could potentially impact State transportation facilities. If you have any questions, please do not hesitate to contact Julie Lugaro at: Julie.lugaro@dot.ca.gov.

6-6

Sincerely,



Scott Shelley
Branch Chief, Regional-IGR-Transit Planning
District 12



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE

South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director



May 18, 2021

Jo Ann Corey
Environmental Compliance Specialist
Irvine Ranch Water District – Water Resources and Policy Department
15600 Sand Canyon Avenue
Irvine, CA 92618
Corey@irwd.com

Subject: Comments on the Draft Environmental Impact Report for the Syphon Reservoir Improvement Project (SCH #2019080009)

Dear Ms. Corey:

The California Department of Fish and Wildlife (CDFW) has reviewed the above-referenced Draft Environmental Impact Report (DEIR) for the Syphon Reservoir Improvement Project (Project), located in the County of Orange, California. The following statements and comments have been prepared pursuant to CDFW’s authority as a Trustee Agency with jurisdiction over natural resources affected by the project (California Environmental Quality Act [CEQA] Guidelines § 15386) and pursuant to our authority as a Responsible Agency under CEQA Guidelines section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (Fish and Game Code § 2050 *et seq.*) and Fish and Game Code section 1600 *et seq.* CDFW also administers the Natural Community Conservation Planning (NCCP) program. The Irvine Ranch Water District (IRWD) participates in the NCCP program through its role as a Participating Landowner under the County of Orange Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP).

The proposed Project would be built within the IRWD service area at the site of the existing Syphon Reservoir, located on the northeast side of Portola Parkway between Bee Canyon Access Road and State Route 133. The project would expand the reservoir’s recycled water storage capacity from its current 500 acre-feet capacity to approximately 5,000 acre-feet by replacing the current 59-foot-high earthen engineered dam with a 136-foot-high dam of similar construction. Project implementation will result in permanent impacts to 115.56 acres of natural habitat and temporary impacts to 2.27 acres of natural habitat as described in Table 3.3-3 of the DEIR. This includes permanent impacts to 12.28 acres of riparian and freshwater marsh habitat, up to 57.33 acres of upland communities characterized by a dominance or sub-dominance of coastal sage scrub (CSS) or that include CSS understory, 32.02 acres of habitat dominated by non-native vegetation, and 13.93 acres of open water. The majority of these impacts will occur within the habitat Reserve (Reserve) established by the NCCP/HCP and the area is additionally protected by use restrictions described in the January 4, 2010, Grant Deed that originally conveyed the property to IRWD (IRWD Doc. D0204). Exact acreages of in-Reserve impacts and Grant Deed impacts are not provided in the DEIR. Sensitive plants and wildlife species that were detected during surveys or have a moderate to high potential to occur on site and may be impacted by the Project include: Catalina mariposa lily (*Calochortus catalinae*), the state and federally endangered least Bell’s vireo (*Vireo bellii pusillus*), the federally threatened coastal California gnatcatcher (*Poliophtila californica californica*; gnatcatcher), the California fully

7-1

Conserving California’s Wildlife Since 1870

Jo Ann Corey
Irvine Ranch Water District
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Page 2 of 4

protected white-tailed kite (*Elanus leucurus*) and American peregrine falcon (*Falco peregrinus anatum*), and seven California Species of Special Concern (SSC) including yellow warbler (*Setophaga petechia*), yellow-breasted chat (*Icteria virens*), grasshopper sparrow (*Ammodramus savannarum*), Vaux's swift (*Chaetura vauxi*), northern harrier (*Circus hudsonius*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), and San Diego desert woodrat (*Neotoma lepida intermedia*).

7-1
cont.

CDFW submitted comments on the Notice of Preparation (NOP) of a DEIR for the Project in a letter dated August 30, 2019. Comments included: 1) a reference to the ongoing discussions between IRWD, CDFW, and the U.S. Fish and Wildlife Service to develop an agreeable mitigation strategy to offset the anticipated Project impacts to biological resources; 2) a recommendation to limit any potential recreational use of the site to hiking and nature viewing due to the sensitive nature of the biological resources on site; and 3) a recommendation to provide written notification to CDFW for any impacts to rivers, streams, or lakes and to include adequate avoidance, mitigation, and monitoring commitments for impacts to riparian habitats in the final mitigation package for the Project. At the time of the NOP comment submittal, it was anticipated that our agencies would be able to develop an agreeable mitigation strategy in time for inclusion in the DEIR. While we continue to have ongoing meetings and discussions, an agreeable strategy has not been finalized at this time. The recommendations regarding recreational use have been incorporated into the DEIR.

7-2

As described in the 2019 comment letter and the DEIR, we anticipate the final mitigation strategy to ultimately include a combination of use of in-Reserve take credits that were allocated to IRWD as part of their contributions to the development of the NCCP/HCP as a Participating Landowner, off-site acquisition and permanent conservation and management, as well as possible on site or off site restoration with long term funding for management, and restoration of any temporary impacts. CDFW recognizes the progress that IRWD has made in addressing our concerns with the Project's impacts to habitat that was previously used as mitigation for the Transportation Corridor Agencies (TCA) Eastern Transportation Corridor Project and to sensitive species on-site. We appreciate the continued coordination and anticipate reaching an agreeable holistic solution to mitigate Project impacts that includes off-site acquisition and conservation and will ensure the Project remains consistent with the requirements of the NCCP/HCP. Once finalized, we recommend that the details of the final mitigation package, including those components that will minimize and mitigate impacts to any river, stream, or lake, be included in the Final EIR for public review before final certification and Project approval.

In addition to the above recommendation and our continued participation in discussions to develop an agreeable mitigation strategy for Project impacts, CDFW offers the following comments for IRWD's consideration in Project planning and to help avoid and minimize potential project impacts to biological resources.

1. Two species that have been previously observed using the site, American peregrine falcon and white-tailed kite, are listed as fully protected species under Fish and Game Code Section 3511. Given the status of both species, we recommend designing and implementing the Project to ensure complete avoidance if either is detected on site. While it is unlikely either species will utilize the site for nesting, if any nesting individuals are detected during pre-construction surveys or at any time during Project implementation, we recommend immediately notifying CDFW to determine whether additional avoidance measures, beyond what is required in Mitigation Measure BIO-3, are necessary and appropriate. This may include but are not limited to, expansion of the

7-3

Jo Ann Corey
 Irvine Ranch Water District
 May 18, 2021
 Page 3 of 4

- avoidance buffer beyond 500 feet and/or the rescheduling of construction activities to prioritize low disturbance activities during the nesting period.
2. Section 2.5 of the DEIR indicates most construction activities would be limited to 7:00 a.m. to 7:00 p.m. Monday through Friday, and 9:00 am to 6:00 p.m. on Saturday; however, construction outside of these hours may occur if a waiver from the appropriate entity can be secured. Nighttime construction activity requires the use of high intensity lighting, can produce noise levels well beyond the ambient conditions, requires additional human presence on site, and may lead to a decrease in the effectiveness of minimization and avoidance measures due to an inability to detect and avoid wildlife. These disturbances can cause short-term and long-term responses to wildlife including a disruption in foraging behavior and increased predation risk (Beier 2006), disorientation and altered reproduction (Longcore and Rich 2004), spatial displacement and avoidance (George and Crooks 2006, Patten and Burger 2018), and mortality via roadkill and vehicle collisions (Beier 2006). In addition, when the disturbance activity has been ongoing throughout the day and continues into the night, the opportunity for any form of temporal avoidance of the disturbance by wildlife is reduced, increasing the likelihood of a negative response. Given the sensitive nature of the biological resources on site, including those species that are not covered under the NCCP/HCP (e.g., yellow warbler, yellow-breasted chat, grasshopper sparrow, white tailed kite, and Vaux’s swift), and the potential negative impacts that nighttime construction activities may have on these species, we recommend adhering to the proposed construction hours and avoiding any late night or overnight activities (i.e., activities between the hours of 07:00 p.m. to 07:00 a.m.) Activities conducted during the twilight hours immediately before or after sunset should also be limited to those activities that produce minimal noise (i.e., less than 60 decibels) and that do not require heavy reliance on artificial lighting to minimize the potential for impacts during these hours.
 3. As referenced above, it is CDFW’s understanding that the final agreed upon mitigation strategy for the Project may include on-site or off-site restoration and long-term management. In consideration of the Project site’s burn history and the historic observations of cactus wren prior to the 2007 Santiago Fire (DEIR Section 3.3.1 pp. 3.3-22), should on-site restoration be included, we recommend the final restoration plan include targeted augmentation of the few remaining cactus patches left on site as well as additional creation of cacti-dominated vegetation. The restoration, enhancement, and establishment of suitable nesting habitat continues to be recognized as a priority management action for the recovery of cactus wren within the NCCP/HCP Plan Area (Leatherman 2018) and such efforts may encourage future recolonization of the site by the species. In addition to targeted restoration of cactus scrub vegetation, CDFW recommends any understory seeding of forb species within any on-site restoration include Catalina mariposa lily, when appropriate based on soil types. Although impacts to the species are covered under the NCCP/HCP, its inclusion in a restoration seed mix requires minimal additional effort and has the potential to expand the existing population of a species with a California Rare Plant Rank of 4.2 and one that is considered “fairly threatened in California” as determined by the California Native Plant Society.
 4. Section 2.4.1 of the DEIR indicates the downstream slope of the earthen dam will consist of grass to provide for erosion protection during rainfall events. If seeding of the downstream slope is necessary to achieve the desired vegetative cover for erosion protection purposes, then CDFW recommends IRWD consider use of a native forb and

↑ 7-3
cont.

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7-5

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Jo Ann Corey
 Irvine Ranch Water District
 May 18, 2021
 Page 4 of 4

grassland seed mix to provide foraging benefits to sensitive species that utilize the conserved open space surrounding the Project area. Future operations and maintenance of the dam would be covered under the Infrastructure Policies (NCCP/HCP Section 5.9) and would not require further mitigation beyond reseeding of temporary impact areas, as would be necessary absent native vegetation. The use of a native grassland and forb mix is also not expected to increase the potential for nesting by listed species as compared to an annual grassland dominated landscape, nor is it likely to increase the risk of nesting by grassland specialists since many of these species readily nest in habitat dominated by annual grasslands.

7-6
 cont.

We appreciate the opportunity to comment on the DEIR and look forward to the development of an agreeable mitigation plan that appropriately addresses project impacts and ensures project consistency with the NCCP/HCP. If you have any questions or comments regarding this letter, please contact Kyle Rice at (858) 467-4250, or Kyle.Rice@wildlife.ca.gov.

7-7

Sincerely,

DocuSigned by:

David Mayer

D700B4520375406...

David A. Mayer
 Environmental Program Manager I
 South Coast Region

cc: CDFW

- Karen Drewe, San Diego – Karen.Drewe@wildlife.ca.gov
- Emily Gray, San Diego Emily.Gray@wildlife.ca.gov
- Susan Howell, San Diego Susan.Howell@wildlife.ca.gov
- Jennifer Ludovissy, San Diego – Jennifer.Ludovissy@wildlife.ca.gov
- CEQA Program Coordinator, Sacramento – CEQACommentLetters@wildlife.ca.gov
- State Clearinghouse, Sacramento – State.Clearinghouse@opr.ca.gov
- Jonathan Snyder, U.S. Fish and Wildlife Service Jonathan_d_Snyder@fws.gov

References

Beier, P. 2006. Effects of artificial night lighting on terrestrial mammals. Ecological consequences of artificial night lighting, 19-42.

George, S.L. and K.R. Crooks. 2006. Recreation and Large Mammal Activity in an Urban Nature Reserve. Biological Conservation 133, pp. 107-117.

(Leatherman) Leatherman Bioconsulting Inc. 2018. Cactus Wren Habitat Assessment and Focused Surveys County of Orange Central and Coastal NCCP/HCP Subregions. December 2018. Prepared for Natural Communities Coalition in Association with The Nature Conservancy.

Longcore, T., and C. Rich. 2004. Ecological light pollution. Frontiers in Ecology and the Environment, 2(4), 191-198.

Patten, M. A., and J.C. Burger. 2018. Reserves as double-edged sword: Avoidance behavior in an urban-adjacent wildland. Biological Conservation, 218, 233-239.

San Joaquin Hills
Transportation
Corridor Agency
Chair: Patricia Kelley
Mission Viejo



Foothill/Eastern
Transportation
Corridor Agency
Chair: Peggy Huang
Yorba Linda

May 18, 2021

Via Email: SyphonEIR@irwd.com

Irvine Ranch Water District
Water Resources & Policy Development Department
15600 Sand Canyon Avenue
P.O. Box 57000
Irvine, California 92619-7000
Attention: Jo Ann Corey, Environmental Compliance Analyst

Re: Syphon Reservoir Improvement Project Draft Environmental Impact Report (SCH No. 2019080009)

Dear Ms. Corey:

In a letter dated September 12, 2019 to the Irvine Ranch Water District ("IRWD") in response to the Notice of Preparation ("NOP") of a Draft Environmental Impact Report ("DEIR") for the Syphon Reservoir Improvement Project ("Project"), the Foothill/Eastern Transportation Corridor Agency ("F/ETCA" or "Agency") acknowledged the NOP and requested that the Agency receive all future communication for the Project ("TCA Letter"). The Agency has reviewed the DEIR and has the following comments:

8-1

1. Executive Summary, Table ES-1 (Summary of Impact and Mitigation Measures), Page ES-17

Mitigation Measure BIO-1, as related to Impact 3.3-1, listed on Table ES-1 states as follows: "IRWD has been engaged in close coordination with the Wildlife Agencies (i.e., USFWS and CDFW) since 2018 to develop a multi-faceted mitigation strategy to address impacts to California gnatcatcher, as well as to address the additional mitigation the agencies mandate to compensate for displacement of habitat and land previously set aside for mitigation and subject to the restrictions and requirements imposed under the Mitigation Grant Deed, of which USFWS is a third party beneficiary."

8-2

However, as previously noted in the TCA Letter, pursuant to Section 6 of that certain Grant Deed from The Irvine Water Company LLC to IRWD, dated January 4, 2010 and recorded in the Official Records of Orange County on January 4, 2010 as Instrument No. 2010000000111 ("IRWD Grant Deed"), the F/ETCA is an intended third-party beneficiary of various covenant, conditions and restrictions ("CC&Rs"), to which the Project site is subject to. Please correct the statement above and any other references to indicate that F/ETCA is also a third-party beneficiary of the "Mitigation Grant Deed". The F/ETCA also requests that the Agency be included in all such ongoing coordination efforts.

125 Pacifica, Irvine, CA 92618 • 949.754.3400

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2. Chapter 2, Page 2-25, Table 2-1 Titled Discretionary Permits or Approvals Potentially Required

As noted in the TCA Letter and above, the Project site is subject to the CC&Rs. Pursuant to Section 7.2 of the IRWD Grant Deed, no termination, amendment, modification or extension of any provision of the CC&Rs can be made without the prior written consent of the F/ETCA. Please correct “Transportation Corridor Agency” to refer to the “Foothill/Eastern” Transportation Corridor Agency” under the agency column of Table 2-1. The F/ETCA is looking forward to receiving IRWD’s proposal regarding the amendment of the IRWD Grant Deed.

8-3

3. Chapter 3, Section 3.3.1 (“Environmental Setting”), Page 3.3-3

Pursuant to that certain Grant Deed from the F/ETCA to The Irvine Company LLC, dated January 4, 2010 and recorded in the Official Records of Orange County on January 4, 2010 as Instrument No. 2010000000110 (“F/ETCA Grant Deed”), the F/ETCA reserved a permanent easement on and across the Project site together with the right of ingress and egress over the property for purposes of trapping, monitoring and related activities. As generally noted in Section 3.3 titled Biological Resources and described in the F/ETCA Grant Deed, the F/ETCA runs a cowbird trapping program. These activities are performed in compliance with multiple Biological Opinions on the effects of the Eastern Transportation Corridor referred to in further detail in the F/ETCA Grant Deed. For the F/ETCA to comply with its ongoing permitting obligations, the Agency will continue to require access to the property at issue.

8-4

4. Chapter 3, Mitigation Measures, Page 3.3-45, Paragraph BIO-1

Please see comment 1 above.

8-5

5. Chapter 3, Mitigation Measures, Pages 3.3-45 and 3.3-46, Paragraphs BIO-2(a) and BIO-3(a)

The F/ETCA recommends that the breeding season listed in BIO-2a (February 15 - July 15) be updated to match the nesting season listed in BIO-3a (February 15 - August 31, or January 15 - July 31 for raptors) and capture a more conservative range for the nesting season.

8-6

6. Appendix C- Biological Resources Technical Report, Section 1.2 Page 5

In Section 1.2, the IRWD again recognizes that it must obtain approval from the F/ETCA and the United States Fish and Wildlife Service (“USFWS”) and provides: “[s]ince 2018, IRWD has been engaged with USFWS and CDFW regarding appropriate options that will satisfy these agencies with regard to mitigation for upland habitat in consideration of the Grant Deed provisions as well as the relevant NCCP/HCP requirements.” (emphasis added) While it seems that the IRWD has

8-7



already approached the USFWS and been engaged with the USFWS regarding appropriate options that would satisfy the agency, the IRWD has yet to begin discussions with the F/ETCA to ensure that the Agency's rights are preserved and required activities can continue.

↑ 8-7
cont.

We request IRWD to continue to provide the Agency with (i) notice of any public meetings or proposed actions by IRWD regarding the Project or the CC&Rs, (ii) notice and copies of any draft amendment or modification of the IRWD Grant Deed or the CC&Rs, and (iii) copies of any draft or final environmental documents related to the Project site.

↑ 8-8

Thank you for the opportunity to comment on the DEIR. If you have any questions or require further information, please do not hesitate to contact me at 949.560-0943 or via email (dspeirs@thetollroads.com) or Virginia Gomez at 949.754-3487 or via email (vgomez@thetollroads.com).

Sincerely,

David H. Speirs

Digitally signed by David H. Speirs
Date: 2021.05.18 11:38:11 -07'00'

David Speirs
Chief Engineer and Environmental Planning Officer



IRVINE UNIFIED SCHOOL DISTRICT

Facilities Planning and Construction Services Department
2015 Roosevelt, Irvine, California 92620 • 949/936-8730 • FAX 949/936-5329 • www.iusd.org

May 18, 2021

via email: syphonEIR@IRWD.com

Jo Ann Corey, Environmental Compliance Analyst
Irvine Ranch Water District
Water Resources & Policy Department
15600 Sand Canyon Avenue
P.O. Box 57000
Irvine, CA 92619-7000

Subject: Irvine Unified School District Comments on Draft Environmental Impact Report (DEIR) for Syphon Reservoir Improvement Project (State Clearinghouse No. 2019080009) **“REVISED”**

Dear Ms. Corey:

The Irvine Unified School District (District) has reviewed the document referenced in our letter dated May 10, 2021 and obtained clarification on our previous comments. As a result, the District has no further comments on the DEIR for the Syphon Reservoir Improvement Project.

9-1

Please accept this **“REVISED”** letter as the District’s official response; this supersedes the District’s letter dated May 10, 2021.

If you have any questions, please contact me at (949) 396-5305 or kelvinokino@iusd.org.

Sincerely,

Kelvin K. Okino
Executive Director, Facilities Planning and Construction
Irvine Unified School District

cc:

- Mr. John Fogarty, Irvine Unified School District
- Mr. Stephen Bayne, Irvine Unified School District
- Mr. Jesse Barron, Irvine Unified School District
- File

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May 18, 2021

NCL-21-0003

Jo Ann Corey
Irvine Ranch Water District
Water Resources & Policy Department
15600 Sand Canyon Avenue
Irvine, CA 92618

Subject: Syphon Reservoir Improvement Project

Dear Jo Ann Corey,

Thank you for the opportunity to comment on the Notice of Availability of an Environmental Impact Report for the Syphon Reservoir Improvement Project. The County of Orange offers the following comment for your consideration.

10-1

Flood Programs/Floodplain Management & Hydrology Section

1. Per Section Water Quality Control Plan or Sustainable Groundwater Management Plan (p.3-9-31), the document states “Additionally, and as previously discussed, the waste discharge requirements of the NPDES dewatering discharge permit, as well as conditions for discharge into the existing Portola Parkway storm drain, managed by Orange County Flood Control District.” Please revise this sentence since the Portola Parkway storm drain is owned and maintained by the City of Irvine.

10-2

If you have any questions regarding these comments, please contact Alison Camara at (714) 647-3961 or Steven Giang at (714) 667-8816 in OC Development Services.

10-3

Sincerely,

Richard Vuong

Richard Vuong, Manager, Planning Division
OC Public Works Service Area/OC Development Services
601 North Ross Street
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County Administration South
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cc: Alison Camara, OC Flood Programs



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OCPublicWorks.com

To: Jo Ann Corey

SyphonEIR@IRWD.com

COMMENTS RE: Syphon Reservoir Improvement Project Draft EIR dated March 19, 2021

The Syphon Reservoir Improvement Project Draft EIR dated March 19, 2021 is deficient in the following manner:

1. **The EIR fails to establish a need for the expanded reservoir.** A Comment letter submitted at the time of the preparation of the EIR requested that the EIR address this need by projecting the recycled water reservoir needs using 50 gallons per person inside consumption out over a 20 year period. The 50 Gallons per day amount is now being proposed by DWR to go to 45 gallons per day per person and the Freeman proposed legislation is calling for 40 gallons per person per day. The calculations should now address the lower of those numbers. Reduced in house consumption reduces the generation of recycled water and the need to build added winter storage.

In a similar manner the EIR fails to address projected demands and timing of these needs on the recycled system over at least a 20 year period in using dry, normal and wet weather in each case. This will determine the amount of recycled water needed in each type of year.

By comparing the supply against the likely demand it will be possible to project the amount of shortages of supply and storage. The EIR should also analyze the alternatives that would reduce any surplus supplies of recycled water such as increasing the supplies to the OCWD Green Acres project; by sinking water either by injection or surface percolation into the Irvine Sub Groundwater Basin; or by releasing excess supplies into the Santa Ana River

11-1

11-2

during storm events by using the Green Acres pipeline. These alternatives and others appear to be less costly and reasonably achievable.

↑ 11-2
| cont.

The EIR is not clear as to whether the supply of wastewater being converted to recycled water includes that which is currently being discharged and treated by the Orange County Sanitation District (OC San). If included in calculating the supply available the cost to execute this and the impacts of doing so should be included in this EIR. Also the impacts to OC San and the OCWD should be addressed.

| 11-3

The EIR fails to address the ability of IRVINE LAKE to capture water and store that water during wet years and the ability to purchase and store untreated imported water from MWDSC to supplement the recycled water supply. The District has invested considerably in Storage Programs in Kern County so it can use this water during extreme dry years when MWDSC might otherwise limit imports.

| 11-4

The EIR fails to calculate and disclose the impacts of increasing recycled water supplies on its ability to pump groundwater within the OCWD groundwater basin. During critically dry periods the BASIN PRODUCTION PERCENTAGE is subject to decreases which currently increases the penalties to be paid for over pumping and makes recycled water less affordable.

| 11-5

2. The EIR fails to address the impact of placing a significantly larger number of homes in a flood zone if the expanded reservoir should fail in a future event. It is not clear if this possibility would require these homes to purchase FLOOD INSURANCE.

| 11-6

3. It is unclear if the EIR on table 5-2 is adding the recycled water being generated by the Los Alisos treatment plant to the amount being addressed in this EIR. If this is the case then the cost and impacts of connecting this system should be addressed in the EIR.

| 11-7

4. The EIR fails to address the cost impacts to the rate payer and tax payer of the projects being contemplated in expanding the reservoir.

| 11-8

- 5. **The EIR fails to address the energy needed to pump water to the expanded reservoir over the use of either imported supplies or Irvine Lake Native water that can be delivered by gravity.**

11-9

- 6. **The EIR fails to address the impact to the Irvine Sub Basin and to the landscaping being watered by the added recycled water caused by higher levels of salt than that of MWDSC imported water or IRVINE LAKE**

11-10

- 7. **The EIR failed to seriously address the suggestion in my comments to the EIR preparation that providing the OCWD Green Acres Program and the GWRS treatment facility with recycled water would be cheaper than expanding Syphon Reservoir.** Currently Green Acres water is sold for about the same cost as MWDSC Untreated water. IRWD provides water to the Green Acres Project and can sell it there less than the current cost while recovering most of the cost on MWDSC Untreated water thus continuing to fully utilize its recycled water while reducing its energy use and improving the quality of the Irvine Sub Basin. The effect would be to lower the average TDS of the Green Acres Project and to free up supplies to feed the GWRS plant.

11-11

- 8. **The EIR failed to address the visual impact of the expanded reservoir.** If built it would tower over a large, recently completed housing area and would become one of the two most prominent features in the Irvine community along with the Bee Canyon Dump.

11-12

- 9. **The EIR failed to include a map of the area that would be flooded in the event of a failure of the expanded dam along with an assessment of the monetary damage caused by such a failure.**

11-13

- 10. **The EIR failed to demonstrate a cost savings to the rate payers of expending a minimum of \$140 million other than it could satisfy some rather arbitrarily established objectives that were not mandated on the IRWD District.**

11-14

Syphon Reservoir Improvement Project Draft EIR

Public Meeting Comments

April 21, 2021

Verbal Comments Made at Public Meeting

Commenter 1: Claire Na [39:40]

I live near the Syphon Reservoir and was very pleased to learn that you are committed to being a good neighbor and that any potential impacts of the project could be mitigated. I especially appreciate your plan to expand the reservoir because it will protect us against future droughts, and ensure that we have enough water during dry summer seasons.

12-1

Commenter 2: Evan Hsiao [41:00]

We know the water change in the reservoir could increase the probability of fault movement. Have we considered the risks of seismicity for the project?

12-2

Commenter 3: Zihai Li [41:40]

I live in Irvine and I am also president of the Chinese American Mutual Association. Thank you for sharing all the analysis you have done for the Draft Environmental Impact Report. I attended the last meeting when you first started, and there were a lot of concerns about flooding, so I really like the flood research you have done so far to ensure the safety of the project.

12-3

Written Comments Made at Public Meeting

Commenter 4: Zihai Li

Hello my name is Zihai Li and I live in Irvine. I am the founder of “I Love Irvine” Chairwoman of the Chinese American Mutual Assistance Association. Thank you for all the analysis that you are doing to ensure that this is a safe project for our community. Very nice in the work you have done on the Draft Environmental Impact Report.

12-4

Commenter 5: Evan Hsiao

Can the inundation map include the inundation depth contour?

12-5

CHAPTER 10

Responses to Comments

This chapter contains the responses to the comment letters received during the 60-day public review period for the Syphon Reservoir Improvement Project Draft EIR, which are listed in Table 9-1 in Chapter 9. The letters are included in Chapter 9 and have been bracketed and numbered. The responses to comments are provided below and are labeled to correspond to the comment letters and numbers that appear in the margins of the comment letters in Chapter 9.

Where the responses indicate additions or deletions to the text of the Draft EIR, additions are included as underlined text, deletions as ~~stricken text~~. The revisions do not substantially alter the conclusions in the Draft EIR.

IRWD has attempted to respond to all comments. However, it should be noted that some comments seek to raise issues which do not involve environmental impacts and are, therefore, beyond the scope and purpose of the Draft EIR. [*Mani Brothers Real Estate Group v. City of Los Angeles* (2007) 153 Cal.App.4th 1385, 1401: “The focus of CEQA, both procedurally and substantively, is ‘solely ... the potential environmental impacts of a project’”]. Such comments do not warrant or require a response. [*Browning-Ferris Industries v. City Council* (1986) 181 Cal.App.3d 852, 862: The EIR need not respond to each comment made during the review process, but it must specifically respond to the most significant environmental issues raised].

Letter 1: Phong Huynh, Irvine Resident

Response 1-1

The Draft EIR includes a discussion of flood insurance in the Executive Summary on page ES-11 and in Section 3.9, Hydrology and Water Quality on page 3.9-9. As stated in the Draft EIR, “the federal government does not require flood insurance for any properties due to Syphon Reservoir in its current or proposed form” (Draft EIR, page 3.9-9). Therefore, there would be no insurance-related deductibles or rate increases associated with Syphon Reservoir in its current or proposed form. The residential areas downstream of Syphon Reservoir are not within the 100-year flood hazard area mapped by the Federal Emergency Management Agency (FEMA) on its Flood Insurance Rate Maps. The residential areas downstream of Syphon Reservoir are in Zone X, defined by FEMA as an area of minimal flood hazard, which is the lowest possible rating for flood risk (Draft EIR, page 3.9-9).

The 100-year flood (the flood that has a 1 percent-annual-chance of being equaled or exceeded) mapped on FEMA’s Flood Insurance Rate Maps is intended for insurance, floodplain management, and planning efforts. Dam breach inundation zones are not shown on Flood Insurance Rate Maps as areas requiring flood insurance because the probability of failure of a

dam is extremely rare compared to the 1 percent chance of a 100-year flood. This is true of the Syphon Reservoir Improvement Project, which is being designed to avoid dam failure and associated downstream consequences.

Response 1-2

Please refer to Response 1-1 above.

Response 1-3

Currently, the proposed project does not include recreational fishing. As stated in the Draft EIR on page 2-13, the Syphon Reservoir Improvement Project may include passive recreational facilities compatible with the project site. The recreational facilities may include a walking trail along existing access roads at the project site. The appropriateness and location of the proposed walking trail would be determined during final design and would require coordination and approval from regulatory agencies, including U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW).

Response 1-4

The temporary impacts to ambient noise levels during project construction are discussed in the Draft EIR on pages 3.10-17 to 3.10-24. The impacts of construction noise to sensitive receptors such as existing residences and schools would not be significant during project construction.

The temporary impacts to traffic during project construction are discussed in the Draft EIR on pages 3.12-11 to 3.12-13. During construction of the new access road and intersection improvements at the Sand Canyon Avenue/Portola Parkway intersection, IRWD would implement a Traffic Control Plan, to be approved by the City of Irvine, to mitigate potential delays due to temporary lane closures and to ensure detours for bikers and pedestrians traveling along Portola Trail.

Letter 2: Orange County Fire Authority

Response 2-1

The comment is noted for the record.

Letter 3: Scott Turner, Irvine Resident

Response 3-1

Similar to existing conditions, the proposed project would store tertiary-treated recycled water that is produced at IRWD's Michelson Water Recycling Plant (WRP) at Syphon Reservoir (see Draft EIR Figure 1-3). As explained in the Draft EIR on page 2-10 and 2-12, as recycled water enters the Syphon Reservoir from the Michelson WRP, the water would be dechlorinated with sodium bisulfite prior to entering the reservoir for storage. As water is withdrawn from storage, filters would screen out debris (algae, leaves, etc.) that may have entered the reservoir during storage. The proposed onsite disinfection facility would add sodium hypochlorite prior to re-introduction of the water into IRWD's recycled water distribution system.

Letter 4: City of Irvine

Response 4-1

The comment is noted for the record.

Response 4-2

During implementation of intersection improvements at Sand Canyon Avenue and Portola Parkway, IRWD will coordinate with the City of Irvine and secure all necessary approvals and permits.

Response 4-3

The Syphon Reservoir Improvement Project may include passive recreational facilities compatible with the project site. The recreational facilities may include a walking trail along existing access roads at the project site. If implemented, IRWD anticipates that the walking trail would be open to the public. However, the appropriateness and location of the proposed walking trail would be determined during final design and would require coordination and approval from regulatory agencies, including USFWS and CDFW. Access to and maintenance of the walking trail would be the responsibility of IRWD as the land owner.

Response 4-4

As stated above in Response 4-3, the walking trail would be on IRWD property. Access to the trail would be controlled by IRWD, and maintenance would be the responsibility of IRWD.

Response 4-5

As stated in the Executive Summary of the Draft EIR on page ES-3, the proposed project would allow IRWD to maximize the use of recycled water produced at the Michelson WRP rather than discharging it to OCSD or to the ocean for disposal:

While IRWD's existing reservoirs provide storage for recycled water, once the storage reservoirs are full to capacity in winter months, recycled water supplies are either diverted to Orange County Sanitation District (OCSD) or discharged to the ocean. Under such conditions, IRWD is left short of recycled water to meet customer demands and must then purchase costly supplemental imported water from MWD to meet the summer demands of IRWD's recycled water customers. Based on projected demands and supplies, IRWD estimates that it will need approximately an additional 4,500 AF by the year 2030. (Draft EIR, page ES-3)

Response 4-6

The Draft EIR acknowledges the potential applicability of the Drainage Area Management Plan and Water Quality Management Plan on page 3.9-16. During the design phase of the project, IRWD will coordinate with the County of Orange and City of Irvine to secure all necessary approvals and permits.

Response 4-7

IRWD has conducted a robust public outreach plan for the Syphon Reservoir Improvement Project as summarized in Chapter 8 of this Final EIR. Consistent with what IRWD has done with

similar sized construction projects, IRWD would prepare a construction outreach plan for this project once the project has received all appropriate approvals and permits. The construction outreach plan would be implemented prior to and throughout the construction phase of this project. Outreach would include general website updates, targeted resident notifications (door hangers, emails and/or direct mailings), use of IRWD's monthly newsletter, and, as appropriate, use of various social media platforms (Facebook, YouTube, Twitter, etc.). Throughout construction, IRWD staff would be available to the community to answer questions, respond to concerns, and provide project briefings upon request.

Response 4-8

In response to the comment, IRWD has included a second visual assessment from a viewpoint within the Stonegate neighborhood, in addition to Viewpoint B from Stonegate Park that is included in the Draft EIR (see Figure 3.1-5). A new viewpoint and visual simulation have been added from Sherwood Street, which is within the Stonegate neighborhood. The new figures and accompanying text have been added to this Final EIR in Chapter 11.

Response 4-9

Mitigation Measure AES-1 applies to aboveground built structures associated with the proposed project and is not intended to address vegetation or landscaping. With the exception of the dam face, any temporary disturbance of vegetation onsite would be restored in accordance with mitigation measures included in the Draft EIR in Section 3.3, Biological Resources. As stated in the Draft EIR on page 2-5, “[s]imilar to the existing dam, the vegetation on the downstream slope would consist of grass and would provide erosion protection from rainfall runoff.” The intended revegetation of the dam slope that is visible from offsite vantage points is illustrated in the visual simulations included in the Draft EIR in Figure 3.1-4 through 3.1-7. The California Department of Water Resources, Division of Safety of Dams (DSOD) regulates the type of vegetation that can be planted on and around the proposed dam. Although not required to mitigate a significant impact, in response to the comment, IRWD will prepare and coordinate as necessary with other entities, a landscaping plan for the project that would partially screen visibility of the project when walking or driving along Portola Parkway.

Response 4-10

The Draft EIR includes a discussion of flood insurance in the Executive Summary on page ES-11 and in Section 3.9 Hydrology and Water Quality on page 3.9-9. As stated in the Draft EIR, “the federal government does not require flood insurance for any properties due to Syphon Reservoir in its current or proposed form” (Draft EIR, page 3.9-9). The residential areas downstream of Syphon Reservoir are not within the 100-year flood hazard area mapped by FEMA on its Flood Insurance Rate Maps. The residential areas downstream of Syphon Reservoir are in Zone X, defined by FEMA as an area of minimal flood hazard, which is the lowest possible rating for flood risk (Draft EIR, page 3.9-9).

The 100-year flood (the flood that has a 1 percent-annual-chance of being equaled or exceeded) mapped on FEMA's Flood Insurance Rate Maps is intended for insurance, floodplain management, and planning efforts. Dam breach inundation zones are not shown on Flood Insurance Rate Maps as areas requiring flood insurance because the probability of failure of a

dam is extremely rare compared to the 1 percent chance of a 100-year flood. This is true of the Syphon Reservoir Improvement Project, which is being designed to avoid dam failure and associated downstream consequences.

Response 4-11

The box culvert referred to by the commenter is located at the western end of the existing storm drain shown on Figure 3.9-1 (see orange line).

Response 4-12

In response to the comment, the Draft EIR text on page 3.9-13, is revised as follows:

“It is anticipated that if groundwater were to be encountered during the proposed project’s excavation, groundwater would be dewatered and conveyed to proposed onsite settling ponds or discharged to the existing storm drain, if necessary, pursuant to the conditions and requirements in Order Number: R8-2019-006107-044; NPDES Number: CAG918002 (Santa Ana RWQCB 200919).”

The reference for the permit is revised in the Draft EIR on page 3.9-35, as follows:

“Santa Ana RWQCB. ~~2019 n.d. Adopted~~ Order R8-2019-006109-0045 General Waste Discharge requirements WDRs for Groundwater Discharges to Surface Waters Resulting from De Minimus Discharges, Groundwater Dewatering Operations, and/or Groundwater cleanup/Remediation Operations at Site within the San Diego Creek/Newport Bay Watershed. Amendment of Order No. R8-2007-0041. Available at https://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2019/R8-2019-0061.pdf ~~https://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2009/09_045_amendment_of_order_r8_2007_0041_SanDiegoCreek_NewportBayWatershed.pdf~~ Accessed ~~May~~ April 27, 2020.”

Response 4-13

In response to the comment, the following edit to the Draft EIR is made on page 3.9-15 to 3.9-16:

Orange County Municipal Storm Water Permit [MS4]

The Orange County Municipal Storm Water Permit (MS4) applies to the proposed project (Municipal NPDES Permit No. CAS 618030, Order No. R8-2009-0030 - NPDES Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region, Areawide Urban Storm Water Runoff, Orange County). The NPDES municipal general permits issued by the RWQCB establish regulations covering discharge prohibitions, receiving water limitations, municipal operations (~~such as the proposed project~~), new development, construction site controls (construction site runoff), and other regulations to regulate surface water quality (RWQCB 2009). The discharge prohibitions prohibit the discharge of non-stormwater (materials other than stormwater) into storm drain systems and watercourses and includes a tiered

categorization of non-stormwater discharges based on potential for pollutant content that may be discharged upon adequate assurance that the discharge contains no pollutants of concern at concentrations that will impact beneficial uses or cause exceedances of water quality standards. The receiving water limitations provide narrative and numeric water quality standards. The municipal operations regulations include a number of requirements to control and reduce non-stormwater discharges and polluted stormwater to storm drains and watercourses during operation, inspection, and routine repair and maintenance activities of municipal facilities and infrastructure. The requirements include source control, site design, and stormwater treatment requirements, such as minimizing disturbance of natural infiltration areas and the addition of impervious surfaces, controlling and directing runoff, and the use of infiltration and bioretention measures, among other measures. To more efficiently address the requirements, the permittees within the County of Orange, which includes the City of Irvine, developed the Drainage Area Management Plan (DAMP), described below. ~~The MS4 permit applies to the proposed project because (1) the area downgradient (west) of the dam would drain stormwater to the County of Orange.~~

Response 4-14

In response to the comment, the following edit to the Draft EIR is made on page 3.9-31:

Additionally, and as previously discussed, the proposed project would comply with the terms of the NPDES Construction General Permit, the waste discharge requirements of the NPDES dewatering discharge permit, as well as conditions for discharge into the existing Portola Parkway storm drain, ~~managed by Orange County Flood Control District~~. All of these require various measures discussed above in Impact 3.9-1 to prevent degradation of water quality, which would be consistent with the Basin Plan and the Basin 8-1 Alternative. Therefore, impacts relative to the Basin Plan and the alternative sustainable groundwater management plan would be less than significant.

Response 4-15

In response to the comment, for information purposes, Table 3.10-8 was arranged so that the receivers are in the order shown in Figure 3.10-2. The table as shown below has been reorganized to show the receptors based on the distance from the project site in ascending order (from left to right). It should be noted that changes have not been made in ~~strikeout/underline~~ because the construction noise values and have not been revised.

TABLE 3.10-8
ESTIMATE OF CONSTRUCTION NOISE LEVELS (L_{EQ}) AT EXISTING OFF-SITE SENSITIVE RECEIVER LOCATIONS

Construction Phase ^{a, b}	Receiver (Distance in feet from construction activity)			
	R1 (55) dBA, Leq	R4 (140) dBA, Leq	R3 (180) dBA, Leq	R2 (330) dBA, Leq
Vegetation Clearing				
Access Routes/Intersection Improvements	87	80	78	73
Access Routes/Intersection Improvements	86	78	76	71
Excavation of Sediment/Existing Dam: <i>Mobilization, site prep/Staging Areas</i>	84	76	74	69
Excavation of Sediment/Existing Dam: <i>Upstream Excavation and Foundation Treatment</i>	87	79	77	72
Excavation of Sediment/Existing Dam: <i>Dam Excavation and Foundation Treatment</i>	88	81	78	73
Excavation of Sediment/Existing Dam: <i>Dam Excavation and Foundation Treatment</i>	89	81	79	74
Construction of Dam/Spillway/Reservoir: <i>Install Inlet/Outlet</i>				
Construction of Dam/Spillway/Reservoir: <i>Install Embankment to Bottom of Blanket Drain</i>	89	81	79	74
Construction of Dam/Spillway/Reservoir: <i>Install Blanket Drain</i>	79	71	69	64
Construction of Dam/Spillway/Reservoir: <i>Install Chimney/Remaining Embankment</i>	89	81	79	74
Construction of Dam/Spillway/Reservoir: <i>Install Chimney/Remaining Embankment</i>	89	82	80	75
Construction of Dam/Spillway/Reservoir: <i>Spillway Construction</i>				
Construction of Filtration/Chlor/Dechlor Facility Wetlands/Riparian Installation	84	76	74	69
Construction of Dam/Spillway/Reservoir: <i>Spillway Construction</i>				
Construction of Filtration/Chlor/Dechlor Facility Wetlands/Riparian Installation	88	80	78	73
Installation of Recreation Facilities				
Construction of Filtration/Chlor/Dechlor Facility Wetlands/Riparian Installation	87	79	77	72
Installation of Recreation Facilities				
Construction of Filtration/Chlor/Dechlor Facility	86	79	76	71
Installation of Recreation Facilities				
Construction of Filtration/Chlor/Dechlor Facility	79	71	69	64
Demobilization	77	70	68	64
Geotechnical Exploration ^c (minimum of 330 feet [100 meters] from nearest receptor)				
Borings (at 330 feet)	60	60	60	60
Test Pits (at 330 feet)	60	60	60	60
Trenches (at 330 feet)	61	61	61	61

Construction Phase ^{a, b}	Receiver (Distance in feet from construction activity)			
	R1 (55) dBA, Leq	R4 (140) dBA, Leq	R3 (180) dBA, Leq	R2 (330) dBA, Leq

NOTES:

^a Construction schedule provided by the project applicant.

^b Detailed construction noise calculations are provided in Appendix A.

^c Based on Irvine Ranch Water District Syphon Reservoir Geotechnical Investigations Project Initial Study/Mitigated Negative Declaration, February 2019.

SOURCE: ESA 2021.

Response 4-16

The Draft EIR concludes on pages 3.10-19 and 3.10-20 that mitigation measures are not required to reduce noise impacts during project construction. The comment notes that noise levels at the closest sensitive receptor (R1, Crean Lutheran Athletic Complex at 55 feet) would potentially experience construction noise levels of 89 dBA Leq, which would exceed the City's Noise Ordinance standards for Noise Zone 1 if the receptor were in the City of Irvine. This sensitive receptor is located northeast of Portola Parkway, and thus is located in the County of Orange and not in the City of Irvine. Therefore, sensitive receptor R1 is not subject to the City of Irvine Noise Ordinance.

In addition, IRWD understands that the City of Irvine Noise Ordinance does not include numerical thresholds for construction activity noise (Draft EIR, page 3.10-21) and includes allowable construction hours, between 7:00 a.m. to 7:00 p.m. Mondays through Fridays, and 9:00 a.m. to 6:00 p.m. on Saturdays. Construction noise is exempt from the City's noise thresholds during these time periods (Municipal Code Section 6.8.205). There is no specific limit on construction noise levels. Construction that would occur outside of these hours would require a waiver from the City, as acknowledged in the Draft EIR on page 3.10-21.

Consistent with many other IRWD projects constructed in the City of Irvine, IRWD would use best management practices and work with the construction crews to minimize noise whenever possible. As noted in Response 4-7 above, IRWD would have a robust construction outreach plan for this project. As a part of this plan, IRWD staff would be available to the community to answer questions, respond to concerns, and provide project briefings, as necessary.

In response to concerns raised in the comments regarding construction noise and to reduce noise levels, IRWD has committed to include the following construction best management practices, incorporated into the project as Project Design Features (PDF) N-1 and N-2, that would provide noise attenuation effects to noise-sensitive receptors in the vicinity of the project site, including those in the City of Irvine:

PDF N-1: Control of Construction Hours. Construction activities occurring as part of the project will be subject to the hours of day limitations that allows for construction activities to occur between 7:00 a.m. and 7:00 p.m. Mondays through Fridays,

and between 9:00 a.m. and 6:00 p.m. on Saturdays. No construction activities shall be permitted outside of these hours or on Sundays and federal holidays unless any required temporary waiver is received.

PDF N-2: Noise Control. IRWD shall incorporate the following measures to ensure that specific noise sources are controlled.

- Construction equipment, fixed or mobile, shall be equipped with properly operating and maintained noise mufflers consistent with manufacturers' standards.
- Construction staging areas shall be located at least 100 feet away from off-site sensitive uses during project construction.
- The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site, whenever feasible.

As explained in the Draft EIR, the proposed project will not have any significant noise impacts (see the Draft EIR, page 3.10-17 through 3.10-24).

Response 4-17

Please refer to Response 4-16 above. In response to concerns raised in the comments regarding construction noise, IRWD has committed to include construction best management practices, incorporated into the project as Project Design Features (PDF) N-1 and N-2, that would provide noise attenuation effects to noise-sensitive receivers in the vicinity of the project site, including those in the City of Irvine, and reduce noise levels. The Project Design Features (PDF) N-1 and N-2 are described Response 4-16.

Response 4-18

Please refer to Response 4-16 above. In response to the comment, the off-site construction noise modeling analysis was reviewed. It was noted that the noise modeling files overestimated the off-site construction noise levels in Table 3.10-9. The off-site construction traffic noise modeling files in the Draft EIR (see Appendix B of the Noise and Traffic Technical Report, included as Appendix D to the Draft EIR) used daily worker and daily truck trip input values instead of peak hour trip input values, which resulted in construction phase scenarios that used higher truck trip input values than intended. This led to higher noise levels than would reasonably be expected to occur.

Corrections have been made to the analysis for this Final EIR by dividing the daily worker trip values by two, which conservatively assumes that all workers arrive in the same hour and depart in the same hour. The haul truck trip model input values have been corrected in this Final EIR by dividing the daily truck trip values by eight, which reflects haul trucks traveling to and from the project over an eight-hour work period. The corrected off-site construction noise levels are provided in a revised Table 3.10-9, provided below, and a corrected Appendix B to the Noise and Traffic Technical Report is also included in this Final EIR. As shown in the revised Table 3.10-9, off-site construction noise levels would not exceed 70 dBA Leq along any modeled roadway segment. As shown, project construction would generate roadway noise levels ranging from

approximately 52.9 dBA Leq to 64.8 dBA Leq along the various modeled roadway segments. As shown in the City's General Plan Noise Element, roadway noise levels at year 2020 conditions at roadway segments in the vicinity of those modeled for the project exceed the project's noise contribution. As shown in Table F-3 of the City's Noise Element, Irvine Boulevard at Yale Avenue/Jeffery Road and west of Alton Parkway was modeled to be 71.7 and 71.2 dBA CNEL, respectively at 100 feet from the centerline. Sand Canyon Avenue north of Marine Way was modeled to be 68.6 dBA CNEL at 100 feet from the centerline. The Portola Parkway and State Route 133 segments in Table 3.10-9 were not specifically modeled in the General Plan Noise Element. However, these roadways have a similar or greater number of travel lanes as those that were modeled and would be expected to have similar roadway noise levels. In particular, Portola Parkway is expected to have a similar roadway noise level as Sand Canyon Avenue given it has a similar number of travel lanes and that it directly intersects at a "T" intersection with Sand Canyon. Thus, project off-site construction noise levels would be sufficiently low as to not substantially contribute to the General Plan roadway noise levels. No mitigation measures are required, and further analysis is not warranted.

**TABLE 3.10-9
ESTIMATE OF CONSTRUCTION TRAFFIC NOISE LEVELS (L_{EQ}) AT EXISTING OFF-SITE SENSITIVE RECEIVER LOCATIONS**

Construction Phase	Roadway Segment (Distance in feet from construction activity)			
	Portola Pkwy, between SR- 133 and Paragon (60 feet) dBA, Leq	Sand Canyon Ave, between Portola Pkwy and Irvine Blvd (40 feet) dBA, Leq	Irvine Blvd, between San Canyon Ave and Native Spring (55 feet) dBA, Leq	SR-133, between Irvine Blvd and SR- 241 (80 feet) dBA, Leq
Vegetation Clearing Access Routes/Intersection Improvements	70.7 <u>62.2</u>	71.6 <u>63.0</u>	72.0 <u>63.5</u>	71.2 <u>62.7</u>
Access Routes/Intersection Improvements	62.5 <u>54.8</u>	63.4 <u>55.6</u>	63.9 <u>56.2</u>	63.1 <u>55.5</u>
Excavation of Sediment/Existing Dam: <i>Mobilization, site prep/Staging Areas</i>	58.4 <u>52.9</u>	59.1 <u>53.6</u>	59.8 <u>54.4</u>	59.1 <u>53.8</u>
Excavation of Sediment/Existing Dam: <i>Upstream Excavation and Foundation Treatment</i>	61.9 <u>56.0</u>	62.6 <u>56.7</u>	63.3 <u>57.5</u>	62.6 <u>57.0</u>
Excavation of Sediment/Existing Dam: <i>Dam Excavation and Foundation Treatment</i>	61.9 <u>56.0</u>	62.6 <u>56.7</u>	63.3 <u>57.5</u>	62.6 <u>57.0</u>
Excavation of Sediment/Existing Dam: <i>Dam Excavation and Foundation Treatment</i>	70.9 <u>63.0</u>	71.8 <u>63.7</u>	72.3 <u>64.3</u>	71.5 <u>63.6</u>
Construction of Dam/Spillway/Reservoir: <i>Install Inlet/Outlet</i>				

Construction Phase	Roadway Segment (Distance in feet from construction activity)			
	Portola Pkwy, between SR- 133 and Paragon (60 feet) dBA, Leq	Sand Canyon Ave, between Portola Pkwy and Irvine Blvd (40 feet) dBA, Leq	Irvine Blvd, between San Canyon Ave and Native Spring (55 feet) dBA, Leq	SR-133, between Irvine Blvd and SR- 241 (80 feet) dBA, Leq
Construction of Dam/Spillway/Reservoir: <i>Install Embankment to Bottom of Blanket Drain</i>	70.4 <u>62.2</u>	71.2 <u>63.0</u>	71.7 <u>63.5</u>	70.9 <u>62.8</u>
Construction of Dam/Spillway/Reservoir: <i>Install Blanket Drain</i>	70.4 <u>62.2</u>	71.2 <u>63.0</u>	71.7 <u>63.5</u>	70.9 <u>62.8</u>
Construction of Dam/Spillway/Reservoir: <i>Install Chimney/Remaining Embankment</i>	70.4 <u>62.2</u>	71.2 <u>63.0</u>	71.7 <u>63.5</u>	70.9 <u>62.8</u>
Construction of Dam/Spillway/Reservoir: <i>Install Chimney/Remaining Embankment Spillway Construction</i>	71.4 <u>63.4</u>	72.2 <u>64.2</u>	72.7 <u>64.8</u>	71.9 <u>64.1</u>
Construction of Dam/Spillway/Reservoir: <i>Spillway Construction</i> Construction of Treatment Facility Wetlands/Riparian Installation	70.1 <u>62.2</u>	70.9 <u>62.9</u>	71.4 <u>63.6</u>	70.7 <u>62.9</u>
Construction of Dam/Spillway/Reservoir: <i>Spillway Construction</i> Construction of Treatment Facility Wetlands/Riparian Installation Installation of Recreation Facilities	70.5 <u>62.8</u>	71.4 <u>63.5</u>	71.9 <u>64.1</u>	71.1 <u>63.5</u>
Construction of Treatment Facility Wetlands/Riparian Installation Installation of Recreation Facilities	69.3 <u>61.0</u>	70.1 <u>61.8</u>	70.6 <u>62.4</u>	69.8 <u>61.7</u>
Construction of Treatment Facility Installation of Recreation Facilities	68.6 <u>59.8</u>	69.4 <u>60.6</u>	69.9 <u>61.2</u>	69.1 <u>60.4</u>
Construction of Treatment Facility	67.9 <u>59.0</u>	68.8 <u>59.8</u>	69.2 <u>60.4</u>	68.4 <u>59.6</u>
Demobilization	57.5 <u>52.9</u>	58.2 <u>53.6</u>	58.9 <u>54.4</u>	58.3 <u>53.8</u>

NOTES:

Construction schedule and truck traffic information provided by the project applicant.
Detailed traffic noise calculations are provided in Revised Appendix D.

SOURCE: ESA 2021

Response 4-19

Construction noise causes localized effects and affects receivers within the immediate vicinity of the project site. The analysis of cumulative impacts in the Draft EIR on pages 3.10-26 and 3.10-27 considers the Gateway Community Park and Truck Route Roadway Rehabilitation project.

Please refer to Response 4-16 above that explains why the Syphon Reservoir Improvement Project would not result in significant noise impacts, and as a result would not contribute to cumulative noise impacts. In addition, please refer to Response 4-16 above for the Project Design Features that would be implemented as part of the Syphon Reservoir Improvement Project and would serve to attenuate noise levels in the event that the proposed project, Gateway Community Park, and the Truck Route Roadway Rehabilitation project are constructed simultaneously.

Response 4-20

On page 3.12-13 of the Draft EIR, Mitigation Measure TRA-1 would require IRWD to implement a Traffic Control Plan that would identify partial and full lane closures. The Traffic Control Plan would be prepared in accordance with the City of Irvine’s traffic control guidelines and would ensure that congestion and traffic delays are not substantially increased as a result of project construction activities.

Response 4-21

The proposed project would add an access road to the Syphon Reservoir site on the north side of the intersection of Sand Canyon Avenue and Portola Parkway, which would necessitate modifications to the signaling of the traffic lights and pedestrian signals, and restriping of traffic lanes, turning lanes, crosswalks and bike lanes. Repaving of Sand Canyon Avenue and Portola Parkway is not anticipated; however, as stated in the Draft EIR on pages 2-15 and 2-25, the intersection modification would be performed in accordance with the City of Irvine’s requirements and approvals.

Response 4-22

Mitigation Measure TRA-1 states that the “Traffic Control Plan shall be prepared in accordance with the City of Irvine’s traffic control guidelines.” As a result, if the City’s guidelines include requirements for standard working hours and lane closures, these shall be incorporated into the Traffic Control Plan.

Response 4-23

In response to the comment, the text description of Route 1A and Route 1B on Page 3 of the Transportation Impact Analysis Report has been revised to be the same as page 21. A Revised Appendix E, Transportation Impact Analysis Report is included with this Final EIR.

- Route 1A – I-5 (from the north), ~~south~~-north on Sand Canyon Avenue for trucks traveling inbound and southbound on Sand Canyon Avenue to I-5 (to the north) for trucks traveling outbound.
- Route 1B – I-5 (from the south), ~~south~~-north on Sand Canyon Avenue for trucks traveling inbound and southbound on Sand Canyon Avenue to I-5 (to the south) for trucks traveling outbound

Response 4-24

In response to the comment, the Transportation Impact Analysis Report, included as Revised Appendix E, has been revised on page 20 to provide more clarity about the daily trip generation of the construction phases outside the peak phase as follows:

This level of trip generation is anticipated to occur for approximately two to three months. Trip generation outside of this phase would be reduced with approximately 30 daily to 154 daily trips being generated of construction would vary depending on the level of activity associated with the given phase of construction. Daily trip generation for the other phases of construction range from approximately 30 daily trips to 154 daily trips.

Response 4-25

In response to the comment, information regarding the construction timeline as presented in the Draft EIR has been added to the Timeline section on page 21 of the Transportation Impact Analysis Report, Revised Appendix E, as follows:

Construction of the Project is estimated to require a total of approximately 41 months. The preconstruction activities would begin in the fall of 2022 and would involve approximately 5 months of access road improvements. Preconstruction would be followed by approximately 36 months for construction of the new dam, reservoir, and associated facilities, depending on weather conditions and other variables. Construction is currently anticipated to begin in 2023. The proposed Project is assumed to be operational by end of 2026.

Response 4-26

The site plan for the proposed modifications to the intersection of Sand Canyon Avenue and Portola Parkway has not been developed yet and would be part of the final project design. The Draft EIR includes a general description of the proposed modifications and states that they would be implemented in accordance with the City of Irvine requirements (see Draft EIR page 2-12). As stated in the Transportation Impact Analysis report, the project will meet the intent of TDP-14 for Driveway Lengths by constructing an access road with a gate at least 500 feet away from the intersection, which exceeds the recommendation of a 50-foot driveway based on TDP-14.

Response 4-27

IRWD included the City of Irvine's Truck Route Roadway Rehabilitation Project as Cumulative Project 9 (Draft EIR, page 3-14), which was incorporated into the cumulative impacts' analysis throughout Chapter 3, Environmental Setting, Impact Analysis, and Mitigation Measures. Additionally, during implementation of intersection improvements at Sand Canyon Avenue and Portola Parkway, IRWD will coordinate with the City of Irvine and secure all necessary approvals and permits.

Response 4-28

In response to the comment, the bicycle improvements and coordination recommendations on pages 54 and 55 have been included in the Improvements section of the Transportation Impact Analysis Report, Revised Appendix E. The following paragraph is inserted on page 59 after the first paragraph as follows:

Bicycle infrastructure at the intersection of Sand Canyon Avenue and Portola Parkway will be reconstructed to maintain existing access while following the City of Irvine

requirements. The Project will not affect any planned bicycle facilities in the study area. Minor improvements to facilitate bicycle circulation such as “BIKES MAY USE FULL LANE” signage, shared arrow advance warning signage, and other suggested methods that provide advance warning to both vehicular drivers and bicyclists will be included in the traffic control plans generated for the intersection construction.

Response 4-29

As described in the Draft EIR on page 3.12-3 and as shown in the accompanying Figure 3.12-1, none of the three roadways (Portola Parkway, Irvine Boulevard, Sand Canyon Avenue) travel in a true north/south direction. The descriptions included in the Draft EIR on page 3.12-3 indicate the correct direction of travel (e.g., northeast/southwest or northwest/southeast) for vehicles and pedestrians traveling along these roadways.

Response 4-30

In response to the comment, the text of the Draft EIR on page 3.12-3 is revised as follows:

Notable features along Portola Parkway include bike lanes on both the northbound and southbound sides of the roadway, and a separated sidewalk, known as the Portola Side Path, on the southbound side of the roadway. The only sidewalk on the northbound side is between Sand Canyon and the Crean Lutheran High School Sports Complex. There is no sidewalk on the northbound side.

Response 4-31

The Transportation Impact Analysis Report evaluates truck routes on Sand Canyon Avenue, Irvine Boulevard, I-5, and SR-133, as described for the Study Area Boundary on page 3. In addition, the Transportation Impact Analysis Report also evaluates potential construction-related impacts to intersections at Portola Parkway, Sand Canyon Avenue, Irvine Boulevard, I-5, SR-133, and other roadways such as Trabuco Road and Marine Way, as shown in Figure 2. Accordingly, the text of the Draft EIR on pages 3.12-12 and 4-12 includes a general analysis of average daily trips on roadways in the immediate vicinity of the proposed project and for which truck routes and intersections are analyzed in the Transportation Impact Analysis Report.

Response 4-32

Please refer to Response 4-3 above.

Letter 5: City of Newport Beach

Response 5-1

The comment expressing support for the proposed project is noted for the record.

Letter 6: California Department of Transportation

Response 6-1

The comment is noted for the record.

Response 6-2

The Draft EIR includes a discussion of the potential effects of construction-related traffic to SR-133 on pages 3.12-12 and 3.12-13. The Draft EIR concludes that the proposed project would not have a significant impact on local circulation system performance (including SR-133) from construction-related trips.

Response 6-3

In response to the comment, Figure 3.12-1 has been revised to include freeways/highways and is included in Chapter 11 of this Final EIR.

Response 6-4

The Draft EIR includes a discussion of the evaluation of whether the proposed intersection modification would affect the safety of pedestrians and bicyclists on page 3.12-16. The Draft EIR concludes that the proposed project would reconstruct pedestrian and bicycle facilities at the Sand Canyon Avenue and Portola Parkway intersection, to maintain existing access while following City of Irvine requirements to ensure that no safety hazards are created. Thus, there are no significant impacts to the safety of pedestrians and bicyclists.

Response 6-5

If the proposed project requires work within or near a State right-of-way, IRWD would coordinate with Caltrans in accordance with all laws and regulations and secure encroachment permits if necessary.

Response 6-6

Please refer to Response 6-5 above.

Letter 7: California Department of Fish and Wildlife

Response 7-1

The comment is noted for the record.

Response 7-2

The comment requests that the Final EIR for the proposed project include the final mitigation package. As noted in the comment, IRWD, CDFW and USFWS have had ongoing meetings and discussions regarding mitigation of impacts to wetland and freshwater marsh habitat, coastal sage scrub (CSS), and other habitats within the Reserve for the County of Orange Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) since 2018.

Prior to making certain commitments for the final mitigation package for the Syphon Reservoir Improvement Project, IRWD's Board of Directors must first consider whether to certify the Final EIR and approve the Project. Therefore, the final mitigation package cannot be part of the Final EIR. Once the Final EIR is certified and the Project is approved, IRWD would proceed with the commitments required to complete the final mitigation package, which may include property acquisitions. Once IRWD develops a final mitigation package that is acceptable to CDFW, USFWS, and TCA, IRWD will evaluate whether subsequent CEQA documentation is required.

Response 7-3

The Draft EIR notes that the American peregrine falcon and white-tailed kite were observed foraging or flying over the project site by previous studies (Draft EIR, pages 3.3-22, 3.3-38). Neither species is known to nest in the immediate area and the falcon is rarely found nesting in Orange County. Therefore, it is considered extremely unlikely that peregrine falcon might nest on site. Regarding white-tailed kite, the project area contains suitable foraging habitat but the potential for this species to nest on site also is not high, particularly due to the Silverado Fire that burned the project site at the end of October 2020. Currently, there is less tree cover around the reservoir than in 2018, and no coast live oak trees, which kites tend to favor for nest sites. Implementation of proposed mitigation (Mitigation Measure BIO-3) would prevent any impacts to these species, if found to nest on the project site, by prohibiting construction or other disturbance within 500 feet of an active kite or falcon nest. In addition, although not required by Mitigation Measure BIO-3, IRWD will notify CDFW if either species is found to nest on site.

Response 7-4

IRWD is not expecting to conduct nighttime or overnight construction activities as part of normal construction operations for the proposed project. The Draft EIR includes this potential scenario only to cover any urgent or other unforeseen circumstances that could temporarily require construction activities, for limited periods of time, outside of the construction hours permitted by the City of Irvine and County of Orange noise ordinances.

Response 7-5

As noted in the comment, IRWD is anticipating the need to implement on-site habitat restoration as part of the project mitigation strategy. The comment requests that IRWD include augmentation of existing on-site cactus patches as well as seeding of additional cacti-dominated vegetation. Although not required as mitigation, in response to the comment, IRWD will integrate CDFW's request into the final mitigation package.

In addition, the comment requests that any understory seeding of forb species within any on-site restoration also include Catalina mariposa lily, when appropriate based on soil types. As noted in the comment, and in the Draft EIR (page 3.3-21), the Catalina mariposa lily is a Covered Species under the NCCP/HCP. As a result, the Draft EIR concludes that impacts to Catalina mariposa lily are less than significant, and no mitigation is required (Draft EIR, pages 3.3-37 to 3.3-38). IRWD understands that seed for this species is not available "off the shelf." Seed for the Catalina mariposa lily would need to be collected from the on-site population, which would require multiple surveys and collection trips during bloom periods that vary for this bulb each year. Given this relative uncertainty regarding IRWD's ability to ensure seed can be procured, and at a reasonable cost, IRWD will further discuss this recommendation with CDFW as part of its ongoing coordination of the final mitigation package.

Response 7-6

As stated in the Draft EIR on page 2-5, "[s]imilar to the existing dam, the vegetation on the downstream slope would consist of grass and would provide erosion protection from rainfall runoff." The California Department of Water Resources, Division of Safety of Dams (DSOD) regulates the type of vegetation that can be planted on and around the proposed dam. IRWD will

accommodate CDFW's request to consider using native forb and grassland species appropriate for the site to include in the seed mix to the extent such materials will meet the requirements of DSOD.

Response 7-7

The comment is noted for the record.

Letter 8: Foothill/Eastern Transportation Corridor Agency

Response 8-1

The comment is noted for the record.

Response 8-2

The Draft EIR includes an explanation of the Grant Deed and the mitigation project that was implemented on the project site by the Transportation Corridor Agencies (TCA) for the Eastern Transportation Corridor project (see page 3.3-3 and Figure 3.3-1). The Draft EIR states on page 3.3-3:

When IRWD acquired Syphon Reservoir from the Irvine Company (TIC), the Conveyance Agreement included a Grant Deed with use restrictions to protect biological resources within the area that was used for mitigation for the TCA (as shown in Figure 3.3-1)...Since completion of the restoration program in 2000, on-site management of biological resources was limited to annual cowbird trapping (which is required in perpetuity) and few additional studies, including a cactus transplantation and subsequent cactus wren monitoring in the northwest portion of the property.

Implementation of the proposed project is anticipated to require a legal transaction to modify the Grant Deed. IRWD will coordinate with TCA as a third-party beneficiary regarding the proposed final mitigation package for the Project as required (see Letter 7, Response 7-2 above), to modify the Grant Deed.

Response 8-3

In response to the comment, Table 2-1 on page 2-25 of the Draft EIR is modified as follows:

**TABLE 2-1
DISCRETIONARY PERMITS OR APPROVALS POTENTIALLY REQUIRED**

Agency	Permits and Authorizations Required
California Department of Fish and Wildlife (CDFW)	Streambed Alteration Agreement, Fish and Game Code, Section 1602
California Department of Water Resources, Division of Safety of Dams	Dam Safety Inspection and Approval
State Water Resources Control Board; Regional Water Quality Control Board	Compliance with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit, SWPPP Construction Dewatering Permit
State Historic Preservation Officer (SHPO)	National Historic Preservation Act Section 106 compliance
U.S. Fish and Wildlife Service (USFWS); CDFW	NCCP/HCP Compliance (provides Coverage under the Federal Endangered Species Act and Section 2080.1 under California Endangered Species Act)

Agency	Permits and Authorizations Required
Foothill/Eastern Transportation Corridor Agency; USFWS	Mitigation Grant Deed Approval
City of Irvine	Approval <u>Encroachment Permit</u> for Portola Parkway/Sand Canyon Avenue intersection modification

Response 8-4

In accordance with the F/ETCA Grant Deed, the Agency will continue to be granted access to the project site to continue with its cowbird trapping program in compliance with its permitting obligations.

Response 8-5

Please refer to Response 8-2 above.

Response 8-6

The breeding season that is included in Mitigation Measure BIO-2a is specific to the coastal California gnatcatcher. As required by Mitigation Measure BIO-3a, preconstruction nesting surveys for all species, including gnatcatchers, would be required during a broader time period, ranging from February 15 to August 31.

Response 8-7

Please refer to Response 8-2 above. Implementation of the proposed project is anticipated to require actions to modify the Grant Deed. IRWD will coordinate with TCA as a third-party beneficiary regarding the proposed final mitigation package for the Project as required by CDFW and USFWS (see Letter 7, Response 7-2 above), to modify the Grant Deed.

Response 8-8

The comment is noted for the record.

Letter 9: Irvine Unified School District**Response 9-1**

The comment is noted for the record.

Letter 10: Orange County Public Works**Response 10-1**

The comment is noted for the record.

Response 10-2

In response to the comment, the following edit to the Draft EIR is made on page 3.9-31:

Additionally, and as previously discussed, the proposed project would comply with the terms of the NPDES Construction General Permit, the waste discharge requirements of the NPDES dewatering discharge permit, as well as conditions for discharge into the existing Portola Parkway storm drain, ~~managed by Orange~~

~~County Flood Control District~~. All of these require various measures discussed above in Impact 3.9-1 to prevent degradation of water quality, which would be consistent with the Basin Plan and the Basin 8-1 Alternative. Therefore, impacts relative to the Basin Plan and the alternative sustainable groundwater management plan would be less than significant.

Response 10-3

The comment is noted for the record.

Letter 11: Peer Swan

Response 11-1

The Draft EIR includes an explanation of the purpose and need for the proposed project on page 2-3. The purpose of the proposed project is to increase the recycled water storage capacity at Syphon Reservoir in order to meet the seasonal demand of recycled water customers and to enhance IRWD's water supply reliability. Based on projected demands and supplies, IRWD estimates that it will need 4,500 AF of additional recycled water storage capacity by the year 2030 to meet demand. The expansion of Syphon Reservoir's storage capacity from the current 500 AF to approximately 5,000 AF would help IRWD become more self-sufficient by reducing its dependence on costly and less-reliable imported water during summer months, and would increase the use of recycled water to maintain community landscaping, as well as agricultural, business and industrial uses.

The comment notes the request made by Director Swan during the NOP comment period, to project IRWD's recycled water needs over 20 years based on certain assumptions for consumption per person. In response to the NOP comments, an evaluation of alternative project scenarios and associated life cycle costs was performed by HDR (HDR 2020). The evaluation of project scenarios and costs are cited in the Draft EIR in Chapter 6, Alternatives Analysis (Draft EIR, page 6-6).

Response 11-2

The Draft EIR includes a discussion of the OCWD Green Acres Project in Chapter 6, Alternatives Analysis, on page 6-6. The Draft EIR includes an explanation of why the Green Acres Project was considered but rejected as a feasible project alternative. The Green Acres Project and the other concepts listed in the comment would not feasibly attain most of the primary objectives for the proposed project.

Response 11-3

As stated in the Draft EIR, the proposed project would store recycled water that is already being produced at IRWD's existing Michelson WRP and is discharged to either Orange County Sanitation District, Orange County Water District, or the ocean when storage facilities are full in winter months (see Draft EIR page 2-3). The purpose of the Draft EIR is to evaluate the potential impacts of the proposed project on the environment. The California Environmental Quality Act (CEQA) does not require that an EIR include an analysis of project costs. Please refer to the

evaluation performed by HDR (HDR 2020) that includes project scenarios and associated life cycle costs, as mentioned above in Response 11-2.

Response 11-4

The Draft EIR mentions the purchase of untreated imported water on page 2-3:

During the dry summer season, when irrigation demands are highest, service area demand for recycled water depletes existing reservoir storage and exceeds the rate at which new recycled water is produced by the WRPs. IRWD must then purchase costly supplemental imported water from Metropolitan Water District of Southern California (MWD) to meet the seasonal demands of IRWD's recycled water customers.

The groundwater storage projects that are suggested by the comment include IRWD's Strand Ranch Integrated Banking Project, Stockdale Integrated Banking Project, and Kern Fan Groundwater Storage Project in Kern County. These projects are not alternatives for the proposed project because they do not provide water on an annual basis in a reliable manner to supplement the recycled water supply or meet annual demand. The objectives for the groundwater storage projects in Kern County are to provide water during certain conditions, such as drought or emergency conditions, and are intended to serve potable water demands rather than recycled water demands of IRWD's customers.

Response 11-5

As stated above, CEQA does not require that an EIR include an analysis of project costs. However, the evaluation performed by HDR (HDR 2020) included an assessment of the cost impact of the ability to pump groundwater. This evaluation was presented to the Board of Directors at the February 5, 2021 Strategic Planning Meeting.

Response 11-6

The Draft EIR includes a discussion of flood insurance in the Executive Summary on page ES-11 and in Section 3.9 Hydrology and Water Quality on page 3.9-9. As stated in the Draft EIR, "the federal government does not require flood insurance for any properties due to Syphon Reservoir in its current or proposed form" (Draft EIR, page 3.9-9). The residential areas downstream of Syphon Reservoir are not within the 100-year flood hazard area mapped by FEMA on its Flood Insurance Rate Maps. The residential areas downstream of Syphon Reservoir are in Zone X, defined by FEMA as an area of minimal flood hazard, which is the lowest possible rating for flood risk (Draft EIR, page 3.9-9).

The 100-year flood (the flood that has a 1 percent-annual-chance of being equaled or exceeded) mapped on FEMA's Flood Insurance Rate Maps is intended for insurance, floodplain management, and planning efforts. Dam breach inundation zones are not shown on Flood Insurance Rate Maps as areas requiring flood insurance because the probability of failure of a dam is extremely rare compared to the 1 percent chance of a 100-year flood. This is true of the Syphon Reservoir Improvement Project, which is being designed to avoid dam failure and associated downstream consequences.

Response 11-7

Table 5-2 of the Draft EIR shows IRWD's recycled water supply and demand for its entire service area, as projected in IRWD's 2015 Urban Water Management Plan. The recycled water supply shown in Table 5-2 includes both the Michelson WRP and the Los Alisos WRP. However, the proposed project would only store recycled water produced at the Michelson WRP, as explained in the Draft EIR on page 2-1. CEQA does not require that an EIR include an analysis of costs.

Response 11-8

The purpose of the Draft EIR is to evaluate the potential impacts of the proposed project on the environment. CEQA does not require that an EIR include an analysis of project costs. Please refer to the evaluation performed by HDR (HDR 2020) that includes project scenarios and associated life cycle costs, as mentioned above in Response 11-2.

Response 11-9

The Draft EIR estimates the amount of energy required to operate the proposed project on page 2-24. The analysis of the proposed project's potential impacts to energy resources compared to imported water is included in the Draft EIR in Chapter 3.5, Energy, on page 3.5-12.

Response 11-10

The Draft EIR includes an analysis of the proposed project's potential impacts to total dissolved solids (TDS) due to greater use of recycled water within IRWD's service area on page 3.9-21 and 3.9-22. The proposed project would result in an increase in the amount of recycled water available to dual-plumbed commercial buildings for toilet flushing and cooling towers, which could affect the TDS concentrations of the recycled water produced at the Michelson WRP. A mass balance analysis was conducted and described in the Draft EIR on page 3.9-22; the proposed project may result in a slight increase in TDS concentrations at the Michelson WRP, anticipated to be no more than 1 to 2 mg/L, which would be considered less than significant impact to water quality.

Response 11-11

The Draft EIR includes a discussion of the OCWD Green Acres Project in Chapter 6, Alternatives Analysis, on page 6-6. The Draft EIR includes an explanation of why the Green Acres Project was considered but rejected as a feasible project alternative. The Green Acres Project would not feasibly attain most of the primary objectives for the proposed project.

The comment cites the comments made by Director Swan during the NOP public review period. In response to the NOP comments, an evaluation of alternative project scenarios and associated life cycle costs was performed by HDR (HDR 2020) and provided to Director Swan. The evaluation of project scenarios and costs are cited in the Draft EIR, Chapter 6, Alternatives Analysis (page 6-6).

Response 11-12

The Draft EIR includes four visual simulations of the expanded reservoir and dam in Section 3.2, Aesthetics. The visual simulations are included in the Draft EIR as Figures 3.1-4 through 3.1-7.

Please also see an additional fifth visual simulation that is being included in the Final EIR in response to a comment made by the City of Irvine (see Letter 4, Response 4-8 above).

Response 11-13

The Draft EIR includes inundation maps in Section 3.9, Hydrology and Water Quality. Figure 3.9-3 shows the inundation area for the existing Syphon Reservoir. Figure 3.9-4 shows the inundation area for both the existing and proposed enlarged Syphon Reservoir. The residential areas downstream of Syphon Reservoir are not within the 100-year flood hazard area mapped by FEMA on its Flood Insurance Rate Maps. The residential areas downstream of Syphon Reservoir are in Zone X, defined by FEMA as an area of minimal flood hazard, which is the lowest possible rating for flood risk (Draft EIR, page 3.9-9).

The 100-year flood (the flood that has a 1 percent-annual-chance of being equaled or exceeded) mapped on FEMA's Flood Insurance Rate Maps is intended for insurance, floodplain management, and planning efforts. Dam breach inundation zones are not shown on Flood Insurance Rate Maps as areas requiring flood insurance because the probability of failure of a dam is extremely rare compared to the 1 percent chance of a 100-year flood. This is true of the Syphon Reservoir Improvement Project, which is being designed to avoid dam failure and associated downstream consequences.

Response 11-14

The purpose of the Draft EIR is to evaluate the potential impacts of the proposed project on the environment. CEQA does not require that an EIR include an analysis of project costs. The objectives of the Syphon Reservoir Improvement Project have been established and informed by substantial technical analyses and reports completed as part of the development of the proposed project and described in the Draft EIR in Section 1.5.3, Syphon Reservoir Studies and Reports (page 1-13). The results of the technical analyses, including the objectives of the project, were presented to the IRWD Board of Directors at multiple meetings and workshops, including the July 7, 2017 Strategic Planning Workshop, at which time the Board approved an authorization to commence the CEQA process and preliminary design in support of CEQA. An updated Syphon Reservoir Expansion analysis was presented at the February 5, 2021 Strategic Planning Workshop, after which the Board approved a budget increase and authorization to advance the design. A financial analysis showing the life cycle cost savings of the Syphon Reservoir Improvement Project was also included in the HDR evaluation (HDR 2020). This HDR evaluation was presented to the Board at the 2021 workshop.

Letter 12: Public Meeting Comment Transcript

Response 12-1

The comment is noted for the record.

Response 12-2

The Draft EIR includes an analysis of potential impacts related to seismic hazards in Section 3.6, Geology and Soils. The Draft EIR concludes that the inactive Central Valley Fault, which is

known to cross the proposed project site, has not experienced movement in the last 1.6 million years and has no potential for future movement (page 3.6-29).

Response 12-3

The comment is noted for the record.

Response 12-4

The comment is noted for the record.

Response 12-5

The modeling and analysis that generated the inundation maps included in the Draft EIR as Figures 3.9-3 and 3.9-4 do not provide the information required to create an inundation depth contour. The Draft EIR includes an explanation of how water depth can vary at each cross section shown on the figures (see Draft EIR pages 3.9-6 and 3.9-27).

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CHAPTER 11

Revisions to the Draft EIR

This chapter presents revisions to the Draft EIR based on comments received during the comment period and District-initiated corrections made by IRWD. The following corrections and changes are made to the Draft EIR, and are incorporated herein as part of the Final EIR. Revised language or new language is underlined. Deleted language is indicated by ~~striketrough~~ text.

Revisions presented in this chapter are corrections and clarifications and do not significantly alter the proposed project, change the Draft EIR's significance conclusions, or result in a conclusion that substantially more adverse environmental impacts will result from the proposed project.

Specifically, CEQA Guidelines Section 15088.5 requires the lead agency to recirculate an EIR only when significant new information is added to the EIR after public notice is given of the availability of the Draft EIR for public review. New information added to an EIR is not significant unless the EIR has changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse, environmental effect of the project or a feasible way to mitigate or avoid such an effect that the project's proponents have declined to implement (CEQA Guidelines Section 15088.5).

In summary, significant new information consists of: (1) disclosure of a new significant impact; (2) disclosure of a substantial increase in the severity of an environmental impact; (3) disclosure of a feasible project alternative or mitigation measure considerably different from the others previously analyzed that would clearly lessen environmental impacts of the project, but the project proponent declines to adopt it; and/or (4) the Draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded (CEQA Guidelines Section 15088.5). Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications to an adequate EIR (CEQA Guidelines Section 15088.5).

The changes below present information that clarifies the scope of the proposed project and the analysis of the proposed project's impacts, but the changes do not fundamentally alter the significance conclusions presented in the Draft EIR circulated for public review. The changes present information and analyses in response to comments and merely provide further details on the analyses already provided in the Draft EIR.

Chapter 2, Project Description

Page 2-10

A series of existing and proposed pipelines would be used to transport water to/from IRWD's existing recycled water distribution system to the enlarged reservoir. Recycled water would be delivered to Syphon Reservoir via an existing 36-inch recycled water pipeline and the Eastwood Recycled Water Pump Station, which is located off-site and currently under construction (see Figure 1-3). Currently, the existing 36-inch recycled water pipeline is only used for outlet of recycled water from the reservoir; the project would require bi-directional flow through this pipeline, allowing it to be used for inlet as well as outlet of recycled water, into and out of the enlarged reservoir, respectively. The existing 48-inch discharge pipeline would be used for emergency drainage (as described above under Section 2.4.1), similar to existing conditions. A new, approximately 42-inch, inlet/outlet conduit would be constructed to connect ~~two~~ several proposed inlet/outlet ports along the north-facing reservoir slope to the existing onsite 36-inch inlet/outlet pipeline that ends near the toe of the existing dam. The inlet/outlet ports allow for selective withdrawal of recycled water from the reservoir and provides IRWD with flexibility to select water from different heights in the reservoir based on water quality considerations. The inlet/outlet works will also consist of a masonry block control building located approximately 10-15 feet above the high water elevation of the reservoir at the end of the proposed access road. The control building is anticipated to be approximately 15 feet wide by 48 feet long (approximately 720 square feet), with an approximate height of 16 feet. The control building will house the compressors, instruments, and associated electrical components to remotely operate the inlet/outlet facilities. Pipelines and appurtenant facilities are shown on Figure 2-2 and Figure 2-3. The size and location of proposed pipelines are subject to change with final design. **Figure 2-5** is a diagram (not to scale) showing key features of the proposed dam and their elevation relative to the reservoir storage capacities and water surface.

Page 2-25

**TABLE 2-1
DISCRETIONARY PERMITS OR APPROVALS POTENTIALLY REQUIRED**

Agency	Permits and Authorizations Required
California Department of Fish and Wildlife (CDFW)	Streambed Alteration Agreement, Fish and Game Code, Section 1602
California Department of Water Resources, Division of Safety of Dams	Dam Safety Inspection and Approval
State Water Resources Control Board; Regional Water Quality Control Board	Compliance with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit, SWPPP Construction Dewatering Permit
State Historic Preservation Officer (SHPO)	National Historic Preservation Act Section 106 compliance
U.S. Fish and Wildlife Service (USFWS); CDFW	NCCP/HCP Compliance (provides Coverage under the Federal Endangered Species Act and Section 2080.1 under California Endangered Species Act)

Agency	Permits and Authorizations Required
Foothill/Eastern Transportation Corridor Agency; USFWS	Mitigation Grant Deed Approval
City of Irvine	Approval <u>Encroachment Permit</u> for Portola Parkway/Sand Canyon Avenue intersection modification

Chapter 3, Section 3.1, Aesthetics

Page 3.1-3

Figure 3.1-1 identifies the ~~four~~ five viewpoints chosen to document the visual study area in and around the proposed project. **Figure 3.1-2, and Figure 3.1-3, and Figure 3.1-8** include existing views from those viewpoints.

Page 3.1-3

Figure 3.1-1 has been revised to add a viewpoint from Sherwood Street and Steinway Street in the Stonegate neighborhood.

Page 3.1-8

Figure 3.1-8 has been added to show existing views from Sherwood Street and Steinway Street in the Stonegate neighborhood.

Page 3.1-9

**TABLE 3.1-1
SUMMARY OF VISUAL QUALITY AND SENSITIVITY FINDINGS**

Viewing Location and Representative Photos	Visual Quality	Affected Viewers and Viewer Exposure Conditions	Visual Sensitivity
Viewpoint A (Figure 3.1-2)	Moderate	Moderate (19,000 daily motorists, as well as pedestrians/cyclists, for several minutes per trip)	Moderate
Viewpoint B (Figure 3.1-2)	Moderate	Moderate (approximately 1,000 daily users of the park/school, for 1-3 hours per day)	Moderate
Viewpoint C (Figure 3.1-3)	High	Low (46,700 daily motorists, for several seconds per trip)	Moderate
Viewpoint D (Figure 3.1-3)	Moderate	Moderate (19,000 daily motorists, as well as pedestrians/cyclists, for several minutes per trip)	Moderate
<u>Viewpoint E (Figure 3.1-8)</u>	<u>Moderate</u>	<u>Low (tends to hundreds of daily motorists, as well as pedestrians/cyclists, for several seconds or minutes per trip)</u>	<u>Low-Moderate</u>

Viewpoint E

Viewpoint E (Figure 3.1-8) is looking east to the hills from Sherwood Street and Steinway Street in the Stonegate neighborhood. The foreground view includes houses lining Steinway Street. The middleground provides views of the exiting Syphon Reservoir immediately to the east of Portola Parkway located just across the wall seen in the foreground. The background provides views of the “Lomas de Santiago” (commonly known as Loma Ridge), which is identified as a major ridgeline in Orange County (County of Orange 2005b).

Visual Quality. The visual quality of the area is typical of a residential area that borders open space at the northeastern-most portion of the City of Irvine. While the foreground views are exclusively within the Stonegate community and residential in nature, the hillsides in the middleground and background are unadulterated and provide the visual backdrop of a major ridgeline, Loma Ridge, identified by Orange County. Because the viewpoint is characteristic of typical residential areas within the northeastern portions of the City of Irvine and surrounding area, the existing visual quality is considered moderate (i.e., it is not lacking visual amenities but is not unique compared with the intended visual character of the area).

Affected Viewers and Exposure Conditions. Public views of the project site from this viewpoint are provided to relatively few residents walking and driving/biking along Sherwood Street and Steinway Street, which is an isolated area within the Stonegate neighborhood. The Stonegate neighborhood consists of over 1,000 single family homes and townhomes, however the viewpoint is located off a dead-end street that provides access to approximately 34 residences. There are trees and houses which partially obstruct views from this location. Direct unobstructed views of the proposed project site would be available for brief periods of time (i.e., seconds for vehicle passengers and minutes for pedestrians/cyclists) when motorists and pedestrians/cyclists are passing through the intersection of Sherwood Street and Steinway Street, or traveling along east along the short stretch of Steinway Street. Given that the view of the site is slightly unobstructed and would be observed by tens to hundreds of daily users of Sherwood and Steinway Streets, the viewer exposure is considered low.

Visual Sensitivity Conclusion. Because the view of the site from this area has moderate visual quality and low exposure to public views, it is considered to have low-to-moderate visual sensitivity.



Path: U:\GIS\Projects\7xxxx\DT\7045_Syphon_Reservoir\103_MXD\Projects\ER\Fig3.1-1_Viewpoint_Map.mxd_splstitle_09/2021

SOURCE: ESA, 2021.

Syphon Reservoir Geotechnical Investigations Project

Figure 3.1-1
Viewpoint Map

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Viewpoint E

D:\70445.00

SOURCE: ESA, 2021

Syphon Reservoir Improvement Project

Figure 3.1-8
Existing Views from Viewpoint E



Page 3.1-16**Visual Assessment**

This visual assessment is based on field observations of the project site and surroundings in addition to a review of topographic maps, aerial, and ground-level photographs of the project area. Additionally, visual simulations were prepared by Fuscoe Engineering, Inc., and ESA, to document the “before and after” visual conditions that could be experienced by implementation of the proposed project (see **Figures 3.1-4 through 3.1-7 and Figure 3.1-9**). To create the visual simulations, photographs were taken from each proposed viewpoint location described in Section 3.1.1 above. Data from each photograph was recorded, such as focal length, date and time of day, lens information, as well as geographic location. A 3D model was created of the proposed enlarged dam, reservoir, and access road using 3D Studio Max software, which was overlaid on each viewpoint photograph in order to demonstrate the visual change that would result from implementation of the proposed project, when viewed from the four public Viewpoints A, B, C, ~~and D,~~ and E. The visual assessment included in this section is based in part on these simulations.

Page 3.1-16

As explained in Section 3.1.1 Environmental Setting, there are several locally designated scenic vistas/viewsapes that encompass the project site:

The Loma Ridge and Santa Ana Mountains, which provide an eastern backdrop to the proposed project as shown in Viewpoints A, ~~and B,~~ and E, are identified as “dominant ridgelines” in the County of Orange; the Santa Ana Mountains is identified as the “signature landmark of Orange County.”

Page 3.1-20

Figure 3.1-9 has been added to show existing views and a visual simulation of the proposed project from Sherwood Street in the Stonegate neighborhood.



Existing



Proposed

D:\70445.00

SOURCE: ESA, 2021

Syphon Reservoir Improvement Project

Figure 3.1-9
Existing View and Visual Simulation
of Stonegate Neighborhood from Viewpoint E



Page 3.1-21

The construction sequence would continue at the easternmost portion of the project site and move west as work progresses. While work occurs within the eastern and middle portions of the reservoir, and before excavation of the existing dam face begins, construction activities and large equipment would generally be shielded from view along Portola Parkway (Viewpoint A) and within the Stonegate neighborhood (Viewpoint E) by the walls of the existing dam. Views of construction equipment may be visible from SR 133 (Viewpoint C) during this time, which provide background views of the Santiago Hills, identified as a “major ridgeline of importance.” However, the construction equipment would be temporary and would not shield the background viewscape of the Santiago Hills. As a result, impacts would be less than significant.

When the existing dam is excavated, and as construction of the treatment facilities, new dam, spillway and other appurtenant facilities occur on the western portion of the project site, construction equipment and partially built features may be visible from public vantage points along Portola Parkway (Viewpoint A) and within the Stonegate neighborhood (Viewpoint E) that provide views of the “dominant ridgelines” of Loma Ridge and the larger Santa Ana Mountains in the background. However, the equipment would not have the scale or massing to significantly obstruct or provide contrast to the ridgelines in the background. As a result, impacts would be less than significant.

Page 3.1-21**Operation**

Once constructed, the existing 59-foot dam would be elevated to 136 feet in order to achieve water storage capacity of approximately 5,000 AF. The crest of the dam would be elevated from 388 feet amsl to 477 amsl. Other aboveground structures would include a spillway on the left abutment of the dam, an approximately 720 square foot inlet/outlet works control building behind the dam, and an approximately 6,400 square foot treatment facility at the toe of the dam. Visual simulations of the proposed dam are included in Figure 3.1-4 (from Viewpoint A) and Figure 3.1-5 (Viewpoint B), as well as in Figure 3.1-9 (Viewpoint E). Figure 3.1-6 (Viewpoint C) includes a visual simulation of the proposed maximum water surface elevation in the expanded reservoir. Other permanent contrasting features include pavement installed for the on-site access road and installation of a retaining wall behind the access road, as shown in the visual simulation in Figure 3.1-7 (Viewpoint D). All other aboveground structures, including the inlet/outlet works control building and the treatment facility, would either be obstructed by the dam itself or low in profile and would not affect scenic vistas or viewsapes.

Page 3.1-22

The proposed dam face would extend approximately 77 feet above the existing dam height. The enlarged dam would be the main project component that could obstruct the “dominant ridgelines” of the Loma Ridge or Santa Ana Mountains from public vantage

points within the City of Irvine; all other facilities would be below the dam crest. As shown in Figure 3.1-5, the enlarged dam would barely be visible from Stonegate Park and Stonegate Elementary School (Viewpoint B) due to the intervening vegetation and residences, and would not compromise existing views of the Loma Ridge or Santa Ana Mountains. However, as shown in Figure 3.1-4, the enlarged dam would extend higher than the natural ridgelines seen in the existing condition from the entrance to the Crean Lutheran High School Athletic Complex (Viewpoint A). Additionally, as shown in Figure 3.1-9, the enlarged dam would extend almost as high as the top of the natural ridgelines of Loma Ridge seen in the existing condition. The permanent impact to the viewscape of prominent ridgelines of Loma Ridge and the Santa Ana Mountains within the City of Irvine would be a potentially significant impact. The proposed project includes revegetation of the dam face as a project design feature, which would allow the enlarged dam to blend into the surrounding hillsides, as shown in Figure 3.1-4 and Figure 3.1-9. The types of vegetation used and associated maintenance would conform with DSOD requirements. Additionally, motorists, bicyclists and pedestrians would only experience temporary view obstruction for brief moments of time while passing the project site on Portola Parkway and on Sherwood Street and Steinway Street. And as shown in Figure 3.1-5, the view obstruction is minimized as distance away from the project site is achieved. With implementation of project design features, impacts would be reduced to a less than significant level.

Page 3.1-23 to 3.1-25

Construction

The public vantage points from which views of construction activities could occur are from Portola Parkway and Sand Canyon Avenue, the closest public rights-of-way to the west, and SR-133, the closest public right-of-way to the southeast. Views of construction activities also may be visible from within the Stonegate neighborhood as represented by views from Viewpoint E (Sherwood Street and Steinway Street). The visual sensitivity from Portola Parkway and Sand Canyon Avenue is considered moderate due to moderate visual quality and moderate viewer exposure. The visual sensitivity from the Stonegate neighborhood is considered low-to-moderate due to moderate visual quality and low viewer exposure. The visual sensitivity from SR-133 is considered moderate due to high visual quality and low viewer exposure. Due to the hillsides surrounding the existing reservoir where construction would occur, public views are otherwise limited.

Construction activities associated with the proposed project would result in temporary, short-term, impacts to the visual character and quality of the project area. Construction activities would require the use of construction equipment and materials such as scrapers, dozers, water wagons, rollers, graders, loaders, dozers, and trucks for the construction workers. All work within the existing reservoir footprint would generally be shielded from view along Portola Parkway and the Stonegate neighborhood by the walls of the existing dam. Construction activities associated with the proposed intersection improvements and construction of an on-site access road would be visible for a short duration (from a few seconds to several minutes) from the intersection of Portola Parkway and Sand Canyon

Avenue for the 5-month construction period; as work progresses northeast along the access route and into the project site, views would be shielded by existing topography from public rights-of-way. Views from SR-133 to the construction activities within the existing reservoir would be short in duration (a few seconds) and would not be perceivable to motorists passing by. Construction of the treatment facilities, new dam, spillway and other appurtenant facilities may be visible from public vantage points along Portola Parkway and within the Stonegate neighborhood. However, the majority of these features would be partially obstructed by the Crean Lutheran High School Athletic Complex. Additionally, the equipment would not have the scale or massing to significantly obstruct or provide contrast to the ridgelines in the background. The low contrasting visual elements of construction would be temporary and would not permanently affect the existing visual character and quality of the surrounding area. All impacts from construction-related activities would be less than significant.

Operation

Once constructed, the dam would be raised from its existing height of 59 feet to 136 feet in order to achieve water storage capacity of approximately 5,000 AF. The crest of the dam would be elevated from 388 feet amsl to 477 amsl. Other aboveground structures would include a spillway on the left abutment, an approximately 720 square foot inlet/outlet works control building behind the dam, and a 6,400 square foot treatment facility near the toe of the dam. Visual simulations of the proposed dam are included in Figure 3.1-4 (from Viewpoint A), and Figure 3.1-5 (Viewpoint B), and Figure 3.1-9 (Viewpoint E). Figure 3.1-6 (Viewpoint C) includes a visual simulation of the proposed maximum water surface elevation in the expanded reservoir. Visual simulations of the proposed on-site access road and retaining wall are included in Figure 3.1-7 (Viewpoint D). These figures compare existing views with simulated views after project implementation. The visual simulations show that the proposed new dam, expanded reservoir, and features such as the access road and retaining wall would be fully visible once operational from surrounding public viewpoints. A description of the simulated views in relation to visual character and quality is provided below per the screening criteria of visual obstruction, contrast, and alteration of natural resources.

For Viewpoint A (Figure 3.1-4), the existing visual sensitivity is considered moderate due to moderate visual quality and moderate viewer exposure. With the addition of the proposed dam as shown in the simulation, the ridgelines of the Santa Ana Mountains and Loma Ridge would be eliminated from this vantage point. These ridgelines are considered to have natural land form and open space value and contribute to the area's visual character and quality. No natural landforms would be regraded, altered, or otherwise destroyed as a result of project implementation because the existing dam is an artificial feature. The dam face would be revegetated as a project design feature, which would maintain consistency with the existing natural hillsides. The types of vegetation used and associated maintenance would conform with DSOD requirements. The proposed dam would not provide significant contrast nor alter color of the surrounding landscape. The proposed treatment facilities and the inlet/outlet works control building would be the only facilities installed aboveground other than the dam and associated

spillway. To ensure that all aboveground project structures would not impact the visual character or quality of the project site or surrounding area, Mitigation Measure AES-1 would require design of the aboveground project structures to have color palettes that blend in with the surrounding character of the project site. As a result, the proposed project would not modify the visual quality of the surrounding area. Direct unobstructed views of the proposed dam would be available for brief periods of time (i.e., seconds to several minutes) when approximately 19,000 daily motorist users, as well as pedestrians/cyclists, are passing the site. It is important to note that motorists traveling northwest/southwest on Portola Parkway would not view the site from the angle depicted in the viewpoint; the angle from Viewpoint A looking northwest would mainly be experienced by pedestrians/cyclists, with motorists experiencing a lesser degree of the project site due to the angle of the roadway. Given the lack of temporal frequency of public viewers and the revegetation of the dam face that would be consistent with the surrounding natural hillsides, the existing visual sensitivity of the view from this location would not be compromised. As a result, impacts to the established visual character and quality from this view as a result of project implementation would be less than significant with mitigation.

Page 3.1-26

For Viewpoint E (Figure 3.1-9), the existing visual sensitivity is considered low-to-moderate due to moderate visual quality and low viewer exposure. With the addition of the proposed dam as shown in the simulation, the ridgelines of the Santa Ana Mountains and Loma Ridge would be significantly reduced from this vantage point. These ridgelines are considered to have natural land form and open space value and contribute to the area's visual character and quality. No natural landforms would be regraded, altered, or otherwise destroyed as a result of project implementation because the existing dam is an artificial feature. The dam face would be revegetated as a project design feature, which would maintain consistency with the existing natural hillsides. The types of vegetation used and associated maintenance would conform with DSOD requirements. The proposed dam would not provide significant contrast nor alter color of the surrounding landscape. The proposed treatment facilities would be the only facilities installed aboveground other than the dam, inlet/outlet control building, and associated spillway. To ensure that all aboveground project structures would not impact the visual character or quality of the project site or surrounding area, Mitigation Measure AES-1 would require design of the aboveground project structures to have color palettes that blend in with the surrounding character of the project site. As a result, the proposed project would not modify the visual quality of the surrounding area. Direct unobstructed views of the proposed dam would be available for brief periods of time (i.e., seconds to several minutes) when approximately tens to hundreds of daily motorist users, as well as pedestrians/cyclists, are traveling through the Stonegate neighborhood at Sherwood Street and Steinway Street. Given the lack of temporal frequency of public viewers and the revegetation of the dam face that would be consistent with the surrounding natural hillsides, the existing visual sensitivity of the view from this location would not be significantly compromised. As a result, impacts to the established visual character and

quality from this view as a result of project implementation would be less than significant with mitigation.

Chapter 3, Section 3.9, Hydrology and Water Quality

Page 3.9-13

“It is anticipated that if groundwater were to be encountered during the proposed project’s excavation, groundwater would be dewatered and conveyed to proposed onsite settling ponds or discharged to the existing storm drain, if necessary, pursuant to the conditions and requirements in Order Number: R8-2019-006107-041; NPDES Number: CAG918002 (Santa Ana RWQCB 200919).”

Page 3.9-15 to 3.9-16

Orange County Municipal Storm Water Permit [MS4]

The Orange County Municipal Storm Water Permit (MS4) applies to the proposed project (Municipal NPDES Permit No. CAS 618030, Order No. R8-2009-0030 - NPDES Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region, Areawide Urban Storm Water Runoff, Orange County). The NPDES municipal general permits issued by the RWQCB establish regulations covering discharge prohibitions, receiving water limitations, municipal operations (~~such as the proposed project~~), new development, construction site controls (construction site runoff), and other regulations to regulate surface water quality (RWQCB 2009). The discharge prohibitions prohibit the discharge of non-stormwater (materials other than stormwater) into storm drain systems and watercourses and includes a tiered categorization of non-stormwater discharges based on potential for pollutant content that may be discharged upon adequate assurance that the discharge contains no pollutants of concern at concentrations that will impact beneficial uses or cause exceedances of water quality standards. The receiving water limitations provide narrative and numeric water quality standards. The municipal operations regulations include a number of requirements to control and reduce non-stormwater discharges and polluted stormwater to storm drains and watercourses during operation, inspection, and routine repair and maintenance activities of municipal facilities and infrastructure. The requirements include source control, site design, and stormwater treatment requirements, such as minimizing disturbance of natural infiltration areas and the addition of impervious surfaces, controlling and directing runoff, and the use of infiltration and bioretention measures, among other measures. To more efficiently address the requirements, the permittees within the County of Orange, which includes the City of Irvine, developed the Drainage Area Management Plan (DAMP), described below. ~~The MS4 permit applies to the proposed project because (1) the area downgradient (west) of the dam would drain stormwater to the County of Orange.~~

Page 3.9-31

Additionally, and as previously discussed, the proposed project would comply with the terms of the NPDES Construction General Permit, the waste discharge requirements of the NPDES dewatering discharge permit, as well as conditions for discharge into the existing Portola Parkway storm drain, ~~managed by Orange County Flood Control District~~. All of these require various measures discussed above in Impact 3.9-1 to prevent degradation of water quality, which would be consistent with the Basin Plan and the Basin 8-1 Alternative. Therefore, impacts relative to the Basin Plan and the alternative sustainable groundwater management plan would be less than significant.

Page 3.9-35

“Santa Ana RWQCB. ~~2019 n.d. Adopted Order R8-2019-006109-0045~~ General Waste Discharge requirements WDRs for Groundwater Discharges to Surface Waters Resulting from De Minimus Discharges, Groundwater Dewatering Operations, and/or Groundwater cleanup/Remediation Operations at Site within the San Diego Creek/Newport Bay Watershed. Amendment of Order No. R8-2007-0041. Available at https://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2019/R8-2019-0061.pdf ~~https://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2009/09_045_amendment_of_order_r8_2007_0041_SanDiegoCreek_NewportBayWatershed.pdf~~ Accessed ~~May~~ April 27, 2020.”

Chapter 3, Section 3.10, NoisePage 3.10-22 to 3.10-23

TABLE 3.10-9
ESTIMATE OF CONSTRUCTION TRAFFIC NOISE LEVELS (L_{eq}) AT EXISTING OFF-SITE SENSITIVE RECEIVER LOCATIONS

Construction Phase	Roadway Segment (Distance in feet from construction activity)			
	Portola Pkwy, between SR-133 and Paragon (60 feet) dBA, Leq	Sand Canyon Ave, between Portola Pkwy and Irvine Blvd (40 feet) dBA, Leq	Irvine Blvd, between San Canyon Ave and Native Spring (55 feet) dBA, Leq	SR-133, between Irvine Blvd and SR-241 (80 feet) dBA, Leq
Vegetation Clearing Access Routes/Intersection Improvements	70.7 <u>62.2</u>	71.6 <u>63.0</u>	72.0 <u>63.5</u>	71.2 <u>62.7</u>
Access Routes/Intersection Improvements	62.5 <u>54.8</u>	63.4 <u>55.6</u>	63.9 <u>56.2</u>	63.1 <u>55.5</u>
Excavation of Sediment/Existing Dam: <i>Mobilization, site prep/Staging Areas</i>	58.4 <u>52.9</u>	59.1 <u>53.6</u>	59.8 <u>54.4</u>	59.1 <u>53.8</u>
Excavation of Sediment/Existing Dam: <i>Upstream Excavation and Foundation Treatment</i>	61.9 <u>56.0</u>	62.6 <u>56.7</u>	63.3 <u>57.5</u>	62.6 <u>57.0</u>

Construction Phase	Roadway Segment (Distance in feet from construction activity)			
	Portola Pkwy, between SR- 133 and Paragon (60 feet) dBA, Leq	Sand Canyon Ave, between Portola Pkwy and Irvine Blvd (40 feet) dBA, Leq	Irvine Blvd, between San Canyon Ave and Native Spring (55 feet) dBA, Leq	SR-133, between Irvine Blvd and SR- 241 (80 feet) dBA, Leq
Excavation of Sediment/Existing Dam: <i>Dam Excavation and Foundation Treatment</i>	61.9 <u>56.0</u>	62.6 <u>56.7</u>	63.3 <u>57.5</u>	62.6 <u>57.0</u>
Excavation of Sediment/Existing Dam: <i>Dam Excavation and Foundation Treatment</i>	70.9 <u>63.0</u>	71.8 <u>63.7</u>	72.3 <u>64.3</u>	71.5 <u>63.6</u>
Construction of Dam/Spillway/Reservoir: <i>Install Inlet/Outlet</i>				
Construction of Dam/Spillway/Reservoir: <i>Install Embankment to Bottom of Blanket Drain</i>	70.4 <u>62.2</u>	71.2 <u>63.0</u>	71.7 <u>63.5</u>	70.9 <u>62.8</u>
Construction of Dam/Spillway/Reservoir: <i>Install Blanket Drain</i>	70.4 <u>62.2</u>	71.2 <u>63.0</u>	71.7 <u>63.5</u>	70.9 <u>62.8</u>
Construction of Dam/Spillway/Reservoir: <i>Install Chimney/Remaining Embankment</i>	70.4 <u>62.2</u>	71.2 <u>63.0</u>	71.7 <u>63.5</u>	70.9 <u>62.8</u>
Construction of Dam/Spillway/Reservoir: <i>Install Chimney/Remaining Embankment Spillway Construction</i>	71.4 <u>63.4</u>	72.2 <u>64.2</u>	72.7 <u>64.8</u>	71.9 <u>64.1</u>
Construction of Dam/Spillway/Reservoir: <i>Spillway Construction</i>	70.1 <u>62.2</u>	70.9 <u>62.9</u>	71.4 <u>63.6</u>	70.7 <u>62.9</u>
Construction of Treatment Facility Wetlands/Riparian Installation				
Construction of Dam/Spillway/Reservoir: <i>Spillway Construction</i>	70.5 <u>62.8</u>	71.4 <u>63.5</u>	71.9 <u>64.1</u>	71.1 <u>63.5</u>
Construction of Treatment Facility Wetlands/Riparian Installation Installation of Recreation Facilities				
Construction of Treatment Facility Wetlands/Riparian Installation Installation of Recreation Facilities	69.3 <u>61.0</u>	70.1 <u>61.8</u>	70.6 <u>62.4</u>	69.8 <u>61.7</u>
Construction of Treatment Facility Installation of Recreation Facilities	68.6 <u>59.8</u>	69.4 <u>60.6</u>	69.9 <u>61.2</u>	69.1 <u>60.4</u>
Construction of Treatment Facility	67.9 <u>59.0</u>	68.8 <u>59.8</u>	69.2 <u>60.4</u>	68.4 <u>59.6</u>
Demobilization	57.5 <u>52.9</u>	58.2 <u>53.6</u>	58.9 <u>54.4</u>	58.3 <u>53.8</u>

NOTES:

Construction schedule and truck traffic information provided by the project applicant.
Detailed traffic noise calculations are provided in [Revised Appendix D](#).

SOURCE: ESA 2021

Page 3.10-24**Operation**

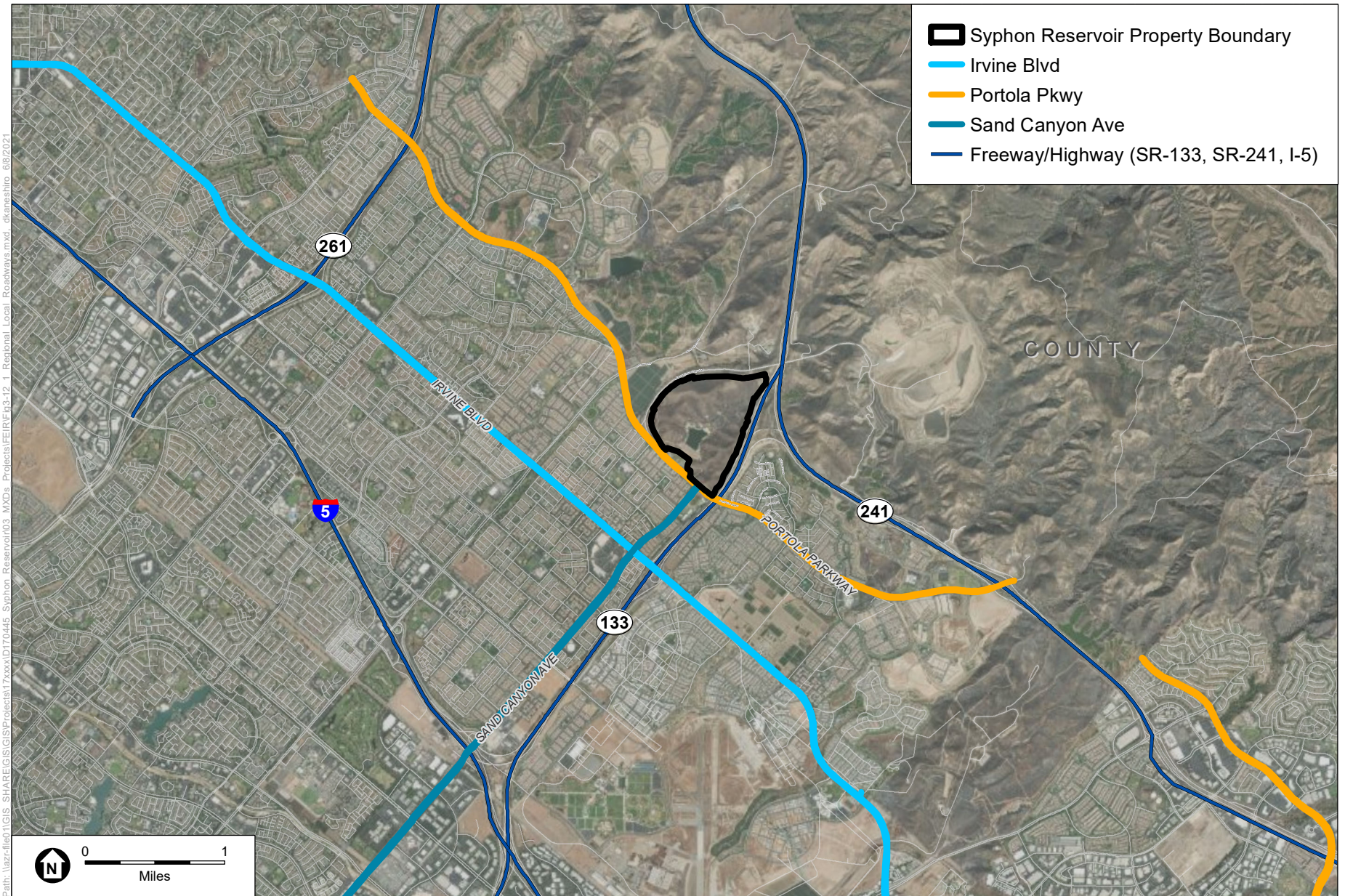
Operation of the proposed project would not increase the average daily traffic (ADT) volumes along the major thoroughfares within the project vicinity. Additionally, the proposed inlet and outlet pipelines that would supply and drain the reservoir would be located underground and would not result in any operational noise. The inlet/outlet works control building would consist of a masonry block control building to house compressors, instruments, and associated electrical components. These facilities would be located over 1,000 feet from the nearest sensitive receptor and would be blocked by the proposed dam face; as a result, noise would not be generated above ambient conditions at sensitive receptor property lines. The primary pumps used for water distribution are already existing and located off-site. Operation of the proposed project would introduce small pumps located on the site within the proposed treatment facilities. A proposed masonry block wall building would house the storage tanks, metering pumps, and control system. The small pumps located on-site would not generate noise above ambient conditions at sensitive receptor property lines. Therefore, impacts from the operations of the proposed project would be less than significant.

Chapter 3, Section 3.12, TransportationPage 3.12-2

The legend of **Figure 3.12-1** has been revised to include freeways/highways.

Page 3.12-3

Notable features along Portola Parkway include bike lanes on both the northbound and southbound sides of the roadway, and a separated sidewalk, known as the Portola Side Path, on the southbound side of the roadway. The only sidewalk on the northbound side is between Sand Canyon and the Crean Lutheran High School Sports Complex. There is no sidewalk on the northbound side.



SOURCE: ESA, 2020; ESRI, 2020.

Syphon Reservoir Improvement Project

Figure 3.12-1
Regional and Local Roadways

Revised Appendix E, Transportation Impact Analysis Report

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- Route 1A – I-5 (from the north), ~~south~~-north on Sand Canyon Avenue for trucks traveling inbound and southbound on Sand Canyon Avenue to I-5 (to the north) for trucks traveling outbound.
- Route 1B – I-5 (from the south), ~~south~~-north on Sand Canyon Avenue for trucks traveling inbound and southbound on Sand Canyon Avenue to I-5 (to the south) for trucks traveling outbound

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This level of trip generation is anticipated to occur for approximately two to three months. Trip generation outside of this phase would be reduced with approximately 30 daily to 154 daily trips being generated of construction would vary depending on the level of activity associated with the given phase of construction. Daily trip generation for the other phases of construction range from approximately 30 daily trips to 154 daily trips.

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Construction of the Project is estimated to require a total of approximately 41 months. The preconstruction activities would begin in the fall of 2022 and would involve approximately 5 months of access road improvements. Preconstruction would be followed by approximately 36 months for construction of the new dam, reservoir, and associated facilities, depending on weather conditions and other variables. Construction is currently anticipated to begin in 2023. The proposed Project is assumed to be operational by end of 2026.

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Bicycle infrastructure at the intersection of Sand Canyon Avenue and Portola Parkway will be reconstructed to maintain existing access while following the City of Irvine requirements. The Project will not affect any planned bicycle facilities in the study area. Minor improvements to facilitate bicycle circulation such as “BIKES MAY USE FULL LANE” signage, shared arrow advance warning signage, and other suggested methods that provide advance warning to both vehicular drivers and bicyclists will be included in the traffic control plans generated for the intersection construction.

**Revised Appendix D
Noise and Vibration Technical
Report, Sub-Appendix B,
Construction Traffic Noise**



TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Vegetation Removal and Access Route
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	20	0	20	62.2
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	20	0	20	63.0
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	20	0	20	63.5
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	20	0	20	62.7

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
 The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
 Accuracy of the calculation is within ± 0.1 dB when comparing to TNM results.
 Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
 Vehicles are assumed to be on a long straight roadway with cruise speed.
 Roadway grade is less than 1.5%.
 CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Access Route
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	10	0	3	54.8
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	10	0	3	55.6
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	10	0	3	56.2
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	10	0	3	55.5

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
 The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
 Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.
 Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
 Vehicles are assumed to be on a long straight roadway with cruise speed.
 Roadway grade is less than 1.5%.
 CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Mobilization, site prep/Staging Areas
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	15	0	1	52.9
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	15	0	1	53.6
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	15	0	1	54.4
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	15	0	1	53.8

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).

The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.

Accuracy of the calculation is within ± 0.1 dB when comparing to TNM results.

Noise propagation greater than 50 feet is based on the following assumptions:

For hard ground, the propagation rate is 3 dB per doubling the distance.

For soft ground, the propagation rate is 4.5 dB per doubling the distance.

Vehicles are assumed to be on a long straight roadway with cruise speed.

Roadway grade is less than 1.5%.

CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Upstream Excavation and Foundation Treatment
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	31	0	2	56.0
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	31	0	2	56.7
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	31	0	2	57.5
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	31	0	2	57.0

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).

The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.

Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.

Noise propagation greater than 50 feet is based on the following assumptions:

For hard ground, the propagation rate is 3 dB per doubling the distance.

For soft ground, the propagation rate is 4.5 dB per doubling the distance.

Vehicles are assumed to be on a long straight roadway with cruise speed.

Roadway grade is less than 1.5%.

CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Dam Excavation and Foundation Treatment
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	31	0	2	56.0
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	31	0	2	56.7
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	31	0	2	57.5
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	31	0	2	57.0

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
 The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
 Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.
 Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
 Vehicles are assumed to be on a long straight roadway with cruise speed.
 Roadway grade is less than 1.5%.
 CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Dam Excavation and Foundation Treatment and Install Inlet/Outlet
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	70	0	19	63.0
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	70	0	19	63.7
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	70	0	19	64.3
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	70	0	19	63.6

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
 The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
 Accuracy of the calculation is within ± 0.1 dB when comparing to TNM results.
 Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
 Vehicles are assumed to be on a long straight roadway with cruise speed.
 Roadway grade is less than 1.5%.
 CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Install Embankment to Bottom of Blanket Drain
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	39	0	18	62.2
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	39	0	18	63.0
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	39	0	18	63.5
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	39	0	18	62.8

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
 The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
 Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.
 Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
 Vehicles are assumed to be on a long straight roadway with cruise speed.
 Roadway grade is less than 1.5%.
 CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Install Blanket Drain
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	39	0	18	62.2
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	39	0	18	63.0
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	39	0	18	63.5
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	39	0	18	62.8

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
 The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
 Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.
 Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
 Vehicles are assumed to be on a long straight roadway with cruise speed.
 Roadway grade is less than 1.5%.
 CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Install Chimney/Remaining Embankment
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	39	0	18	62.2
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	39	0	18	63.0
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	39	0	18	63.5
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	39	0	18	62.8

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
 The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
 Accuracy of the calculation is within ± 0.1 dB when comparing to TNM results.
 Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
 Vehicles are assumed to be on a long straight roadway with cruise speed.
 Roadway grade is less than 1.5%.
 CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Install Chimney/Remaining Embankment & Spillway Construction
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	78	0	21	63.4
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	78	0	21	64.2
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	78	0	21	64.8
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	78	0	21	64.1

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
 The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
 Accuracy of the calculation is within ± 0.1 dB when comparing to TNM results.
 Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
 Vehicles are assumed to be on a long straight roadway with cruise speed.
 Roadway grade is less than 1.5%.
 CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Spillway Construction & Construction of Filtration & Wetlands Installation
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	75	0	14	62.2
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	75	0	14	62.9
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	75	0	14	63.6
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	75	0	14	62.9

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
 The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
 Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.
 Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
 Vehicles are assumed to be on a long straight roadway with cruise speed.
 Roadway grade is less than 1.5%.
 CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Spillway Construction & Construction of Filtration & Wetlands & Recreation Installation
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	85	0	16	62.8
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	85	0	16	63.5
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	85	0	16	64.1
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	85	0	16	63.5

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
 The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
 Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.
 Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
 Vehicles are assumed to be on a long straight roadway with cruise speed.
 Roadway grade is less than 1.5%.
 CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Construction of Filtration & Wetlands & Recreation Installation
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	46	0	12	61.0
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	46	0	12	61.8
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	46	0	12	62.4
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	46	0	12	61.7

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
 The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
 Accuracy of the calculation is within ± 0.1 dB when comparing to TNM results.
 Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
 Vehicles are assumed to be on a long straight roadway with cruise speed.
 Roadway grade is less than 1.5%.
 CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Construction of Filtration & Recreation Installation
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	26	0	10	59.8
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	26	0	10	60.6
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	26	0	10	61.2
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	26	0	10	60.4

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).

The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.

Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.

Noise propagation greater than 50 feet is based on the following assumptions:

For hard ground, the propagation rate is 3 dB per doubling the distance.

For soft ground, the propagation rate is 4.5 dB per doubling the distance.

Vehicles are assumed to be on a long straight roadway with cruise speed.

Roadway grade is less than 1.5%.

CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Construction of Filtration/Chlor/Dechlor Facility
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	16	0	9	59.0
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	16	0	9	59.8
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	16	0	9	60.4
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	16	0	9	59.6

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
 The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
 Accuracy of the calculation is within ± 0.1 dB when comparing to TNM results.
 Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
 Vehicles are assumed to be on a long straight roadway with cruise speed.
 Roadway grade is less than 1.5%.
 CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

TRAFFIC NOISE ANALYSIS TOOL



Project Name: IRWD Syphon
Analysis Scenario: Demobilization
Source of Traffic Volumes: Applicant

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Potola Pkwy, between SR-133 and Paragon	Hard	60	55	55	55	15	0	1	52.9
Sand Canyon Ave, between Portola Pkwy and Irvine Blvd.	Hard	40	50	50	50	15	0	1	53.6
Irvine Blvd, between San Canyon Ave and Native Spring	Hard	55	60	60	60	15	0	1	54.4
SR-133, between Irvine Blvd and SR-241	Hard	80	65	65	65	15	0	1	53.8

Model Notes:

The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).

The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.

Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.

Noise propagation greater than 50 feet is based on the following assumptions:

For hard ground, the propagation rate is 3 dB per doubling the distance.

For soft ground, the propagation rate is 4.5 dB per doubling the distance.

Vehicles are assumed to be on a long straight roadway with cruise speed.

Roadway grade is less than 1.5%.

CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

Revised Appendix E

Transportation Impact Analysis



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**Irvine Ranch Water
District**



Irvine Ranch Water District Syphon Reservoir Improvement Project

Transportation
Impact Analysis
July 2021

Irvine Ranch Water District Syphon Reservoir Improvement Project Transportation Impact Analysis

Prepared for:
Irvine Ranch Water District

July 2021

OC18-0553

FEHR  PEERS



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1. Executive Summary

Fehr & Peers has completed a Transportation Impact Analysis (TIA) for construction of the Irvine Ranch Water District (IRWD) Syphon Reservoir Improvement Project (Project) located near the intersection of Sand Canyon Avenue and Portola Parkway in Irvine, California. The Project proposes to increase the capacity of the existing Syphon Reservoir and replace the existing engineered dam with a new and larger engineered dam. As part of the Project, a private 2-lane roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site is proposed for construction vehicle access. This proposal will require reconstruction of the Sand Canyon Avenue and Portola Parkway intersection to accommodate the new northern leg and the associated traffic signals, lane striping, and signage changes. Pedestrian and bicycle infrastructure at the intersection will be reconstructed to maintain access like the existing condition while following the City of Irvine requirements.

As part of the TIA, consistent with California Environmental Quality Act (CEQA) requirements, a Vehicle Miles Traveled (VMT) analysis was conducted for the Project. Intersection Level of Service (LOS) was also conducted to determine intersection operations with and without the Project. The study intersections selected represent the intersections where construction traffic is proposed to travel through. Four routes are proposed for the Project.

Findings

On a peak construction activity day, approximately 232 daily trips are estimated, of which 36 trips (27 inbound/9 outbound) would occur during the AM peak hour and 18 trips (0 inbound/18 outbound) would occur during the PM peak hour. For the purpose of the intersection LOS analysis, the trip generation estimates were converted to Passenger Car Equivalent (PCE) trips. PCE reflects the additional effect larger vehicles have on intersection operations based on their larger size. A PCE factor of 1.0 was assumed for worker vehicles and a PCE factor of 3.0 was assumed for all construction trucks, based on the Highway Capacity Manual 6th Edition (HCM) (Transportation Research Board, 2017). As shown in Table 3, on a peak construction activity day, approximately 512 daily PCE trips are estimated, of which 72 PCE trips (45 inbound/27 outbound) would occur during the AM peak hour and 18 PCE trips (0 inbound/18 outbound) would occur during the PM peak hour.

The City of Irvine's *CEQA VMT Impact Analysis Guidelines* identify projects generating fewer than 250 weekday daily trips as requiring no further VMT impact analysis. All phases of construction have a daily trip generation less than 250 trips. Therefore, it can be determined that all the construction phases do not meet the daily trip screening threshold and require no further VMT impact analysis using the *CEQA VMT Impact Analysis Guidelines*.

The LOS analyses resulted in no intersection deficiencies under any of the "plus Project" scenarios. Therefore, no intersection improvements would be required.

2. Introduction

This report presents the analysis and findings of a Transportation Impact Analysis (TIA) prepared for construction of the Irvine Ranch Water District (IRWD) Syphon Reservoir Improvement Project (Project) located near the intersection of Sand Canyon Avenue and Portola Parkway in Irvine, California. This chapter discusses the TIA purpose, analysis locations and methods, scenarios, and report organization.

Study Purpose

The purpose of this study is to evaluate the temporary transportation impacts associated with the Syphon Reservoir Improvement Project. The Project proposes to increase the capacity of the existing Syphon Reservoir and replace the existing engineered dam with a new and larger engineered dam. The Project would allow the storage of additional recycled water produced at the Michelson Water Recycling Plant during periods of low demand (winter months) for use during periods of high demand (summer months). The Project would expand the reservoir's storage capacity from the current 500 Acre-Feet (AF) to approximately 5,000 AF and would help IRWD become more self-sufficient by reducing its dependence on costly and less-reliable imported water from both Northern California and the Colorado River. The Project would help IRWD to store more drought-proof recycled water during summer months and support the increased use of recycled water for public landscaping, agricultural, business, and industrial uses. Every gallon of recycled water IRWD uses for non-drinking water purposes saves a gallon of drinking water, helping the region's existing and planned future development to better withstand future water shortages. By reducing IRWD's dependence on costly imported water, the Project would allow IRWD to replace an expensive source of water for one that is less expensive and a drought-resilient supply, which increases IRWD's water supply reliability. The proposed Project is assumed to be operational by end of 2026.

The Project would be implemented within the IRWD service area at the location of the existing Syphon Reservoir, northeast of Portola Parkway between Bee Canyon Access Road and SR-133 in the County of Orange. The Crean Lutheran High School Athletic Complex is located between Portola Parkway and the toe of the existing dam. Residential neighborhoods are located on the southwest side of Portola Parkway. Figure 1 identifies the location of the Project within Irvine.

As part of the Project, a private 2-lane roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site is proposed for construction vehicle access during Project construction and maintenance/operations access during Project operation. This proposal will require reconstruction of the Sand Canyon Avenue and Portola Parkway intersection to accommodate the new northern leg and the associated traffic signals, lane striping, and signage changes. Pedestrian and bicycle infrastructure at the intersection would be reconstructed to maintain access like the existing condition while following the City of Irvine requirements. This improvement assumes the northbound

approach at Sand Canyon Avenue and Portola Parkway would be modified from two left-turn lanes and two right-turn lanes to one left-turn lane, one shared through/left-turn lane, and two right-turn lanes. The southbound approach would be constructed with one shared left/through/right-turn lane. Split phasing (a traffic signal phasing that gives a green signal for all vehicle movements of one direction followed by a green signal for all movements of the opposite direction) would be incorporated for the northbound and new southbound approaches during construction and typical operations. During construction of the Project, this private roadway would be used by construction trips for ingress and egress of the construction site. Upon completion of the Project, this private roadway would be used by IRWD staff conducting maintenance and inspections as part of typical operations, similar to existing conditions. Trips by IRWD staff to the reservoir are not anticipated to increase as compared to the existing condition and are not considered to have a significant effect on the future intersection operations.

Study Area Boundary

The scope of the traffic analysis, methodology assumptions, and selection of study intersections was developed in consultation with City of Irvine staff and documented in the Scope of Work for Irvine Ranch Water District (IRWD) Syphon Reservoir Construction Transportation Impact Analysis dated June 29, 2020. The approved scope of work is included in Appendix A.

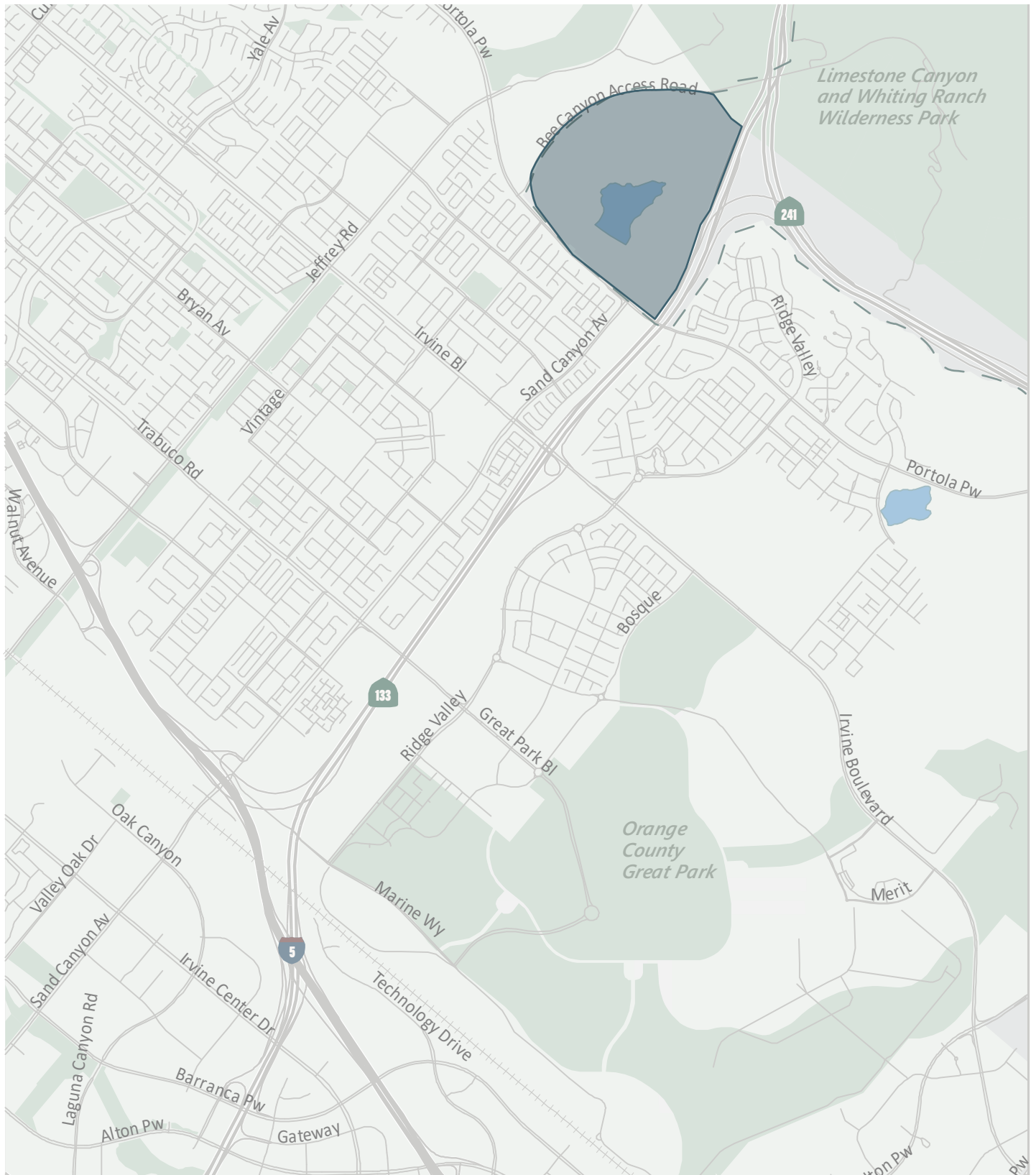
The study intersections selected represent the intersections where construction traffic is proposed to travel through. Four routes are proposed for the Project.

- Route 1A – I-5 (from the north), ~~south~~north on Sand Canyon Avenue for trucks traveling inbound and southbound on Sand Canyon Avenue to I-5 (to the north) for trucks traveling outbound.
- Route 1B – I-5 (from the south), ~~north~~south on Sand Canyon Avenue for trucks traveling inbound and southbound on Sand Canyon Avenue to I-5 (to the south) for trucks traveling outbound.
- Route 2A – SR-133 (from the north), west on Irvine Boulevard, and north on Sand Canyon Avenue for trucks traveling inbound and southbound on Sand Canyon Avenue and east on Irvine Boulevard to SR-133 (to the north) for trucks traveling outbound.
- Route 2B – SR-133 (from the south), west on Irvine Boulevard, and north on Sand Canyon Avenue for trucks traveling inbound and southbound on Sand Canyon Avenue and east on Irvine Boulevard to SR-133 (to the south) for trucks traveling outbound.

As presented in Figure 2, the following intersections have been selected for study:

1. Sand Canyon Avenue & Portola Parkway
2. Sand Canyon Avenue & Irvine Boulevard
3. Sand Canyon Avenue & Trabuco Road
4. Sand Canyon Avenue & I-5 Northbound Ramps
5. Sand Canyon Avenue & Marine Way
6. Sand Canyon Avenue & I-5 Southbound Ramps
7. SR-133 Southbound Ramps & Irvine Boulevard
8. SR-133 Northbound Off-Ramp & Irvine Boulevard

Freeway links were not included in this study as less than 50 peak hour trips would be added to the freeway system.



Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway



Legend


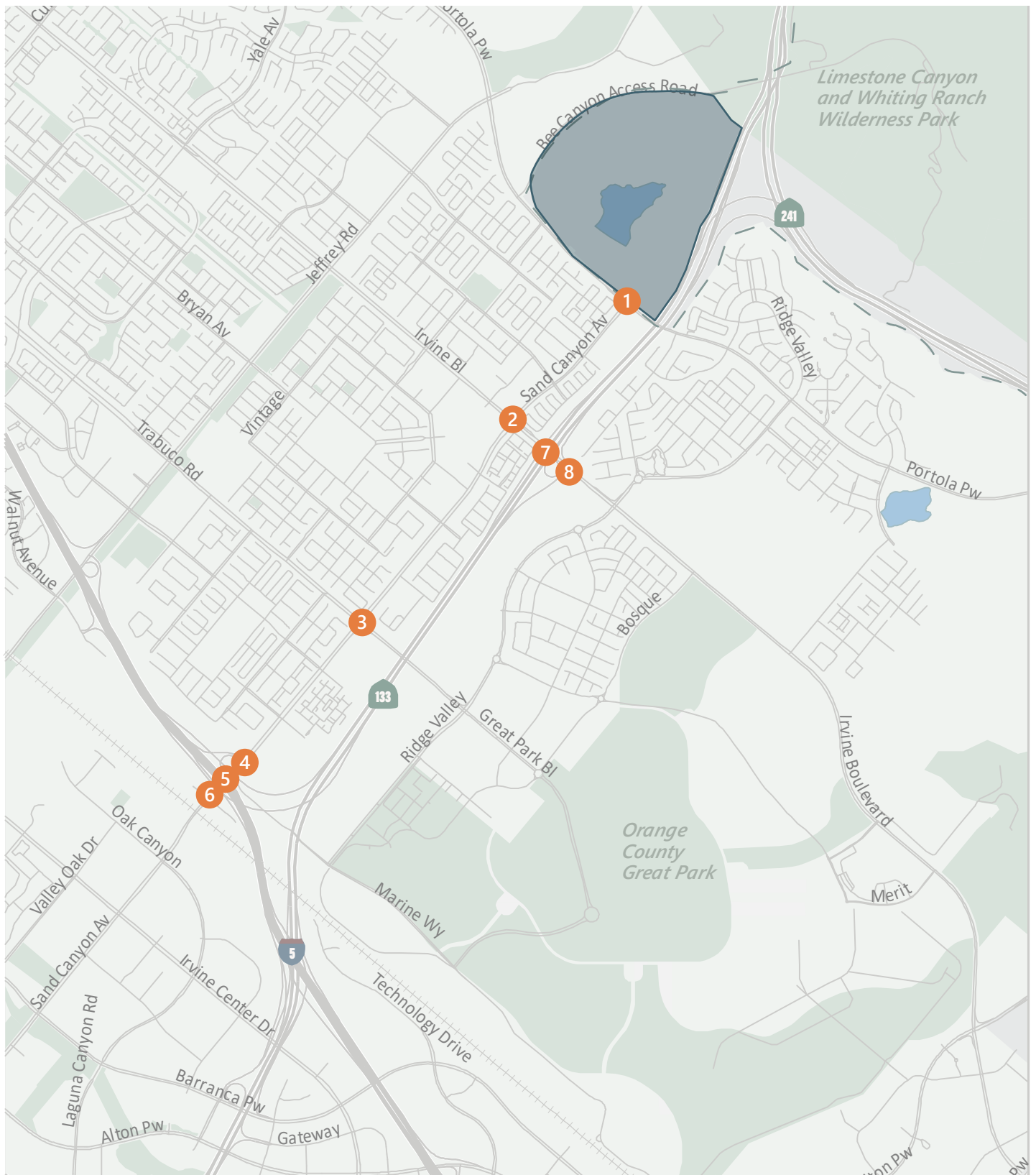
 Project Site Syphon Reservoir

Figure 1
Project Location



Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway



Legend

- Study Intersections
- Project Site Syphon Reservoir

Figure 2
Study Intersections

Analysis Methods

The *City of Irvine Traffic Study Guidelines* (City of Irvine, April 2020) were used to identify the analysis methodologies for the Vehicle Miles Traveled (VMT) and intersection Level of Service (LOS) analyses. Many jurisdictions in Southern California have regarded construction-related traffic as causing adverse but not significant impacts because, while sometimes inconvenient, construction-related traffic effects are temporary.

Vehicle Miles Traveled Analysis

On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 into law and started a process that has fundamentally changed transportation impact analyses conducted as part of California Environmental Quality Act (CEQA) compliance. The Governor's Office of Planning and Research (OPR) was charged with developing new guidelines for evaluating transportation impacts under CEQA using methods that no longer focus on measuring automobile delay and LOS.

OPR issued proposed updates to the CEQA guidelines in support of these goals in November 2017 and a supporting technical advisory in December 2018. The updates establish VMT as the metric for evaluating a project's environmental impacts on the transportation system. Lead agencies, including the City of Irvine, had until July 1, 2020 to implement these new requirements. On June 23, 2020, the City of Irvine adopted the *CEQA VMT Impact Analysis Guidelines* (City of Irvine, April 2020). These guidelines are included as an exhibit in the *City of Irvine Traffic Study Guidelines*.

Neither OPR nor the City of Irvine have provided guidance regarding VMT thresholds for construction related traffic. Nonetheless and per the approved scope of work, a VMT impact analysis was conducted for the Project that follows the adopted *CEQA VMT Impact Analysis Guidelines*.

Intersection Level of Service Analysis

For the signalized intersections within the study area, the transportation analysis was conducted in accordance with *City of Irvine Traffic Study Guidelines* requirements using the Intersection Capacity Utilization (ICU) methodology.

The ICU methodology is considered a standard approach for evaluating signalized intersection operations in Irvine. The ICU method of intersection capacity analysis determines the intersection volume-to-capacity (V/C) ratio and corresponding LOS for the turning movements and intersection characteristics at signalized intersections. "Capacity" represents the maximum volume of vehicles in the critical lanes that have a reasonable expectation of passing through an intersection in one hour under prevailing roadway and traffic

conditions. The ICU method calculates the V/C ratio for each critical movement by dividing volume by capacity. The V/C ratios for each critical movement are summed with an added lost time due to vehicle start-ups and stops to determine the total intersection V/C ratio. Traffic conditions for signalized intersections were evaluated using the Vistro Version 7.0 software.

After the quantitative V/C and delay estimates were completed, the methodologies assign a qualitative letter grade that represents the operations of the intersection. These grades range from level of service (LOS) A (minimal delay) to LOS F (excessive congestion). LOS E represents at-capacity operations. Descriptions of the LOS letter grades for intersections are provided in Table 1.

Analysis Scenarios

The proposed Project is assumed to be operational by end of 2026. The study was directed at analyzing the potential Project generated traffic effect on the local street system under both existing and future year traffic conditions. The following traffic scenarios were developed and analyzed as part of this study:

- Existing Conditions – Due to emergence of COVID-19 in southern California and the decision of local schools to end on-campus classes for the 2019-2020 academic year, existing intersection counts could not be collected in the study area. However, the City of Irvine provided intersection counts from 2018 that were used to estimate 2020 intersection volumes. Per the approved scope of work with the City of Irvine, a growth factor of 2% per year was applied to previously collected counts to develop 2020 intersection volumes for the AM and PM peak hours.
- Existing plus Project Conditions – the proposed construction trip generation (in passenger car equivalence) and route assignment estimates was added to the Existing Conditions. Buildout of a private roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site was included.
- Short-Term Interim Year Approved Conditions – the future (Short-Term Interim Year Approved) conditions were developed using study area intersection volume growth rates on a per year basis. The per year growth rates were developed based on outputs from the latest versions of the Existing and Short-Term Interim Year Approved Irvine Traffic Analysis Model (ITAM) provided by the City of Irvine. The growth rate was applied to the Existing Conditions intersection volumes to reflect Existing Conditions growth to the Short-Term Interim Year Approved condition of ITAM.
- Short-Term Interim Year Approved plus Project Conditions – the proposed construction trip generation (in passenger car equivalence) and route assignment estimates was added to the Short-Term Interim Year Approved Conditions. Buildout of a private roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site was included.

TABLE 1
INTERSECTION LEVEL OF SERVICE CRITERIA

Level of Service	Description	ICU Volume to Capacity (V/C) Ratio
A	<u>Signalized:</u> Operations with very low delay occurring with favorable progression and/or short cycle length. <u>Unsignalized:</u> Little or no delay.	0.000 - 0.600
B	<u>Signalized:</u> Operations with low delay occurring with good progression and/or short cycle lengths. <u>Unsignalized:</u> Short traffic delays.	0.601 - 0.700
C	<u>Signalized:</u> Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear. <u>Unsignalized:</u> Average traffic delays.	0.701 - 0.800
D	<u>Signalized:</u> Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable. <u>Unsignalized:</u> Long traffic delays.	0.801 - 0.900
E	<u>Signalized:</u> Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. <u>Unsignalized:</u> Very long traffic delays.	0.901 - 1.000
F	<u>Signalized:</u> Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths. <u>Unsignalized:</u> Extreme traffic delays with intersection capacity exceeded	> 1.000

Sources: *Transportation Research Circular No. 212, Interim Materials on Highway Capacity*, Transportation Research Board, 1980.

- Short-Term Interim Year Pending Conditions – the future (Short-Term Interim Year Pending) conditions were developed using study area intersection volume growth rates on a per year basis. The per year growth rates were developed based on outputs from the latest versions of the Existing and Short-Term Interim Year Pending ITAM provided by the City of Irvine. The growth rate was applied to the Existing Conditions intersection volumes to reflect Existing Conditions growth to the Short-Term Interim Year Pending condition of ITAM.
- Short-Term Interim Year Pending plus Project Conditions – the proposed construction trip generation (in passenger car equivalence) and route assignment estimates was added to the Short-Term Interim Year Pending Conditions. Buildout of a private roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site was included.

Report Organization

This report is divided into eight chapters as described below:

- Chapter 1 – Executive summary summarizes the findings of the analysis.
- Chapter 2 – Introduction discusses the purpose and organization of the report.
- Chapter 3 – Existing Conditions describes the transportation system in the Project vicinity, including the surrounding roadway network, morning and evening peak period intersection turning movement volumes, existing bicycle, pedestrian, and transit facilities, and intersection operations.
- Chapter 4 – Performance criteria identify the thresholds for impacts and when traffic improvements would be required.
- Chapter 5 – Project characteristics identify the trip generation, distribution, and assignment of the Project traffic.
- Chapter 6 – Existing Plus Project Traffic Conditions addresses the Existing Conditions with the Project and discusses Project effect on intersections.
- Chapter 7 – Short-Term Interim Year Conditions addresses the Short-Term Interim Year without the Project.
- Chapter 8 – Short-Term Interim Year Plus Project Conditions addresses the Short-Term Interim Year Plus Project Conditions, with the Project, and discusses Project effect on intersections.
- Chapter 9 – Special Issues address site access analysis and VMT analysis.
- Chapter 10 – Required improvements address the improvements required of the Project.
- Chapter 11 – Conclusion summarizes the findings of the analysis.

3. Existing Conditions

This chapter describes transportation facilities in the study area including the surrounding roadway network, transit, pedestrian, and bicycle facilities. Existing intersection operations are also described.

Roadway System

The following discusses the roadways that would provide access to the site and are most likely to experience direct traffic effects, if any, from the Project (see Figure 1).

State Route 133 (SR-133) is a north-south freeway that runs between Laguna Beach, California, and Irvine. In the study area, SR-133 provides four general purpose travel lanes in both the northbound and southbound directions.

Interstate 5 (I-5) is a north-south freeway that runs between the Mexico border and the Oregon state line. In the study area, I-5 provides five general purpose travel lanes and one high occupancy vehicle lane in both the northbound and southbound directions.

Marine Way is an east-west roadway through Irvine. In the study area, the roadway generally provides one travel lane in each direction with turn pockets at intersections and driveways. The posted speed limit is 45 mph. No on-street parking is permitted on either side of the road.

Trabuco Road/Great Park Boulevard is an east-west roadway through Irvine. In the study area, the roadway generally provides three travel lanes in each direction with a raised median and turn pockets at intersections. The posted speed limit is 50 mph. No on-street parking is permitted on either side of the road.

Irvine Boulevard is an east-west roadway through Irvine that provides access to SR-133. In the study area, the roadway generally provides three travel lanes in each direction with a raised median and turn pockets at intersections. The posted speed limit is 55 mph. No on-street parking is permitted on either side of the road.

Portola Parkway is an east-west roadway through Irvine. In the study area, the roadway generally provides two travel lanes in each direction with a raised median and turn pockets at intersections. The posted speed limit is 55 mph. No on-street parking is permitted on either side of the road.

Sand Canyon Avenue is a north-south roadway through Irvine that provides access to I-5. In the study area, the roadway generally provides four travel lanes in each direction between Trabuco Road/Great Park

Boulevard and I-5, three travel lanes in each direction between Irvine Boulevard and Trabuco Road/Great Park Boulevard, and two travel lanes in each direction between Portola Parkway and Irvine Boulevard. A raised median and turn pockets are generally provided at intersections. The posted speed limit is 50 mph. No on-street parking is permitted on either side of the road.

Existing Pedestrian and Bicycle Facilities

Pedestrian facilities in the study area include sidewalks, crosswalks, and pedestrian signals. All the roadways in the study areas provide sidewalks or paths on both sides of the street. Sidewalks are not provided along SR-133 or I-5. At the signalized intersections in the study areas, crosswalks and pedestrian push-button actuated signals are provided. Figure 3 presents the following bicycle facilities in the study area, per the *California State Bicycle and Pedestrian Plan* (Caltrans, 2017) 3:

- **Bike paths (Class I)** – Bike paths provide a separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal crossflow traffic. Such paths can be well situated along creeks, canals, and rail lines. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes. Bike paths are provided along the following roadway segments.
 - Sand Canyon Avenue from Portola Parkway to I-5
 - Portola Parkway from Paragon to SR-133
 - Towngate from Hallmark to Crosspointe
 - Cypress Village Trail along I-5
- **Bike lanes (Class II)** – Bike lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections). The following roadway segments have Class II bike lanes.
 - Sand Canyon Avenue from Portola Parkway to I-5
 - Portola Parkway from Paragon to SR-133
 - Spring Meadows from Medallion to Coralwood
 - Irvine Boulevard from Groveland to SR-133
 - Towngate from Hallmark to Crosspointe
 - Trabuco Road/Great Park Boulevard from Keystone to SR-133
 - Roosevelt from Tulip to Sand Canyon Avenue
 - Nightmist from Tulip to Sand Canyon Avenue
 - Marine Way from Sand Canyon to SR-133

- **Bike routes (Class III)** – Bike routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. There are no Class III facilities in the study areas.
- **Separated Bikeway (Class IV)** – Separated bikeways, also referred to as cycle tracks or protected bikeways, are bikeways for the exclusive use of bicycles which are physically separated from vehicle traffic. Separated Bikeways were recently adopted by Caltrans in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking. There are no Class IV facilities in the study areas.

Existing Transit Service

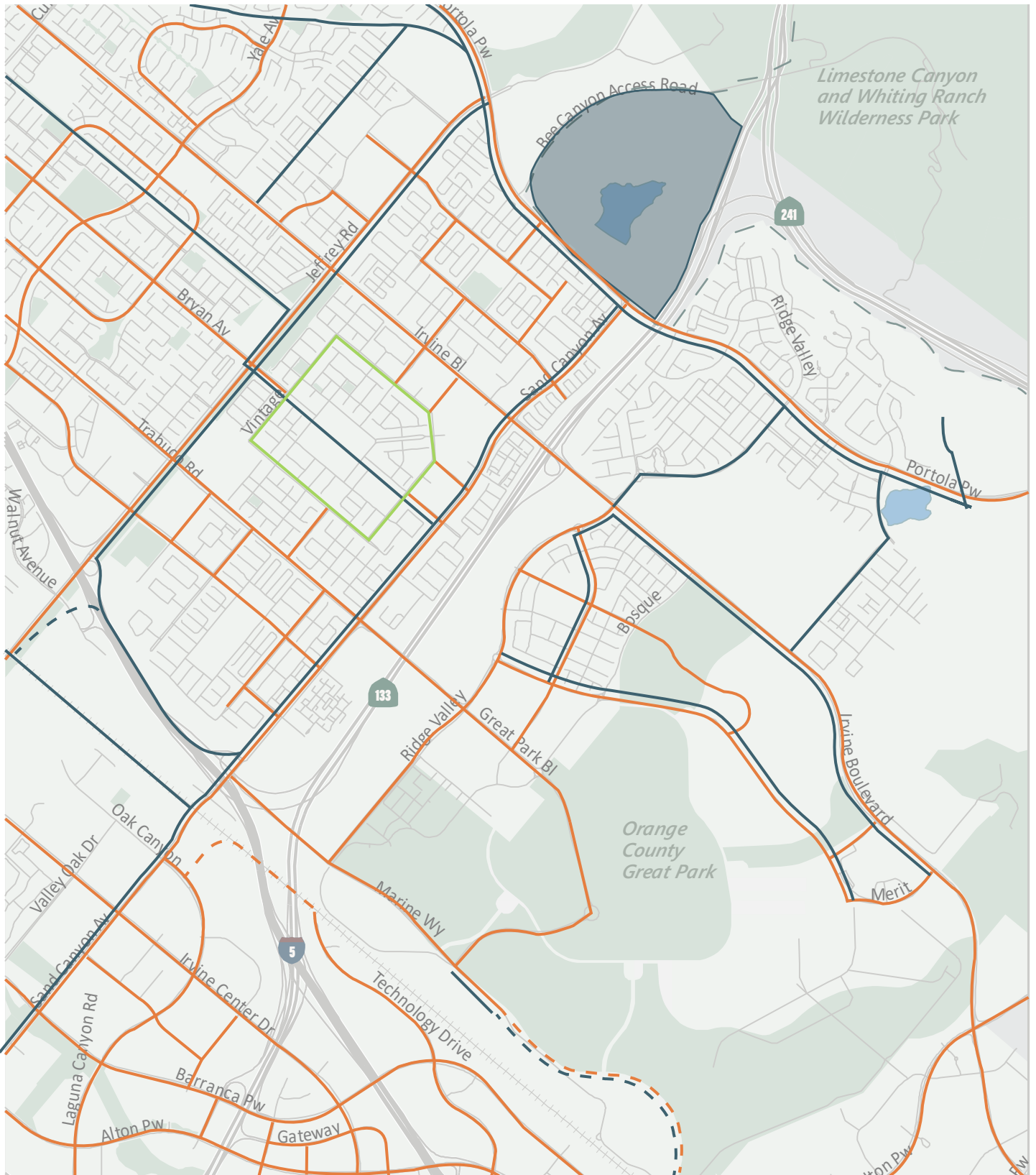
Transit service in the study areas is provided by Orange County Transit Authority (OCTA). OCTA operates Routes 83 and 206 along I-5 in the study area. These routes provide regional service but have no stops in the study area.

Existing Traffic Counts

Due to the COVID-19 pandemic in 2020, travel activity and traffic volumes in the existing year of analysis were substantially decreased throughout the study area and Southern California. It was not possible to collect counts that represented existing traffic conditions. A baseline condition that reflected travel activity and traffic volume prior to the COVID-19 pandemic was developed for the intersection analysis. Historical AM and PM peak hour turning movement counts collected at the study intersection in 2018 provided by the City of Irvine. Each of these counts were grown by 2% per year from their respective count year to the established baseline year of 2020. Peak hour intersection volumes are summarized on Figure 4 along with existing lane configurations and traffic controls. The traffic counts from 2018 are provided in Appendix B.

Existing Operations Analysis

Existing intersection operations were evaluated using the methods described in Chapter 1 for the weekday AM and PM peak hours at the study intersections. The analysis was based on the volumes, lane configurations, and traffic control presented on Figure 4. Detailed intersection LOS calculation worksheets are presented in Appendix C. As shown in Table 2, all signalized study intersections currently operate at LOS C or better in both the AM and PM peak hours.



Legend



- Project Site Syphon Reservoir
- On-Street Bikeway
- Off-Street Bikeway
- Planned On-Street Bikeway
- Planned Off-Street Bikeway
- On-Street Bikeway on One Side of the Road

Figure 3

Bicycle Facilities



Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

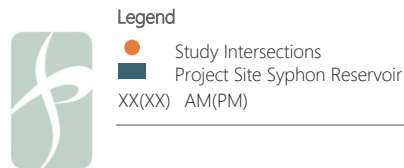
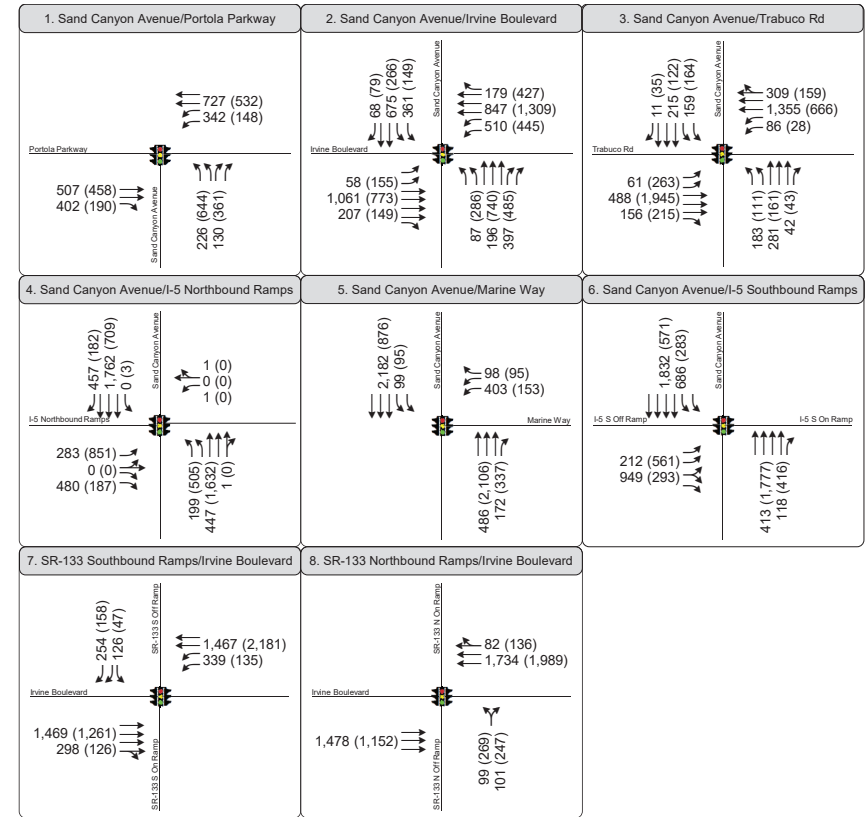


Figure 4
Existing Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control

**TABLE 2
EXISTING
INTERSECTION LEVEL OF SERVICE**

ID	N/S Street Name	E/W Street Name	Control Type	Time Period	Existing Conditions	
					V/C	LOS
1	Sand Canyon Avenue	Portola Parkway	Signalized	AM	0.366	A
				PM	0.418	A
2	Sand Canyon Avenue	Irvine Boulevard	Signalized	AM	0.580	A
				PM	0.541	A
3	Sand Canyon Avenue	Trabuco Road	Signalized	AM	0.496	A
				PM	0.519	A
4	Sand Canyon Avenue	I-5 Northbound Ramps	Signalized	AM	0.538	A
				PM	0.622	B
5	Sand Canyon Avenue	Marine Way	Signalized	AM	0.596	A
				PM	0.547	A
6	Sand Canyon Avenue	I-5 Southbound Ramps	Signalized	AM	0.600	A
				PM	0.520	A
7	SR-133 Southbound Ramps	Irvine Boulevard	Signalized	AM	0.556	A
				PM	0.738	C
8	SR-133 Northbound Off-Ramp	Irvine Boulevard	Signalized	AM	0.465	A
				PM	0.625	B

4. Performance Criteria

The determination of significance for Project impacts is based on applicable policies, regulations, goals, and guidelines defined by the City of Irvine. The proposed impact criteria for this study are presented below.

Vehicle Miles Traveled Impact Thresholds

On June 23, 2020, the City of Irvine adopted the *CEQA VMT Impact Analysis Guidelines*. These guidelines identify the screening criteria, analysis requirements, thresholds, and mitigation options for VMT analysis associated with the operation of new projects in the City of Irvine. The City of Irvine has not provided guidance regarding VMT thresholds for construction related traffic. The screening opportunities and VMT thresholds identified below are documented in the *CEQA VMT Impact Analysis Guidelines* and were utilized as part of the analysis and performance criteria for the Project.

Construction-related traffic is typically considered to cause adverse but not lasting intersection deficiencies because, while sometimes inconvenient, construction-related traffic effects are temporary. However, in an effort to document potential impacts related to the Project, the City of Irvine VMT impact thresholds were applied to the Project.

Screening

If the analysis of environmental impacts related to transportation (i.e., VMT impact analysis) is required for a discretionary project, but if it can be demonstrated that the project meets any one of the following four screening criteria, then no further VMT impact analysis is required:

1. The project results in a net increase of 250 or fewer weekday daily trips.
2. The project is located in a Transit Priority Area¹
3. The project is 100-percent restricted affordable housing units
4. The project is locally serving such as 100,000 square feet or less of retail use, a daycare use or a locally serving public school

¹ A Transit Priority Area (TPA) is defined as within half-mile distance of existing rail transit station or located within half-mile of two or more existing bus routes with a frequency of service interval of 15 minutes or less during morning and evening peak hours.

Thresholds of Significance

The City's identified significance criteria is for the operation of new projects to generate 15 percent less VMT per capita (or per employee) compared to existing conditions, which is consistent with the OPR Technical Advisory recommendations. City staff will periodically update the VMT thresholds based on the latest calibrated and validated City VMT traffic model. Any technical updates to the VMT significance thresholds are subject to the approval of the Transportation Commission at the recommendation of the Director of Public Works and Transportation.

The table below identifies the existing residential VMT per capita and the non-residential VMT per employee, as well as the proposed residential VMT per capita and non-residential VMT per employee significance thresholds, as documented in the *CEQA VMT Impact Analysis Guidelines*. The residential significance threshold is based on the countywide residential VMT divided by the countywide population, while the non-residential significance threshold is based on the countywide commute and other (i.e., customer and client) VMT divided by the number of countywide employees.

Land Use Type	Existing	Significance Threshold* (15 percent reduction)
Residential (VMT per population)	17.5	14.9
Non-Residential (VMT per employee)	48.8	41.5

* Any technical updates to the VMT significance thresholds are subject to the approval of the Transportation Commission at the recommendation of the Director of Public Works and Transportation.

Source: *CEQA VMT Impact Analysis Guidelines* (City of Irvine, April 2020)

If the project VMT rate exceeds the respective threshold, then the project creates a significant impact. When a project results in a significant VMT impact, it must identify the mitigation measures to reduce the impact to a level that meets the City's adopted VMT threshold. All feasible mitigation measures must be incorporated into the project to substantially reduce the impact even if the project cannot meet the adopted VMT threshold.

Signalized Intersections Deficiencies

Construction-related traffic is typically considered to cause adverse but not lasting intersection deficiencies because, while sometimes inconvenient, construction-related traffic effects are temporary. However, in an effort to document potential intersection deficiencies related to the Project, City of Irvine intersection criteria was applied to all signalized intersections. A signalized intersection is considered to be deficient if one of the following criteria is met.

- A location is at acceptable LOS in the baseline condition and the project causes the location to become deficient; or
- A location at unacceptable LOS in the baseline condition and the project causes the location to further deteriorate by two percent or more (i.e. 0.02 v/c ratio change).

According to the *City of Irvine Traffic Study Guidelines*, LOS E shall be considered acceptable for links and intersections in accordance with the City's General Plan Objective B-1. LOS D shall be considered acceptable for all other areas of the City. Based on these criteria, all study intersections will be identified as operating acceptably if they are at or better than LOS D.

For intersection analysis, if an intersection is determined to be deficient based on the criteria above, then the project will be required to improve the intersection, at a minimum, back to the baseline condition.

5. Project Characteristics

Trip Generation

Construction of the Project is estimated to be approximately 41 months, depending on weather conditions and other variables. Construction is currently anticipated to begin in the Fall of 2022. Most construction activities would be limited to 7:00 AM to 7:00 PM Monday through Friday. Construction of the Project would include activities implemented in phases as outlined below.

- Access Routes/Intersection Improvements
- Excavation of Sediment/Existing Dam
- Construction of Dam/Spillway/Reservoir
- Construction of Filtration/Chlor/Dechlor Facilities
- Wetlands/Riparian Installation
- Installation of Recreation Facilities
- Demobilization

Construction Vehicle Type

Haul Trucks

Hauling hours are anticipated to be 7:00 AM to 3:00 PM on weekdays. During the peak trip period, approximately 52 material delivery trucks would enter and exit the site per workday for approximately twelve months. During other times of construction, material deliveries would be expected in the range of 5 to 10 material delivery trucks per day. These trucks are assumed to arrive and depart evenly between 7:00 AM and 3:00 PM during an 8-hour shift.

Equipment and Delivery Trucks

In addition to haul trucks, the site is also expected to generate equipment and delivery trucks during each phase of construction. These materials would be delivered to the site and stored on-site. These deliveries are expected to occur in a variety of vehicles including small delivery trucks to cement mixer trucks and 18-wheel trucks. Additionally, construction equipment would also have to be delivered to the site. This equipment could include bulldozers, excavators, and other large items of machinery. Most of the heavy equipment is expected to be transported to the site on large trucks such as 18-wheelers or other similar vehicles. These trucks are assumed to arrive and depart evenly between 7:00 AM and 3:00 PM during an 8-hour shift.

Employee Vehicles

The number of construction workers would vary throughout the construction period. Parking for all construction workers would be provided on-site. Construction workers are assumed to arrive in single occupant vehicles.

Construction Period Trip Generation

Based on the aforementioned information, a construction period trip generation analysis was conducted to estimate daily, morning, and evening peak hour trips of the phase with the highest trip generation potential. As seen in Table 3, the construction of Dam/Spillway/Reservoir phase represents the day with the highest trip generation potential with approximately 116 vehicles.

Construction workers often travel to and from a worksite outside of the typical peak commute hours. Construction hours are anticipated to occur from 7:00 AM to 7:00 PM, with most worker trips and truck trips anticipated to occur outside of the AM and PM peak hours. For the purpose of the analysis, it was assumed that up to 40% of the construction workers would arrive at the construction site during the peak morning commute hour and up to 40% would depart the construction site during the peak evening commute hour. Equipment trucks were assumed to arrive and depart evenly between 7:00 AM and 3:00 PM during an 8-hour shift.

Table 3 presents a summary of the construction trip generation on a peak day. As shown, on a peak construction activity day, approximately 232 daily trips are estimated, of which 36 trips (27 inbound/9 outbound) would occur during the AM peak hour and 18 trips (0 inbound/18 outbound) would occur during the PM peak hour. For the purpose of the intersection LOS analysis, the trip generation estimates were converted to Passenger Car Equivalent (PCE) trips. PCE reflects the additional effect larger vehicles have on intersection operations based on their larger size. A PCE factor of 1.0 was assumed for worker vehicles and a PCE factor of 3.0 was assumed for all construction trucks, based on the *Highway Capacity Manual 6th Edition (HCM)* (Transportation Research Board, 2017). As shown in Table 3, on a peak construction activity day, approximately 512 daily PCE trips are estimated, of which 72 PCE trips (45 inbound/27 outbound) would occur during the AM peak hour and 18 PCE trips (0 inbound/18 outbound) would occur during the PM peak hour.

This level of trip generation is anticipated to occur for approximately two to three months. Trip generation outside of this phase of construction would vary depending on the level of activity associated with the given phase of construction. Daily trip generation for the other phases of construction range from approximately 30 daily trips to 154 daily trips. ~~would be reduced with approximately 30 daily to 154 daily trips being generated.~~

Trip Distribution and Assignment

Four routes are proposed for the Project.

- Route 1A – I-5 (from the north), north on Sand Canyon Avenue for trucks traveling inbound and southbound on Sand Canyon Avenue to I-5 (to the north) for trucks traveling outbound.
- Route 1B – I-5 (from the south), north on Sand Canyon Avenue for trucks traveling inbound and southbound on Sand Canyon Avenue to I-5 (to the south) for trucks traveling outbound.
- Route 2A – SR-133 (from the north), west on Irvine Boulevard, and north on Sand Canyon Avenue for trucks traveling inbound and southbound on Sand Canyon Avenue and east on Irvine Boulevard to SR-133 (to the north) for trucks traveling outbound.
- Route 2B – SR-133 (from the south), west on Irvine Boulevard, and north on Sand Canyon Avenue for trucks traveling inbound and southbound on Sand Canyon Avenue and east on Irvine Boulevard to SR-133 (to the south) for trucks traveling outbound.

Figure 5 shows the distribution and assignment of the four routes studied. Figure 6a – Figure 6d shows the study intersection turning movement volumes of the Project trips for each route.

Timeline

Construction of the Project is estimated to require a total of approximately 41 months. The preconstruction activities would begin in the fall of 2022 and would involve approximately 5 months of access road improvements. Preconstruction would be followed by approximately 36 months for construction of the new dam, reservoir, and associated facilities, depending on weather conditions and other variables. Construction is currently anticipated to begin in 2023. The proposed Project is assumed to be operational by end of 2026.

**TABLE 3
CONSTRUCTION TRIP GENERATION**

Phase	Duration (Months)	Peak Day Activity Under Each Phase			Total Vehicles	Total Daily Vehicle Trips
		Haul Trucks	Equipment and Delivery Trucks	Employee Vehicles		
		Access Routes/Intersection Improvements	5	8		
Excavation of Sediment/ Existing Dam	6.6	0	6	31	37	74
Construction of Dam/Spillway/Reservoir	13.8	52	18	46	116	232
Construction of Filtration/Chlor/Dechlor Facility	12	0	29	48	77	154
Wetlands/Riparian Installation	12	0	5	20	25	50
Installation of Recreation Facilities	3	0	5	10	15	30
Demobilization	1	0	7	15	22	44

Construction of Dam/Spillway/Reservoir Trip Generation							
Trip Type	Daily Trips [a]	Morning Peak Hour Trips			Evening Peak Hour Trips		
		In	Out	Total	In	Out	Total
Haul Truck Trips [b]	104	7	7	14	0	0	0
Delivery and Equipment Truck Trips [b]	36	2	2	4	0	0	0
Construction Worker Trips [c]	92	18	0	18	0	18	18
Phase Total	232	27	9	36	0	18	18

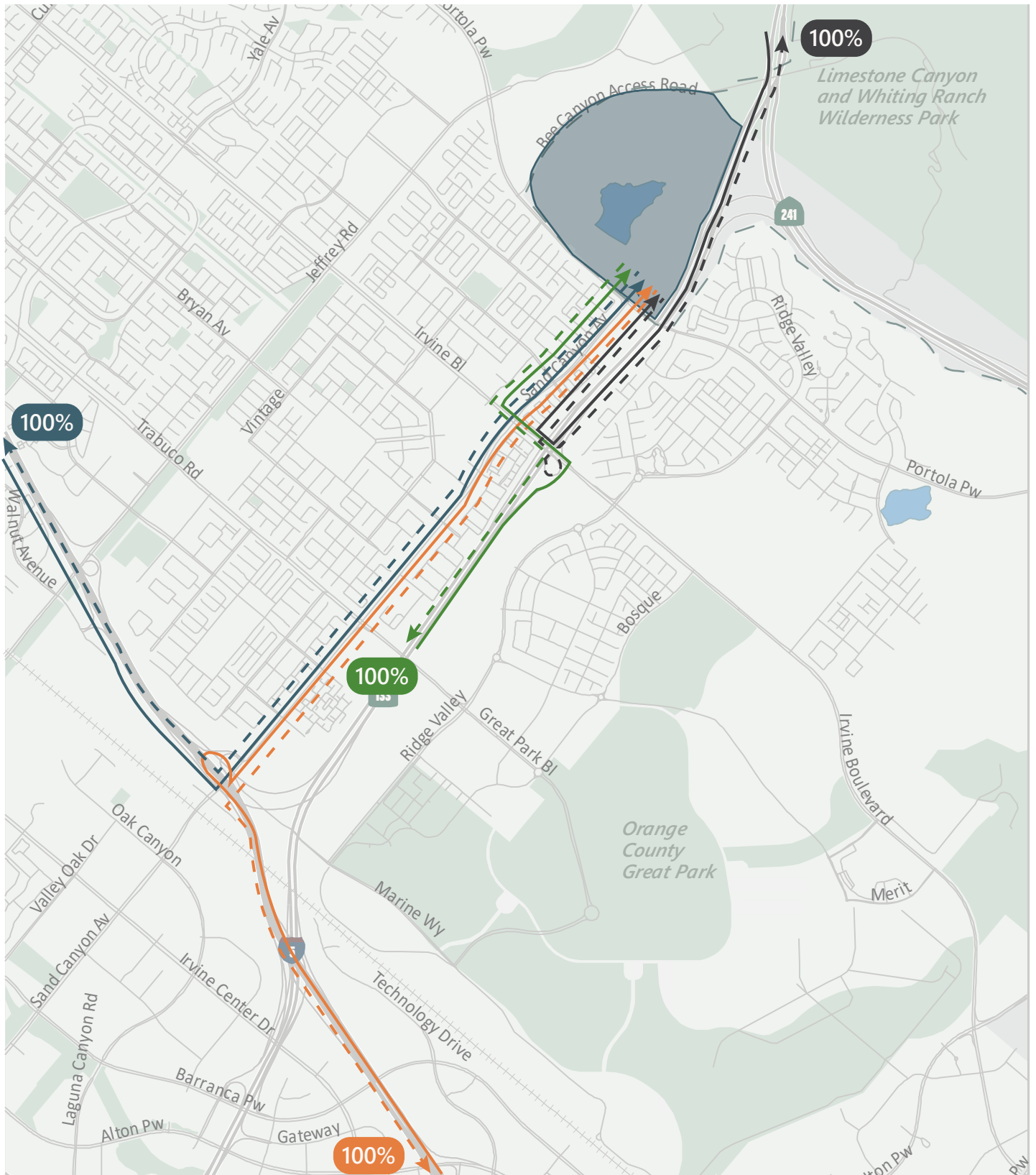
Construction of Dam/Spillway/Reservoir Trip Generation							
Trip Type and Passenger Car Equivalency	Daily Trips [a]	Morning Peak Hour Trips			Evening Peak Hour Trips		
		In	Out	Total	In	Out	Total
Haul Truck Trips PCE: 3.0	312	21	21	42	0	0	0
Delivery and Equipment Truck Trips PCE: 3.0	108	6	6	12	0	0	0
Construction Worker Trips PCE: 1.0	92	18	0	18	0	18	18
PCE Phase Total	512	45	27	72	0	18	18

Notes:

[a] - Daily trips were calculated by counting two trips, one inbound and one outbound trip for each vehicle

[b] - Daily haul and delivery/equipment truck trips were assumed to occur evenly throughout an 8-hour construction day. Therefore, the daily truck trips were divided by 8 hours to calculate morning and evening peak hour truck trips.

[c] - Up to 40% of the construction workers were assumed to arrive during the morning peak hour of adjacent street traffic. A total of up to 40% worker were assumed to depart during the evening peak hour.



Legend

- Route 1A
- Route 1B

Project Site Syphon Reservoir

- Route 2A
- Route 2B

Figure 5
Distribution and Assignment



Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

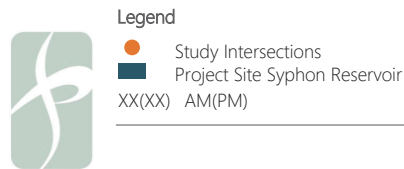
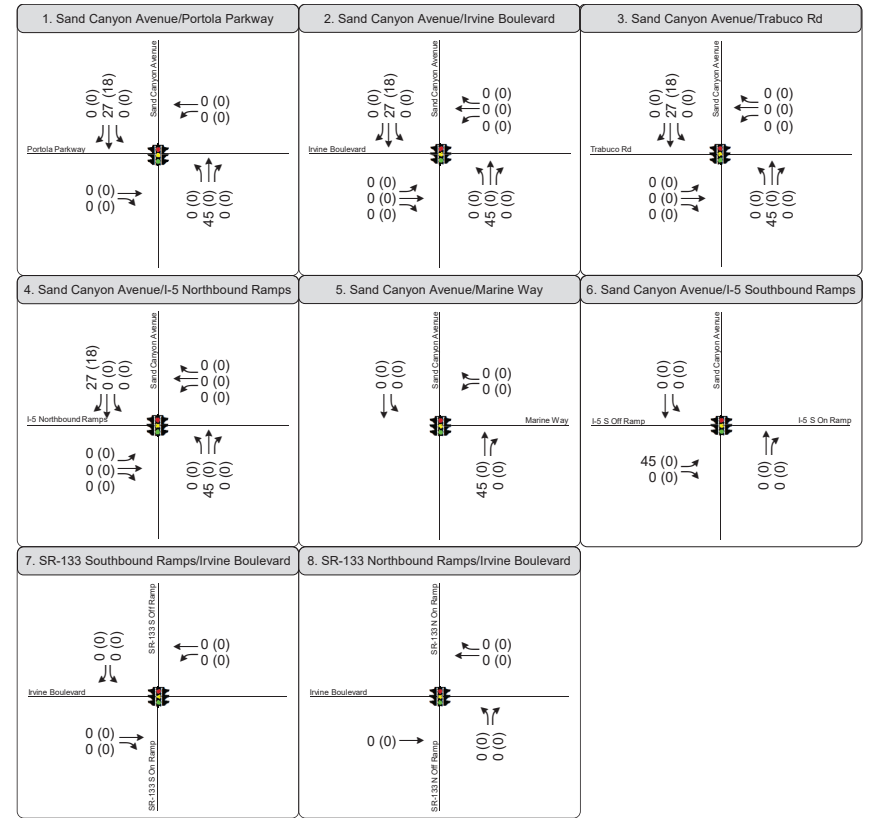


Figure 6a
Project Only (Route 1A) Peak Hour
Traffic Volumes and Traffic Control



Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

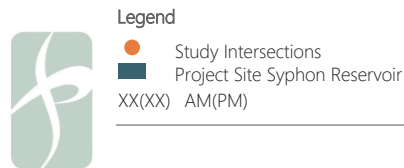
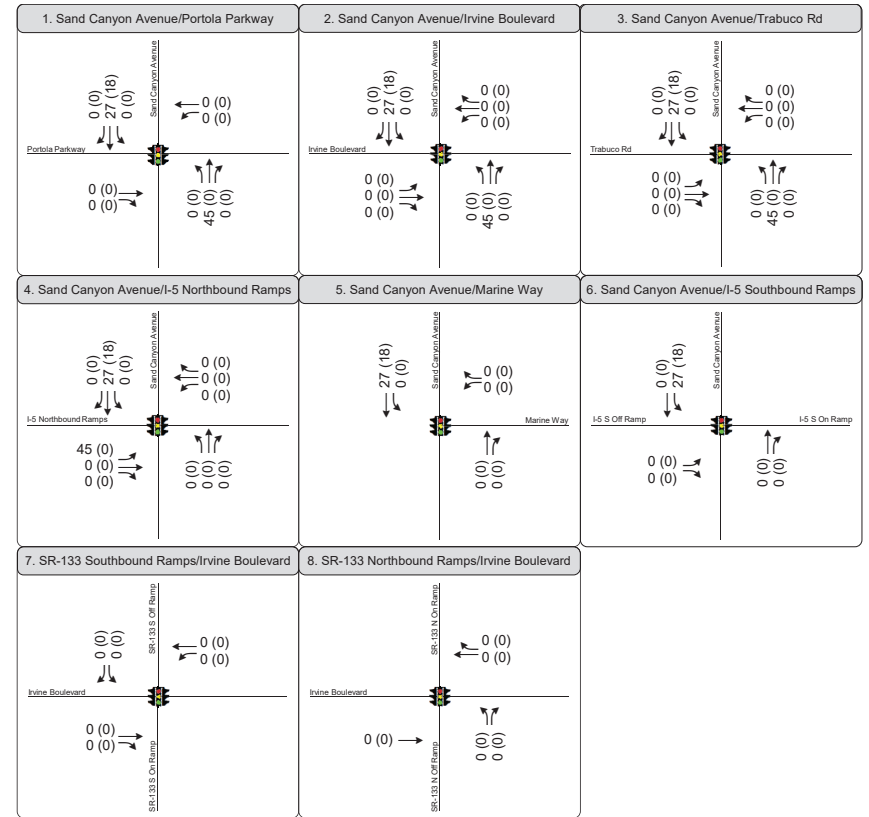


Figure 6b
Project Only (Route 1B) Peak Hour
Traffic Volumes and Traffic Control



Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

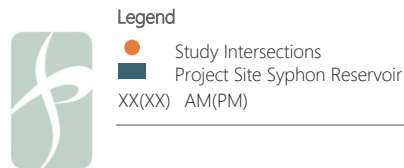
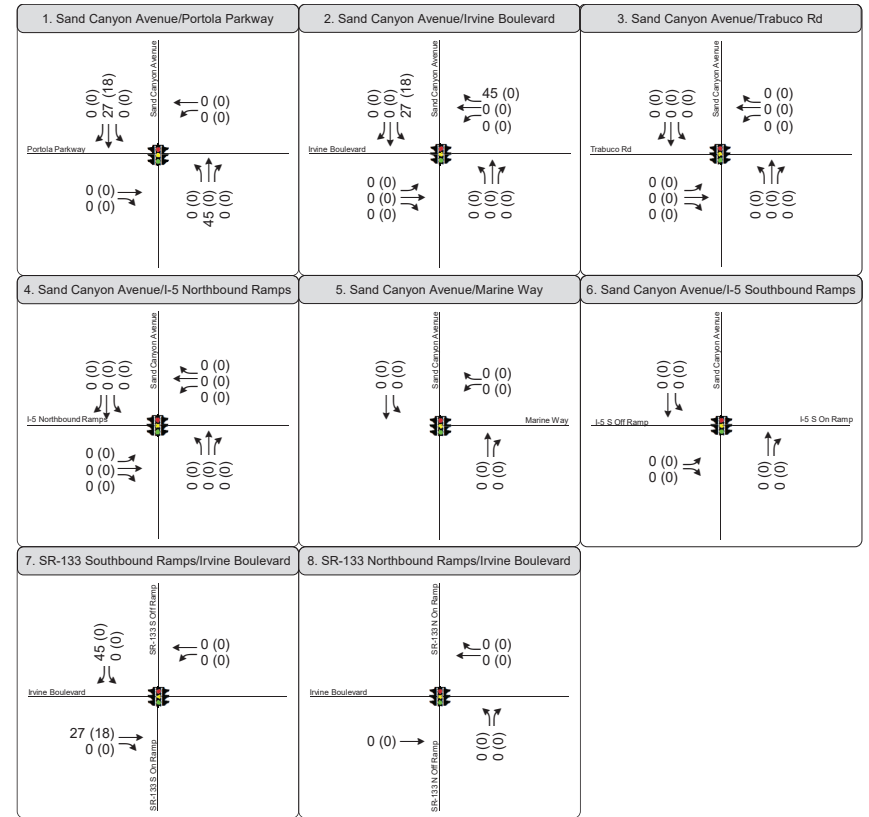


Figure 6c
Project Only (Route 2A) Peak Hour
Traffic Volumes and Traffic Control



Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

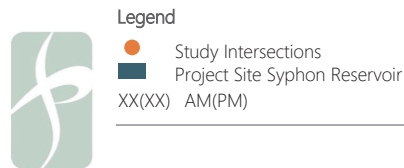
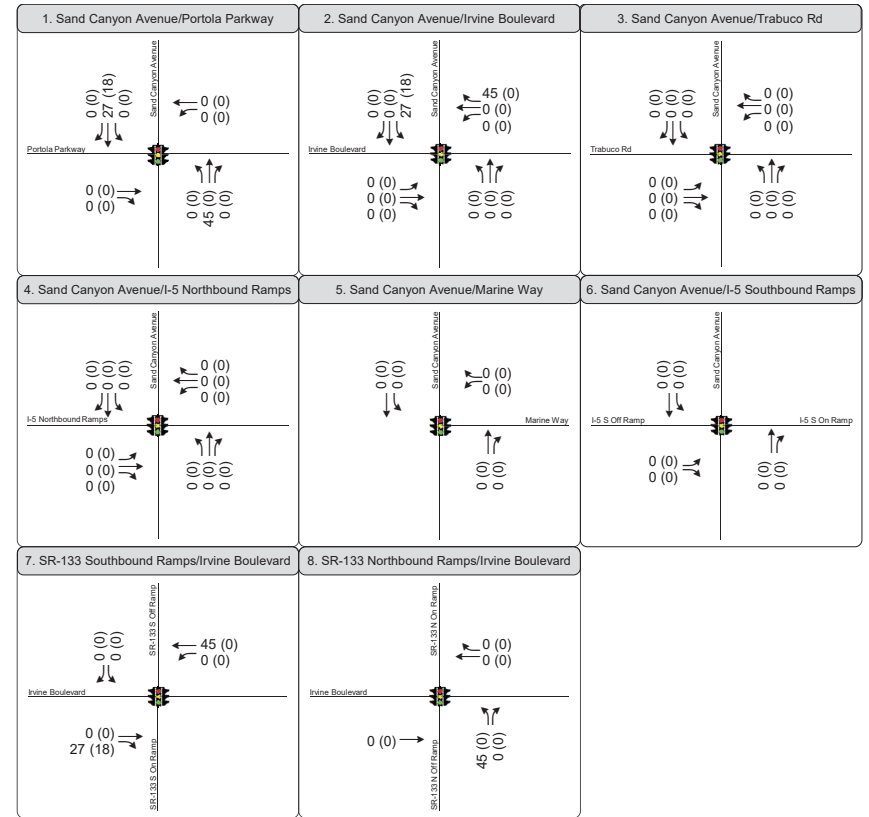


Figure 6d
Project Only (Route 2B) Peak Hour
Traffic Volumes and Traffic Control

6. Existing Plus Project Conditions

This chapter evaluates potential off-site intersection deficiencies under Existing Plus Project conditions.

Traffic Volumes

The Project traffic volumes on Figure 6a through Figure 6d were added to the existing traffic volumes from Figure 4 to estimate the Existing Plus Project traffic volumes for each route, as shown on Figure 7a through Figure 7d.

Intersection Improvements

All Existing Plus Project scenarios intersection lane configurations are assumed to include buildout of a private roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site. This improvement assumes the northbound approach at Sand Canyon Avenue and Portola Parkway is modified from two left-turn lanes and two right-turn lanes to one left-turn lane, one shared through/left-turn lane, and two right-turn lanes. The southbound approach will be constructed with one shared left/through/right-turn lane. Split phasing (a traffic signal operation that gives a green phase for all vehicle movements of one direction followed by a green phase for all movements of the opposite direction) would be incorporated for the northbound and new southbound approaches during construction and typical operations.

Intersection Operations

Existing Plus Project intersection operations were evaluated using the methods described in Chapter 1. All the Existing Plus Project analysis results for each route are presented in Table 4, based on the traffic volumes presented on Figure 7a through Figure 7d. As shown, all routes would have each signalized study intersections operate at LOS C or better in both the AM and PM peak hours.

Intersection Deficiencies

As presented in Table 4, after applying the intersection deficiency criteria, it was determined none of the route options would have a deficient intersection under the Existing Plus Project condition.

Recommended Improvements

There are no intersection deficiencies under Existing Plus Project condition. No intersection improvements are required.



Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

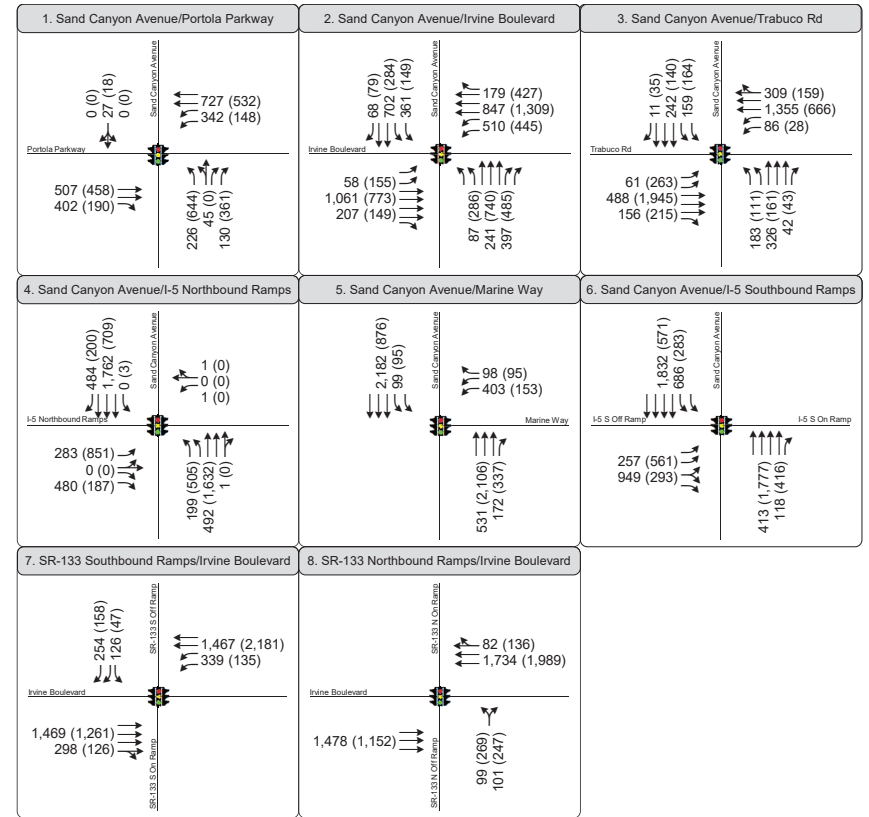
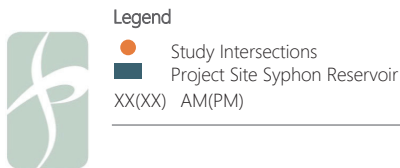


Figure 7a
Existing Plus Project (Route 1A) Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control





Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

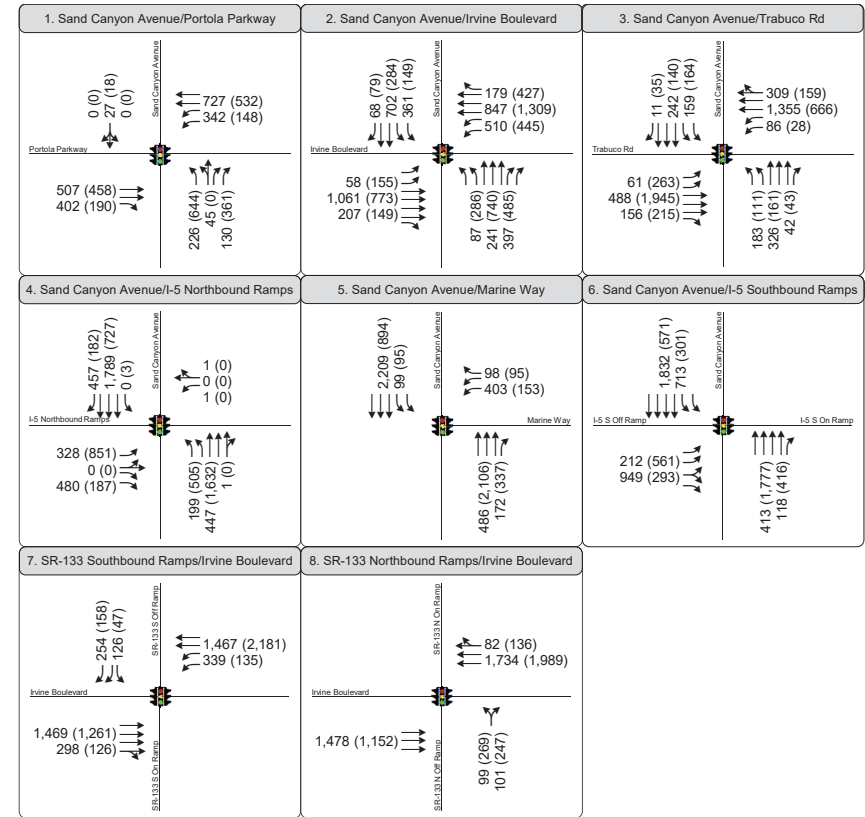
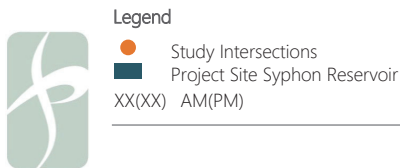


Figure 7b
Existing Plus Project (Route 1B) Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control





Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

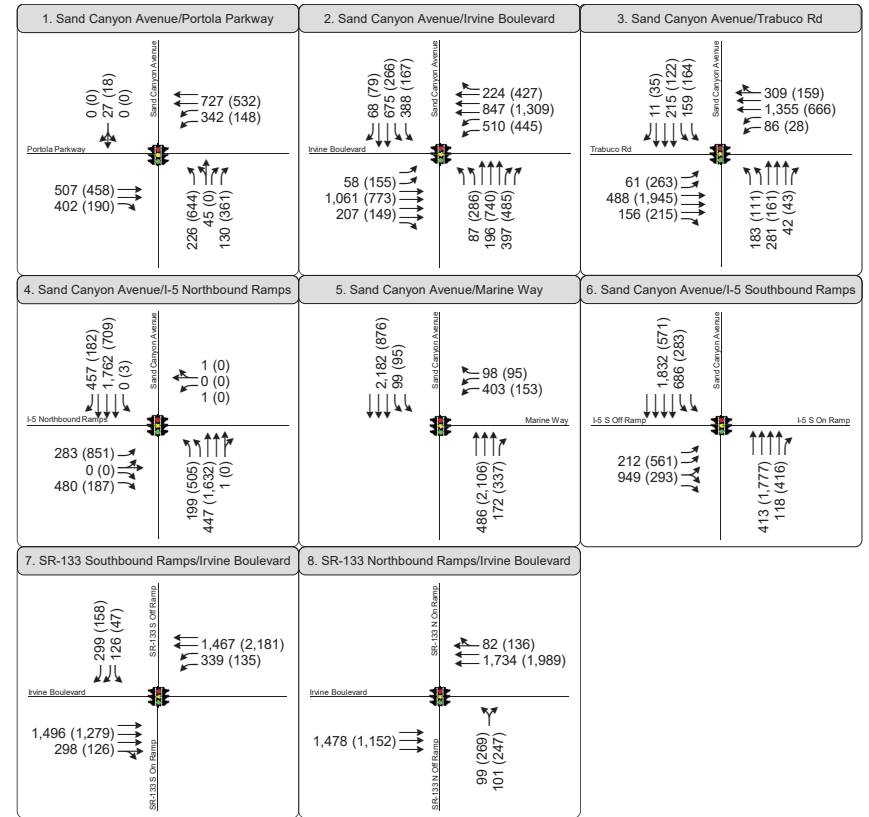
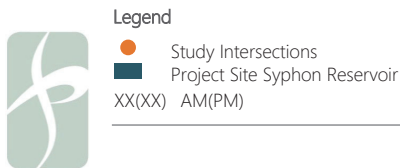


Figure 7c
Existing Plus Project (Route 2A) Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control





Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

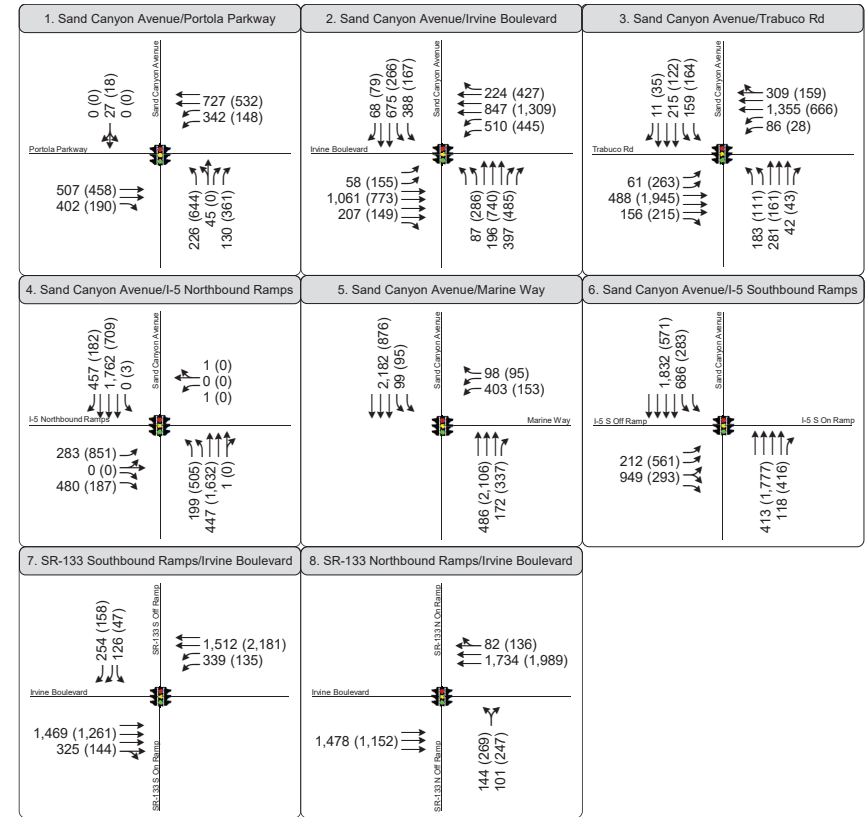
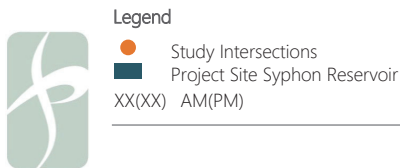


Figure 7d
Existing Plus Project (Route 2B) Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control



**TABLE 4
EXISTING PLUS PROJECT (ALL ROUTE OPTIONS)
INTERSECTION LEVEL OF SERVICE**

ID	N/S Street Name	E/W Street Name	Control Type	Time Period	Existing Conditions		Existing Plus Project (Route 1A)		Change		Existing Plus Project (Route 1B)		Change		Existing Plus Project (Route 2A)		Change		Existing Plus Project (Route 2B)		Change	
					V/C	LOS	V/C	LOS	in V/C	Deficient	V/C	LOS	in V/C	Deficient	V/C	LOS	in V/C	Deficient	V/C	LOS	in V/C	Deficient
1	Sand Canyon Avenue	Portola Parkway	Signalized	AM	0.366	A	0.396	A	0.030	No	0.396	A	0.030	No	0.396	A	0.030	No	0.396	A	0.030	No
				PM	0.418	A	0.429	A	0.011	No	0.429	A	0.011	No	0.429	A	0.011	No	0.429	A	0.011	No
2	Sand Canyon Avenue	Irvine Boulevard	Signalized	AM	0.580	A	0.588	A	0.008	No	0.588	A	0.008	No	0.580	A	0.000	No	0.580	A	0.000	No
				PM	0.541	A	0.541	A	0.000	No	0.541	A	0.000	No	0.546	A	0.005	No	0.546	A	0.005	No
3	Sand Canyon Avenue	Trabuco Road	Signalized	AM	0.496	A	0.505	A	0.009	No	0.505	A	0.009	No	0.496	A	0.000	No	0.496	A	0.000	No
				PM	0.519	A	0.519	A	0.000	No	0.519	A	0.000	No	0.519	A	0.000	No	0.519	A	0.000	No
4	Sand Canyon Avenue	I-5 Northbound Ramps	Signalized	AM	0.538	A	0.538	A	0.000	No	0.556	A	0.018	No	0.538	A	0.000	No	0.538	A	0.000	No
				PM	0.622	B	0.622	B	0.000	No	0.622	B	0.000	No	0.622	B	0.000	No	0.622	B	0.000	No
5	Sand Canyon Avenue	Marine Way	Signalized	AM	0.596	A	0.596	A	0.000	No	0.602	B	0.006	No	0.596	A	0.000	No	0.596	A	0.000	No
				PM	0.547	A	0.547	A	0.000	No	0.547	A	0.000	No	0.547	A	0.000	No	0.547	A	0.000	No
6	Sand Canyon Avenue	I-5 Southbound Ramps	Signalized	AM	0.600	A	0.600	A	0.000	No	0.608	B	0.008	No	0.600	A	0.000	No	0.600	A	0.000	No
				PM	0.520	A	0.520	A	0.000	No	0.525	A	0.005	No	0.520	A	0.000	No	0.520	A	0.000	No
7	SR-133 Southbound Ramps	Irvine Boulevard	Signalized	AM	0.556	A	0.556	A	0.000	No	0.556	A	0.000	No	0.569	A	0.013	No	0.569	A	0.013	No
				PM	0.738	C	0.738	C	0.000	No	0.738	C	0.000	No	0.738	C	0.000	No	0.738	C	0.000	No
8	SR-133 Northbound Off-Ramp	Irvine Boulevard	Signalized	AM	0.465	A	0.465	A	0.000	No	0.465	A	0.000	No	0.465	A	0.000	No	0.491	A	0.026	No
				PM	0.625	B	0.625	B	0.000	No	0.625	B	0.000	No	0.625	B	0.000	No	0.625	B	0.000	No

7. Short-Term Interim Year Conditions

This chapter evaluates the Short-Term Interim Year Conditions.

Future Traffic Forecasts

Per the approved scope of work, the Project is required to study the Short-Term Interim Year Approved and Short-Term Interim Year Pending scenarios from ITAM. ITAM forecasts for the base year and both short-term interim year scenarios were provided by the City of Irvine. These scenarios were used to determine growth rates on a per year basis that were applied to the 2020 existing intersection volumes to develop Short-Term Interim Year Approved and Pending intersection volumes. Study intersection volumes Short-Term Interim Year Approved are provided in Figure 8 and study intersection volumes Short-Term Interim Year Pending are provided in Figure 9.

Intersection Improvements

Both Short-Term Interim Year scenarios intersection lane configurations are assumed to include the same lane geometry as the Existing Conditions.

Intersection Operations

Short-Term Interim Year intersection operations were evaluated using the methods described in Chapter 1. The Short-Term Interim Year Approved analysis results are presented in Table 5. As shown, all signalized intersections operate at LOS D or better in both the AM and PM peak hours. The Short-Term Interim Year Pending analysis results are presented in Table 6. As shown, all signalized intersections operate at LOS D or better in both the AM and PM peak hours.



Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

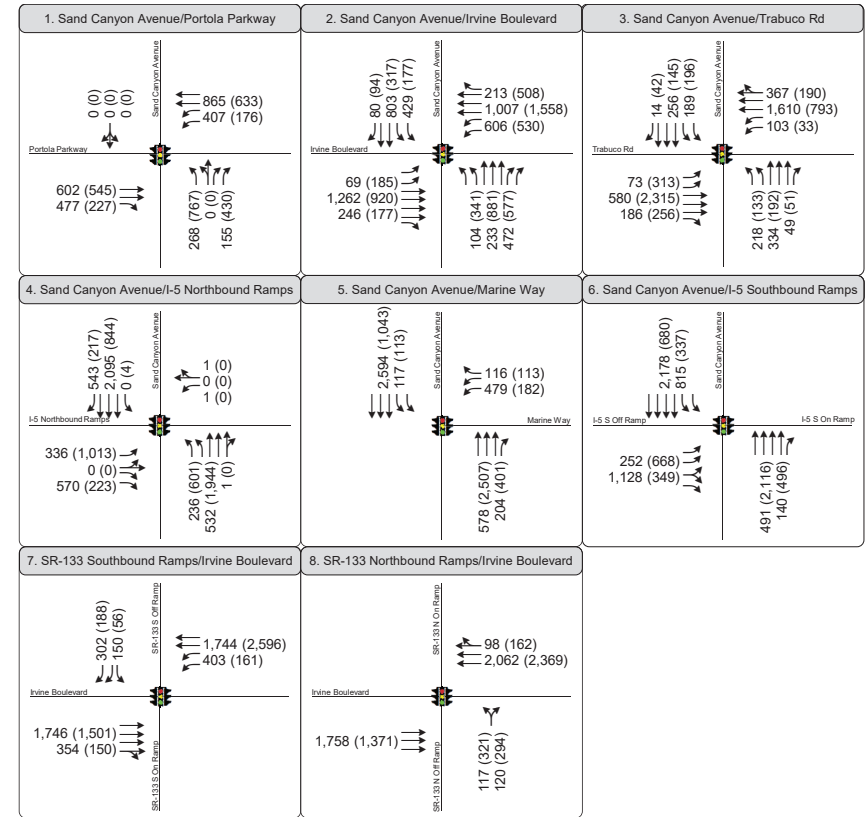
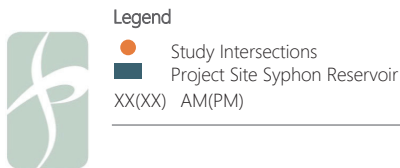


Figure 8
Short-Term Interim Year Approved Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control





Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

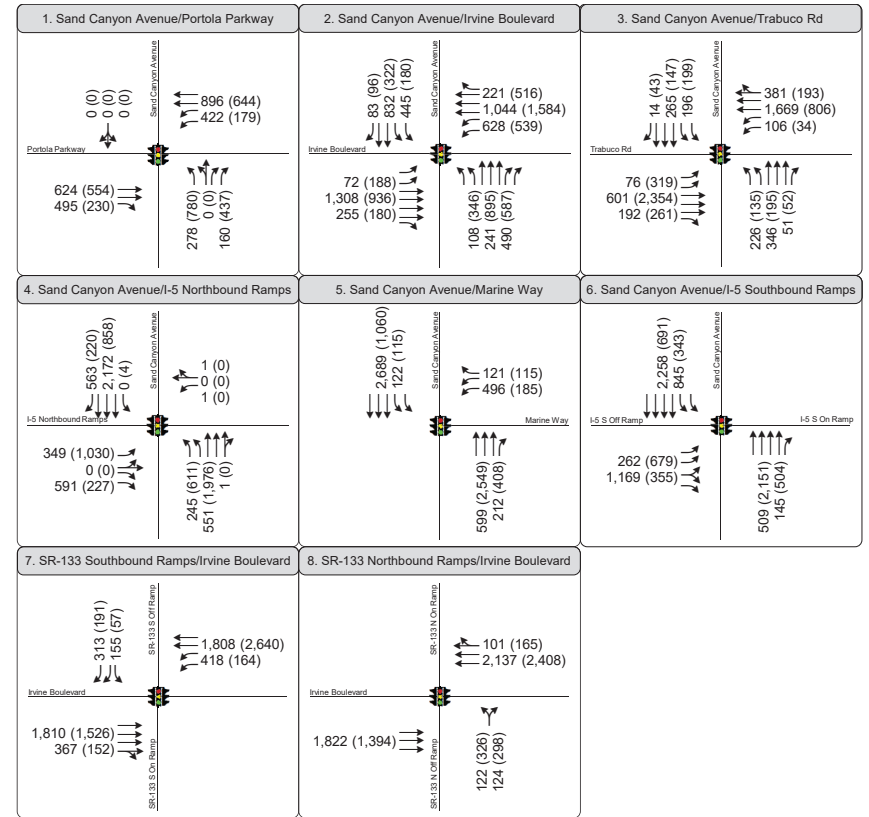


Figure 9
Short-Term Interim Year Pending Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control

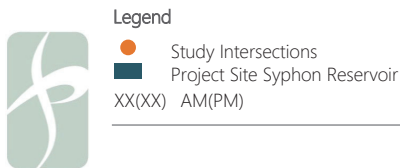


TABLE 5
SHORT-TERM YEAR APPROVED
INTERSECTION LEVEL OF SERVICE

ID	N/S Street Name	E/W Street Name	Control Type	Time Period	Short-Term Approved Conditions	
					V/C	LOS
1	Sand Canyon Avenue	Portola Parkway	Signalized	AM	0.426	A
				PM	0.488	A
2	Sand Canyon Avenue	Irvine Boulevard	Signalized	AM	0.681	B
				PM	0.635	B
3	Sand Canyon Avenue	Trabuco Road	Signalized	AM	0.580	A
				PM	0.609	B
4	Sand Canyon Avenue	I-5 Northbound Ramps	Signalized	AM	0.630	B
				PM	0.731	C
5	Sand Canyon Avenue	Marine Way	Signalized	AM	0.700	B
				PM	0.641	B
6	Sand Canyon Avenue	I-5 Southbound Ramps	Signalized	AM	0.704	C
				PM	0.610	B
7	SR-133 Southbound Ramps	Irvine Boulevard	Signalized	AM	0.652	B
				PM	0.869	D
8	SR-133 Northbound Off-Ramp	Irvine Boulevard	Signalized	AM	0.544	A
				PM	0.735	C

TABLE 6
SHORT-TERM YEAR PENDING
INTERSECTION LEVEL OF SERVICE

ID	N/S Street Name	E/W Street Name	Control Type	Time Period	Short-Term Pending Conditions	
					V/C	LOS
1	Sand Canyon Avenue	Portola Parkway	Signalized	AM	0.439	A
				PM	0.495	A
2	Sand Canyon Avenue	Irvine Boulevard	Signalized	AM	0.704	C
				PM	0.644	B
3	Sand Canyon Avenue	Trabuco Road	Signalized	AM	0.600	A
				PM	0.618	B
4	Sand Canyon Avenue	I-5 Northbound Ramps	Signalized	AM	0.651	B
				PM	0.743	C
5	Sand Canyon Avenue	Marine Way	Signalized	AM	0.723	C
				PM	0.651	B
6	Sand Canyon Avenue	I-5 Southbound Ramps	Signalized	AM	0.728	C
				PM	0.619	B
7	SR-133 Southbound Ramps	Irvine Boulevard	Signalized	AM	0.674	B
				PM	0.883	D
8	SR-133 Northbound Off-Ramp	Irvine Boulevard	Signalized	AM	0.562	A
				PM	0.746	C

8. Short-Term Interim Year Plus Project Conditions

This chapter evaluates the potential off-site intersection deficiencies under Short-Term Interim Year Plus Project conditions.

Future Traffic Forecasts

The Project traffic volumes from Figure 6a through Figure 6d were added to the Short-Term Interim Year Approved traffic volumes from Figure 8 to estimate the Short-Term Interim Year Approved plus Project traffic volumes, as shown on Figure 10a through Figure 10d.

The Project traffic volumes from Figure 6a through Figure 6d were added to the Short-Term Interim Year Pending traffic volumes from Figure 9 to estimate the Short-Term Interim Year Pending plus Project traffic volumes, as shown on Figure 11a through Figure 11d.

Intersection Improvements

All Short-Term Interim Year Approved plus Project and Short-Term Interim Year Pending plus Project scenarios intersection lane configurations are assumed to include buildout of a private roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site. This improvement assumes the northbound approach at Sand Canyon Avenue and Portola Parkway is modified from two left-turn lanes and two right-turn lanes to one left-turn lane, one shared through/left-turn lane, and two right-turn lanes. The southbound approach will be constructed with one shared left/through/right-turn lane. Split phasing (a traffic signal operation that gives a green phase for all vehicle movements of one direction followed by a green phase for all movements of the opposite direction) would be incorporated for the northbound and new southbound approaches during construction and typical operations.

Intersection Operations

Short-Term Interim Year Approved plus Project and Short-Term Interim Year Pending plus Project intersection operations were evaluated using the methods described in Chapter 1. All the Short-Term Interim Year Approved plus Project analysis results for each route are presented in Table 7, based on the traffic volumes presented on Figure 10a through Figure 10d. As shown, all routes would have each signalized study intersections operate at LOS D or better in both the AM and PM peak hours. All the Short-Term

Interim Year Pending plus Project analysis results for each route are presented in Table 8, based on the traffic volumes presented on Figure 11a through Figure 11d. As shown, all routes would have each signalized study intersections operate at LOS D or better in both the AM and PM peak hours.

Intersection Deficiencies

As presented in Table 7, after applying the intersection deficiency criteria, it was determined none of the route options would have a deficient intersection under the Short-Term Interim Year Approved plus Project condition. As presented in Table 8, after applying the intersection deficiency criteria, it was determined none of the route options would have a deficient intersection under the Short-Term Interim Year Pending plus Project condition.

Recommended Improvements

There are no intersection deficiencies under either the Short-Term Interim Year Approved plus Project condition or the Short-Term Interim Year Pending plus Project conditions. No intersection improvements are required.



Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

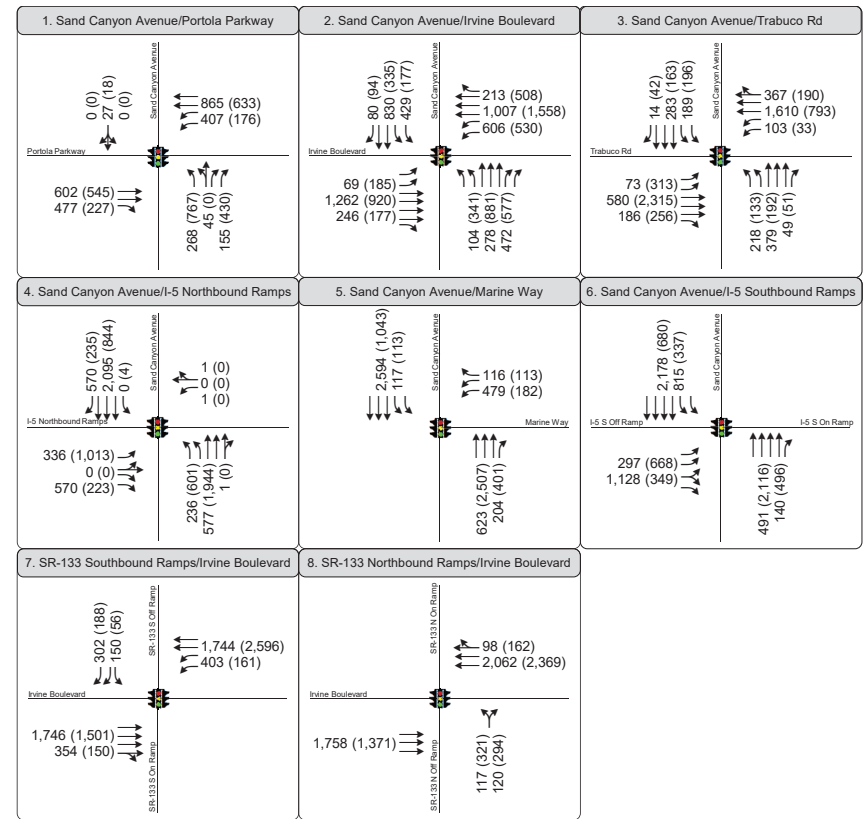
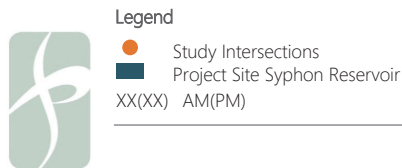


Figure 10a
Short-Term Interim Year Approved Plus Project (Route 1A) Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control





Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

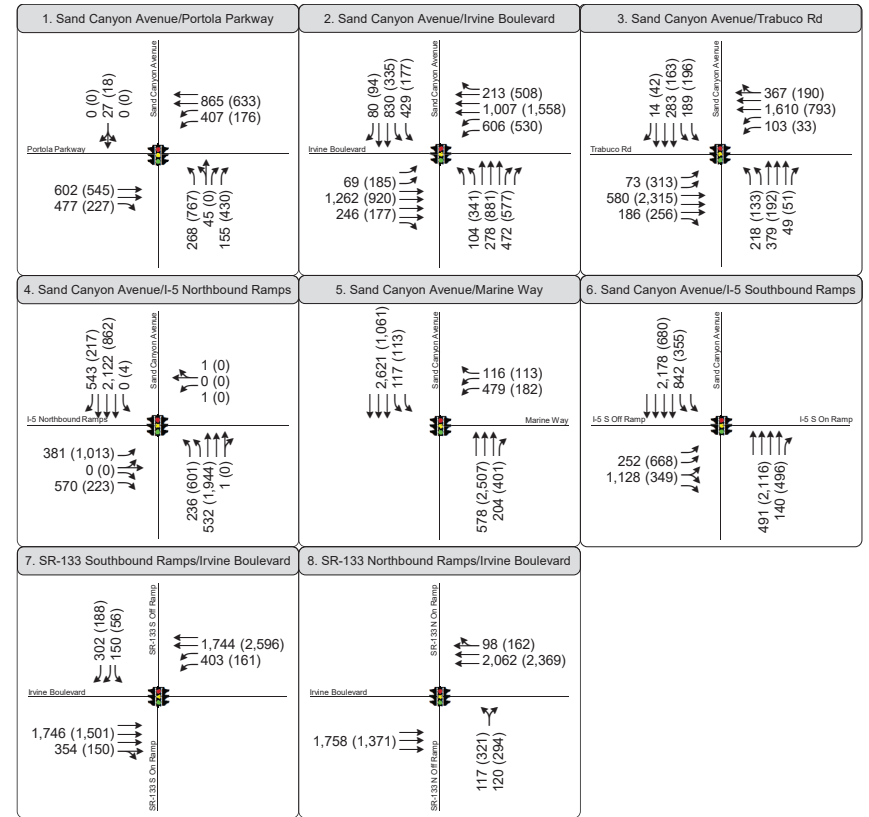
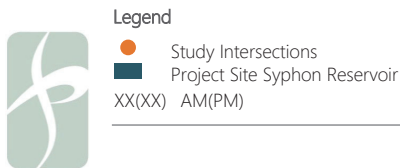


Figure 10b
Short-Term Interim Year Approved Plus Project (Route 1B) Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control





Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

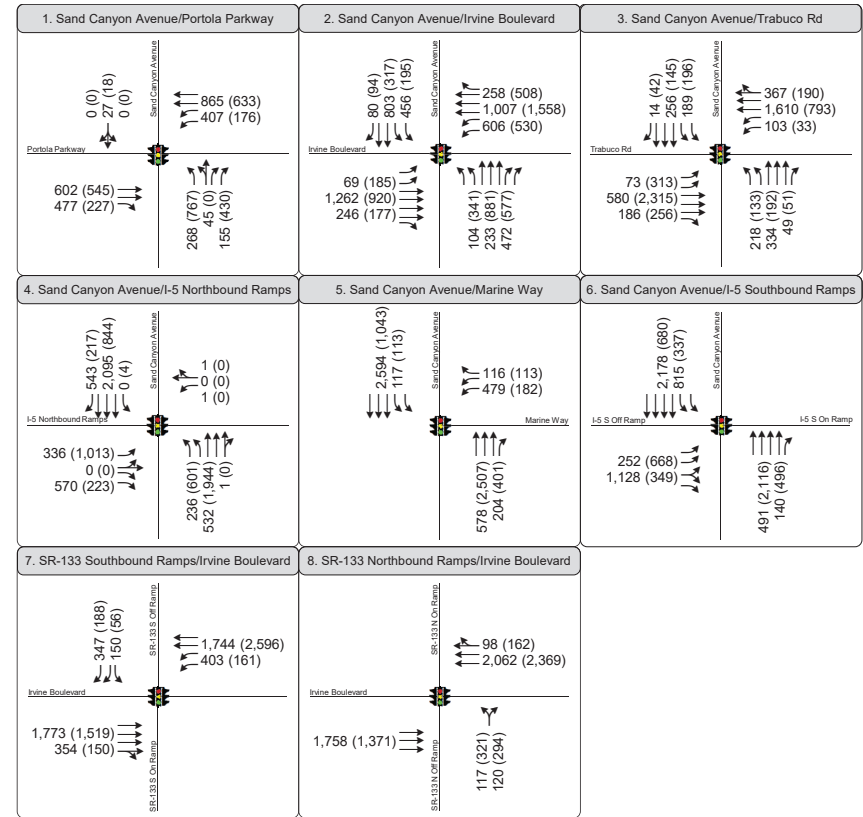
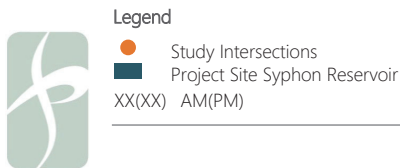


Figure 10c
Short-Term Interim Year Approved Plus Project (Route 2A) Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control





Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

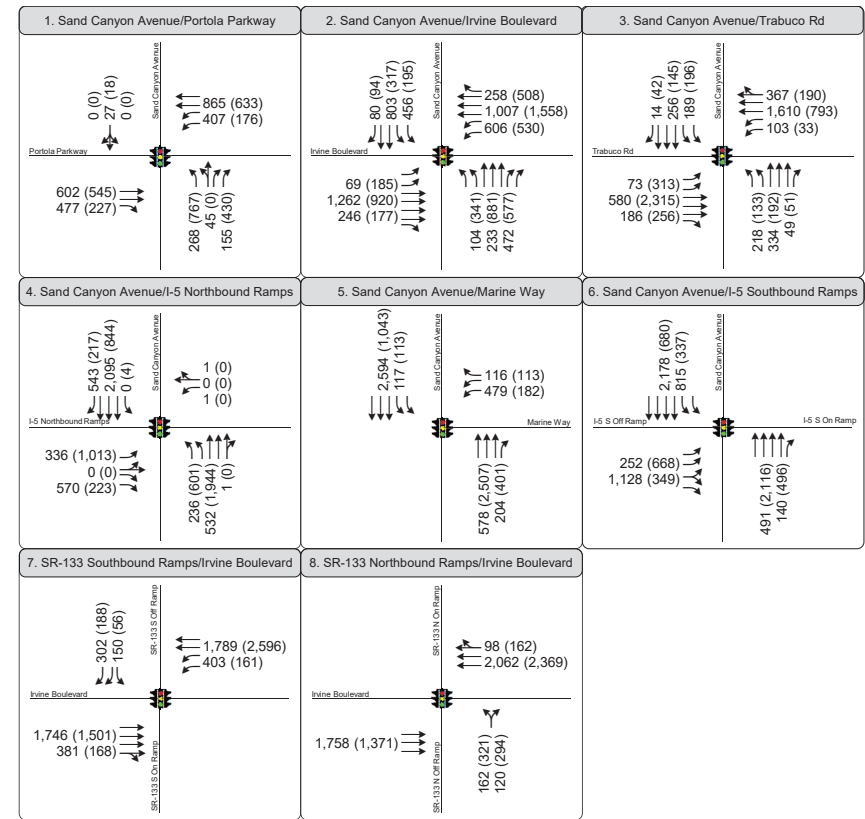
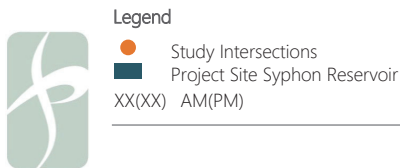


Figure 10d
Short-Term Interim Year Approved Plus Project (Route 2B) Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control





Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

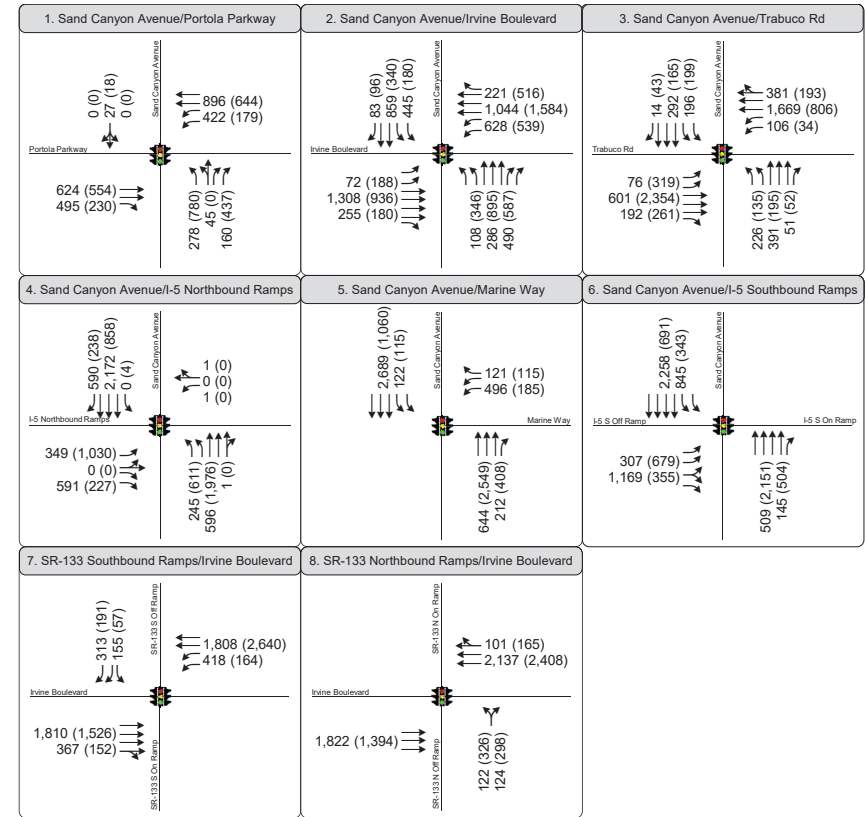
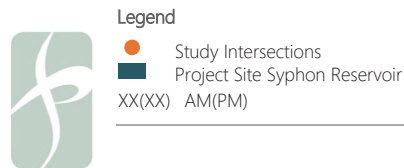


Figure 11a
Short-Term Interim Year Pending Plus Project (Route 1A) Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control





Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

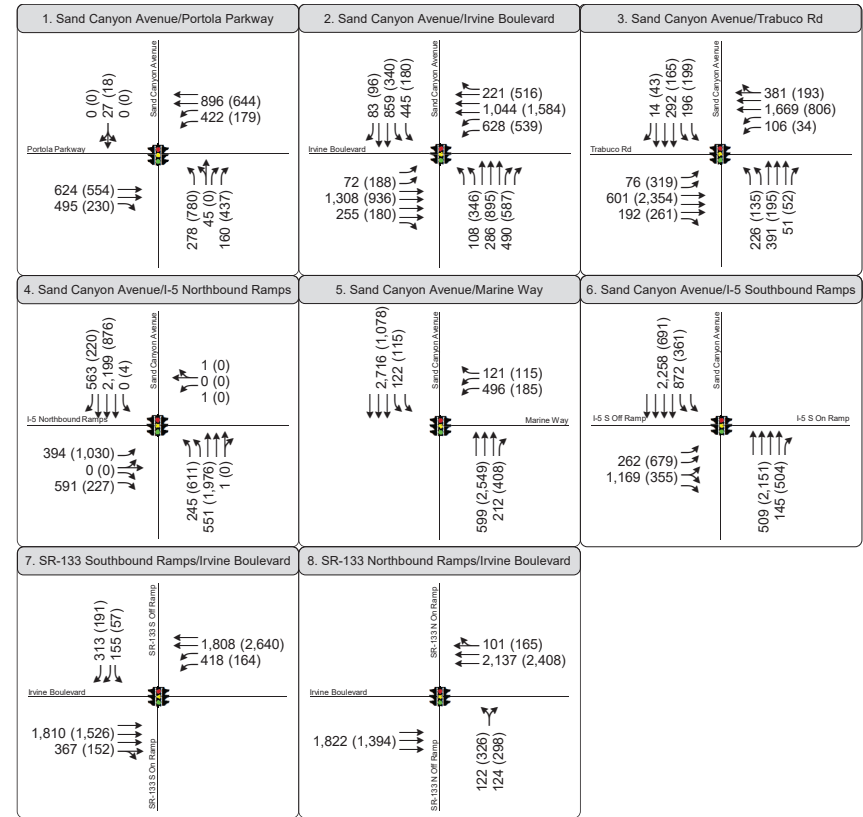
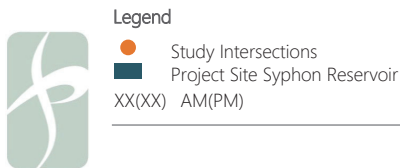


Figure 11b
Short-Term Interim Year Pending Plus Project (Route 1B) Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control





Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

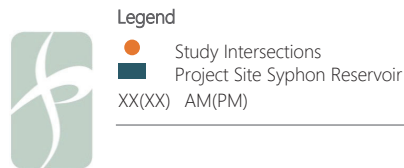
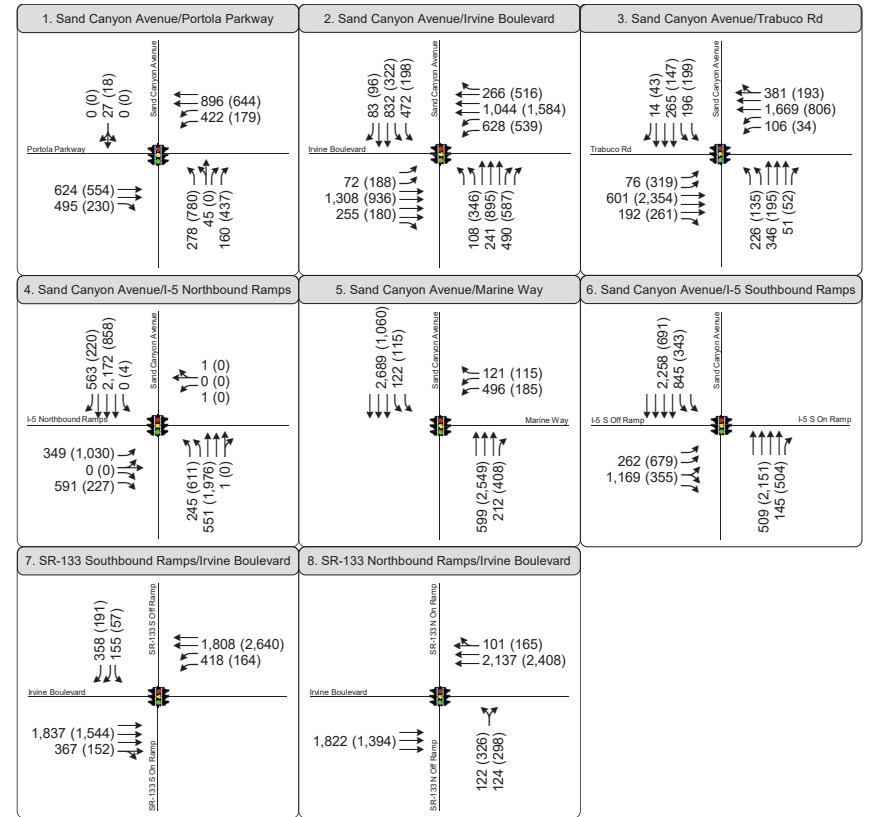
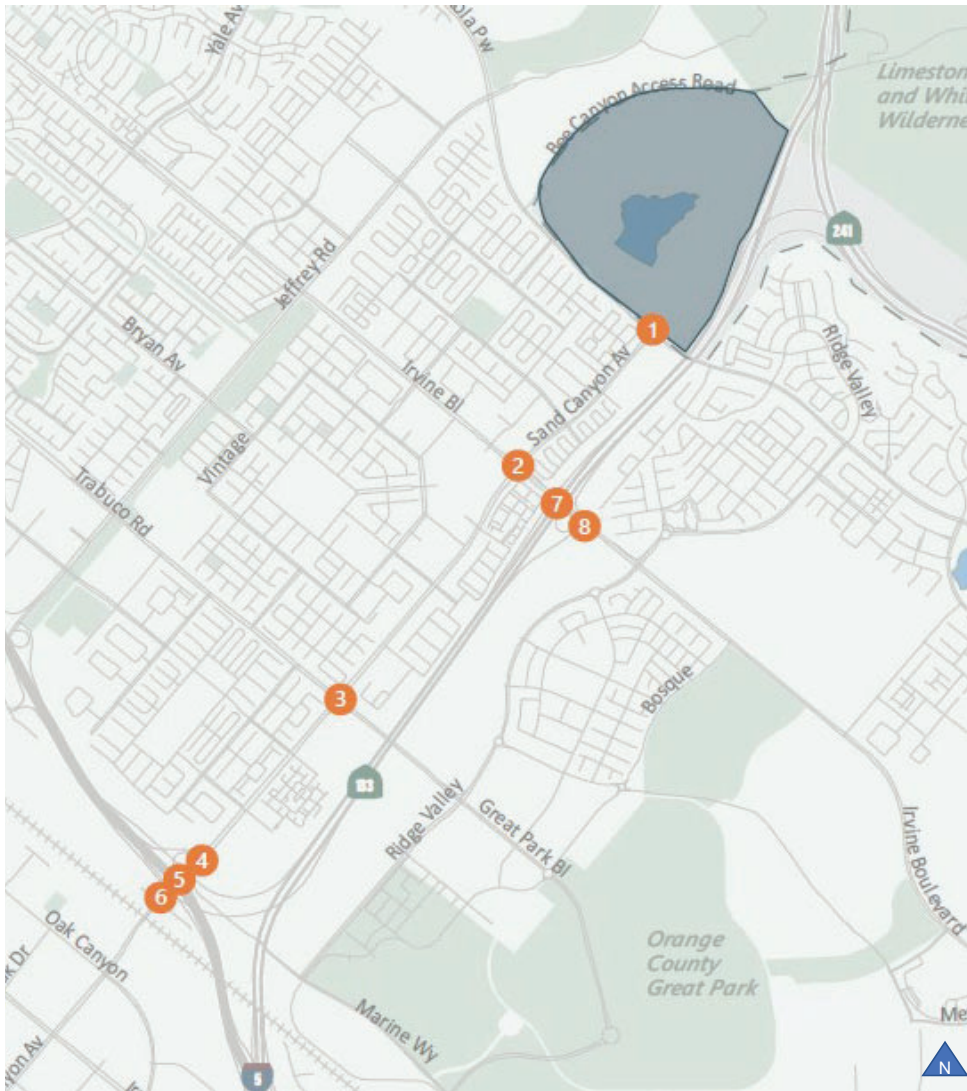


Figure 11c
Short-Term Interim Year Pending Plus Project (Route 2A) Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control



Note: For the purpose of this study Sand Canyon Avenue is regarded as a north-south roadway

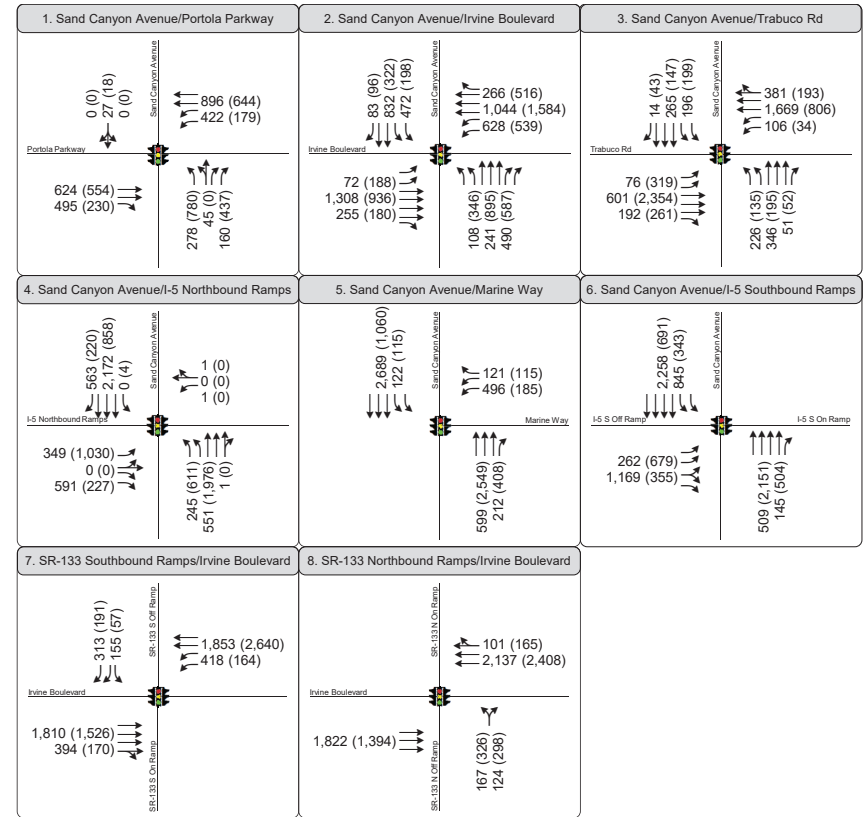
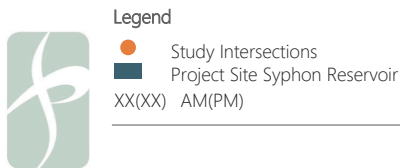


Figure 11d
Short-Term Interim Year Pending Plus Project (Route 2B) Peak Hour
Traffic Volumes, Lane Configurations, and Traffic Control



**TABLE 7
SHORT-TERM YEAR APPROVED PLUS PROJECT (ALL ROUTE OPTIONS)
INTERSECTION LEVEL OF SERVICE**

ID	N/S Street Name	E/W Street Name	Control Type	Time Period	Short-Term Approved Conditions		Short-Term Approved Plus Project (Route 1A)		Change in		Short-Term Approved Plus Project (Route 1B)		Change in		Short-Term Approved Plus Project (Route 2A)		Change in		Short-Term Approved Plus Project (Route 2B)		Change in			
					V/C	LOS	V/C	LOS	V/C	Deficient	V/C	LOS	V/C	Deficient	V/C	LOS	V/C	LOS	V/C	Deficient	V/C	LOS	V/C	Deficient
1	Sand Canyon Avenue	Portola Parkway	Signalized	AM	0.426	A	0.456	A	0.030	No	0.456	A	0.030	No	0.456	A	0.030	No	0.456	A	0.030	No		
				PM	0.488	A	0.499	A	0.011	No	0.499	A	0.011	No	0.499	A	0.011	No	0.499	A	0.011	No		
2	Sand Canyon Avenue	Irvine Boulevard	Signalized	AM	0.681	B	0.689	B	0.008	No	0.689	B	0.008	No	0.681	B	0.000	No	0.681	B	0.000	No		
				PM	0.635	B	0.635	B	0.000	No	0.635	B	0.000	No	0.640	B	0.005	No	0.640	B	0.005	No		
3	Sand Canyon Avenue	Trabuco Road	Signalized	AM	0.580	A	0.589	A	0.009	No	0.589	A	0.009	No	0.580	A	0.000	No	0.580	A	0.000	No		
				PM	0.609	B	0.609	B	0.000	No	0.609	B	0.000	No	0.609	B	0.000	No	0.609	B	0.000	No		
4	Sand Canyon Avenue	I-5 Northbound Ramps	Signalized	AM	0.630	B	0.630	B	0.000	No	0.648	B	0.018	No	0.630	B	0.000	No	0.630	B	0.000	No		
				PM	0.731	C	0.731	C	0.000	No	0.731	C	0.000	No	0.731	C	0.000	No	0.731	C	0.000	No		
5	Sand Canyon Avenue	Marine Way	Signalized	AM	0.700	B	0.700	B	0.000	No	0.705	C	0.005	No	0.700	B	0.000	No	0.700	B	0.000	No		
				PM	0.641	B	0.641	B	0.000	No	0.641	B	0.000	No	0.641	B	0.000	No	0.641	B	0.000	No		
6	Sand Canyon Avenue	I-5 Southbound Ramps	Signalized	AM	0.704	C	0.704	C	0.000	No	0.712	C	0.008	No	0.704	C	0.000	No	0.704	C	0.000	No		
				PM	0.610	B	0.610	B	0.000	No	0.615	B	0.005	No	0.610	B	0.000	No	0.610	B	0.000	No		
7	SR-133 Southbound Ramps	Irvine Boulevard	Signalized	AM	0.652	B	0.652	B	0.000	No	0.652	B	0.000	No	0.665	B	0.013	No	0.665	B	0.013	No		
				PM	0.869	D	0.869	D	0.000	No	0.869	D	0.000	No	0.869	D	0.000	No	0.869	D	0.000	No		
8	SR-133 Northbound Off-Ramp	Irvine Boulevard	Signalized	AM	0.544	A	0.544	A	0.000	No	0.544	A	0.000	No	0.544	A	0.000	No	0.569	A	0.025	No		
				PM	0.735	C	0.735	C	0.000	No	0.735	C	0.000	No	0.735	C	0.000	No	0.735	C	0.000	No		

**TABLE 8
SHORT-TERM YEAR PENDING PLUS PROJECT (ALL ROUTE OPTIONS)
INTERSECTION LEVEL OF SERVICE**

ID	N/S Street Name	E/W Street Name	Control Type	Time Period	Short-Term Pending Conditions		Short-Term Pending Plus Project (Route 1A)		Change in		Short-Term Pending Plus Project (Route 1B)		Change in		Short-Term Pending Plus Project (Route 2A)		Change in		Short-Term Pending Plus Project (Route 2B)		Change in			
					V/C	LOS	V/C	LOS	V/C	Deficient	V/C	LOS	V/C	Deficient	V/C	LOS	V/C	Deficient	V/C	LOS	V/C	LOS	V/C	Deficient
1	Sand Canyon Avenue	Portola Parkway	Signalized	AM	0.439	A	0.470	A	0.031	No	0.470	A	0.031	No	0.470	A	0.031	No	0.470	A	0.031	No		
				PM	0.495	A	0.506	A	0.011	No	0.506	A	0.011	No	0.506	A	0.011	No	0.506	A	0.011	No		
2	Sand Canyon Avenue	Irvine Boulevard	Signalized	AM	0.704	C	0.711	C	0.007	No	0.711	C	0.007	No	0.704	C	0.000	No	0.704	C	0.000	No		
				PM	0.644	B	0.644	B	0.000	No	0.644	B	0.000	No	0.650	B	0.006	No	0.650	B	0.006	No		
3	Sand Canyon Avenue	Trabuco Road	Signalized	AM	0.600	A	0.609	B	0.009	No	0.609	B	0.009	No	0.600	A	0.000	No	0.600	A	0.000	No		
				PM	0.618	B	0.618	B	0.000	No	0.618	B	0.000	No	0.618	B	0.000	No	0.618	B	0.000	No		
4	Sand Canyon Avenue	I-5 Northbound Ramps	Signalized	AM	0.651	B	0.651	B	0.000	No	0.670	B	0.019	No	0.651	B	0.000	No	0.651	B	0.000	No		
				PM	0.743	C	0.743	C	0.000	No	0.743	C	0.000	No	0.743	C	0.000	No	0.743	C	0.000	No		
5	Sand Canyon Avenue	Marine Way	Signalized	AM	0.723	C	0.723	C	0.000	No	0.728	C	0.005	No	0.723	C	0.000	No	0.723	C	0.000	No		
				PM	0.651	B	0.651	B	0.000	No	0.651	B	0.000	No	0.651	B	0.000	No	0.651	B	0.000	No		
6	Sand Canyon Avenue	I-5 Southbound Ramps	Signalized	AM	0.728	C	0.728	C	0.000	No	0.736	C	0.008	No	0.728	C	0.000	No	0.728	C	0.000	No		
				PM	0.619	B	0.619	B	0.000	No	0.625	B	0.006	No	0.619	B	0.000	No	0.619	B	0.000	No		
7	SR-133 Southbound Ramps	Irvine Boulevard	Signalized	AM	0.674	B	0.674	B	0.000	No	0.674	B	0.000	No	0.687	B	0.013	No	0.687	B	0.013	No		
				PM	0.883	D	0.883	D	0.000	No	0.883	D	0.000	No	0.883	D	0.000	No	0.883	D	0.000	No		
8	SR-133 Northbound Off-Ramp	Irvine Boulevard	Signalized	AM	0.562	A	0.562	A	0.000	No	0.562	A	0.000	No	0.562	A	0.000	No	0.587	A	0.025	No		
				PM	0.746	C	0.746	C	0.000	No	0.746	C	0.000	No	0.746	C	0.000	No	0.746	C	0.000	No		

9. Special Issues

This chapter addresses the site access analysis and VMT analysis for the Project.

Site Access Analysis

As part of the Project, a private 2-lane roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site is proposed for construction vehicle access during Project construction and maintenance/operations access during Project operation. This proposal will require reconstruction of the Sand Canyon Avenue and Portola Parkway intersection to accommodate the new northern leg and the associated traffic signals, lane striping, and signage changes. Pedestrian and bicycle infrastructure at the intersection would be reconstructed to maintain access like the existing condition while following the City of Irvine requirements. This improvement assumes the northbound approach at Sand Canyon Avenue and Portola Parkway would be modified from two left-turn lanes and two right-turn lanes to one left-turn lane, one shared through/left-turn lane, and two right-turn lanes. The southbound approach would be constructed with one shared left/through/right-turn lane. Split phasing (a traffic signal operation that gives a green phase for all vehicle movements of one direction followed by a green phase for all movements of the opposite direction) would be incorporated for the northbound and new southbound approaches during construction and typical operations. During construction of the Project, this private roadway would be used by construction trips for ingress and egress of the construction site. Upon completion of the Project, this private roadway would be used by IRWD staff conducting maintenance and inspections as part of typical operations, similar to existing conditions. Trips by IRWD staff to the reservoir are not anticipated to increase as compared to the existing condition and are not considered to have a significant effect on the future intersection operations.

An analysis of the *City of Irvine Transportation Design Procedures* (City of Irvine, February 2007) [TDPs] was conducted to address primary access to the Project. The following TDPs were reviewed at request of the City of Irvine per the approved scope of work.

TDP – 1 Turn Lane Pocket Lengths

TDP – 1 identifies recommended lengths of left-turn pockets using a Nomograph for Left-Turn Storage, which uses inputs such as the number of left-turning vehicles, cycle length, and truck percentage. Eastbound left-turn pockets are not proposed at the intersection of Sand Canyon Avenue and Portola Parkway as the Project is planning to only modify the northbound and southbound approaches. Therefore TDP – 1 is not applicable to this Project.

TDP – 14 Driveway Lengths

TDP – 14 identifies recommended lengths for driveways to projects based on the number of peak hour trips entering a project site. The Project will construct a 2-lane private roadway from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site. While plans for this roadway have yet to be submitted, it is estimated that this private roadway will exceed 1,500 feet (ft) from the Sand Canyon Avenue and Portola Parkway intersection to the Project site. Signage indicating the use as a private road will be installed at the intersection and along the roadway. As a private road, access control will be maintained with a gate at least 500 ft away from the intersection. During the construction period this gate will remain open during hours of construction and closed when no construction is occurring. Following construction, the gate will remain closed and only IRWD staff conducting maintenance and inspections as part of typical operations will have access to open the gate. The gate location will provide an area for vehicles to turn around if they do not have access beyond the gate. As peak hour traffic into the Project site is estimated to be 27 vehicles, TDP – 14 recommends a driveway of at least 50 ft. The private road length (greater than 1,500 ft) and distance to the gate (at least 500 ft) exceed the recommendation of 50 feet based on TDP – 14.

TDP – 15 Gate Stacking

TDP – 15 identifies recommendations for vehicle stacking and gate-stacking at project sites. TDP-15 provides recommendations based on different types of land uses for vehicle stacking analysis. As a construction project, none of the examples provided in TDP-15 reflect the Projects' construction management operations or typical conditions of the reservoir following construction. The Project will construct a 2-lane private road with at least 500 ft of distance between the Sand Canyon Avenue and Portola Parkway intersection and a proposed gate. Signage indicating the use as a private road will be installed at the intersection and along the roadway. The proposed gate location will provide an area for vehicles to turn around if they do not have access beyond the gate.

During construction, the gate will remain open during hours of construction and closed when no construction is occurring. With an open gate, the private roadway and internal staging on-site can accommodate vehicle queuing that may be associated with a peak construction activity day.

Following construction, the gate will remain closed and only IRWD staff conducting maintenance and inspections as part of typical operations will have access to open the gate. The trips by IRWD staff will be nominal and are not considered to have a significant effect on the future intersection operations. The proposed gate location and gate operations during typical operations can meet the nominal inbound volume during future operations.

CEQA VMT Impact Analysis

The City of Irvine's *CEQA VMT Impact Analysis Guidelines* identify projects generating fewer than 250 weekday daily trips as requiring no further VMT impact analysis. As identified in Table 3, all phases of construction generate fewer than 250 daily weekday trips. Therefore, it can be determined that all the construction phases do not meet the daily trip screening threshold and require no further VMT impact analysis using the *CEQA VMT Impact Analysis Guidelines*. In addition, many jurisdictions in Southern California have regarded construction-related traffic as causing adverse but not significant impacts because, while sometimes inconvenient, construction-related traffic effects are temporary.

Pedestrian Network Impact Analysis

Disruptions to Existing Facilities

Significance Criteria

The following significance criteria were applied:

A significant impact occurs if a project disrupts existing pedestrian facilities.

Project Impact

Pedestrian infrastructure at the intersection of Sand Canyon Avenue and Portola Parkway will be reconstructed to maintain existing access while following the City of Irvine requirements. Therefore, it is concluded that the Project impact related to this item is less than significant.

Project Interferes with Planned Pedestrian Facilities

Significance Criteria

The following significance criteria were applied to determine if the Project conflicts with planned facilities:

A significant impact occurs if a project interferes with planned pedestrian facilities.

Project Impact

Pedestrian infrastructure at the intersection of Sand Canyon Avenue and Portola Parkway will be reconstructed to maintain existing access while following the City of Irvine requirements. The Project will not affect any planned pedestrian facilities in the study area. Therefore, it is concluded that the Project impact related to this item is less than significant.

Project Conflicts with Adopted Pedestrian System Plans, Guidelines, Policies, or Standards

Significance Criteria

A significant impact occurs if a project conflicts or creates inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards.

Project Impact

The Project is consistent with the policies identified in the City of Irvine General Plan Objective B-3: Pedestrian Circulation. The Project will reconstruct pedestrian infrastructure at the intersection of Sand Canyon Avenue and Portola Parkway to maintain existing access while following the City of Irvine requirements. Therefore, it is concluded that the Project impact related to this item is less than significant.

Bicycle Network Impact Analysis

Disruptions to Existing Facilities

Significance Criteria

The following significance criteria were applied:

A significant impact occurs if a project disrupts existing bicycle facilities.

Project Impact

Bicycle infrastructure at the intersection of Sand Canyon Avenue and Portola Parkway will be reconstructed to maintain existing access while following the City of Irvine requirements. Minor improvements to facilitate bicycle circulation such as "BIKES MAY USE FULL LANE" signage, shared arrow advance warning signage,

and other suggested methods that provide advance warning to both vehicular drivers and bicyclists will be coordinated with the City of Irvine staff. Therefore, it is concluded that the Project impact related to this item is less than significant.

Project Interferes with Planned Bicycle Facilities

Significance Criteria

The following significance criteria were applied to determine if the Project conflicts with planned facilities:

A significant impact occurs if a project interferes with planned bicycle facilities.

Project Impact

Bicycle infrastructure at the intersection of Sand Canyon Avenue and Portola Parkway will be reconstructed to maintain existing access while following the City of Irvine requirements. The Project will not affect any planned bicycle facilities in the study area. Minor improvements to facilitate bicycle circulation such as "BIKES MAY USE FULL LANE" signage, shared arrow advance warning signage, and other suggested methods that provide advance warning to both vehicular drivers and bicyclists will be coordinated with the City of Irvine staff. Therefore, it is concluded that the Project impact related to this item is less than significant.

Project Conflicts with Adopted Bicycle System Plans, Guidelines, Policies, or Standards

Significance Criteria

A significant impact occurs if a project conflicts or creates inconsistencies with adopted bicycle system plans, guidelines, policies, or standards.

Project Impact

The Project is consistent with the policies identified in the City of Irvine General Plan Objective B-4: Bicycle Circulation. The Project will reconstruct bicycle infrastructure at the intersection of Sand Canyon Avenue and Portola Parkway to maintain existing access while following the City of Irvine requirements. Minor improvements to facilitate bicycle circulation such as "BIKES MAY USE FULL LANE" signage, shared arrow advance warning signage, and other suggested methods that provide advance warning to both vehicular

drivers and bicyclists will be coordinated with the City of Irvine staff. Therefore, it is concluded that the Project impact related to this item is less than significant.

Transit System

Disruptions to Existing Transit Service

Significance Criteria

The following significance criteria were applied to determine if the Project is responsible for a disruption of existing transit services or facilities:

A significant impact occurs if a project disrupts existing transit services or facilities.

Project Impact

As noted in the review of existing transit routes, no transit routes currently run through the study area. Therefore, it is concluded that the Project impact related to this item is less than significant.

Interference with Planned Transit Services

Significance Criteria

The following significance criteria were applied:

A significant impact occurs if a project interferes with planned transit services or facilities.

Project Impact

As noted in the review of existing transit routes, no transit routes currently run through the study area. Furthermore, the Project does not propose any changes to existing bus pullout along any of the study roadways. Therefore, it is concluded that the Project impact related to this item is less than significant.

Project Conflicts or Creates Inconsistencies with Adopted Transit System Plans, Guidelines, Policies, or Standards

Significance Criteria

The following significance criteria regarding consistency with adopted transit plans, guidelines, policies, or standards were applied:

A significant impact occurs if a project conflicts or creates inconsistencies with adopted transit system plans, guidelines, policies, or standards.

Project Impact

Based on the review of the Project, it can be concluded that the Project does not conflict with these policies or other policies related to transit. The impact is therefore less than significant, and no mitigation is required.

Demand for Public Transit Services Above Capacity

Significance Criteria

The following significance criteria were applied:

A significant impact occurs if the project creates demand for public transit service above the capacity which is provided or planned.

Project Impact

The Project is consistent with the policies identified in the City of Irvine General Plan Objective B-6: Public Transit Circulation. Therefore, it is concluded that the Project impact related to this item is less than significant.

CMP Traffic Impact Analysis

The *2015 Orange County Congestion Management Program* (Orange County Transportation Authority, November 2015) [CMP] guidelines require that projects with the potential to create an impact of more than 3% of LOS E capacity on the CMP highway system links should require a traffic impact analysis. All projects generating 2,400 or more daily trips should require evaluation. If a project will have direct access to a CMP link, the threshold is reduced to 1,600 or more daily trips. A traffic impact analysis is not required if one has already been performed for the Project as part of an earlier development approval which takes the impact on the CMP highway system into account.

The nearest OCTA CMP intersection is Irvine Boulevard and SR-133 Northbound ramps. As documented in Table 3, the Project generates less than 1,600 daily trips on a peak construction activity day. Therefore, a CMP traffic impact analysis is not required.

10. Improvements

As part of the Project, a private 2-lane roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site is proposed for construction vehicle access during Project construction and maintenance/operations access during Project operation. This proposal will require reconstruction of the Sand Canyon Avenue and Portola Parkway intersection to accommodate the new northern leg and the associated traffic signals, lane striping, and signage changes. Pedestrian and bicycle infrastructure at the intersection would be reconstructed to maintain access like the existing condition while following the City of Irvine requirements. This improvement assumes the northbound approach at Sand Canyon Avenue and Portola Parkway would be modified from two left-turn lanes and two right-turn lanes to one left-turn lane, one shared through/left-turn lane, and two right-turn lanes. The southbound approach would be constructed with one shared left/through/right-turn lane. Split phasing (a traffic signal phasing that gives a green signal for all vehicle movements of one direction followed by a green signal for all movements of the opposite direction) would be incorporated for the northbound and new southbound approaches during construction and typical operations. During construction of the Project, this private roadway would be used by construction trips for ingress and egress of the construction site. Upon completion of the Project, this private roadway would be used by IRWD staff conducting maintenance and inspections as part of typical operations, similar to existing conditions. Trips by IRWD staff to the reservoir are not anticipated to increase as compared to the existing condition and are not considered to have a significant effect on the future intersection operations.

Bicycle infrastructure at the intersection of Sand Canyon Avenue and Portola Parkway will be reconstructed to maintain existing access while following the City of Irvine requirements. The Project will not affect any planned bicycle facilities in the study area. Minor improvements to facilitate bicycle circulation such as "BIKES MAY USE FULL LANE" signage, shared arrow advance warning signage, and other suggested methods that provide advance warning to both vehicular drivers and bicyclists will be included in the traffic control plans generated for the intersection construction.

Based on the results of the analysis and in accordance with the adopted Traffic Impact Analysis Guidelines, no significant impacts or intersection deficiencies were identified as part of this Project and therefore no improvements are required.

While no significant impacts were identified as part of this study, the following measures are recommended to alleviate the potential effect of construction traffic:

- Off-site truck staging, if required, shall be provided in a legal area furnished by the contractor. Trucks shall not be permitted to travel along local residential streets.

- To the extent feasible, deliveries and pick-ups of construction materials should be scheduled during non-peak travel periods and coordinated to reduce the potential of trucks waiting to load or unload for protracted periods of time.
- Access shall remain unobstructed for land uses in proximity to the Project site during Project construction.
- Full-time lane or sidewalk closures are not anticipated for the Project. Temporary lane or sidewalk closures, when needed, shall be scheduled to avoid peak commute hours and peak school drop-off and pick-up hours to the extent possible. In the event of a lane or sidewalk closure, a worksite traffic control plan, approved by the City of Irvine, shall be implemented to route traffic or pedestrians around any such lane or sidewalk closures.

11. Conclusion

The purpose of this study is to evaluate the temporary transportation impacts associated with the Syphon Reservoir Improvement Project in Irvine, California. The following summarizes the results of this analysis:

- The Project proposes to increase the capacity of the existing Syphon Reservoir and replace the existing engineered dam with a new and larger engineered dam. The Project would be implemented within the IRWD service area at the location of the existing Syphon Reservoir, northeast of Portola Parkway between Bee Canyon Access Road and SR-133.
- As part of the Project, a private 2-lane roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site is proposed for construction vehicle access during Project construction and maintenance/operations access during Project operation.
- The scope of the traffic analysis, methodology assumptions, and selection of study intersections was developed in consultation with City of Irvine staff and documented in the Scope of Work for Irvine Ranch Water District (IRWD) Syphon Reservoir Construction Transportation Impact Analysis dated June 29, 2020.
- The study intersections selected represent the intersections where construction traffic is proposed to travel through. Four routes are proposed for the Project.
- On a peak construction activity day, approximately 232 daily trips are estimated, of which 36 trips (27 inbound/9 outbound) would occur during the AM peak hour and 18 trips (0 inbound/18 outbound) would occur during the PM peak hour. For the purpose of the intersection LOS analysis, the trip generation estimates were converted to PCE which resulted in approximately 512 daily PCE trips are estimated, of which 72 PCE trips (45 inbound/27 outbound) would occur during the AM peak hour and 18 PCE trips (0 inbound/18 outbound) would occur during the PM peak hour on the same peak construction activity day.
- The LOS analyses for all Existing Plus Project routes, Short-Term Interim Year Approved plus Project, and Short-Term Interim Year Pending plus Project that the Project would have no deficiencies at any study intersection. Therefore, no intersection improvements to address intersection deficiencies would be required.
- Based on the daily trip generation on a peak construction activity day, the Project does not meet the daily trip screening threshold and does not require further VMT impact analysis.
- The Project does not have a significant impact on the pedestrian, bicycle, or transit network.



Appendix A:
**Scope of Work for Irvine Ranch Water
District (IRWD) Syphon Reservoir
Construction Transportation Impact
Analysis**



MEMORANDUM

Date: June 29, 2020
To: Justin Equina, City of Irvine
CC: Jennifer Jacobus, PhD, ESA
Jo Ann Corey, Irvine Ranch Water District
From: Spencer Reed, PE and Ethan Yue Sun, PhD
Subject: Scope of Work for Irvine Ranch Water District (IRWD) Syphon Reservoir Construction Transportation Impact Analysis

OC18-0553

Fehr & Peers has been retained by ESA to assist with the transportation impact analysis for construction of the Irvine Ranch Water District (IRWD) Syphon Reservoir Project (Project) located near the intersection of Sand Canyon Avenue and Portola Parkway. Based on the City of Irvine's Traffic Study Guidelines (City of Irvine, August 2004, Updated 2020), this project is required to evaluate the impacts associated with construction of the Project. As the Project is anticipated to generate less than 50 peak hour trips (see trip generation section below), a Limited Scope Traffic Impact Analysis (TIA) will be prepared to evaluate short-term interim-year conditions and satisfy the City's analysis requirements.

The purpose of this memorandum is to document the methodologies and assumptions which will be used in the transportation impact analysis so there is an opportunity to approve the approach prior to preparing the traffic study. This Limited Scope TIA will include the following sections.

I. Executive Summary

This section will provide a summary of the project description and the analysis results. Any mitigations recommended as part of the project will also be included, if necessary.

Spencer Reed

Approved by Development Review

7/2/20

Date



II. Introduction

This section will describe the project, outline the Limited Scope TIA, and include the following sections:

Project Site

The Project proposes to increase the capacity of the existing Syphon Reservoir and replace the existing engineered dam with a new and larger engineered dam. The Project would allow the storage of additional recycled water produced at the Michelson WRP during periods of low demand (winter months) for use during periods of high demand (summer months). The Project would expand the reservoir's storage capacity from the current 500 Acre-Feet (AF) to approximately 5,000 AF and would help IRWD become more self-sufficient by reducing its dependence on costly and less-reliable imported water from both Northern California and the Colorado River. The Project would help IRWD to store more drought-proof recycled water during summer months and support the increased use of recycled water for public landscaping, agricultural, business and industrial uses. Every gallon of recycled water IRWD uses for non-drinking water purposes saves a gallon of drinking water, helping the region's existing and planned future development to better withstand future water shortages. By reducing IRWD's dependence on costly imported water, the Project would allow IRWD to replace an expensive source of water for one that is less expensive and a drought-resilient supply, which increases IRWD's water supply reliability.

The Project would be implemented within the IRWD service area at the location of the existing Syphon Reservoir, northeast of Portola Parkway between Bee Canyon Access Road and SR-133 in the County of Orange. The Crean Lutheran High School Athletic Complex is located between Portola Parkway and the toe of the existing dam. Residential neighborhoods are located on the southwest side of Portola Parkway.

As part of the Project, a private 2-lane roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site is proposed for construction vehicle access. This proposal will require reconstruction of the Sand Canyon Avenue and Portola Parkway intersection to accommodate the new northern leg and the associated traffic signals, lane striping, and signage changes. During the Project, this private roadway will be used by construction trips for ingress and egress of the construction site. Upon completion of the Project, this private roadway will be used by IRWD staff conducting maintenance and inspections as part of typical

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operations. The trips by IRWD staff will be nominal and are not considered to have a significant effect on the future intersection operations.

Study Area Boundary

The study intersections selected represent the intersections where construction traffic is proposed to travel through. Two route options are proposed for the Project. Route Option 1 will be SR-133, north on Irvine Boulevard, and east on Sand Canyon Avenue for trucks traveling inbound and westbound on Sand Canyon Avenue and south on Irvine Boulevard to SR-133 for trucks traveling outbound. Route Option 2 will be I-5, east on Sand Canyon Avenue for trucks traveling inbound and westbound on Sand Canyon Avenue to I-5 for trucks traveling outbound. As presented in Figure 1, the following intersections have been selected for study:

1. Sand Canyon Avenue & Portola Parkway
2. Sand Canyon Avenue & Irvine Boulevard
3. Sand Canyon Avenue & Trabuco Rd
4. Sand Canyon Avenue & I-5 Northbound Ramps
5. Sand Canyon Avenue & Marine Way
6. Sand Canyon Avenue & I-5 Southbound Ramps
7. SR-133 Southbound Ramps & Irvine Boulevard
8. SR-133 Northbound Off-Ramp & Irvine Boulevard

Data Collection

Due to emergence of COVID-19 in southern California and the decision of local schools to end on-campus classes for the 2019-2020 academic year, it is not recommended to collect existing intersection counts in the study area. However, the City of Irvine has agreed to provide the most recent intersection counts available that can be used to estimate 2020 intersection volumes. As prescribed by the City of Irvine, a growth factor of 2% per year will be applied to previously counts collected to develop 2020 intersection volumes for the AM and PM peak hours.

III. Existing Conditions

Existing Lane Uses

Existing land uses on site will be identified. The existing site is the IRWD syphon reservoir.



Existing Roadways and Intersections

Fehr & Peers will collect the following information in a field visit to the study area:

- Lane & intersection configurations
- Traffic signal locations
- Signal phasing
- Land uses in the study area
- Existing pedestrian and bicycle facilities
- Transit service

IV. Performance Criteria

The performance criteria to determine potential impacts and mitigations will be consistent with the City's criteria, as outlined in the Traffic Study Guidelines. The City's Transportation Design Procedures (TDP) adopted February 2007 will be used as the performance criteria to evaluate the design features of the project access.

V. Proposed Project Impacts

Trip Generation

Construction of the Project is estimated to be approximately 41 months, depending on weather conditions and other variables. Construction is currently anticipated to begin in the Fall of 2022. Most construction activities would be limited to 7:00 AM to 4:00 PM Monday through Friday. Construction of the Project would include activities implemented in phases as outlined below.

- Access Routes/Intersection Improvements
- Excavation of Sediment/Existing Dam
- Construction of Dam/Spillway/Reservoir
- Construction of Filtration/Chlor/Dechlor Facilities
- Wetlands/Riparian Installation
- Installation of Recreation Facilities
- Demobilization

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Construction Vehicle Type

Haul Trucks

Hauling hours are anticipated to be 7:00 AM to 3:00 PM on weekdays. During the peak trip period, approximately 52 material delivery trucks would enter and exit the site per workday for approximately twelve months. During other times of construction, material deliveries would be expected in the range of 5 to 10 material delivery trucks per day. These trucks are assumed to arrive and depart evenly between 7:00 AM and 3:00 PM during an 8-hour shift.

Equipment and Delivery Trucks

In addition to haul trucks, the site is also expected to generate equipment and delivery trucks during each phase of construction. These materials would be delivered to the site and stored on-site. These deliveries are expected to occur in a variety of vehicles including small delivery trucks to cement mixer trucks and 18-wheel trucks. Additionally, construction equipment would also have to be delivered to the site. This equipment could include bulldozers, excavators, and other large items of machinery. Most of the heavy equipment is expected to be transported to the site on large trucks such as 18-wheelers or other similar vehicles. These trucks are assumed to arrive and depart evenly between 7:00 AM and 3:00 PM during an 8-hour shift.

Employee Vehicles

The number of construction workers would vary throughout the construction period. Parking for all construction workers will be provided on-site. Construction workers are assumed to arrive in single occupant vehicles.

Construction Period Trip Generation

Based on the aforementioned information, a construction period trip generation analysis was conducted to estimate daily, morning, and evening peak hour trips of the phase with the highest trip generation potential. As seen in Table 1, the construction of Dam/Spillway/Reservoir phase represents the day with the highest trip generation potential with approximately 116 vehicles.

Construction workers often travel to and from a worksite outside of the typical peak commute hours. Construction hours are anticipated to occur from 7:00 AM to 4:00 PM, with most worker trips and truck trips anticipated to occur outside of the AM and PM peak hours. For the purpose of the analysis, it was assumed that up to 40% of the construction workers would arrive at the construction

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site during the peak morning commute hour and up to 40% would depart the construction site during the peak evening commute hour. Equipment trucks were assumed to arrive and depart evenly between 7:00 AM and 3:00 PM during an 8-hour shift.

Table 1 presents a summary of the construction trip generation on a peak day. As shown, on a peak construction activity day, approximately 232 daily trips are estimated, of which 36 trips (27 inbound/9 outbound) would occur during the AM peak hour and 18 trips (0 inbound/18 outbound) would occur during the PM peak hour. This trip generation is anticipated to occur for approximately two to three months. Trip generation outside of this phase would be reduced with approximately 30 daily to 154 daily trips being generated.

Adjustments to Trip Generation

No adjustments to the trip generation shall be made without prior written approval from the City.

Trip Distribution and Assignment

Two route options are proposed for the Project. Route Option 1 will be SR-133, north on Irvine Boulevard, and east on Sand Canyon Avenue for trucks traveling inbound and westbound on Sand Canyon Avenue and south on Irvine Boulevard to SR-133 for trucks traveling outbound. Route Option 2 will be I-5, east on Sand Canyon Avenue for trucks traveling inbound and westbound on Sand Canyon Avenue to I-5 for trucks traveling outbound.

Phasing

The proposed project will be constructed in a single phase and is assumed to be operational by early 2026.

Vehicle Miles Traveled Methodology and Approach

On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 into law and started a process that will fundamentally change transportation impact analysis conducted as part of California Environmental Quality Act (CEQA) compliance. The Governor's Office of Planning and Research (OPR) was charged with developing new guidelines for evaluating transportation impacts under CEQA using methods that no longer focus on measuring automobile delay and level of service (LOS).

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OPR issued proposed updates to the CEQA guidelines in support of these goals in November 2017 and a supporting technical advisory in December 2018. The updates establish vehicle miles traveled (VMT) as the metric for evaluating a project's environmental impacts on the transportation system. Lead agencies, including the City of Irvine, have until July 1, 2020 to implement these new requirements. On June 23, 2020, the City of Irvine adopted the CEQA VMT Impact Analysis Guidelines. This project will include a VMT impact analysis section that follows the adopted CEQA VMT Impact Analysis Guidelines.

The City of Irvine's guidelines identify projects generating fewer than 250 daily trips as being screened out of VMT analysis. As identified in Table 1, all phases of construction have a daily trip generation less than 250 trips. Therefore, it can be assumed that all of the construction phases could be screened out of conducting a VMT analysis using the City of Irvine draft guidelines.

Many jurisdictions in Southern California have regarded construction-related traffic as causing adverse but not significant impacts because, while sometimes inconvenient, construction-related traffic effects are temporary. Therefore, due to all phases meeting the daily trip screening threshold of the City of Irvine and the temporary nature of the one phase that exceeds the threshold, this Project can be considered to be exempt from VMT and the traffic study will include a CEQA VMT Impact Analysis section and provide justification on how the project is exempt from VMT analysis.

Intersection Level of Service Analysis Methodology and Approach

The Intersection Capacity Utilization (ICU) methodology will be used to evaluate the intersection level of service (LOS) under the analysis scenarios identified below. The LOS will be reported at the study intersection for the AM and PM peak hours.

In addition, the Project's effect to non-automotive transportation will be evaluated based on the Project's consistency with existing or planned facilities in the study area

The following six scenarios will be analyzed:

- Existing Conditions – estimated intersection counts will be analyzed.
- Existing plus Project Conditions – the proposed construction trip generation (in passenger car equivalence) and route assignment estimates will be added to the Existing Conditions. Buildout of a private roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site will be included.

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- Short-Term Interim Year Approved Baseline Conditions – the future (Short-Term Interim Year) conditions will be developed based on the latest version of the Irvine Traffic Analysis Model (ITAM). Short-Term Interim Year Baseline Approved peak hour traffic volumes will be extracted for the study intersections.
- Short-Term Interim Year Approved Baseline plus Project Conditions – the proposed construction trip generation (in passenger car equivalent) and route assignment estimates will be added to the Short-Term Interim Year Approved Baseline Conditions. Buildout of a private roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site will be included.
- Short-Term Interim Year Pending Baseline Conditions – the future (Short-Term Interim Year) conditions will be developed based on the latest version of ITAM. Short-Term Interim Year Baseline Pending peak hour traffic volumes will be extracted for the study intersections.
- Short-Term Interim Year Pending Baseline plus Project Conditions – the proposed construction trip generation (in passenger car equivalent) and route assignment estimates will be added to the Short-Term Interim Year Pending Baseline Conditions. Buildout of a private roadway connection from the northern side of the Sand Canyon Avenue and Portola Parkway intersection to the Project site will be included.

The following parameters will be used in our operations analysis:

- Manual assignment of project trips added to the estimated intersection count volumes.
- Vistro v7.0 software and ICU methodology to analyze signalized study intersections.
- Volume to capacity (V/C) ratios and the associated LOS will be reported for the signalized Irvine study intersections under the ICU methodology.
- A VMT analysis will be prepared in accordance with adopted Traffic Impact Analysis Guidelines in effect at the time of project approval.
- Per the City of Irvine Traffic Impact Analysis Guidelines, lane capacities of 1,700 per hour per lane for through and turn lanes will be used for all volume/capacity calculations.
- Per the City of Irvine Traffic Impact Analysis Guidelines, lost time of 0.05 added to ICU calculation. Lost time represents the time in which no vehicles can pass through the intersection despite having a green signal (i.e. the delay from the driver in moving the vehicle as the signal changes from red to green)
- Inclusion of proposed private roadway under Plus Project condition

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VI. Special Analyses/Issues

Access Analysis

An analysis of the City's Transportation Design Procedures (TDPs) will be conducted for the primary access intersection (Sand Canyon Avenue/Portola) of the IRWD Syphon Reservoir. The TIA will identify the proposed lane geometry at this intersection to reflect this new access. The project is also responsible for restriping and other physical improvements necessary to implement the new access.

The specific TDPs to be evaluated include:

- TDP-1 (Turn lane pocket length) on eastbound Portola Parkway, if an eastbound left-turn lane is proposed
- TDP -14 (Driveway Lengths)
- TDP-15 (Gate Stacking), if applicable.

VII. Required Mitigation Measures

Based on the results and in accordance with the adopted Traffic Impact Analysis Guidelines, physical, operational, and alternative improvements required to mitigate unacceptable impacts due to the proposed project will be identified and analyzed.

VIII. Conclusions

A summary of the six analyzed scenarios, along with estimated effects of the mitigations, will be included in the TIA.

IX. Revisions to the Analysis

After a review and consolidated comments by city staff, Fehr & Peers will prepare one round of revisions to the TIA.

X. Signature

The TIA will be prepared under the supervision of, and signed, stamped, and dated by a registered traffic engineer or a registered professional civil engineer.

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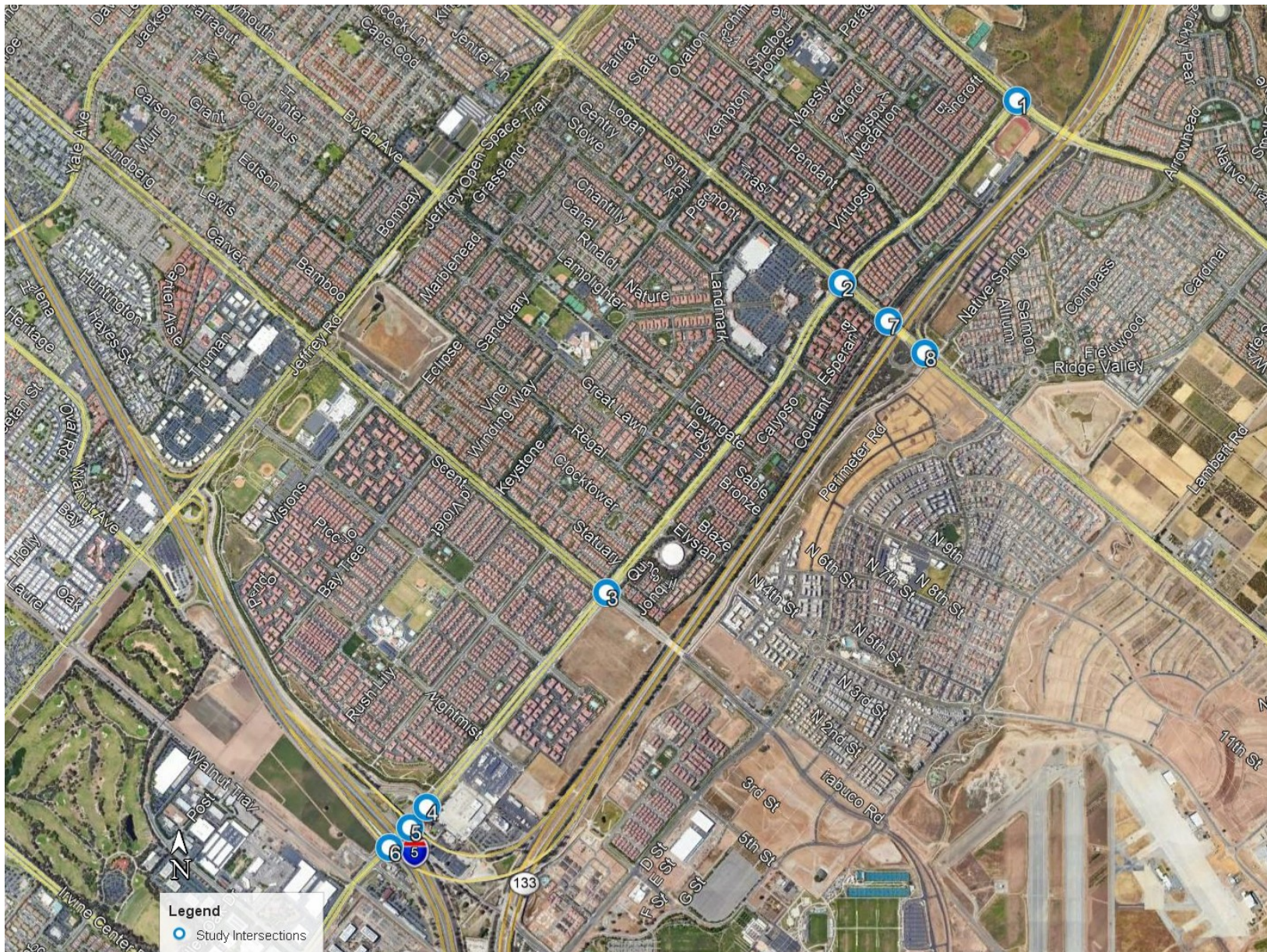


Figure 1

Study Intersections



**TABLE 1
CONSTRUCTION PERIOD TRIP GENERATION**

Phase	Duration (Months)	Peak Day Activity Under Each Phase			Total Vehicles	Total Daily Vehicle Trips
		Haul Trucks	Equipment and Delivery Trucks	Employee Vehicles		
		Access Routes/Intersecction Improvements	5	8		
Excavation of Sediment/ Existing Dam	6.6	0	6	31	37	74
Construction of Dam/Spillway/Reservoir	13.8	52	18	46	116	232
Construction of Filtration/Chlor/Dechlor Facility	12	0	29	48	77	154
Wetlands/Riparian Installation	12	0	5	20	25	50
Installation of Recreation Facilities	3	0	5	10	15	30
Demobilization	1	0	7	15	22	44

Construction of Dam/Spillway/Reservoir Trip Generation							
Trip Type	Daily Trips [a]	Morning Peak Hour Trips			Evening Peak Hour Trips		
		In	Out	Total	In	Out	Total
Haul Truck Trips [b]	104	7	7	14	0	0	0
Delivery and Equipment Truck Trips [b]	36	2	2	4	0	0	0
Construction Worker Trips [c]	92	18	0	18	0	18	18
Phase Total	232	27	9	36	0	18	18

Notes:

[a] - Daily trips were calculated by counting two trips, one inbound and one outbound trip for each vehicle

[b] - Daily haul and delivery/equipment truck trips were assumed to occur evenly throughout an 8-hour construction day. Therefore, the daily truck trips were divided by 8 hours to calculate morning and evening peak hour truck trips.

[c] - Up to 40% of the construction workers were assumed to arrive during the morning peak hour of adjacent street traffic. A total of up to 40% worker were assumed to depart during the evening peak hour.

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Appendix B:

Traffic Counts

Location: Irvine
 N/S: Sand Canyon Avenue
 E/W: Portola Parkway



ITAM: 300
 Date: 3/27/2018
 Day: Tuesday

TOTAL VEHICLES

	Sand Canyon Avenue Southbound			Portola Parkway Westbound			Sand Canyon Avenue Northbound			Portola Parkway Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
6:30 AM	0	0	0	47	26	0	10	0	28	0	92	67	270
6:45 AM	0	0	0	38	38	0	31	0	28	0	92	71	298
7:00 AM	0	0	0	58	68	0	32	0	16	0	98	82	354
7:15 AM	0	0	0	54	115	0	36	0	18	0	106	89	418
7:30 AM	0	0	0	114	223	0	69	0	29	0	82	105	622
7:45 AM	0	0	0	81	181	0	74	0	32	0	149	108	625
8:00 AM	0	0	0	72	138	0	37	0	35	0	155	87	524
8:15 AM	0	0	0	62	157	0	37	0	29	0	101	86	472
8:30 AM	0	0	0	95	140	0	43	0	32	0	117	78	505
8:45 AM	0	0	0	75	106	0	45	0	34	0	88	48	396
TOTAL VOLUMES:	0	0	0	696	1192	0	414	0	281	0	1080	821	4484

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	0	0	0	329	699	0	217	0	125	0	487	386	2243

PEAK HR FACTOR:	0.000			0.763			0.807			0.849			0.897
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TOTAL VEHICLES

	Sand Canyon Avenue Southbound			Portola Parkway Westbound			Sand Canyon Avenue Northbound			Portola Parkway Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
4:00 PM	0	0	0	35	124	0	99	0	67	0	72	30	427
4:15 PM	0	0	0	40	117	0	152	0	65	0	73	46	493
4:30 PM	0	0	0	36	115	0	134	0	74	0	86	45	490
4:45 PM	0	0	0	37	127	0	160	0	79	0	76	37	516
5:00 PM	0	0	0	35	109	0	170	0	71	0	89	48	522
5:15 PM	0	0	0	31	131	0	171	0	99	0	102	47	581
5:30 PM	0	0	0	32	133	0	165	0	90	0	139	55	614
5:45 PM	0	0	0	44	138	0	113	0	87	0	110	33	525
6:00 PM	0	0	0	29	109	0	130	0	103	0	108	33	512
6:15 PM	0	0	0	37	110	0	100	0	76	0	120	26	469
6:30 PM	0	0	0	33	70	0	81	0	90	0	68	21	363
6:45 PM	0	0	0	37	73	0	57	0	85	0	105	23	380
TOTAL VOLUMES:	0	0	0	426	1356	0	1532	0	986	0	1148	444	5892

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	0	0	0	142	511	0	619	0	347	0	440	183	2242

PEAK HR FACTOR:	0.000			0.897			0.894			0.803			0.913
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Location: Irvine
 N/S: Sand Canyon Avenue
 E/W: Irvine Boulevard



ITAM: 301
 Date: 3/27/2018
 Day: Tuesday

TOTAL VEHICLES

	Sand Canyon Avenue Southbound			Irvine Boulevard Westbound			Sand Canyon Avenue Northbound			Irvine Boulevard Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
7:00 AM	106	137	24	102	168	31	29	43	102	10	275	46	1073
7:15 AM	107	152	12	119	238	48	18	46	111	11	280	56	1198
7:30 AM	70	191	17	143	259	58	22	41	80	17	235	50	1183
7:45 AM	64	169	12	126	149	35	15	58	89	18	230	47	1012
8:00 AM	39	95	15	112	153	33	15	53	96	15	188	31	845
8:15 AM	60	133	19	119	103	61	19	46	89	25	131	40	845
8:30 AM	57	93	13	79	120	34	16	62	69	10	140	25	718
8:45 AM	50	79	9	84	101	21	17	47	66	12	136	43	665
TOTAL VOLUMES:	553	1049	121	884	1291	321	151	396	702	118	1615	338	7539

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	347	649	65	490	814	172	84	188	382	56	1020	199	4466

PEAK HR FACTOR:	0.954			0.802			0.934			0.919			0.932
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TOTAL VEHICLES

	Sand Canyon Avenue Southbound			Irvine Boulevard Westbound			Sand Canyon Avenue Northbound			Irvine Boulevard Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
4:00 PM	45	64	17	107	291	105	69	173	112	40	166	29	1218
4:15 PM	31	62	21	85	368	119	52	191	126	21	177	30	1283
4:30 PM	37	59	20	116	306	93	76	184	107	44	204	38	1284
4:45 PM	30	71	18	120	293	93	78	163	121	44	196	46	1273
5:00 PM	26	56	17	108	257	90	47	163	116	43	163	44	1130
5:15 PM	26	65	8	97	279	62	42	141	113	33	196	33	1095
5:30 PM	25	67	18	71	212	66	47	121	116	40	174	35	992
5:45 PM	22	62	19	98	168	43	45	105	88	30	150	35	865
6:00 PM	18	86	11	81	121	32	50	158	112	32	145	28	874
6:15 PM	19	60	15	87	127	41	36	102	72	42	132	28	761
6:30 PM	21	55	18	53	80	31	41	83	79	40	133	30	664
6:45 PM	11	47	13	75	77	25	34	76	69	32	124	30	613
TOTAL VOLUMES:	311	754	195	1098	2579	800	617	1660	1231	441	1960	406	12052

PM Peak Hr Begins at: 400 PM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	143	256	76	428	1258	410	275	711	466	149	743	143	5058

PEAK HR FACTOR:	0.942			0.916			0.984			0.905			0.985
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Location: Irvine
 N/S: Sand Canyon Avenue
 E/W: Trabuco Road



ITAM: 302
 Date: 3/27/2018
 Day: Tuesday

TOTAL VEHICLES

	Sand Canyon Avenue Southbound			Trabuco Road Westbound			Sand Canyon Avenue Northbound			Trabuco Road Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
5:30 AM	6	3	1	5	73	2	5	5	2	0	65	19	186
5:45 AM	5	3	4	10	106	8	13	4	0	1	92	28	274
6:00 AM	8	1	2	11	120	5	6	1	1	4	120	46	325
6:15 AM	11	18	3	9	143	7	15	2	1	1	150	73	433
6:30 AM	7	13	3	11	212	3	31	7	4	2	141	89	523
6:45 AM	10	16	1	17	251	6	27	9	5	4	160	93	599
7:00 AM	8	13	1	12	258	9	35	12	3	8	133	65	557
7:15 AM	11	14	1	13	335	24	44	12	8	10	141	39	652
7:30 AM	29	19	3	11	365	25	49	26	10	9	111	43	700
7:45 AM	19	26	4	18	400	68	46	44	11	11	110	35	792
8:00 AM	35	54	4	19	288	73	41	65	10	15	117	50	771
8:15 AM	38	53	2	38	317	55	48	55	13	11	116	56	802
8:30 AM	31	45	2	13	337	91	40	98	9	24	118	21	829
8:45 AM	49	55	3	13	360	78	47	52	8	9	118	23	815
TOTAL VOLUMES:	256	327	29	185	3386	444	429	383	83	108	1535	633	7798

AM Peak Hr Begins at: 800 AM

	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
PEAK VOLUMES:	153	207	11	83	1302	297	176	270	40	59	469	150	3217

PEAK HR FACTOR:	0.867	0.932	0.827	0.926	0.970
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TOTAL VEHICLES

	Sand Canyon Avenue Southbound			Trabuco Road Westbound			Sand Canyon Avenue Northbound			Trabuco Road Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
4:00 PM	32	35	8	11	132	29	20	42	15	32	312	37	705
4:15 PM	20	21	8	9	150	19	26	33	15	35	402	37	775
4:30 PM	29	23	7	11	130	20	27	27	12	38	369	49	742
4:45 PM	29	25	11	13	127	58	16	35	7	46	421	44	832
5:00 PM	50	34	6	3	167	33	19	45	13	43	430	40	883
5:15 PM	38	30	10	11	146	25	35	34	11	73	456	54	923
5:30 PM	32	29	11	5	168	46	25	43	9	84	528	63	1043
5:45 PM	38	24	7	8	159	49	28	33	8	53	455	50	912
6:00 PM	33	29	9	15	167	51	22	26	13	33	385	55	838
6:15 PM	27	24	5	9	129	27	29	23	13	39	410	67	802
6:30 PM	34	32	7	12	171	41	21	22	14	27	385	43	809
6:45 PM	29	21	1	6	166	21	22	22	10	18	310	56	682
TOTAL VOLUMES:	391	327	90	113	1812	419	290	385	140	521	4863	595	9946

PM Peak Hr Begins at: 500 PM

	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
PEAK VOLUMES:	158	117	34	27	640	153	107	155	41	253	1869	207	3761

PEAK HR FACTOR:	0.858	0.936	0.947	0.863	0.901
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Location: Irvine
 N/S: Sand Canyon Avenue
 E/W: I-5 NB Ramps



ITAM: 303
 Date: 5/22/2018
 Day: Tuesday

TOTAL VEHICLES

	Sand Canyon Avenue Southbound			I-5 NB Ramps Westbound			Sand Canyon Avenue Northbound			I-5 NB Ramps Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
7:00 AM	2	233	132	0	0	0	39	132	0	56	0	61	655
7:15 AM	1	356	152	1	1	0	41	121	1	67	0	72	813
7:30 AM	2	387	122	1	2	0	49	97	0	79	0	82	821
7:45 AM	0	447	95	0	0	0	42	111	0	73	0	131	899
8:00 AM	0	411	114	1	0	0	45	114	0	79	0	122	886
8:15 AM	0	436	105	0	0	0	42	99	1	53	0	95	831
8:30 AM	0	400	125	0	0	1	62	106	0	67	0	113	874
8:45 AM	0	428	128	0	0	0	51	120	0	49	0	102	878
TOTAL VOLUMES:	5	3098	973	3	3	1	371	900	2	523	0	778	6657

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	0	1694	439	1	0	1	191	430	1	272	0	461	3490

PEAK HR FACTOR:	0.984			0.500			0.926			0.898			0.971
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TOTAL VEHICLES

	Sand Canyon Avenue Southbound			I-5 NB Ramps Westbound			Sand Canyon Avenue Northbound			I-5 NB Ramps Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
4:00 PM	0	199	68	5	2	0	110	273	0	133	0	39	829
4:15 PM	0	182	53	1	1	0	107	309	0	143	0	54	850
4:30 PM	0	179	43	4	1	0	108	313	0	163	0	43	854
4:45 PM	1	181	34	0	1	0	106	275	0	202	0	61	861
5:00 PM	0	158	34	0	0	0	135	303	1	205	0	43	879
5:15 PM	0	169	49	0	0	0	149	440	0	184	0	48	1039
5:30 PM	0	166	40	0	0	0	99	348	0	219	0	48	920
5:45 PM	3	185	34	0	0	0	114	404	0	207	0	46	993
6:00 PM	0	161	52	0	0	0	123	377	0	208	0	38	959
6:15 PM	0	163	56	1	0	0	139	379	1	170	0	48	957
6:30 PM	1	147	69	2	1	0	103	326	0	199	0	41	889
6:45 PM	0	139	69	0	0	0	122	296	8	150	0	52	836
TOTAL VOLUMES:	5	2029	601	13	6	0	1415	4043	10	2183	0	561	10866

PM Peak Hr Begins at: 515 PM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	3	681	175	0	0	0	485	1569	0	818	0	180	3911

PEAK HR FACTOR:	0.967			0.000			0.872			0.934			0.941
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Location: Irvine
 N/S: Sand Canyon Avenue
 E/W: Marine Way



ITAM: 304
 Date: 5/24/2018
 Day: Thursday

	Sand Canyon Avenue Southbound			Marine Way Westbound			Sand Canyon Avenue Northbound			Marine Way Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
7:00 AM	17	298	0	44	0	16	0	153	78	0	0	0	606
7:15 AM	14	345	0	45	0	23	0	143	58	0	0	0	628
7:30 AM	19	465	0	75	0	29	0	135	39	0	0	0	762
7:45 AM	24	542	0	79	0	25	0	117	38	0	0	0	825
8:00 AM	17	489	0	93	0	26	0	118	50	0	0	0	793
8:15 AM	29	584	0	108	0	30	0	86	40	0	0	0	877
8:30 AM	26	486	0	92	0	20	0	134	34	0	0	0	792
8:45 AM	23	538	0	94	0	18	0	129	41	0	0	0	843
TOTAL VOLUMES:	169	3747	0	630	0	187	0	1015	378	0	0	0	6126

AM Peak Hr Begins at: 800 AM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	95	2097	0	387	0	94	0	467	165	0	0	0	3305

PEAK HR FACTOR:	0.894			0.871			0.929			0.000			0.942
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	Sand Canyon Avenue Southbound			Marine Way Westbound			Sand Canyon Avenue Northbound			Marine Way Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
4:00 PM	30	171	0	51	0	23	0	313	43	0	0	0	631
4:15 PM	16	222	0	41	0	28	0	431	48	0	0	0	786
4:30 PM	25	189	0	51	0	18	0	382	52	0	0	0	717
4:45 PM	42	205	0	33	0	24	0	431	67	0	0	0	802
5:00 PM	20	207	0	36	0	29	0	471	83	0	0	0	846
5:15 PM	23	207	0	38	0	21	0	599	68	0	0	0	956
5:30 PM	27	170	0	36	0	18	0	503	71	0	0	0	825
5:45 PM	21	258	0	37	0	23	0	451	102	0	0	0	892
6:00 PM	23	166	0	38	0	23	0	492	98	0	0	0	840
6:15 PM	24	244	0	36	0	24	0	437	92	0	0	0	857
6:30 PM	18	171	0	29	0	22	0	398	80	0	0	0	718
6:45 PM	23	218	0	49	0	40	0	409	61	0	0	0	800
TOTAL VOLUMES:	292	2428	0	475	0	293	0	5317	865	0	0	0	9670

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	91	842	0	147	0	91	0	2024	324	0	0	0	3519

PEAK HR FACTOR:	0.836			0.915			0.880			0.000			0.920
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Location: Irvine
 N/S: Sand Canyon Avenue
 E/W: I-5 SB Ramps



ITAM: 305
 Date: 5/22/2018
 Day: Tuesday

TOTAL VEHICLES

	Sand Canyon Avenue Southbound			I-5 SB Ramps Westbound			Sand Canyon Avenue Northbound			I-5 SB Ramps Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
7:00 AM	105	251	0	0	0	0	0	98	18	94	0	161	727
7:15 AM	129	337	0	0	0	0	0	96	21	82	1	203	869
7:30 AM	143	438	0	0	0	0	0	91	33	63	0	188	956
7:45 AM	161	486	0	0	0	0	0	102	34	48	0	194	1025
8:00 AM	154	455	0	0	0	0	0	83	29	51	2	255	1029
8:15 AM	175	407	0	0	0	0	0	108	22	52	1	234	999
8:30 AM	169	413	0	0	0	0	0	104	28	53	0	229	996
8:45 AM	163	439	0	0	0	0	0	118	23	44	0	221	1008
TOTAL VOLUMES:	1199	3226	0	0	0	0	0	800	208	487	4	1685	7609

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	659	1761	0	0	0	0	0	397	113	204	3	912	4049

PEAK HR FACTOR:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	0.935	0.000	0.938	0.908	0.984								

TOTAL VEHICLES

	Sand Canyon Avenue Southbound			I-5 SB Ramps Westbound			Sand Canyon Avenue Northbound			I-5 SB Ramps Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
4:00 PM	87	193	0	0	0	0	0	341	81	69	0	38	809
4:15 PM	73	181	0	0	0	0	0	358	94	82	2	55	845
4:30 PM	78	162	0	0	0	0	0	367	83	93	2	74	859
4:45 PM	64	155	0	0	0	0	0	351	78	84	1	75	808
5:00 PM	71	141	0	0	0	0	0	409	119	125	0	71	936
5:15 PM	66	123	0	0	0	0	0	474	113	133	2	77	988
5:30 PM	73	131	0	0	0	0	0	429	92	118	0	75	918
5:45 PM	62	154	0	0	0	0	0	396	76	163	0	59	910
6:00 PM	81	146	0	0	0	0	0	377	63	150	0	64	881
6:15 PM	82	166	0	0	0	0	0	395	54	123	0	55	875
6:30 PM	75	124	0	0	0	0	0	339	57	149	0	59	803
6:45 PM	78	117	0	0	0	0	0	315	44	195	0	61	810
TOTAL VOLUMES:	890	1793	0	0	0	0	0	4551	954	1484	7	763	10442

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	272	549	0	0	0	0	0	1708	400	539	2	282	3752

PEAK HR FACTOR:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	0.950	0.000	0.898	0.927	0.949								

Location: Irvine
 N/S: SR-133 SB Ramps
 E/W: Irvine Boulevard



ITAM: 316
 Date: 3/29/2017
 Day: Thursday

	SR-133 SB Ramps Southbound			Irvine Boulevard Westbound			SR-133 SB Ramps Northbound			Irvine Boulevard Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
7:00 AM	63	0	42	54	220	0	0	0	0	0	278	35	692
7:15 AM	38	0	54	70	241	0	0	0	0	0	267	36	706
7:30 AM	27	0	76	77	316	0	0	0	0	0	415	50	961
7:45 AM	37	1	71	76	354	0	0	0	0	0	396	79	1014
8:00 AM	38	0	48	91	439	0	0	0	0	0	262	70	948
8:15 AM	19	0	49	82	301	0	0	0	0	0	339	87	877
8:30 AM	27	1	32	76	258	0	0	0	0	0	284	70	748
8:45 AM	32	1	45	68	236	0	0	0	0	0	341	76	799
TOTAL VOLUMES:	281	3	417	594	2365	0	0	0	0	0	2582	503	6745

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	121	1	244	326	1410	0	0	0	0	0	1412	286	3800

PEAK HR FACTOR:	0.839	0.819	0.000	0.894	0.937
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	SR-133 SB Ramps Southbound			Irvine Boulevard Westbound			SR-133 SB Ramps Northbound			Irvine Boulevard Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
4:00 PM	15	0	41	37	419	0	0	0	0	0	300	31	843
4:15 PM	9	0	30	27	448	0	0	0	0	0	267	29	810
4:30 PM	13	0	23	29	446	0	0	0	0	0	286	24	821
4:45 PM	11	1	20	29	524	0	0	0	0	0	311	27	923
5:00 PM	7	0	34	23	481	0	0	0	0	0	294	23	862
5:15 PM	8	0	45	35	585	0	0	0	0	0	305	36	1014
5:30 PM	12	0	36	41	525	0	0	0	0	0	293	26	933
5:45 PM	18	1	37	31	505	0	0	0	0	0	320	36	948
6:00 PM	9	1	35	24	460	0	0	0	0	0	304	25	858
6:15 PM	5	1	15	12	406	0	0	0	0	0	295	15	749
6:30 PM	7	0	27	25	303	0	0	0	0	0	276	22	660
6:45 PM	8	1	22	18	286	0	0	0	0	0	263	19	617
TOTAL VOLUMES:	122	5	365	331	5388	0	0	0	0	0	3514	313	10038

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	45	1	152	130	2096	0	0	0	0	0	1212	121	3757

PEAK HR FACTOR:	0.884	0.898	0.000	0.936	0.926
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Location: Irvine
 N/S: SR-133 NB Ramps
 E/W: Irvine Boulevard



ITAM: 317
 Date: 3/29/2018
 Day: Thursday

	SR-133 NB Ramps Southbound			Irvine Boulevard Westbound			SR-133 NB Ramps Northbound			Irvine Boulevard Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
7:00 AM	0	0	0	0	264	17	13	0	21	0	311	37	663
7:15 AM	0	0	0	0	269	25	30	0	31	0	274	29	658
7:30 AM	0	0	0	0	394	23	27	0	22	0	403	33	902
7:45 AM	0	0	0	0	440	16	28	0	32	0	425	29	970
8:00 AM	0	0	0	0	487	21	22	0	23	0	278	36	867
8:15 AM	0	0	0	0	346	19	18	0	20	0	315	25	743
8:30 AM	0	0	0	0	305	21	24	0	20	0	272	30	672
8:45 AM	0	0	0	0	257	27	19	0	17	0	327	28	675
TOTAL VOLUMES:	0	0	0	0	2762	169	181	0	186	0	2605	247	6150

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	0	0	0	0	1667	79	95	0	97	0	1421	123	3482

PEAK HR FACTOR:	0.000	0.859	0.800	0.850	0.897
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	SR-133 NB Ramps Southbound			Irvine Boulevard Westbound			SR-133 NB Ramps Northbound			Irvine Boulevard Eastbound			TOTAL
	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	
4:00 PM	0	0	0	0	406	37	46	0	42	0	234	63	828
4:15 PM	0	0	0	0	410	31	58	0	39	0	210	57	805
4:30 PM	0	0	0	0	492	34	44	0	51	0	240	55	916
4:45 PM	0	0	0	0	470	48	59	0	38	0	251	48	914
5:00 PM	0	0	0	0	461	37	55	0	58	0	249	49	909
5:15 PM	0	0	0	0	543	40	83	0	55	0	260	51	1032
5:30 PM	0	0	0	0	493	33	63	0	61	0	258	49	957
5:45 PM	0	0	0	0	429	31	64	0	54	0	313	48	939
6:00 PM	0	0	0	0	447	27	49	0	67	0	276	51	917
6:15 PM	0	0	0	0	376	28	52	0	55	0	290	38	839
6:30 PM	0	0	0	0	316	20	52	0	43	0	241	28	700
6:45 PM	0	0	0	0	301	18	28	0	53	0	229	35	664
TOTAL VOLUMES:	0	0	0	0	5144	384	653	0	616	0	3051	572	10420

PM Peak Hr Begins at: 515 PM

PEAK VOLUMES:	SL	ST	SR	WL	WT	WR	NL	NT	NR	EL	ET	ER	TOTAL
	0	0	0	0	1912	131	259	0	237	0	1107	199	3845

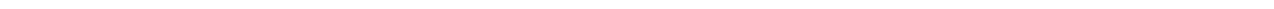
PEAK HR FACTOR:	0.000	0.876	0.899	0.904	0.931
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Appendix C:

LOS Calculation Worksheets

Existing (2020) Conditions



Irvine Ranch Water District

Vistro File: N:\...\IRWD 2020 EX_Version 2.vistro

Scenario 1 Base AM

Report File: N:\...\2020 EX Base AM.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.366	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.580	-	A
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.496	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.538	-	A
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.596	-	A
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.600	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.556	-	A
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.465	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.366

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	⇐⇐⇐⇐		⇐⇐		⇐⇐⇐	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	1	2	0
Pocket Length [ft]	280.00	500.00	100.00	300.00	380.00	100.00
Speed [mph]	50.00		50.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	226	130	507	402	342	727
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	130	507	402	342	727
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	33	127	101	86	182
Total Analysis Volume [veh/h]	226	130	507	402	342	727
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Overlap	Permissive	Unsignalized	Protected	Permissive
Signal Group	6	0	8	0	7	4
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.15	0.00	0.10	0.21
Intersection LOS	A					
Intersection V/C	0.366					

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	87	196	397	361	675	68	58	1061	207	510	847	179
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	196	397	361	675	68	58	1061	207	510	847	179
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	49	99	90	169	17	15	265	52	128	212	45
Total Analysis Volume [veh/h]	87	196	397	361	675	68	58	1061	207	510	847	179
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.04	0.00	0.11	0.20	0.04	0.02	0.16	0.12	0.15	0.17	0.11
Intersection LOS	A											
Intersection V/C	0.580											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.496

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	183	281	42	159	215	11	61	488	156	86	1355	309
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	183	281	42	159	215	11	61	488	156	86	1355	309
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	70	11	40	54	3	15	122	39	22	339	77
Total Analysis Volume [veh/h]	183	281	42	159	215	11	61	488	156	86	1355	309
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.06	0.00	0.05	0.04	0.01	0.02	0.10	0.00	0.03	0.33	0.33
Intersection LOS	A											
Intersection V/C	0.496											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.538

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	199	447	1	0	1762	457	283	0	480	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	199	447	1	0	1762	457	283	0	480	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	112	0	0	441	114	71	0	120	0	0	0
Total Analysis Volume [veh/h]	199	447	1	0	1762	457	283	0	480	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.09	0.09	0.00	0.35	0.27	0.08	0.00	0.00	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.538											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.596

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↱		↰		↰↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	486	172	99	2182	403	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	486	172	99	2182	403	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	122	43	25	546	101	25
Total Analysis Volume [veh/h]	486	172	99	2182	403	98
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.10	0.03	0.43	0.12	0.06
Intersection LOS	A					
Intersection V/C	0.596					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration							+					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	413	118	686	1832	0	212	0	949	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	413	118	686	1832	0	212	0	949	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	103	30	172	458	0	53	0	237	0	0	0
Total Analysis Volume [veh/h]	0	413	118	686	1832	0	212	0	949	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.06	0.07	0.20	0.27	0.00	0.04	0.00	0.17	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.600											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.556

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	126	0	254	0	1469	298	339	1467	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	126	0	254	0	1469	298	339	1467	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	32	0	64	0	367	75	85	367	0
Total Analysis Volume [veh/h]	0	0	0	126	0	254	0	1469	298	339	1467	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.07	0.00	0.07	0.00	0.26	0.26	0.10	0.43	0.00
Intersection LOS	A											
Intersection V/C	0.556											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.465

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	0	25	0	0	0	0	370	0	0	434	21
Total Analysis Volume [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.06	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.36	0.36
Intersection LOS	A											
Intersection V/C	0.465											

Irvine Ranch Water District

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.418	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.541	-	A
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.519	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.622	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.547	-	A
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.520	-	A
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.738	-	C
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.625	-	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.418

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	⇐⇐⇐⇐		⇐⇐		⇐⇐⇐	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	1	2	0
Pocket Length [ft]	280.00	500.00	100.00	300.00	380.00	100.00
Speed [mph]	50.00		50.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	644	361	458	190	148	532
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	644	361	458	190	148	532
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	161	90	115	48	37	133
Total Analysis Volume [veh/h]	644	361	458	190	148	532
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Overlap	Permissive	Unsignalized	Protected	Permissive
Signal Group	6	0	8	0	7	4
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.13	0.00	0.04	0.16
Intersection LOS	A					
Intersection V/C	0.418					

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.541

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	286	740	485	149	266	79	155	773	149	445	1309	427
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	286	740	485	149	266	79	155	773	149	445	1309	427
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	72	185	121	37	67	20	39	193	37	111	327	107
Total Analysis Volume [veh/h]	286	740	485	149	266	79	155	773	149	445	1309	427
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.15	0.00	0.04	0.08	0.05	0.05	0.11	0.09	0.13	0.26	0.25
Intersection LOS	A											
Intersection V/C	0.541											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	111	161	43	164	122	35	263	1945	215	28	666	159
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	161	43	164	122	35	263	1945	215	28	666	159
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	40	11	41	31	9	66	486	54	7	167	40
Total Analysis Volume [veh/h]	111	161	43	164	122	35	263	1945	215	28	666	159
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.00	0.05	0.02	0.02	0.08	0.38	0.00	0.01	0.16	0.16
Intersection LOS	A											
Intersection V/C	0.519											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.622

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵↵			↵↵↵			↵↵↵			↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	505	1632	0	3	709	182	851	0	187	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	505	1632	0	3	709	182	851	0	187	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	408	0	1	177	46	213	0	47	0	0	0
Total Analysis Volume [veh/h]	505	1632	0	3	709	182	851	0	187	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.32	0.00	0.00	0.14	0.11	0.25	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.622											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.547

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2106	337	95	876	153	95
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2106	337	95	876	153	95
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	527	84	24	219	38	24
Total Analysis Volume [veh/h]	2106	337	95	876	153	95
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.41	0.20	0.03	0.17	0.05	0.06
Intersection LOS	A					
Intersection V/C	0.547					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.520

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	444	104	71	143	0	140	0	73	0	0	0
Total Analysis Volume [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.26	0.24	0.08	0.08	0.00	0.11	0.00	0.13	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.520											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	47	0	158	0	1261	126	135	2181	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	47	0	158	0	1261	126	135	2181	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	12	0	40	0	315	32	34	545	0
Total Analysis Volume [veh/h]	0	0	0	47	0	158	0	1261	126	135	2181	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.05	0.00	0.20	0.20	0.04	0.64	0.00
Intersection LOS	C											
Intersection V/C	0.738											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.625

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	0	62	0	0	0	0	288	0	0	497	34
Total Analysis Volume [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.00	0.15	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.42	0.42
Intersection LOS	B											
Intersection V/C	0.625											

Irvine Ranch Water District

Vistro File: N:\...\IRWD 2020 EX_Version 2.vistro

Scenario 3 Base Route 1A AM

Report File: N:\...\2020 EX PP AM_Route 1A through I-5

8/19/2020

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Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.396	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.588	-	A
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.505	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.538	-	A
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.596	-	A
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.600	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.556	-	A
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.465	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.396

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔			↔		
Lane Configuration	↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	226	0	130	0	0	0	0	507	402	342	727	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	45	130	0	27	0	0	507	402	342	727	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	11	33	0	7	0	0	127	101	86	182	0
Total Analysis Volume [veh/h]	226	45	130	0	27	0	0	507	402	342	727	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.08	0.00	0.00	0.02	0.00	0.00	0.15	0.00	0.10	0.21	0.00
Intersection LOS	A											
Intersection V/C	0.396											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.588

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	87	196	397	361	675	68	58	1061	207	510	847	179
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	241	397	361	702	68	58	1061	207	510	847	179
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	60	99	90	176	17	15	265	52	128	212	45
Total Analysis Volume [veh/h]	87	241	397	361	702	68	58	1061	207	510	847	179
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.00	0.11	0.21	0.04	0.02	0.16	0.12	0.15	0.17	0.11
Intersection LOS	A											
Intersection V/C	0.588											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.505

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	TWO			TWO			TWO			TWO		
Lane Configuration	TWO			TWO			TWO			TWO		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	183	281	42	159	215	11	61	488	156	86	1355	309
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	183	326	42	159	242	11	61	488	156	86	1355	309
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	82	11	40	61	3	15	122	39	22	339	77
Total Analysis Volume [veh/h]	183	326	42	159	242	11	61	488	156	86	1355	309
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.06	0.00	0.05	0.05	0.01	0.02	0.10	0.00	0.03	0.33	0.33
Intersection LOS	A											
Intersection V/C	0.505											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.538

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵↵			↵↵↵			↵↵↵			↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	199	447	1	0	1762	457	283	0	480	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	0	27	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	199	492	1	0	1762	484	283	0	480	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	123	0	0	441	121	71	0	120	0	0	0
Total Analysis Volume [veh/h]	199	492	1	0	1762	484	283	0	480	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.10	0.10	0.00	0.35	0.28	0.08	0.00	0.00	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.538											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.596

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↱		↰		↰↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	486	172	99	2182	403	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	531	172	99	2182	403	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	133	43	25	546	101	25
Total Analysis Volume [veh/h]	531	172	99	2182	403	98
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.10	0.03	0.43	0.12	0.06
Intersection LOS	A					
Intersection V/C	0.596					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	413	118	686	1832	0	212	0	949	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	45	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	413	118	686	1832	0	257	0	949	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	103	30	172	458	0	64	0	237	0	0	0
Total Analysis Volume [veh/h]	0	413	118	686	1832	0	257	0	949	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.06	0.07	0.20	0.27	0.00	0.05	0.00	0.18	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.600											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.556

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	126	0	254	0	1469	298	339	1467	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	126	0	254	0	1469	298	339	1467	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	32	0	64	0	367	75	85	367	0
Total Analysis Volume [veh/h]	0	0	0	126	0	254	0	1469	298	339	1467	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.07	0.00	0.07	0.00	0.26	0.26	0.10	0.43	0.00
Intersection LOS	A											
Intersection V/C	0.556											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.465

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	0	25	0	0	0	0	370	0	0	434	21
Total Analysis Volume [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.06	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.36	0.36
Intersection LOS	A											
Intersection V/C	0.465											

Irvine Ranch Water District

Vistro File: N:\...\IRWD 2020 EX_Version 2.vistro

Scenario 4 Base Route 1A PM

Report File: N:\...\2020 EX PP PM_Route 1A through I-5

8/19/2020

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Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.429	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.541	-	A
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.519	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.622	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.547	-	A
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.520	-	A
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.738	-	C
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.625	-	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.429

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔			↔		
Lane Configuration	↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	644	0	361	0	0	0	0	458	190	148	532	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	644	0	361	0	18	0	0	458	190	148	532	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	161	0	90	0	5	0	0	115	48	37	133	0
Total Analysis Volume [veh/h]	644	0	361	0	18	0	0	458	190	148	532	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.00	0.00	0.01	0.00	0.00	0.13	0.00	0.04	0.16	0.00
Intersection LOS	A											
Intersection V/C	0.429											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.541

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	286	740	485	149	266	79	155	773	149	445	1309	427
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	286	740	485	149	284	79	155	773	149	445	1309	427
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	72	185	121	37	71	20	39	193	37	111	327	107
Total Analysis Volume [veh/h]	286	740	485	149	284	79	155	773	149	445	1309	427
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.15	0.00	0.04	0.08	0.05	0.05	0.11	0.09	0.13	0.26	0.25
Intersection LOS	A											
Intersection V/C	0.541											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	111	161	43	164	122	35	263	1945	215	28	666	159
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	161	43	164	140	35	263	1945	215	28	666	159
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	40	11	41	35	9	66	486	54	7	167	40
Total Analysis Volume [veh/h]	111	161	43	164	140	35	263	1945	215	28	666	159
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.00	0.05	0.03	0.02	0.08	0.38	0.00	0.01	0.16	0.16
Intersection LOS	A											
Intersection V/C	0.519											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.622

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵↵			↵↵↵			↵↵↵			↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	505	1632	0	3	709	182	851	0	187	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	18	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	505	1632	0	3	709	200	851	0	187	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	408	0	1	177	50	213	0	47	0	0	0
Total Analysis Volume [veh/h]	505	1632	0	3	709	200	851	0	187	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.32	0.00	0.00	0.14	0.12	0.25	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.622											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.547

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↱		↰		↰↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2106	337	95	876	153	95
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2106	337	95	876	153	95
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	527	84	24	219	38	24
Total Analysis Volume [veh/h]	2106	337	95	876	153	95
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.41	0.20	0.03	0.17	0.05	0.06
Intersection LOS	A					
Intersection V/C	0.547					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.520

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	444	104	71	143	0	140	0	73	0	0	0
Total Analysis Volume [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.26	0.24	0.08	0.08	0.00	0.11	0.00	0.13	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.520											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			↑			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	47	0	158	0	1261	126	135	2181	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	47	0	158	0	1261	126	135	2181	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	12	0	40	0	315	32	34	545	0
Total Analysis Volume [veh/h]	0	0	0	47	0	158	0	1261	126	135	2181	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.05	0.00	0.20	0.20	0.04	0.64	0.00
Intersection LOS	C											
Intersection V/C	0.738											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.625

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	0	62	0	0	0	0	288	0	0	497	34
Total Analysis Volume [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.00	0.15	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.42	0.42
Intersection LOS	B											
Intersection V/C	0.625											

Irvine Ranch Water District

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Scenario 5 Base Route 1B AM

Report File: N:\...\2020 EX PP AM_Route 1B through I-5

8/19/2020

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Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.396	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.588	-	A
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.505	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.556	-	A
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.602	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.608	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.556	-	A
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.465	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.396

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔			↔		
Lane Configuration	↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	226	0	130	0	0	0	0	507	402	342	727	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	45	130	0	27	0	0	507	402	342	727	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	11	33	0	7	0	0	127	101	86	182	0
Total Analysis Volume [veh/h]	226	45	130	0	27	0	0	507	402	342	727	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.08	0.00	0.00	0.02	0.00	0.00	0.15	0.00	0.10	0.21	0.00
Intersection LOS	A											
Intersection V/C	0.396											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.588

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	87	196	397	361	675	68	58	1061	207	510	847	179
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	241	397	361	702	68	58	1061	207	510	847	179
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	60	99	90	176	17	15	265	52	128	212	45
Total Analysis Volume [veh/h]	87	241	397	361	702	68	58	1061	207	510	847	179
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.00	0.11	0.21	0.04	0.02	0.16	0.12	0.15	0.17	0.11
Intersection LOS	A											
Intersection V/C	0.588											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.505

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	183	281	42	159	215	11	61	488	156	86	1355	309
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	183	326	42	159	242	11	61	488	156	86	1355	309
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	82	11	40	61	3	15	122	39	22	339	77
Total Analysis Volume [veh/h]	183	326	42	159	242	11	61	488	156	86	1355	309
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.06	0.00	0.05	0.05	0.01	0.02	0.10	0.00	0.03	0.33	0.33
Intersection LOS	A											
Intersection V/C	0.505											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.556

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	199	447	1	0	1762	457	283	0	480	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	27	0	45	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	199	447	1	0	1789	457	328	0	480	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	112	0	0	447	114	82	0	120	0	0	0
Total Analysis Volume [veh/h]	199	447	1	0	1789	457	328	0	480	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.09	0.09	0.00	0.35	0.27	0.10	0.00	0.00	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.556											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.602

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↱		↰		↰↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	486	172	99	2182	403	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	27	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	486	172	99	2209	403	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	122	43	25	552	101	25
Total Analysis Volume [veh/h]	486	172	99	2209	403	98
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.10	0.03	0.43	0.12	0.06
Intersection LOS	B					
Intersection V/C	0.602					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.608

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	413	118	686	1832	0	212	0	949	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	27	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	413	118	713	1832	0	212	0	949	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	103	30	178	458	0	53	0	237	0	0	0
Total Analysis Volume [veh/h]	0	413	118	713	1832	0	212	0	949	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.06	0.07	0.21	0.27	0.00	0.04	0.00	0.17	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.608											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.556

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	126	0	254	0	1469	298	339	1467	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	126	0	254	0	1469	298	339	1467	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	32	0	64	0	367	75	85	367	0
Total Analysis Volume [veh/h]	0	0	0	126	0	254	0	1469	298	339	1467	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.07	0.00	0.07	0.00	0.26	0.26	0.10	0.43	0.00
Intersection LOS	A											
Intersection V/C	0.556											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.465

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	0	25	0	0	0	0	370	0	0	434	21
Total Analysis Volume [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.06	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.36	0.36
Intersection LOS	A											
Intersection V/C	0.465											

Irvine Ranch Water District

Vistro File: N:\...\IRWD 2020 EX_Version 2.vistro

Scenario 6 Base Route 1B PM

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8/19/2020

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Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.429	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.541	-	A
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.519	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.622	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.547	-	A
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.525	-	A
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.738	-	C
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.625	-	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.429

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔			↔		
Lane Configuration	↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	644	0	361	0	0	0	0	458	190	148	532	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	644	0	361	0	18	0	0	458	190	148	532	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	161	0	90	0	5	0	0	115	48	37	133	0
Total Analysis Volume [veh/h]	644	0	361	0	18	0	0	458	190	148	532	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.00	0.00	0.01	0.00	0.00	0.13	0.00	0.04	0.16	0.00
Intersection LOS	A											
Intersection V/C	0.429											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.541

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	286	740	485	149	266	79	155	773	149	445	1309	427
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	286	740	485	149	284	79	155	773	149	445	1309	427
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	72	185	121	37	71	20	39	193	37	111	327	107
Total Analysis Volume [veh/h]	286	740	485	149	284	79	155	773	149	445	1309	427
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.15	0.00	0.04	0.08	0.05	0.05	0.11	0.09	0.13	0.26	0.25
Intersection LOS	A											
Intersection V/C	0.541											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	111	161	43	164	122	35	263	1945	215	28	666	159
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	161	43	164	140	35	263	1945	215	28	666	159
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	40	11	41	35	9	66	486	54	7	167	40
Total Analysis Volume [veh/h]	111	161	43	164	140	35	263	1945	215	28	666	159
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.00	0.05	0.03	0.02	0.08	0.38	0.00	0.01	0.16	0.16
Intersection LOS	A											
Intersection V/C	0.519											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.622

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	505	1632	0	3	709	182	851	0	187	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	505	1632	0	3	727	182	851	0	187	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	408	0	1	182	46	213	0	47	0	0	0
Total Analysis Volume [veh/h]	505	1632	0	3	727	182	851	0	187	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.32	0.00	0.00	0.14	0.11	0.25	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.622											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.547

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↱		↰		↰↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2106	337	95	876	153	95
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	18	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2106	337	95	894	153	95
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	527	84	24	224	38	24
Total Analysis Volume [veh/h]	2106	337	95	894	153	95
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.41	0.20	0.03	0.18	0.05	0.06
Intersection LOS	A					
Intersection V/C	0.547					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.525

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	18	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1777	416	301	571	0	561	0	293	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	444	104	75	143	0	140	0	73	0	0	0
Total Analysis Volume [veh/h]	0	1777	416	301	571	0	561	0	293	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.26	0.24	0.09	0.08	0.00	0.11	0.00	0.13	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.525											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			↑			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	47	0	158	0	1261	126	135	2181	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	47	0	158	0	1261	126	135	2181	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	12	0	40	0	315	32	34	545	0
Total Analysis Volume [veh/h]	0	0	0	47	0	158	0	1261	126	135	2181	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.05	0.00	0.20	0.20	0.04	0.64	0.00
Intersection LOS	C											
Intersection V/C	0.738											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.625

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↶						↑↑↑			↑↑↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	0	62	0	0	0	0	288	0	0	497	34
Total Analysis Volume [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.00	0.15	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.42	0.42
Intersection LOS	B											
Intersection V/C	0.625											

Irvine Ranch Water District

Vistro File: N:\...\IRWD 2020 EX_Version 2.vistro

Scenario 7 Base Route 2A AM

Report File: N:\...\2020 EX PP AM_Route 2A through SR-133 N.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.396	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.580	-	A
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.496	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.538	-	A
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.596	-	A
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.600	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.569	-	A
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.465	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.396

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔↔			↔↔		
Lane Configuration	↔↔↔			+			↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	226	0	130	0	0	0	0	507	402	342	727	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	45	130	0	27	0	0	507	402	342	727	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	11	33	0	7	0	0	127	101	86	182	0
Total Analysis Volume [veh/h]	226	45	130	0	27	0	0	507	402	342	727	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.08	0.00	0.00	0.02	0.00	0.00	0.15	0.00	0.10	0.21	0.00
Intersection LOS	A											
Intersection V/C	0.396											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	87	196	397	361	675	68	58	1061	207	510	847	179
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	27	0	0	0	0	0	0	0	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	196	397	388	675	68	58	1061	207	510	847	224
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	49	99	97	169	17	15	265	52	128	212	56
Total Analysis Volume [veh/h]	87	196	397	388	675	68	58	1061	207	510	847	224
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.04	0.00	0.11	0.20	0.04	0.02	0.16	0.12	0.15	0.17	0.13
Intersection LOS	A											
Intersection V/C	0.580											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.496

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	183	281	42	159	215	11	61	488	156	86	1355	309
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	183	281	42	159	215	11	61	488	156	86	1355	309
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	70	11	40	54	3	15	122	39	22	339	77
Total Analysis Volume [veh/h]	183	281	42	159	215	11	61	488	156	86	1355	309
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.06	0.00	0.05	0.04	0.01	0.02	0.10	0.00	0.03	0.33	0.33
Intersection LOS	A											
Intersection V/C	0.496											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.538

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	199	447	1	0	1762	457	283	0	480	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	199	447	1	0	1762	457	283	0	480	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	112	0	0	441	114	71	0	120	0	0	0
Total Analysis Volume [veh/h]	199	447	1	0	1762	457	283	0	480	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.09	0.09	0.00	0.35	0.27	0.08	0.00	0.00	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.538											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.596

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↱		↰		↰↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	486	172	99	2182	403	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	486	172	99	2182	403	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	122	43	25	546	101	25
Total Analysis Volume [veh/h]	486	172	99	2182	403	98
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.10	0.03	0.43	0.12	0.06
Intersection LOS	A					
Intersection V/C	0.596					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┼┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	413	118	686	1832	0	212	0	949	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	413	118	686	1832	0	212	0	949	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	103	30	172	458	0	53	0	237	0	0	0
Total Analysis Volume [veh/h]	0	413	118	686	1832	0	212	0	949	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.06	0.07	0.20	0.27	0.00	0.04	0.00	0.17	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.600											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.569

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	126	0	254	0	1469	298	339	1467	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	45	0	27	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	126	0	299	0	1496	298	339	1467	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	32	0	75	0	374	75	85	367	0
Total Analysis Volume [veh/h]	0	0	0	126	0	299	0	1496	298	339	1467	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.07	0.00	0.09	0.00	0.26	0.26	0.10	0.43	0.00
Intersection LOS	A											
Intersection V/C	0.569											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.465

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	0	25	0	0	0	0	370	0	0	434	21
Total Analysis Volume [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.06	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.36	0.36
Intersection LOS	A											
Intersection V/C	0.465											

Irvine Ranch Water District

Vistro File: N:\...\IRWD 2020 EX_Version 2.vistro

Scenario 8 Base Route 2A PM

Report File: N:\...\2020 EX PP PM_Route 2A through SR-133 N.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.429	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.546	-	A
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.519	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.622	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.547	-	A
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.520	-	A
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.738	-	C
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.625	-	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.429

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔			↔		
Lane Configuration	↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	644	0	361	0	0	0	0	458	190	148	532	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	644	0	361	0	18	0	0	458	190	148	532	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	161	0	90	0	5	0	0	115	48	37	133	0
Total Analysis Volume [veh/h]	644	0	361	0	18	0	0	458	190	148	532	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.00	0.00	0.01	0.00	0.00	0.13	0.00	0.04	0.16	0.00
Intersection LOS	A											
Intersection V/C	0.429											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.546

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	286	740	485	149	266	79	155	773	149	445	1309	427
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	18	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	286	740	485	167	266	79	155	773	149	445	1309	427
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	72	185	121	42	67	20	39	193	37	111	327	107
Total Analysis Volume [veh/h]	286	740	485	167	266	79	155	773	149	445	1309	427
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.15	0.00	0.05	0.08	0.05	0.05	0.11	0.09	0.13	0.26	0.25
Intersection LOS	A											
Intersection V/C	0.546											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	111	161	43	164	122	35	263	1945	215	28	666	159
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	161	43	164	122	35	263	1945	215	28	666	159
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	40	11	41	31	9	66	486	54	7	167	40
Total Analysis Volume [veh/h]	111	161	43	164	122	35	263	1945	215	28	666	159
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.00	0.05	0.02	0.02	0.08	0.38	0.00	0.01	0.16	0.16
Intersection LOS	A											
Intersection V/C	0.519											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.622

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵↵			↵↵↵			↵↵↵			↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	505	1632	0	3	709	182	851	0	187	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	505	1632	0	3	709	182	851	0	187	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	408	0	1	177	46	213	0	47	0	0	0
Total Analysis Volume [veh/h]	505	1632	0	3	709	182	851	0	187	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.32	0.00	0.00	0.14	0.11	0.25	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.622											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.547

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↱		↰		↰↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2106	337	95	876	153	95
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2106	337	95	876	153	95
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	527	84	24	219	38	24
Total Analysis Volume [veh/h]	2106	337	95	876	153	95
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.41	0.20	0.03	0.17	0.05	0.06
Intersection LOS	A					
Intersection V/C	0.547					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.520

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	444	104	71	143	0	140	0	73	0	0	0
Total Analysis Volume [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.26	0.24	0.08	0.08	0.00	0.11	0.00	0.13	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.520											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	47	0	158	0	1261	126	135	2181	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	18	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	47	0	158	0	1279	126	135	2181	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	12	0	40	0	320	32	34	545	0
Total Analysis Volume [veh/h]	0	0	0	47	0	158	0	1279	126	135	2181	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.05	0.00	0.21	0.21	0.04	0.64	0.00
Intersection LOS	C											
Intersection V/C	0.738											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.625

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	0	62	0	0	0	0	288	0	0	497	34
Total Analysis Volume [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.00	0.15	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.42	0.42
Intersection LOS	B											
Intersection V/C	0.625											

Irvine Ranch Water District

Vistro File: N:\...\IRWD 2020 EX_Version 2.vistro

Scenario 9 Base Route 2B AM

Report File: N:\...\2020 EX PP AM_Route 2B through SR-133 S.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.396	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.580	-	A
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.496	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.538	-	A
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.596	-	A
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.600	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.569	-	A
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.491	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.396

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔			↔		
Lane Configuration	↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	226	0	130	0	0	0	0	507	402	342	727	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	45	130	0	27	0	0	507	402	342	727	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	11	33	0	7	0	0	127	101	86	182	0
Total Analysis Volume [veh/h]	226	45	130	0	27	0	0	507	402	342	727	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.08	0.00	0.00	0.02	0.00	0.00	0.15	0.00	0.10	0.21	0.00
Intersection LOS	A											
Intersection V/C	0.396											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	87	196	397	361	675	68	58	1061	207	510	847	179
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	27	0	0	0	0	0	0	0	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	196	397	388	675	68	58	1061	207	510	847	224
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	49	99	97	169	17	15	265	52	128	212	56
Total Analysis Volume [veh/h]	87	196	397	388	675	68	58	1061	207	510	847	224
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.04	0.00	0.11	0.20	0.04	0.02	0.16	0.12	0.15	0.17	0.13
Intersection LOS	A											
Intersection V/C	0.580											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.496

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	TWO			TWO			TWO			TWO		
Lane Configuration	TWO			TWO			TWO			TWO		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	183	281	42	159	215	11	61	488	156	86	1355	309
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	183	281	42	159	215	11	61	488	156	86	1355	309
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	70	11	40	54	3	15	122	39	22	339	77
Total Analysis Volume [veh/h]	183	281	42	159	215	11	61	488	156	86	1355	309
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.06	0.00	0.05	0.04	0.01	0.02	0.10	0.00	0.03	0.33	0.33
Intersection LOS	A											
Intersection V/C	0.496											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.538

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	←←←			→→→			←←←			←←		
Lane Configuration	←←←			→→→			←←←			←←		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	199	447	1	0	1762	457	283	0	480	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	199	447	1	0	1762	457	283	0	480	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	112	0	0	441	114	71	0	120	0	0	0
Total Analysis Volume [veh/h]	199	447	1	0	1762	457	283	0	480	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.09	0.09	0.00	0.35	0.27	0.08	0.00	0.00	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.538											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.596

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↱		↰		↰↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	486	172	99	2182	403	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	486	172	99	2182	403	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	122	43	25	546	101	25
Total Analysis Volume [veh/h]	486	172	99	2182	403	98
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.10	0.03	0.43	0.12	0.06
Intersection LOS	A					
Intersection V/C	0.596					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	413	118	686	1832	0	212	0	949	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	413	118	686	1832	0	212	0	949	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	103	30	172	458	0	53	0	237	0	0	0
Total Analysis Volume [veh/h]	0	413	118	686	1832	0	212	0	949	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.06	0.07	0.20	0.27	0.00	0.04	0.00	0.17	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.600											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.569

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	126	0	254	0	1469	298	339	1467	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	27	0	45	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	126	0	254	0	1469	325	339	1512	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	32	0	64	0	367	81	85	378	0
Total Analysis Volume [veh/h]	0	0	0	126	0	254	0	1469	325	339	1512	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.07	0.00	0.07	0.00	0.26	0.26	0.10	0.44	0.00
Intersection LOS	A											
Intersection V/C	0.569											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.491

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	99	0	101	0	0	0	0	1478	0	0	1734	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	144	0	101	0	0	0	0	1478	0	0	1734	82
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	0	25	0	0	0	0	370	0	0	434	21
Total Analysis Volume [veh/h]	144	0	101	0	0	0	0	1478	0	0	1734	82
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.06	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.36	0.36
Intersection LOS	A											
Intersection V/C	0.491											

Irvine Ranch Water District

Vistro File: N:\...\IRWD 2020 EX_Version 2.vistro

Scenario 10 Base Route 2B PM

Report File: N:\...\2020 EX PP PM_Route 2B through SR-133 S.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.429	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.546	-	A
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.519	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.622	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.547	-	A
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.520	-	A
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.738	-	C
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.625	-	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.429

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	644	0	361	0	0	0	0	458	190	148	532	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	644	0	361	0	18	0	0	458	190	148	532	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	161	0	90	0	5	0	0	115	48	37	133	0
Total Analysis Volume [veh/h]	644	0	361	0	18	0	0	458	190	148	532	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.00	0.00	0.01	0.00	0.00	0.13	0.00	0.04	0.16	0.00
Intersection LOS	A											
Intersection V/C	0.429											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.546

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	286	740	485	149	266	79	155	773	149	445	1309	427
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	18	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	286	740	485	167	266	79	155	773	149	445	1309	427
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	72	185	121	42	67	20	39	193	37	111	327	107
Total Analysis Volume [veh/h]	286	740	485	167	266	79	155	773	149	445	1309	427
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.15	0.00	0.05	0.08	0.05	0.05	0.11	0.09	0.13	0.26	0.25
Intersection LOS	A											
Intersection V/C	0.546											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	TWO			TWO			TWO			TWO		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	111	161	43	164	122	35	263	1945	215	28	666	159
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	161	43	164	122	35	263	1945	215	28	666	159
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	40	11	41	31	9	66	486	54	7	167	40
Total Analysis Volume [veh/h]	111	161	43	164	122	35	263	1945	215	28	666	159
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.00	0.05	0.02	0.02	0.08	0.38	0.00	0.01	0.16	0.16
Intersection LOS	A											
Intersection V/C	0.519											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.622

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵↵			↵↵↵			↵↵↵			↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	505	1632	0	3	709	182	851	0	187	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	505	1632	0	3	709	182	851	0	187	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	408	0	1	177	46	213	0	47	0	0	0
Total Analysis Volume [veh/h]	505	1632	0	3	709	182	851	0	187	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.32	0.00	0.00	0.14	0.11	0.25	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.622											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.547

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2106	337	95	876	153	95
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2106	337	95	876	153	95
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	527	84	24	219	38	24
Total Analysis Volume [veh/h]	2106	337	95	876	153	95
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.41	0.20	0.03	0.17	0.05	0.06
Intersection LOS	A					
Intersection V/C	0.547					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.520

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	L			R			R+L+R					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	444	104	71	143	0	140	0	73	0	0	0
Total Analysis Volume [veh/h]	0	1777	416	283	571	0	561	0	293	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.26	0.24	0.08	0.08	0.00	0.11	0.00	0.13	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.520											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	47	0	158	0	1261	126	135	2181	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	18	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	47	0	158	0	1261	144	135	2181	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	12	0	40	0	315	36	34	545	0
Total Analysis Volume [veh/h]	0	0	0	47	0	158	0	1261	144	135	2181	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.05	0.00	0.21	0.21	0.04	0.64	0.00
Intersection LOS	C											
Intersection V/C	0.738											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.625

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	0	62	0	0	0	0	288	0	0	497	34
Total Analysis Volume [veh/h]	269	0	247	0	0	0	0	1152	0	0	1989	136
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.00	0.15	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.42	0.42
Intersection LOS	B											
Intersection V/C	0.625											

Interim Year (2023) Approved Project Conditions



Irvine Ranch Water District

Vistro File: N:\...\IRWD 2023 APP.vistro

Scenario 1 2023 APP NB AM

Report File: N:\...\2023 APP NB AM.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.426	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.681	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.580	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.630	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.700	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.704	-	C
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.652	-	B
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.544	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.426

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	⇐⇐⇐⇐		⇐⇐		⇐⇐⇐	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	1	2	0
Pocket Length [ft]	280.00	500.00	100.00	300.00	380.00	100.00
Speed [mph]	50.00		50.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	268	155	602	477	407	865
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	268	155	602	477	407	865
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	39	151	119	102	216
Total Analysis Volume [veh/h]	268	155	602	477	407	865
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Overlap	Permissive	Unsignalized	Protected	Permissive
Signal Group	6	0	8	0	7	4
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.18	0.00	0.12	0.25
Intersection LOS	A					
Intersection V/C	0.426					

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.681

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	104	233	472	429	803	80	69	1262	246	606	1007	213
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	104	233	472	429	803	80	69	1262	246	606	1007	213
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	58	118	107	201	20	17	316	62	152	252	53
Total Analysis Volume [veh/h]	104	233	472	429	803	80	69	1262	246	606	1007	213
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.00	0.13	0.24	0.05	0.02	0.19	0.14	0.18	0.20	0.13
Intersection LOS	B											
Intersection V/C	0.681											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	218	334	49	189	256	14	73	580	186	103	1610	367
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	218	334	49	189	256	14	73	580	186	103	1610	367
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	55	84	12	47	64	4	18	145	47	26	403	92
Total Analysis Volume [veh/h]	218	334	49	189	256	14	73	580	186	103	1610	367
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.07	0.00	0.06	0.05	0.01	0.02	0.11	0.00	0.03	0.39	0.39
Intersection LOS	A											
Intersection V/C	0.580											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.630

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	236	532	1	0	2095	543	336	0	570	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	236	532	1	0	2095	543	336	0	570	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	133	0	0	524	136	84	0	143	0	0	0
Total Analysis Volume [veh/h]	236	532	1	0	2095	543	336	0	570	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.10	0.10	0.00	0.41	0.32	0.10	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.630											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.700

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	578	204	117	2594	479	116
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	578	204	117	2594	479	116
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	145	51	29	649	120	29
Total Analysis Volume [veh/h]	578	204	117	2594	479	116
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.12	0.03	0.51	0.14	0.07
Intersection LOS	B					
Intersection V/C	0.700					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	L			R			R+L+R					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	491	140	815	2178	0	252	0	1128	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	491	140	815	2178	0	252	0	1128	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	123	35	204	545	0	63	0	282	0	0	0
Total Analysis Volume [veh/h]	0	491	140	815	2178	0	252	0	1128	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.08	0.24	0.32	0.00	0.05	0.00	0.20	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.704											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.652

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	150	0	302	0	1746	354	403	1744	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	150	0	302	0	1746	354	403	1744	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	38	0	76	0	437	89	101	436	0
Total Analysis Volume [veh/h]	0	0	0	150	0	302	0	1746	354	403	1744	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.31	0.31	0.12	0.51	0.00
Intersection LOS	B											
Intersection V/C	0.652											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.544

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach							↑↑↑			↑↑↑		
Lane Configuration	↵↵						↑↑↑			↑↑↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	0	30	0	0	0	0	440	0	0	516	25
Total Analysis Volume [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.42	0.42
Intersection LOS	A											
Intersection V/C	0.544											

Irvine Ranch Water District

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Scenario 2 2023 APP NB PM

Report File: N:\...\2023 APP NB PM.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.488	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.635	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.609	-	B
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.731	-	C
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.641	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.610	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.869	-	D
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.735	-	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.488

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	⇐⇐⇐⇐		⇐⇐		⇐⇐⇐	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	1	2	0
Pocket Length [ft]	280.00	500.00	100.00	300.00	380.00	100.00
Speed [mph]	50.00		50.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	767	430	545	227	176	633
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	767	430	545	227	176	633
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	192	108	136	57	44	158
Total Analysis Volume [veh/h]	767	430	545	227	176	633
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Overlap	Permissive	Unsignalized	Protected	Permissive
Signal Group	6	0	8	0	7	4
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.00	0.16	0.00	0.05	0.19
Intersection LOS	A					
Intersection V/C	0.488					

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.635

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	341	881	577	177	317	94	185	920	177	530	1558	508
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	341	881	577	177	317	94	185	920	177	530	1558	508
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	85	220	144	44	79	24	46	230	44	133	390	127
Total Analysis Volume [veh/h]	341	881	577	177	317	94	185	920	177	530	1558	508
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.17	0.00	0.05	0.09	0.06	0.05	0.14	0.10	0.16	0.31	0.30
Intersection LOS	B											
Intersection V/C	0.635											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	133	192	51	196	145	42	313	2315	256	33	793	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	192	51	196	145	42	313	2315	256	33	793	190
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	48	13	49	36	11	78	579	64	8	198	48
Total Analysis Volume [veh/h]	133	192	51	196	145	42	313	2315	256	33	793	190
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.00	0.06	0.03	0.02	0.09	0.45	0.00	0.01	0.19	0.19
Intersection LOS	B											
Intersection V/C	0.609											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.731

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵↵			↵↵↵			↵↵↵			↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	601	1944	0	4	844	217	1013	0	223	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	601	1944	0	4	844	217	1013	0	223	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	150	486	0	1	211	54	253	0	56	0	0	0
Total Analysis Volume [veh/h]	601	1944	0	4	844	217	1013	0	223	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.38	0.00	0.00	0.17	0.13	0.30	0.00	0.00	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.731											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.641

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2507	401	113	1043	182	113
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2507	401	113	1043	182	113
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	627	100	28	261	46	28
Total Analysis Volume [veh/h]	2507	401	113	1043	182	113
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.49	0.24	0.03	0.20	0.05	0.07
Intersection LOS	B					
Intersection V/C	0.641					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.610

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	529	124	84	170	0	167	0	87	0	0	0
Total Analysis Volume [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.31	0.29	0.10	0.10	0.00	0.13	0.00	0.15	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.610											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.869

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	56	0	188	0	1501	150	161	2596	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	56	0	188	0	1501	150	161	2596	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	0	47	0	375	38	40	649	0
Total Analysis Volume [veh/h]	0	0	0	56	0	188	0	1501	150	161	2596	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.06	0.00	0.24	0.24	0.05	0.76	0.00
Intersection LOS	D											
Intersection V/C	0.869											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐									⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	0	74	0	0	0	0	343	0	0	592	41
Total Analysis Volume [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.17	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.50	0.50
Intersection LOS	C											
Intersection V/C	0.735											

Irvine Ranch Water District

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Scenario 3 2023 APP PP Route 1A AM

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.456	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.689	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.589	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.630	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.700	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.704	-	C
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.652	-	B
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.544	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.456

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔↔			+			↔			↔		
Lane Configuration	↔↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	268	0	155	0	0	0	0	602	477	407	865	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	268	45	155	0	27	0	0	602	477	407	865	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	11	39	0	7	0	0	151	119	102	216	0
Total Analysis Volume [veh/h]	268	45	155	0	27	0	0	602	477	407	865	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.09	0.00	0.00	0.02	0.00	0.00	0.18	0.00	0.12	0.25	0.00
Intersection LOS	A											
Intersection V/C	0.456											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.689

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	104	233	472	429	803	80	69	1262	246	606	1007	213
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	104	278	472	429	830	80	69	1262	246	606	1007	213
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	70	118	107	208	20	17	316	62	152	252	53
Total Analysis Volume [veh/h]	104	278	472	429	830	80	69	1262	246	606	1007	213
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.00	0.13	0.24	0.05	0.02	0.19	0.14	0.18	0.20	0.13
Intersection LOS	B											
Intersection V/C	0.689											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.589

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	☞☞☞			☞☞☞			☞☞☞			☞☞☞		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	218	334	49	189	256	14	73	580	186	103	1610	367
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	218	379	49	189	283	14	73	580	186	103	1610	367
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	55	95	12	47	71	4	18	145	47	26	403	92
Total Analysis Volume [veh/h]	218	379	49	189	283	14	73	580	186	103	1610	367
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.07	0.00	0.06	0.06	0.01	0.02	0.11	0.00	0.03	0.39	0.39
Intersection LOS	A											
Intersection V/C	0.589											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.630

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	236	532	1	0	2095	543	336	0	570	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	0	27	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	236	577	1	0	2095	570	336	0	570	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	144	0	0	524	143	84	0	143	0	0	0
Total Analysis Volume [veh/h]	236	577	1	0	2095	570	336	0	570	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.11	0.11	0.00	0.41	0.34	0.10	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.630											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.700

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	578	204	117	2594	479	116
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	623	204	117	2594	479	116
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	156	51	29	649	120	29
Total Analysis Volume [veh/h]	623	204	117	2594	479	116
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.12	0.03	0.51	0.14	0.07
Intersection LOS	B					
Intersection V/C	0.700					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	491	140	815	2178	0	252	0	1128	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	45	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	491	140	815	2178	0	297	0	1128	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	123	35	204	545	0	74	0	282	0	0	0
Total Analysis Volume [veh/h]	0	491	140	815	2178	0	297	0	1128	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.08	0.24	0.32	0.00	0.06	0.00	0.21	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.704											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.652

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			↑			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	150	0	302	0	1746	354	403	1744	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	150	0	302	0	1746	354	403	1744	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	38	0	76	0	437	89	101	436	0
Total Analysis Volume [veh/h]	0	0	0	150	0	302	0	1746	354	403	1744	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.31	0.31	0.12	0.51	0.00
Intersection LOS	B											
Intersection V/C	0.652											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.544

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	0	30	0	0	0	0	440	0	0	516	25
Total Analysis Volume [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.42	0.42
Intersection LOS	A											
Intersection V/C	0.544											

Irvine Ranch Water District

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.499	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.635	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.609	-	B
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.731	-	C
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.641	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.610	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.869	-	D
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.735	-	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.499

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+						↔↔↔		
Lane Configuration	↔↔↔			+						↔↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	767	0	430	0	0	0	0	545	227	176	633	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	767	0	430	0	18	0	0	545	227	176	633	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	192	0	108	0	5	0	0	136	57	44	158	0
Total Analysis Volume [veh/h]	767	0	430	0	18	0	0	545	227	176	633	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.00	0.05	0.19	0.00
Intersection LOS	A											
Intersection V/C	0.499											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.635

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	341	881	577	177	317	94	185	920	177	530	1558	508
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	341	881	577	177	335	94	185	920	177	530	1558	508
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	85	220	144	44	84	24	46	230	44	133	390	127
Total Analysis Volume [veh/h]	341	881	577	177	335	94	185	920	177	530	1558	508
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.17	0.00	0.05	0.10	0.06	0.05	0.14	0.10	0.16	0.31	0.30
Intersection LOS	B											
Intersection V/C	0.635											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	133	192	51	196	145	42	313	2315	256	33	793	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	192	51	196	163	42	313	2315	256	33	793	190
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	48	13	49	41	11	78	579	64	8	198	48
Total Analysis Volume [veh/h]	133	192	51	196	163	42	313	2315	256	33	793	190
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.00	0.06	0.03	0.02	0.09	0.45	0.00	0.01	0.19	0.19
Intersection LOS	B											
Intersection V/C	0.609											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.731

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			↔↔↔			↔↔↔			↔↔		
Lane Configuration	↔↔↔			↔↔↔			↔↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	601	1944	0	4	844	217	1013	0	223	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	18	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	601	1944	0	4	844	235	1013	0	223	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	150	486	0	1	211	59	253	0	56	0	0	0
Total Analysis Volume [veh/h]	601	1944	0	4	844	235	1013	0	223	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.38	0.00	0.00	0.17	0.14	0.30	0.00	0.00	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.731											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.641

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2507	401	113	1043	182	113
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2507	401	113	1043	182	113
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	627	100	28	261	46	28
Total Analysis Volume [veh/h]	2507	401	113	1043	182	113
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.49	0.24	0.03	0.20	0.05	0.07
Intersection LOS	B					
Intersection V/C	0.641					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.610

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	529	124	84	170	0	167	0	87	0	0	0
Total Analysis Volume [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.31	0.29	0.10	0.10	0.00	0.13	0.00	0.15	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.610											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.869

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	56	0	188	0	1501	150	161	2596	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	56	0	188	0	1501	150	161	2596	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	0	47	0	375	38	40	649	0
Total Analysis Volume [veh/h]	0	0	0	56	0	188	0	1501	150	161	2596	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.06	0.00	0.24	0.24	0.05	0.76	0.00
Intersection LOS	D											
Intersection V/C	0.869											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	0	74	0	0	0	0	343	0	0	592	41
Total Analysis Volume [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.17	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.50	0.50
Intersection LOS	C											
Intersection V/C	0.735											

Irvine Ranch Water District

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Scenario 5 2023 APP PP Route 1B AM

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.456	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.689	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.589	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.648	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.705	-	C
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.712	-	C
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.652	-	B
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.544	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.456

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔			↔		
Lane Configuration	↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	268	0	155	0	0	0	0	602	477	407	865	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	268	45	155	0	27	0	0	602	477	407	865	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	11	39	0	7	0	0	151	119	102	216	0
Total Analysis Volume [veh/h]	268	45	155	0	27	0	0	602	477	407	865	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.09	0.00	0.00	0.02	0.00	0.00	0.18	0.00	0.12	0.25	0.00
Intersection LOS	A											
Intersection V/C	0.456											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.689

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	104	233	472	429	803	80	69	1262	246	606	1007	213
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	104	278	472	429	830	80	69	1262	246	606	1007	213
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	70	118	107	208	20	17	316	62	152	252	53
Total Analysis Volume [veh/h]	104	278	472	429	830	80	69	1262	246	606	1007	213
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.00	0.13	0.24	0.05	0.02	0.19	0.14	0.18	0.20	0.13
Intersection LOS	B											
Intersection V/C	0.689											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.589

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	S			N			E			W		
Lane Configuration	S			S			S			S		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	218	334	49	189	256	14	73	580	186	103	1610	367
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	218	379	49	189	283	14	73	580	186	103	1610	367
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	55	95	12	47	71	4	18	145	47	26	403	92
Total Analysis Volume [veh/h]	218	379	49	189	283	14	73	580	186	103	1610	367
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.07	0.00	0.06	0.06	0.01	0.02	0.11	0.00	0.03	0.39	0.39
Intersection LOS	A											
Intersection V/C	0.589											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.648

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	236	532	1	0	2095	543	336	0	570	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	27	0	45	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	236	532	1	0	2122	543	381	0	570	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	133	0	0	531	136	95	0	143	0	0	0
Total Analysis Volume [veh/h]	236	532	1	0	2122	543	381	0	570	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.10	0.10	0.00	0.42	0.32	0.11	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.648											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.705

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	578	204	117	2594	479	116
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	27	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	578	204	117	2621	479	116
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	145	51	29	655	120	29
Total Analysis Volume [veh/h]	578	204	117	2621	479	116
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.12	0.03	0.51	0.14	0.07
Intersection LOS	C					
Intersection V/C	0.705					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.712

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	491	140	815	2178	0	252	0	1128	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	27	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	491	140	842	2178	0	252	0	1128	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	123	35	211	545	0	63	0	282	0	0	0
Total Analysis Volume [veh/h]	0	491	140	842	2178	0	252	0	1128	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.08	0.25	0.32	0.00	0.05	0.00	0.20	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.712											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.652

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	150	0	302	0	1746	354	403	1744	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	150	0	302	0	1746	354	403	1744	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	38	0	76	0	437	89	101	436	0
Total Analysis Volume [veh/h]	0	0	0	150	0	302	0	1746	354	403	1744	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.31	0.31	0.12	0.51	0.00
Intersection LOS	B											
Intersection V/C	0.652											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.544

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	0	30	0	0	0	0	440	0	0	516	25
Total Analysis Volume [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.42	0.42
Intersection LOS	A											
Intersection V/C	0.544											

Irvine Ranch Water District

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Scenario 6 2023 APP PP Route 1B PM

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.499	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.635	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.609	-	B
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.731	-	C
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.641	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.615	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.869	-	D
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.735	-	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.499

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	767	0	430	0	0	0	0	545	227	176	633	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	767	0	430	0	18	0	0	545	227	176	633	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	192	0	108	0	5	0	0	136	57	44	158	0
Total Analysis Volume [veh/h]	767	0	430	0	18	0	0	545	227	176	633	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.00	0.05	0.19	0.00
Intersection LOS	A											
Intersection V/C	0.499											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.635

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	341	881	577	177	317	94	185	920	177	530	1558	508
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	341	881	577	177	335	94	185	920	177	530	1558	508
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	85	220	144	44	84	24	46	230	44	133	390	127
Total Analysis Volume [veh/h]	341	881	577	177	335	94	185	920	177	530	1558	508
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.17	0.00	0.05	0.10	0.06	0.05	0.14	0.10	0.16	0.31	0.30
Intersection LOS	B											
Intersection V/C	0.635											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	133	192	51	196	145	42	313	2315	256	33	793	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	192	51	196	163	42	313	2315	256	33	793	190
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	48	13	49	41	11	78	579	64	8	198	48
Total Analysis Volume [veh/h]	133	192	51	196	163	42	313	2315	256	33	793	190
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.00	0.06	0.03	0.02	0.09	0.45	0.00	0.01	0.19	0.19
Intersection LOS	B											
Intersection V/C	0.609											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.731

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔↔↔			↔↔↔			↔↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	601	1944	0	4	844	217	1013	0	223	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	601	1944	0	4	862	217	1013	0	223	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	150	486	0	1	216	54	253	0	56	0	0	0
Total Analysis Volume [veh/h]	601	1944	0	4	862	217	1013	0	223	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.38	0.00	0.00	0.17	0.13	0.30	0.00	0.00	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.731											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.641

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2507	401	113	1043	182	113
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	18	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2507	401	113	1061	182	113
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	627	100	28	265	46	28
Total Analysis Volume [veh/h]	2507	401	113	1061	182	113
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.49	0.24	0.03	0.21	0.05	0.07
Intersection LOS	B					
Intersection V/C	0.641					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.615

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	18	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2116	496	355	680	0	668	0	349	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	529	124	89	170	0	167	0	87	0	0	0
Total Analysis Volume [veh/h]	0	2116	496	355	680	0	668	0	349	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.31	0.29	0.10	0.10	0.00	0.13	0.00	0.15	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.615											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.869

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	56	0	188	0	1501	150	161	2596	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	56	0	188	0	1501	150	161	2596	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	0	47	0	375	38	40	649	0
Total Analysis Volume [veh/h]	0	0	0	56	0	188	0	1501	150	161	2596	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.06	0.00	0.24	0.24	0.05	0.76	0.00
Intersection LOS	D											
Intersection V/C	0.869											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	0	74	0	0	0	0	343	0	0	592	41
Total Analysis Volume [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.17	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.50	0.50
Intersection LOS	C											
Intersection V/C	0.735											

Irvine Ranch Water District

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Scenario 7 2023 APP PP Route 2A AM

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.456	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.681	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.580	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.630	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.700	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.704	-	C
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.665	-	B
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.544	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.456

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔			↔		
Lane Configuration	↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	268	0	155	0	0	0	0	602	477	407	865	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	268	45	155	0	27	0	0	602	477	407	865	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	11	39	0	7	0	0	151	119	102	216	0
Total Analysis Volume [veh/h]	268	45	155	0	27	0	0	602	477	407	865	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.09	0.00	0.00	0.02	0.00	0.00	0.18	0.00	0.12	0.25	0.00
Intersection LOS	A											
Intersection V/C	0.456											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.681

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	104	233	472	429	803	80	69	1262	246	606	1007	213
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	27	0	0	0	0	0	0	0	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	104	233	472	456	803	80	69	1262	246	606	1007	258
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	58	118	114	201	20	17	316	62	152	252	65
Total Analysis Volume [veh/h]	104	233	472	456	803	80	69	1262	246	606	1007	258
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.00	0.13	0.24	0.05	0.02	0.19	0.14	0.18	0.20	0.15
Intersection LOS	B											
Intersection V/C	0.681											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	218	334	49	189	256	14	73	580	186	103	1610	367
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	218	334	49	189	256	14	73	580	186	103	1610	367
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	55	84	12	47	64	4	18	145	47	26	403	92
Total Analysis Volume [veh/h]	218	334	49	189	256	14	73	580	186	103	1610	367
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.07	0.00	0.06	0.05	0.01	0.02	0.11	0.00	0.03	0.39	0.39
Intersection LOS	A											
Intersection V/C	0.580											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.630

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↔↔↔			↔↔↔			↔↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	236	532	1	0	2095	543	336	0	570	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	236	532	1	0	2095	543	336	0	570	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	133	0	0	524	136	84	0	143	0	0	0
Total Analysis Volume [veh/h]	236	532	1	0	2095	543	336	0	570	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.10	0.10	0.00	0.41	0.32	0.10	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.630											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.700

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	578	204	117	2594	479	116
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	578	204	117	2594	479	116
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	145	51	29	649	120	29
Total Analysis Volume [veh/h]	578	204	117	2594	479	116
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.12	0.03	0.51	0.14	0.07
Intersection LOS	B					
Intersection V/C	0.700					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	491	140	815	2178	0	252	0	1128	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	491	140	815	2178	0	252	0	1128	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	123	35	204	545	0	63	0	282	0	0	0
Total Analysis Volume [veh/h]	0	491	140	815	2178	0	252	0	1128	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.08	0.24	0.32	0.00	0.05	0.00	0.20	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.704											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.665

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	150	0	302	0	1746	354	403	1744	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	45	0	27	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	150	0	347	0	1773	354	403	1744	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	38	0	87	0	443	89	101	436	0
Total Analysis Volume [veh/h]	0	0	0	150	0	347	0	1773	354	403	1744	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.10	0.00	0.31	0.31	0.12	0.51	0.00
Intersection LOS	B											
Intersection V/C	0.665											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.544

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵						↑↑↑			↑↑↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	0	30	0	0	0	0	440	0	0	516	25
Total Analysis Volume [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.42	0.42
Intersection LOS	A											
Intersection V/C	0.544											

Irvine Ranch Water District

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Scenario 8 2023 APP PP Route 2A PM

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.499	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.640	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.609	-	B
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.731	-	C
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.641	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.610	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.869	-	D
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.735	-	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.499

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	767	0	430	0	0	0	0	545	227	176	633	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	767	0	430	0	18	0	0	545	227	176	633	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	192	0	108	0	5	0	0	136	57	44	158	0
Total Analysis Volume [veh/h]	767	0	430	0	18	0	0	545	227	176	633	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.00	0.05	0.19	0.00
Intersection LOS	A											
Intersection V/C	0.499											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.640

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	341	881	577	177	317	94	185	920	177	530	1558	508
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	18	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	341	881	577	195	317	94	185	920	177	530	1558	508
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	85	220	144	49	79	24	46	230	44	133	390	127
Total Analysis Volume [veh/h]	341	881	577	195	317	94	185	920	177	530	1558	508
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.17	0.00	0.06	0.09	0.06	0.05	0.14	0.10	0.16	0.31	0.30
Intersection LOS	B											
Intersection V/C	0.640											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	133	192	51	196	145	42	313	2315	256	33	793	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	192	51	196	145	42	313	2315	256	33	793	190
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	48	13	49	36	11	78	579	64	8	198	48
Total Analysis Volume [veh/h]	133	192	51	196	145	42	313	2315	256	33	793	190
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.00	0.06	0.03	0.02	0.09	0.45	0.00	0.01	0.19	0.19
Intersection LOS	B											
Intersection V/C	0.609											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.731

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	601	1944	0	4	844	217	1013	0	223	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	601	1944	0	4	844	217	1013	0	223	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	150	486	0	1	211	54	253	0	56	0	0	0
Total Analysis Volume [veh/h]	601	1944	0	4	844	217	1013	0	223	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.38	0.00	0.00	0.17	0.13	0.30	0.00	0.00	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.731											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.641

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2507	401	113	1043	182	113
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2507	401	113	1043	182	113
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	627	100	28	261	46	28
Total Analysis Volume [veh/h]	2507	401	113	1043	182	113
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.49	0.24	0.03	0.20	0.05	0.07
Intersection LOS	B					
Intersection V/C	0.641					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.610

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	529	124	84	170	0	167	0	87	0	0	0
Total Analysis Volume [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.31	0.29	0.10	0.10	0.00	0.13	0.00	0.15	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.610											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.869

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			↑			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	56	0	188	0	1501	150	161	2596	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	18	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	56	0	188	0	1519	150	161	2596	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	0	47	0	380	38	40	649	0
Total Analysis Volume [veh/h]	0	0	0	56	0	188	0	1519	150	161	2596	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.06	0.00	0.25	0.25	0.05	0.76	0.00
Intersection LOS	D											
Intersection V/C	0.869											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐									⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	0	74	0	0	0	0	343	0	0	592	41
Total Analysis Volume [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.17	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.50	0.50
Intersection LOS	C											
Intersection V/C	0.735											

Irvine Ranch Water District

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Scenario 9 2023 APP PP Route 2B AM

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.456	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.681	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.580	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.630	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.700	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.704	-	C
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.665	-	B
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.569	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.456

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔			↔		
Lane Configuration	↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	268	0	155	0	0	0	0	602	477	407	865	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	268	45	155	0	27	0	0	602	477	407	865	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	11	39	0	7	0	0	151	119	102	216	0
Total Analysis Volume [veh/h]	268	45	155	0	27	0	0	602	477	407	865	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.09	0.00	0.00	0.02	0.00	0.00	0.18	0.00	0.12	0.25	0.00
Intersection LOS	A											
Intersection V/C	0.456											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.681

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	104	233	472	429	803	80	69	1262	246	606	1007	213
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	27	0	0	0	0	0	0	0	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	104	233	472	456	803	80	69	1262	246	606	1007	258
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	58	118	114	201	20	17	316	62	152	252	65
Total Analysis Volume [veh/h]	104	233	472	456	803	80	69	1262	246	606	1007	258
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.00	0.13	0.24	0.05	0.02	0.19	0.14	0.18	0.20	0.15
Intersection LOS	B											
Intersection V/C	0.681											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	218	334	49	189	256	14	73	580	186	103	1610	367
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	218	334	49	189	256	14	73	580	186	103	1610	367
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	55	84	12	47	64	4	18	145	47	26	403	92
Total Analysis Volume [veh/h]	218	334	49	189	256	14	73	580	186	103	1610	367
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.07	0.00	0.06	0.05	0.01	0.02	0.11	0.00	0.03	0.39	0.39
Intersection LOS	A											
Intersection V/C	0.580											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.630

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	236	532	1	0	2095	543	336	0	570	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	236	532	1	0	2095	543	336	0	570	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	133	0	0	524	136	84	0	143	0	0	0
Total Analysis Volume [veh/h]	236	532	1	0	2095	543	336	0	570	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.10	0.10	0.00	0.41	0.32	0.10	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.630											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.700

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	578	204	117	2594	479	116
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	578	204	117	2594	479	116
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	145	51	29	649	120	29
Total Analysis Volume [veh/h]	578	204	117	2594	479	116
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.12	0.03	0.51	0.14	0.07
Intersection LOS	B					
Intersection V/C	0.700					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	L			R			R+L+R					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	491	140	815	2178	0	252	0	1128	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	491	140	815	2178	0	252	0	1128	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	123	35	204	545	0	63	0	282	0	0	0
Total Analysis Volume [veh/h]	0	491	140	815	2178	0	252	0	1128	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.08	0.24	0.32	0.00	0.05	0.00	0.20	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.704											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.665

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			↑			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	150	0	302	0	1746	354	403	1744	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	27	0	45	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	150	0	302	0	1746	381	403	1789	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	38	0	76	0	437	95	101	447	0
Total Analysis Volume [veh/h]	0	0	0	150	0	302	0	1746	381	403	1789	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.31	0.31	0.12	0.53	0.00
Intersection LOS	B											
Intersection V/C	0.665											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.569

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	117	0	120	0	0	0	0	1758	0	0	2062	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	162	0	120	0	0	0	0	1758	0	0	2062	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	0	30	0	0	0	0	440	0	0	516	25
Total Analysis Volume [veh/h]	162	0	120	0	0	0	0	1758	0	0	2062	98
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.07	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.42	0.42
Intersection LOS	A											
Intersection V/C	0.569											

Irvine Ranch Water District

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Scenario 10 2023 APP PP Route 2B PM

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.499	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.640	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.609	-	B
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.731	-	C
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.641	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.610	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.869	-	D
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.735	-	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.499

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	767	0	430	0	0	0	0	545	227	176	633	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	767	0	430	0	18	0	0	545	227	176	633	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	192	0	108	0	5	0	0	136	57	44	158	0
Total Analysis Volume [veh/h]	767	0	430	0	18	0	0	545	227	176	633	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.00	0.05	0.19	0.00
Intersection LOS	A											
Intersection V/C	0.499											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.640

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	341	881	577	177	317	94	185	920	177	530	1558	508
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	18	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	341	881	577	195	317	94	185	920	177	530	1558	508
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	85	220	144	49	79	24	46	230	44	133	390	127
Total Analysis Volume [veh/h]	341	881	577	195	317	94	185	920	177	530	1558	508
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.17	0.00	0.06	0.09	0.06	0.05	0.14	0.10	0.16	0.31	0.30
Intersection LOS	B											
Intersection V/C	0.640											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	S			N			E			W		
Lane Configuration	S			S			S			S		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	133	192	51	196	145	42	313	2315	256	33	793	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	192	51	196	145	42	313	2315	256	33	793	190
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	48	13	49	36	11	78	579	64	8	198	48
Total Analysis Volume [veh/h]	133	192	51	196	145	42	313	2315	256	33	793	190
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.00	0.06	0.03	0.02	0.09	0.45	0.00	0.01	0.19	0.19
Intersection LOS	B											
Intersection V/C	0.609											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.731

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	601	1944	0	4	844	217	1013	0	223	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	601	1944	0	4	844	217	1013	0	223	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	150	486	0	1	211	54	253	0	56	0	0	0
Total Analysis Volume [veh/h]	601	1944	0	4	844	217	1013	0	223	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.38	0.00	0.00	0.17	0.13	0.30	0.00	0.00	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.731											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.641

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2507	401	113	1043	182	113
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2507	401	113	1043	182	113
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	627	100	28	261	46	28
Total Analysis Volume [veh/h]	2507	401	113	1043	182	113
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.49	0.24	0.03	0.20	0.05	0.07
Intersection LOS	B					
Intersection V/C	0.641					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.610

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	529	124	84	170	0	167	0	87	0	0	0
Total Analysis Volume [veh/h]	0	2116	496	337	680	0	668	0	349	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.31	0.29	0.10	0.10	0.00	0.13	0.00	0.15	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.610											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.869

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	56	0	188	0	1501	150	161	2596	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	18	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	56	0	188	0	1501	168	161	2596	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	0	47	0	375	42	40	649	0
Total Analysis Volume [veh/h]	0	0	0	56	0	188	0	1501	168	161	2596	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.06	0.00	0.25	0.25	0.05	0.76	0.00
Intersection LOS	D											
Intersection V/C	0.869											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	0	74	0	0	0	0	343	0	0	592	41
Total Analysis Volume [veh/h]	321	0	294	0	0	0	0	1371	0	0	2369	162
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.17	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.50	0.50
Intersection LOS	C											
Intersection V/C	0.735											

Interim Year (2023) Pending Project Conditions



Irvine Ranch Water District

Vistro File: N:\...\IRWD 2023 APP.vistro

Scenario 1 2023 PEN NB AM

Report File: N:\...\2023 PEN NB AM.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.439	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.704	-	C
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.600	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.651	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.723	-	C
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.728	-	C
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.674	-	B
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.562	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.439

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	⇐⇐⇐⇐		⇐⇐		⇐⇐⇐	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	1	2	0
Pocket Length [ft]	280.00	500.00	100.00	300.00	380.00	100.00
Speed [mph]	50.00		50.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	278	160	624	495	422	896
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	160	624	495	422	896
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	40	156	124	106	224
Total Analysis Volume [veh/h]	278	160	624	495	422	896
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Overlap	Permissive	Unsignalized	Protected	Permissive
Signal Group	6	0	8	0	7	4
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.18	0.00	0.12	0.26
Intersection LOS	A					
Intersection V/C	0.439					

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	108	241	490	445	832	83	72	1308	255	628	1044	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	241	490	445	832	83	72	1308	255	628	1044	221
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	60	123	111	208	21	18	327	64	157	261	55
Total Analysis Volume [veh/h]	108	241	490	445	832	83	72	1308	255	628	1044	221
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.00	0.13	0.24	0.05	0.02	0.19	0.15	0.18	0.20	0.13
Intersection LOS	C											
Intersection V/C	0.704											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	226	346	51	196	265	14	76	601	192	106	1669	381
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	346	51	196	265	14	76	601	192	106	1669	381
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	87	13	49	66	4	19	150	48	27	417	95
Total Analysis Volume [veh/h]	226	346	51	196	265	14	76	601	192	106	1669	381
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.07	0.00	0.06	0.05	0.01	0.02	0.12	0.00	0.03	0.40	0.40
Intersection LOS	A											
Intersection V/C	0.600											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵↵			↵↵↵			↵↵↵			↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	245	551	1	0	2172	563	349	0	591	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	245	551	1	0	2172	563	349	0	591	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	138	0	0	543	141	87	0	148	0	0	0
Total Analysis Volume [veh/h]	245	551	1	0	2172	563	349	0	591	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.11	0.11	0.00	0.43	0.33	0.10	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.651											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.723

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	599	212	122	2689	496	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	599	212	122	2689	496	121
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	150	53	31	672	124	30
Total Analysis Volume [veh/h]	599	212	122	2689	496	121
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.12	0.04	0.53	0.15	0.07
Intersection LOS	C					
Intersection V/C	0.723					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	L			R			R+L+R					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	509	145	845	2258	0	262	0	1169	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	509	145	845	2258	0	262	0	1169	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	127	36	211	565	0	66	0	292	0	0	0
Total Analysis Volume [veh/h]	0	509	145	845	2258	0	262	0	1169	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.09	0.25	0.33	0.00	0.05	0.00	0.21	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.728											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.674

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	155	0	313	0	1810	367	418	1808	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	155	0	313	0	1810	367	418	1808	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	39	0	78	0	453	92	105	452	0
Total Analysis Volume [veh/h]	0	0	0	155	0	313	0	1810	367	418	1808	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.32	0.32	0.12	0.53	0.00
Intersection LOS	B											
Intersection V/C	0.674											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.562

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	0	31	0	0	0	0	456	0	0	534	25
Total Analysis Volume [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.44	0.44
Intersection LOS	A											
Intersection V/C	0.562											

Irvine Ranch Water District

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Scenario 2 2023 PEN NB PM

Report File: N:\...\2023 PEN NB PM.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.495	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.644	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.618	-	B
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.743	-	C
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.651	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.619	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.883	-	D
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.746	-	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.495

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	⇐⇐⇐⇐		⇐⇐		⇐⇐⇐	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	1	2	0
Pocket Length [ft]	280.00	500.00	100.00	300.00	380.00	100.00
Speed [mph]	50.00		50.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	780	437	554	230	179	644
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	780	437	554	230	179	644
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	195	109	139	58	45	161
Total Analysis Volume [veh/h]	780	437	554	230	179	644
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Overlap	Permissive	Unsignalized	Protected	Permissive
Signal Group	6	0	8	0	7	4
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.00	0.16	0.00	0.05	0.19
Intersection LOS	A					
Intersection V/C	0.495					

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.644

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	346	895	587	180	322	96	188	936	180	539	1584	516
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	346	895	587	180	322	96	188	936	180	539	1584	516
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	224	147	45	81	24	47	234	45	135	396	129
Total Analysis Volume [veh/h]	346	895	587	180	322	96	188	936	180	539	1584	516
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.18	0.00	0.05	0.09	0.06	0.06	0.14	0.11	0.16	0.31	0.30
Intersection LOS	B											
Intersection V/C	0.644											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.618

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	135	195	52	199	147	43	319	2354	261	34	806	193
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	135	195	52	199	147	43	319	2354	261	34	806	193
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	49	13	50	37	11	80	589	65	9	202	48
Total Analysis Volume [veh/h]	135	195	52	199	147	43	319	2354	261	34	806	193
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.00	0.06	0.03	0.03	0.09	0.46	0.00	0.01	0.20	0.20
Intersection LOS	B											
Intersection V/C	0.618											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.743

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵↵			↵↵↵			↵↵↵			↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	611	1976	0	4	858	220	1030	0	227	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	611	1976	0	4	858	220	1030	0	227	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	153	494	0	1	215	55	258	0	57	0	0	0
Total Analysis Volume [veh/h]	611	1976	0	4	858	220	1030	0	227	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.39	0.00	0.00	0.17	0.13	0.30	0.00	0.00	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.743											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2549	408	115	1060	185	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2549	408	115	1060	185	115
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	637	102	29	265	46	29
Total Analysis Volume [veh/h]	2549	408	115	1060	185	115
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.50	0.24	0.03	0.21	0.05	0.07
Intersection LOS	B					
Intersection V/C	0.651					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.619

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	538	126	86	173	0	170	0	89	0	0	0
Total Analysis Volume [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.32	0.30	0.10	0.10	0.00	0.13	0.00	0.15	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.619											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.883

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			↑			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	57	0	191	0	1526	152	164	2640	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	57	0	191	0	1526	152	164	2640	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	0	48	0	382	38	41	660	0
Total Analysis Volume [veh/h]	0	0	0	57	0	191	0	1526	152	164	2640	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.06	0.00	0.25	0.25	0.05	0.78	0.00
Intersection LOS	D											
Intersection V/C	0.883											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐									⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	0	75	0	0	0	0	349	0	0	602	41
Total Analysis Volume [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.18	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.50	0.50
Intersection LOS	C											
Intersection V/C	0.746											

Irvine Ranch Water District

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Scenario 3 2023 PEN PP Route 1AAM

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.470	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.711	-	C
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.609	-	B
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.651	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.723	-	C
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.728	-	C
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.674	-	B
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.562	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.470

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔↔			↔↔		
Lane Configuration	↔↔↔			+			↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	278	0	160	0	0	0	0	624	495	422	896	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	45	160	0	27	0	0	624	495	422	896	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	11	40	0	7	0	0	156	124	106	224	0
Total Analysis Volume [veh/h]	278	45	160	0	27	0	0	624	495	422	896	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.10	0.00	0.00	0.02	0.00	0.00	0.18	0.00	0.12	0.26	0.00
Intersection LOS	A											
Intersection V/C	0.470											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.711

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	108	241	490	445	832	83	72	1308	255	628	1044	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	286	490	445	859	83	72	1308	255	628	1044	221
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	72	123	111	215	21	18	327	64	157	261	55
Total Analysis Volume [veh/h]	108	286	490	445	859	83	72	1308	255	628	1044	221
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.06	0.00	0.13	0.25	0.05	0.02	0.19	0.15	0.18	0.20	0.13
Intersection LOS	C											
Intersection V/C	0.711											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	226	346	51	196	265	14	76	601	192	106	1669	381
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	391	51	196	292	14	76	601	192	106	1669	381
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	98	13	49	73	4	19	150	48	27	417	95
Total Analysis Volume [veh/h]	226	391	51	196	292	14	76	601	192	106	1669	381
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.08	0.00	0.06	0.06	0.01	0.02	0.12	0.00	0.03	0.40	0.40
Intersection LOS	B											
Intersection V/C	0.609											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	245	551	1	0	2172	563	349	0	591	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	0	27	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	245	596	1	0	2172	590	349	0	591	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	149	0	0	543	148	87	0	148	0	0	0
Total Analysis Volume [veh/h]	245	596	1	0	2172	590	349	0	591	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.12	0.12	0.00	0.43	0.35	0.10	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.651											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.723

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↱		↰		↰↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	599	212	122	2689	496	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	644	212	122	2689	496	121
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	161	53	31	672	124	30
Total Analysis Volume [veh/h]	644	212	122	2689	496	121
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.12	0.04	0.53	0.15	0.07
Intersection LOS	C					
Intersection V/C	0.723					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	509	145	845	2258	0	262	0	1169	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	45	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	509	145	845	2258	0	307	0	1169	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	127	36	211	565	0	77	0	292	0	0	0
Total Analysis Volume [veh/h]	0	509	145	845	2258	0	307	0	1169	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.09	0.25	0.33	0.00	0.06	0.00	0.22	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.728											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.674

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	155	0	313	0	1810	367	418	1808	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	155	0	313	0	1810	367	418	1808	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	39	0	78	0	453	92	105	452	0
Total Analysis Volume [veh/h]	0	0	0	155	0	313	0	1810	367	418	1808	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.32	0.32	0.12	0.53	0.00
Intersection LOS	B											
Intersection V/C	0.674											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.562

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	0	31	0	0	0	0	456	0	0	534	25
Total Analysis Volume [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.44	0.44
Intersection LOS	A											
Intersection V/C	0.562											

Irvine Ranch Water District

Vistro File: N:\...\IRWD 2023 APP.vistro

Scenario 4 2023 PEN PP Route 1A PM

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.506	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.644	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.618	-	B
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.743	-	C
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.651	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.619	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.883	-	D
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.746	-	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.506

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔			↔		
Lane Configuration	↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	780	0	437	0	0	0	0	554	230	179	644	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	780	0	437	0	18	0	0	554	230	179	644	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	195	0	109	0	5	0	0	139	58	45	161	0
Total Analysis Volume [veh/h]	780	0	437	0	18	0	0	554	230	179	644	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.00	0.05	0.19	0.00
Intersection LOS	A											
Intersection V/C	0.506											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.644

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	346	895	587	180	322	96	188	936	180	539	1584	516
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	346	895	587	180	340	96	188	936	180	539	1584	516
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	224	147	45	85	24	47	234	45	135	396	129
Total Analysis Volume [veh/h]	346	895	587	180	340	96	188	936	180	539	1584	516
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.18	0.00	0.05	0.10	0.06	0.06	0.14	0.11	0.16	0.31	0.30
Intersection LOS	B											
Intersection V/C	0.644											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.618

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	S			N			E			W		
Lane Configuration	S			S			S			S		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	135	195	52	199	147	43	319	2354	261	34	806	193
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	135	195	52	199	165	43	319	2354	261	34	806	193
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	49	13	50	41	11	80	589	65	9	202	48
Total Analysis Volume [veh/h]	135	195	52	199	165	43	319	2354	261	34	806	193
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.00	0.06	0.03	0.03	0.09	0.46	0.00	0.01	0.20	0.20
Intersection LOS	B											
Intersection V/C	0.618											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.743

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	611	1976	0	4	858	220	1030	0	227	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	18	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	611	1976	0	4	858	238	1030	0	227	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	153	494	0	1	215	60	258	0	57	0	0	0
Total Analysis Volume [veh/h]	611	1976	0	4	858	238	1030	0	227	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.39	0.00	0.00	0.17	0.14	0.30	0.00	0.00	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.743											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2549	408	115	1060	185	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2549	408	115	1060	185	115
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	637	102	29	265	46	29
Total Analysis Volume [veh/h]	2549	408	115	1060	185	115
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.50	0.24	0.03	0.21	0.05	0.07
Intersection LOS	B					
Intersection V/C	0.651					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.619

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration							+					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	538	126	86	173	0	170	0	89	0	0	0
Total Analysis Volume [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.32	0.30	0.10	0.10	0.00	0.13	0.00	0.15	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.619											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.883

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	57	0	191	0	1526	152	164	2640	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	57	0	191	0	1526	152	164	2640	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	0	48	0	382	38	41	660	0
Total Analysis Volume [veh/h]	0	0	0	57	0	191	0	1526	152	164	2640	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.06	0.00	0.25	0.25	0.05	0.78	0.00
Intersection LOS	D											
Intersection V/C	0.883											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵						↑↑↑			↑↑↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	0	75	0	0	0	0	349	0	0	602	41
Total Analysis Volume [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.18	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.50	0.50
Intersection LOS	C											
Intersection V/C	0.746											

Irvine Ranch Water District

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Scenario 5 2023 PEN PP Route 1B AM

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.470	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.711	-	C
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.609	-	B
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.670	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.728	-	C
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.736	-	C
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.674	-	B
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.562	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.470

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔↔			↔↔		
Lane Configuration	↔↔↔			+			↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	278	0	160	0	0	0	0	624	495	422	896	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	45	160	0	27	0	0	624	495	422	896	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	11	40	0	7	0	0	156	124	106	224	0
Total Analysis Volume [veh/h]	278	45	160	0	27	0	0	624	495	422	896	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.10	0.00	0.00	0.02	0.00	0.00	0.18	0.00	0.12	0.26	0.00
Intersection LOS	A											
Intersection V/C	0.470											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.711

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	108	241	490	445	832	83	72	1308	255	628	1044	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	286	490	445	859	83	72	1308	255	628	1044	221
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	72	123	111	215	21	18	327	64	157	261	55
Total Analysis Volume [veh/h]	108	286	490	445	859	83	72	1308	255	628	1044	221
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.06	0.00	0.13	0.25	0.05	0.02	0.19	0.15	0.18	0.20	0.13
Intersection LOS	C											
Intersection V/C	0.711											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	226	346	51	196	265	14	76	601	192	106	1669	381
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	391	51	196	292	14	76	601	192	106	1669	381
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	98	13	49	73	4	19	150	48	27	417	95
Total Analysis Volume [veh/h]	226	391	51	196	292	14	76	601	192	106	1669	381
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.08	0.00	0.06	0.06	0.01	0.02	0.12	0.00	0.03	0.40	0.40
Intersection LOS	B											
Intersection V/C	0.609											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.670

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	245	551	1	0	2172	563	349	0	591	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	27	0	45	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	245	551	1	0	2199	563	394	0	591	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	138	0	0	550	141	99	0	148	0	0	0
Total Analysis Volume [veh/h]	245	551	1	0	2199	563	394	0	591	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.11	0.11	0.00	0.43	0.33	0.12	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.670											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↱		↰		↰↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	599	212	122	2689	496	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	27	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	599	212	122	2716	496	121
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	150	53	31	679	124	30
Total Analysis Volume [veh/h]	599	212	122	2716	496	121
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.12	0.04	0.53	0.15	0.07
Intersection LOS	C					
Intersection V/C	0.728					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.736

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	509	145	845	2258	0	262	0	1169	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	27	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	509	145	872	2258	0	262	0	1169	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	127	36	218	565	0	66	0	292	0	0	0
Total Analysis Volume [veh/h]	0	509	145	872	2258	0	262	0	1169	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.09	0.26	0.33	0.00	0.05	0.00	0.21	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.736											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.674

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	155	0	313	0	1810	367	418	1808	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	155	0	313	0	1810	367	418	1808	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	39	0	78	0	453	92	105	452	0
Total Analysis Volume [veh/h]	0	0	0	155	0	313	0	1810	367	418	1808	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.32	0.32	0.12	0.53	0.00
Intersection LOS	B											
Intersection V/C	0.674											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.562

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	0	31	0	0	0	0	456	0	0	534	25
Total Analysis Volume [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.44	0.44
Intersection LOS	A											
Intersection V/C	0.562											

Irvine Ranch Water District

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Scenario 6 2023 PEN PP Route 1B PM

Report File: N:\...\2023 PEN PP Route 1B PM.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.506	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.644	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.618	-	B
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.743	-	C
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.651	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.625	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.883	-	D
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.746	-	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.506

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	780	0	437	0	0	0	0	554	230	179	644	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	780	0	437	0	18	0	0	554	230	179	644	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	195	0	109	0	5	0	0	139	58	45	161	0
Total Analysis Volume [veh/h]	780	0	437	0	18	0	0	554	230	179	644	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.00	0.05	0.19	0.00
Intersection LOS	A											
Intersection V/C	0.506											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.644

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	346	895	587	180	322	96	188	936	180	539	1584	516
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	346	895	587	180	340	96	188	936	180	539	1584	516
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	224	147	45	85	24	47	234	45	135	396	129
Total Analysis Volume [veh/h]	346	895	587	180	340	96	188	936	180	539	1584	516
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.18	0.00	0.05	0.10	0.06	0.06	0.14	0.11	0.16	0.31	0.30
Intersection LOS	B											
Intersection V/C	0.644											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.618

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	☞			☜			☞			☜		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	135	195	52	199	147	43	319	2354	261	34	806	193
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	135	195	52	199	165	43	319	2354	261	34	806	193
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	49	13	50	41	11	80	589	65	9	202	48
Total Analysis Volume [veh/h]	135	195	52	199	165	43	319	2354	261	34	806	193
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.00	0.06	0.03	0.03	0.09	0.46	0.00	0.01	0.20	0.20
Intersection LOS	B											
Intersection V/C	0.618											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.743

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	611	1976	0	4	858	220	1030	0	227	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	611	1976	0	4	876	220	1030	0	227	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	153	494	0	1	219	55	258	0	57	0	0	0
Total Analysis Volume [veh/h]	611	1976	0	4	876	220	1030	0	227	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.39	0.00	0.00	0.17	0.13	0.30	0.00	0.00	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.743											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2549	408	115	1060	185	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	18	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2549	408	115	1078	185	115
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	637	102	29	270	46	29
Total Analysis Volume [veh/h]	2549	408	115	1078	185	115
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.50	0.24	0.03	0.21	0.05	0.07
Intersection LOS	B					
Intersection V/C	0.651					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.625

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	18	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2151	504	361	691	0	679	0	355	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	538	126	90	173	0	170	0	89	0	0	0
Total Analysis Volume [veh/h]	0	2151	504	361	691	0	679	0	355	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.32	0.30	0.11	0.10	0.00	0.13	0.00	0.15	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.625											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.883

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	57	0	191	0	1526	152	164	2640	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	57	0	191	0	1526	152	164	2640	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	0	48	0	382	38	41	660	0
Total Analysis Volume [veh/h]	0	0	0	57	0	191	0	1526	152	164	2640	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.06	0.00	0.25	0.25	0.05	0.78	0.00
Intersection LOS	D											
Intersection V/C	0.883											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	0	75	0	0	0	0	349	0	0	602	41
Total Analysis Volume [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.18	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.50	0.50
Intersection LOS	C											
Intersection V/C	0.746											

Irvine Ranch Water District

Vistro File: N:\...\IRWD 2023 APP.vistro

Scenario 7 2023 PEN Route 2A AM

Report File: N:\...\2023 PEN PP Route 2A AM.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.470	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.704	-	C
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.600	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.651	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.723	-	C
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.728	-	C
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.687	-	B
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.562	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.470

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔↔			↔↔		
Lane Configuration	↔↔↔			+			↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	278	0	160	0	0	0	0	624	495	422	896	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	45	160	0	27	0	0	624	495	422	896	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	11	40	0	7	0	0	156	124	106	224	0
Total Analysis Volume [veh/h]	278	45	160	0	27	0	0	624	495	422	896	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.10	0.00	0.00	0.02	0.00	0.00	0.18	0.00	0.12	0.26	0.00
Intersection LOS	A											
Intersection V/C	0.470											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	108	241	490	445	832	83	72	1308	255	628	1044	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	27	0	0	0	0	0	0	0	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	241	490	472	832	83	72	1308	255	628	1044	266
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	60	123	118	208	21	18	327	64	157	261	67
Total Analysis Volume [veh/h]	108	241	490	472	832	83	72	1308	255	628	1044	266
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.00	0.14	0.24	0.05	0.02	0.19	0.15	0.18	0.20	0.16
Intersection LOS	C											
Intersection V/C	0.704											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	226	346	51	196	265	14	76	601	192	106	1669	381
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	346	51	196	265	14	76	601	192	106	1669	381
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	87	13	49	66	4	19	150	48	27	417	95
Total Analysis Volume [veh/h]	226	346	51	196	265	14	76	601	192	106	1669	381
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.07	0.00	0.06	0.05	0.01	0.02	0.12	0.00	0.03	0.40	0.40
Intersection LOS	A											
Intersection V/C	0.600											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	245	551	1	0	2172	563	349	0	591	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	245	551	1	0	2172	563	349	0	591	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	138	0	0	543	141	87	0	148	0	0	0
Total Analysis Volume [veh/h]	245	551	1	0	2172	563	349	0	591	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.11	0.11	0.00	0.43	0.33	0.10	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.651											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.723

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	599	212	122	2689	496	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	599	212	122	2689	496	121
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	150	53	31	672	124	30
Total Analysis Volume [veh/h]	599	212	122	2689	496	121
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.12	0.04	0.53	0.15	0.07
Intersection LOS	C					
Intersection V/C	0.723					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	509	145	845	2258	0	262	0	1169	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	509	145	845	2258	0	262	0	1169	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	127	36	211	565	0	66	0	292	0	0	0
Total Analysis Volume [veh/h]	0	509	145	845	2258	0	262	0	1169	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.09	0.25	0.33	0.00	0.05	0.00	0.21	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.728											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.687

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	155	0	313	0	1810	367	418	1808	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	45	0	27	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	155	0	358	0	1837	367	418	1808	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	39	0	90	0	459	92	105	452	0
Total Analysis Volume [veh/h]	0	0	0	155	0	358	0	1837	367	418	1808	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.11	0.00	0.32	0.32	0.12	0.53	0.00
Intersection LOS	B											
Intersection V/C	0.687											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.562

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	0	31	0	0	0	0	456	0	0	534	25
Total Analysis Volume [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.44	0.44
Intersection LOS	A											
Intersection V/C	0.562											

Irvine Ranch Water District

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Scenario 8 2023 PEN PP Route 2A PM

Report File: N:\...\2023 PEN PP Route 2A PM.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.506	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.650	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.618	-	B
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.743	-	C
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.651	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.619	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.883	-	D
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.746	-	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.506

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	780	0	437	0	0	0	0	554	230	179	644	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	780	0	437	0	18	0	0	554	230	179	644	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	195	0	109	0	5	0	0	139	58	45	161	0
Total Analysis Volume [veh/h]	780	0	437	0	18	0	0	554	230	179	644	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.00	0.05	0.19	0.00
Intersection LOS	A											
Intersection V/C	0.506											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.650

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	346	895	587	180	322	96	188	936	180	539	1584	516
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	18	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	346	895	587	198	322	96	188	936	180	539	1584	516
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	224	147	50	81	24	47	234	45	135	396	129
Total Analysis Volume [veh/h]	346	895	587	198	322	96	188	936	180	539	1584	516
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.18	0.00	0.06	0.09	0.06	0.06	0.14	0.11	0.16	0.31	0.30
Intersection LOS	B											
Intersection V/C	0.650											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.618

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	135	195	52	199	147	43	319	2354	261	34	806	193
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	135	195	52	199	147	43	319	2354	261	34	806	193
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	49	13	50	37	11	80	589	65	9	202	48
Total Analysis Volume [veh/h]	135	195	52	199	147	43	319	2354	261	34	806	193
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.00	0.06	0.03	0.03	0.09	0.46	0.00	0.01	0.20	0.20
Intersection LOS	B											
Intersection V/C	0.618											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.743

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	611	1976	0	4	858	220	1030	0	227	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	611	1976	0	4	858	220	1030	0	227	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	153	494	0	1	215	55	258	0	57	0	0	0
Total Analysis Volume [veh/h]	611	1976	0	4	858	220	1030	0	227	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.39	0.00	0.00	0.17	0.13	0.30	0.00	0.00	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.743											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2549	408	115	1060	185	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2549	408	115	1060	185	115
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	637	102	29	265	46	29
Total Analysis Volume [veh/h]	2549	408	115	1060	185	115
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.50	0.24	0.03	0.21	0.05	0.07
Intersection LOS	B					
Intersection V/C	0.651					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.619

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	L			R			R+L+R					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	538	126	86	173	0	170	0	89	0	0	0
Total Analysis Volume [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.32	0.30	0.10	0.10	0.00	0.13	0.00	0.15	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.619											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.883

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐ ⇐ ⇐			⇐			⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	57	0	191	0	1526	152	164	2640	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	18	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	57	0	191	0	1544	152	164	2640	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	0	48	0	386	38	41	660	0
Total Analysis Volume [veh/h]	0	0	0	57	0	191	0	1544	152	164	2640	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.06	0.00	0.25	0.25	0.05	0.78	0.00
Intersection LOS	D											
Intersection V/C	0.883											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	0	75	0	0	0	0	349	0	0	602	41
Total Analysis Volume [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.18	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.50	0.50
Intersection LOS	C											
Intersection V/C	0.746											

Irvine Ranch Water District

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Scenario 9 2023 PEN PP Route 2B AM

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8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	WB Thru	0.470	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	SB Thru	0.704	-	C
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	WB Thru	0.600	-	A
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	SB Thru	0.651	-	B
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	SB Thru	0.723	-	C
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	SB Thru	0.728	-	C
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.687	-	B
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Right	0.587	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.470

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔↔↔			+			↔↔			↔↔		
Lane Configuration	↔↔↔			+			↔↔			↔↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	278	0	160	0	0	0	0	624	495	422	896	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	45	160	0	27	0	0	624	495	422	896	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	11	40	0	7	0	0	156	124	106	224	0
Total Analysis Volume [veh/h]	278	45	160	0	27	0	0	624	495	422	896	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.10	0.00	0.00	0.02	0.00	0.00	0.18	0.00	0.12	0.26	0.00
Intersection LOS	A											
Intersection V/C	0.470											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	108	241	490	445	832	83	72	1308	255	628	1044	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	27	0	0	0	0	0	0	0	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	241	490	472	832	83	72	1308	255	628	1044	266
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	60	123	118	208	21	18	327	64	157	261	67
Total Analysis Volume [veh/h]	108	241	490	472	832	83	72	1308	255	628	1044	266
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.00	0.14	0.24	0.05	0.02	0.19	0.15	0.18	0.20	0.16
Intersection LOS	C											
Intersection V/C	0.704											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	226	346	51	196	265	14	76	601	192	106	1669	381
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	346	51	196	265	14	76	601	192	106	1669	381
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	87	13	49	66	4	19	150	48	27	417	95
Total Analysis Volume [veh/h]	226	346	51	196	265	14	76	601	192	106	1669	381
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.07	0.00	0.06	0.05	0.01	0.02	0.12	0.00	0.03	0.40	0.40
Intersection LOS	A											
Intersection V/C	0.600											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	245	551	1	0	2172	563	349	0	591	1	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	245	551	1	0	2172	563	349	0	591	1	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	138	0	0	543	141	87	0	148	0	0	0
Total Analysis Volume [veh/h]	245	551	1	0	2172	563	349	0	591	1	0	1
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.11	0.11	0.00	0.43	0.33	0.10	0.00	0.00	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.651											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.723

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	599	212	122	2689	496	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	599	212	122	2689	496	121
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	150	53	31	672	124	30
Total Analysis Volume [veh/h]	599	212	122	2689	496	121
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.12	0.04	0.53	0.15	0.07
Intersection LOS	C					
Intersection V/C	0.723					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	509	145	845	2258	0	262	0	1169	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	509	145	845	2258	0	262	0	1169	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	127	36	211	565	0	66	0	292	0	0	0
Total Analysis Volume [veh/h]	0	509	145	845	2258	0	262	0	1169	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.09	0.25	0.33	0.00	0.05	0.00	0.21	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.728											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.687

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	155	0	313	0	1810	367	418	1808	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	27	0	45	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	155	0	313	0	1810	394	418	1853	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	39	0	78	0	453	99	105	463	0
Total Analysis Volume [veh/h]	0	0	0	155	0	313	0	1810	394	418	1853	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.32	0.32	0.12	0.55	0.00
Intersection LOS	B											
Intersection V/C	0.687											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.587

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵									↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	122	0	124	0	0	0	0	1822	0	0	2137	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	167	0	124	0	0	0	0	1822	0	0	2137	101
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	0	31	0	0	0	0	456	0	0	534	25
Total Analysis Volume [veh/h]	167	0	124	0	0	0	0	1822	0	0	2137	101
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.07	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.44	0.44
Intersection LOS	A											
Intersection V/C	0.587											

Irvine Ranch Water District

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Scenario 10 2023 PEN PP Route 2B PM

Report File: N:\...\2023 PEN PP Route 2B PM.pdf

8/19/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sand Canyon Ave and Portola Pkwy	Signalized	ICU 1	NB Left	0.506	-	A
2	Sand Canyon Ave and Irvine Blvd	Signalized	ICU 1	WB Thru	0.650	-	B
3	Sand Canyon Ave and Trabuco Rd	Signalized	ICU 1	EB Thru	0.618	-	B
4	Sand Canyon Ave and I-5 NB Ramps	Signalized	ICU 1	NB Thru	0.743	-	C
5	Sand Canyon Ave and Marine Way	Signalized	ICU 1	NB Thru	0.651	-	B
6	Sand Canyon Ave and I-5 SB Ramps	Signalized	ICU 1	NB Thru	0.619	-	B
7	SR-133 SB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.883	-	D
8	SR-133 NB Ramps and Irvine Blvd	Signalized	ICU 1	WB Thru	0.746	-	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sand Canyon Ave and Portola Pkwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.506

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔↔↔↔			+			↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	280.00	100.00	500.00	100.00	100.00	100.00	100.00	100.00	300.00	380.00	100.00	100.00
Speed [mph]	50.00			30.00			50.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	780	0	437	0	0	0	0	554	230	179	644	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	18	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	780	0	437	0	18	0	0	554	230	179	644	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	195	0	109	0	5	0	0	139	58	45	161	0
Total Analysis Volume [veh/h]	780	0	437	0	18	0	0	554	230	179	644	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Permis	Permis	Unsign	Protect	Permis	Permis
Signal Group	6	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.00	0.05	0.19	0.00
Intersection LOS	A											
Intersection V/C	0.506											

Intersection Level Of Service Report
Intersection 2: Sand Canyon Ave and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.650

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	2	2	0	1	2	0	1	2	0	1
Pocket Length [ft]	200.00	100.00	350.00	170.00	100.00	310.00	150.00	100.00	310.00	280.00	100.00	350.00
Speed [mph]	50.00			50.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	346	895	587	180	322	96	188	936	180	539	1584	516
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	18	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	346	895	587	198	322	96	188	936	180	539	1584	516
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	224	147	50	81	24	47	234	45	135	396	129
Total Analysis Volume [veh/h]	346	895	587	198	322	96	188	936	180	539	1584	516
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Overla	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.18	0.00	0.06	0.09	0.06	0.06	0.14	0.11	0.16	0.31	0.30
Intersection LOS	B											
Intersection V/C	0.650											

Intersection Level Of Service Report
Intersection 3: Sand Canyon Ave and Trabuco Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.618

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	TWO			TWO			TWO			TWO		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	2	0	1	2	0	1	2	0	0
Pocket Length [ft]	250.00	100.00	100.00	200.00	100.00	280.00	150.00	100.00	430.00	320.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	135	195	52	199	147	43	319	2354	261	34	806	193
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	135	195	52	199	147	43	319	2354	261	34	806	193
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	49	13	50	37	11	80	589	65	9	202	48
Total Analysis Volume [veh/h]	135	195	52	199	147	43	319	2354	261	34	806	193
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protect	Permis	Unsign	Protect	Permis	Permis	Protect	Permis	Unsign	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.00	0.06	0.03	0.03	0.09	0.46	0.00	0.01	0.20	0.20
Intersection LOS	B											
Intersection V/C	0.618											

Intersection Level Of Service Report
Intersection 4: Sand Canyon Ave and I-5 NB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.743

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐			⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	190.00	100.00	220.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	611	1976	0	4	858	220	1030	0	227	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	611	1976	0	4	858	220	1030	0	227	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	153	494	0	1	215	55	258	0	57	0	0	0
Total Analysis Volume [veh/h]	611	1976	0	4	858	220	1030	0	227	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Split	Split	Overla	Split	Split	Split
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.39	0.00	0.00	0.17	0.13	0.30	0.00	0.00	0.00	0.00	0.00
Intersection LOS	C											
Intersection V/C	0.743											

Intersection Level Of Service Report
Intersection 5: Sand Canyon Ave and Marine Way

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	↑↑↑↱		↱↑↑↑		↱↱↱	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	380.00	100.00
Speed [mph]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	2549	408	115	1060	185	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2549	408	115	1060	185	115
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	637	102	29	265	46	29
Total Analysis Volume [veh/h]	2549	408	115	1060	185	115
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	4	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.50	0.24	0.03	0.21	0.05	0.07
Intersection LOS	B					
Intersection V/C	0.651					

Intersection Level Of Service Report
Intersection 6: Sand Canyon Ave and I-5 SB Ramps

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.619

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	┌			└			└┌└┌					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	2	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	240.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00			50.00			50.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	538	126	86	173	0	170	0	89	0	0	0
Total Analysis Volume [veh/h]	0	2151	504	343	691	0	679	0	355	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.32	0.30	0.10	0.10	0.00	0.13	0.00	0.15	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.619											

Intersection Level Of Service Report
Intersection 7: SR-133 SB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.883

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	530.00	100.00	100.00	100.00	140.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	57	0	191	0	1526	152	164	2640	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	18	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	57	0	191	0	1526	170	164	2640	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	14	0	48	0	382	43	41	660	0
Total Analysis Volume [veh/h]	0	0	0	57	0	191	0	1526	170	164	2640	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	0	0	4	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lag	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.06	0.00	0.25	0.25	0.05	0.78	0.00
Intersection LOS	D											
Intersection V/C	0.883											

Intersection Level Of Service Report
Intersection 8: SR-133 NB Ramps and Irvine Blvd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵↵						↑↑↑			↑↑↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	0	75	0	0	0	0	349	0	0	602	41
Total Analysis Volume [veh/h]	326	0	298	0	0	0	0	1394	0	0	2408	165
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	8	2	0	0	0	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.00	0.18	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.50	0.50
Intersection LOS	C											
Intersection V/C	0.746											