Draft EIR Appendices

CITY OF RANCHO MIRAGE ©

Prepared For:

City of Rancho Mirage
69-825 Highway 111
Rancho Mirage, California 92270

Environmental Impact Report
In-N-Out Burger Restaurant

SCH NO. 2020050075

Westlake Village Office
920 Hampshire Road, Suite A5
Westlake Village, CA 91361

Meridian Consultants

Los Angeles Office
706 S. Hill Street, 11th Floor
Los Angeles, CA 90014

September 2020

APPENDIX A

Notice of Preparation (NOP) and Comment Letters on the NOP

APPENDIX A.1

NOP

Notice of Preparation
Draft Environmental Impact Report

In-N-Out Burger Restaurant Project

May 4, 2020

From: Jeremy Gleim, AICP
Development Services Director
City of Rancho Mirage
69-825 Highway 111
Rancho Mirage, CA 92270

The City of Rancho Mirage (City) will be the Lead Agency and will prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) Guidelines (14 California Code of Regulations Section 15060 and 15063) for the proposed In-N-Out Burger Restaurant Project (Project) in the City.

The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive (42-650 Bob Hope Drive) in the City. **Figure 1: Regional Location Map** shows the regional location of the Project and **Figure 2: Project Site Location Map** shows the location of the Project Site in the City. In-N-Out Burger proposes to construct a 3,885-square-foot restaurant with drive-through service, inclusive of landscaping and other site improvements.

Based on the location and characteristics of the proposed Project, the EIR will include analysis of potentially significant effects on the environment related to the following topics: aesthetics, air quality, geology and soils, greenhouse gas emissions, hydrology and water quality, land use and planning, noise, public services, transportation, and utilities and service systems. Based on the existing characteristics of the urbanized Project Site, effects related to agricultural and forestry resources, biological resources, cultural resources, energy, hazards and hazardous materials, mineral resources, population and housing, recreation, tribal cultural resources, and wildfire are not anticipated to be significant and further analysis in the EIR is not proposed for this reason.

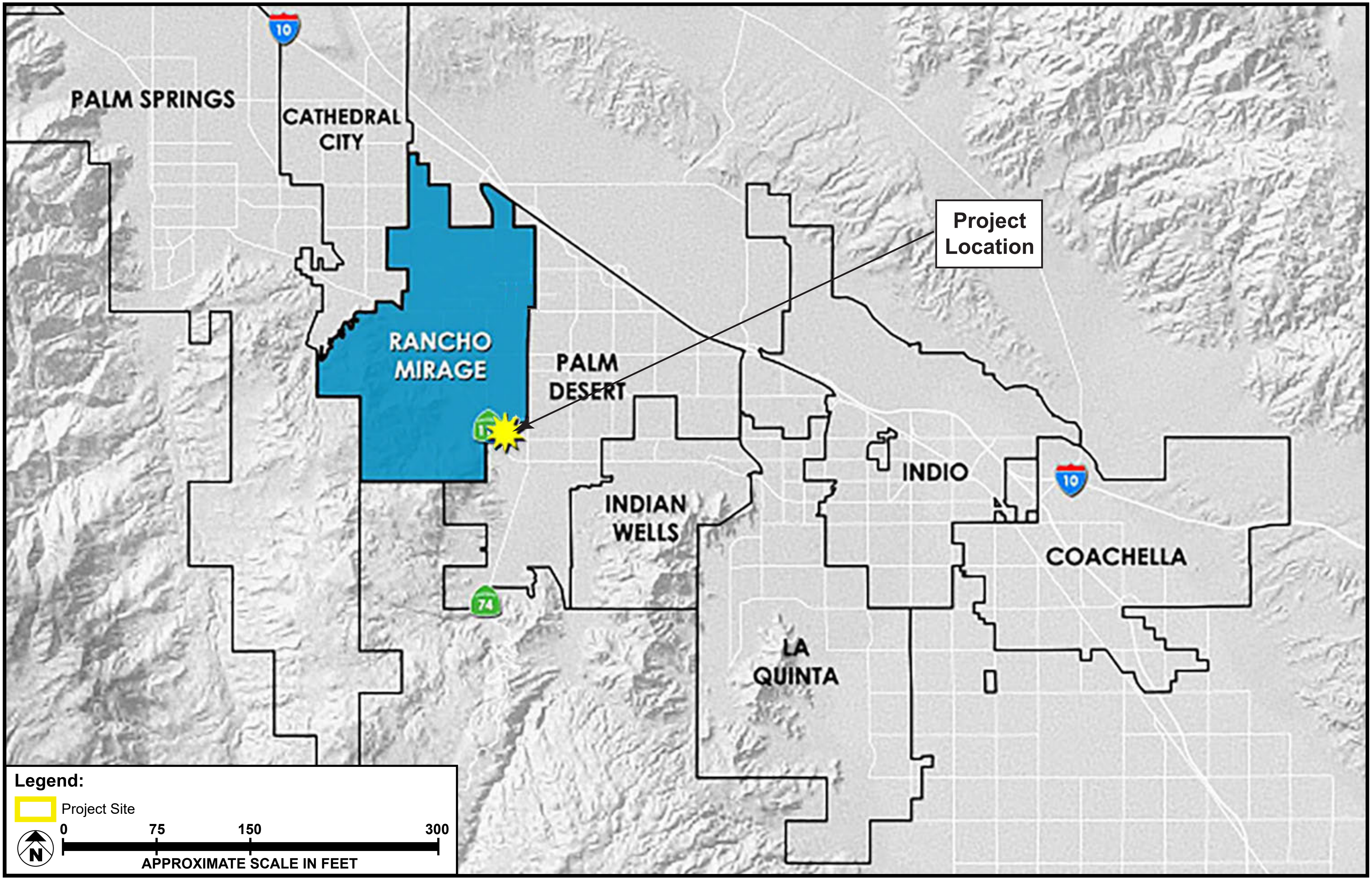
The City needs to know the views of your agency as to the scope and content of the environmental information relevant to your agency's responsibilities in connection with the proposed Project. Your agency may need to use the EIR prepared by the City when considering any permits or other approvals for this Project. Comments are also invited from all other interested parties. Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send comments to Jeremy Gleim, the City's Development Services Director, at the address shown above or the email address in the signature line. Further details of the proposed Project are available at https://ranchomirageca.gov/our-city/city-departments/planning/environmental-documents/. Please include the name, address, and other contact information for an agency representative who should receive future notices and correspondence related to this Project.

Thank you for participating in the City's environmental review of this proposed Project.

Signature: ______________________

Jeremy Gleim, AICP
Title: Development Services Director
Telephone: (760) 328-2266
Email: jeremyg@ranchomirageca.gov



SOURCE: Meridian Consultants - 2020

FIGURE 1

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

APPENDIX A.2

Comment Letters

Agency Comments

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
Marshall McKay
Wintun

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
[**Vacant**]

COMMISSIONER
Julie Tumamait-Stenslie
Chumash

COMMISSIONER
[**Vacant**]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

6/2/2020

May 6, 2020

Governor's Office of Planning & Research

MAY 08 2020

STATE CLEARINGHOUSE

Jeremy Gleim, AICP
City of Rancho Mirage
69-825 Highway-111
Rancho Mirage, CA 92270

Re: 2020050075, In-N-Out Burger Restaurant Project, Riverside County

Dear Mr. Gleim:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

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

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

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

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

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

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

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

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

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

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to**:**

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

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

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

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

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

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

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

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

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

SB 18

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

Some of SB 18's provisions include:

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

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

NAHC Recommendations for Cultural Resources Assessments

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

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

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

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Staff Services Analyst

cc: State Clearinghouse

JASON E. UHLEY
General Manager-Chief Engineer

1995 MARKET STREET
RIVERSIDE, CA 92501
951.955.1200
FAX 951.788.9965
www.rcflood.org

RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

231479

June 2, 2020

City of Rancho Mirage
Community Development Department
69-825 Highway 111
Rancho Mirage, CA 92270

Attention: Jeremy Gleim

Re: In-N-Out Burger Restaurant

The Riverside County Flood Control and Water Conservation District (District) does not normally recommend conditions for land divisions or other land use cases in incorporated cities. The District also does not plan check City land use cases, or provide State Division of Real Estate letters or other flood hazard reports for such cases. District comments/recommendations for such cases are normally limited to items of specific interest to the District including District Master Drainage Plan facilities, other regional flood control and drainage facilities which could be considered a logical component or extension of a master plan system, and District Area Drainage Plan fees (development mitigation fees). In addition, information of a general nature is provided.

The District's review is based on the above-referenced project transmittal, received May 6, 2020. The District **has not** reviewed the proposed project in detail, and the following comments do not in any way constitute or imply District approval or endorsement of the proposed project with respect to flood hazard, public health and safety, or any other such issue:

☒ This project would not be impacted by District Master Drainage Plan facilities, nor are other facilities of regional interest proposed.

☐ This project involves District proposed Master Drainage Plan facilities, namely (describe facility location here, such as "along XX Street / adjacent to XX road / adjacent to XX of the project boundary/ from xx to xx, etc."). The District will accept ownership of such facilities on written request of the City. Facilities must be constructed to District standards, and District plan check and inspection will be required for District acceptance. Plan check, inspection, and administrative fees will be required.

☐ This project proposes channels, storm drains 36 inches or larger in diameter, or other facilities that could be considered regional in nature. The District would consider accepting ownership of such facilities on written request of the City. Facilities must be constructed to District standards, and District plan check and inspection will be required for District acceptance. Plan check, inspection, and administrative fees will be required.

☐ An encroachment permit shall be obtained for any construction related activities occurring within District right of way or facilities, namely, ____________________. For further information, contact the District's encroachment permit section at 951.955.1266.

☐ The District's previous comments are still valid.

GENERAL INFORMATION

This project may require a National Pollutant Discharge Elimination System (NPDES) permit from the State Water Resources Control Board. Clearance for grading, recordation, or other final approval should not be given until the City has determined that the project has been granted a permit or is shown to be exempt.

If this project involves a Federal Emergency Management Agency (FEMA) mapped floodplain, then the City should require the applicant to provide all studies, calculations, plans, and other information required to meet FEMA requirements, and should further require that the applicant obtain a Conditional Letter of Map Revision (CLOMR) prior to grading, recordation or other final approval of the project and a Letter of Map Revision (LOMR) prior to occupancy.

If a natural watercourse or mapped floodplain is impacted by this project, the City should require the applicant to obtain a Section 1602 Agreement from the California Department of Fish and Wildlife and a Clean Water Act Section 404 Permit from the U.S. Army Corps of Engineers, or written correspondence from these agencies indicating the project is exempt from these requirements. A Clean Water Act Section 401 Water Quality Certification may be required from the local California Regional Water Quality Control Board prior to issuance of the Corps 404 permit.

Very truly yours,

Deborah deChambeau

DEBORAH DE CHAMBEAU
Engineering Project Manager

c: Riverside County Planning Department
Attn: John Hildebrand

SLJ:mcv

Individual Comments

From: Anne Winchester <laserlearn@earthlink.net>
Sent: Monday, June 01, 2020 9:35 AM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: Response to EIR project, June 1, 2020

June1, 2020

Jeremy Gleim
Director of Development Services
City of Rancho Mirage

I am writing to you to voice my objection to the resurrection of an EIR to change zoning to allow fast food on Hwy 111 in Rancho Mirage. The continued lack of transparency by the City Council is noted and only causes one to wonder what is really going on that City Council Members need to push a project forward that is so antithetical to adjacent and close residential properties.

Signed: E. ANN WINCHESTER

From: Barry Harrison <barry.harrison@gmail.com>
Sent: Tuesday, May 12, 2020 5:06 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: Re: Notice of Preparation Draft Environmental Impact Report for the In-N-Out Restaurant

I understand. Thank you very much for clarifying this.

In that case, my comment is: The EIR should be not be conducted during an epidemic or in summertime when it would not reflect "normal" traffic conditions.

Best-
Barry

On Tue, May 12, 2020 at 2:58 PM Jeremy Gleim, AICP <jeremyg@ranchomirageca.gov> wrote:

Hi Mr. Harrison,

Thank you for the quick reply. The purpose of the NOP (Notice of Preparation) is to solicit comments from responsible agencies and interested members of the public as to the scope and content of the environmental information to be included in the Environmental Impact Report (EIR). Comments and/or questions received during the NOP period will be addressed in the Draft EIR.

Kind regards,

Jeremy Gleim, AICP
Development Services Director
Phone: 760-328-2266 Ext. 262
E-mail: jeremyg@RanchoMirageCA.gov
69-825 Highway 111, Rancho Mirage, California, 92270
www.RanchoMirageCa.gov

Rancho Mirage COVID HOTLINE:
877-652-4844 - Monitored Monday-Friday 8am-5pm by City staff for residents and businesses to call with general questions or concerns
covid19@RanchoMirageCA.gov

The City of Rancho Mirage Library and Observatory:
Is closed to the public through May 22, 2020

The Rancho Mirage City Hall:
Is closed to the public until further notice

The Rancho Mirage City Hall Council Chambers:
Will be open to the public for scheduled City Council and public commission meetings

TRANSPARENCY NOTICE

Some or all of the content of this e-mail and its attachments may be subject to disclosure pursuant to the California Public Records Act (Government Code section 6250, et seq.)

From: Barry Harrison <barry.harrison@gmail.com>
Sent: Tuesday, May 12, 2020 2:37 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: Re: Notice of Preparation Draft Environmental Impact Report for the In-N-Out Restaurant

Hi Jeremy,

Thanks for getting back to me, but I had a question rather than a comment. Is it possible for you to answer it?

Best-

Barry

On Tue, May 12, 2020 at 2:26 PM Jeremy Gleim, AICP <jeremyg@ranchomirageca.gov> wrote:

Hi Mr. Harrison,

I am in receipt of your comments regarding the Notice of Preparation (NOP).

Thank you,

Jeremy Gleim, AICP
Development Services Director
Phone: 760-328-2266 Ext. 262
E-mail: jeremyg@RanchoMirageCA.gov
69-825 Highway 111, Rancho Mirage, California, 92270
www.RanchoMirageCa.gov

Rancho Mirage COVID HOTLINE:

877-652-4844 - Monitored Monday-Friday 8am-5pm by City staff for residents and businesses to call with general questions or concerns

covid19@RanchoMirageCA.gov

The City of Rancho Mirage Library and Observatory:

Is closed to the public through May 22, 2020

The Rancho Mirage City Hall:

Is closed to the public until further notice

The Rancho Mirage City Hall Council Chambers:

Will be open to the public for scheduled City Council and public commission meetings

---

TRANSPARENCY NOTICE

Some or all of the content of this e-mail and its attachments may be subject to disclosure pursuant to the California Public Records Act (Government Code section 6250, et seq.)

From: Barry Harrison <barry.harrison@gmail.com>
Sent: Thursday, May 07, 2020 4:53 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: Notice of Preparation Draft Environmental Impact Report for the In-N-Out Restaurant

CAUTION: This email originated from outside The City of Rancho Mirage. **DO NOT CLICK links** or open **attachments** unless you recognize the sender and know the content is safe.

Hi Jeremy,

It has come to my attention that the city is in the process of preparing an EIR for the In N Out Burger joint. Given that we're in the middle of a pandemic and entering the summer season would you please be so kind as to explain to me how this report will reflect normal traffic during peak season?

Thank you,

Barry Harrison

71798 San Gorgonio Rd, Rancho Mirage, CA 92270

From: Robert Schneider <robertschneider224@gmail.com>
Sent: Thursday, May 07, 2020 1:17 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>; Isaiah Hagerman, CPA <isaiahh@RanchoMirageCA.gov>
Cc: Iris Smotrich <iriss@RanchoMirageCA.gov>; Dana Hobart <danah@RanchoMirageCA.gov>; Richard W. Kite <richardk@RanchoMirageCA.gov>; Charles Townsend <Charlest@RanchoMirageCA.gov>; Ted Weill <tedw@RanchoMirageCA.gov>
Subject: Proposed preparation of an Environmental Impact Report for In & Out

Mr. Gleim: I am concerned about the timing of the Environmental Impact Study for the In & Out restaurant project. This study needs to be delayed until we emerge from the current coronavirus pandemic. It also needs to be done during the height of the tourist season so as not to skew the results. Please let me know the proposed timing of this project. Thank you.

Bob Schneider
760-898-3327

From: Carl Kisner <carl@kisner.com>
Sent: Tuesday, June 02, 2020 9:41 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: Environmental Impact Review

I object to an EIR in an attempt to change zoning for allowing fast food establishments on Hwy 111, specifically the In-N-Out proposed location of which many important and legitimate reasons have been presented during the past year.

I have been a resident of Rancho Mirage since 1965 – 55 years, and have never witnessed a City Council which has operated under such an extreme lack of transparency and respect as this present Council since the incorporation of our city.

Sincerely,
Carl Wm. Kisner
carl@kisner.com
760 346 6051

From: Cindy Muller <4cindymuller@gmail.com>
Sent: Thursday, June 04, 2020 5:19 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Cc: Isaiah Hagerman, CPA <isaiahh@RanchoMirageCA.gov>; Iris Smotrich <iriss@RanchoMirageCA.gov>; Richard W. Kite <richardk@RanchoMirageCA.gov>; Charles Townsend <Charlest@RanchoMirageCA.gov>; edw@ranchomirageca.gov; Dana Hobart <danah@RanchoMirageCA.gov>
Subject: Planning Decisions

Hello Jeremy and the Members of the Counsel

I am writing to you to express my EXTREME displeasure with the decision of the City of Rancho Mirage to continue to pursue the development of an In-N-Out Burger at the corner of Magnesia Falls Dr. and Hwy 111
WHY ARE YOU ALL PURSUING THIS DURING THE SUMMER AND IN THE MIDDLE OF A PANDEMIC???? The counsel pushed it down the road this past season, probably just to make the optics better for the election, YES?

Are you NOT LISTENING to the people in your city who will be most negatively affected by this in the selected location??

Do you know what the traffic in that area looks like on a daily basis during season??? Can't it be built somewhere else??

What happened to the idea that Rancho Mirage was not interested in Fast food restaurants along Hwy 111.?

I have been a homeowner in Magnesia Falls Cove for 20 years. This is NOT a welcomed addition to our community as was outlined to you during the winter season. Sure, many people would like to have it, but NOT at Hwy 111 and Magnesia Falls.

Do we need to show up on the Courthouse Steps??

Thank you for reconsidering this project. I am usually a very nice person, but this one has me up in arms.

Stay well,
Cindy Muller
71620 Estellita Dr.
RM. CA. 92270

--

[redacted]

From: Darlene Atteberry <darleneka@yahoo.com>
Sent: Monday, June 01, 2020 10:58 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: The City Planning Department 's Notice of Preparation Draft Environmental Impact Report for the In-N-Out Restaurant Project: May 4, 2020 - June 4, 2020

Mr. Gleim,
I'm writing to express my extreme dissatisfaction with the City's decision to resurrect the EIR to change zoning, to allow fast food restaurants on Hwy 111 in Rancho Mirage. The continued lack of respect for citizens that have expressed concern about how the zoning issue was handled in the first place, is abhorrent. I moved to Rancho Mirage over 20 years ago because my realtor talked about the "quiet" and "quality" of Rancho Mirage. Slowly, I've watched the city putting commerce over community and boasting about reserves, when quality community matters go unattended. It's time to stop pushing for this zoning change that isn't appropriate for the location. Instead, it's time to set your sights on development that would enhance the adjacent residential properties and neighborhoods.

Darlene Atteberry

You cannot do a kindness too soon, for you never know how soon will be too late.
Ralph Waldo Emerson

American essayist, poet

From: David Stokes <stokescyn@hotmail.com>
Sent: Tuesday, June 2, 2020 6:21 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Cc: Isaiah Hagerman, CPA <isaiahh@RanchoMirageCA.gov>; Iris Smotrich <iriss@RanchoMirageCA.gov>; Dana Hobart <danah@RanchoMirageCA.gov>; Richard W. Kite <richardk@RanchoMirageCA.gov>; Charles Townsend <Charlest@RanchoMirageCA.gov>; tedw@ranchomiragecal.gov <tedw@ranchomiragecal.gov>
Subject: Objection

I am writing to you to voice my objection to the resurrection of an EIR to change zoning to allow fast food on Hwy 111 in Rancho Mirage.
The continued lack of transparency by the City Council is noted and only causes one to wonder what is really going on that City Council Members need to push a project forward that is so antithetical to adjacent and close residential properties.

David & Carol Stokes

Sent from Windows Mail

From: Deena Dietrich <deenakd@yahoo.com>
Sent: Tuesday, June 2, 2020 2:13 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>; Ted Weill <tedw@RanchoMirageCA.gov>; Charles Townsend <Charlest@RanchoMirageCA.gov>; Dana Hobart <danah@RanchoMirageCA.gov>; Iris Smotrich <iriss@RanchoMirageCA.gov>; Isaiah Hagerman, CPA <isaiahh@RanchoMirageCA.gov>
Subject: Please don't allow fast food drive thru restaurants in Rancho Mirage

All members of the Rancho City Council and planning,

I'm writing to you all to express my displeasure and disappointment in your continued efforts to resurrect the plan to put a drive thru fast food restaurant right in my back yard. With more than 2000 voters obviously against this in the last election due to this plan and the fact that you don't care what your residents want makes me feel there is something going on that we need to investigate. Why did you find it necessary to change the rules of our city which clearly state we don't want drive thru restaurants in our community, let alone 500 feet from our homes? You well know the traffic, noise, pollution and trash that will make their way into our private space as a result! It will be a joke to do the environmental impact study now, during a pandemic and the summer season when there is no one on the road, let alone eating out! Poor judgment and hidden agendas seem to be the norm for this group now after so many years of autonomy , and the entitlement you so blatantly display will surely come to light soon. Its obvious you don't really care about your citizens, only what you perceive will benefit you. Either that or you all have some undisclosed interest in this project, again, something that will come to light with further investigation. That isn't transparency. And you can be sure that the people who really want transparency will be anxious to see why you have done all your planning behind closed doors, hiding the fact this is back on your agenda after so many efforts to make you see that the neighborhood and Rancho Mirage will not benefit from nor do we want this type of business here. **Please reconsider this decision before it ruins our lovely city.**

respectfully,
Deena Dietrich
RM resident since 2007

From: Douglas Goldfarb <goldfarb5255@gmail.com>
Sent: Wednesday, June 03, 2020 3:35 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: RE: Response to Jeremy Gleim's Notice of Preparation

JEREMY:

I live in Magnesia Falls since 2002 and most of my neighbors are against the In-N- Out project due to increased traffic volume to the shopping center and Hwy 111. I will be force to take alternative routes to go to Palm Springs due to the heavy congestion with the project adding to my daily commute. Please review the project with our neighborhood before the vote. I would appreciate proper notice for public hearing on this project.

Douglas/ Paula Goldfarb

From: erick.wolf@ovocontrol.com <erick.wolf@ovocontrol.com>
Sent: Thursday, May 21, 2020 9:18 AM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Cc: 'Arliss Wolf' <arlisswolf@gmail.com>
Subject: In-N-Out Burger EIR

Dear Director Gleim,

We find it more than odd that in the middle of the COVID-19 pandemic crisis and statewide lockdown, the City of Rancho Mirage publishes a proposal to resurrect the In-N-Out drive through at the corner of Highway 111 and Magnesia Falls Drive. Just in case you did not notice, the City is deserted and any kind of EIR at this time would not yield meaningful data, especially on traffic. Just like the last time, the City seems intent on keeping its plans confidential and away from the prying public.

Our home is located at 72377 Magnesia Falls Dr., in the direct path of eventual customers that will use Waze or Google to find a short cut from Park View Dr. via Joshua St. While we enjoy a hamburger as much as anyone, we cannot support a massive increase in through traffic on our residential street. I support a free market, but this decision to install a very popular burger joint at the end of our street is misguided at best. The increased traffic and pedestrians wandering around the neighborhood will be intolerable.

As a group, we are very concerned that our property values will suffer. Unfortunately, based on the public hearing comments last October, the City Council seems unwilling to consider public input.

We would appreciate that the Planning Commission put itself in our shoes with the imposition of extra traffic and the associated bad elements this new business will attract to our quiet neighborhood.

Short-term rentals are bad – this is worse. We ask that you discontinue the proposal and save the money of an EIR.

Incidentally, at least based on our observations, none of the traffic calming measures recommended by the City have been implemented for Magnesia Falls. Even the mailman drives by at irresponsible speeds. We were promised a gate at the end of the street to minimize people taking a shortcut, but no mitigation that I can see has happened thus far.

Thank you for your consideration.

Erick and Arliss Wolf
72377 Magnesia Falls Dr.
Rancho Mirage, CA 92270

From: Faye van Boxtel <fayevb@yahoo.com>
Sent: Tuesday, June 02, 2020 12:35 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: Transparency???

Mr. Gleim,

Why do I feel that the entire process of getting In-N-Out **IN** the Las Palmas shopping center is surrounded by secrecy and biases? Why was a resolution passed *undoing the resolution where you accepted In-N-Out's withdrawal of their application and the two zoning ordinances.* Although the item was on the April meeting agenda, Item 8, there was no description or mention of INO. I feel this was done surreptitiously.

Will this new EIR be done during the heat of summer and the COVID 19 upheaval with the absence of visitors to our fair city so the traffic is *guaranteed* to be at its lowest point for the year? Why do you feel it is necessary to change the regulations for compliance? Who is going to benefit from this drive thru? Are there abundant employment opportunities? It certainly is not the citizens of Rancho Mirage that will be working there... So just why is this so important to this city management? What are you going to benefit...because I certainly don't see any other Rancho Mirage residents benefitting ON ANY LEVEL.

In every council meeting I've attended I have yet to hear even 1 good reason as to why you are forcing this through. It certainly is not being done for the benefit of Rancho Mirage. We'll just be another Cathedral City full of fast food drive throughs, barren of quaintness and beauty.

Rest assured **I AM NOT IN FAVOR** of the resurrection of this project and will continue to monitor you and inform as many people as possible of the lack of transparency of this entity.

Faye van Boxtel
Rancho Mirage Resident

From: j v s l k s <jvslks@gmail.com>
Sent: Thursday, June 04, 2020 9:58 AM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>; Isaiah Hagerman, CPA <isaiahh@RanchoMirageCA.gov>; Iris Smotrich <iriss@RanchoMirageCA.gov>; Dana Hobart <danah@RanchoMirageCA.gov>; Richard W. Kite <richardk@RanchoMirageCA.gov>; Charles Townsend <Charlest@RanchoMirageCA.gov>; Ted Weill <tedw@RanchoMirageCA.gov>
Subject: NO FAST FOOD ON HWY 119

the subject line says it all.
anything to the contrary will further highlight civic corruption & malfeasance

May 11, 2020

Jeremy Gleim
AICP Development Services Director
City of Rancho Mirage
69-825 Highway 111
Rancho Mirage, CA 92270

Re: **Response to Notice of Preparation Draft Environmental Impact Report, In-N-Out Burger Restaurant Project May 4, 2020**

Dear Jeremy;

The following is in response to your Notice of Preparation dated May 4, 2020 concerning proposed the In-N-Out project to be located at the corner of Highway 111 and Magnesia Falls Drive.

The project site is 1.52 acres which is part of the 15 acre Las Palmas Shopping Center. I will remind you that the City attempted to rezone the Center to accommodate the In-N-Out project which was one of the subjects of our lawsuit. In-N-Out withdrew its application as a result of our lawsuit. The City then issued a resolution that not only accepted the withdrawal, but also rescinded the changed zoning that was done to accommodate the project. Then, on April 16th, the Council decided to declare the resolution invalid without public input. As you are no doubt aware, we are addressing this per communication between our attorney and the City Attorney.

On a more positive note, it is somewhat encouraging that the City appears to be committed to preparing an Environmental Impact Report (EIR). As we pointed out in our lawsuit, the data provided by In-N-Out was flawed and conflicting – especially with regard to the traffic study. Among other points, we argued that the data was collected in August and not representative of traffic during our high season. I trust that should you go forward with the EIR, data will be collected during the high season. It is clearly ludicrous to collect data now given the pandemic and the absence of people in the Valley. Any traffic data collected until the next high season would be more flawed that the first data set.

I will also remind you that we are aware of other interested parties for the project site. I understand that the City has no control over who submits an application. However, one of the arguments is that there are no other restaurants or businesses that are interested in the site – this simply isn't true. There are businesses that would help Las Palmas, provide revenue and not be offensive to the residents.

This isn't about In-N-Out. It's about the location – I would hope that the Council took to heart that there were over 2,000 voters that voted against the incumbents. Save Rancho Mirage has been accused of being a bunch of NIMBY's (Not In My Backyard). I think it's clear that we are far beyond a few people on Magnesia, Joshua and in the Cove that don't want a high volume fast drive through business that is open until 1:30 in the morning at that location.

Last comment – there was much talk about traffic mitigation on Magnesia Falls independent of the In-N-Out situation. The City has gone silent on this. What is the status?

Feel free to contact me.

Sincerely,

Jim Elliott
President
Save Rancho Mirage
P.O. Box 2934
Rancho Mirage, CA 92270
Personal email: jimdelliott3@gmail.com
Cell phone: (760) 220-2621

Cc:

Dana Hobart – Mayor
Iris Smotrich – Council Person
Ted Weil – Mayor Pro Tem
Charles Townsend – Council Person
Richard Kite – Council Person
Isaiah Hagerman – City Manager
Bruce Bauer - Attorney

From: JULIE HUNTER <jhunter4512@gmail.com>
Sent: Monday, June 01, 2020 3:25 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>; Isaiah Hagerman, CPA <isaiahh@RanchoMirageCA.gov>; Iris Smotrich <iriss@RanchoMirageCA.gov>; Dana Hobart <danah@RanchoMirageCA.gov>; Richard W. Kite <richardk@RanchoMirageCA.gov>; Charles Townsend <Charlest@RanchoMirageCA.gov>
Subject: EIR zone change

I am writing to you to voice my objection to the resurrection of an EIR to change zoning to allow fast food on Hwy 111 in Rancho Mirage. The continued lack of transparency by the City Council is noted and only causes one to wonder what is really going on that City Council Members need to push a project forward that is so antithetical to adjacent and close residential properties.
I do not understand why city council members would go behind the tax payers of Rancho Mirage to push this project forward in any way. Clearly someone or maybe all members will be paid or benefit some how by these actions. This is very unethical and discerning.
Please rethink this action.....
Julie Hunter

Jeremy Gleim
AICP development Services Director
City of Rancho Mirage

5-11-2020

Mr. Gleim,

I am objecting to the preparation of the Draft EIR for the In N Out Burger project for the following reasons:

1. This project is ***not consistent with the applicable zoning designation***. The City tried to do what is known as a "bootstrap" approach to improperly and unlawfully zone this parcel to allow for a fast food drive thru. Save Rancho Mirage (SRM) sued, after repeated warnings not to do this. In N Out would not represent the city because they would lose. The attempt to get it zoned for this project failed and there is no legal ground to stand on. ***It is not zoned for this project at this site.***

2. The city has unfortunately lost all credibility due to its' history of non-transparency. For example, the April 16th actions of the city council ("No. 8" on the agenda), conducted mid peak of a pandemic, made no mention whatsoever on the public agenda regarding In N Out Burgers. The city was trying to resurrect the previously declared dead project and was hoping nobody was paying attention. SRM is still in a lawsuit with the city for the first case. It is beyond comprehension that the city schedules a matter impacting this project without notifying SRM (or our attorney) and posts an agenda, with no mention of In N Out.

3. SRM still has not, to date, received requested documents regarding the current lawsuit. The city was required to respond by February 20, 2020 with requested documents. The city is claiming privileges for non- release that do not exist. Why should we think we will receive pertinent documents in the future? The city has a pattern of hiding facts, being disingenuous, and not transparent at all. The actions that the city is taking will not withstand judicial scrutiny, just as they have not in the past.

4. Conducting any sort of study, whether it pertains to air quality, greenhouse gas emissions, noise, transportation, utilities, service systems etc. during a pandemic, or even in the many months post pandemic, would not yield accurate data and only exposes yourselves to further legal scrutiny. You haven't even concluded the first lawsuit yet that you lost. It is unbelievable you are proceeding with this matter so promptly.

5. Please consider this project for a more appropriate site. They exist. Modify the Hwy 111 Corridor Plan if you need to, just like you (illegally) modified the zoning to allow for this project. Just don't put it at the second busiest intersection in the valley, and adjacent to a neighborhood. You are ruining our right to quiet enjoyment and detrimentally changing the character of Rancho Mirage forever.

Laura Clarke

From: Maggie Lockridge <desbith@aol.com>
Sent: Wednesday, June 03, 2020 3:45 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: Rancho Mirage City Council versus the People

To: Jeremy Gleim
Director of Development Services
City of Rancho Mirage

Dear Mr. Gleim,

I am a resident of Rancho Mirage and have been for 20 years. My present address is 72185 Magnesia Falls Dr. Yes, I am one that will be most affected by an In N Out going up at the end of my street, five houses away. In N Out has always selected a location near a freeway or in a commercial area. They know how detrimental they would be placed in a neighborhood...traffic, noise, trash etc. This note isn't about just myself, I ran for City Council to represent all the people of Rancho Mirage who were against this project.

What has me most confused is not In N Out's desire to upscale their locations, but why the City Council of Rancho Mirage, knowing that thousands (I received 2000 votes this past council election) of residents are against a fast food, drive thru in Rancho Mirage, are still persisting in this project in this same location.. Dozens attended the Planning Commission Meeting and expressed their major discontent at a fast food burger restaurant as a neighbor upon first learning of this project. I don't have to re-express all the negative ramifications of fast food in this area, they are self evident. My platform ran on the traffic problems that would result and the illegitimate manner in which this project was voted upon originally. 1600 potential cars a day for In N Out and 6-8,000 in a few years from Section 31, all crowded into Bob Hope and Magnesia Falls Dr..

I have to ask myself, WHY does this Council want In N Out so badly that they will go against the will of the residents that they were voted into office to represent? We all know that there is a very strong, ugly undercurrent here. My heart cries for Rancho Mirage. A City Council is elected to represent the best interest of its residents. To assure quiet enjoyment to the neighborhoods comprised of families and hard working individuals, as well as those who desired to retire to a city that offered them assurance through its laws that they would not drive through fast food in order to get home. Rancho Mirage had a law on the books that there would be no fastfood/drive-thru within its city limits. Our council chose to ignore/break that law.

I am asking this city to think of the best interest of its residents, not merely financial gain.

Thank you,
Maggie Lockridge

-----Original Message-----
From: Rod deOcera <Rod@houndofhope.com>
Sent: Wednesday, June 03, 2020 3:03 PM
To: Iris Smotrich <iriss@RanchoMirageCA.gov>; Dana Hobart <danah@RanchoMirageCA.gov>; Richard W. Kite <richardk@RanchoMirageCA.gov>; Ted Weill <tedw@RanchoMirageCA.gov>; Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: Deplorable City Council

CAUTION: This email originated from outside The City of Rancho Mirage. DO NOT CLICK links or open attachments unless you recognize the sender and know the content is safe.

What are you all doing? You have a lot of people talking and not in a good way about each and everyone of you.

At the very least, you seem to be very unprofessional, shady and have no integrity.
You said you were going to mitigate traffic issues between magnesia falls and Joshua road whether in and out was approved or not. It has been almost a year and you have done absolutely nothing. Zero. Does your word not matter at all? Why aren't you doing the jobs you are paid and rewarded considerably to do? Why are you still, surreptitiously trying to work around laws not to mention many of your residents' wishes, to put a fast food restaurant in the middle of a residential area? Something is very wretched and very ugly within our city council and I hope you stop this suspect, disturbing and damaging behavior and start being honest and forthright for once. This is getting really bad.....

I expect a response. You are being paid to do a job and not communicating is no longer acceptable. We all pay for your salary, benefits and perks and deserve a response to emails!

Sent from my iPhone

From: Scott Taschner <taschner.scott@gmail.com>
Sent: Thursday, June 04, 2020 3:52 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: Comments on the NOP - Proposed In-n-Out

Mr. Gleim,

I would like to submit the following comments as part of the Notice of Preparation for the proposed In-n-Out drive-thru restaurant. I would also like to be put on the project's notification lists for future workshops, meetings and notices. Please note that I will be providing additional comments further along in the EIR process. As part of my comments at this juncture, I would like to note that the developer's traffic study (if conducted in the next few months) will not provide accurate samples of the traffic that exists under normal circumstances. With the devastating economic shutdown and the fact that we are now past high season in the Coachella Valley, I believe the traffic study should be postponed until at least November 2020, and more realistically, March 2021 when the major events come back to the valley. The only way to tell the long term impacts the additional traffic the project will have on the surrounding community is to wait until accurate numbers can be collected (and that shows a better representation of the conditions that will exist in the coming years and what the cumulative impacts will be with the addition of this project to the shopping center). Please make sure they include our housing tract(s) in the Magnesia Falls, Joshua and White Sun neighborhoods in the traffic analysis. There are only two ways to access our properties currently, and I fear one will be exasperated with this development.

Kind professional regards,
Scott Taschner

--
Scott Taschner
Founder & Principal
CityPermitHelp.com
Cell: 760-409-2342

-----Original Message-----
From: Sharon Meyer <sharmeyer77@gmail.com>
Sent: Thursday, May 07, 2020 8:00 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: In & Out Burger

CAUTION: This email originated from outside The City of Rancho Mirage. DO NOT CLICK links or open attachments unless you recognize the sender and know the content is safe.

I hope you won't allow a drive through In & Out Burger at the location that has been discussed previously. It would create a traffic nuisance for that entire shopping center and Hwy 111 in that area as well.
Overweight lazy people sitting in line pumping gas fumes into our air is just disgusting and doesn't fit our healthy lifestyles. The CV Link is something we should be allowing.
Thank You

Sharon Meyer
70170 Chappel Rd
Rancho Mirage
760-666-7391

Sent from my iPhone

From: B Anderson <BAndersonranchomirage@hotmail.com>
Sent: Friday, June 05, 2020 2:45 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: (EIR) Draft - for proposed In-N-Out Burger Restaurant Project (Rancho Las Palmas Shopping center)

City of Rancho Mirage
Planning Department
69-825 Hwy 111
Rancho Mirage, CA. 92270
(760) 328-2266 (Message only)
Attn: Mr. Jeremy Gleim, Development Services Director

Re: letter (email) to be submitted for review from an Interested party (Rancho Mirage Resident) for the proposed draft Environmental Impact Report (EIR) being constructed for the In-N-Out Burger Restaurant company.

Dear Mr. Gleim,

Please consider the many facts that have brought this proposed (EIR) process to this point of being sponsored and commenced by the City of Rancho Mirage and not Inaugurated by the proposed leaseholder and or the original property developer of the Rancho Las Palmas Shopping Center (42-650 Bob Hope Drive). Plus, the Illegal Implementation of the City's Resolution No. 2020-01, and the proposed site location adjacent to Residential properties (No other fast-food establishment are positioned in such close relationship to Homes in the City).

Due to the City's declaration of a State of Emergency (Resolution No. 2020-05) any action to study current metrics (as in: traffic/air quality) would be grossly Inaccurate and would potentially be cause for Investigation(s) of how and when City Involved perceived studies are conducted.
Careful consideration should be given to the proposed Building and landscapes, plus of course the trade mark signature outside colors and signage of the well-known chain of In-N-Out Restaurants (aesthetics) that would potentially conflict with surrounding long established City of Rancho Mirage exemplary Image.

Sincerely,

Brad Anderson | 37043 Ferber Dr,. Rancho Mirage, CA. 92270
(760) 409-9434 (Cell)

APPENDIX B

Air Quality Emissions Model Output

APPENDIX B.1

Summer

INO - Rancho Mirage

Salton Sea Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	30.63	1000sqft	0.70	30,630.00	0
High Turnover (Sit Down Restaurant)	4.00	1000sqft	0.09	3,995.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	20
Climate Zone	15			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Plans include 30,630 sq. ft. of parking lot

Construction Phase - Construction expected to start April 2021 and completed by October 2021

Off-road Equipment -

Off-road Equipment - No cranes

Off-road Equipment -

Off-road Equipment -

On-road Fugitive Dust - Paved surfaces

Demolition - Existing curb/gutter/asphalt removal in addition to vegetation and rubbish

Vehicle Trips - Based on 3,045 daily weekday trips from the trip generation forecast. Default ration adjusted accordingly. However, the Project would result in 2,284 daily trips when taking into account pass by reductions

Road Dust - Paved Road

Construction Off-road Equipment Mitigation - SCAQMD recommends at the minimum to use off-road diesel-powered construction equipment that meets or exceeds the CARB and USEPA Tier 3 emission standards.

Fugitive Dust Mitigation Measures - SCAQMD CEQA Handbook Tables 11-4

Area Mitigation -

Water Mitigation -

Off-road Equipment -

Grading - 3,900 cy of cut, 3,700 cy of fill = 200 cy of soil to be exported

Off-road Equipment -

Sequestration - Approximately 31 new trees to be planted

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstructionPhase	NumDays	5.00	11.00
tblConstructionPhase	NumDays	2.00	6.00
tblGrading	MaterialExported	0.00	200.00
tblLandUse	LandUseSquareFeet	4,000.00	3,995.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblRoadDust	RoadPercentPave	50	100
tblSequestration	NumberOfNewTrees	0.00	31.00
tblVehicleTrips	ST_TR	158.37	949.30
tblVehicleTrips	SU_TR	131.84	790.30
tblVehicleTrips	WD_TR	127.15	762.20

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	14.8923	13.8214	9.8171	0.0366	7.4933	0.4486	7.9209	1.2101	0.4237	1.6181	0.0000	3,728.0574	3,728.0574	0.3342	0.0000	3,736.4113
Maximum	**14.8923**	**13.8214**	**9.8171**	**0.0366**	**7.4933**	**0.4486**	**7.9209**	**1.2101**	**0.4237**	**1.6181**	**0.0000**	**3,728.0574**	**3,728.0574**	**0.3342**	**0.0000**	**3,736.4113**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	14.2635	13.1262	9.6241	0.0366	3.3006	0.4278	3.7284	0.5752	0.4204	0.9956	0.0000	3,728.0574	3,728.0574	0.3342	0.0000	3,736.4113
Maximum	**14.2635**	**13.1262**	**9.6241**	**0.0366**	**3.3006**	**0.4278**	**3.7284**	**0.5752**	**0.4204**	**0.9956**	**0.0000**	**3,728.0574**	**3,728.0574**	**0.3342**	**0.0000**	**3,736.4113**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**4.22**	**5.03**	**1.97**	**0.00**	**55.95**	**4.63**	**52.93**	**52.47**	**0.78**	**38.47**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Area	0.1154	3.0000e-005	3.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.5800e-003	7.5800e-003	2.0000e-005		8.0800e-003
Energy	0.0323	0.2934	0.2465	1.7600e-003		0.0223	0.0223		0.0223	0.0223		352.1008	352.1008	6.7500e-003	6.4600e-003	354.1932
Mobile	8.0510	57.9907	47.2729	0.1675	6.5402	0.0890	6.6292	1.7551	0.0836	1.8387		17,249.6779	17,249.6779	1.7317		17,292.9711
Total	**8.1986**	**58.2842**	**47.5229**	**0.1692**	**6.5402**	**0.1113**	**6.6515**	**1.7551**	**0.1059**	**1.8610**		**17,601.7863**	**17,601.7863**	**1.7385**	**6.4600e-003**	**17,647.1724**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1090	3.0000e-005	3.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.5800e-003	7.5800e-003	2.0000e-005		8.0800e-003
Energy	0.0323	0.2934	0.2465	1.7600e-003		0.0223	0.0223		0.0223	0.0223		352.1008	352.1008	6.7500e-003	6.4600e-003	354.1932
Mobile	8.0510	57.9907	47.2729	0.1675	6.5402	0.0890	6.6292	1.7551	0.0836	1.8387		17,249.6779	17,249.6779	1.7317		17,292.9711
Total	**8.1922**	**58.2842**	**47.5229**	**0.1692**	**6.5402**	**0.1113**	**6.6515**	**1.7551**	**0.1059**	**1.8610**		**17,601.7863**	**17,601.7863**	**1.7385**	**6.4600e-003**	**17,647.1724**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.08**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/8/2021	4/21/2021	5	10	Removal of existing curb and gutter, and asphalt
2	Building Construction	Building Construction	4/30/2021	9/16/2021	5	100	
3	Paving	Paving	9/17/2021	10/1/2021	5	11	

4	Architectural Coating	Architectural Coating	9/26/2021	10/1/2021	5	5	
5	Grading	Grading	4/22/2021	4/29/2021	5	6	Export of 200 cy of soil

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.7

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,993; Non-Residential Outdoor: 1,998; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	306.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	15.00	6.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

Architectural Coating	1	3.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	25.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.8733	0.0000	6.8733	1.0408	0.0000	1.0408			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**6.8733**	**0.4073**	**7.2806**	**1.0408**	**0.3886**	**1.4294**		**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1541	6.5345	0.8543	0.0238	0.5364	0.0197	0.5561	0.1471	0.0189	0.1660		2,497.4450	2,497.4450	0.1168		2,500.3639
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.0562	0.0338	0.4332	8.4000e-004	0.0837	5.2000e-004	0.0842	0.0222	4.7000e-004	0.0227		83.1787	83.1787	3.5600e-003		83.2676
Total	**0.2103**	**6.5683**	**1.2874**	**0.0246**	**0.6200**	**0.0202**	**0.6403**	**0.1693**	**0.0193**	**0.1887**		**2,580.6236**	**2,580.6236**	**0.1203**		**2,583.6316**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6806	0.0000	2.6806	0.4059	0.0000	0.4059			0.0000			0.0000
Off-Road	0.4958	6.5579	7.7794	0.0120		0.4076	0.4076		0.4010	0.4010	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.4958**	**6.5579**	**7.7794**	**0.0120**	**2.6806**	**0.4076**	**3.0882**	**0.4059**	**0.4010**	**0.8070**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1541	6.5345	0.8543	0.0238	0.5364	0.0197	0.5561	0.1471	0.0189	0.1660		2,497.4450	2,497.4450	0.1168		2,500.3639
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0562	0.0338	0.4332	8.4000e-004	0.0837	5.2000e-004	0.0842	0.0222	4.7000e-004	0.0227		83.1787	83.1787	3.5600e-003		83.2676
Total	**0.2103**	**6.5683**	**1.2874**	**0.0246**	**0.6200**	**0.0202**	**0.6403**	**0.1693**	**0.0193**	**0.1887**		**2,580.6236**	**2,580.6236**	**0.1203**		**2,583.6316**

3.3 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5685	5.5603	6.2723	8.5100e-003		0.3491	0.3491		0.3212	0.3212		823.8464	823.8464	0.2665		830.5076
Total	**0.5685**	**5.5603**	**6.2723**	**8.5100e-003**		**0.3491**	**0.3491**		**0.3212**	**0.3212**		**823.8464**	**823.8464**	**0.2665**		**830.5076**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0165	0.5344	0.1193	1.4000e-003	0.0301	9.5000e-004	0.0311	8.6800e-003	9.1000e-004	9.5900e-003		146.6700	146.6700	0.0112		146.9504
Worker	0.0843	0.0507	0.6498	1.2600e-003	0.1255	7.7000e-004	0.1263	0.0333	7.1000e-004	0.0340		124.7680	124.7680	5.3400e-003		124.9015
Total	**0.1008**	**0.5852**	**0.7691**	**2.6600e-003**	**0.1556**	**1.7200e-003**	**0.1574**	**0.0420**	**1.6200e-003**	**0.0436**		**271.4379**	**271.4379**	**0.0166**		**271.8518**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	0.2730	4.8527	6.3790	8.5100e-003		0.3278	0.3278		0.3226	0.3226	0.0000	823.8464	823.8464	0.2665		830.5076
Total	**0.2730**	**4.8527**	**6.3790**	**8.5100e-003**		**0.3278**	**0.3278**		**0.3226**	**0.3226**	**0.0000**	**823.8464**	**823.8464**	**0.2665**		**830.5076**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0165	0.5344	0.1193	1.4000e-003	0.0301	9.5000e-004	0.0311	8.6800e-003	9.1000e-004	9.5900e-003		146.6700	146.6700	0.0112		146.9504
Worker	0.0843	0.0507	0.6498	1.2600e-003	0.1255	7.7000e-004	0.1263	0.0333	7.1000e-004	0.0340		124.7680	124.7680	5.3400e-003		124.9015
Total	**0.1008**	**0.5852**	**0.7691**	**2.6600e-003**	**0.1556**	**1.7200e-003**	**0.1574**	**0.0420**	**1.6200e-003**	**0.0436**		**271.4379**	**271.4379**	**0.0166**		**271.8518**

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.1667					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8881**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1012	0.0609	0.7797	1.5100e-003	0.1506	9.3000e-004	0.1515	0.0400	8.5000e-004	0.0408		149.7216	149.7216	6.4100e-003		149.8818
Total	**0.1012**	**0.0609**	**0.7797**	**1.5100e-003**	**0.1506**	**9.3000e-004**	**0.1515**	**0.0400**	**8.5000e-004**	**0.0408**		**149.7216**	**149.7216**	**6.4100e-003**		**149.8818**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2521	4.7989	6.8820	0.0113		0.2883	0.2883		0.2860	0.2860	0.0000	1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.1667					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4189**	**4.7989**	**6.8820**	**0.0113**		**0.2883**	**0.2883**		**0.2860**	**0.2860**	**0.0000**	**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1012	0.0609	0.7797	1.5100e-003	0.1506	9.3000e-004	0.1515	0.0400	8.5000e-004	0.0408		149.7216	149.7216	6.4100e-003		149.8818
Total	**0.1012**	**0.0609**	**0.7797**	**1.5100e-003**	**0.1506**	**9.3000e-004**	**0.1515**	**0.0400**	**8.5000e-004**	**0.0408**		**149.7216**	**149.7216**	**6.4100e-003**		**149.8818**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.6672					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**13.8861**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0169	0.0101	0.1300	2.5000e-004	0.0251	1.5000e-004	0.0253	6.6600e-003	1.4000e-004	6.8000e-003		24.9536	24.9536	1.0700e-003		24.9803

Total	**0.0169**	**0.0101**	**0.1300**	**2.5000e-004**	**0.0251**	**1.5000e-004**	**0.0253**	**6.6600e-003**	**1.4000e-004**	**6.8000e-003**		**24.9536**	**24.9536**	**1.0700e-003**		**24.9803**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.6672					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**13.7267**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0169	0.0101	0.1300	2.5000e-004	0.0251	1.5000e-004	0.0253	6.6600e-003	1.4000e-004	6.8000e-003		24.9536	24.9536	1.0700e-003		24.9803
Total	**0.0169**	**0.0101**	**0.1300**	**2.5000e-004**	**0.0251**	**1.5000e-004**	**0.0253**	**6.6600e-003**	**1.4000e-004**	**6.8000e-003**		**24.9536**	**24.9536**	**1.0700e-003**		**24.9803**

3.6 Grading - 2021

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					0.7594	0.0000	0.7594	0.4148	0.0000	0.4148			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.7594**	**0.4073**	**1.1667**	**0.4148**	**0.3886**	**0.8034**		**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0210	0.8898	0.1163	3.2300e-003	0.0730	2.6800e-003	0.0757	0.0200	2.5700e-003	0.0226		340.0660	340.0660	0.0159		340.4635
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0562	0.0338	0.4332	8.4000e-004	0.0837	5.2000e-004	0.0842	0.0222	4.7000e-004	0.0227		83.1787	83.1787	3.5600e-003		83.2676
Total	**0.0772**	**0.9236**	**0.5495**	**4.0700e-003**	**0.1567**	**3.2000e-003**	**0.1599**	**0.0422**	**3.0400e-003**	**0.0453**		**423.2447**	**423.2447**	**0.0195**		**423.7311**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					

Fugitive Dust					0.2962	0.0000	0.2962	0.1618	0.0000	0.1618			0.0000			0.0000
Off-Road	0.4958	6.5579	7.7794	0.0120		0.4076	0.4076		0.4010	0.4010	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.4958**	**6.5579**	**7.7794**	**0.0120**	**0.2962**	**0.4076**	**0.7038**	**0.1618**	**0.4010**	**0.5628**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0210	0.8898	0.1163	3.2300e-003	0.0730	2.6800e-003	0.0757	0.0200	2.5700e-003	0.0226		340.0660	340.0660	0.0159		340.4635
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0562	0.0338	0.4332	8.4000e-004	0.0837	5.2000e-004	0.0842	0.0222	4.7000e-004	0.0227		83.1787	83.1787	3.5600e-003		83.2676
Total	**0.0772**	**0.9236**	**0.5495**	**4.0700e-003**	**0.1567**	**3.2000e-003**	**0.1599**	**0.0422**	**3.0400e-003**	**0.0453**		**423.2447**	**423.2447**	**0.0195**		**423.7311**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.0510	57.9907	47.2729	0.1675	6.5402	0.0890	6.6292	1.7551	0.0836	1.8387		17,249.6779	17,249.6779	1.7317		17,292.9711

Unmitigated	8.0510	57.9907	47.2729	0.1675	6.5402	0.0890	6.6292	1.7551	0.0836	1.8387		17,249.6779	17,249.6779	1.7317		17,292.9711

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High Turnover (Sit Down Restaurant)	3,048.80	3,797.20	3161.20	2,538,881	2,538,881
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	3,048.80	3,797.20	3,161.20	2,538,881	2,538,881

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High Turnover (Sit Down Restaurant)	12.50	4.20	5.40	8.50	72.50	19.00	37	20	43
Other Asphalt Surfaces	12.50	4.20	5.40	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High Turnover (Sit Down Restaurant)	0.490441	0.036099	0.183975	0.121725	0.015214	0.005252	0.022424	0.112230	0.002972	0.001873	0.006187	0.000783	0.000825
Other Asphalt Surfaces	0.490441	0.036099	0.183975	0.121725	0.015214	0.005252	0.022424	0.112230	0.002972	0.001873	0.006187	0.000783	0.000825

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
NaturalGas Mitigated	0.0323	0.2934	0.2465	1.7600e-003		0.0223	0.0223		0.0223	0.0223		352.1008	352.1008	6.7500e-003	6.4600e-003	354.1932
NaturalGas Unmitigated	0.0323	0.2934	0.2465	1.7600e-003		0.0223	0.0223		0.0223	0.0223		352.1008	352.1008	6.7500e-003	6.4600e-003	354.1932

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High Turnover (Sit Down Restaurant)	2992.86	0.0323	0.2934	0.2465	1.7600e-003		0.0223	0.0223		0.0223	0.0223		352.1008	352.1008	6.7500e-003	6.4600e-003	354.1932
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0323**	**0.2934**	**0.2465**	**1.7600e-003**		**0.0223**	**0.0223**		**0.0223**	**0.0223**		**352.1008**	**352.1008**	**6.7500e-003**	**6.4600e-003**	**354.1932**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High Turnover (Sit Down Restaurant)	2.99286	0.0323	0.2934	0.2465	1.7600e-003		0.0223	0.0223		0.0223	0.0223		352.1008	352.1008	6.7500e-003	6.4600e-003	354.1932
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0323**	**0.2934**	**0.2465**	**1.7600e-003**		**0.0223**	**0.0223**		**0.0223**	**0.0223**		**352.1008**	**352.1008**	**6.7500e-003**	**6.4600e-003**	**354.1932**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1090	3.0000e-005	3.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.5800e-003	7.5800e-003	2.0000e-005		8.0800e-003
Unmitigated	0.1154	3.0000e-005	3.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.5800e-003	7.5800e-003	2.0000e-005		8.0800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0187					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0963					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Landscaping	3.3000e-004	3.0000e-005	3.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.5800e-003	7.5800e-003	2.0000e-005		8.0800e-003
Total	**0.1154**	**3.0000e-005**	**3.5400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.5800e-003**	**7.5800e-003**	**2.0000e-005**		**8.0800e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0187					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0900					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3000e-004	3.0000e-005	3.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.5800e-003	7.5800e-003	2.0000e-005		8.0800e-003
Total	**0.1090**	**3.0000e-005**	**3.5400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.5800e-003**	**7.5800e-003**	**2.0000e-005**		**8.0800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B.2

Winter

INO - Rancho Mirage

Salton Sea Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	30.63	1000sqft	0.70	30,630.00	0
High Turnover (Sit Down Restaurant)	4.00	1000sqft	0.09	3,995.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	20
Climate Zone	15			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Plans include 30,630 sq. ft. of parking lot

Construction Phase - Construction expected to start April 2021 and completed by October 2021

Off-road Equipment -

Off-road Equipment - No cranes

Off-road Equipment -

Off-road Equipment -

On-road Fugitive Dust - Paved surfaces

Demolition - Existing curb/gutter/asphalt removal in addition to vegetation and rubbish

Vehicle Trips - Based on 3,045 daily weekday trips from the trip generation forecast. Default ration adjusted accordingly. However, the Project would result in 2,284 daily trips when taking into account pass by reductions

Road Dust - Paved Road

Construction Off-road Equipment Mitigation - SCAQMD recommends at the minimum to use off-road diesel-powered construction equipment that meets or exceeds the CARB and USEPA Tier 3 emission standards.

Fugitive Dust Mitigation Measures - SCAQMD CEQA Handbook Tables 11-4

Area Mitigation -

Water Mitigation -

Off-road Equipment -

Grading - 3,900 cy of cut, 3,700 cy of fill = 200 cy of soil to be exported

Off-road Equipment -

Sequestration - Approximately 31 new trees to be planted

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstructionPhase	NumDays	5.00	11.00
tblConstructionPhase	NumDays	2.00	6.00
tblGrading	MaterialExported	0.00	200.00
tblLandUse	LandUseSquareFeet	4,000.00	3,995.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblRoadDust	RoadPercentPave	50	100
tblSequestration	NumberOfNewTrees	0.00	31.00
tblVehicleTrips	ST_TR	158.37	949.30
tblVehicleTrips	SU_TR	131.84	790.30
tblVehicleTrips	WD_TR	127.15	762.20

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	14.8719	13.9306	9.5567	0.0357	7.4933	0.4486	7.9213	1.2101	0.4237	1.6184	0.0000	3,640.7367	3,640.7367	0.3473	0.0000	3,649.4190
Maximum	**14.8719**	**13.9306**	**9.5567**	**0.0357**	**7.4933**	**0.4486**	**7.9213**	**1.2101**	**0.4237**	**1.6184**	**0.0000**	**3,640.7367**	**3,640.7367**	**0.3473**	**0.0000**	**3,649.4190**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	14.2431	13.2354	9.3637	0.0357	3.3006	0.4282	3.7288	0.5752	0.4208	0.9960	0.0000	3,640.7367	3,640.7367	0.3473	0.0000	3,649.4190
Maximum	**14.2431**	**13.2354**	**9.3637**	**0.0357**	**3.3006**	**0.4282**	**3.7288**	**0.5752**	**0.4208**	**0.9960**	**0.0000**	**3,640.7367**	**3,640.7367**	**0.3473**	**0.0000**	**3,649.4190**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**4.23**	**4.99**	**2.02**	**0.00**	**55.95**	**4.54**	**52.93**	**52.47**	**0.69**	**38.46**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Area	0.1154	3.0000e-005	3.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.5800e-003	7.5800e-003	2.0000e-005		8.0800e-003
Energy	0.0323	0.2934	0.2465	1.7600e-003		0.0223	0.0223		0.0223	0.0223		352.1008	352.1008	6.7500e-003	6.4600e-003	354.1932
Mobile	5.6758	56.4706	44.5673	0.1491	6.5402	0.0943	6.6345	1.7551	0.0887	1.8438		15,364.6343	15,364.6343	1.8933		15,411.9656
Total	**5.8235**	**56.7641**	**44.8173**	**0.1508**	**6.5402**	**0.1166**	**6.6568**	**1.7551**	**0.1110**	**1.8661**		**15,716.7427**	**15,716.7427**	**1.9000**	**6.4600e-003**	**15,766.1668**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1090	3.0000e-005	3.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.5800e-003	7.5800e-003	2.0000e-005		8.0800e-003
Energy	0.0323	0.2934	0.2465	1.7600e-003		0.0223	0.0223		0.0223	0.0223		352.1008	352.1008	6.7500e-003	6.4600e-003	354.1932
Mobile	5.6758	56.4706	44.5673	0.1491	6.5402	0.0943	6.6345	1.7551	0.0887	1.8438		15,364.6343	15,364.6343	1.8933		15,411.9656
Total	**5.8171**	**56.7641**	**44.8173**	**0.1508**	**6.5402**	**0.1166**	**6.6568**	**1.7551**	**0.1110**	**1.8661**		**15,716.7427**	**15,716.7427**	**1.9000**	**6.4600e-003**	**15,766.1668**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/8/2021	4/21/2021	5	10	Removal of existing curb and gutter, and asphalt
2	Building Construction	Building Construction	4/30/2021	9/16/2021	5	100	
3	Paving	Paving	9/17/2021	10/1/2021	5	11	

4	Architectural Coating	Architectural Coating	9/26/2021	10/1/2021	5	5	
5	Grading	Grading	4/22/2021	4/29/2021	5	6	Export of 200 cy of soil

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.7

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,993; Non-Residential Outdoor: 1,998; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	306.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	15.00	6.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

Architectural Coating	1	3.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	25.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.8733	0.0000	6.8733	1.0408	0.0000	1.0408			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**6.8733**	**0.4073**	**7.2806**	**1.0408**	**0.3886**	**1.4294**		**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1635	6.6427	1.0271	0.0231	0.5364	0.0201	0.5565	0.1471	0.0192	0.1664		2,423.4121	2,423.4121	0.1306		2,426.6779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Worker	0.0465	0.0348	0.3092	7.0000e-004	0.0837	5.2000e-004	0.0842	0.0222	4.7000e-004	0.0227		69.8909	69.8909	2.8200e-003		69.9613
Total	**0.2100**	**6.6776**	**1.3362**	**0.0238**	**0.6200**	**0.0206**	**0.6407**	**0.1693**	**0.0197**	**0.1890**		**2,493.3029**	**2,493.3029**	**0.1335**		**2,496.6392**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6806	0.0000	2.6806	0.4059	0.0000	0.4059			0.0000			0.0000
Off-Road	0.4958	6.5579	7.7794	0.0120		0.4076	0.4076		0.4010	0.4010	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.4958**	**6.5579**	**7.7794**	**0.0120**	**2.6806**	**0.4076**	**3.0882**	**0.4059**	**0.4010**	**0.8070**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1635	6.6427	1.0271	0.0231	0.5364	0.0201	0.5565	0.1471	0.0192	0.1664		2,423.4121	2,423.4121	0.1306		2,426.6779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0465	0.0348	0.3092	7.0000e-004	0.0837	5.2000e-004	0.0842	0.0222	4.7000e-004	0.0227		69.8909	69.8909	2.8200e-003		69.9613
Total	**0.2100**	**6.6776**	**1.3362**	**0.0238**	**0.6200**	**0.0206**	**0.6407**	**0.1693**	**0.0197**	**0.1890**		**2,493.3029**	**2,493.3029**	**0.1335**		**2,496.6392**

3.3 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5685	5.5603	6.2723	8.5100e-003		0.3491	0.3491		0.3212	0.3212		823.8464	823.8464	0.2665		830.5076
Total	**0.5685**	**5.5603**	**6.2723**	**8.5100e-003**		**0.3491**	**0.3491**		**0.3212**	**0.3212**		**823.8464**	**823.8464**	**0.2665**		**830.5076**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0174	0.5300	0.1430	1.3300e-003	0.0301	9.9000e-004	0.0311	8.6800e-003	9.5000e-004	9.6300e-003		139.2823	139.2823	0.0126		139.5979
Worker	0.0697	0.0522	0.4638	1.0500e-003	0.1255	7.7000e-004	0.1263	0.0333	7.1000e-004	0.0340		104.8363	104.8363	4.2300e-003		104.9420
Total	**0.0871**	**0.5823**	**0.6068**	**2.3800e-003**	**0.1556**	**1.7600e-003**	**0.1574**	**0.0420**	**1.6600e-003**	**0.0436**		**244.1187**	**244.1187**	**0.0169**		**244.5399**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Off-Road	0.2730	4.8527	6.3790	8.5100e-003		0.3278	0.3278		0.3226	0.3226	0.0000	823.8464	823.8464	0.2665		830.5076
Total	**0.2730**	**4.8527**	**6.3790**	**8.5100e-003**		**0.3278**	**0.3278**		**0.3226**	**0.3226**	**0.0000**	**823.8464**	**823.8464**	**0.2665**		**830.5076**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0174	0.5300	0.1430	1.3300e-003	0.0301	9.9000e-004	0.0311	8.6800e-003	9.5000e-004	9.6300e-003		139.2823	139.2823	0.0126		139.5979
Worker	0.0697	0.0522	0.4638	1.0500e-003	0.1255	7.7000e-004	0.1263	0.0333	7.1000e-004	0.0340		104.8363	104.8363	4.2300e-003		104.9420
Total	**0.0871**	**0.5823**	**0.6068**	**2.3800e-003**	**0.1556**	**1.7600e-003**	**0.1574**	**0.0420**	**1.6600e-003**	**0.0436**		**244.1187**	**244.1187**	**0.0169**		**244.5399**

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.1667					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8881**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0837	0.0627	0.5565	1.2600e-003	0.1506	9.3000e-004	0.1515	0.0400	8.5000e-004	0.0408		125.8036	125.8036	5.0700e-003		125.9304
Total	**0.0837**	**0.0627**	**0.5565**	**1.2600e-003**	**0.1506**	**9.3000e-004**	**0.1515**	**0.0400**	**8.5000e-004**	**0.0408**		**125.8036**	**125.8036**	**5.0700e-003**		**125.9304**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2521	4.7989	6.8820	0.0113		0.2883	0.2883		0.2860	0.2860	0.0000	1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.1667					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4189**	**4.7989**	**6.8820**	**0.0113**		**0.2883**	**0.2883**		**0.2860**	**0.2860**	**0.0000**	**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0837	0.0627	0.5565	1.2600e-003	0.1506	9.3000e-004	0.1515	0.0400	8.5000e-004	0.0408		125.8036	125.8036	5.0700e-003		125.9304
Total	**0.0837**	**0.0627**	**0.5565**	**1.2600e-003**	**0.1506**	**9.3000e-004**	**0.1515**	**0.0400**	**8.5000e-004**	**0.0408**		**125.8036**	**125.8036**	**5.0700e-003**		**125.9304**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.6672					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**13.8861**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0140	0.0105	0.0928	2.1000e-004	0.0251	1.5000e-004	0.0253	6.6600e-003	1.4000e-004	6.8000e-003		20.9673	20.9673	8.5000e-004		20.9884

Total	**0.0140**	**0.0105**	**0.0928**	**2.1000e-004**	**0.0251**	**1.5000e-004**	**0.0253**	**6.6600e-003**	**1.4000e-004**	**6.8000e-003**		**20.9673**	**20.9673**	**8.5000e-004**		**20.9884**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.6672					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**13.7267**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0140	0.0105	0.0928	2.1000e-004	0.0251	1.5000e-004	0.0253	6.6600e-003	1.4000e-004	6.8000e-003		20.9673	20.9673	8.5000e-004		20.9884
Total	**0.0140**	**0.0105**	**0.0928**	**2.1000e-004**	**0.0251**	**1.5000e-004**	**0.0253**	**6.6600e-003**	**1.4000e-004**	**6.8000e-003**		**20.9673**	**20.9673**	**8.5000e-004**		**20.9884**

3.6 Grading - 2021

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					0.7594	0.0000	0.7594	0.4148	0.0000	0.4148			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.7594**	**0.4073**	**1.1667**	**0.4148**	**0.3886**	**0.8034**		**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0223	0.9045	0.1399	3.1400e-003	0.0730	2.7400e-003	0.0758	0.0200	2.6200e-003	0.0227		329.9853	329.9853	0.0178		330.4300
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0465	0.0348	0.3092	7.0000e-004	0.0837	5.2000e-004	0.0842	0.0222	4.7000e-004	0.0227		69.8909	69.8909	2.8200e-003		69.9613
Total	**0.0688**	**0.9393**	**0.4490**	**3.8400e-003**	**0.1567**	**3.2600e-003**	**0.1600**	**0.0422**	**3.0900e-003**	**0.0453**		**399.8762**	**399.8762**	**0.0206**		**400.3913**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					

Fugitive Dust					0.2962	0.0000	0.2962	0.1618	0.0000	0.1618			0.0000			0.0000
Off-Road	0.4958	6.5579	7.7794	0.0120		0.4076	0.4076		0.4010	0.4010	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.4958**	**6.5579**	**7.7794**	**0.0120**	**0.2962**	**0.4076**	**0.7038**	**0.1618**	**0.4010**	**0.5628**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0223	0.9045	0.1399	3.1400e-003	0.0730	2.7400e-003	0.0758	0.0200	2.6200e-003	0.0227		329.9853	329.9853	0.0178		330.4300
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0465	0.0348	0.3092	7.0000e-004	0.0837	5.2000e-004	0.0842	0.0222	4.7000e-004	0.0227		69.8909	69.8909	2.8200e-003		69.9613
Total	**0.0688**	**0.9393**	**0.4490**	**3.8400e-003**	**0.1567**	**3.2600e-003**	**0.1600**	**0.0422**	**3.0900e-003**	**0.0453**		**399.8762**	**399.8762**	**0.0206**		**400.3913**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.6758	56.4706	44.5673	0.1491	6.5402	0.0943	6.6345	1.7551	0.0887	1.8438		15,364.6343	15,364.6343	1.8933		15,411.9656

Unmitigated	5.6758	56.4706	44.5673	0.1491	6.5402	0.0943	6.6345	1.7551	0.0887	1.8438		15,364.6343	15,364.6343	1.8933		15,411.9656

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High Turnover (Sit Down Restaurant)	3,048.80	3,797.20	3161.20	2,538,881	2,538,881
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	3,048.80	3,797.20	3,161.20	2,538,881	2,538,881

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High Turnover (Sit Down Restaurant)	12.50	4.20	5.40	8.50	72.50	19.00	37	20	43
Other Asphalt Surfaces	12.50	4.20	5.40	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High Turnover (Sit Down Restaurant)	0.490441	0.036099	0.183975	0.121725	0.015214	0.005252	0.022424	0.112230	0.002972	0.001873	0.006187	0.000783	0.000825
Other Asphalt Surfaces	0.490441	0.036099	0.183975	0.121725	0.015214	0.005252	0.022424	0.112230	0.002972	0.001873	0.006187	0.000783	0.000825

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
NaturalGas Mitigated	0.0323	0.2934	0.2465	1.7600e-003		0.0223	0.0223		0.0223	0.0223		352.1008	352.1008	6.7500e-003	6.4600e-003	354.1932
NaturalGas Unmitigated	0.0323	0.2934	0.2465	1.7600e-003		0.0223	0.0223		0.0223	0.0223		352.1008	352.1008	6.7500e-003	6.4600e-003	354.1932

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High Turnover (Sit Down Restaurant)	2992.86	0.0323	0.2934	0.2465	1.7600e-003		0.0223	0.0223		0.0223	0.0223		352.1008	352.1008	6.7500e-003	6.4600e-003	354.1932
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0323**	**0.2934**	**0.2465**	**1.7600e-003**		**0.0223**	**0.0223**		**0.0223**	**0.0223**		**352.1008**	**352.1008**	**6.7500e-003**	**6.4600e-003**	**354.1932**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High Turnover (Sit Down Restaurant)	2.99286	0.0323	0.2934	0.2465	1.7600e-003		0.0223	0.0223		0.0223	0.0223		352.1008	352.1008	6.7500e-003	6.4600e-003	354.1932
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0323**	**0.2934**	**0.2465**	**1.7600e-003**		**0.0223**	**0.0223**		**0.0223**	**0.0223**		**352.1008**	**352.1008**	**6.7500e-003**	**6.4600e-003**	**354.1932**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1090	3.0000e-005	3.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.5800e-003	7.5800e-003	2.0000e-005		8.0800e-003
Unmitigated	0.1154	3.0000e-005	3.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.5800e-003	7.5800e-003	2.0000e-005		8.0800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0187					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0963					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Landscaping	3.3000e-004	3.0000e-005	3.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.5800e-003	7.5800e-003	2.0000e-005		8.0800e-003
Total	**0.1154**	**3.0000e-005**	**3.5400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.5800e-003**	**7.5800e-003**	**2.0000e-005**		**8.0800e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0187					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0900					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3000e-004	3.0000e-005	3.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.5800e-003	7.5800e-003	2.0000e-005		8.0800e-003
Total	**0.1090**	**3.0000e-005**	**3.5400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.5800e-003**	**7.5800e-003**	**2.0000e-005**		**8.0800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B.3

Carbon Monoxide (CO) Hotspot

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: INO - Rancho Mirage
RUN: STANDARD RUN (WORST CASE ANGLE)
POLLUTANT: CO

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 4 (D) VS= 0.0 CM/S
MIXH= 300. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 7.2 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
	LINK COORDINATES (FT)								
A. A	0	0	0	200	PK	373	6.3	0.0	45.9
B. B	0	200	180	200	PK	373	6.3	0.0	45.9
C. C	0	0	200	0	PK	373	6.3	0.0	45.9

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. Magnesia	335	-100	5.9
2. Cil Enci	775	200	5.9
3. Magnesia	-335	-100	5.9
4. On-site	110	30	5.9

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C
1. Magnesia	294.	0.3	0.1	0.0	0.2
2. Cil Enci	270.	0.1	0.0	0.1	0.0
3. Magnesia	55.	0.2	0.1	0.1	0.0
4. On-site	257.	0.4	0.1	0.0	0.3

APPENDIX C

Geotechnical Engineering Investigation

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED IN-N-OUT BURGER RESTAURANT
42560 BOB HOPE DRIVE
RANCHO MIRAGE, CALIFORNIA

PROJECT NO. 112-19003
FEBRUARY 11, 2019

PREPARED FOR:

IN-N-OUT BURGER, A CALIFORNIA CORPORATION
13502 HAMBURGER LANE
BALDWIN PARK, CA 91706

ATTENTION: MR. JIM LOCKINGTON

PREPARED BY:

KRAZAN & ASSOCIATES, INC.
1100 OLYMPIC DRIVE, SUITE 103
CORONA, CALIFORNIA 92881
(951) 273-1011

Offices Serving the Western United States

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED IN-N-OUT BURGER RESTAURANT
42560 BOB HOPE DRIVE
RANCHO MIRAGE, CALIFORNIA

TABLE OF CONTENTS

INTRODUCTION 1

PURPOSE AND SCOPE OF SERVICES 1

PROPOSED CONSTRUCTION 2

SITE LOCATION AND SITE DESCRIPTION 2

GEOLOGIC SETTING 3

SEISMICITY AND LIQUEFACTION POTENTIAL 3

FAULT RUPTURE HAZARD ZONES 4

OTHER HAZARDS 4

- SITE COEFFICIENT 5
- FIELD AND LABORATORY INVESTIGATIONS 5

SOIL PROFILE AND SUBSURFACE CONDITIONS 6

GROUNDWATER 6

- SOIL CORROSIVITY 7

CONCLUSIONS AND RECOMMENDATIONS 7

- ADMINISTRATIVE SUMMARY 7
- GROUNDWATER INFLUENCE ON STRUCTURES/CONSTRUCTION 8
- SEISMIC CONSIDERATIONS 9
  - Ground Shaking 9
  - Soil Liquefaction 9
  - Seismic Induced Settlement 9
- EARTHWORK 9
  - Site Preparation – Clearing and Stripping 9
  - Overexcavation and Recompaction 10
  - Fill Placement 10
- ENGINEERED FILL 10
- FOUNDATION 11
  - Settlement 11
  - Lateral Load Resistance 12
- FLOOR SLABS AND EXTERIOR FLATWORK 12
- RETAINING WALLS 13
- TEMPORARY EXCAVATION STABILITY 13
- UTILITY TRENCH LOCATION, CONSTRUCTION AND BACKFILL 14
- COMPACTED MATERIAL ACCEPTANCE 14
- SURFACE DRAINAGE AND LANDSCAPING 15

PAVEMENT DESIGN 15
Portland Cement Concrete (Rigid) Pavement 16
INFILTRATION TESTING 17
SOIL CORROSIVITY 18

ADDITIONAL SERVICES 18

LIMITATIONS 19

FIGURES

FIGURE 1	**VICINITY MAP**
FIGURE 2	**SITE PLAN**
FIGURE 3	**COUNTY OF RIVERSIDE GIS MAP: LIQUEFACTION**
FIGURE 4	**GEOLOGIC MAP**
APPENDIX A	**BORING LOG LEGEND**
	BORING LOGS
	LABORATORY TEST RESULTS
APPENDIX B	**GENERAL EARTHWORK SPECIFICATIONS**
APPENDIX C	**GENERAL PAVEMENT SPECIFICATIONS**

February 11, 2019 KA Project No. 112-19003

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED IN-N-OUT BURGER RESTAURANT
42560 BOB HOPE DRIVE
RANCHO MIRAGE, CALIFORNIA

INTRODUCTION

This report presents the results of our Geotechnical Engineering Investigation for the proposed development that will include construction of an approximately 3,995 square foot In-N-Out Burger Restaurant. It is anticipated that the proposed construction will include a drive-thru area, trash enclosure, associated parking and drive areas, and localized landscaped areas. Discussions regarding site conditions are presented herein, together with conclusions and recommendations pertaining to site preparation, grading, utility trench backfill, drainage and landscaping, foundations, concrete floor slabs and exterior concrete flatwork, retaining walls, soil corrosivity, and pavement design.

A Vicinity Map showing the location of the site is presented on Figure 1. A Site Plan showing the approximate boring locations is presented on Figure 2. Descriptions of the field and laboratory investigations, boring log legend and boring logs are presented in Appendix A. Appendix A contains a description of the laboratory-testing phase of this study, along with the laboratory test results. Appendices B and C contain guide specifications for earthwork and flexible pavements, respectively. If conflicts in the text of the report occur with the general specifications in the appendices, the recommendations in the text of the report have precedence.

PURPOSE AND SCOPE OF SERVICES

This geotechnical investigation was conducted to evaluate subsurface soil and groundwater conditions at the project site. Engineering analysis of the field and laboratory data was performed for the purpose of developing and providing geotechnical recommendations for use in the design and construction of the earthwork, foundation and pavement aspects of the project.

Our scope of services was outlined in our proposal dated January 02, 2019 (KA Proposal No. G17003CAC) and included the following:

- A site reconnaissance by a member of our engineering staff to evaluate the surface conditions at the project site.

- Review of selected published geologic maps, reports and literature pertinent to the site and surrounding area.
- A field investigation consisting of drilling six (6) borings to depths ranging from approximately ten (10) to twenty (20) feet below the existing ground surface for evaluation of the subsurface conditions at the project site.
- Performance of two (2) infiltration tests at the subject site in order to determine an estimated infiltration rate for the near surface soil.
- Performance of laboratory tests on representative soil samples obtained from the borings to evaluate the physical and index properties of the subsurface soils.
- Evaluation of the data obtained from the investigation and engineering analyses of the data with respect to the geotechnical aspects of structural design, site grading and paving.
- Preparation of this report summarizing the findings, results, conclusions and recommendations of our investigation.

Environmental services, such as a chemical analysis of soil and groundwater for possible environmental contaminates, were not in our scope of services.

PROPOSED CONSTRUCTION

Based on a review of the preliminary site plan and our discussions with the project representative, we understand that the proposed development will include construction of an approximately 3,995 square foot In-N-Out Burger Restaurant. The proposed restaurant will be of wood frame/stucco construction with a slab-on-grade floor. It is anticipated that the proposed structure will be supported on a shallow foundation system. The proposed development will include a drive-thru area, trash enclosure, associated parking, and localized landscaped areas.

In the event these structural or grading details are inconsistent with the final design criteria, we should be notified so that we can evaluate the potential impacts of the changes on the recommendations presented in this report and provide an updated report as necessary.

SITE LOCATION AND SITE DESCRIPTION

The site is a roughly rectangular shaped outparcel associated with the existing shopping center located at the northeast corner of Highway 111 and Magnesia Falls Drive, in the city of Rancho Mirage, California. Presently, the site is unoccupied and free from any above grade structure. Groundcover throughout the majority of the subject site consists of exposed soil, asphalt and concrete pavements are located at the northern and eastern portion of the site. The site is bound to the south by Magnesia Falls Drive and retail stores beyond, to the east and north by the existing shopping center associated with the subject site, and to the west by Highway 111 and Provident Bank beyond. The site is relatively flat and level, with no major changes in elevation.

GEOLOGIC SETTING

The subject site is situated at the base of the San Jacinto Mountains at the northwestern end of the Coachella Valley of Southern California. Near-surface materials consist of alluvial fan deposits of sand, silt, gravel, and cobbles derived from erosion of the Mesozoic granitic and metamorphic rocks of the adjacent San Jacinto Mountains.

Numerous moderate to large earthquakes have affected the area of the subject site within historic time. Based on the proximity of several dominant active faults and seismogenic structures, as well as the historic seismic record, the area of the subject site is considered subject to relatively high seismicity.

The seismic hazard most likely to impact the site is ground shaking due to a large earthquake on one of the major active regional faults. The San Andreas Fault Zone is located within the vicinity of the site. Because of the proximity to the subject site and the maximum probable events for these faults, it appears that a maximum probable event along these fault zones could produce a peak horizontal acceleration of approximately 0.551g when uncertainty is used. With respect to this hazard, the site is comparable to others in this general area within similar geologic settings.

The San Andreas, Burnt Mountain, and Eureka Peak Fault Zones are approximately 7.5, 13.7, and 15.9 from the subject site, respectively.

SEISMICITY AND LIQUEFACTION POTENTIAL

Seismicity is a general term relating to the abrupt release of accumulated strain energy in the rock materials of the earth's crust in a given geographical area. The recurrence of accumulation and subsequent release of strain have resulted in faults and fault systems. Fault patterns and density reflect relative degrees of regional stress through time, but do not necessarily indicate recent seismic activity; therefore, the degree of seismic risk must be determined or estimated by the seismic record in any given region. The San Andreas Fault zone is the nearest active fault zone to the site and is located approximately 7.5 miles from the site.

Soil liquefaction is a state of soil particle suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs under saturated conditions in soils such as sand in which the strength is purely frictional. However, liquefaction has occurred in soils other than clean sand. Liquefaction usually occurs under vibratory conditions such as those induced by seismic events. To evaluate the liquefaction potential of the site, the following items were evaluated:

1) Soil type
2) Groundwater depth
3) Relative density
4) Initial confining pressure
5) Intensity and duration of ground shaking

A Seismic Hazard Zone Map has not been prepared by the State of California for this area. The subsurface soil conditions encountered at the site consist of relatively dense soil. Furthermore, the Riverside County GIS Map for Liquefaction identifies the subject site in an area of low Liquefaction

Hazard Zone risk. Based on our findings, it is our opinion that the potential for seismic-induced soil liquefaction within the project site is low. In addition, groundwater in the vicinity of the site is anticipated to exist at a depth in excess of fifty (50) feet below site grades. Based on the conditions encountered, liquefaction at the subject site is not considered to be a significant concern. As such, mitigation measures relative to liquefaction are not considered warranted.

FAULT RUPTURE HAZARD ZONES

The Alquist-Priolo Geologic Hazards Zones Act went into affect in March, 1973. Since that time, the Act has been amended 11 times (Hart, 2007). The purpose of the Act, as provided in California Geologic Survey (CGS) Special Publication 42 (SP 42), is to prohibit the location of most structures for human occupancy across the traces of active faults and to mitigate thereby the hazard of fault-rupture". The Act was renamed the Alquist-Priolo Earthquake Fault Zoning Act in 1994, and at that time, the originally designated "Special Studies Zones" was renamed the "Earthquake Fault Zones."

The area of the subject site is not included on an Earthquake Fault Zones Map prepared by the CGS. The site is not within a Fault-Rupture Hazard Zone. The nearest zoned fault is a portion of the San Andreas fault zone located approximately 7.5 miles from the subject site.

SEISMIC HAZARDS ZONES

In 1990, the California State Legislature passed the Seismic Hazard Mapping Act to protect public safety from the effects of strong shaking, liquefaction, landslides, or other ground failure, and other hazards caused by earthquakes. The Act requires that the State Geologist delineate various seismic hazards zones on Seismic Hazards Zones Maps. Specifically, the maps identify areas where soil liquefaction and earthquake-induced landslides are most likely to occur. A site-specific geotechnical evaluation is required prior to permitting most urban developments within the mapped zones. The Act also requires sellers of real property within the zones to disclose this fact to potential buyers. A Seismic Hazard Zones Map has not been prepared for the subject site. Furthermore, the Riverside County GIS Map for Liquefaction identifies the subject site in an area of low Liquefaction Hazard Zone risk. Based on our findings, it is our opinion that the potential for seismic-induced soil liquefaction within the project site is low.

OTHER HAZARDS

Rockfall, Landslide, Slope Instability, Debris Flow: The subject site is relatively flat and level. It is our understanding that there are no significant slopes proposed as part of the proposed development. Provided the recommendations presented in this report are implemented into the design and construction of the anticipated development, rockfalls, landslides, slope instability, and debris flows are not anticipated to pose a hazard to the subject site.

Seiches: Seiches are large waves generated within enclosed bodies of water. The site is not located in close proximity to any lakes or reservoirs. As such, seiches are not anticipated to pose a hazard to the subject site.

Tsunamis: Tsunamis are tidal waves generated by fault displacement or major ground movement. The site is located several miles from the ocean. As such, tsunamis are not anticipated to pose a hazard to the subject site.

Hydroconsolidation: The near surface soils encountered at the subject site were found to be medium dense to very dense. Provided remedial grading recommendations presented in this report are incorporated in the design and construction, hydroconsolidation is not anticipated to be a significant concern for the subject site.

SITE COEFFICIENT

The site class, per Table 1613.5.2, 2016 CBC, is based upon the site soil conditions. It is our opinion that a Site Class D is appropriate for building design at this site. For seismic design of the structures, in accordance with the seismic provisions of the 2016 CBC, we recommend the following parameters:

2016 CALIFORNIA BUILDING CODE		
Seismic Item	**Value**	**CBC Reference**
Site Class	D	Table 1613.5.2
Fa	1.000	Table 1613.5.3 (1)
Ss	1.500	Figure 1613.5 (3)
SMS	1.500	Section 1613.5.3
SDS	1.000	Section 1613.5.4
Fv	1.500	Table 1613.5.3 (2)
S1	0.631	Figure 1613.5 (4)
SM1	0.947	Section 1613.5.3
SD1	0.631	Section 1613.5.4
Peak Horizontal Acceleration	0.551 g	SDS/2.5

The seismic hazard most likely to impact the site is ground shaking due to a large earthquake on one of the major active regional faults. The San Andreas Fault Zone is located approximately 7.5 miles from the subject site. Because of the proximity to the subject site and the maximum probable events for these faults, it appears that a maximum probable event along these fault zones could produce a peak horizontal acceleration of approximately 0.551g when uncertainty is used. With respect to this hazard, the site is comparable to others in this general area within similar geologic settings.

FIELD AND LABORATORY INVESTIGATIONS

Subsurface soil conditions were explored by drilling six (6) borings using a truck-mounted drill rig to depths ranging from approximately ten (10) to twenty (20) feet below existing site grade. Bulk subgrade soil samples were also obtained for laboratory testing. The approximate boring and bulk sample locations are shown on the Site Plan, Figure 2. These approximate boring and sample locations were estimated in the field based on pacing and measuring from the limits of existing site features. During drilling operations, penetration tests were performed at regular intervals to evaluate the soil consistency and to obtain information regarding the engineering properties of the subsurface soils. Soil samples were retained for laboratory testing. The soils encountered were continuously examined and visually classified in accordance with the Unified Soil Classification System. A more detailed description of the field investigation is presented in Appendix A.

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory-testing program was formulated with emphasis on the evaluation of natural in-situ moisture and density, gradation, R-Value, maximum dry density, resistivity, pH value, sulfate and chloride contents of the materials encountered. Details of the laboratory-testing program are discussed in Appendix A. The results of the laboratory tests are presented on the boring logs or on the test reports, which are also included in Appendix A. This information, along with the field observations, was used to prepare the final boring logs in Appendix A.

SOIL PROFILE AND SUBSURFACE CONDITIONS

Based on our findings, the subsurface conditions encountered appear typical of those found in the geologic region of the site. Ground surface at Borings B-4 and B-3 consisted of approximately 4 inches of asphalt pavement overlain by 3 inches of discernable base material for the existing asphalt pavements. In general, the subsurface soils generally consisted of medium dense to very dense, silty sand up to a depth of approximately 9 feet below site grades. Below the silty sand, medium dense to very dense poorly-graded sand alluvium with varying amounts of gravel content were encountered from a depth of approximately 8 feet below site grades to the maximum depth explored, twenty feet below site grade. No significant fill material was encountered in the borings. However, undocumented fill materials may be present at the site between our boring locations. Verification of any fill material should be determined during site grading.

Field and laboratory tests suggest that the soils encountered are moderately strong and slightly compressible. Penetration resistance, measured by the number of blows required to drive a Modified California sampler or a Standard Penetration Test (SPT) sampler, ranged from 15 blows per foot to over 50 blows per six inches. Dry densities ranged from approximately 115 to 133 pcf. Representative soil samples had angles of internal friction of 31 and 33 degrees. Representative soil samples consolidated approximately 0.7 to 1.4 percent under a 2-ksf load when saturated.

The above is a general description of soil conditions encountered at the site in the borings drilled for this investigation. For a more detailed description of the soil conditions encountered, please refer to the boring logs in Appendix A.

GROUNDWATER

Test boring locations were checked for the presence of groundwater during and immediately following the drilling operations. Groundwater was not encountered in any of the borings drilled as part of this investigation. Historic groundwater depths for the vicinity indicate groundwater depths in excess of fifty feet below ground surface.

It should be recognized that water table elevation might fluctuate with time. The depth to groundwater can be expected to fluctuate both seasonally and from year to year. Fluctuations in the groundwater level may occur due to variations in precipitation, irrigation practices at the site and in the surrounding areas, climatic conditions, flow in adjacent or nearby canals, pumping from wells and possibly as the result of other factors that were not evident at the time of our investigation. Therefore, water level observations at the time of our field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report. Long-term monitoring in observation wells, sealed from the influence of surface water, is often required to more accurately define the potential range of groundwater conditions on a site.

SOIL CORROSIVITY

Corrosion tests were performed to evaluate the soil corrosivity to the buried structures. The tests consisted of minimum resistivity, sulfate content and chloride content, and the results of the tests are included as follows:

Parameter	Results	Test Method
Resistivity	8,800 ohm-cm	CA 643
Sulfate	144 ppm	CA 417
Chlorides	47 ppm	CA 422
pH Value	7.5	EPA 9045C

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of our field and laboratory investigations, along with previous geotechnical experience in the project area, the following is a summary of our evaluations, conclusions, and recommendations.

ADMINISTRATIVE SUMMARY

In brief, the subject site and soil conditions appear to be conducive to the development of the project. Based on the data collected during this investigation and from a geotechnical engineering standpoint, it is our opinion that the proposed improvements may be made as anticipated provided that the recommendations presented in this report are considered in the design and construction of the project.

To reduce post-construction soil movement and provide uniform support for the proposed building, overexcavation and recompaction within the proposed building footprint area should be performed to a minimum depth of three (3) feet below existing grades or one (1) foot below the bottom of the proposed footings, whichever is deeper. The actual depth of the overexcavation and recompaction should be determined by our field representative during construction. The overexcavation and recompaction should also extend laterally five (5) feet beyond edges of the proposed footings or building limits. Any undocumented fill encountered during grading should be removed and replaced with Engineered Fill.

Within the proposed exterior flatwork and pavement areas, the overexcavation and recompaction should be performed to a depth of at least one (1) foot below existing grade or finish subgrade, whichever is deeper.

Fill material should be compacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. All fill material should be moisture-conditioned to within two percent of the optimum moisture-content.

Sandy soil conditions were encountered at the site. These cohesionless soils have a tendency to cave in trench wall excavations. Shoring or sloping back trench sidewalls may be required within these sandy soils.

The limit of grading and the proposed building footprint should be established in the field prior to construction. Additional remedial grading will be required if the building edges exceed the grading limit. The grading envelope should be at least 5 feet beyond the outer edges of the building footprint.

The proposed structures, including walls and other foundation elements may be supported on a shallow foundation system bearing on a minimum of one (1) foot of newly placed Engineered Fill. Spread and continuous footings can be designed for a maximum allowable soil bearing pressure, dead plus live load, of 2,600 psf.

Infiltration testing performed on the near surface sandy soil indicates infiltration rates of approximately 1.52 and 1.95 inches per hour. Detailed results of the percolation test and infiltration rate are attached in tabular format. The soil percolation rates are based on tests conducted with clean water. The infiltration rates may vary with time as a result of soil clogging from water impurities. A factor of safety should be incorporated into the design of the percolation system to compensate for these factors as determined appropriate by the designer.

A soil sample was obtained from the site and tested in accordance with State of California Materials Manual Test Designation 417. The sulfate concentration detected from the soil sample indicated a negligible sulfate exposure value as established by HUD/FHA and CBC. Therefore, no specific recommendations for concrete mixes are warranted relative to sulfate concentrations in the soil.

GROUNDWATER INFLUENCE ON STRUCTURES/CONSTRUCTION

Based on our findings and historical records, it is not anticipated that groundwater will rise within the zone of structural influence or affect the construction of foundations and pavements for the project. However, if earthwork is performed during or soon after periods of precipitation, the subgrade soils may become saturated, “pump,” or not respond to densification techniques. Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material; or mixing the soil with an approved lime or cement product. Our firm should be consulted prior to implementing remedial measures to observe the unstable subgrade conditions and provide appropriate recommendations.

SEISMIC CONSIDERATIONS

Ground Shaking

Although ground rupture is not considered to be a major concern at the subject site, the site will likely be subject to at least one moderate to severe earthquake and associated seismic shaking during its lifetime, as well as periodic slight to moderate earthquakes. Some degree of structural damage due to stronger seismic shaking should be expected at the site, but the risk can be reduced through adherence to seismic design codes.

Soil Liquefaction

The conditions encountered at the boring locations consist of relatively dense material. In addition, groundwater is not anticipated within fifty (50) feet below existing site grades. Based on our findings, it is our opinion that the potential for seismic-induced soil liquefaction within the project site is low due to relatively dense native deposits and absence of shallow groundwater. Therefore, measures to mitigate liquefaction potential are not considered necessary.

Seismic Induced Settlement

One of the most common phenomena during seismic shaking accompanying any earthquake is the induced settlement of loose unconsolidated soils. Based on site subsurface conditions and the moderate to high seismicity of the region, any loose fill materials at the site could be vulnerable to this potential hazard. However, this hazard can be mitigated by following the design and construction recommendations of our Geotechnical Engineering Investigation (over-excavation and rework of the loose soils and/or fill). Based on the moderate penetration resistance measured, the native deposits underlying the surface materials do not appear to be subject to significant seismic settlement.

EARTHWORK

Site Preparation – Clearing and Stripping

General site clearing should include removal of vegetation and existing utilities, structures (footings and slabs); existing pavements; trees and associated root systems; rubble; rubbish; and any loose and/or saturated materials. Site stripping should extend to a minimum depth of 2 to 4 inches, or until all organics in excess of 3 percent by volume are removed. Deeper stripping may be required in localized areas. These materials will not be suitable for reuse as Engineered Fill. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas.

Any excavations that result from clearing operations should be backfilled with Engineered Fill. Krazan & Associates' field staff should be present during site clearing operations to enable us to locate areas where depressions or disturbed soils are present and to allow our staff to observe and test the backfill as it is placed. If site clearing and backfilling operations occur without appropriate observation and testing by a qualified geotechnical consultant, there may be the need to over-excavate the building area to identify uncontrolled fills prior to mass grading of the building pad.

As with site clearing operations, any buried structures encountered during construction should be properly removed and backfilled. The resulting excavations should be backfilled with Engineered Fill.

Overexcavation and Recompaction

To reduce post-construction soil movement, provide uniform support for the proposed building, and addressed anticipated disturbed material resulting from demolition activities, overexcavation and recompaction within the proposed building footprint area should be performed to a minimum depth of three (3) feet below existing grades or one (1) foot below the bottom of the proposed footings, whichever is deeper. The actual depth of the overexcavation and recompaction should be determined by our field representative during construction. The overexcavation and recompaction should also extend laterally five (5) feet beyond edges of the proposed footings or building limits. Any undocumented fill encountered during grading should be removed and replaced with Engineered Fill.

Within the proposed exterior flatwork and pavement areas, the overexcavation and recompaction should be performed to a depth of at least one (1) foot below existing grade or finish subgrade, whichever is deeper. This compaction effort should stabilize the surface soils and locate any unsuitable or pliant areas not found during our field investigation.

Fill Placement

Prior to placement of fill soils, the upper 12 inches of native subgrade soils should be scarified, moisture-conditioned to near optimum moisture-content, and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. Fill material should be compacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557.

The upper soils, during wet winter months, may become very moist due to the absorptive characteristics of the soil. Earthwork operations performed during winter months may encounter very moist unstable soils, which may require removal to grade a stable building foundation. Project site winterization consisting of placement of aggregate base and protecting exposed soils during the construction phase should be performed.

ENGINEERED FILL

The organic-free, on-site, native soils are predominately sand and silty sand. These soils will be suitable for reuse as Engineered Fill, provided they are cleansed of excessive organics and debris.

The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the contractor, since they have complete control of the project site at that time.

Imported Fill material should be predominately non-expansive granular material. This material should be approved by the Geotechnical Engineer prior to use and should typically possess the following characteristics:

NON-EXPANSIVE FILL PROPERTIES

Percent Passing No. 200 Sieve	10 to 50
Plasticity Index (PI)	12 maximum
Liquid Limit	35 maximum
UBC Standard 29-2 Expansion Index	20 maximum

Imported Fill should be free from rocks and clods greater than 4 inches in diameter. All Imported Fill material should be submitted to the Soils Engineer for approval at least 48 hours prior to delivery to the site. Fill soils should be placed in lifts approximately 6 inches thick, moisture-conditioned to near optimum moisture-content, and compacted to achieve at least 95 percent of maximum dry density as determined by ASTM Test Method D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

FOUNDATION

The proposed structures, including walls and other foundation elements may be supported on a shallow foundation system bearing on a minimum of one (1) foot of newly placed Engineered Fill. Spread and continuous footings can be designed for the following maximum allowable soil bearing pressures:

Load	Allowable Loading
Dead Load Only	2,000 psf
Dead-Plus-Live Load	2,600 psf
Total Load, including wind or seismic loads	3,500 psf

The footings should have a minimum depth of 18 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is deeper. Minimum footing widths should be 15 inches for continuous footings and 24 inches for isolated footings. The footing excavations should not be allowed to dry out any time prior to placement of concrete.

It is recommended that the foundation for the proposed structure be placed entirely within compacted fill materials or entirely within alluvium or bedrock. Footings shall not transition from one bearing material to another. It is recommended that all foundations contain steel reinforcement of at least two (2) number four (#4) bars, one (1) top and one (1) bottom.

It is recommended that all foundations be set back a minimum of five (5) feet from the top of all adjacent slopes or deepened to maintain at least five (5) feet between the bottom of the footing and the slope face. Additionally, all footing set back criteria, should conform to 2016 CBC Section 1805.3.2 and Figure 1805.3.1. It is recommended that all footings be cleared of all loose soil and construction debris prior to pouring concrete.

Settlement

Provided the site is prepared as recommended and that the foundations are designed and constructed in accordance with our recommendations, the total settlement due to foundation loads is not expected to exceed 1 inch. The differential settlement is anticipated to be less than ½ inch in 20 feet. Most of the settlement is expected to occur during construction as the loads are applied. However, additional post-construction settlement may occur if the foundation soils are flooded or saturated.

Lateral Load Resistance

Resistance to lateral footing displacement can be computed using an allowable friction factor of 0.30 acting between the base of foundations and the supporting subgrade. Where a vapor barrier material is used below concrete slabs-on-grade, a coefficient of friction should be provided by the vapor barrier manufacturer. Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 250 pounds per cubic foot acting against the appropriate vertical footing faces. Where equivalent fluid pressure against the sides of the footings or embedded slab edge are to be used, the footing or slab edge must be cast directly against undisturbed soils or the soils surrounding the structure must be recompacted to the requirements for Engineered Fill presented above. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. A one-third increase in the value above may be used for short duration, wind, or seismic loads.

FLOOR SLABS AND EXTERIOR FLATWORK

The interior slabs-on-grade should be designed at least five inches (5") in thickness. It is recommended that the slabs be reinforced with number three (#3) bars, eighteen inches (18") on center in both directions.

Exterior slabs-on-grade should be designed at least five inches (5") in thickness. It is recommended that the slabs be reinforced with number three (#3) bars, eighteen inches (18") on center in both directions. The exterior floors should be poured separately in order to act independently of the walls and foundation system. All fills required to bring the building pads to grade should be Engineered Fills.

It is recommended that the slabs should be underlain by six inches (6") of compacted Class 2 Aggregate Base with a minimum 15 mil polyolefin membrane vapor barrier (i.e. Stego Wrap or equivalent) placed with two inches (2") of clean sand on top of the vapor barrier. As an alternative, well graded non expansive compacted fill may be used directly below the slab on grade.

Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor can travel through the vapor membrane and penetrate the slab-on-grade. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To minimize moisture vapor intrusion, it is recommended that a vapor barrier be installed in accordance with ASTM guidelines. It is recommended that the utility trenches within the structure be compacted, as specified in our report, to minimize the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the building is recommended. Positive drainage should be established away from the structure and should be maintained throughout the life of the structure. Ponding of water should not be allowed adjacent to the structure. Over-irrigation within landscaped areas adjacent to the structure should not be performed. In addition, ventilation of the structure (i.e. ventilation fans) is recommended to reduce the accumulation of interior moisture.

RETAINING WALLS

For retaining walls with level ground surface behind the walls, we recommend that retaining walls capable of deflecting a minimum of 0.1 percent of its height at the top be designed using an equivalent fluid active pressure of 42 pounds per square foot per foot of depth. Walls that are incapable of this deflection or walls that are fully constrained against deflection may be designed for an equivalent fluid at-rest pressure of 63 pounds per square foot per foot of depth. This is anticipated to apply to the loading dock walls. A passive lateral pressure of 250 pounds per square foot may be used to calculate sliding resistance. If walls are to be constructed above descending slopes, our office should be contacted to discuss further reduction in allowable passive pressures for resistance of lateral forces, and for overall retaining wall foundation design.

The surcharge effect from loads adjacent to the walls should be included in the wall design. The surcharge load for walls capable of deflecting (cantilever walls), we recommend applying a uniform surcharge pressure equal to one-third of the applied load over the full height of the wall. Where walls are restrained the surcharge load should be based on one-half of the applied load above the wall, also distributed over the full height of the wall. For other surcharges, such as from adjacent foundations, point loads or line loads, Krazan & Associates should be consulted.

Expansive soils should not be used for backfill against walls. The zone of non-expansive backfill material should extend from the bottom of each retaining wall laterally back a distance equal to the height of the wall, to a maximum of five (5) feet.

The active and at-rest earth pressures do not include hydrostatic pressures. To reduce the build-up of hydrostatic pressures, drainage should be provided behind the retaining walls. Wall drain should consist of a minimum 12-inch wide zone of drainage material, such as ¾-inch by ½-inch drain rock wrapped in a non-woven polypropylene geotextile filter fabric such as Mirafi 140N or equivalent. Alternatively, drainage may be provided by the placement of a commercially produced composite drainage blanket, such as Miradrain, extending continuously up from the base of the wall. The drainage material should extend from the base of the wall to finished subgrade in paved areas and to within about 12 inches below the top of the wall in landscape areas. In landscape areas the top 12 inches should be backfilled with compacted native soil. A 4-inch minimum diameter, perforated, Schedule 40 PVC drain pipe should be placed with holes facing down in the lower portion of the wall drainage material, surrounded with drain rock wrapped in filter fabric. A solid drainpipe leading to a suitable discharge point should provide drainage outlet. As an alternative, weep holes may be used to provide drainage. If weep holes are used, the weep holes should be 3 inches in diameter and spaced about 8 feet on centers. The backside of the weep holes should be covered with a corrosion-resistant mesh to prevent loss of backfill and/or drainage material.

TEMPORARY EXCAVATION STABILITY

All excavations should comply with the current requirements of Occupational Safety and Health Administration (OSHA). All cuts greater than 5 feet in depth should be sloped or shored. Temporary excavations should be sloped at 1:1 (horizontal to vertical) or flatter, up to a maximum depth of 10 feet, and at 2:1 (horizontal to vertical) for cuts greater than 10 feet. Heavy construction equipment, building materials, excavated soil, and vehicular traffic should not be allowed within five feet of the top (edge) of the excavation. Where sloped excavations are not feasible due to site constraints, the excavations may require shoring. The design of the shoring system is normally the responsibility of the contractor or shoring designer, and therefore, is outside the scope of this report. The design of the temporary shoring should take into account lateral pressures exerted by the adjacent soil, and, where anticipated, surcharge loads due to adjacent buildings and any construction equipment or traffic expected to operate alongside the excavation.

The excavation/shoring recommendations provided herein are based on soil characteristics derived from our test borings within the area. Variations in soil conditions will likely be encountered during the excavations. Krazan & Associates, Inc. should be afforded the opportunity to provide field review to evaluate the actual conditions and account for field condition variations, not otherwise anticipated in the preparation of this recommendation.

UTILITY TRENCH LOCATION, CONSTRUCTION AND BACKFILL

To maintain the desired support for existing or new foundations, new utility trenches should be located such that the base of the trench excavation is located above an imaginary plane having an inclination of 1.0 horizontal to 1.0 vertical, extending downward from the bottom edge of the adjacent footing.

Utility trenches should be excavated according to accepted engineering practices following OSHA standards by a contractor experienced in such work. The responsibility for the safety of open trenches should be borne by the contractor. Traffic and vibration adjacent to trench walls should be kept to a minimum; cyclic wetting and drying of excavation side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced, especially during or shortly following periods of precipitation. For purposes of this section of the report, backfill is defined as material placed in a trench starting one foot above the pipe; bedding and shading (also referred to as initial backfill) is all material placed in a trench below the backfill. With the exception of specific requirements of the local utility companies or building department, pipe bedding and shading should consist of clean medium-grained sand. The sand should be placed in a damp state and should be compacted by mechanical means prior to the placement of backfill soils. Above the pipe zone, underground utility trenches may be backfilled with either free-draining sand, on-site soil or imported soil. The trench backfill should be compacted to at least 95 percent relative compaction.

COMPACTED MATERIAL ACCEPTANCE

Compaction specifications are not the only criteria for acceptance of the site grading or other such activities. However, the compaction test is the most universally recognized test method for assessing the performance of the Grading Contractor. The numerical test results from the compaction test cannot be solely used to predict the engineering performance of the compacted material. Therefore, the acceptance of compacted materials will also be dependent upon the moisture-content and the stability of that material. The Geotechnical Engineer has the option of rejecting any compacted material regardless of the degree of compaction if that material is considered to be too dry or excessively wet, unstable or if future instability is suspected. A specific example of rejection of fill material passing the required percent compaction is a fill which has been compacted with in-situ moisture-content significantly less than optimum moisture. Where expansive soils are present, heaving of the soils may occur with the introduction of water. Where the material is a lean clay or silt, this type of dry fill (brittle fill) is susceptible to future settlement if it becomes saturated or flooded.

SURFACE DRAINAGE AND LANDSCAPING

The ground surface should slope away from building and pavement areas toward appropriate drop inlets or other surface drainage devices. We recommended that adjacent paved exterior grades be sloped a minimum of 2 percent for a minimum distance of 5 feet away from structures. Ideally, asphalt concrete pavement areas should be sloped at a minimum of 2 percent, with Portland cement concrete sloped at a minimum of one percent toward drainage structures. These grades should be maintained for the life of the project. Roof drains should be designed to avoid discharging into landscape areas adjacent to the building. Downspouts should be directed to discharge directly onto paved surfaces to allow for surface drainage into the storm systems or should be connected directly to the on-site storm drain.

PAVEMENT DESIGN

Based on the established standard practice of designing flexible pavements in accordance with State of California Department of Transportation (Caltrans) for projects within California, we have developed pavement sections in accordance with the procedure presented in Caltrans Standard Test Method 301. This pavement design procedure is based on the volume of traffic (Traffic Index) and the soil resistance “R” value (R-Value).

Asphalt Concrete (Flexible) Pavements

One (1) near-surface soil sample was obtained from the soil borings at the project site for laboratory R-Value testing. The sample was tested in accordance with California Test 301. Results of the test are as follows:

R-VALUE TEST RESULTS			
Sample Number	**Sample Depth (ft)**	**Description**	**R-Value at Equilibrium**
RV #1	0-3’	Sand	40

The Civil Engineer should consult with the client to confirm the truck count prior to assigning the Traffic Index and selecting the pavement sections for incorporation into the project plans.

Based on our understanding of the project specifications, a Traffic Index of 5.5 has been used for design of pavements for automobile parking lots and drive lanes.

Based on a review of the boring logs and the R-Value data presented above, the near surface soil of the site consists of poorly graded sand with an R-Value of 40. If site grading exposes soil other than that assumed, we should perform additional tests to confirm or revise the recommended pavement sections for actual field conditions. Various alternative pavement sections based on the Caltrans Flexible Pavement Design Method are presented below:

ASPHALT CONCRETE (FLEXIBLE) PAVEMENTS Subgrade R-value = 40				
Traffic / Pavement Designation	**Traffic Index**	**Asphalt Concrete (inches)**	**Class 2 Aggregate Base (inches)**	**Depth of Compacted Subgrade (in)**
STANDARD DUTY	**5.5**	4.0	6.0	12.0

We recommend that the subgrade soil be prepared as discussed in this report. The compacted subgrade should be non-yielding when proof-rolled with a loaded ten-wheel truck, such as a water truck or dump truck, prior to pavement construction. Subgrade preparation should extend a minimum of 2 feet laterally behind the edge of pavement or back of curbs.

Pavement areas should be sloped and drainage gradients maintained to carry all surface water off the site. A cross slope of 2 percent is recommended in asphalt concrete pavement areas to provide good surface drainage and to reduce the potential for water to penetrate into the pavement structure.

Unless otherwise required by local jurisdictions, paving materials should comply with the materials specifications presented in the Caltrans Standard Specifications Section. Class 2 aggregate should comply with the materials requirements for Class 2 base found in Section 26.

The mineral aggregate shall be Type B, ½-inch or ¾-inch maximum, medium grading, for the wearing course and ¾-inch maximum, medium grading for the base course, and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The asphalt concrete materials should comply with and be placed in accordance with the specifications presented in Section 39 of the Caltrans Standard Specifications, latest edition. Asphalt concrete should be compacted to a minimum of 96 percent of the maximum laboratory compacted (kneading compactor) unit weight.

ASTM Test procedures and should be used to assess the percent relative compaction of soils, aggregate base and asphalt concrete. Aggregate base and subbase, and the upper 12 inches of subgrade should be compacted to at least 95 percent based on the Modified Proctor maximum compacted unit weight obtained in accordance with ASTM Test Method D1557. Compacted aggregate base should also be stable and unyielding when proof-rolled with a loaded ten-wheel water truck or dump truck.

Portland Cement Concrete (Rigid) Pavement

A six-inch layer of compacted Class 2 Aggregate Base should be placed over the prepared subgrade prior to placement of the concrete. Based on soil conditions and project specifications, we recommend that the rigid pavement be a minimum of five (5) inches thick. The final rigid pavement design and section should be determined by the project Structural Engineer.

RIGID PAVEMENT			
Traffic/Pavement Designation	**Portland Cement Concrete (inches)**	**Class 2 Aggregate Base (inches)**	**Compacted Subgrade (inches)**
Standard Duty	5.0	6.0	12.0

Prior to the construction of any rigid pavement, we recommend that concrete mix histories with flexural strength data be obtained from the proposed supplier. In the absence of flexural strength history, we recommend that laboratory trial batching and testing be performed to allow for confirmation that the proposed concrete mix is capable of producing the required flexural strength.

The concrete pavements should be designed with both longitudinal and transverse joints. The saw-cut or formed joints should extend to a minimum depth on one-fourth of the pavement thickness plus ¼ inch. Joint spacing should not exceed 15 feet. Steel reinforcement of all rigid pavements is recommended to keep the joints tight and to control temperature cracking.

Keyed joints are recommended at all construction joints to transfer loads across the joints. Joints should be reinforced with a minimum of ½ inch diameter by 48-inch long deformed reinforcing steel placed at mid-slab depth on 18-inch center-to-center spacing to keep the joints tight for load transfer. The joints should be filled with a flexible sealer. The sealer should be fuel-resistant where placed at the gasoline station facility. Expansion joints should be constructed only where the pavements abut structures or fixed objects.

Smooth bar dowels, with a diameter of d/8, where d equals the thickness of the concrete, at least 14 inches in length, placed at a spacing of 12 inches on centers, may also be considered for construction joints to transfer loads across the joints. The dowels should be centered across the joints with one side of the dowel lubricated to reduce the bond strength between the dowel and the concrete and fitted with a plastic cap to allow for bar expansion.

INFILTRATION TESTING

Infiltration rates were determined using the results of open borehole infiltration testing performed at the subject site. Infiltration testing performed on the near surface silty sand soil indicates infiltration rates of approximately 1.52 and 1.95 inches per hour. Detailed results of the percolation test and infiltration rate are attached in tabular format. The soil percolation rates are based on tests conducted with clean water. The infiltration rates may vary with time as a result of soil clogging from water impurities. A factor of safety should be incorporated into the design of the percolation system to compensate for these factors as determined appropriate by the designer. In addition, periodic maintenance consisting of clearing the bottom of the system of clogged soils should be expected.

It is recommended that the location of the infiltration systems not be closer than ten feet (10’) as measured laterally from the edge of the adjacent property line, ten feet (10’) from the outside edge of any foundation and five (5’) from the edge of any right-of way to the outside edges of the infiltration system.

If the infiltration location is within ten feet (10’) from the proposed foundation, it is recommended that this infiltration system should be impervious from the finished ground surface to a depth that will achieve a diagonal distance of a minimum of ten feet (10’) below the bottom of the closest footing in the project.

SOIL CORROSIVITY

Excessive sulfate in either the soil or native water may result in an adverse reaction between the cement in concrete (or stucco) and the soil. HUD/FHA and UBC have developed criteria for evaluation of sulfate levels and how they relate to cement reactivity with soil and/or water.

A soil sample was obtained from the site and tested in accordance with State of California Materials Manual Test Designation 417. The sulfate concentration detected from the soil sample indicated a negligible sulfate exposure value as established by HUD/FHA and CBC. Therefore, no specific recommendations for concrete mixes are warranted relative to sulfate concentrations in the soil.

Electrical resistivity testing of the soils indicates that the onsite soils may have a potential for metal loss from electrochemical corrosion process. A qualified corrosion engineer may be consulted regarding mitigation of the corrosion effects of the onsite soils on underground metal utilities.

ADDITIONAL SERVICES

Krazan & Associates should be retained to review your final foundation and grading plans, and specifications. It has been our experience that this review provides an opportunity to detect misinterpretation or misunderstandings with respect to the recommendations presented in this report prior to the start of construction.

Variations in soil types and conditions are possible and may be encountered during construction. In order to permit correlation between the soil data obtained during this investigation and the actual soil conditions encountered during construction, a representative of Krazan & Associates, Inc. should be present at the site during the earthwork and foundation construction activities to confirm that actual subsurface conditions are consistent with those contemplated in our development of this report. This will allow us the opportunity to compare actual conditions exposed during construction with those encountered in our investigation and to expedite supplemental recommendations if warranted by the exposed conditions. This activity is an integral part of our service, as acceptance of earthwork construction is dependent upon compaction testing and stability of the material. Krazan & Associates, Inc. will not be responsible for grades or staking, since this is the responsibility of the Prime Contractor.

All earthworks should be performed in accordance with the recommendations presented in this report, or as recommended by Krazan & Associates during construction. Krazan & Associates should be notified at least five working days prior to the start of construction and at least two days prior to when observation and testing services are needed. Krazan & Associates, Inc. will not be responsible for grades or staking, since this is the responsibility of the Prime Contractor.

The review of plans and specifications, and the observation and testing of earthwork related construction activities by Krazan & Associates are important elements of our services if we are to remain in the role of Geotechnical Engineer-Of-Record. If Krazan & Associates is not retained for these services, the client and the consultants providing these services will be assuming our responsibility for any potential claims that may arise during or after construction.

LIMITATIONS

Geotechnical Engineering is one of the newest divisions of Civil Engineering. This branch of Civil Engineering is constantly improving as new technologies and understanding of earth sciences advance. Although your site was analyzed using appropriate and current techniques and methods, undoubtedly there will be substantial future improvements in this branch of engineering. In addition to advancements in the field of Geotechnical Engineering, physical changes in the site due to site clearing or grading activities, new agency regulations, or possible changes in the proposed structure or development after issuance of this report will result in the need for professional review of this report. Updating or revisions to the recommendations report, and possibly additional study of the site may be required at that time. In light of this, the Owner should be aware that there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that two years be considered a reasonable time for the usefulness of this report.

Foundation and earthwork construction is characterized by the presence of a calculated risk that soil and groundwater conditions have been fully revealed by the original foundation investigation. This risk is derived from the practical necessity of basing interpretations and design conclusions on limited sampling of the earth. The recommendations made in this report are based on the assumption that soil conditions do not vary significantly from those disclosed during our field investigation. The logs of the exploratory borings do not provide a warranty as to the conditions that may exist beneath the entire site. The extent and nature of subsurface soil and groundwater variations may not become evident until construction begins. It is possible that variations in soil conditions and depth to groundwater could exist beyond the points of exploration that may require additional studies, consultation, and possible design revisions. If conditions are encountered in the field during construction, which differ from those described in this report, our firm should be contacted immediately to provide any necessary revisions to these recommendations.

This report presents the results of our Geotechnical Engineering Investigation, which was conducted for the purpose of evaluating the soil conditions in terms of foundation and retaining wall design, and grading and paving of the site. This report does not include reporting of any services related to environmental studies conducted to assessment the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere, or the presence of wetlands. Any statements in this report or on any boring log regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey professional judgment regarding the presence of potentially hazardous or toxic substances. Conversely, the absence of statements in this report or on any boring log regarding odors, unusual or suspicious items, or conditions observed, does not constitute our rendering professional judgment regarding the absence of potentially hazardous or toxic substances.

The conclusions of this report are based on the information provided regarding the proposed construction. We emphasize that this report is valid for the project as described in the text of this report and it should not be used for any other sites or projects. The geotechnical engineering information presented herein is based upon our understanding of the proposed project and professional interpretation of the data obtained in our studies of the site. It is not warranted that such information and interpretation cannot be superseded by future geotechnical engineering developments. The Geotechnical Engineer should be notified of any changes to the proposed project so the recommendations may be reviewed and re-evaluated. The work conducted through the course of this investigation, including the preparation of this report, has been performed in accordance with the generally accepted standards of geotechnical engineering practice, which existed in geographic area of the project at the time the report was written. No other warranty, express or implied, is made. This report is issued with the understanding that the owner chooses the risk they wish to bear by the expenditures involved with the construction alternatives and scheduling that are chosen.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (951) 273-1011.

Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

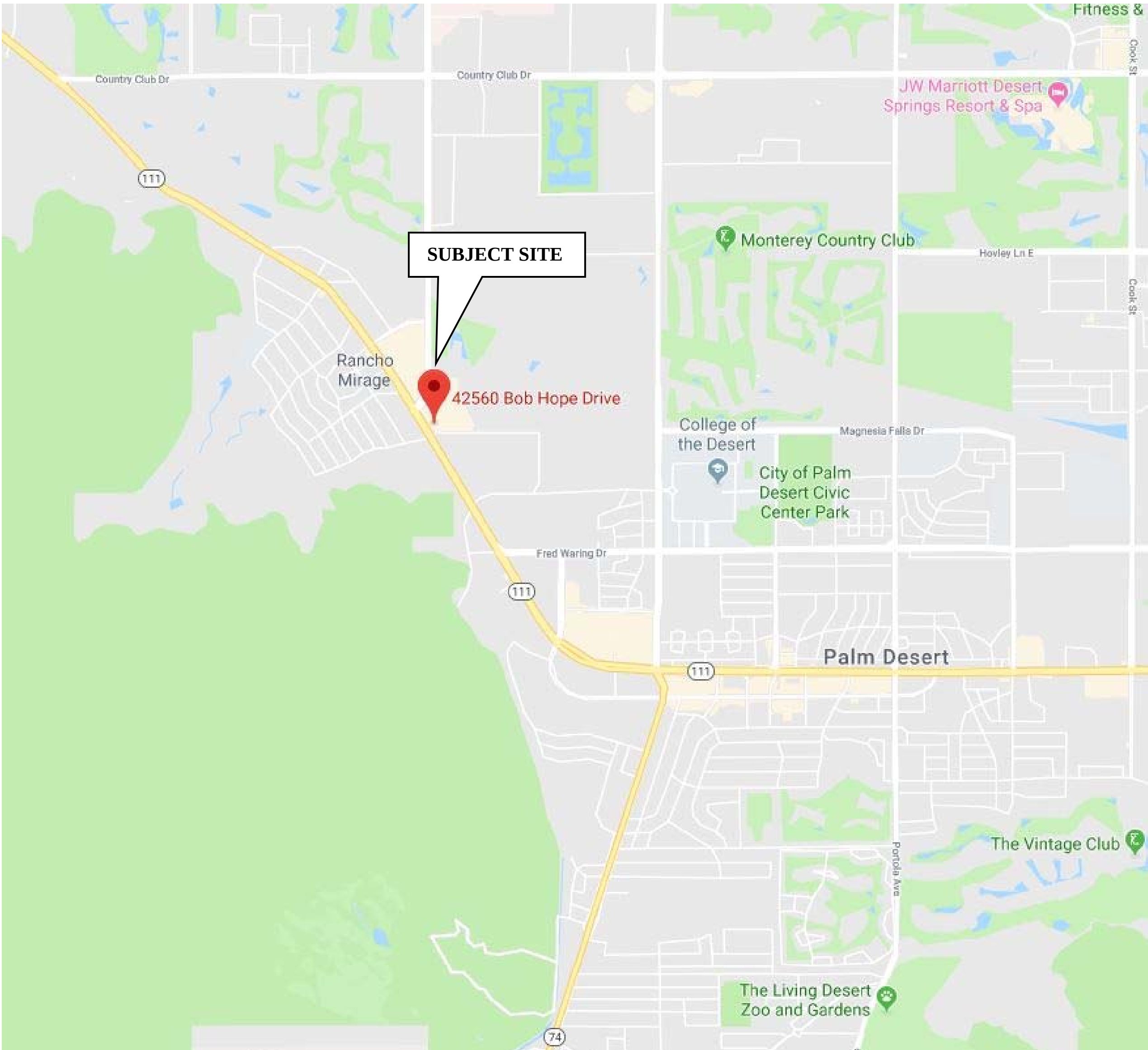
James M. Kellogg, PE, GE
Managing Engineer
RCE No. 65092 RGE No. 2902

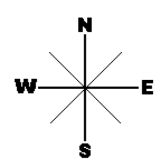
REGISTERED PROFESSIONAL ENGINEER
JAMES M. KELLOGG
NO. 65092
EXP. 9/30/2019
CIVIL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JAMES M. KELLOGG
NO. 2902
EXP. 9/30/2019
GEOTECHNICAL
STATE OF CALIFORNIA

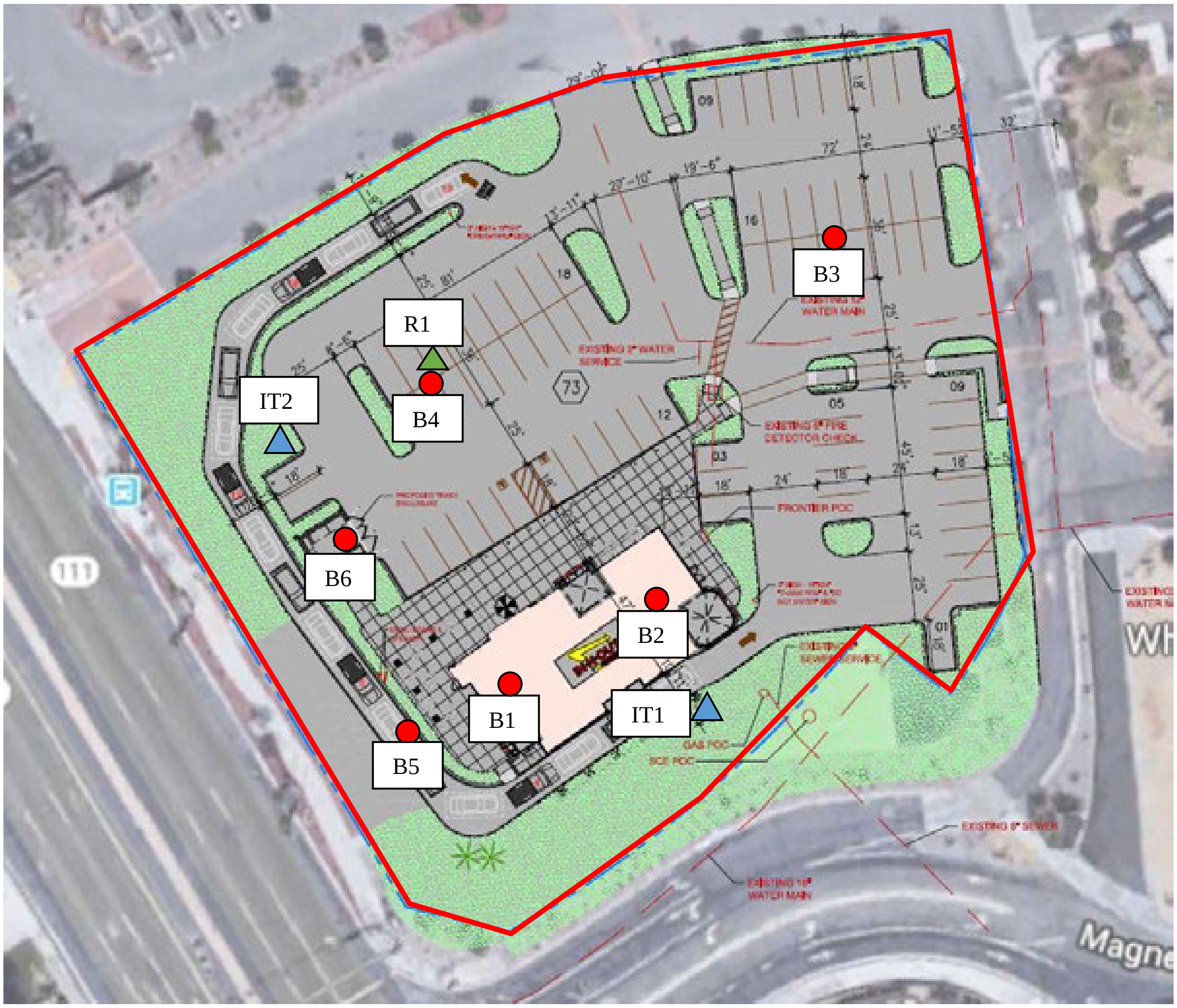
Jorge A. Pelayo, EIT
Staff Engineer

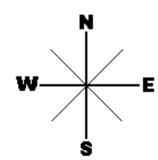
Figures





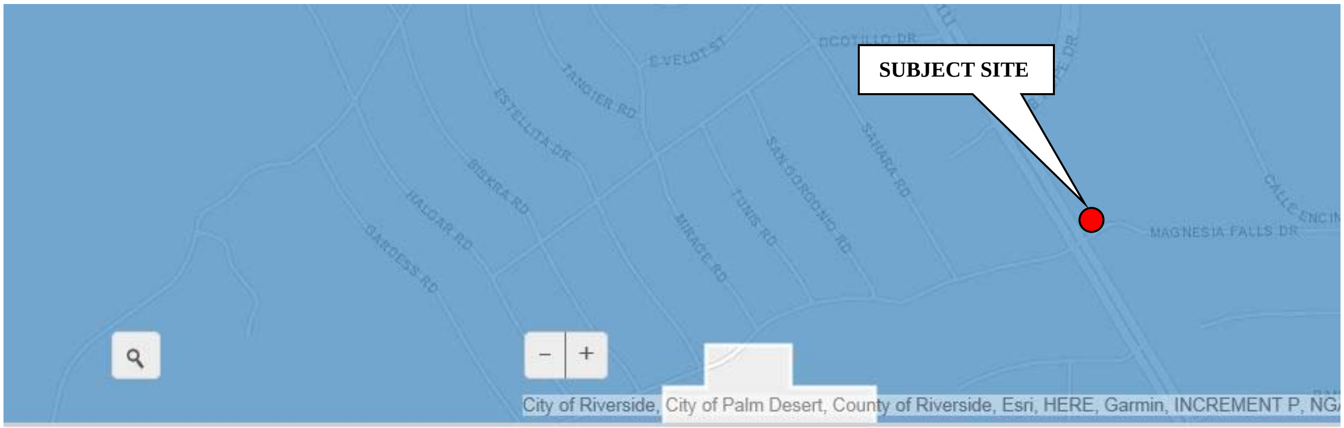
VICINITY MAP	**Scale:** NTS	**Date:** February, 2019	Krazan GEOTECHNICAL ENGINEERING
PROPOSED IN N OUT BURGER RESTAURANT 42560 BOB HOPE DRIVE RANCHO MIRAGE, CALIFORNIA	**Drawn by:** JP	**Approved by:** JK	
	Project No. 112-19003	**Figure No.** 1	





- ● APPROXIMATE BORING LOCATION
- ▲ APPROXIMATE INFILTRATION TEST LOCATION
- ▲ APPROXIMATE R-VALUE TEST LOCATION

SITE MAP	Scale: NTS	Date: February, 2019	Krazan GEOTECHNICAL ENGINEERING
PROPOSED IN N OUT BURGER RESTAURANT 42560 BOB HOPE DRIVE RANCHO MIRAGE, CALIFORNIA	Drawn by: JP	Approved by: JK	
	Project No. 112-19003	Figure No. 2	



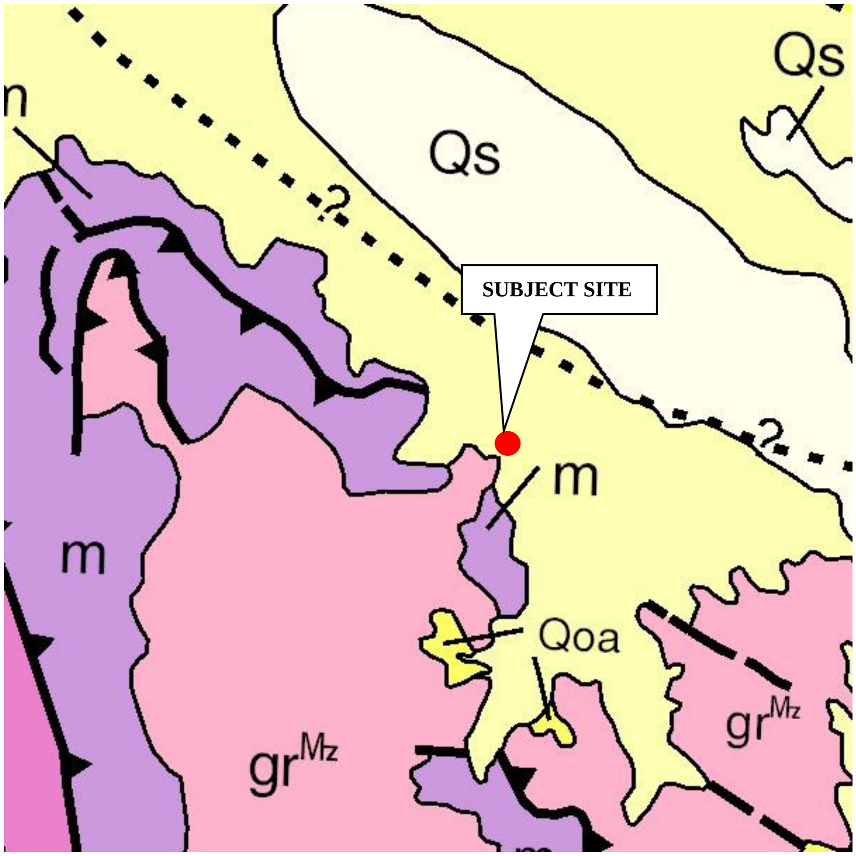
Liquefaction

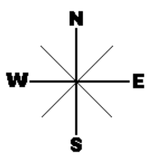
Details Table Charts

ZONE	SUSCEPTIBILITY	DEFINITION_1	DEFINITION_2	DEFINITION_3	D
108	Very low	GW100' Zones where significant rise in ground…	N/A	N/A	N

Source: Riverside County GIS Map: Liquefaction

COUNTY OF RIVERSIDE GIS MAP: LIQUEFACTION	**Scale:** NTS	**Date:** February, 2019	Krazan GEOTECHNICAL ENGINEERING
PROPOSED IN N OUT BURGER RESTAURANT 42560 BOB HOPE DRIVE RANCHO MIRAGE, CALIFORNIA	**Drawn by:** JP	**Approved by:** JK	
	Project No. 112-19003	**Figure No.** 3	





DESCRIPTION OF MAP UNITS

QUATERNARY DEPOSITS

- Qs — Extensive marine and nonmarine sand deposits, generally near the coast or desert playas
- Q — Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated
- Qls — Selected large landslides
- Qg — Glacial till and moraines. Found at high elevations mostly in the Sierra Nevada and Klamath Mountains
- Qoa — Older alluvium, lake, playa, and terrace deposits
- QPc — Pleistocene and/or Pliocene sandstone, shale, and gravels deposits; mostly loosely consolidated

QUATERNARY VOLCANIC ROCKS

- Qrv — Recent (Holocene) volcanic flow rocks; minor pyroclastic deposits
- Qrv^p — Recent (Holocene) pyroclastic and volcanic mudflow deposits
- Qv — Quaternary volcanic flow rocks; minor pyroclastic deposits
- Qv^p — Quaternary pyroclastic and volcanic mudflow deposits

TERTIARY SEDIMENTARY ROCKS

- Tc — Undivided Tertiary nonmarine sandstone, shale, conglomerate, breccia, and ancient lake deposits
- P — Pliocene marine sandstone, siltstone, shale, and conglomerate; mostly moderately consolidated
- M — Miocene marine sandstone, shale, siltstone, conglomerate, and breccia; moderately to well consolidated
- Mc — Miocene nonmarine sandstone, shale, conglomerate, and fanglomerate; moderately to well consolidated
- Ø — Oligocene marine sandstone, shale, and conglomerate; mostly well consolidated
- Øc — Oligocene nonmarine sandstone, shale, and conglomerate; mostly well consolidated
- E — Eocene marine shale, sandstone, conglomerate, and minor limestone; mostly well consolidated
- Ec — Eocene nonmarine sandstone, shale, and conglomerate; moderately to well consolidated
- Ep — Paleocene marine sandstone, shale, and conglomerate; mostly well consolidated

TERTIARY VOLCANIC ROCKS

- Tv — Tertiary volcanic flow rocks; minor pyroclastic deposits
- Tv^p — Tertiary pyroclastic and volcanic mudflow deposits.
- Ti — Tertiary intrusive rocks; mostly shallow (hypabyssal) plugs and dikes

Source: Department of Conservation: Geologic Map of California, 2010

GEOLOGIC MAP	**Scale:** NTS	**Date:** February, 2019	Krazan GEOTECHNICAL ENGINEERING
PROPOSED IN N OUT BURGER RESTAURANT 42560 BOB HOPE DRIVE RANCHO MIRAGE, CALIFORNIA	**Drawn by:** JP	**Approved by:** JK	
	Project No. 112-19003	**Figure No.** 4	

Appendix A

Log of Borings & Laboratory Testing

APPENDIX A

FIELD AND LABORATORY INVESTIGATIONS

Field Investigation

Our field investigation consisted of a surface reconnaissance and a subsurface exploration program consisted of drilling, logging and sampling a total of six (6) borings. The depth of exploration was approximately 10 to 20 feet below the existing site surface.

A member of our staff visually classified the soils in the field as the drilling progressed and recorded a continuous log of each boring. Visual classification of the soils encountered in our exploratory borings was made in general accordance with the Unified Soil Classification System (ASTM D2487). A key for the classification of the soil and the boring logs are presented in this Appendix.

During drilling operations, penetration tests were performed at regular intervals to evaluate the soil consistency and to obtain information regarding the engineering properties of the subsoils. Samples were obtained from the borings by driving either a 2.5-inch inside diameter Modified California tube sampler fitted with brass sleeves or a 2-inch outside diameter, 1-3/8-inch inside diameter Standard Penetration ("split-spoon") test (SPT) sampler without sleeves. Soil samples were retained for possible laboratory testing. The samplers were driven up to a depth of 18 inches into the underlying soil using a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler was recorded for each 6-inch penetration interval and the number of blows required to drive the sampler the last 12 inches are shown as blows per foot on the boring logs.

The approximate locations of our borings and bulk samples are shown on the Site Plan, Figure 2. These approximate locations were estimated in the field based on pacing and measuring from the limits of existing site features.

Laboratory Investigation

The laboratory investigation was programmed to determine the physical and mechanical properties of the soil underlying the site. The laboratory-testing program was formulated with emphasis on the evaluation of in-situ moisture, density, gradation, shear strength, consolidation potential, and R-Value of the materials encountered. In addition, chemical tests were performed to evaluate the soil/cement reactivity and corrosivity. Test results were used in our engineering analysis with respect to site and building pad preparation through mass grading activities, foundation and retaining wall design recommendations, pavement section design, evaluation of the materials as possible fill materials and for possible exclusion of some soils from use at the structures as fill or backfill.

Select laboratory test results are presented on the boring logs, with graphic or tabulated results of selected tests included in this Appendix. The laboratory test data, along with the field observations, was used to prepare the final boring logs presented in the Appendix.

UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

Major Divisions	Symbol	Description
COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)		
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	
	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	
	GM	Silty gravels, gravel-sand-silt mixtures
	GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	
	SW	Well-graded sands, gravelly sands, little or no fines
	SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	
	SM	Silty sands, sand-silt mixtures
	SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)		
SILTS AND CLAYS Liquid limit less than 50%	ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
	OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
	CH	Inorganic clays of high plasticity, fat clays
	OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils

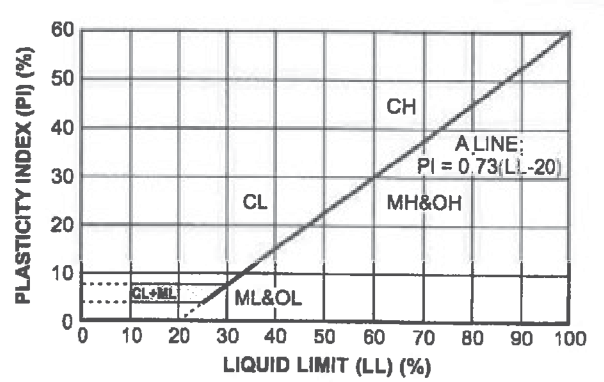
CONSISTENCY CLASSIFICATION

Description	Blows per Foot
Granular Soils	
Very Loose	< 5
Loose	5 – 15
Medium Dense	16 – 40
Dense	41 – 65
Very Dense	> 65
Cohesive Soils	
Very Soft	< 3
Soft	3 – 5
Firm	6 – 10
Stiff	11 – 20
Very Stiff	21 – 40
Hard	> 40

GRAIN SIZE CLASSIFICATION

Grain Type	*Standard Sieve Size*	*Grain Size in Millimeters*
Boulders	Above 12 inches	Above 305
Cobbles	12 to 13 inches	305 to 76.2
Gravel	3 inches to No. 4	76.2 to 4.76
Coarse-grained	3 to ¾ inches	76.2 to 19.1
Fine-grained	¾ inches to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.074
Coarse-grained	No. 4 to No. 10	4.76 to 2.00
Medium-grained	No. 10 to No. 40	2.00 to 0.042
Fine-grained	No. 40 to No. 200	0.042 to 0.074
Silt and Clay	Below No. 200	Below 0.074

PLASTICITY CHART



Log of Boring B1

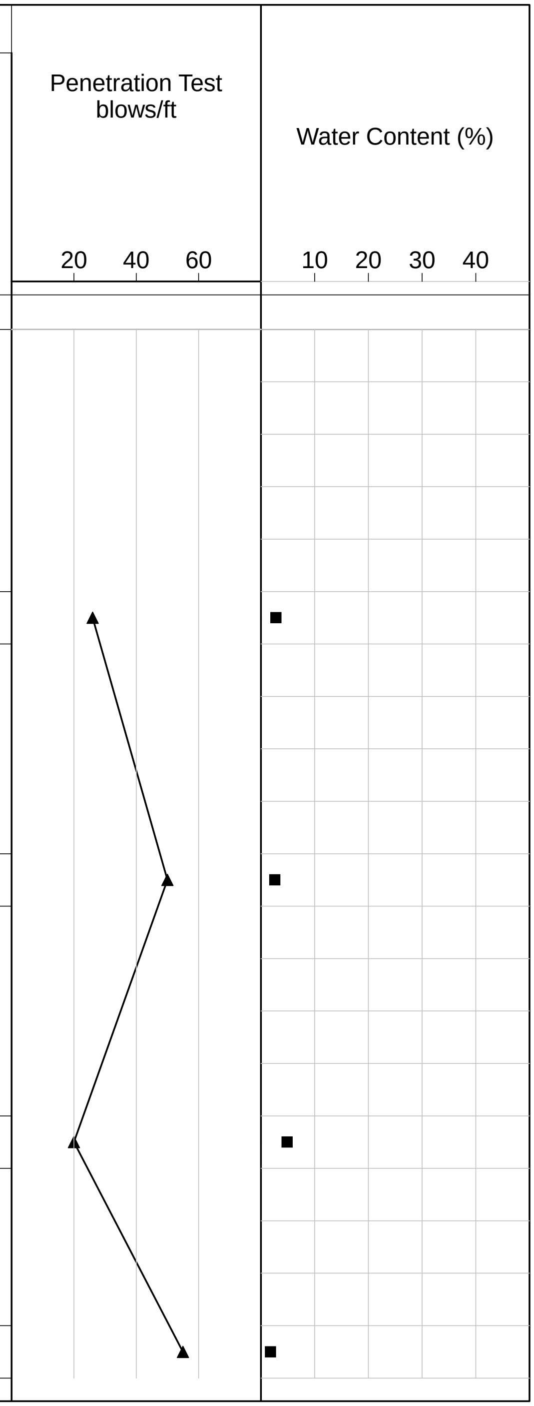
Project: In-N-Out Burger
Project No: 112-19003

Client: In-N-Out Burger
Figure No.: A-1

Location: 142560 Bob Hope Drive, Rancho Mirage, California
Logged By: Jorge Pelayo

Depth to Water> Not Encountered
Initial: N/A
At Completion: N/A

SUBSURFACE PROFILE			SAMPLE			
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
		Ground Surface				
0		***SILTY SAND (SM)*** Medium dense, medium- to fine-grained with trace GRAVEL; brown, damp				
6			119.3	2.8		26
9		***POORLY GRADED SAND (SP)*** Medium dense to very dense, coarse- to fine-grained with trace GRAVEL; light brown, dry to damp				
10			126.8	2.6		50+
16				4.9		20
20		No water encountered Boring backfilled with soil cuttings		1.8		55



Drill Method: Hollow Stem
Drill Date: 1-16-19

Drill Rig: CME 75
Krazan and Associates
Hole Size: 5½ Inches

Driller: Baja Exploration
Elevation: 20 Feet

Sheet: 1 of 1

Log of Boring B2

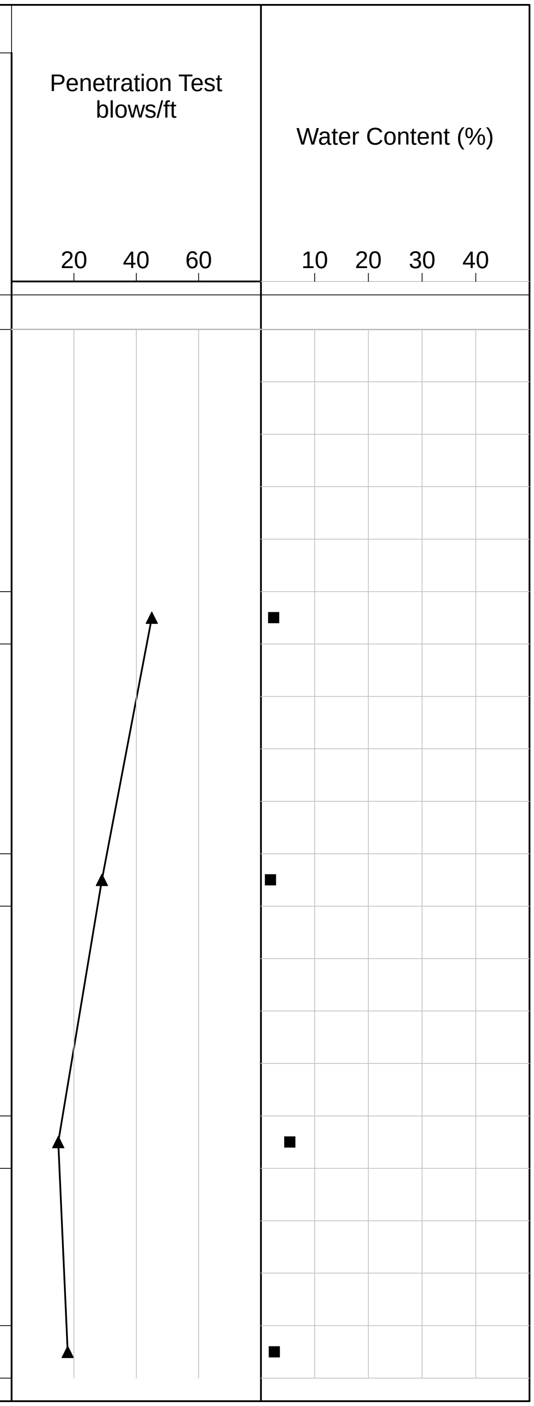
Project: In-N-Out Burger | **Project No:** 112-19003

Client: In-N-Out Burger | **Figure No.:** A-2

Location: 142560 Bob Hope Drive, Rancho Mirage, California | **Logged By:** Jorge Pelayo

Depth to Water> Not Encountered | **Initial:** N/A | **At Completion:** N/A

Depth (ft)	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0	Ground Surface				
0–9	***SILTY SAND (SM)*** Medium dense to dense, medium- to fine-grained with trace GRAVEL; brown, dry				
5–6		119.4	2.4		45
9–20	***POORLY GRADED SAND (SP)*** Medium dense, coarse- to fine-grained with trace GRAVEL; light brown, dry to damp				
10–11		130.1	1.8		29
15–16			5.4		15
19–20	No water encountered Boring backfilled with soil cuttings		2.5		18



Drill Method: Hollow Stem | **Drill Date:** 1-16-19

Drill Rig: CME 75 | **Hole Size:** 5½ Inches

Driller: Baja Exploration | **Elevation:** 20 Feet

Krazan and Associates

Sheet: 1 of 1

Log of Boring B3

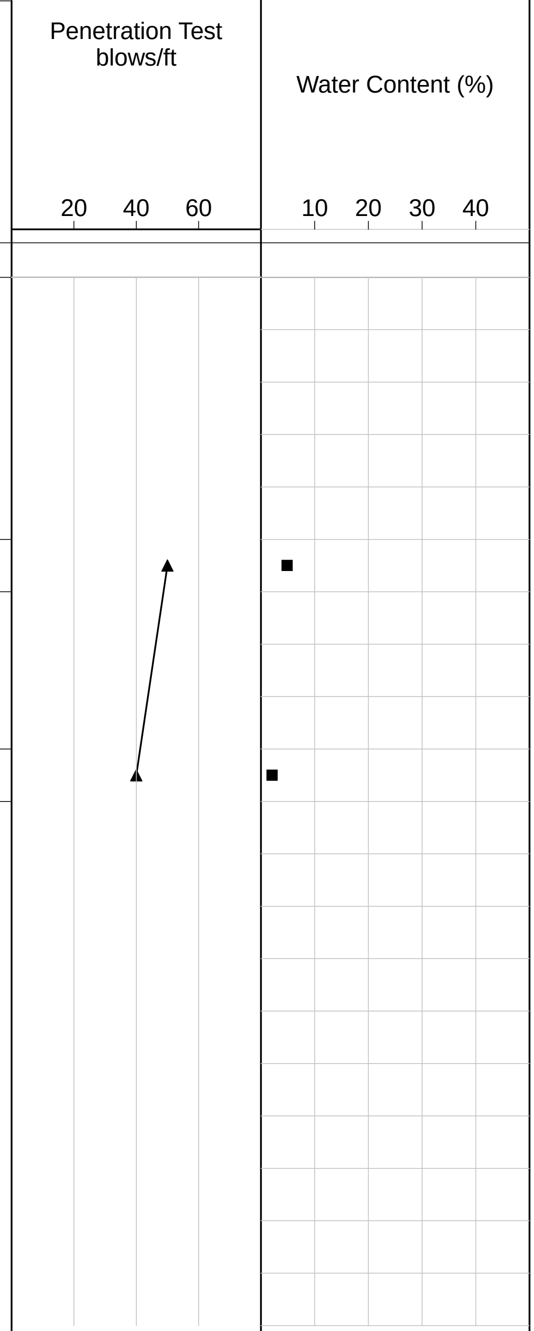
Project: In-N-Out Burger
Project No: 112-19003

Client: In-N-Out Burger
Figure No.: A-3

Location: 142560 Bob Hope Drive, Rancho Mirage, California
Logged By: Jorge Pelayo

Depth to Water> Not Encountered
Initial: N/A
At Completion: N/A

SUBSURFACE PROFILE			SAMPLE			
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
		Ground Surface				
0		ASPHALT PAVING = 4 inches AGGREGATE BASE = 3 inches				
1–8	SM	***SILTY SAND (SM)*** Very dense, medium- to fine-grained with GRAVEL; brown, damp				
5–6			115.4	4.9		50+
8–10	SP	***POORLY GRADED SAND (SP)*** Medium dense, coarse- to fine-grained; light brown, dry				
9–10			133.6	2.1		40
10		End of Borehole				
19–20		No water encountered Boring backfilled with soil cuttings				



Drill Method: Hollow Stem
Drill Date: 1-16-19

Drill Rig: CME 75
Krazan and Associates
Hole Size: 5½ Inches

Driller: Baja Exploration
Elevation: 10 Feet

Sheet: 1 of 1

Log of Boring B4

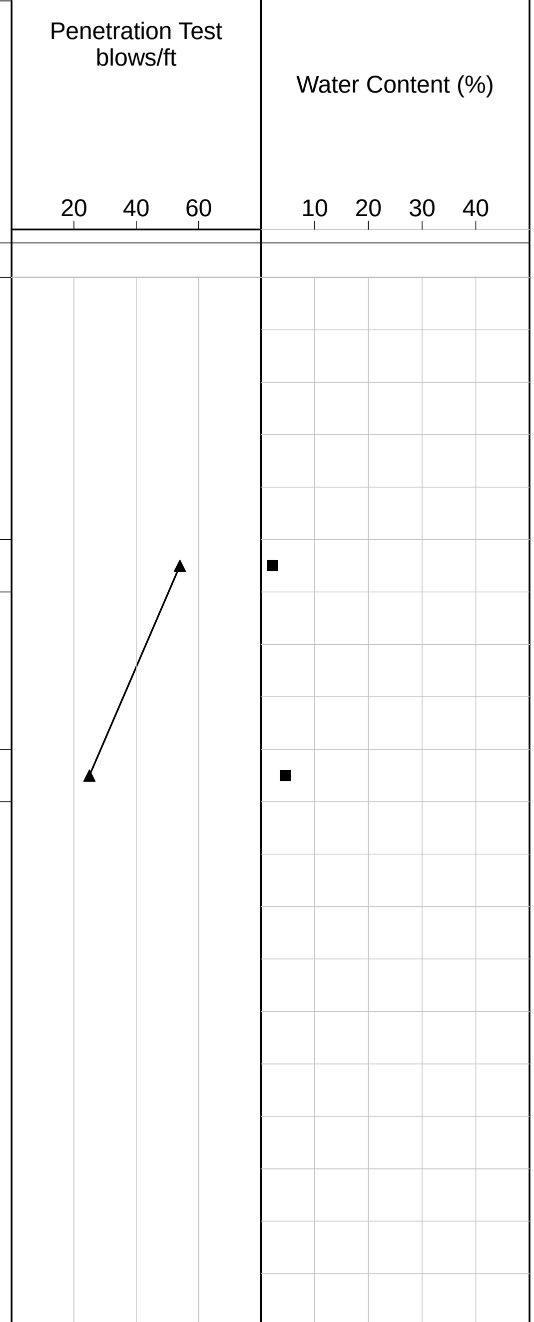
Project: In-N-Out Burger | **Project No:** 112-19003

Client: In-N-Out Burger | **Figure No.:** A-4

Location: 142560 Bob Hope Drive, Rancho Mirage, California | **Logged By:** Jorge Pelayo

Depth to Water> Not Encountered | **Initial:** N/A | **At Completion:** N/A

SUBSURFACE PROFILE			SAMPLE					
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Penetration Test blows/ft (20, 40, 60)	Water Content (%) (10, 20, 30, 40)
		Ground Surface						
0		ASPHALT PAVING = 4 inches AGGREGATE BASE = 3 inches						
2		***SILTY SAND (SM)*** Dense, medium- to fine-grained with trace GRAVEL; brown, dry						
4								
6			121.1	2.2		54		
8		***POORLY GRADED SAND (SP)*** Medium dense, coarse- to fine-grained; light brown, dry						
10			123.4	4.6		25		
		End of Borehole						
12								
14								
16								
18		No water encountered Boring backfilled with soil cuttings						
20								



Drill Method: Hollow Stem | **Drill Date:** 1-16-19

Drill Rig: CME 75 | **Krazan and Associates** | **Hole Size:** 5½ Inches

Driller: Baja Exploration | **Elevation:** 10 Feet

Sheet: 1 of 1

Log of Boring B5

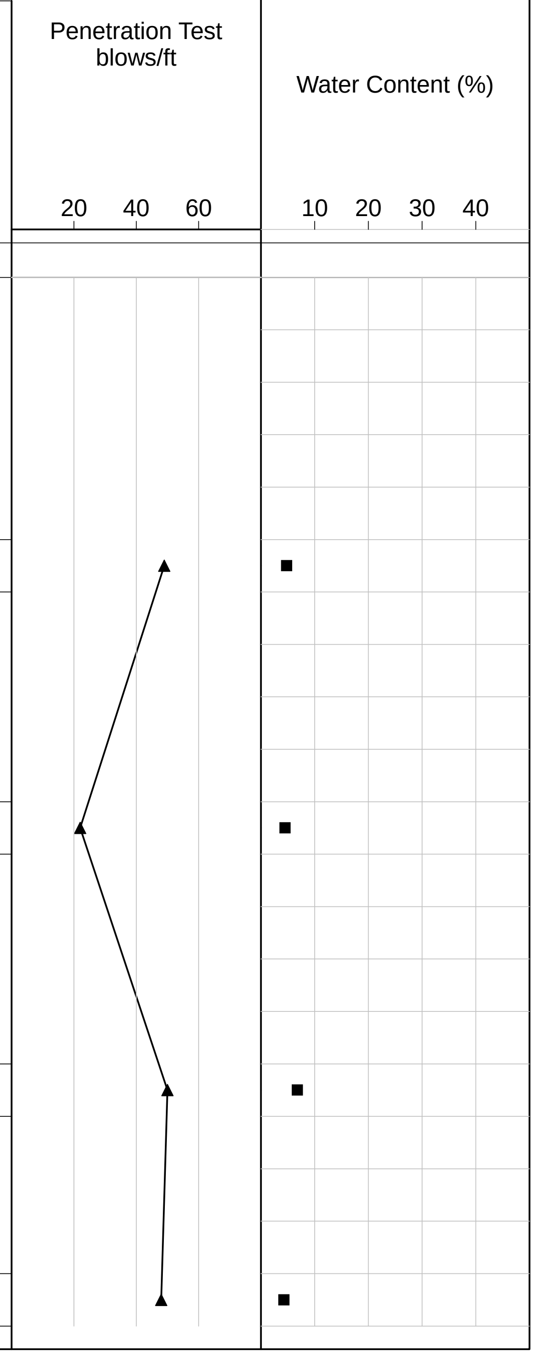
Project: In-N-Out Burger
Project No: 112-19003

Client: In-N-Out Burger
Figure No.: A-5

Location: 142560 Bob Hope Drive, Rancho Mirage, California
Logged By: Jorge Pelayo

Depth to Water> Not Encountered
Initial: N/A
At Completion: N/A

SUBSURFACE PROFILE			SAMPLE			
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
		Ground Surface				
0		***SILTY SAND (SM)*** Dense, medium- to fine-grained with GRAVEL; brown, damp				
5.5			124.1	4.8		49
9		***POORLY GRADED SAND (SP)*** Medium dense to very dense, coarse- to fine-grained with trace GRAVEL; light brown, damp				
10.5			128.9	4.5		22
15.5				6.8		50
19.5		No water encountered Boring backfilled with soil cuttings		4.3		48
20						



Drill Method: Hollow Stem
Drill Date: 1-16-19

Drill Rig: CME 75
Krazan and Associates
Hole Size: 5½ Inches

Driller: Baja Exploration
Elevation: 20 Feet

Sheet: 1 of 1

Log of Boring B6

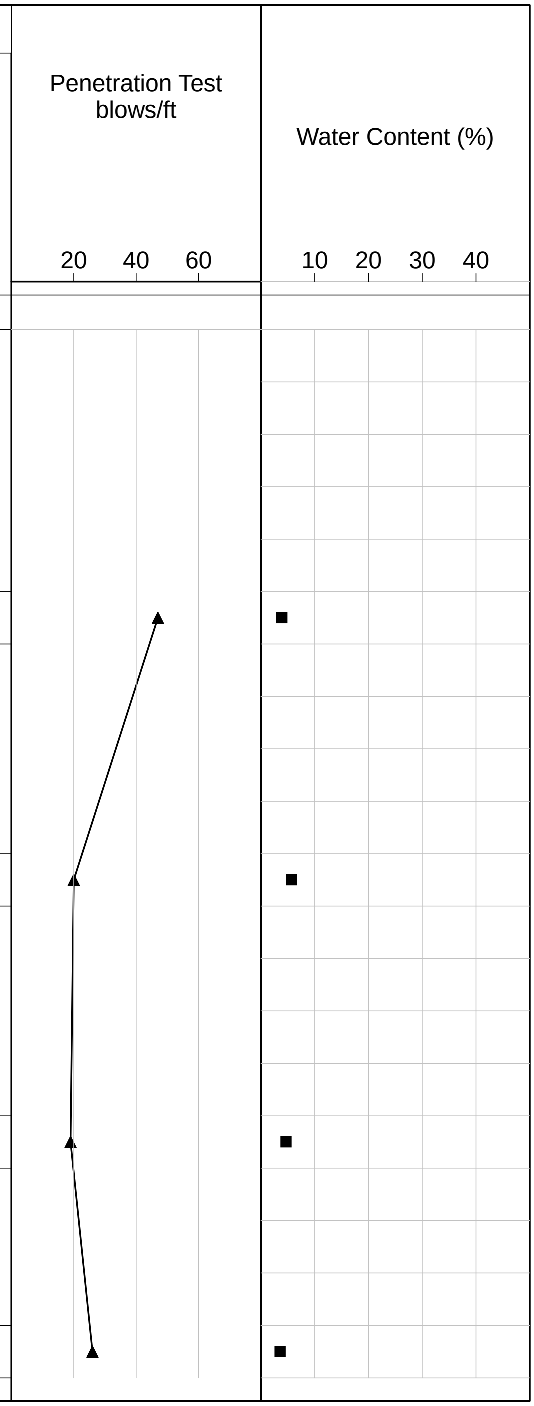
Project: In-N-Out Burger | **Project No:** 112-19003

Client: In-N-Out Burger | **Figure No.:** A-6

Location: 142560 Bob Hope Drive, Rancho Mirage, California | **Logged By:** Jorge Pelayo

Depth to Water> Not Encountered | **Initial:** N/A | **At Completion:** N/A

SUBSURFACE PROFILE			SAMPLE			
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
		Ground Surface				
0		***SILTY SAND (SM)*** Dense, medium- to fine-grained with GRAVEL; brown, damp				
5.5			127.5	3.9		47
9		***POORLY GRADED SAND (SP)*** Medium dense, coarse- to fine-grained with trace GRAVEL; light brown, damp				
10.5			129.7	5.7		20
15.5				4.7		19
19.5		No water encountered Boring backfilled with soil cuttings		3.6		26
20						



Drill Method: Hollow Stem | **Drill Date:** 1-16-19

Drill Rig: CME 75 | **Hole Size:** 5½ Inches

Driller: Baja Exploration | **Elevation:** 20 Feet

Krazan and Associates

Sheet: 1 of 1

Sieve Analysis

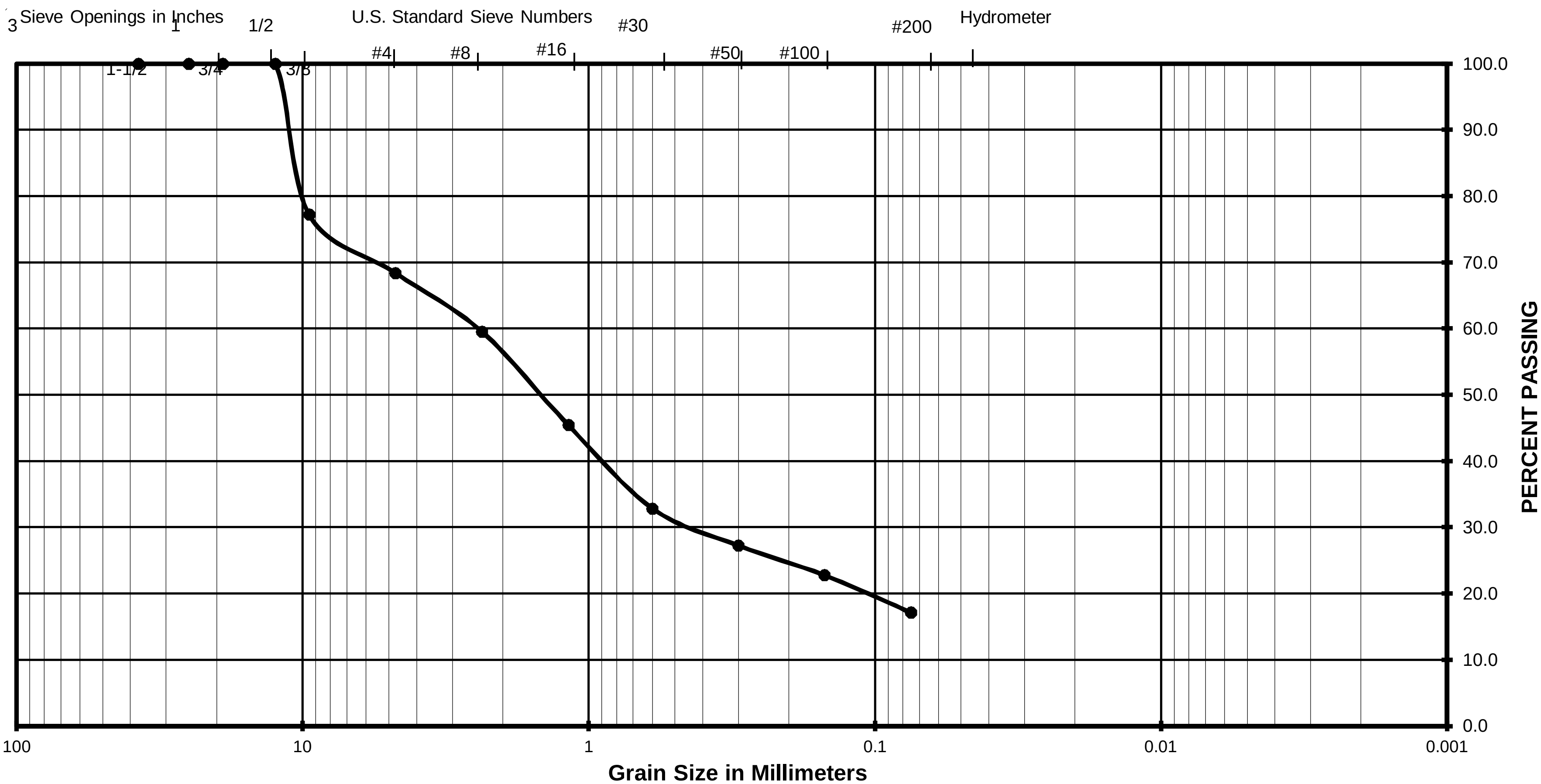
Project Number : 11219003
Project Name : INO Rancho Mirage
Date : 2/11/2019
Sample Location : B-1 @ 5'
Soil Classification : SM w/ gravel

Wet Weight	:	534.10
Dry Weight	:	534.10
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50	121.7	22.8	22.8	77.2
#4	4.75	47.1	8.8	31.6	68.4
#8	2.36	47.4	8.9	40.5	59.5
#16	1.18	75.2	14.1	54.6	45.4
#30	0.60	67.2	12.6	67.1	32.9
#50	0.30	30.0	5.6	72.8	27.2
#100	0.15	23.9	4.5	77.2	22.8
#200	0.08	30.1	5.6	82.9	17.1

Krazan Testing Laboratory

Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	INO Rancho Mirage
Project Number	11219003
Soil Classification	SM w/ gravel
Sample Number	B-1 @ 5'

Krazan Testing Laboratory

Sieve Analysis

Project Number	:	11219003
Project Name	:	INO Rancho Mirage
Date	:	2/11/2019
Sample Location	:	B-1 @ 10'
Soil Classification	:	SP

Wet Weight	:	464.80
Dry Weight	:	464.80
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50	6.7	1.4	1.4	98.6
#4	4.75	22.1	4.8	6.2	93.8
#8	2.36	60.5	13.0	19.2	80.8
#16	1.18	122.0	26.2	45.5	54.5
#30	0.60	102.6	22.1	67.5	32.5
#50	0.30	67.2	14.5	82.0	18.0
#100	0.15	24.7	5.3	87.3	12.7
#200	0.08	25.5	5.5	92.8	7.2

Krazan Testing Laboratory

Grain Size Analysis

Project Name	INO Rancho Mirage
Project Number	11219003
Soil Classification	SP
Sample Number	B-1 @ 10'

Krazan Testing Laboratory

Sieve Analysis

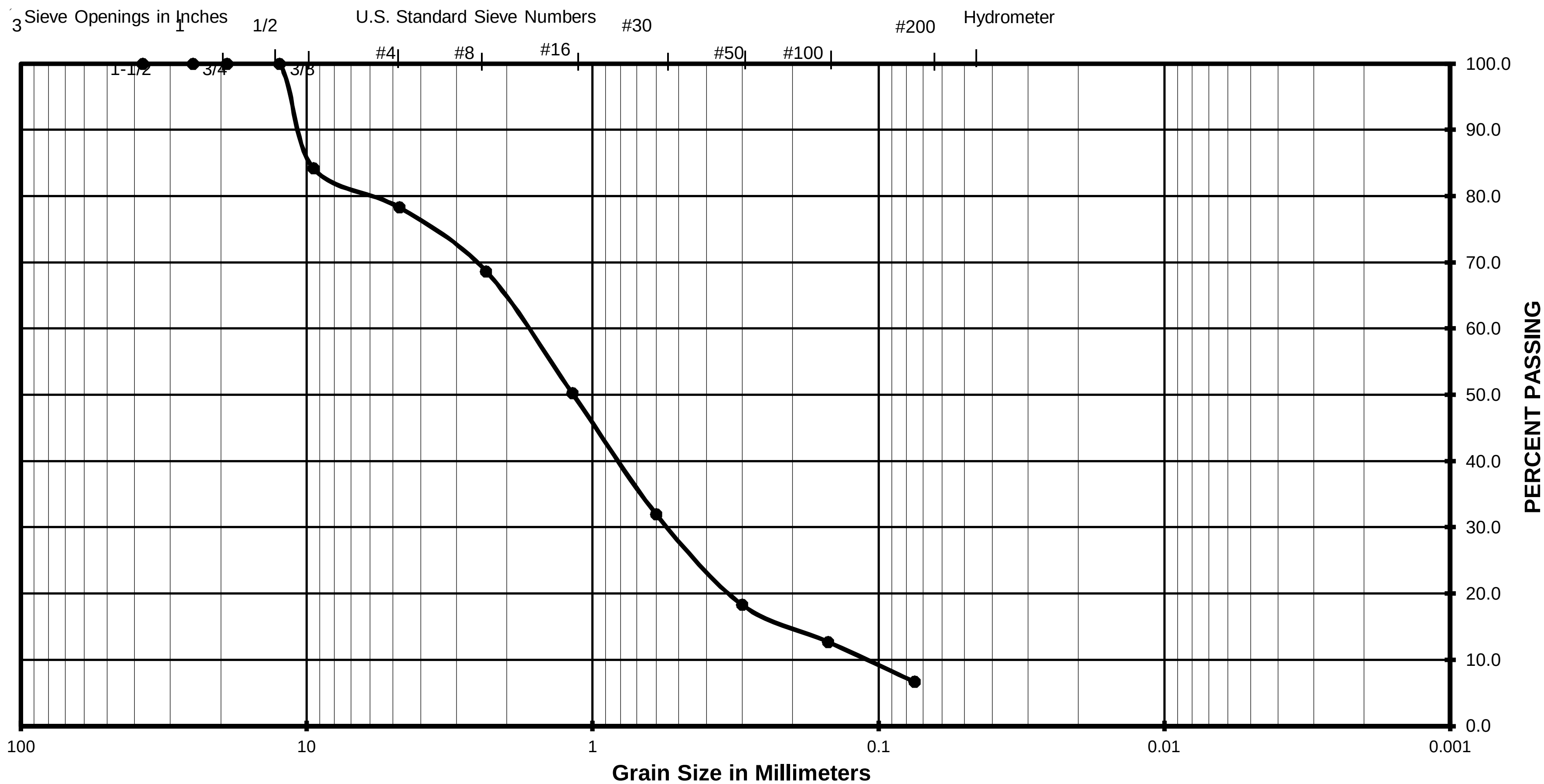
Project Number	: 11219003
Project Name	: INO Rancho Mirage
Date	: 2/11/2019
Sample Location	: B-1 @ 15'
Soil Classification	: SP w/gravel

Wet Weight	:	458.90
Dry Weight	:	458.90
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50	72.4	15.8	15.8	84.2
#4	4.75	27.2	5.9	21.7	78.3
#8	2.36	44.2	9.6	31.3	68.7
#16	1.18	84.3	18.4	49.7	50.3
#30	0.60	83.9	18.3	68.0	32.0
#50	0.30	62.9	13.7	81.7	18.3
#100	0.15	25.7	5.6	87.3	12.7
#200	0.08	27.7	6.0	93.3	6.7

Krazan Testing Laboratory

Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	INO Rancho Mirage
Project Number	11219003
Soil Classification	SP w/gravel
Sample Number	B-1 @ 15'

Krazan Testing Laboratory

Sieve Analysis

Project Number	: 11219003
Project Name	: INO Rancho Mirage
Date	: 2/11/2019
Sample Location	: B-1 @ 20'
Soil Classification	: SP w/gravel

Wet Weight	:	530.70
Dry Weight	:	530.70
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50	109.4	20.6	20.6	79.4
#4	4.75	55.1	10.4	31.0	69.0
#8	2.36	75.9	14.3	45.3	54.7
#16	1.18	102.6	19.3	64.6	35.4
#30	0.60	71.1	13.4	78.0	22.0
#50	0.30	42.8	8.1	86.1	13.9
#100	0.15	18.1	3.4	89.5	10.5
#200	0.08	21.6	4.1	93.6	6.4

Krazan Testing Laboratory

Grain Size Analysis

Project Name	INO Rancho Mirage
Project Number	11219003
Soil Classification	SP w/gravel
Sample Number	B-1 @ 20'

Krazan Testing Laboratory

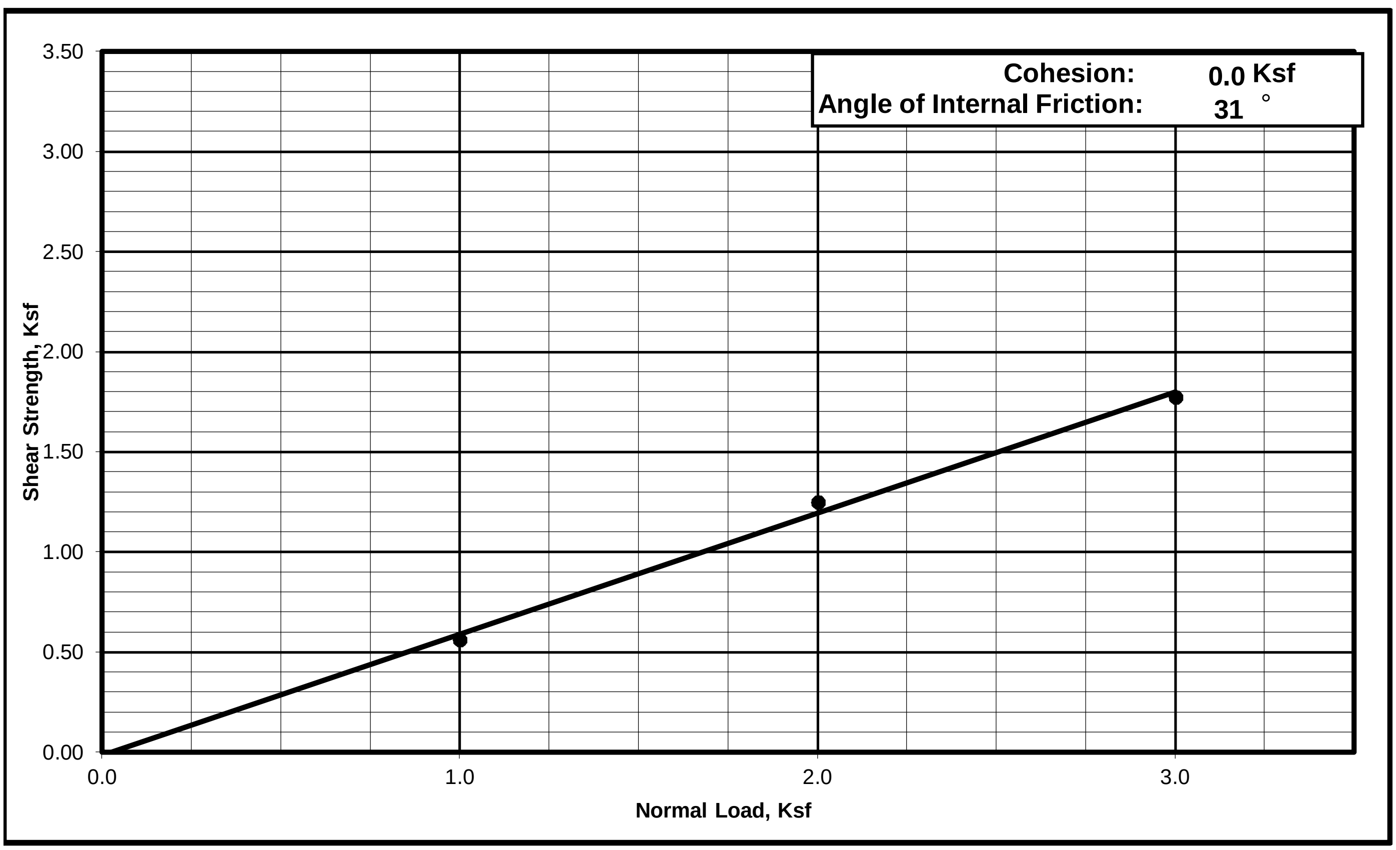
Direct Shear of Consolidated, Drained Soils
ASTM D - 3080 / AASHTO T - 236

Project Number	: 11219003
Project Name	: INO Rancho Mirage
Date	: 2/11/2019
Sample Location	: B-2 @ 5'
Soil Classification	: SM
Sample Surface Area	: 0.0289

STRESS DISPLACEMENT DATA

Lat. Disp.	Normal Load		
(in.)	1000	2000	3000
0	0	0	0
0.030	33.8	49	60.6
0.060	36.4	65.6	89.6
0.090	39.8	74.8	106.8
0.120	41.6	79.4	115.8
0.150	43.4	85.4	119.2
0.180	48.5	92.6	118.4
0.210		95.4	119.2
0.240		97.6	122.8
0.270		111.4	131.4
0.300			140.1
0.330			152.1
0.360			159

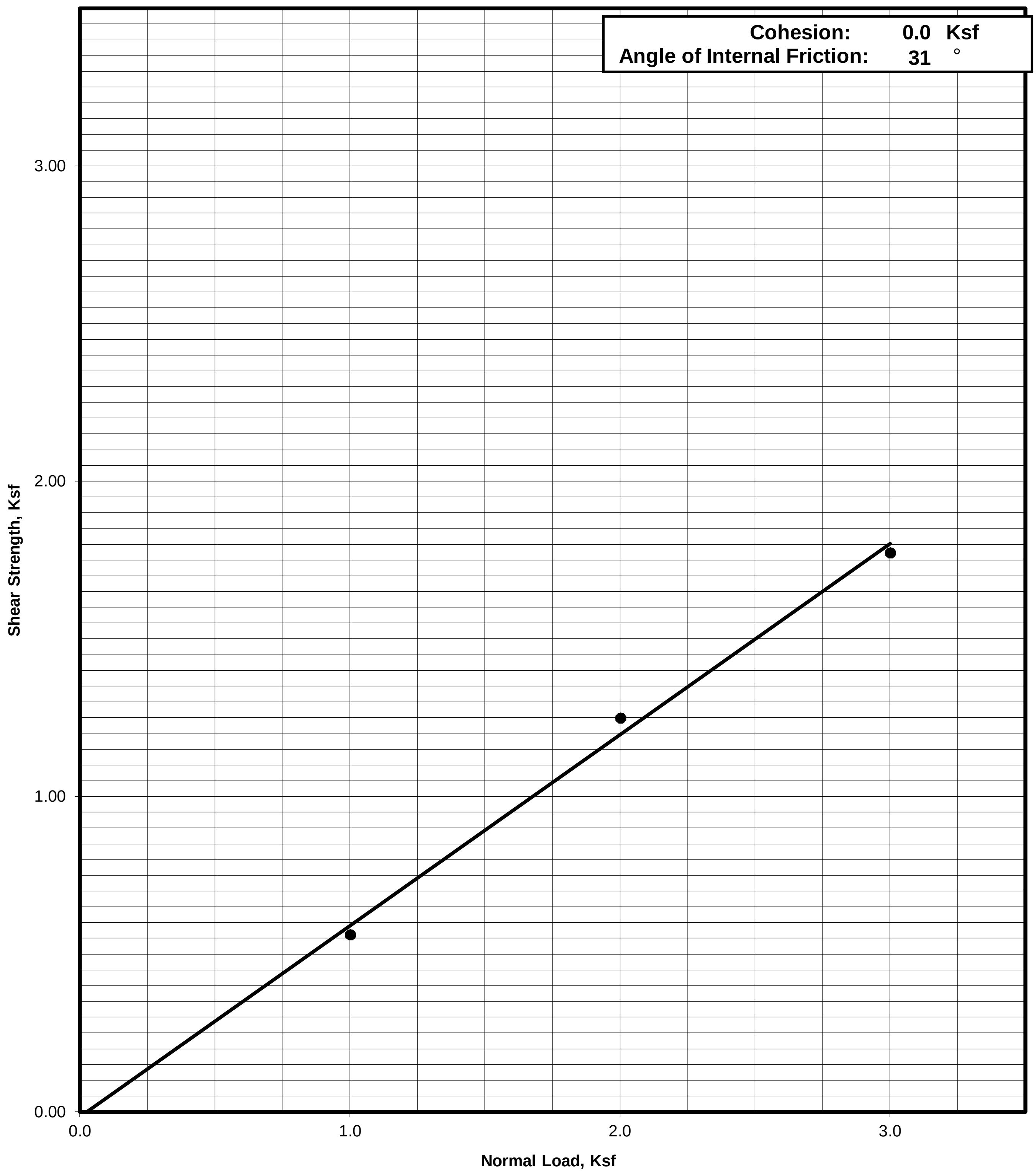
Normal Load psf	Shear force lbs	Shear Stress psf
1000	16.3	563
2000	36.1	1251
3000	51.3	1775



Krazan Testing Laboratory

Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

Project Number	Boring No. & Depth	Soil Type	Date
11219003	B-2 @ 5'	SM	2/11/2019



Krazan Testing Laboratory

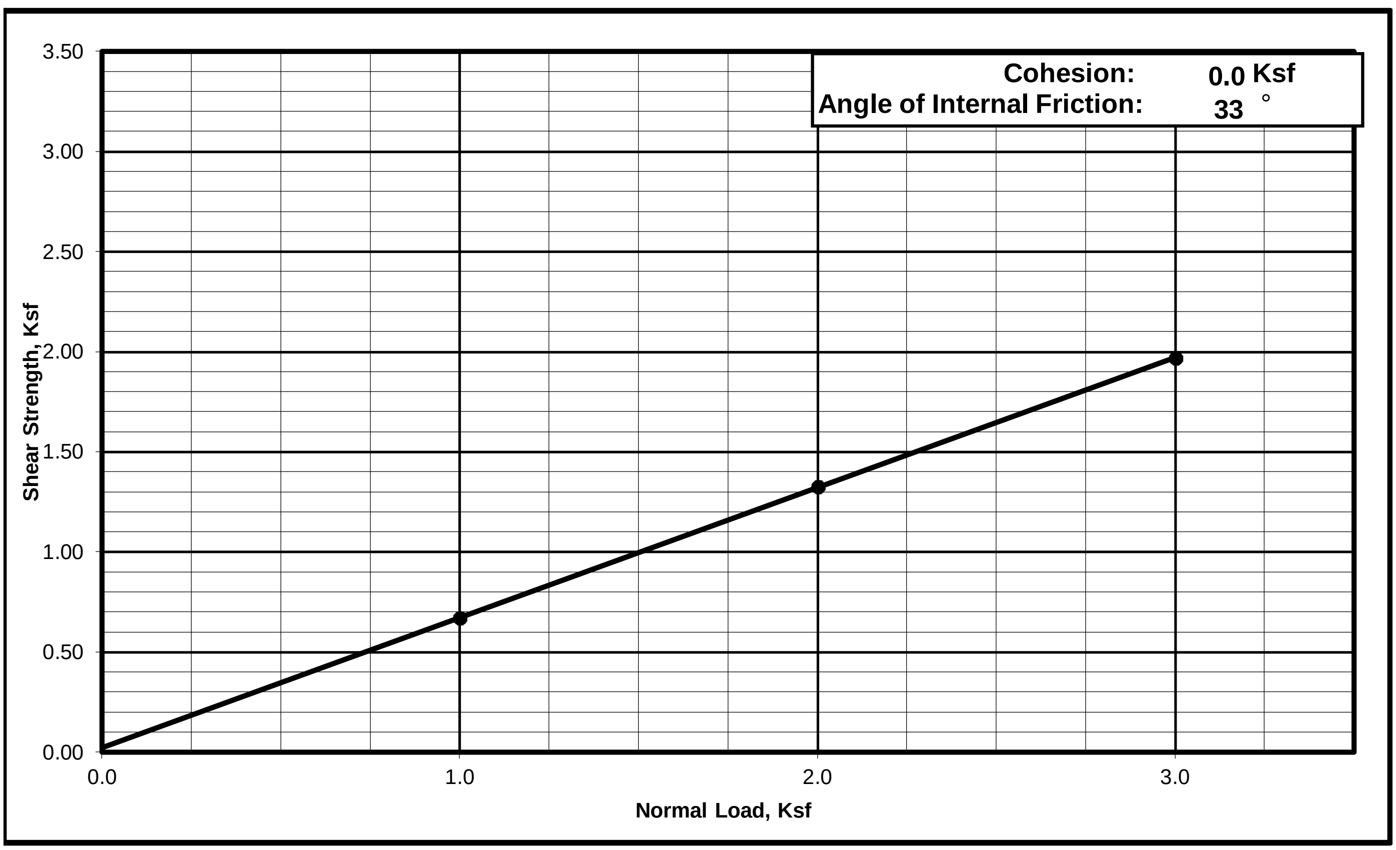
Direct Shear of Consolidated, Drained Soils
ASTM D - 3080 / AASHTO T - 236

Project Number : 11219003
Project Name : INO Rancho Mirage
Date : 2/11/2019
Sample Location : B-4 @ 5'
Soil Classification : SM
Sample Surface Area : 0.0289

STRESS DISPLACEMENT DATA

Lat. Disp. (in.)	Normal Load		
	1000	2000	3000
0	0	0	0
0.030	32.4	48.6	68.6
0.060	43	72.8	97.2
0.090	49	89	117
0.120	54.6	98.6	131.6
0.150	58.6	103.6	139.2
0.180		106.2	146
0.210		111.5	151.8
0.240		118.9	159.6
0.270			167.6
0.300			173.1
0.330			177
0.360			175

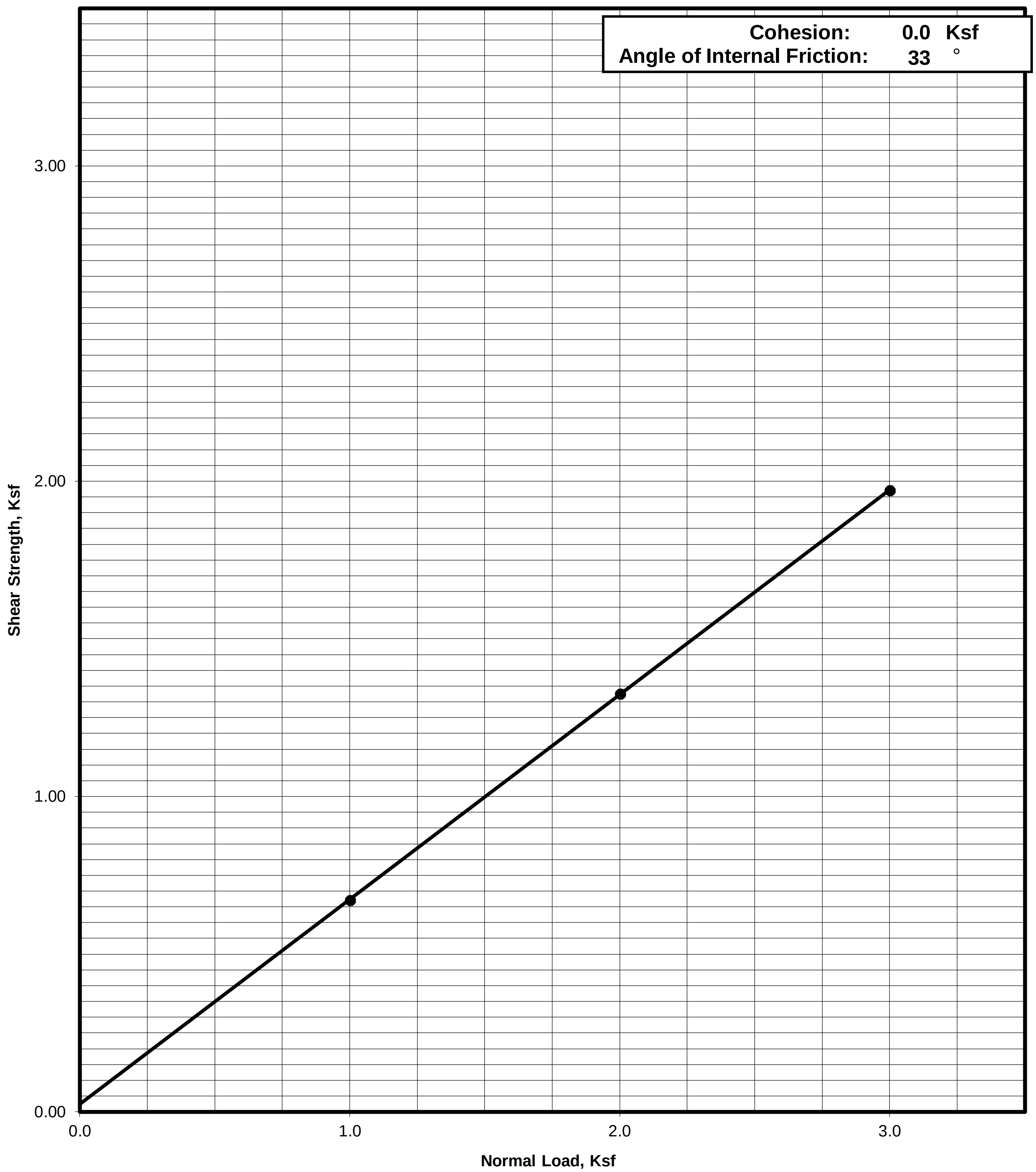
Normal Load psf	Shear force lbs	Shear Stress psf
1000	19.4	672
2000	38.4	1327
3000	57.0	1971



Krazan Testing Laboratory

Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

Project Number	Boring No. & Depth	Soil Type	Date
11219003	B-4 @ 5'	SM	2/11/2019



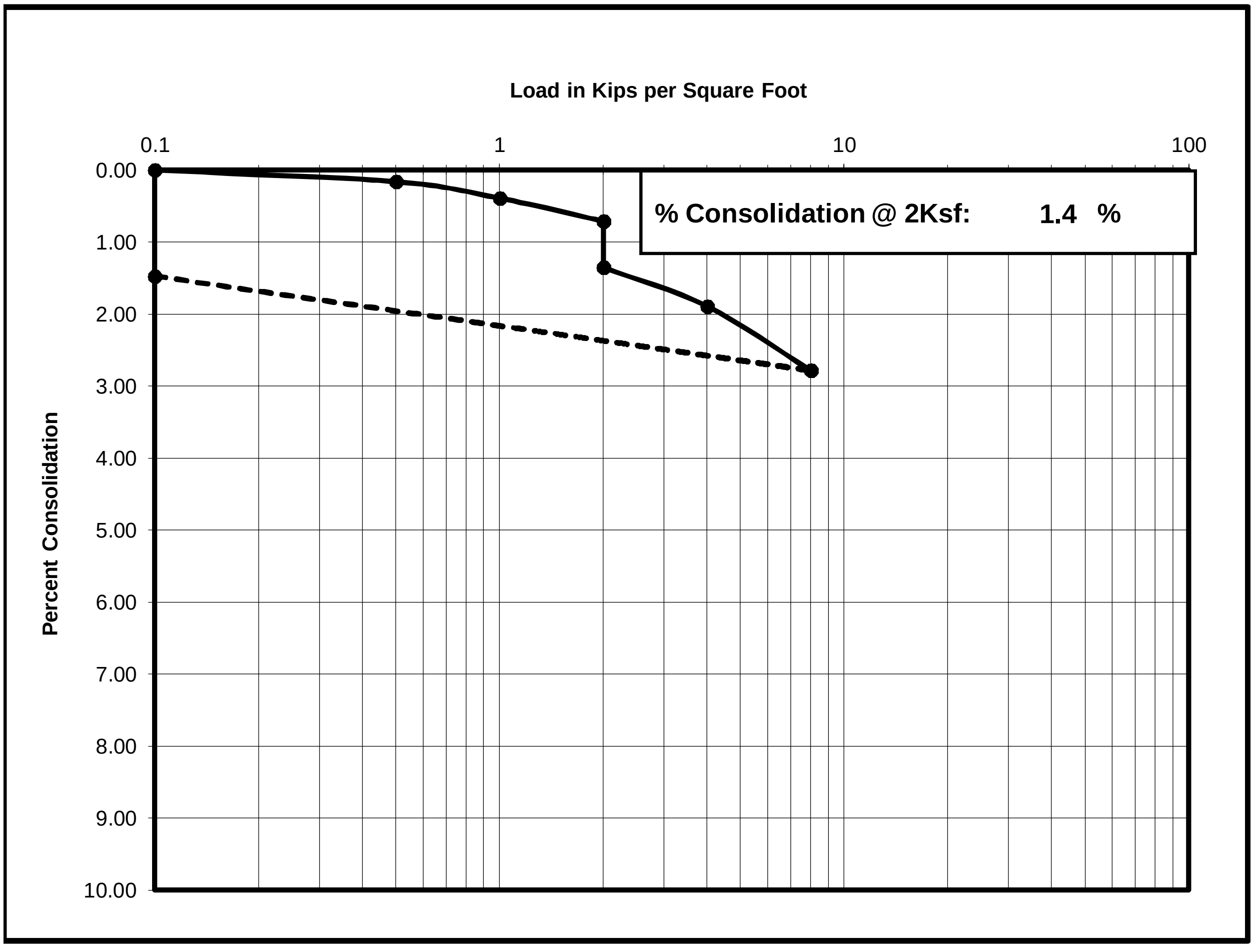
Krazan Testing Laboratory

One Dimensional Consolidation Properties of Soil

ASTM D - 2435 / AASHTO T - 216

Project Number	: 11219003
Project Name	: INO Rancho Mirage
Date	: 2/11/2019
Sample Location	: B-2 @ 5'
Soil Classification	: SM
Sample Condition	: Undisturbed

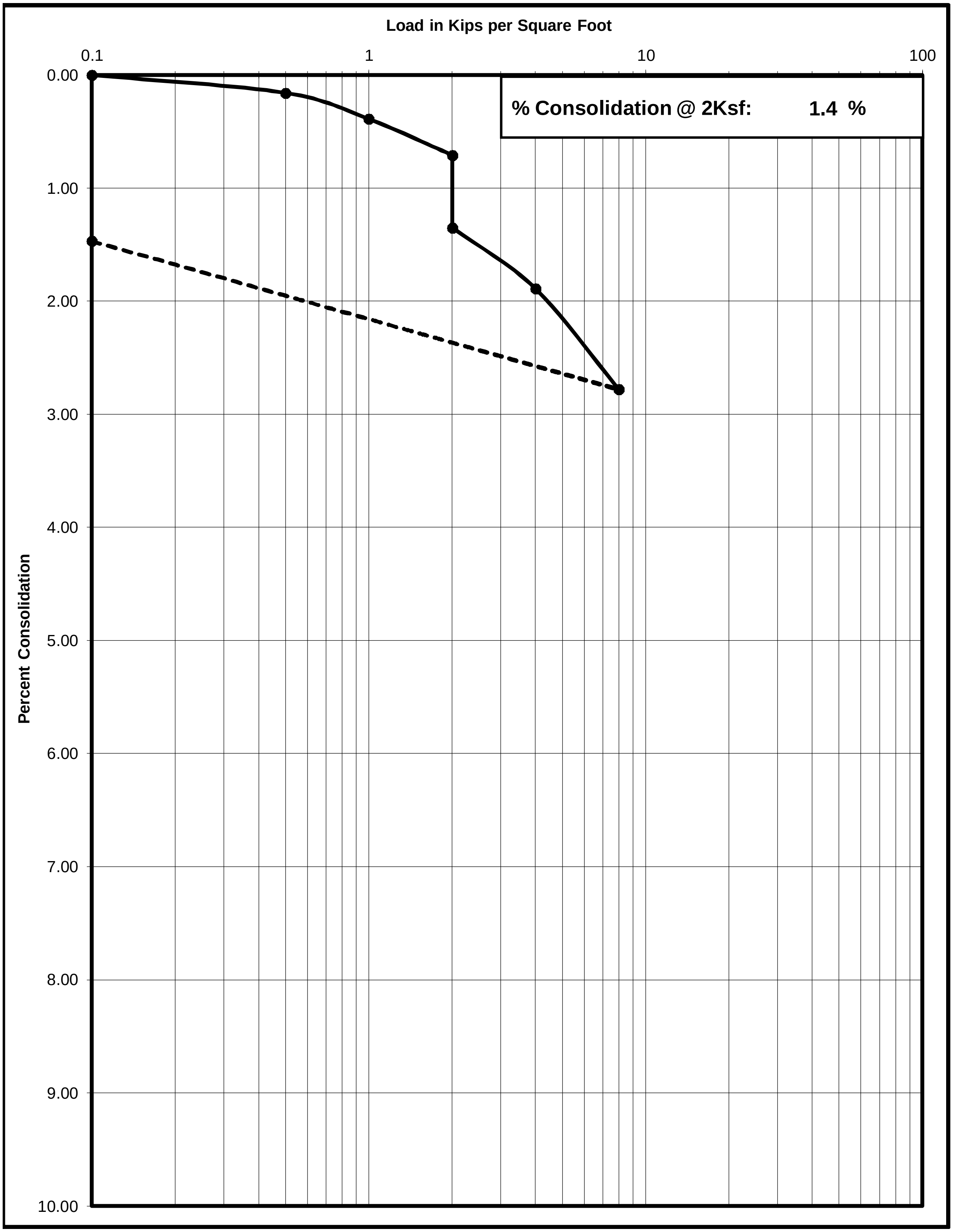
LOAD (ksf)	Reading	% Consolidation
0.1	0.0001	--
0.5	0.0016	0.16
1	0.0039	0.39
2	0.0071	0.71
Satur.	0.0135	1.35
4	0.0189	1.89
8	0.0278	2.78
0.1	0.0147	1.47



Krazan Testing Laboratory

Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
11219003	B-2 @ 5'	2/11/2019	SM



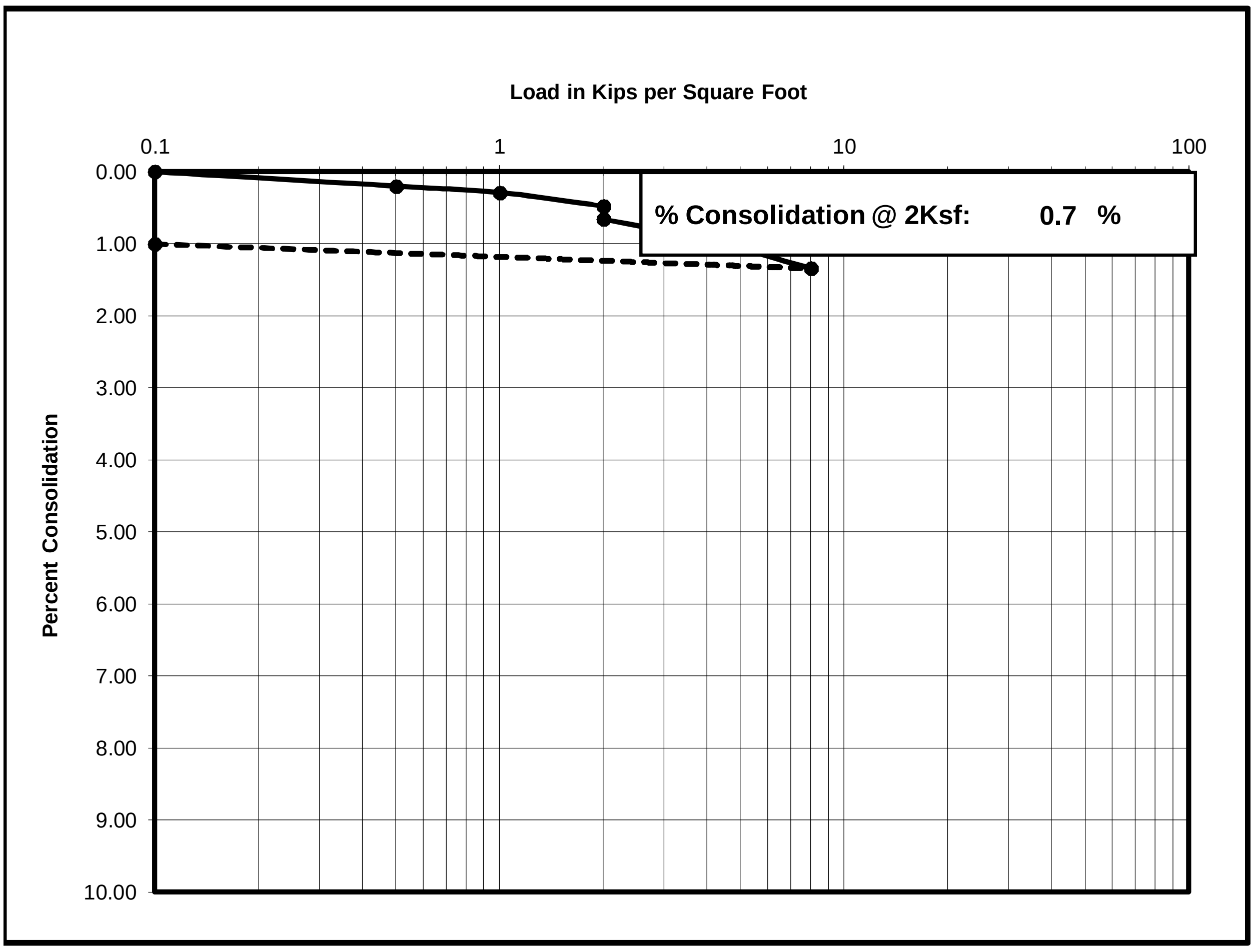
Krazan Testing Laboratory

One Dimensional Consolidation Properties of Soil

ASTM D - 2435 / AASHTO T - 216

Project Number : 11219003
Project Name : INO Rancho Mirage
Date : 2/11/2019
Sample Location : B-2 @ 10'
Soil Classification : SP
Sample Condition : Undisturbed

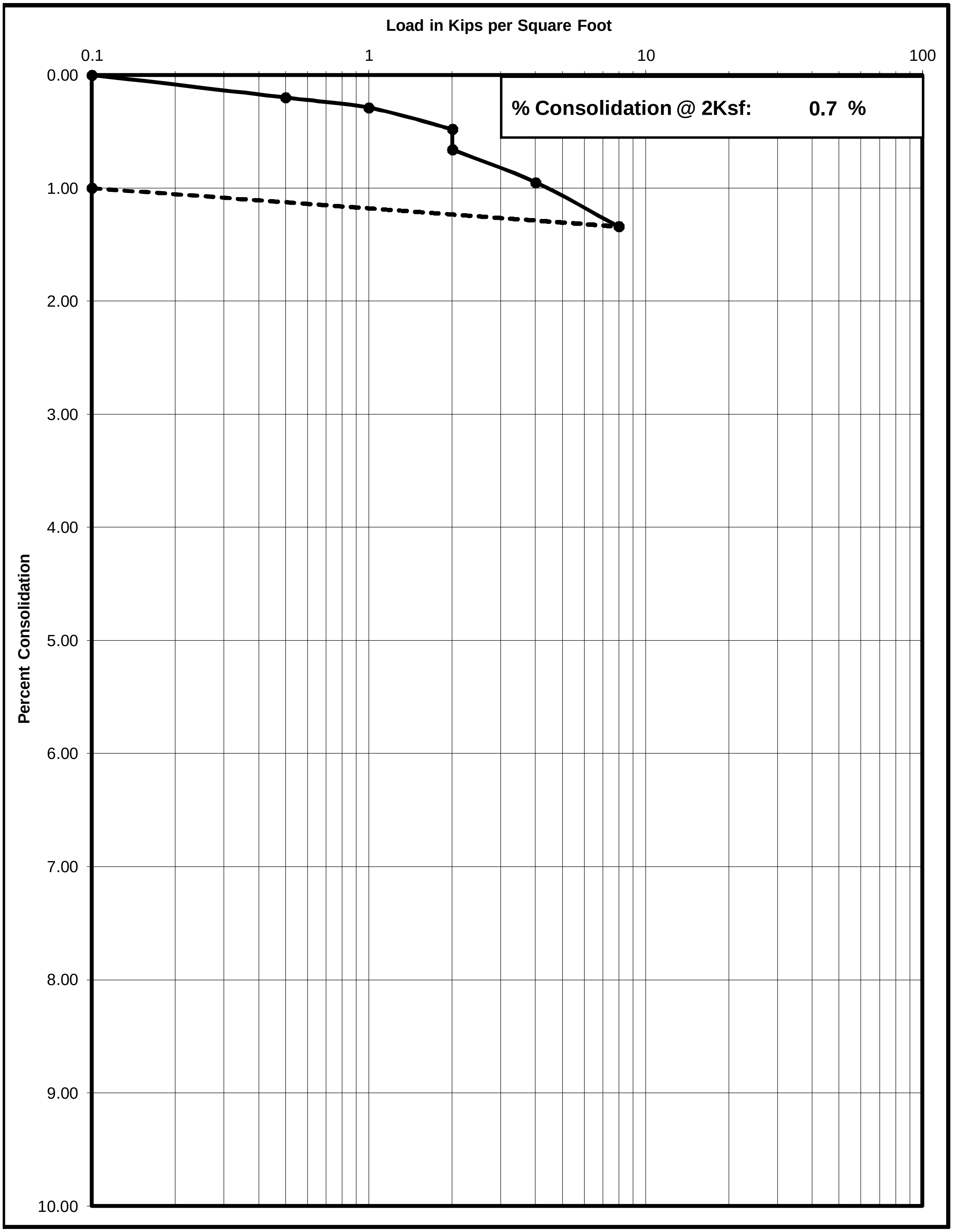
LOAD (ksf)	Reading	% Consolidation
0.1	0	--
0.5	0.002	0.20
1	0.0029	0.29
2	0.0048	0.48
Satur.	0.0066	0.66
4	0.0095	0.95
8	0.0134	1.34
0.1	0.01	1.00



Krazan Testing Laboratory

Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
11219003	B-2 @ 10'	2/11/2019	SP



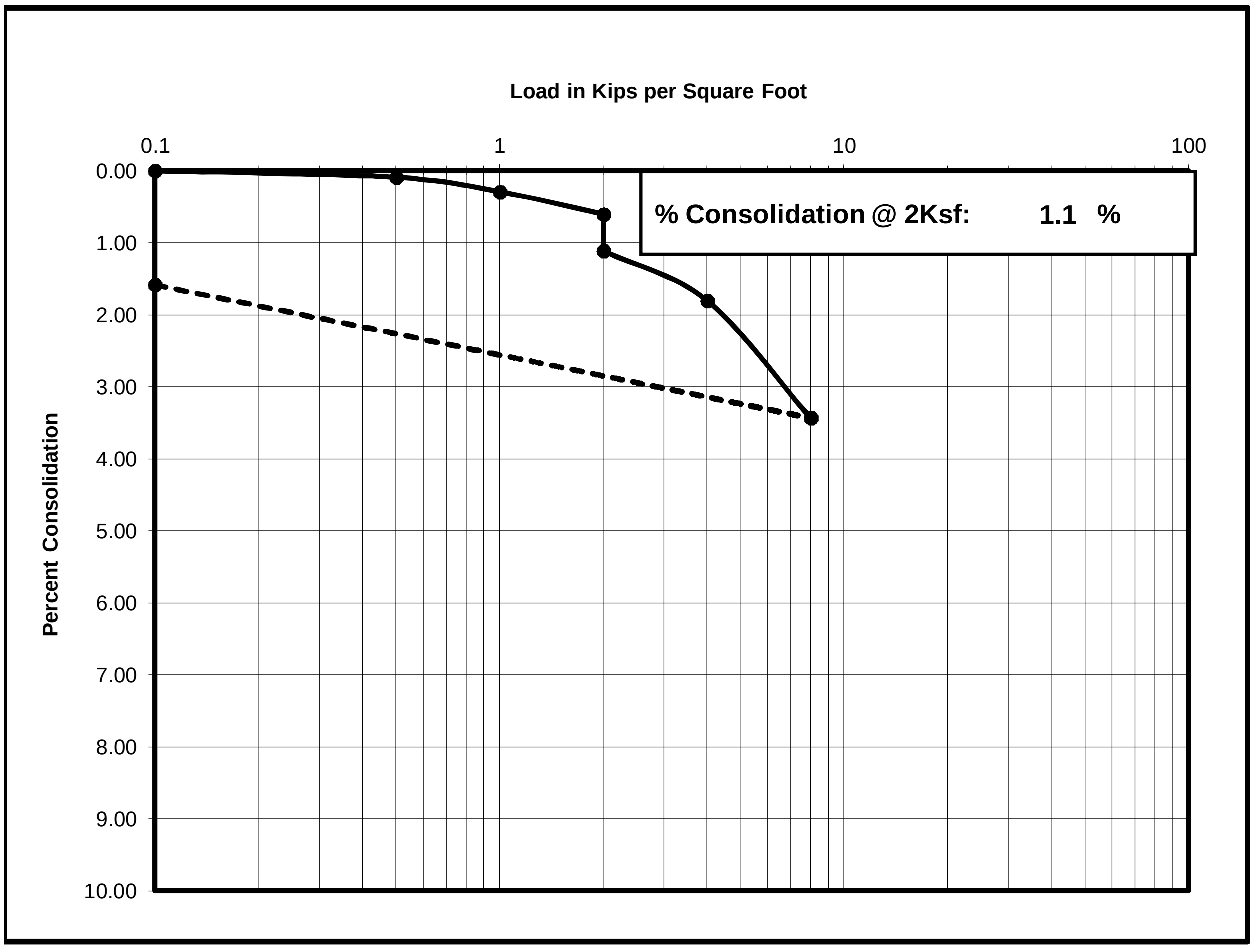
Krazan Testing Laboratory

One Dimensional Consolidation Properties of Soil

ASTM D - 2435 / AASHTO T - 216

Project Number : 11219003
Project Name : INO Rancho Mirage
Date : 2/11/2019
Sample Location : B-6 @ 5'
Soil Classification : SM
Sample Condition : Undisturbed

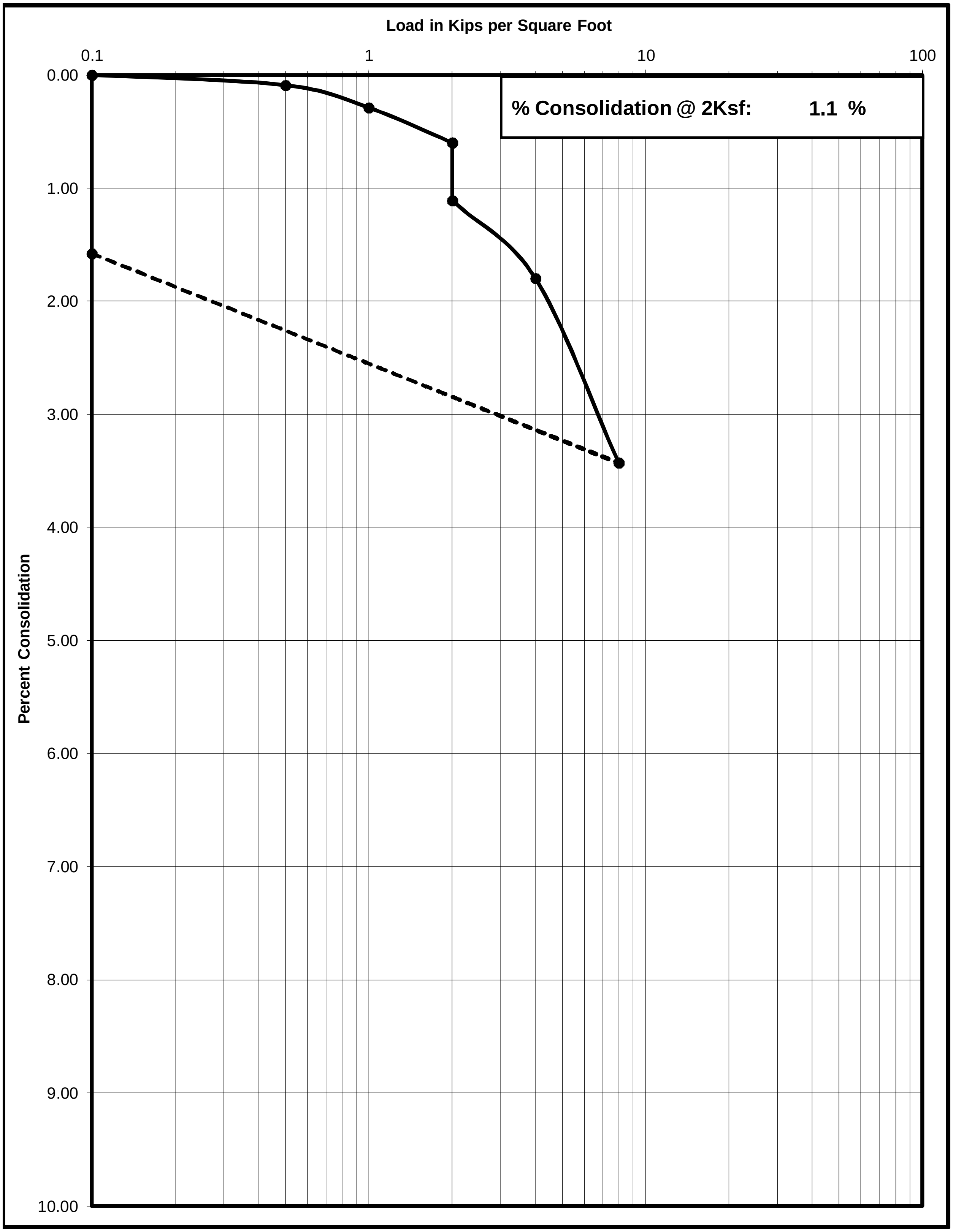
LOAD (ksf)	Reading	% Consolidation
0.1	0.0001	--
0.5	0.0009	0.09
1	0.0029	0.29
2	0.006	0.60
Satur.	0.0111	1.11
4	0.018	1.80
8	0.0343	3.43
0.1	0.0158	1.58



Krazan Testing Laboratory

Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
11219003	B-6 @ 5'	2/11/2019	SM

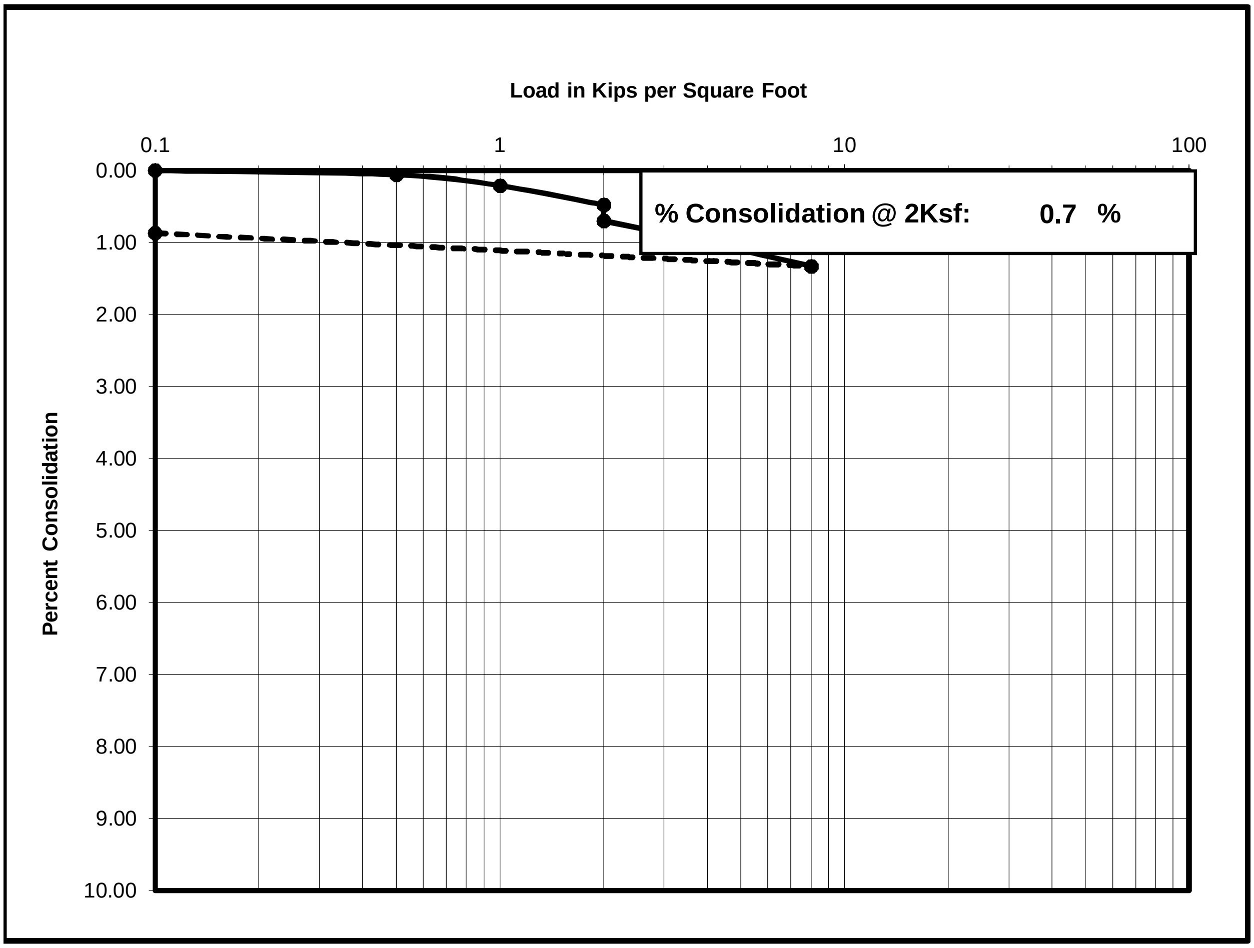


Krazan Testing Laboratory

One Dimensional Consolidation Properties of Soil
ASTM D - 2435 / AASHTO T - 216

Project Number : 11219003
Project Name : INO Rancho Mirage
Date : 2/11/2019
Sample Location : B-6 @ 10'
Soil Classification : SP
Sample Condition : Undisturbed

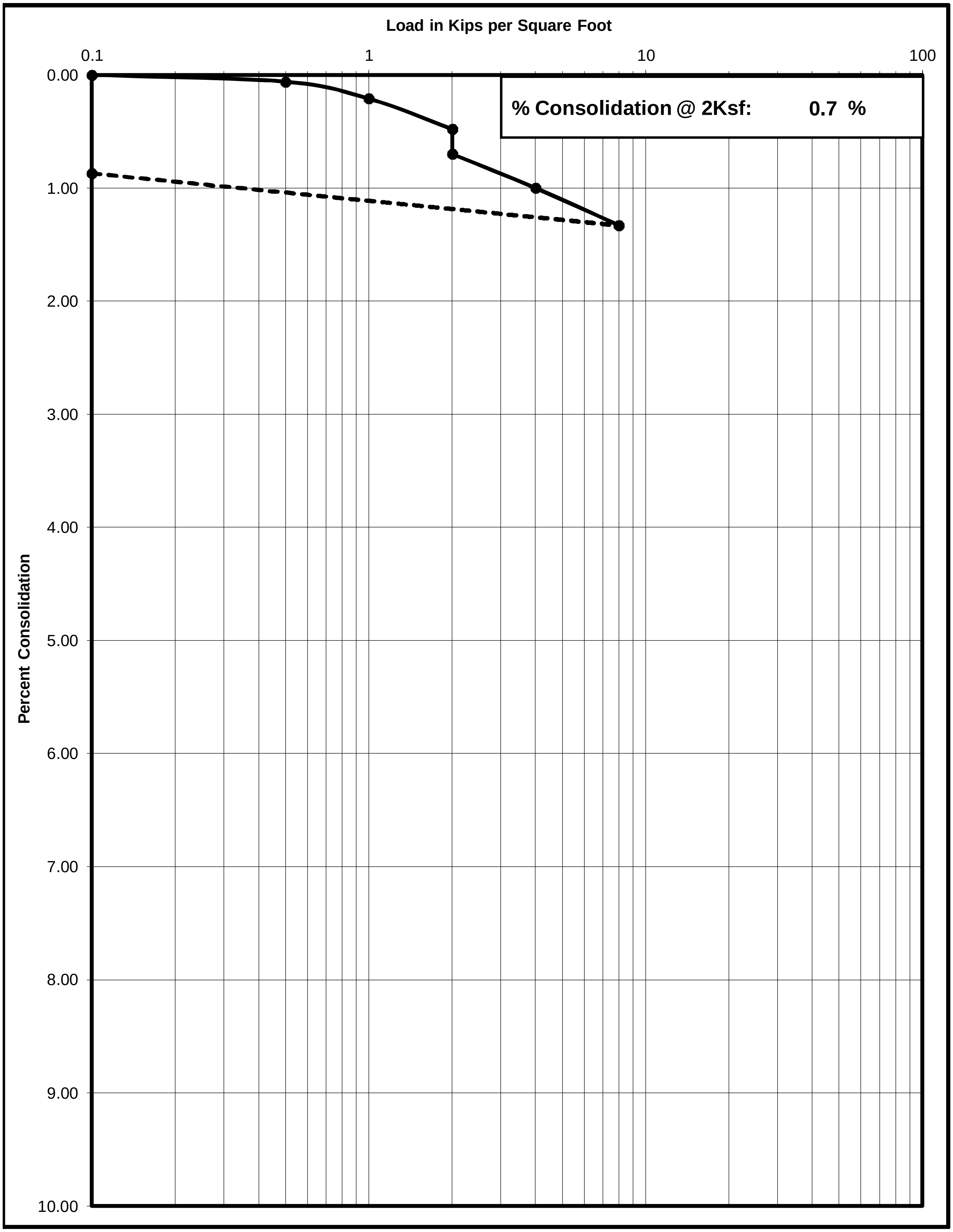
LOAD (ksf)	Reading	% Consolidation
0.1	0.0001	--
0.5	0.0006	0.06
1	0.0021	0.21
2	0.0048	0.48
Satur.	0.007	0.70
4	0.01	1.00
8	0.0133	1.33
0.1	0.0087	0.87



Krazan Testing Laboratory

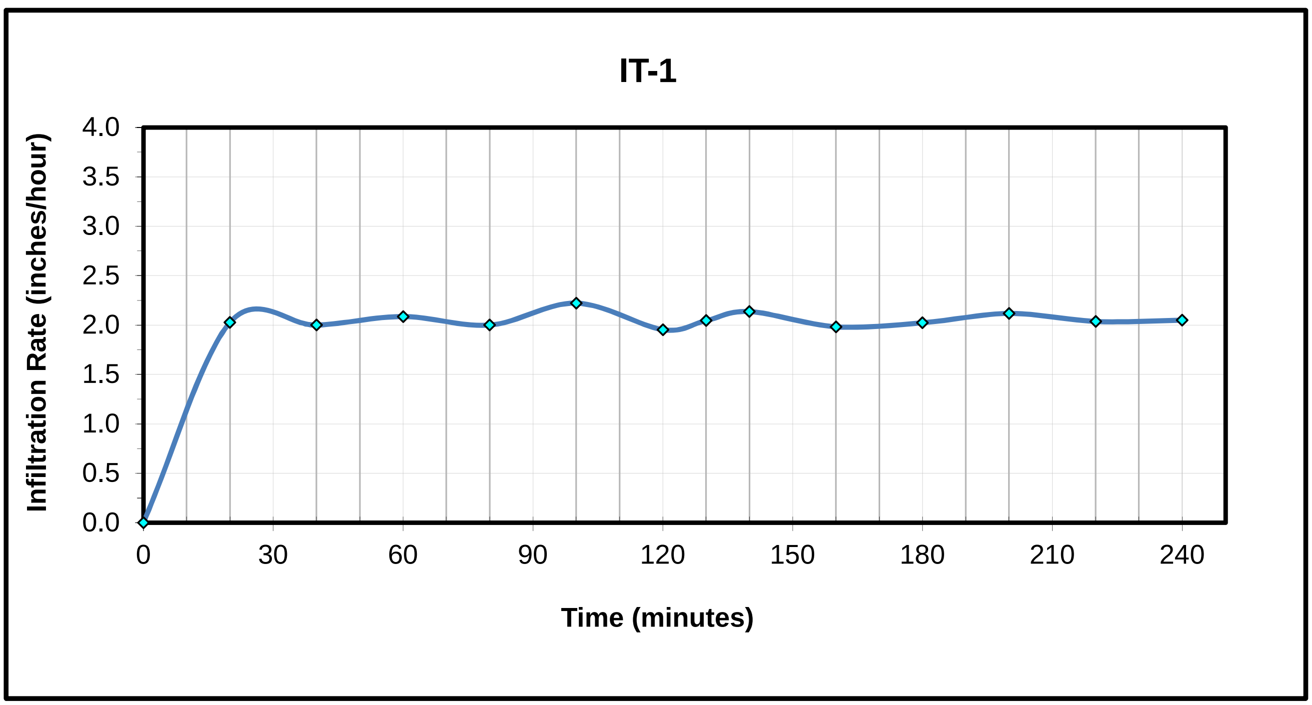
Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
11219003	B-6 @ 10'	2/11/2019	SP

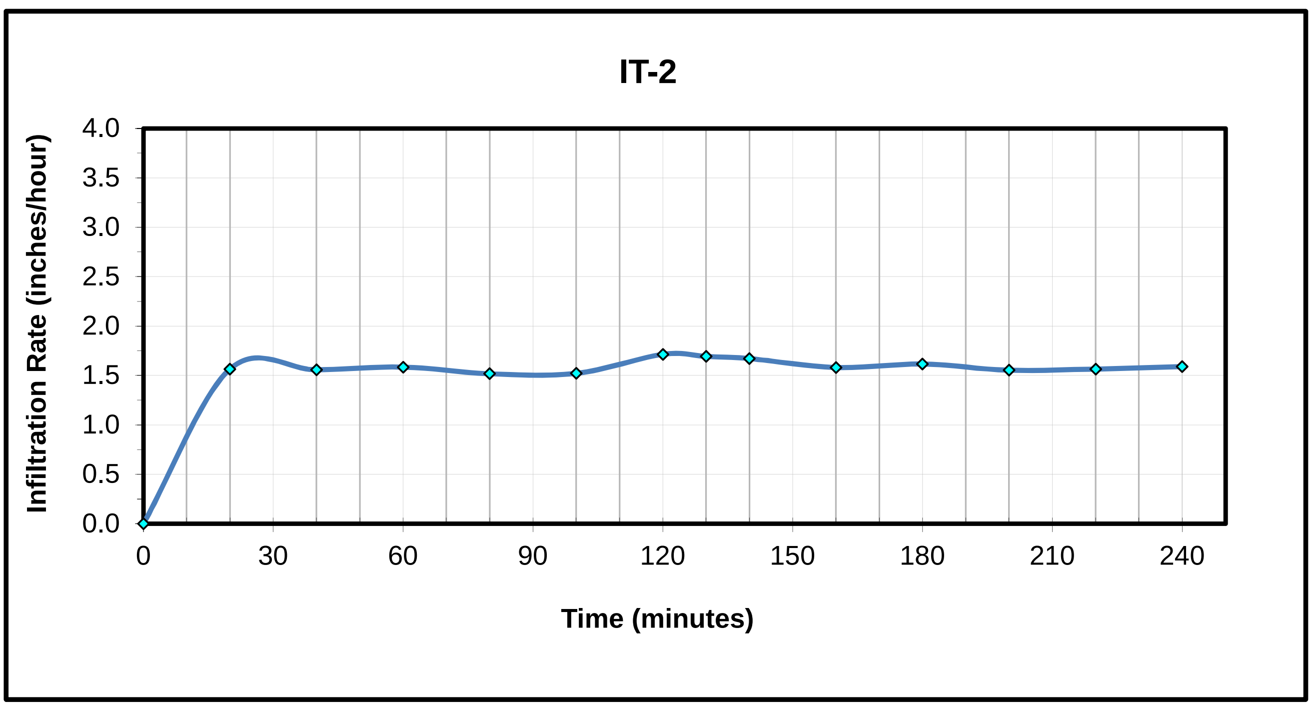


Krazan Testing Laboratory

RESULTS OF INFILTRATION TESTS - REVERSE BOREHOLE						
Project #	**11219003**				**Date**	**2/11/2019**
Project Name	INO Rancho Mirage					
Project Address	42560 Bob Hope Drive, Rancho Mirage					
Test No:	IT-1	**Total Depth (in.)**		60	**Test Size (in)**	8
Depth To Water	>50'	**Soil Classification**		SM		
Reading	**Elasped Time(min.)**	**Incremental Time (min.)**	**Initial Depth To Water(in.)**	**Final Depth To Water(in.)**	**Incremental Fall of Water(in.)**	**Incremental Infiltration Rate (in/hr)**
Start	0	0.00		4.0	--	--
1	20.00	20.00	4.0	17.0	13.00	2.03
2	40.00	20.00	17.0	27.0	10.00	2.00
3	60.00	20.00	27.0	35.0	8.00	2.09
4	80.00	20.00	35.0	41.0	6.00	2.00
5	100.00	20.00	41.0	46.0	5.00	2.22
6	120.00	20.00	46.0	49.5	3.50	1.95
Refilled	130.00			6.0	8.25	2.05
7	140.00	20.00	6.0	19.0	13.00	2.14
8	160.00	20.00	19.0	28.5	9.50	1.98
9	180.00	20.00	28.5	36.0	7.50	2.02
10	200.00	20.00	36.0	42.0	6.00	2.12
11	220.00	20.00	42.0	46.5	4.50	2.04
12	240.00	20.00	46.5	50.0	3.50	2.05
	Infiltration Rate in Inches per Hour					**1.95**



RESULTS OF INFILTRATION TESTS - REVERSE BOREHOLE						
Project #	**11219003**				**Date**	**2/11/2019**
Project Name	INO Rancho Mirage					
Project Address	42560 Bob Hope Drive, Rancho Mirage					
Test No:	IT-2	**Total Depth (in.)**		60	**Test Size (in)**	8
Depth To Water	>50'	**Soil Classification**		SM		
Reading	**Elasped Time(min.)**	**Incremental Time (min.)**	**Initial Depth To Water(in.)**	**Final Depth To Water(in.)**	**Incremental Fall of Water(in.)**	**Incremental Infiltration Rate (in/hr)**
Start	0	0.00		6.0	--	--
1	20.00	20.00	6.0	16.5	10.50	1.57
2	40.00	20.00	16.5	25.0	8.50	1.56
3	60.00	20.00	25.0	32.0	7.00	1.58
4	80.00	20.00	32.0	37.5	5.50	1.52
5	100.00	20.00	37.5	42.0	4.50	1.52
6	120.00	20.00	42.0	46.0	4.00	1.71
Refilled	130.00			6.0	7.50	1.69
7	140.00	20.00	6.0	17.0	11.00	1.67
8	160.00	20.00	17.0	25.5	8.50	1.58
9	180.00	20.00	25.5	32.5	7.00	1.62
10	200.00	20.00	32.5	38.0	5.50	1.55
11	220.00	20.00	38.0	42.5	4.50	1.57
12	240.00	20.00	42.5	46.2	3.70	1.59
	Infiltration Rate in Inches per Hour					**1.52**



ANAHEIM TEST LAB, INC

196 Technology Drive, Unit D
Irvine, CA 92618
PHONE (949)336-6544

DATE: 01/24/19

Krazan & Associates, Inc.
1100 Olympic Drive, Ste. 103
Corona, CA 92881

P.O. NO: Verbal

LAB NO: C-2578

SPECIFICATION: CTM-417/422/643

MATERIAL: Soil

Project No: 11219003
INO, Rancho Mirage
B-2 @ 0-5'

ANALYTICAL REPORT

CORROSION SERIES
SUMMARY OF DATA

pH	SOLUBLE SULFATES per CT. 417 ppm	SOLUBLE CHLORIDES per CT. 422 ppm	MIN. RESISTIVITY per CT. 643 ohm-cm
7.5	144	47	8,800

RESPECTFULLY SUBMITTED

WES BRIDGER CHEMIST

General Earthwork Specifications

Appendix B

APPENDIX B

EARTHWORK SPECIFICATIONS

GENERAL

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including, but not limited to, the furnishing of all labor, tools and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans and disposal of excess materials.

PERFORMANCE: The Contractor shall be responsible for the satisfactory completion of all earthworks in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of Krazan and Associates, Incorporated, hereinafter referred to as the Geotechnical Engineer and/or Testing Agency. Attainment of design grades, when achieved, shall be certified by the project Civil Engineer. Both the Geotechnical Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary adjustments until all work is deemed satisfactory as determined by both the Geotechnical Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Geotechnical Engineer, Civil Engineer, or project Architect.

No earthwork shall be performed without the physical presence or approval of the Geotechnical Engineer. The Contractor shall notify the Geotechnical Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

TECHNICAL REQUIREMENTS: All compacted materials shall be densified to the minimum relative compaction of 95 percent. Soil moisture-content requirements presented in the Geotechnical Engineer’s report shall also be complied with. The maximum laboratory compacted dry unit weight of each soil placed as fill shall be determined in accordance with ASTM Test Method D1557-00 (Modified Proctor). The optimum moisture-content shall also be determined in accordance with this test method. The terms “relative compaction” and “compaction” are defined as the in-place dry density of the compacted soil divided by the laboratory compacted maximum dry density as determined by ASTM Test Method D1557-00, expressed as a percentage as specified in the technical portion of the Geotechnical Engineer's report. The location and frequency of field density tests shall be as determined by the Geotechnical Engineer. The results of these tests and compliance with these specifications shall be the basis upon which the Geotechnical Engineer will judge satisfactory completion of work.

SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the Geotechnical Engineering Investigation report.

The Contractor shall make his own interpretation of the data contained in the Geotechnical Engineering Investigation report and the Contractor shall not be relieved of liability under the Contract for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or wind-blown materials attributable to his work.

SITE PREPARATION

Site preparation shall consist of site clearing and grubbing, over-excavation of the proposed building pad areas, preparation of foundation materials for receiving fill, construction of Engineered Fill including the placement of non-expansive fill where recommended by the Geotechnical Engineer.

CLEARING AND GRUBBING: The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter and all other matter determined by the Geotechnical Engineer to be deleterious. Site stripping to remove organic materials and organic-laden soils in landscaped areas shall extend to a minimum depth of 2 inches or until all organic-laden soil with organic matter in excess of 3 percent of the soils by volume are removed. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed building areas should be removed to a minimum depth of 3 feet and to such an extent that would permit removal of all roots greater than 1 inch in diameter. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavation should not be permitted until all exposed surfaces have been inspected and the Geotechnical Engineer is present for the proper control of backfill placement and compaction. Burning in areas that are to receive fill materials shall not be permitted.

Excavations required to achieve design grades, depressions, soft or pliant areas, or areas disturbed by demolition activities extending below planned finished subgrade levels should be excavated down to firm, undisturbed soil and backfilled with Engineered Fill. The resulting excavations should be backfilled with Engineered Fill.

EXCAVATION: Following clearing and grubbing operations, the proposed building pad area shall be over-excavated to a depth of at least two feet below existing grades or one foot below the planned foundation bottom levels, whichever is deeper, and the remaining areas of the building and adjoining exterior concrete flatwork or pavements at the building perimeter shall be over-excavated to a depth of at least one foot below existing grade. The areas of over-excavation and recompaction beneath footings and slabs shall extend out laterally a minimum of five feet beyond the perimeter of these elements.

All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified shall be backfilled at the

Contractor's expense and shall be compacted in accordance with the applicable **TECHNICAL REQUIREMENTS**.

SUBGRADE PREPARATION: Surfaces to receive Engineered Fill or to support structures directly, shall be scarified to a depth of 8 inches, moisture-conditioned as necessary and compacted in accordance with the **TECHNICAL REQUIREMENTS**, above.

Loose soil areas and/or areas of disturbed soil shall be should be excavated down to firm, undisturbed soil, moisture-conditioned as necessary and backfilled with Engineered Fill. All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas that are to receive fill materials shall be approved by the Geotechnical Engineer prior to the placement of any of the fill material.

FILL AND BACKFILL MATERIAL: No material shall be moved or compacted without the presence of the Geotechnical Engineer. Material from the required site excavation may be utilized for construction of site fills, with the limitations of their use presented in the Geotechnical Engineer's report, provided the Geotechnical Engineer gives prior approval. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Geotechnical Engineer, and shall comply with the requirements for non-expansive fill, aggregate base or aggregate subbase as applicable for its proposed used on the site as presented in the Geotechnical Engineer's report.

PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. Fill materials should be placed and compacted in horizontal lifts, each not exceeding 8 inches in uncompacted thickness. Due to equipment limitations, thinner lifts may be necessary to achieve the recommended level of compaction. Compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Geotechnical Engineer. Additional lifts should not be placed if the previous lift did not meet the required dry density (relative compaction) or if soil conditions are not stable. The compacted subgrade in pavement areas should be non-yielding when proof-rolled with a loaded ten-wheel truck, such as a water truck or dump truck, prior to pavement construction.

Both cut and fill shall be surface-compacted to the satisfaction of the Geotechnical Engineer prior to final acceptance.

SEASONAL LIMITS: No fill material shall be placed, spread, or rolled while it is frozen or thawing, or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Geotechnical Engineer indicates that the moisture-content and density of previously placed fill is as specified.

General Paving Specifications

Appendix C

APPENDIX C

PAVEMENT SPECIFICATIONS

1. DEFINITIONS - The term "pavement" shall include asphalt concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term “Standard Specifications”: hereinafter referred to is the January 1999 Standard Specifications of the State of California, Department of Transportation, and the "Materials Manual" is the Materials Manual of Testing and Control Procedures, State of California, Department of Public Works, Division of Highways. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as defined in the ASTM D1557-00.

2. SCOPE OF WORK - This portion of the work shall include all labor, materials, tools, and equipment necessary for, and reasonably incidental to the completion of the pavement shown on the plans and as herein specified, except work specifically notes as "Work Not Included."

3. PREPARATION OF THE SUBGRADE - The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section shall be compacted to a minimum relative compaction of 95 percent. The finished subgrades shall be tested and approved by the Geotechnical Engineer prior to the placement of additional pavement courses.

4. UNTREATED AGGREGATE BASE - The aggregate base material shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material shall conform to the requirements of Section 26 of the Standard Specifications for Class 2 material, ¾-inches maximum size. The aggregate base material shall be compacted to a minimum relative compaction of 95 percent. The aggregate base material shall be spread and compacted in accordance with Section 26 of the Standard Specifications. The aggregate base material shall be spread in layers not exceeding 6 inches and each layer of aggregate material course shall be tested and approved by the Geotechnical Engineer prior to the placement of successive layers.

5. AGGREGATE SUBBASE - The aggregate subbase shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate subbase material shall conform to the requirements of Section 25 of the Standard Specifications for Class II material. The aggregate subbase material shall be compacted to a minimum relative compaction of 95 percent, and it shall be spread and compacted in accordance with Section 25 of the Standard Specifications. Each layer of aggregate subbase shall be tested and approved by the Geotechnical Engineer prior to the placement of successive layers.

6. ASPHALT CONCRETE SURFACING - Asphalt concrete surfacing shall consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades, and dimensions shown on the plans. The viscosity grade of the asphalt shall be AR-8000. The mineral aggregate shall be Type B, ½-inch or ¾-inch maximum, medium grading, for the wearing course and ¾-inch maximum, medium grading for the base course, and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning, and mixing of the materials shall conform to Section 39.

The prime coat, spreading and compacting equipment, and spreading and compacting the mixture shall conform to the applicable chapters of Section 39, with the exception that no surface course shall be placed when the atmospheric temperature is below 50 degrees F. The surfacing shall be rolled with a combination steel-wheel and pneumatic rollers, as described in Section 39-6. The surface course shall be placed with an approved self-propelled mechanical spreading and finishing machine.

7. FOG SEAL COAT - The fog seal (mixing type asphalt emulsion) shall conform to and be applied in accordance with the requirements of Section 37.

APPENDIX D

Greenhouse Gas Emissions Model Output

INO - Rancho Mirage

Salton Sea Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	30.63	1000sqft	0.70	30,630.00	0
High Turnover (Sit Down Restaurant)	4.00	1000sqft	0.09	3,995.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	20
Climate Zone	15			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Plans include 30,630 sq. ft. of parking lot

Construction Phase - Construction expected to start April 2021 and completed by October 2021

Off-road Equipment -

Off-road Equipment - No cranes

Off-road Equipment -

Off-road Equipment -

On-road Fugitive Dust - Paved surfaces

Demolition - Existing curb/gutter/asphalt removal in addition to vegetation and rubbish

Vehicle Trips - Based on 3,045 daily weekday trips from the trip generation forecast. Default ration adjusted accordingly.
However, the Project would result in 2,284 daily trips when taking into account pass by reductions

Road Dust - Paved Road

Construction Off-road Equipment Mitigation - SCAQMD recommends at the minimum to use off-road diesel-powered construction equipment that meets or exceeds the CARB and USEPA Tier 3 emission standards.
Fugitive Dust Mitigation Measures - SCAQMD CEQA Handbook Tables 11-4

Area Mitigation -

Water Mitigation -

Off-road Equipment -

Grading - 3,900 cy of cut, 3,700 cy of fill = 200 cy of soil to be exported

Off-road Equipment -

Sequestration - Approximately 31 new trees to be planted

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstructionPhase	NumDays	5.00	11.00
tblConstructionPhase	NumDays	2.00	6.00
tblGrading	MaterialExported	0.00	200.00
tblLandUse	LandUseSquareFeet	4,000.00	3,995.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblRoadDust	RoadPercentPave	50	100
tblSequestration	NumberOfNewTrees	0.00	31.00
tblVehicleTrips	ST_TR	158.37	949.30
tblVehicleTrips	SU_TR	131.84	790.30
tblVehicleTrips	WD_TR	127.15	762.20

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0805	0.4430	0.4615	8.6000e-004	0.0488	0.0231	0.0719	9.7200e-003	0.0214	0.0311	0.0000	76.5040	76.5040	0.0166	0.0000	76.9186
Maximum	**0.0805**	**0.4430**	**0.4615**	**8.6000e-004**	**0.0488**	**0.0231**	**0.0719**	**9.7200e-003**	**0.0214**	**0.0311**	**0.0000**	**76.5040**	**76.5040**	**0.0166**	**0.0000**	**76.9186**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0604	0.3911	0.4675	8.6000e-004	0.0264	0.0217	0.0481	5.7900e-003	0.0213	0.0271	0.0000	76.5040	76.5040	0.0166	0.0000	76.9186
Maximum	**0.0604**	**0.3911**	**0.4675**	**8.6000e-004**	**0.0264**	**0.0217**	**0.0481**	**5.7900e-003**	**0.0213**	**0.0271**	**0.0000**	**76.5040**	**76.5040**	**0.0166**	**0.0000**	**76.9186**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**25.04**	**11.72**	**-1.28**	**0.00**	**45.85**	**6.15**	**33.08**	**40.43**	**0.28**	**12.85**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**4-1-2021**	**6-30-2021**	0.2509	0.2209
2	**7-1-2021**	**9-30-2021**	0.2563	0.2158
		Highest	0.2563	0.2209

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0210	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.2000e-004	6.2000e-004	0.0000	0.0000	6.6000e-004
Energy	5.8900e-003	0.0536	0.0450	3.2000e-004		4.0700e-003	4.0700e-003		4.0700e-003	4.0700e-003	0.0000	118.7312	118.7312	3.6100e-003	1.5800e-003	119.2938
Mobile	0.9657	8.7288	6.5169	0.0240	0.9828	0.0139	0.9966	0.2640	0.0130	0.2770	0.0000	2,246.0659	2,246.0659	0.2460	0.0000	2,252.2169
Waste						0.0000	0.0000		0.0000	0.0000	9.6624	0.0000	9.6624	0.5710	0.0000	23.9381
Water						0.0000	0.0000		0.0000	0.0000	0.3852	5.3115	5.6967	0.0398	9.8000e-004	6.9831
Total	**0.9926**	**8.7823**	**6.5622**	**0.0243**	**0.9828**	**0.0179**	**1.0007**	**0.2640**	**0.0171**	**0.2811**	**10.0476**	**2,370.1092**	**2,380.1567**	**0.8605**	**2.5600e-003**	**2,402.4326**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0199	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.2000e-004	6.2000e-004	0.0000	0.0000	6.6000e-004
Energy	5.8900e-003	0.0536	0.0450	3.2000e-004		4.0700e-003	4.0700e-003		4.0700e-003	4.0700e-003	0.0000	118.7312	118.7312	3.6100e-003	1.5800e-003	119.2938
Mobile	0.9657	8.7288	6.5169	0.0240	0.9828	0.0139	0.9966	0.2640	0.0130	0.2770	0.0000	2,246.0659	2,246.0659	0.2460	0.0000	2,252.2169
Waste						0.0000	0.0000		0.0000	0.0000	9.6624	0.0000	9.6624	0.5710	0.0000	23.9381
Water						0.0000	0.0000		0.0000	0.0000	0.3082	4.2873	4.5955	0.0318	7.8000e-004	5.6248
Total	**0.9915**	**8.7823**	**6.5622**	**0.0243**	**0.9828**	**0.0179**	**1.0007**	**0.2640**	**0.0171**	**0.2811**	**9.9705**	**2,369.0850**	**2,379.0555**	**0.8525**	**2.3600e-003**	**2,401.0742**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.04	0.05	0.92	7.81	0.06

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	21.9480
Total	**21.9480**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/8/2021	4/21/2021	5	10	Removal of existing curb and gutter, and asphalt
2	Building Construction	Building Construction	4/30/2021	9/16/2021	5	100	
3	Paving	Paving	9/17/2021	10/1/2021	5	11	
4	Architectural Coating	Architectural Coating	9/26/2021	10/1/2021	5	5	
5	Grading	Grading	4/22/2021	4/29/2021	5	6	Export of 200 cy of soil

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.7

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,993; Non-Residential Outdoor: 1,998; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	306.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	15.00	6.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	25.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0344	0.0000	0.0344	5.2000e-003	0.0000	5.2000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9800e-003	0.0363	0.0379	6.0000e-005		2.0400e-003	2.0400e-003		1.9400e-003	1.9400e-003	0.0000	5.2047	5.2047	9.7000e-004	0.0000	5.2289
Total	**3.9800e-003**	**0.0363**	**0.0379**	**6.0000e-005**	**0.0344**	**2.0400e-003**	**0.0364**	**5.2000e-003**	**1.9400e-003**	**7.1400e-003**	**0.0000**	**5.2047**	**5.2047**	**9.7000e-004**	**0.0000**	**5.2289**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.9000e-004	0.0335	4.6300e-003	1.2000e-004	2.6500e-003	1.0000e-004	2.7500e-003	7.3000e-004	1.0000e-004	8.2000e-004	0.0000	11.1872	11.1872	5.6000e-004	0.0000	11.2011
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.7000e-004	1.7300e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3412	0.3412	1.0000e-005	0.0000	0.3415
Total	**1.0300e-003**	**0.0336**	**6.3600e-003**	**1.2000e-004**	**3.0600e-003**	**1.0000e-004**	**3.1700e-003**	**8.4000e-004**	**1.0000e-004**	**9.3000e-004**	**0.0000**	**11.5284**	**11.5284**	**5.7000e-004**	**0.0000**	**11.5426**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0134	0.0000	0.0134	2.0300e-003	0.0000	2.0300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4800e-003	0.0328	0.0389	6.0000e-005		2.0400e-003	2.0400e-003		2.0100e-003	2.0100e-003	0.0000	5.2047	5.2047	9.7000e-004	0.0000	5.2289
Total	**2.4800e-003**	**0.0328**	**0.0389**	**6.0000e-005**	**0.0134**	**2.0400e-003**	**0.0154**	**2.0300e-003**	**2.0100e-003**	**4.0400e-003**	**0.0000**	**5.2047**	**5.2047**	**9.7000e-004**	**0.0000**	**5.2289**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.9000e-004	0.0335	4.6300e-003	1.2000e-004	2.6500e-003	1.0000e-004	2.7500e-003	7.3000e-004	1.0000e-004	8.2000e-004	0.0000	11.1872	11.1872	5.6000e-004	0.0000	11.2011
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.7000e-004	1.7300e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3412	0.3412	1.0000e-005	0.0000	0.3415
Total	**1.0300e-003**	**0.0336**	**6.3600e-003**	**1.2000e-004**	**3.0600e-003**	**1.0000e-004**	**3.1700e-003**	**8.4000e-004**	**1.0000e-004**	**9.3000e-004**	**0.0000**	**11.5284**	**11.5284**	**5.7000e-004**	**0.0000**	**11.5426**

3.3 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0284	0.2780	0.3136	4.3000e-004		0.0175	0.0175		0.0161	0.0161	0.0000	37.3690	37.3690	0.0121	0.0000	37.6712

Total	**0.0284**	**0.2780**	**0.3136**	**4.3000e-004**		**0.0175**	**0.0175**		**0.0161**	**0.0161**	**0.0000**	**37.3690**	**37.3690**	**0.0121**	**0.0000**	**37.6712**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.3000e-004	0.0268	6.4300e-003	7.0000e-005	1.4900e-003	5.0000e-005	1.5400e-003	4.3000e-004	5.0000e-005	4.8000e-004	0.0000	6.5121	6.5121	5.4000e-004	0.0000	6.5255
Worker	3.5400e-003	2.5600e-003	0.0259	6.0000e-005	6.2000e-003	4.0000e-005	6.2400e-003	1.6500e-003	4.0000e-005	1.6800e-003	0.0000	5.1175	5.1175	2.1000e-004	0.0000	5.1227
Total	**4.3700e-003**	**0.0294**	**0.0324**	**1.3000e-004**	**7.6900e-003**	**9.0000e-005**	**7.7800e-003**	**2.0800e-003**	**9.0000e-005**	**2.1600e-003**	**0.0000**	**11.6296**	**11.6296**	**7.5000e-004**	**0.0000**	**11.6482**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0137	0.2426	0.3190	4.3000e-004		0.0164	0.0164		0.0161	0.0161	0.0000	37.3690	37.3690	0.0121	0.0000	37.6712
Total	**0.0137**	**0.2426**	**0.3190**	**4.3000e-004**		**0.0164**	**0.0164**		**0.0161**	**0.0161**	**0.0000**	**37.3690**	**37.3690**	**0.0121**	**0.0000**	**37.6712**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.3000e-004	0.0268	6.4300e-003	7.0000e-005	1.4900e-003	5.0000e-005	1.5400e-003	4.3000e-004	5.0000e-005	4.8000e-004	0.0000	6.5121	6.5121	5.4000e-004	0.0000	6.5255
Worker	3.5400e-003	2.5600e-003	0.0259	6.0000e-005	6.2000e-003	4.0000e-005	6.2400e-003	1.6500e-003	4.0000e-005	1.6800e-003	0.0000	5.1175	5.1175	2.1000e-004	0.0000	5.1227
Total	**4.3700e-003**	**0.0294**	**0.0324**	**1.3000e-004**	**7.6900e-003**	**9.0000e-005**	**7.7800e-003**	**2.0800e-003**	**9.0000e-005**	**2.1600e-003**	**0.0000**	**11.6296**	**11.6296**	**7.5000e-004**	**0.0000**	**11.6482**

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9700e-003	0.0370	0.0390	6.0000e-005		1.9400e-003	1.9400e-003		1.8100e-003	1.8100e-003	0.0000	5.1659	5.1659	1.5000e-003	0.0000	5.2035
Paving	9.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.8900e-003**	**0.0370**	**0.0390**	**6.0000e-005**		**1.9400e-003**	**1.9400e-003**		**1.8100e-003**	**1.8100e-003**	**0.0000**	**5.1659**	**5.1659**	**1.5000e-003**	**0.0000**	**5.2035**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.4000e-004	3.4200e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.2000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.6755	0.6755	3.0000e-005	0.0000	0.6762
Total	**4.7000e-004**	**3.4000e-004**	**3.4200e-003**	**1.0000e-005**	**8.2000e-004**	**1.0000e-005**	**8.2000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.6755**	**0.6755**	**3.0000e-005**	**0.0000**	**0.6762**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3900e-003	0.0264	0.0379	6.0000e-005		1.5900e-003	1.5900e-003		1.5700e-003	1.5700e-003	0.0000	5.1659	5.1659	1.5000e-003	0.0000	5.2035
Paving	9.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.3100e-003**	**0.0264**	**0.0379**	**6.0000e-005**		**1.5900e-003**	**1.5900e-003**		**1.5700e-003**	**1.5700e-003**	**0.0000**	**5.1659**	**5.1659**	**1.5000e-003**	**0.0000**	**5.2035**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.4000e-004	3.4200e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.2000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.6755	0.6755	3.0000e-005	0.0000	0.6762
Total	**4.7000e-004**	**3.4000e-004**	**3.4200e-003**	**1.0000e-005**	**8.2000e-004**	**1.0000e-005**	**8.2000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.6755**	**0.6755**	**3.0000e-005**	**0.0000**	**0.6762**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5000e-004	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	**0.0347**	**3.8200e-003**	**4.5400e-003**	**1.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6394**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	2.6000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0512	0.0512	0.0000	0.0000	0.0512
Total	**4.0000e-005**	**3.0000e-005**	**2.6000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**0.0000**	**0.0512**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5000e-004	3.3900e-003	4.5800e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	**0.0343**	**3.3900e-003**	**4.5800e-003**	**1.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6394**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	2.6000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0512	0.0512	0.0000	0.0000	0.0512
Total	**4.0000e-005**	**3.0000e-005**	**2.6000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**0.0000**	**0.0512**

3.6 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.2800e-003	0.0000	2.2800e-003	1.2400e-003	0.0000	1.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	2.3900e-003	0.0218	0.0227	4.0000e-005		1.2200e-003	1.2200e-003		1.1700e-003	1.1700e-003	0.0000	3.1228	3.1228	5.8000e-004	0.0000	3.1374
Total	**2.3900e-003**	**0.0218**	**0.0227**	**4.0000e-005**	**2.2800e-003**	**1.2200e-003**	**3.5000e-003**	**1.2400e-003**	**1.1700e-003**	**2.4100e-003**	**0.0000**	**3.1228**	**3.1228**	**5.8000e-004**	**0.0000**	**3.1374**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	2.7300e-003	3.8000e-004	1.0000e-005	2.2000e-004	1.0000e-005	2.2000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.9140	0.9140	5.0000e-005	0.0000	0.9151
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.0400e-003	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2047	0.2047	1.0000e-005	0.0000	0.2049
Total	**2.0000e-004**	**2.8300e-003**	**1.4200e-003**	**1.0000e-005**	**4.7000e-004**	**1.0000e-005**	**4.7000e-004**	**1.3000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**1.1187**	**1.1187**	**6.0000e-005**	**0.0000**	**1.1200**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.9000e-004	0.0000	8.9000e-004	4.9000e-004	0.0000	4.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4900e-003	0.0197	0.0233	4.0000e-005		1.2200e-003	1.2200e-003		1.2000e-003	1.2000e-003	0.0000	3.1228	3.1228	5.8000e-004	0.0000	3.1374
Total	**1.4900e-003**	**0.0197**	**0.0233**	**4.0000e-005**	**8.9000e-004**	**1.2200e-003**	**2.1100e-003**	**4.9000e-004**	**1.2000e-003**	**1.6900e-003**	**0.0000**	**3.1228**	**3.1228**	**5.8000e-004**	**0.0000**	**3.1374**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	6.0000e-005	2.7300e-003	3.8000e-004	1.0000e-005	2.2000e-004	1.0000e-005	2.2000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.9140	0.9140	5.0000e-005	0.0000	0.9151
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.0400e-003	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2047	0.2047	1.0000e-005	0.0000	0.2049
Total	**2.0000e-004**	**2.8300e-003**	**1.4200e-003**	**1.0000e-005**	**4.7000e-004**	**1.0000e-005**	**4.7000e-004**	**1.3000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**1.1187**	**1.1187**	**6.0000e-005**	**0.0000**	**1.1200**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.9657	8.7288	6.5169	0.0240	0.9828	0.0139	0.9966	0.2640	0.0130	0.2770	0.0000	2,246.0659	2,246.0659	0.2460	0.0000	2,252.2169
Unmitigated	0.9657	8.7288	6.5169	0.0240	0.9828	0.0139	0.9966	0.2640	0.0130	0.2770	0.0000	2,246.0659	2,246.0659	0.2460	0.0000	2,252.2169

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT

High Turnover (Sit Down Restaurant)	3,048.80	3,797.20	3161.20	2,538,881	2,538,881
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	3,048.80	3,797.20	3,161.20	2,538,881	2,538,881

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High Turnover (Sit Down Restaurant)	12.50	4.20	5.40	8.50	72.50	19.00	37	20	43
Other Asphalt Surfaces	12.50	4.20	5.40	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High Turnover (Sit Down Restaurant)	0.490441	0.036099	0.183975	0.121725	0.015214	0.005252	0.022424	0.112230	0.002972	0.001873	0.006187	0.000783	0.000825
Other Asphalt Surfaces	0.490441	0.036099	0.183975	0.121725	0.015214	0.005252	0.022424	0.112230	0.002972	0.001873	0.006187	0.000783	0.000825

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	60.4369	60.4369	2.5000e-003	5.2000e-004	60.6532
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	60.4369	60.4369	2.5000e-003	5.2000e-004	60.6532
NaturalGas Mitigated	5.8900e-003	0.0536	0.0450	3.2000e-004		4.0700e-003	4.0700e-003		4.0700e-003	4.0700e-003	0.0000	58.2942	58.2942	1.1200e-003	1.0700e-003	58.6407
NaturalGas Unmitigated	5.8900e-003	0.0536	0.0450	3.2000e-004		4.0700e-003	4.0700e-003		4.0700e-003	4.0700e-003	0.0000	58.2942	58.2942	1.1200e-003	1.0700e-003	58.6407

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
High Turnover (Sit Down Restaurant)	1.09239e+006	5.8900e-003	0.0536	0.0450	3.2000e-004		4.0700e-003	4.0700e-003		4.0700e-003	4.0700e-003	0.0000	58.2942	58.2942	1.1200e-003	1.0700e-003	58.6407
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.8900e-003**	**0.0536**	**0.0450**	**3.2000e-004**		**4.0700e-003**	**4.0700e-003**		**4.0700e-003**	**4.0700e-003**	**0.0000**	**58.2942**	**58.2942**	**1.1200e-003**	**1.0700e-003**	**58.6407**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
High Turnover (Sit Down Restaurant)	1.09239e+006	5.8900e-003	0.0536	0.0450	3.2000e-004		4.0700e-003	4.0700e-003		4.0700e-003	4.0700e-003	0.0000	58.2942	58.2942	1.1200e-003	1.0700e-003	58.6407
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.8900e-003**	**0.0536**	**0.0450**	**3.2000e-004**		**4.0700e-003**	**4.0700e-003**		**4.0700e-003**	**4.0700e-003**	**0.0000**	**58.2942**	**58.2942**	**1.1200e-003**	**1.0700e-003**	**58.6407**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High Turnover (Sit Down Restaurant)	189683	60.4369	2.5000e-003	5.2000e-004	60.6532
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**60.4369**	**2.5000e-003**	**5.2000e-004**	**60.6532**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High Turnover (Sit Down Restaurant)	189683	60.4369	2.5000e-003	5.2000e-004	60.6532
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**60.4369**	**2.5000e-003**	**5.2000e-004**	**60.6532**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0199	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.2000e-004	6.2000e-004	0.0000	0.0000	6.6000e-004
Unmitigated	0.0210	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.2000e-004	6.2000e-004	0.0000	0.0000	6.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.4200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0176					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.2000e-004	6.2000e-004	0.0000	0.0000	6.6000e-004
Total	**0.0210**	**0.0000**	**3.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.2000e-004**	**6.2000e-004**	**0.0000**	**0.0000**	**6.6000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

SubCategory	tons/yr										MT/yr					
Architectural Coating	3.4200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0164					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.2000e-004	6.2000e-004	0.0000	0.0000	6.6000e-004
Total	**0.0199**	**0.0000**	**3.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.2000e-004**	**6.2000e-004**	**0.0000**	**0.0000**	**6.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.5955	0.0318	7.8000e-004	5.6248
Unmitigated	5.6967	0.0398	9.8000e-004	6.9831

7.2 Water by Land Use

Unmitigated

Land Use	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
	Mgal	MT/yr			
High Turnover (Sit Down Restaurant)	1.21413 / 0.077498	5.6967	0.0398	9.8000e-004	6.9831
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**5.6967**	**0.0398**	**9.8000e-004**	**6.9831**

Mitigated

Land Use	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
	Mgal	MT/yr			
High Turnover (Sit Down Restaurant)	0.971308 / 0.0727706	4.5955	0.0318	7.8000e-004	5.6248
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.5955**	**0.0318**	**7.8000e-004**	**5.6248**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	9.6624	0.5710	0.0000	23.9381
Unmitigated	9.6624	0.5710	0.0000	23.9381

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High Turnover (Sit Down Restaurant)	47.6	9.6624	0.5710	0.0000	23.9381
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**9.6624**	**0.5710**	**0.0000**	**23.9381**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High Turnover (Sit Down Restaurant)	47.6	9.6624	0.5710	0.0000	23.9381
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000

Total		9.6624	0.5710	0.0000	23.9381

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	21.9480	0.0000	0.0000	21.9480

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	31	21.9480	0.0000	0.0000	21.9480
Total		**21.9480**	**0.0000**	**0.0000**	**21.9480**

APPENDIX E

Hydrology Reports

APPENDIX E.1

Hydrology Study and WQMP Compliance

CIVIL ENGINEERS & LAND SURVEYORS SPECIALIZING IN SITE DEVELOPMENT

MSL ENGINEERING, INC.

Hydrology Study
and
WQMP Compliance

FOR

In-N-Out Burger – Rancho Mirage
42560 Bob Hope Dr.
Rancho Mirage, CA 92270

Prepared for:

In-N-Out Burger
13502 Hamburger Lane
Baldwin Park, CA 91706

Jim Lockington
(626) 813-8289

Prepared by:

MSL Engineering, Inc.
402 W. Arrow Highway, Suite 4
San Dimas, CA 91773
Phone (909) 305-2395, FAX (909) 305-2397

REGISTERED PROFESSIONAL ENGINEER
AARON D. PELLOW
C 77913
CIVIL
STATE OF CALIFORNIA

Aaron D. Pellow

Aaron Pellow, R.C.E. 77913 — 10-21-2019
Principal Engineer — Date

TABLE OF CONTENTS

Site and Project Description....1
Existing Drainage....1
Proposed Drainage....1
Conclusion....2

Figures

Drainage Area Map Sheet C17

Site and Project Description

MSL Engineering, Inc. has prepared this Hydrology Study and WQMP Compliance Report for In-N-Out Burger (INOB) in support of the proposed construction of a new In-N-Out Burger restaurant with drive-thru lane, outdoor covered dining area, covered trash enclosure, parking lot, and site landscaping, located at 42560 Bob Hope Drive at the northeast corner of Bob Hope Drive and Highway 111 in the City of Rancho Mirage. The In-N-Out Burger development is part of a larger existing development for Rancho Las Palmas, which was recently re-developed. The In-N-Out Burger project includes re-construction throughout the site area, but maintains existing drainage patterns and existing infiltration dry wells that were installed as part of the Rancho Las Palmas project.

Existing Drainage

The Rancho Las Palmas Shopping Center was approved and constructed in 2 phases between 2015 and 2017. The approved Hydrology Studies for each phase of Rancho Las Palmas are contained in Attachment 1 of this report.

Proposed Drainage

The drainage design for In-N-Out Burger has been designed to conform to the City approved drainage design for the Rancho Las Palmas (RLP) Shopping Center. Since the Ranchos Las Palmas project was constructed in conformance with the current NPDES permit for post-construction stormwater treatment, In-N-Out Burger proposes to maintain the existing drainage areas that are tributary to dry wells which have been designed to infiltrate the first flush storm runoff volume from the site.

<u>Drainage Areas</u>

INOB ID	Total Area	RLP ID	RLP Area*	Net Area
A	0.63	A6	0.36	0.27
B	0.65	A7	0.98	-0.33
C	0.36	A21	0.36	0.00
D	0.14	A22	0.15	-0.01
E	0.10	N/A	N/A	N/A

*Drainage Area adjusted for area within the INOB site limits

Drainage Area A includes surface runoff from the area north of the proposed building, which drains in the northeast direction towards the existing Drywell #PH.1 A6, which corresponds with the Rancho Las Palmas development Drainage Area A6. There is an increase of the tributary area to the existing drywell in Drainage Area A by 0.27 acres. Pursuant to the Phase 1 Hydrology Study for Rancho Las Palmas, in the 2-year storm each dry well has the capacity to store and infiltrate all runoff from the proposed drainage areas including the largest drainage area of 1.02 acres for Subarea A7. Since all existing drywells are sized equally, the existing Drywell #PH.1 A6 has the capacity to receive runoff from the increased 0.28 acres for a total of 0.64 acres with no excess runoff during the 2-year storm.

Drainage Area B includes surface runoff from the area northeast of the proposed building, which drains primarily in the east direction towards a new concrete swale that conveys the runoff to the existing Drywell #PH.1 A7, which corresponds with the Rancho Las Palmas development Drainage Area A7. There is a decrease of the tributary area to the existing drywell in Drainage Area B by 0.33 acres, therefore there will be no impact on the existing Drywell #PH.1 A7 and there is sufficient capacity for treatment of the runoff from the proposed improvements within Drainage Area B.

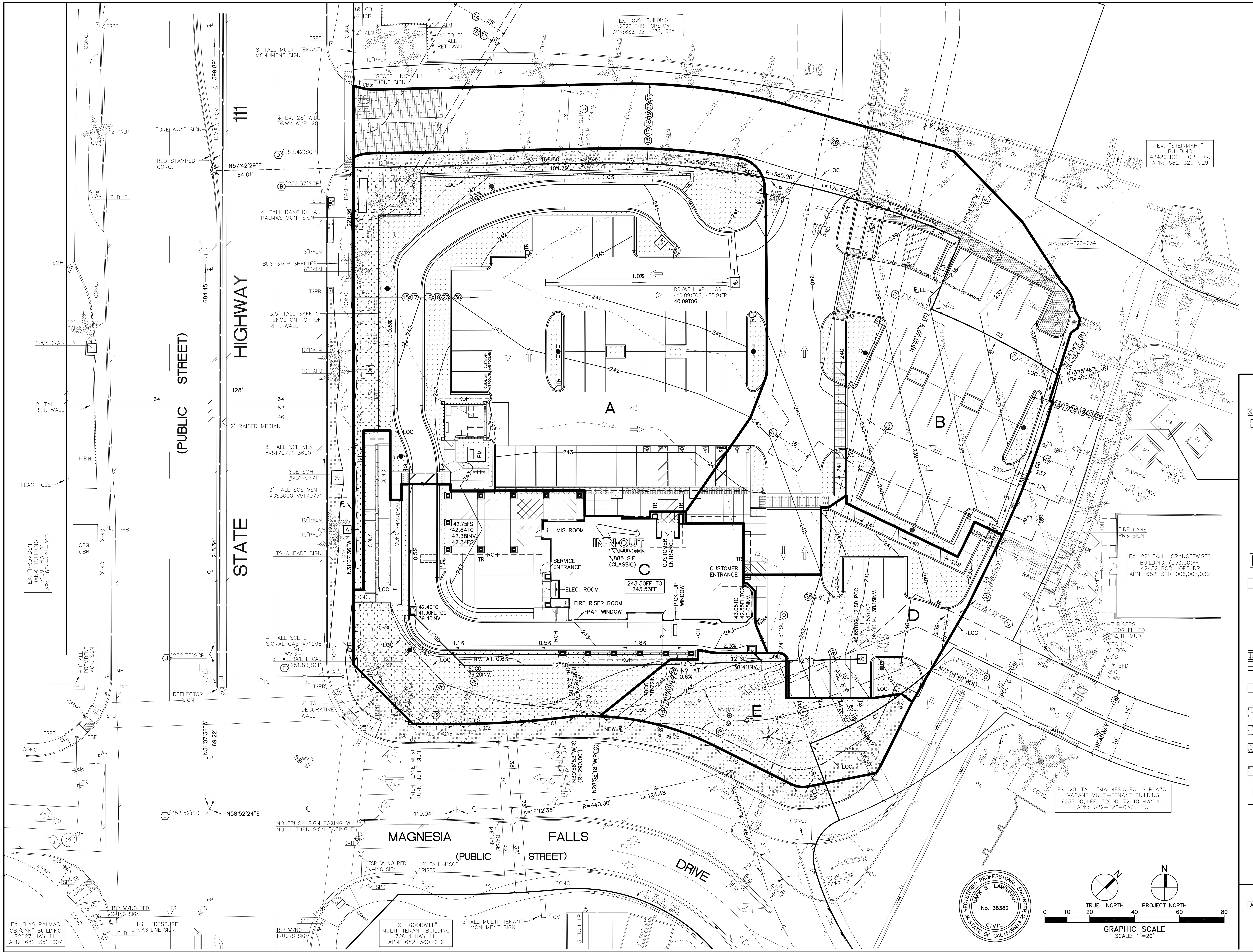
Drainage Area C includes surface runoff from the proposed building and drive-thru lane to the south of the building, which drains primarily in the east direction within the drive-thru lane where it is collected within a new drain box inlet and conveys through a new direct connection to the existing Drywell #PH.2 A21, which corresponds with the Rancho Las Palmas development Drainage Area A21. There is a no change to the size of the tributary area to the existing drywell in Drainage Area B, therefore there will be no impact on the existing Drywell #PH.2 A21 and there is sufficient capacity for treatment of the runoff from the proposed improvements within Drainage Area C.

Drainage Area D includes surface runoff from the area east of the proposed building, which drains in the east direction offsite towards existing improvements within the shopping center that drain to the existing Drywell #PH.2 A22, which corresponds with the Rancho Las Palmas development Drainage Area A22. The proposed area from within the proposed development that is tributary to Drywell #PH.2 A22 is 0.14 acres, which represents a decrease of 0.01 acres to the portion of Drainage Area A22 from the Rancho Las Palmas Hydrology Map that is located within the proposed development area (Area was calculated on AutoCAD using an overlay of the Rancho Las Palmas Hydrology Map on the INOB Drainage area Map). Since there is no increase to the area tributary to the existing Drywell #PH.2 A22 there is sufficient capacity for treatment of the runoff from the proposed improvements within Drainage Area D.

Drainage Area E includes pervious landscape area that is tributary to Magnesia Falls Drive and existing offsite drainage improvements.

Conclusion

The In-N-Out Burger proposed improvements have been designed in conformance with the previously approved drainage design and Hydrology Study for Rancho Las Palmas Shopping Center. Any minor changes to onsite drainage are documented within the Proposed Drainage section above and will not cause any detrimental impacts on existing drainage facilities.



DRAINAGE AREAS			
ID	AREA (SF/%)	IMPERVIOUS (SF/%)	PERVIOUS (SF/%)
A	27,396/33.4%	19,335/70.6%	8,061/29.4%
B	28,295/34.5%	25,795/91.2%	2,500/8.8%
C	15,673/19.1%	11,105/70.9%	4,568/29.1%
D	6,122/7.5%	4,596/75.1%	1,526/24.9%
E	4,520/5.5%	0/0.0%	4,520/100.0%
TOTAL	82,006/100%	60,831/74.2%	21,175/25.8%

CURVE DATA TABLE

NO.	DELTA	RADIUS	LENGTH
C1	03°06'52"	402.00'	21.85'
C2	04°33'56"	402.00'	32.03'
C3	10°25'48"	354.00'	64.44'
C6	11°39'24"	400.00'	81.38'
C7	20°59'08"	173.11'	63.40'
C8	37°42'10"	12.00'	7.90'
C9	24°23'37"	124.00'	52.79'
C10	01°58'35"	290.00'	10.00'

LINE DATA TABLE

NO.	BEARING	DISTANCE
L1	N58°52'24"E	19.50'
L2	N76°10'12"W	37.51'
L3	N08°52'11"W	33.90'
L4	N05°04'50"W	30.20'
L5	N00°55'10"W	32.08'
L7	N52°05'32"W(R)	18.79'
L9	N47°43'09"E	7.58'
L10	N85°25'19"E	38.62'

LEGEND

- NEW 24"x36" CONCRETE DRAIN BOX INLET WITH A FLOGARD PLUS FOSSIL FILTER INSERT FOR THE PRE-TREATMENT OF STORMWATER RUNOFF.
- YELLOW TRUNCATED DOMES DETECTABLE WARNING STRIP.
- VEHICLE DETECTOR LOOP.
- PL PROPERTY LINE.
- 1 NEW 3' TALL 18"x24" LIT "DRIVE THRU" DIRECTIONAL SIGN.
- 2 NEW 3' TALL 18"x24" LIT "THANK YOU, DO NOT ENTER" DIRECTIONAL SIGN.
- 3 NEW PEDESTRIAN CROSSWALK SIGN.
- 4 NEW ACCESSIBILITY ENTRY SIGN.
- 5 NEW STOP BAR, SIGN AND LEGEND.
- 6 NEW "IN-N-OUT ASSOCIATE PARKING ONLY" SIGN AND POST.
- INOB IN-N-OUT BURGER.
- VOH 2' VEHICLE OVERHANG WITH NO OBSTRUCTIONS INCLUDING LIGHT POLES, TREES AND SIGNAGE.
- LOC INOB LIMITS OF PROPOSED CONSTRUCTION.
- PM SCE PAD MOUNT TRANSFORMER WITH BOLLARDS.
- TR PORTABLE TRASH RECEPTACLE ON A MINIMUM 24"x24"x4" CONCRETE PAD.
- NEW CONCRETE SIDEWALK.
- CF CURB FACE.
- G BOUNDARY MONUMENT AND SURVEY CONTROL POINT DESCRIPTION SHOWN ON SHEET C1.
- 26 SIMPLIFIED PLOTTABLE EASEMENT DESCRIPTION SHOWN ON SHEET C13.
- 2 PROPOSED AND 2 FUTURE EV (ELECTRIC VEHICLE) 6' TALL 15"x28" EVGO DC FAST CHARGING STATION, PROPOSED 4" DIAMETER ELECTRIC PULL BOX, AND A CLEAR FLOOR SPACE.
- BRICK PAVERS WITH 12" WIDE GRAY CONCRETE BANDING TO MATCH EXISTING.
- PROPOSED 18" TO 27" TALL 22" WIDE STUCCO COVERED CMU SCREEN/SEAT WALL WITH A PRECAST CONCRETE CAP.
- PROPOSED INOB INSTALLED AND MAINTAINED DROUGHT TOLERANT LANDSCAPED PLANTER AND IRRIGATION SYSTEM ONSITE CONSISTING OF APPROXIMATELY 13,929 SQUARE FEET (20.3%).
- EXISTING LANDLORD INSTALLED AND MAINTAINED ONSITE DROUGHT TOLERANT LANDSCAPE PLANTER AND IRRIGATION SYSTEM CONSISTING OF APPROXIMATELY 4,453 SQUARE FEET (6.5%).
- PROPOSED INOB INSTALLED AND MAINTAINED OFFSITE DROUGHT TOLERANT LANDSCAPED PLANTER AND IRRIGATION SYSTEM CONSISTING OF APPROXIMATELY 305 SQUARE FEET.
- EXISTING LANDLORD AND INOB INSTALLED OFFSITE PRIVATE PROPERTY DROUGHT TOLERANT LANDSCAPE PLANTER AND IRRIGATION SYSTEM TO BE MAINTAINED BY INOB CONSISTING OF APPROXIMATELY 590 SQUARE FEET.
- EXISTING LANDLORD INSTALLED OFFSITE STREET AND PRIVATE PROPERTY DROUGHT TOLERANT LANDSCAPE PLANTER AND IRRIGATION SYSTEM TO BE MAINTAINED BY LANDLORD CONSISTING OF APPROXIMATELY 4,585 SQUARE FEET.
- US DRIVE-THRU CATWALK SLAB WITH UMBRELLA STAND.
- PROPOSED 3' MINIMUM TALL DRIVE-THRU LANE SCREEN WALL WITH SMOOTH FACE CMU BLOCK COVERED WITH PLASTER PAINTED TO MATCH THE BUILDING.

ENCROACHMENT NOTES

A APPROXIMATELY 100 FEET OF STATE HIGHWAY 111 PUBLIC SIDEWALK ENCROACHES UP TO 1.2 FEET INTO AND EAST OF THE SURVEYED WEST PROPERTY LINE.

NOTE: THERE ARE NO IDENTIFIED ENCROACHMENTS OF EXISTING ONSITE IMPROVEMENTS SINCE THE SURVEYED PROPERTY BOUNDARY LIMITS HAS RECIPROCAL EASEMENTS OVER THE COMMON AREA OF THE OVERALL SHOPPING CENTER.

IMPORTANT NOTICE
CALL BEFORE YOU DIG
SECTION 4216 OF THE GOVERNMENT CODE REQUIRES AN INQUIRY IDENTIFICATION NUMBER BE ISSUED BEFORE A PERMIT TO EXCAVATE WILL BE VALID. FOR YOUR PRE-EXCAVATION I.D. NUMBER CALL:
UNDERGROUND SERVICE ALERT
TOLL FREE 1-800-227-2600
TWO WORKING DAYS BEFORE YOU DIG

UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

ENGINEER'S NOTE TO CONTRACTOR: CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABLITY, REAL OR ALLEGED. IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN IN THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN, AND IS RESPONSIBLE FOR THE PROTECTION OF, AND ANY DAMAGE TO THESE LINES OR STRUCTURES.

#	REVISIONS	DATE	APP.

(BENCH MARK, SEA LEVEL REF.)
CITY BENCH MARK NO. RM. 28
NAVD 88, 2008 ADJUSTMENT
ELEV. = 252.775 FEET

(BASIS OF BEARING)
THE BEARING OF NORTH 31°07'36" WEST OF THE CENTERLINE OF HIGHWAY 111 PER RECORD OF SURVEY FILED NOVEMBER 09, 2017, RSB 149/37-40

MSL ENGINEERING, INC.
CIVIL ENGINEERS AND LAND SURVEYORS SPECIALIZING IN SITE DEVELOPMENT
402 WEST ARROW HWY., SUITE 4, SAN DIMAS, CA. 91773
(909) 305-2395 FAX (909) 305-2397

DEVELOPER:
IN-N-OUT BURGER
13502 HAMBURGER LANE
BALDWIN PARK, CA 91706
CONTACT: JIM LOCKINGTON
PHONE: 626 813-8289

PREPARED UNDER THE DIRECT SUPERVISION OF:
Mark S Lamoureux 10-21-19
MARK S. LAMOUREUX DATE
R.C.E. 38382

GEOTECHNICAL CERTIFICATION, IF REQUIRED, BY:
R.C.E. DATE

RECOMMENDED FOR APPROVAL BY:
R.C.E. DATE

APPROVED BY CITY OF RANCHO MIRAGE:
WILLIAM A. ENOS, CITY ENGINEER DATE
R.C.E. 43910

CITY OF RANCHO MIRAGE

PROJECT DESCRIPTION **DRAINAGE AREA MAP**

SITE ADDRESS 42560 BOB HOPE DRIVE, RANCHO MIRAGE, CA 92270
LEGAL DESCRIPTION PCL. C OF LLA 14-04 AND A PTN. OF VACATED LOT "C" OF TR. 14447
SEC. 18, T. 5 S., R. 6 E., S.B.B.& M. A.P.N. 682-320-033

SHEET 17 OF 20
PRIVATE REFERENCE # C17
CITY REFERENCE #

JN 19001-19001 C17dam

Attachment 1

HYDROLOGY STUDY

FOR

OFFICIALLY APPROVED
3/10/15
CITY OF RANCHO MIRAGE
Public Works Dept.

RANCHO LAS PALMAS SHOPPING CENTER PHASE I
NEC BOB HOPE DRIVE & HWY 111
RANCHO MIRAGE, CALIFORNIA

Prepared For:

CFF PCG LAS PALMAS LLC
133 Penn Street
El Segundo, CA 90245

Prepared By:

DRC ENGINEERING INC.
160 South Old Springs Road, Suite 210
Anaheim Hills, CA 92808
(714) 685-6860

REGISTERED PROFESSIONAL ENGINEER
GREGORY R. COOKE
No. 39478
Exp. 12-31-15
CIVIL
STATE OF CALIFORNIA

Reviewed by: ______________________
Gregory Cooke RCE 39478 Exp. 12-31-15

Prepared on: February 23, 2015

DRC Project No. 13-245

TABLE OF CONTENTS

SECTION NO	DESCRIPTION
1	Introduction Discussion Hydrologic Analysis Dry Well Analysis BMP Calculations Summary
2	Vicinity Map
Technical Appendix A	Hydrologic / Dry Well Analysis Existing Condition
Technical Appendix B	Hydrologic / Dry Well Analysis Proposed Condition
Technical Appendix C	BMP Calculations Proposed Condition
Technical Appendix D	Hydrology Map

SECTION 1

Introduction
Discussion
Hydrologic Analysis
Dry Well Analysis
BMP Calculations
Summary

Introduction

A hydrologic analysis has been prepared for the Rancho Las Palmas Shopping Center – Phase 1 project site located in the City of Rancho Mirage. The site is located at the northeast corner of Bob Hope Drive and Highway 111. The overall shopping center project encompasses approximately 16.6 acres with the Phase 1 project affecting approximately 4.48 acres of the overall project. Therefore, this report focuses on the 4.48 acres affected by Phase 1.

Discussion

The project site currently includes an existing resort and spa to the north, an existing residential area to the east, existing commercial developments to the south, and is bounded by Bob Hope Drive and Highway 111 on the west. The Phase 1 project site represents the southwest portion of the overall shopping center project.

Phase 1 of the project proposes to replace three existing buildings and associated parking areas with a new CVS store, generally in the footprint of one of the buildings that is being removed, and new parking areas.

Existing Drainage Conditions

Currently, the entire Phase 1 project site area drains to the east towards two non-functional existing onsite dry wells, located in a future phase of the shopping center project. The flows in excess of the capacity of the non-functional existing dry wells drain through the Rancho Mirage Business Park into the Rancho Las Palmas Country Club.

Proposed Drainage Conditions

The construction of Phase 1 project will include several proposed dry wells. The proposed dry wells will be designed to infiltrate the first flush storm runoff volume. Overflow from the Phase 1 site will drain to the east into a future phase of the project.

Hydrologic Analysis

The hydrologic analyses were completed using the methodology outlined in the Riverside County Flood Control & Water Conservation District (RCFC&WCD) Hydrology Manual. The hydrologic analysis was prepared to support the design of the dry well facilities for BMP purposes. As such, 2- and 10-year 24-hour duration flood hydrographs were completed. The flood hydrograph analysis was completed for both the existing and proposed conditions.

The site is situated within hydrologic soil type "A" as identified in a USGS Web Soil Survey. A "Commercial" land use type, corresponding to a Percent Impervious value of 90%, has been assumed for both the existing and proposed site conditions. Rainfall durational depth data was taken from NOAA Atlas. For the 24-hour storm, the 2-year rainfall depth is 1.31 inches and the 10-year rainfall depth is 2.54 inches.

The flood hydrograph hydrologic analysis was prepared using the "Short Cut" methodology set forth on Plate E-1.2 of the Hydrology Manual. This methodology has been re-created in a spreadsheet that was supplied by the City of Rancho Mirage that both calculates 2- and 10-year design storm hydrographs as well as evaluates the resultant flows through dry wells. This spreadsheet was used for both the hydrologic and dry well analysis.

As there are no drainage features in the existing condition and storm flows generally sheet flow to the east, the existing condition hydrologic analysis was completed assuming the same subarea acreages as the proposed condition.

The hydrologic analysis of the existing condition is contained in Technical Appendix A and the hydrologic analysis of the proposed condition is contained in Technical Appendix B.

Dry Well Analysis

The dry well analysis is embedded in the spreadsheet provided by the City of Rancho Mirage. Percolation tests calculated the minimum percolation rate to be 13.9 in/hr for the Phase 1 project site. The maximum percolation rate allowed in calculating percolation in a dry well is 5.0 in/hr, therefore, 5.0 in/hr was used as the percolation rate in the dry well analysis.

The Phase 1 project site contains seven distinct drainage sumps. A single dry well has been proposed at each one of the seven sump locations.

The dry well analysis of the proposed condition is contained in Technical Appendix A.

BMP Calculations

The Phase 1 project site is required to meet BMP standards as outlined in the Riverside County – Whitewater River Region Water Quality Management Plan (WQMP). Worksheet 1 in the WQMP defines for the procedure to calculate the minimum design volume for BMP facilities.

The proposed dry wells have been evaluated to demonstrate that the percolation through the dry wells exceeds the BMP design volume requirement.

The BMP Calculations of the proposed condition is contained in Technical Appendix C.

Summary

In the existing condition of the Phase 1 project site, there are no drainage features. As such, storm flows sheet flow to the east into a future phase of the overall shopping center project. The proposed condition provides seven dry wells to percolate flows and, thus, reduce runoff leaving the project site.

In a peak flow sense, being that the site is hydrologically similar in the existing and proposed conditions, the placement of dry wells reduces the peak flow leaving the site in the proposed condition versus the existing condition.

In a runoff volume sense, again being that that the site is hydrologically similar in the existing and proposed conditions, the placement of dry wells increases the percolation in the proposed condition versus the existing condition. However, the percolation must additionally meet the BMP requirements.

The BMP percolation requirement for the entire 4.48 acres being analyzed is 4,750 cubic feet.

2-year 24-hour Design Storm

All flows tributary to the dry wells are percolated with no overflow. Subarea A8, which is 0.24 acres, does not have a dry well associated with it and, therefore, overflows to the east to a future phase of the shopping center project.

Existing Condition Flow = 0.26 cfs – Proposed Condition Flow = 0.01 cfs
Existing Condition Runoff = 2,709 cf – Proposed Condition Runoff – 145 cf.

Looking at the aggregate, the seven dry wells percolate 2,564 cubic feet, however, this design storm does not produce enough runoff to percolate the BMP requirement.

10-year 24-hour Design Storm

The dry wells in Subareas A1 through A6 percolate more than the BMP requirement for each of these subareas individually. The dry well in Subarea A7 percolates approximately 87% of the BMP requirement for this subarea individually. Subarea A8 does not have a dry well associated with it.

Existing Condition Flow = 1.01 cfs – Proposed Condition Flow = 0.88 cfs
Existing Condition Runoff = 13,222 cf – Proposed Condition Runoff – 7,617 cf.

Looking at the aggregate, the seven dry wells percolate 5,605 cubic feet, or 18% more than the BMP requirement.

A summary of the subarea acreages and overflow as well as the 2- and 10-year hydrologic / dry well analyses follows.

Rancho Las Palmas - Rancho Mirage
Subarea Summary

Subarea	Area (sq ft)	Area (ac)	Overflows to
A1	14,906	0.34	A2
A2	28,174	0.65	A3
A3	32,077	0.74	A8
A4	28,339	0.65	A5
A5	20,802	0.48	A8
A6	15,555	0.36	A7
A7	44,486	1.02	A8
A8	10,693	0.24	East
Total	195,032	4.48	

Rancho Las Palmas - Rancho Mirage
Hydrologic / Dry Well Analysis Summary

2-Year

Existing Condition

Subarea	Area (ac)	Dry Wells (#)	Well Depth (ft)	Directly Tributary to Dry Well Location Flow (cfs)	Directly Tributary to Dry Well Location Runoff (cf)	Upstream Excess to Dry Well Location Flow (cfs)	Upstream Excess to Dry Well Location Runoff (cf)	Total Drainage to Dry Well Location Flow (cfs)	Total Drainage to Dry Well Location Runoff (cf)	Total Drainage in Excess of Dry Well Capacity Flow (cfs)	Total Drainage in Excess of Dry Well Capacity Runoff (cf)	Note: There are no Dry Wells in the Existing Phase 1 Area
A1	0.34	0	-	0.02	206	0.00	0	0.02	206	0.02	206	
A2	0.65	0	-	0.04	393	0.02	206	0.06	599	0.06	599	
A3	0.74	0	-	0.04	448	0.06	599	0.10	1,046	0.10	1,046	
A4	0.65	0	-	0.04	393	0.00	0	0.04	393	0.04	393	
A5	0.48	0	-	0.03	290	0.04	393	0.07	683	0.07	683	
A6	0.36	0	-	0.02	218	0.00	0	0.02	218	0.02	218	
A7	1.02	0	-	0.06	617	0.02	218	0.08	835	0.08	835	
A8	0.24	0	-	0.01	145	0.25	2,564	0.26	2,709	0.26	2,709	
Total	4.48				2,710					0.26	2,709	

Proposed Condition

Subarea	Area (ac)	Dry Wells (#)	Well Depth (ft)	Drainage to Dry Wells Flow (cfs)	Drainage to Dry Wells Runoff (cf)	Upstream Excess to Dry Wells Flow (cfs)	Upstream Excess to Dry Wells Runoff (cf)	Total Drainage to Dry Wells Flow (cfs)	Total Drainage to Dry Wells Runoff (cf)	Drainage in Excess of Dry Well Capacity Flow (cfs)	Drainage in Excess of Dry Well Capacity Runoff (cf)	Storage and Percolation (cf)	Vbmp (cf)
A1	0.34	1	8	0.02	206	0.00	0	0.02	206	0.00	0	206	361
A2	0.65	1	8	0.04	393	0.00	0	0.04	393	0.00	0	393	689
A3	0.74	1	8	0.04	448	0.00	0	0.04	448	0.00	0	448	785
A4	0.65	1	8	0.04	393	0.00	0	0.04	393	0.00	0	393	689
A5	0.48	1	8	0.03	290	0.00	0	0.03	290	0.00	0	290	509
A6	0.36	1	8	0.02	218	0.00	0	0.02	218	0.00	0	218	382
A7	1.02	1	8	0.06	617	0.00	0	0.06	617	0.00	0	617	1,082
A8	0.24	0	-	0.01	145	0.00	0	0.01	145	0.01	145	0	254
Total	4.48				2,710					0.01	145	2,564	4,750

Note: Subareas A1 - A7 are all Tributary to Subarea A8, so its Output is the Total for the System

Rancho Las Palmas - Rancho Mirage
Hydrologic / Dry Well Analysis Summary

10-Year

Existing Condition

				Directly Tributary to Dry Well Location		Upstream Excess to Dry Well Location		Total Drainage to Dry Well Location		Total Drainage in Excess of Dry Well Capacity		Note: There are no Dry Wells in the Existing Phase 1 Area
Subarea	Area (ac)	Dry Wells (#)	Well Depth (ft)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	
A1	0.34	0	-	0.08	1,003	0.00	0	0.08	1,003	0.08	1,003	
A2	0.65	0	-	0.15	1,918	0.08	1,003	0.22	2,922	0.22	2,922	
A3	0.74	0	-	0.17	2,184	0.22	2,922	0.39	5,106	0.39	5,106	
A4	0.65	0	-	0.15	1,918	0.00	0	0.15	1,918	0.15	1,918	
A5	0.48	0	-	0.11	1,417	0.15	1,918	0.25	3,335	0.25	3,335	
A6	0.36	0	-	0.08	1,062	0.00	0	0.08	1,062	0.08	1,062	
A7	1.02	0	-	0.23	3,010	0.08	1,062	0.31	4,073	0.31	4,073	
A8	0.24	0	-	0.05	708	0.96	12,514	1.01	13,222	1.01	13,222	
Total	4.48				13,222					1.01	13,222	

Proposed Condition

				Drainage to Dry Wells		Upstream Excess to Dry Wells		Total Drainage to Dry Wells		Drainage in Excess of Dry Well Capacity		Storage and Percolation	
Subarea	Area (ac)	Dry Wells (#)	Well Depth (ft)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	(cf)	Vbmp (cf)
A1	0.34	1	8	0.08	1,003	0.00	0	0.08	1,003	0.06	323	681	361
A2	0.65	1	8	0.15	1,918	0.06	323	0.20	2,241	0.19	1,408	834	689
A3	0.74	1	8	0.17	2,184	0.19	1,408	0.35	3,592	0.33	2,726	866	785
A4	0.65	1	8	0.15	1,918	0.00	0	0.15	1,918	0.13	1,085	834	689
A5	0.48	1	8	0.11	1,417	0.13	1,085	0.24	2,502	0.22	1,738	763	509
A6	0.36	1	8	0.08	1,062	0.00	0	0.08	1,062	0.06	376	686	382
A7	1.02	1	8	0.23	3,010	0.06	376	0.29	3,387	0.27	2,445	942	1,082
A8	0.24	0	-	0.05	708	0.82	6,909	0.88	7,617	0.88	7,617	0	254
Total	4.48				13,222					0.88	7,617	5,605	4,750

Note: Subareas A1 - A7 are all Tributary to Subarea A8, so its Output is the Total for the System

NOAA Atlas 14, Volume 6, Version 2
Location name: Rancho Mirage, California, US*
Latitude: 33.7369°, Longitude: -116.4080°
Elevation: 249 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF tabular | PF graphical | Maps & aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.073 (0.061-0.088)	0.114 (0.095-0.138)	0.177 (0.147-0.215)	0.237 (0.196-0.291)	0.334 (0.266-0.424)	0.423 (0.330-0.548)	0.527 (0.401-0.700)	0.651 (0.481-0.891)	0.872 (0.617-1.24)	1.17 (0.800-1.73)
10-min	0.105 (0.087-0.127)	0.163 (0.136-0.198)	0.254 (0.211-0.309)	0.340 (0.280-0.417)	0.479 (0.382-0.608)	0.606 (0.472-0.785)	0.755 (0.574-1.00)	0.934 (0.690-1.28)	1.25 (0.884-1.78)	1.68 (1.15-2.48)
15-min	0.127 (0.106-0.153)	0.197 (0.164-0.239)	0.307 (0.255-0.373)	0.411 (0.339-0.504)	0.580 (0.462-0.735)	0.733 (0.571-0.950)	0.913 (0.694-1.21)	1.13 (0.834-1.54)	1.51 (1.07-2.16)	2.03 (1.39-3.00)
30-min	0.195 (0.163-0.236)	0.303 (0.253-0.368)	0.472 (0.392-0.574)	0.632 (0.521-0.775)	0.890 (0.709-1.13)	1.13 (0.878-1.46)	1.40 (1.07-1.86)	1.74 (1.28-2.37)	2.32 (1.64-3.31)	3.12 (2.13-4.61)
60-min	0.276 (0.231-0.334)	0.430 (0.359-0.522)	0.670 (0.557-0.814)	0.897 (0.739-1.10)	1.26 (1.01-1.60)	1.60 (1.25-2.07)	1.99 (1.51-2.65)	2.46 (1.82-3.37)	3.29 (2.33-4.70)	4.43 (3.02-6.54)
2-hr	0.379 (0.316-0.458)	0.575 (0.479-0.697)	0.871 (0.724-1.06)	1.14 (0.943-1.40)	1.57 (1.25-1.99)	1.95 (1.52-2.52)	2.37 (1.80-3.15)	2.87 (2.12-3.92)	3.63 (2.57-5.19)	4.47 (3.06-6.61)
3-hr	0.449 (0.374-0.543)	0.676 (0.563-0.819)	1.01 (0.841-1.23)	1.32 (1.09-1.62)	1.79 (1.43-2.27)	2.20 (1.71-2.85)	2.66 (2.02-3.53)	3.18 (2.35-4.35)	3.99 (2.82-5.69)	4.70 (3.21-6.95)
6-hr	0.589 (0.491-0.713)	0.880 (0.734-1.07)	1.30 (1.08-1.58)	1.68 (1.39-2.06)	2.26 (1.80-2.86)	2.75 (2.14-3.56)	3.29 (2.50-4.37)	3.90 (2.88-5.33)	4.81 (3.41-6.87)	5.60 (3.83-8.28)
12-hr	0.716 (0.597-0.866)	1.08 (0.901-1.31)	1.61 (1.34-1.95)	2.07 (1.71-2.54)	2.77 (2.20-3.51)	3.35 (2.61-4.34)	3.99 (3.03-5.30)	4.71 (3.48-6.43)	5.76 (4.08-8.23)	6.67 (4.55-9.86)
24-hr	0.857 (0.759-0.988)	1.31 (1.16-1.52)	1.97 (1.73-2.28)	2.54 (2.22-2.96)	3.39 (2.87-4.08)	4.10 (3.40-5.03)	4.87 (3.95-6.13)	5.73 (4.52-7.41)	7.00 (5.31-9.42)	8.07 (5.92-11.2)
2-day	0.980 (0.867-1.13)	1.51 (1.34-1.75)	2.27 (2.00-2.63)	2.94 (2.57-3.43)	3.92 (3.32-4.72)	4.74 (3.94-5.83)	5.64 (4.58-7.10)	6.64 (5.24-8.58)	8.11 (6.15-10.9)	9.35 (6.86-13.0)
3-day	1.04 (0.924-1.20)	1.61 (1.42-1.86)	2.43 (2.14-2.81)	3.15 (2.75-3.67)	4.21 (3.57-5.07)	5.10 (4.24-6.27)	6.08 (4.93-7.64)	7.16 (5.65-9.25)	8.76 (6.64-11.8)	10.1 (7.42-14.1)
4-day	1.09 (0.968-1.26)	1.69 (1.49-1.95)	2.55 (2.25-2.95)	3.30 (2.89-3.85)	4.42 (3.75-5.33)	5.37 (4.46-6.59)	6.40 (5.19-8.05)	7.54 (5.96-9.75)	9.24 (7.01-12.4)	10.7 (7.83-14.9)
7-day	1.17 (1.04-1.35)	1.81 (1.60-2.09)	2.74 (2.42-3.17)	3.56 (3.11-4.15)	4.77 (4.04-5.75)	5.79 (4.80-7.11)	6.90 (5.59-8.68)	8.13 (6.42-10.5)	9.96 (7.55-13.4)	11.5 (8.43-16.0)
10-day	1.22 (1.08-1.40)	1.89 (1.67-2.18)	2.86 (2.52-3.32)	3.72 (3.26-4.34)	5.00 (4.24-6.03)	6.07 (5.04-7.46)	7.24 (5.87-9.11)	8.53 (6.74-11.0)	10.4 (7.92-14.1)	12.1 (8.84-16.8)
20-day	1.32 (1.17-1.52)	2.08 (1.84-2.40)	3.18 (2.80-3.68)	4.16 (3.63-4.85)	5.61 (4.75-6.76)	6.83 (5.67-8.39)	8.16 (6.62-10.3)	9.64 (7.61-12.5)	11.8 (8.95-15.9)	13.6 (9.99-18.9)
30-day	1.46 (1.29-1.68)	2.31 (2.04-2.67)	3.56 (3.14-4.12)	4.67 (4.09-5.45)	6.34 (5.37-7.64)	7.74 (6.43-9.51)	9.26 (7.51-11.7)	10.9 (8.64-14.1)	13.4 (10.2-18.0)	15.5 (11.3-21.5)
45-day	1.58 (1.40-1.83)	2.54 (2.25-2.94)	3.95 (3.48-4.57)	5.21 (4.56-6.08)	7.11 (6.02-8.56)	8.71 (7.23-10.7)	10.5 (8.48-13.2)	12.4 (9.77-16.0)	15.2 (11.5-20.4)	17.5 (12.8-24.4)
60-day	1.70 (1.51-1.96)	2.75 (2.43-3.18)	4.31 (3.80-4.99)	5.71 (4.99-6.66)	7.81 (6.62-9.41)	9.60 (7.97-11.8)	11.5 (9.36-14.5)	13.7 (10.8-17.7)	16.8 (12.7-22.6)	19.4 (14.2-27.0)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

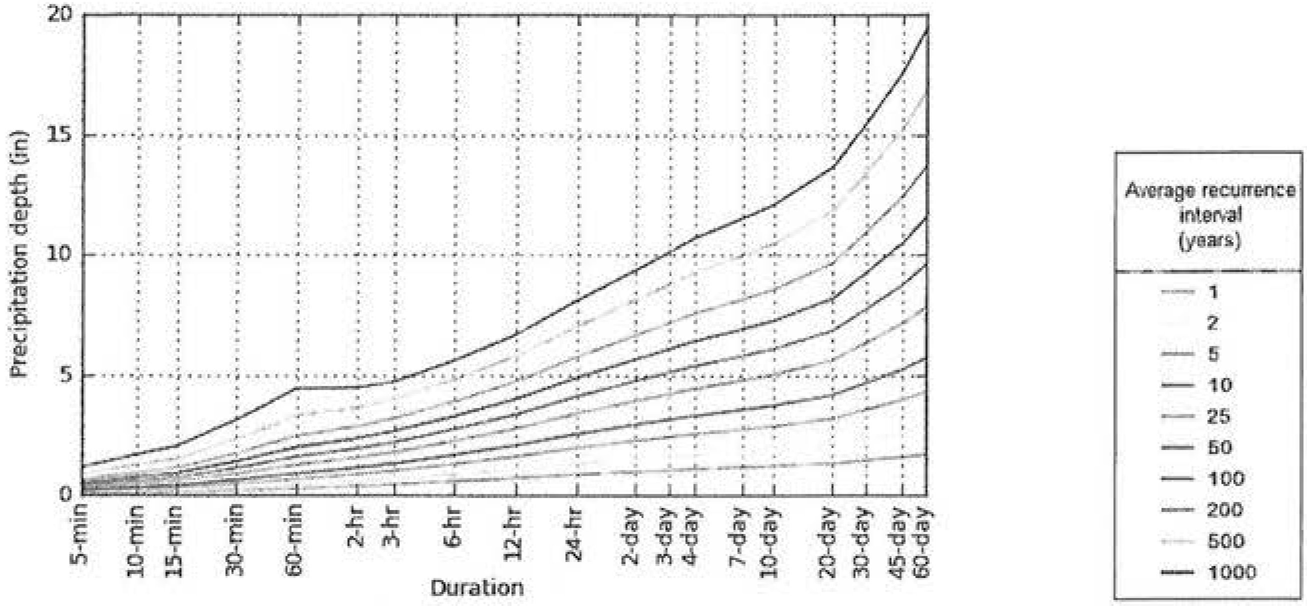
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

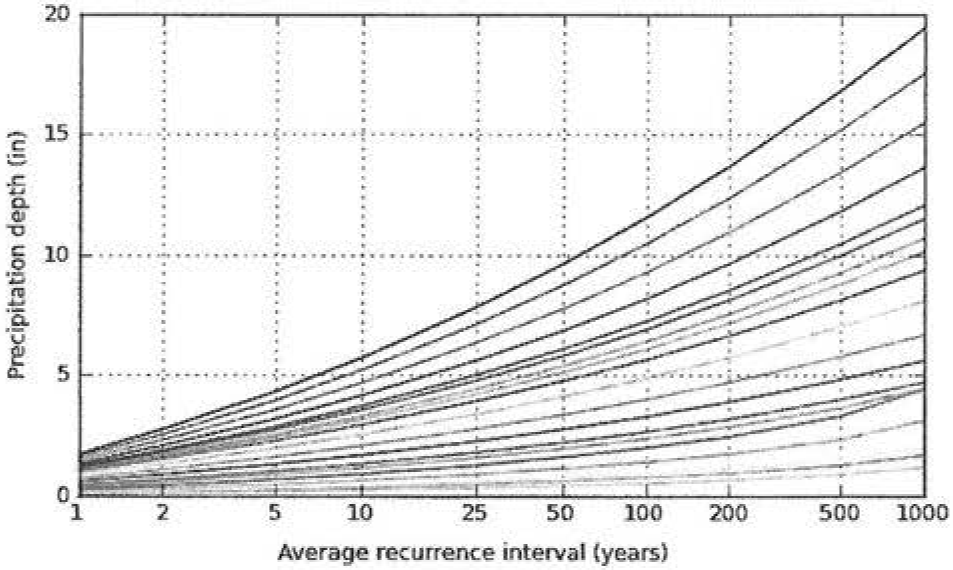
Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

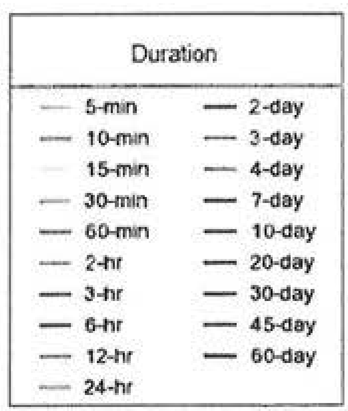
PDS-based depth-duration-frequency (DDF) curves
Latitude: 33.7369°, Longitude: -116.4080°





NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Wed Dec 31 22:35:20 2014



FILE COPY

OFFICIALLY APPROVED
6/18/2015
CITY OF RANCHO MIRAGE
Public Works Dept.

HYDROLOGY STUDY

FOR

RANCHO LAS PALMAS SHOPPING CENTER PHASE II
NEC BOB HOPE DRIVE & HWY 111
RANCHO MIRAGE, CALIFORNIA

Prepared For:

CFF PCG LAS PALMAS LLC
133 Penn Street
El Segundo, CA 90245

Prepared By:

DRC ENGINEERING INC.
160 South Old Springs Road, Suite 210
Anaheim Hills, CA 92808
(714) 685-6860

REGISTERED PROFESSIONAL ENGINEER
GREGORY R. COOKE
No. 39478
Exp. 12-31-15
CIVIL
STATE OF CALIFORNIA

Reviewed by: ______________________
Gregory Cooke RCE 39478 Exp. 12-31-15

Prepared on: 2015-06-18

DRC Project No. 13-245

Table of Contents

Title	Page
Introduction	1
Discussion	1
Hydrologic Analysis	2
Dry Well Analysis	3
BMP Calculations	3
Overflow Inlet Analysis	3
Summary	4

List of Technical Appendices

Technical Appendix A	Hydrologic / Dry Well Analysis Existing Condition
Technical Appendix B	Hydrologic / Dry Well Analysis Proposed Condition
Technical Appendix C	BMP Calculations Proposed Condition
Technical Appendix D	Hydrologic / Overflow Inlet Analysis Proposed Condition
Technical Appendix E	Hydrology Map

Introduction

A hydrologic analysis has been prepared for the Rancho Las Palmas Shopping Center – Phase 2 project site located in the City of Rancho Mirage. The site is located at the northeast corner of Bob Hope Drive and Highway 111. The overall shopping center project encompasses approximately 16.71 acres with the Phase 2 project affecting approximately 12.51 acres of the overall project. Since in a drainage sense the Phase 2 improvements affect, and are affected by, some of the Phase 1 areas, this report focuses on the areas from both Phase 1 and Phase 2.

Discussion

The project site currently includes an existing resort and spa to the north, an existing residential area to the east, existing commercial developments to the south, and is bounded by Bob Hope Drive and Highway 111 on the west. The Phase 2 project site represents the northeast portion of the overall shopping center project.

Phase 2 of the project proposes to replace several existing buildings and associated parking areas with new buildings and parking areas.

Existing Drainage Conditions

Currently, the entire Phase 2 project site area drains to two non-functional existing, onsite dry wells. The Phase 1 improvements provide seven dry wells in the southwest portion of the shopping center project.

Proposed Drainage Conditions

The construction of the Phase 2 project will include fourteen proposed dry wells, for a total of twenty one dry wells in the shopping center. The proposed dry wells will be designed to infiltrate the first flush storm runoff volume. The Phase 2 project will also include an emergency overflow inlet and associated storm drain to service areas in the southwest portion of the shopping center project should the dry well capacity be exceeded. Overflow from the Phase 2 site will drain to the east out of the project as it does in its existing configuration.

Hydrologic Analysis

The hydrologic analyses were completed using the methodology outlined in the Riverside County Flood Control & Water Conservation District (RCFC&WCD) Hydrology Manual. The hydrologic analyses were prepared to support the design of both the dry well facilities for BMP purposes and the overflow inlet. For the BMP purposes, 2- and 10-year 24-hour duration flood hydrographs were completed. The flood hydrograph analysis was completed for both the existing and proposed conditions. For the overflow inlet, a 100-year rational method analysis was completed for the areas tributary to the inlet in the proposed condition.

The site is situated within hydrologic soil type "A" as identified in a USGS Web Soil Survey. A "Commercial" land use type, corresponding to a Percent Impervious value of 90%, has been assumed for both the existing and proposed site conditions. Rainfall durational depth data was taken from NOAA Atlas. The flood hydrograph analysis requires 24-hour storm duration rainfall depth data. For the 24-hour storm, the 2-year rainfall depth is 1.31 inches and the 10-year rainfall depth is 2.54 inches. The rational method analysis requires 10- and 60-minute duration rainfall intensity data. For the 10-year storm, the 10-minute intensity is 2.040 in/hr and the 60-minute intensity is 0.897 in/hr. For the 100-year storm, the 10-minute intensity is 4.530 in/hr and the 60-minute intensity is 1.990 in/hr.

The flood hydrograph hydrologic analysis was prepared using the "Short Cut" methodology set forth on Plate E-1.2 of the Hydrology Manual. This methodology has been re-created in a spreadsheet that was supplied by the City of Rancho Mirage that both calculates 2- and 10-year design storm hydrographs as well as evaluates the resultant flows through dry wells. This spreadsheet was used for both the hydrologic and dry well analysis.

As there are no functioning drainage features in the existing condition and storm flows generally sheet flow to the east, the existing condition hydrologic analysis was completed assuming the same subarea acreages as the proposed condition.

The flood hydrograph hydrologic analysis of the existing condition is contained in Technical Appendix A and the flood hydrograph hydrologic analysis of the proposed condition is contained in Technical Appendix B. The rational method hydrologic analysis of the proposed condition is contained in Technical Appendix D.

Dry Well Analysis

The dry well analysis is embedded in the spreadsheet provided by the City of Rancho Mirage. Percolation tests calculated the percolation rate to range from 13.9 in/hr to 75.3 in/hr for the Phase 2 project site. The maximum percolation rate allowed in calculating percolation in a dry well is 5.0 in/hr, therefore, 5.0 in/hr was used as the percolation rate in the dry well analysis.

The Phase 2 project site contains fourteen distinct drainage sumps. A single dry well has been proposed at each one of the fourteen sump locations.

The dry well analysis of the proposed condition is contained in Technical Appendix A.

BMP Calculations

The Phase 2 project site is required to meet BMP standards as outlined in the Riverside County – Whitewater River Region Water Quality Management Plan (WQMP). Worksheet 1 in the WQMP defines for the procedure to calculate the minimum design volume for BMP facilities.

The proposed dry wells have been evaluated to demonstrate that the percolation through the dry wells exceeds the BMP design volume requirement.

The BMP Calculations of the proposed condition is contained in Technical Appendix C.

Overflow Inlet Analysis

The area of the existing overflow for storm flows from the southwest portion of the project will be reconstructed with a breezeway between buildings. Therefore, an emergency overflow inlet and associated storm drain will be provided as a component of the Phase 2 project.

Storm flows throughout the project accumulate at sump locations where dry wells are proposed. When the capacity of the dry well is exceeded, flows will pond at the sump and if the ponding is high enough, spill to an adjacent sump. At the emergency overflow inlet, there is a total of 11.07 acres that could spill to this location.

The hydrologic analysis conservatively assumes that all tributary sumps are full and the flows spill immediately without any flow attenuation that would increase the associated time of concentration. To hydrologically model this, a single initial subarea with a flowpath corresponding to the longest watercourse from the upstream-most sump to the inlet and a tributary area equal to the total area that could spill to this location was analyzed.

The Overflow Inlet Analysis of the proposed condition is contained in Technical Appendix D.

Summary

In the existing condition of the Phase 2 project site, there are no functioning drainage features. As such, storm flows sheet flow to the east out of the shopping center project. The proposed condition provides fourteen dry wells in Phase 2, for a total of twenty one dry wells for the shopping center project, to percolate flows and, thus, reduce runoff leaving the project site.

In a peak flow sense, being that the site is hydrologically similar in the existing and proposed conditions, the placement of dry wells reduces the peak flow leaving the site in the proposed condition versus the existing condition.

In a runoff volume sense, again being that that the site is hydrologically similar in the existing and proposed conditions, the placement of dry wells decreases the runoff volume leaving the site by increasing the percolation in the proposed condition versus the existing condition. However, the percolation must additionally meet the BMP requirements.

In the 2-year 24-hour design storm, all flows tributary to the dry wells are percolated with no overflow except for the dry well in Subarea A14, which overflows to the dry well in Subarea A15 and percolates. Subareas A22 and A23 do not have a dry well associated with them and, therefore, overflow to the east out of the shopping center project.

In the 10-year 24-hour design storm, the dry wells in Subareas A1 through A6 (all located in Phase 1), A8 through A12, A16 through A17, and A19 through A21 percolate more than the BMP requirement for each of these subareas individually. The dry well in Subarea A7 (located in Phase 1) percolates approximately 90% of the BMP requirement for this subarea individually. The dry well in Subarea A13 percolates approximately 90% of the BMP requirement for this subarea individually. The dry well in Subarea A14 percolates approximately 77% of the BMP requirement for this subarea individually. The dry well in Subarea A15 percolates approximately 90% of the BMP requirement for this subarea individually. The dry well in Subarea A18 percolates approximately 97% of the BMP requirement for this subarea individually. Looking at the aggregate of the totals for all subareas indicates that the BMP percolation requirement for the entire 16.71 acres being analyzed is 17,719 cubic feet and the dry wells percolate 17,783 cubic feet in the 10-year 24-hour design storm.

The emergency overflow inlet analysis indicates that a conservative approximation of the 100-year peak flow rate corresponding to a tributary area of 11.07 acres at the inlet is 39.9 cfs. With an 8" curb face, a curb opening inlet with a length of 28.0' provides for a ponding depth of 0.61', which is below the top-of-curb elevation.

A summary of the subarea acreages and overflow as well as the 2- and 10-year hydrologic / dry well analyses follows.

Rancho Las Palmas - Rancho Mirage
Subarea Summary

Subarea	Area (sq ft)	Area (ac)	Overflows to
A1	14,906	0.34	A2
A2	28,174	0.65	A3
A3	32,077	0.74	A14
A4	28,339	0.65	A5
A5	20,802	0.48	A15
A6	15,555	0.36	A7
A7	43,043	0.98	A16
A8	12,502	0.29	A9
A9	6,893	0.16	A12
A10	9,733	0.22	A12
A11	13,133	0.30	A12
A12	34,529	0.79	A13
A13	42,206	0.97	A14
A14	86,355	1.98	A15
A15	42,702	0.98	A16
A16	51,336	1.18	A22
A17	15,213	0.35	A18
A18	38,806	0.89	A19
A19	29,388	0.67	A20
A20	23,748	0.55	A22
A21	15,600	0.36	A22
A22	104,062	2.39	East
A23	18,668	0.43	East
Total	727,770	16.71	

Rancho Las Palmas - Rancho Mirage
Hydrologic / Dry Well Analysis Summary

2-Year

Existing Condition												
				Directly Tributary to Dry Well Location		Upstream Excess to Dry Well Location		Total Drainage to Dry Well Location		Total Drainage in Excess of Dry Well Capacity		Note: There are no Dry Wells in the Existing Phase 2 Area
Subarea	Area (ac)	Dry Wells (#)	Well Depth (ft)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	
A1	0.34	0	-	0.02	207	0.00	0	0.02	207	0.02	207	
A2	0.65	0	-	0.04	396	0.02	207	0.06	603	0.06	603	
A3	0.74	0	-	0.04	451	0.06	603	0.10	1,054	0.10	1,054	
A4	0.65	0	-	0.04	396	0.00	0	0.04	396	0.04	396	
A5	0.48	0	-	0.03	292	0.04	396	0.07	689	0.07	689	
A6	0.36	0	-	0.02	219	0.00	0	0.02	219	0.02	219	
A7	0.98	0	-	0.06	597	0.02	219	0.08	816	0.08	816	
A8	0.29	0	-	0.02	177	0.00	0	0.02	177	0.02	177	
A9	0.16	0	-	0.01	97	0.02	177	0.03	274	0.03	274	
A10	0.22	0	-	0.01	134	0.00	0	0.01	134	0.01	134	
A11	0.30	0	-	0.02	183	0.00	0	0.02	183	0.02	183	
A12	0.79	0	-	0.05	481	0.06	591	0.10	1,072	0.10	1,072	
A13	0.97	0	-	0.06	591	0.10	1,072	0.16	1,663	0.16	1,663	
A14	1.98	0	-	0.12	1,206	0.26	2,717	0.38	3,924	0.38	3,924	
A15	0.98	0	-	0.06	597	0.44	4,612	0.50	5,210	0.50	5,210	
A16	1.18	0	-	0.07	719	0.58	6,026	0.65	6,745	0.65	6,745	
A17	0.35	0	-	0.02	213	0.00	0	0.02	213	0.02	213	
A18	0.89	0	-	0.05	542	0.02	213	0.07	756	0.07	756	
A19	0.67	0	-	0.04	408	0.07	756	0.11	1,164	0.11	1,164	
A20	0.55	0	-	0.03	335	0.11	1,164	0.14	1,499	0.14	1,499	
A21	0.36	0	-	0.02	219	0.00	0	0.02	219	0.02	219	
A22	2.39	0	-	0.14	1,456	0.81	8,463	0.95	9,920	0.95	9,920	
A23	0.43	0	-	0.03	262	0.00	0	0.03	262	0.03	262	
Total	16.71				10,182					0.98	10,182	

Rancho Las Palmas - Rancho Mirage
Hydrologic / Dry Well Analysis Summary

2-Year

Proposed Condition													
				Drainage to Dry Wells		Upstream Excess to Dry Wells		Total Drainage to Dry Wells		Drainage in Excess of Dry Well Capacity		Storage and	
Subarea	Area (ac)	Dry Wells (#)	Well Depth (ft)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Percolation (cf)	Vbmp (cf)
A1	0.34	1	8	0.02	207	0.00	0	0.02	207	0.00	0	207	361
A2	0.65	1	8	0.04	396	0.00	0	0.04	396	0.00	0	396	689
A3	0.74	1	8	0.04	451	0.00	0	0.04	451	0.00	0	451	785
A4	0.65	1	8	0.04	396	0.00	0	0.04	396	0.00	0	396	689
A5	0.48	1	8	0.03	292	0.00	0	0.03	292	0.00	0	292	509
A6	0.36	1	8	0.02	219	0.00	0	0.02	219	0.00	0	219	382
A7	0.98	1	8	0.06	597	0.00	0	0.06	597	0.00	0	597	1,039
A8	0.29	1	8	0.02	177	0.00	0	0.02	177	0.00	0	177	308
A9	0.16	1	8	0.01	97	0.00	0	0.01	97	0.00	0	97	170
A10	0.22	1	8	0.01	134	0.00	0	0.01	134	0.00	0	134	233
A11	0.30	1	8	0.02	183	0.00	0	0.02	183	0.00	0	183	318
A12	0.79	1	8	0.05	481	0.00	0	0.05	481	0.00	0	481	838
A13	0.97	1	8	0.06	591	0.00	0	0.06	591	0.00	0	591	1,029
A14	1.98	1	15	0.12	1,206	0.00	0	0.12	1,206	0.02	46	1,161	2,100
A15	0.98	1	8	0.06	597	0.02	46	0.07	643	0.00	2	641	1,039
A16	1.18	1	15	0.07	719	0.00	2	0.07	721	0.00	0	721	1,251
A17	0.35	1	8	0.02	213	0.00	0	0.02	213	0.00	0	213	371
A18	0.89	1	8	0.05	542	0.00	0	0.05	542	0.00	0	542	944
A19	0.67	1	8	0.04	408	0.00	0	0.04	408	0.00	0	408	710
A20	0.55	1	8	0.03	335	0.00	0	0.03	335	0.00	0	335	583
A21	0.36	1	8	0.02	219	0.00	0	0.02	219	0.00	0	219	382
A22	2.39	0	-	0.14	1,456	0.00	0	0.14	1,456	0.14	1,456	0	2,534
A23	0.43	0	-	0.03	262	0.00	0	0.03	262	0.03	262	0	456
Total	16.71				10,182					0.17	1,718	8,464	17,719

Rancho Las Palmas - Rancho Mirage
Hydrologic / Dry Well Analysis Summary

10-Year

Existing Condition												
				Directly Tributary to Dry Well Location		Upstream Excess to Dry Well Location		Total Drainage to Dry Well Location		Total Drainage in Excess of Dry Well Capacity		Note: There are no Dry Wells in the Existing Phase 2 Area
Subarea	Area (ac)	Dry Wells (#)	Well Depth (ft)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	
A1	0.34	0	-	0.08	1,011	0.00	0	0.08	1,011	0.08	1,011	
A2	0.65	0	-	0.15	1,934	0.08	1,011	0.22	2,945	0.22	2,945	
A3	0.74	0	-	0.17	2,201	0.22	2,945	0.39	5,147	0.39	5,147	
A4	0.65	0	-	0.15	1,934	0.00	0	0.15	1,934	0.15	1,934	
A5	0.48	0	-	0.11	1,428	0.15	1,934	0.26	3,362	0.26	3,362	
A6	0.36	0	-	0.08	1,071	0.00	0	0.08	1,071	0.08	1,071	
A7	0.98	0	-	0.22	2,915	0.08	1,071	0.30	3,986	0.30	3,986	
A8	0.29	0	-	0.07	863	0.00	0	0.07	863	0.07	863	
A9	0.16	0	-	0.04	476	0.07	863	0.10	1,339	0.10	1,339	
A10	0.22	0	-	0.05	654	0.00	0	0.05	654	0.05	654	
A11	0.30	0	-	0.07	892	0.00	0	0.07	892	0.07	892	
A12	0.79	0	-	0.18	2,350	0.22	2,886	0.40	5,236	0.40	5,236	
A13	0.97	0	-	0.22	2,886	0.40	5,236	0.62	8,122	0.62	8,122	
A14	1.98	0	-	0.45	5,890	1.01	13,268	1.46	19,159	1.46	19,159	
A15	0.98	0	-	0.22	2,915	1.72	22,520	1.94	25,436	1.94	25,436	
A16	1.18	0	-	0.27	3,510	2.25	29,422	2.52	32,932	2.52	32,932	
A17	0.35	0	-	0.08	1,041	0.00	0	0.08	1,041	0.08	1,041	
A18	0.89	0	-	0.20	2,648	0.08	1,041	0.28	3,689	0.28	3,689	
A19	0.67	0	-	0.15	1,993	0.28	3,689	0.43	5,682	0.43	5,682	
A20	0.55	0	-	0.12	1,636	0.43	5,682	0.56	7,318	0.56	7,318	
A21	0.36	0	-	0.08	1,071	0.00	0	0.08	1,071	0.08	1,071	
A22	2.39	0	-	0.54	7,110	3.16	41,322	3.70	48,432	3.70	48,432	
A23	0.43	0	-	0.10	1,279	0.00	0	0.10	1,279	0.10	1,279	
Total	16.71				49,711					3.80	49,711	

Rancho Las Palmas - Rancho Mirage
Hydrologic / Dry Well Analysis Summary

10-Year

Proposed Condition													
				Drainage to Dry Wells		Upstream Excess to Dry Wells		Total Drainage to Dry Wells		Drainage in Excess of Dry Well Capacity		Storage and Percolation	Vbmp
Subarea	Area (ac)	Dry Wells (#)	Well Depth (ft)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	Flow (cfs)	Runoff (cf)	(cf)	(cf)
A1	0.34	1	8	0.08	1,011	0.00	0	0.08	1,011	0.06	329	683	361
A2	0.65	1	8	0.15	1,934	0.06	329	0.21	2,262	0.19	1,427	835	689
A3	0.74	1	8	0.17	2,201	0.19	1,427	0.35	3,628	0.34	2,768	861	785
A4	0.65	1	8	0.15	1,934	0.00	0	0.15	1,934	0.13	1,098	835	689
A5	0.48	1	8	0.11	1,428	0.13	1,098	0.24	2,526	0.22	1,761	765	509
A6	0.36	1	8	0.08	1,071	0.00	0	0.08	1,071	0.06	383	688	382
A7	0.98	1	8	0.22	2,915	0.06	383	0.29	3,298	0.27	2,368	931	1,039
A8	0.29	1	8	0.07	863	0.00	0	0.07	863	0.05	211	651	308
A9	0.16	1	8	0.04	476	0.05	211	0.08	687	0.03	151	537	170
A10	0.22	1	8	0.05	654	0.00	0	0.05	654	0.01	61	593	233
A11	0.30	1	8	0.07	892	0.00	0	0.07	892	0.05	232	660	318
A12	0.79	1	8	0.18	2,350	0.10	444	0.27	2,794	0.21	1,915	879	838
A13	0.97	1	8	0.22	2,886	0.21	1,915	0.43	4,801	0.41	3,874	927	1,029
A14	1.98	1	15	0.45	5,890	0.75	6,641	1.20	12,532	1.16	10,909	1,623	2,100
A15	0.98	1	8	0.22	2,915	1.38	12,670	1.61	15,586	1.59	14,645	940	1,039
A16	1.18	1	15	0.27	3,510	1.85	17,013	2.12	20,523	2.09	19,082	1,441	1,251
A17	0.35	1	8	0.08	1,041	0.00	0	0.08	1,041	0.06	350	691	371
A18	0.89	1	8	0.20	2,648	0.06	350	0.26	2,998	0.24	2,083	915	944
A19	0.67	1	8	0.15	1,993	0.24	2,083	0.40	4,076	0.38	3,231	846	710
A20	0.55	1	8	0.12	1,636	0.38	3,231	0.50	4,867	0.48	4,074	793	583
A21	0.36	1	8	0.08	1,071	0.00	0	0.08	1,071	0.06	383	688	382
A22	2.39	0	-	0.54	7,110	2.63	23,539	3.18	30,649	3.18	30,649	0	2,534
A23	0.43	0	-	0.10	1,279	0.00	0	0.10	1,279	0.10	1,279	0	456
Total	16.71				49,711					3.27	31,928	17,783	17,719

NOAA Atlas 14, Volume 6, Version 2
Location name: Rancho Mirage, California, US*
Latitude: 33.7369°, Longitude: -116.4080°
Elevation: 249 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.073 (0.061-0.088)	0.114 (0.095-0.138)	0.177 (0.147-0.215)	0.237 (0.196-0.291)	0.334 (0.266-0.424)	0.423 (0.330-0.548)	0.527 (0.401-0.700)	0.651 (0.481-0.891)	0.872 (0.617-1.24)	1.17 (0.800-1.73)
10-min	0.105 (0.087-0.127)	0.163 (0.136-0.198)	0.254 (0.211-0.309)	0.340 (0.280-0.417)	0.479 (0.382-0.608)	0.606 (0.472-0.785)	0.755 (0.574-1.00)	0.934 (0.690-1.28)	1.25 (0.884-1.78)	1.68 (1.15-2.48)
15-min	0.127 (0.106-0.153)	0.197 (0.164-0.239)	0.307 (0.255-0.373)	0.411 (0.339-0.504)	0.580 (0.462-0.735)	0.733 (0.571-0.950)	0.913 (0.694-1.21)	1.13 (0.834-1.54)	1.51 (1.07-2.16)	2.03 (1.39-3.00)
30-min	0.195 (0.163-0.236)	0.303 (0.253-0.368)	0.472 (0.392-0.574)	0.632 (0.521-0.775)	0.890 (0.709-1.13)	1.13 (0.878-1.46)	1.40 (1.07-1.86)	1.74 (1.28-2.37)	2.32 (1.64-3.31)	3.12 (2.13-4.61)
60-min	0.276 (0.231-0.334)	0.430 (0.359-0.522)	0.670 (0.557-0.814)	0.897 (0.739-1.10)	1.26 (1.01-1.60)	1.60 (1.25-2.07)	1.99 (1.51-2.65)	2.46 (1.82-3.37)	3.29 (2.33-4.70)	4.43 (3.02-6.54)
2-hr	0.379 (0.316-0.458)	0.575 (0.479-0.697)	0.871 (0.724-1.06)	1.14 (0.943-1.40)	1.57 (1.25-1.99)	1.95 (1.52-2.52)	2.37 (1.80-3.15)	2.87 (2.12-3.92)	3.63 (2.57-5.19)	4.47 (3.06-6.61)
3-hr	0.449 (0.374-0.543)	0.676 (0.563-0.819)	1.01 (0.841-1.23)	1.32 (1.09-1.62)	1.79 (1.43-2.27)	2.20 (1.71-2.85)	2.66 (2.02-3.53)	3.18 (2.35-4.35)	3.99 (2.82-5.69)	4.70 (3.21-6.95)
6-hr	0.589 (0.491-0.713)	0.880 (0.734-1.07)	1.30 (1.08-1.58)	1.68 (1.39-2.06)	2.26 (1.80-2.86)	2.75 (2.14-3.56)	3.29 (2.50-4.37)	3.90 (2.88-5.33)	4.81 (3.41-6.87)	5.60 (3.83-8.28)
12-hr	0.716 (0.597-0.866)	1.08 (0.901-1.31)	1.61 (1.34-1.95)	2.07 (1.71-2.54)	2.77 (2.20-3.51)	3.35 (2.61-4.34)	3.99 (3.03-5.30)	4.71 (3.48-6.43)	5.76 (4.08-8.23)	6.67 (4.55-9.86)
24-hr	0.857 (0.759-0.988)	1.31 (1.16-1.52)	1.97 (1.73-2.28)	2.54 (2.22-2.96)	3.39 (2.87-4.08)	4.10 (3.40-5.03)	4.87 (3.95-6.13)	5.73 (4.52-7.41)	7.00 (5.31-9.42)	8.07 (5.92-11.2)
2-day	0.980 (0.867-1.13)	1.51 (1.34-1.75)	2.27 (2.00-2.63)	2.94 (2.57-3.43)	3.92 (3.32-4.72)	4.74 (3.94-5.83)	5.64 (4.58-7.10)	6.64 (5.24-8.58)	8.11 (6.15-10.9)	9.35 (6.86-13.0)
3-day	1.04 (0.924-1.20)	1.61 (1.42-1.86)	2.43 (2.14-2.81)	3.15 (2.75-3.67)	4.21 (3.57-5.07)	5.10 (4.24-6.27)	6.08 (4.93-7.64)	7.16 (5.65-9.25)	8.76 (6.64-11.8)	10.1 (7.42-14.1)
4-day	1.09 (0.968-1.26)	1.69 (1.49-1.95)	2.55 (2.25-2.95)	3.30 (2.89-3.85)	4.42 (3.75-5.33)	5.37 (4.46-6.59)	6.40 (5.19-8.05)	7.54 (5.96-9.75)	9.24 (7.01-12.4)	10.7 (7.83-14.9)
7-day	1.17 (1.04-1.35)	1.81 (1.60-2.09)	2.74 (2.42-3.17)	3.56 (3.11-4.15)	4.77 (4.04-5.75)	5.79 (4.80-7.11)	6.90 (5.59-8.68)	8.13 (6.42-10.5)	9.96 (7.55-13.4)	11.5 (8.43-16.0)
10-day	1.22 (1.08-1.40)	1.89 (1.67-2.18)	2.86 (2.52-3.32)	3.72 (3.26-4.34)	5.00 (4.24-6.03)	6.07 (5.04-7.46)	7.24 (5.87-9.11)	8.53 (6.74-11.0)	10.4 (7.92-14.1)	12.1 (8.84-16.8)
20-day	1.32 (1.17-1.52)	2.08 (1.84-2.40)	3.18 (2.80-3.68)	4.16 (3.63-4.85)	5.61 (4.75-6.76)	6.83 (5.67-8.39)	8.16 (6.62-10.3)	9.64 (7.61-12.5)	11.8 (8.95-15.9)	13.6 (9.99-18.9)
30-day	1.46 (1.29-1.68)	2.31 (2.04-2.67)	3.56 (3.14-4.12)	4.67 (4.09-5.45)	6.34 (5.37-7.64)	7.74 (6.43-9.51)	9.26 (7.51-11.7)	10.9 (8.64-14.1)	13.4 (10.2-18.0)	15.5 (11.3-21.5)
45-day	1.58 (1.40-1.83)	2.54 (2.25-2.94)	3.95 (3.48-4.57)	5.21 (4.56-6.08)	7.11 (6.02-8.56)	8.71 (7.23-10.7)	10.5 (8.48-13.2)	12.4 (9.77-16.0)	15.2 (11.5-20.4)	17.5 (12.8-24.4)
60-day	1.70 (1.51-1.96)	2.75 (2.43-3.18)	4.31 (3.80-4.99)	5.71 (4.99-6.66)	7.81 (6.62-9.41)	9.60 (7.97-11.8)	11.5 (9.36-14.5)	13.7 (10.8-17.7)	16.8 (12.7-22.6)	19.4 (14.2-27.0)

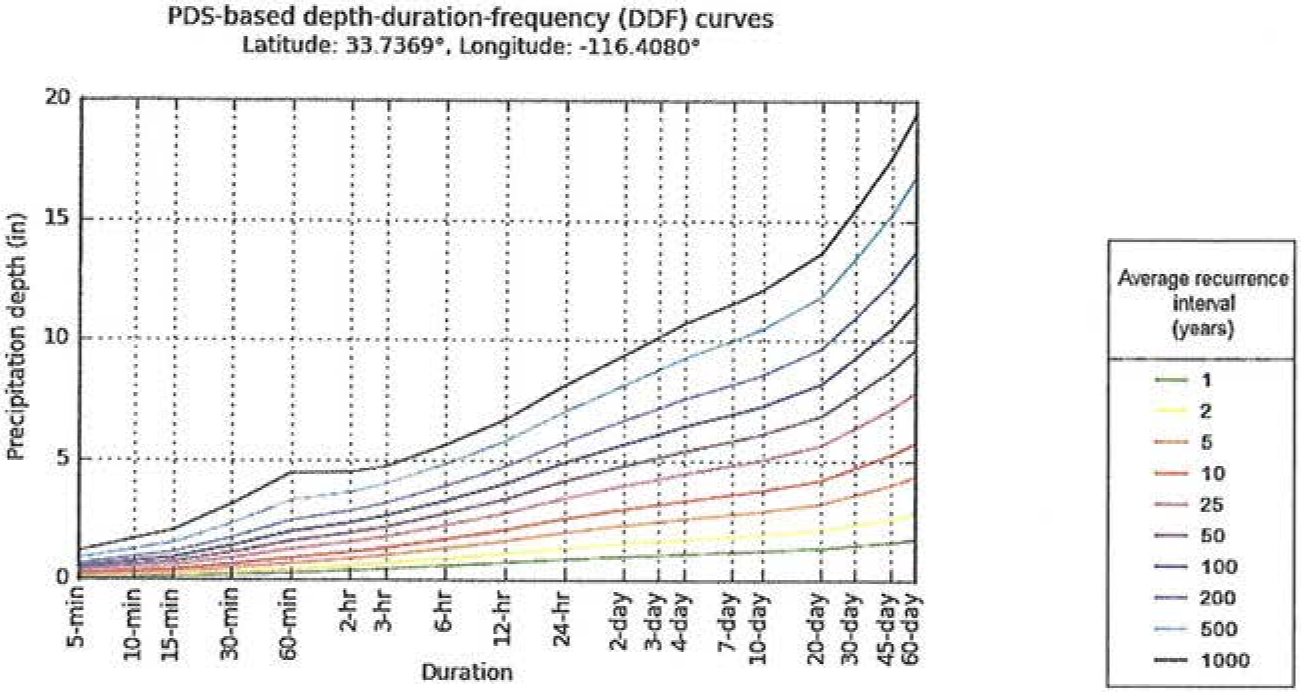
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

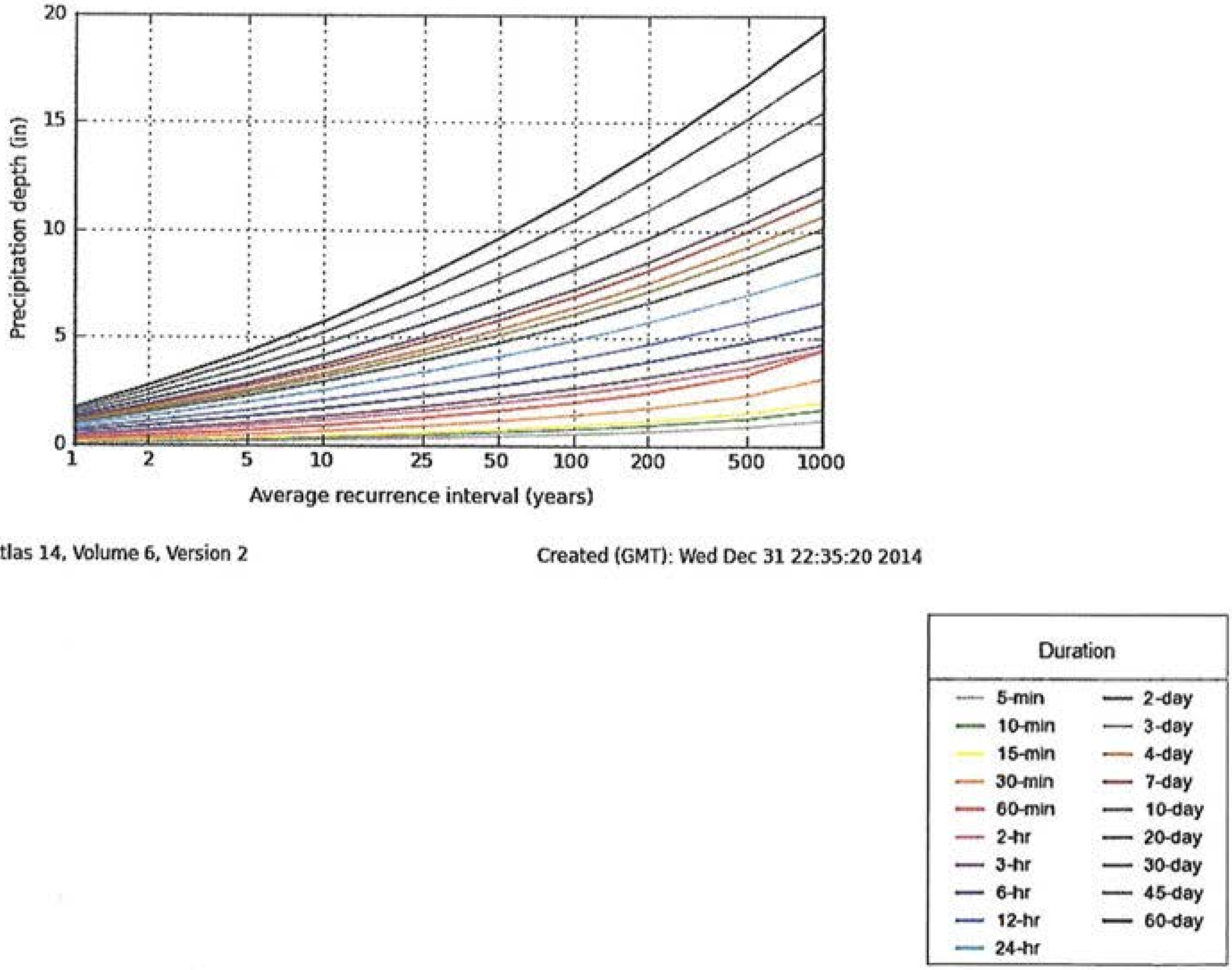
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical



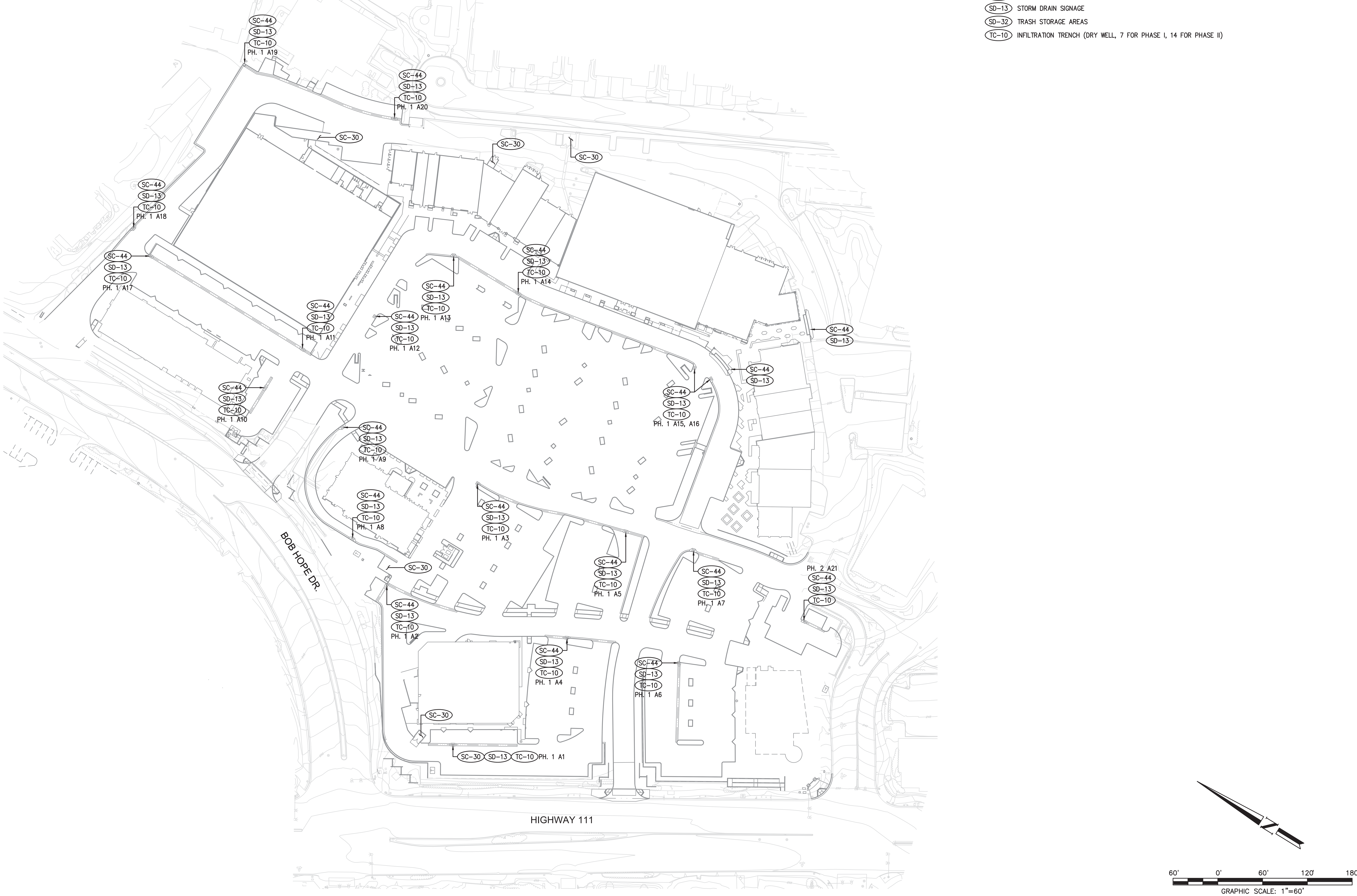


NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Wed Dec 31 22:35:20 2014

BMP

- SC-30 OUTDOOR LOADING/UNLOADING
- SC-44 DRAINAGE SYSTEM MAINTENANCE
- SD-10 SITE DESIGN & LANDSCAPE PLANNING
- SD-12 EFFICIENT IRRIGATION
- SD-13 STORM DRAIN SIGNAGE
- SD-32 TRASH STORAGE AREAS
- TC-10 INFILTRATION TRENCH (DRY WELL, 7 FOR PHASE I, 14 FOR PHASE II)



160 S. Old Springs Road
Suite 210
Anaheim Hills, CA 92808
714-685-6860

DRC Engineering, Inc.
Civil Engineering/Land Surveying/Land Planning

GREGORY R. COOKE R.C.E. 39478 DATE

NOT FOR CONSTRUCTION

NO.:	REVISION:	DATE:

PROJECT: RANCHO LAS PALMAS PHASES I & II
NEC BOB HOPE DRIVE & HWY 111
RANCHO MIRAGE, CALIFORNIA

DRAWING NAME: WQMP SITE PLAN

ISSUE: EXHIBIT
DATE: 2015-11-26
CHECKED: GRC DRAWN: DRC
DRAWING FILE: .
PROJECT NO.: 13-245B
SHEET NUMBER: 1 OF 1 SHEETS
SCALE: AS SHOWN

EXTERNAL REFERENCES: 13245 ma 13245_PGMA 13-245topo01 13245 hm pre 13245 hm phase 1 13245 phase limit 13-245 pg 16-17 DET phase 2 ACAD-cleanup RANCHO MIRAGE-CA-BASE
FILENAME: M:\2013\13-245B Rancho Mirage WQMP\WQMP\13245 wqmp combine site plan.dwg, LAST SAVED ON: Nov 26 2018 1:45pm PLOTTED BY: MICHELLE, ON: Nov 26 2018 2:39pm, CFG:

LEGEND

X — DRAINAGE AREA LABEL

XX — DRAINAGE AREA ACREAGE

		2-YEAR						10-YEAR					
		EXISTING		PROPOSED		PROPOSED		EXISTING		PROPOSED		PROPOSED	
	SUBAREA	Q (CFS)	RUNOFF VOLUME (CF)	Q (CFS)	RUNOFF VOLUME (CF)	STORAGE & PERC (CF)	V_{BMP} (CF)	Q (CFS)	RUNOFF VOLUME (CF)	Q (CFS)	RUNOFF VOLUME (CF)	STORAGE & PERC (CF)	V_{BMP} (CF)
PHASE I	A1	0.02	207	0.00	0	207	361	0.08	1,011	0.06	329	683	361
	A2	0.04	396	0.00	0	396	689	0.15	1,934	0.19	1,427	835	689
	A3	0.04	451	0.00	0	451	785	0.17	2,201	0.34	2,768	861	785
	A4	0.04	396	0.00	0	396	689	0.15	1,934	0.13	1,098	835	689
	A5	0.03	292	0.00	0	292	509	0.11	1,428	0.22	1,761	765	509
	A6	0.02	219	0.00	0	219	382	0.08	1,071	0.06	383	688	382
	A7	0.06	597	0.00	0	597	1,039	0.22	2,915	0.27	2,368	931	1,039
PHASE II	A8	0.02	177	0.00	0	177	308	0.07	863	0.05	211	651	308
	A9	0.01	97	0.00	0	97	170	0.04	476	0.03	151	537	170
	A10	0.01	134	0.00	0	134	233	0.05	654	0.01	61	593	233
	A11	0.02	183	0.00	0	183	318	0.07	892	0.05	232	660	318
	A12	0.05	481	0.00	0	481	838	0.18	2,350	0.21	1,915	879	838
	A13	0.06	591	0.00	0	591	1,029	0.22	2,886	0.41	3,874	927	1,029
	A14	0.12	1,206	0.02	46	1,161	2,100	0.45	5,890	1.16	10,909	1623	2,100
	A15	0.06	597	0.00	0	641	1,039	0.22	2,915	1.59	14,645	940	1,039
	A16	0.07	719	0.00	0	721	1,251	0.27	3,510	2.09	19,082	1441	1,251
	A17	0.02	213	0.00	0	213	371	0.08	1,041	0.06	350	691	371
	A18	0.05	542	0.00	0	542	944	0.20	2,648	0.24	2,083	915	944
	A19	0.04	408	0.00	0	408	710	0.15	1,993	0.38	3,231	846	710
	A20	0.03	335	0.00	0	335	583	0.12	1,636	0.48	4,074	793	583
	A21	0.02	219	0.00	0	219	382	0.08	1,071	0.06	383	688	382
	A22	0.14	1,456	0.14	1,456	0	2,534	0.54	7,110	3.18	30,649	0	2,534
	A23	0.03	262	0.03	262	0	456	0.10	1,279	0.10	1,279	0	456
	TOTAL	0.98	10,182	0.17	1,718	8,464	17,719	3.80	49,711	3.27	31,928	17,783	17,719

N

60' 0' 60' 120' 180'

GRAPHIC SCALE: 1"=60'

DRC Engineering, Inc.
Civil Engineering/Land Surveying/Land Planning
160 S. Old Springs Road
Suite 210
Anaheim Hills, CA 92808
714-685-6860
GREGORY R. COOKE R.C.E. 39478 DATE

NOT FOR CONSTRUCTION

NO.:	REVISION:	DATE:

PROJECT: RANCHO LAS PALMAS PHASES I & II
NEC BOB HOPE DRIVE & HWY 111
RANCHO MIRAGE, CALIFORNIA

DRAWING NAME: HYDROLOGY MAP

ISSUE: EXHIBIT
DATE: 2018-12-13
CHECKED: GRC DRAWN: DRC
DRAWING FILE: .
PROJECT NO.: 13-245B
SHEET NUMBER: 1
OF 1 SHEETS
SCALE: AS SHOWN

APPENDIX E.2

Storm Water Pollution Prevention Plan

Storm Water Pollution Prevention Plan

For:
In-N-Out Burger – Rancho Mirage New Store

Legally Responsible Person (LRP):

In-N-Out Burger
13502 Hamburger Lane
Baldwin Park, CA 91706
Carl Arena
(626) 813-8276

Project Site Location/Address:

42560 Bob Hope Drive
Rancho Mirage, CA

Design Qualified SWPPP Developer:

Aaron Pellow, R.C.E. 77913, QSD 20437

MSL Engineering, Inc.
402 W. Arrow Highway, Suite 4
San Dimas, CA 91773
(909) 305-2395

SWPPP Preparation Date:
10-21-2019

QSP SWPPP Certification

Project Name: In-N-Out Burger Rancho Mirage

REVIEW OF SWPPP

Qualified SWPPP Practitioner:

I have read this SWPPP and am familiar with its contents and requirements. I acknowledge the necessary resources required for implementation of this SWPPP and meet the required certifications necessary to implement it [1]. Upon review of this SWPPP, I am willing and authorized to fully commit resources to implement and enforce this SWPPP.

The SWPPP must be included in the Contract Bid Document.

(Signature of QSP)

Aaron Pellow
(Typed Name of QSP)

10-21-2019
(Date of SWPPP Review)

1 - SWPPP Certification requirements should be provide in Appendix B.

LEGALLY RESPONSIBLE PERSON

In-N-Out Burger has assigned Carl Arena as the Legally Responsible Person (LRP). Carl Arena has signature authority from In-N-Out Burger. Carl Arena as LRP is responsible for approving, signing, and certifying the SWPPP in conformance with Section IV.I of the CGP.

<u>LRP Information</u>

Carl Arena

In-N-Out Burger
13502 Hamburger Lane
Baldwin Park, CA 9170
Phone: 626-813-8276
Email carena@innout.com

<u>Other LRP or AS if additional or change is designated</u>:

Name

Address

Phone

Email

A Qualified SWPPP Developer (QSD) submitted the SWPPP for review and approval to Carl Arena. The contractor is responsible and liable for compliance with applicable requirements of the CGP (CAS000002, Order No. 2009-009-DWQ) for which compliance is ultimately determined by the Regional Water Quality Control Board (RWQCB), the State Water Resources Control Board (SWRCB), and/or the U.S. Environmental Protection Agency (EPA).

LRP SWPPP Certification

Project Name: In-N-Out Burger Rancho Mirage

PROPERTY AGENT'S LRP APPROVAL AND CERTIFICATION OF THE STORMWATER POLLUTION PREVENTION PLAN [1]

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations."

I and/or personnel acting under my direction and supervision have reviewed this SWPPP and find that it meets the requirements of the State Water Resources Control Board (SWRCB), National Pollution Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction Activities.

This SWPPP shall be evaluated and an annual certification report is required until the construction project is completed and the Notice of Termination is submitted to the Regional Water Quality Control Board.

The SWPPP must be part of the Contract Bid Document.

(Signature of Carl Arena)

Carl Arena, Director of Real Estate & Development

(Print Name and Title of Approved Signatory)

10-21-2019

(Date of Signature)

1 – Signature provides In-N-Out Burger approval of the hardcopy SWPPP document, but official SWPPP approval is indicated with submittal into SMARTS. A copy of the SMARTS approval page should be inserted in Appendix B.

Design QSD SWPPP Certification

Project Name: In-N-Out Burger Rancho Mirage

The SWPPP was developed and certified by a Qualified SWPPP Developer (QSD) with appropriate certification and or registration called out in Section VII.B.1 of the CGP and Section 5 of this SWPPP. Evidence of QSD certification can be found in Appendix B.

QUALIFIED SWPPP DEVELOPER'S (QSD) CERTIFICATION OF THE STORMWATER POLLUTION PREVENTION PLAN

"I certify that this document and all attachments were prepared under my direction or supervision and that the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I have included the appropriate information for the project and have verified that this SWPPP meets the requirements of the State Water Resources Control Board (SWRCB), National Pollution Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction."

The SWPPP must be part of the Contract Bid Document.

____
(Signature of Design QSD)

Aaron Pellow
(Typed Name of Design QSD)

10-21-2019
(Date of SWPPP Certification)

Construction QSD SWPPP Certification

Project Name: In-N-Out Burger Rancho Mirage

CONSTRUCTION QUALIFIED SWPPP DEVELOPER'S (QSD) CERTIFICATION OF THE STORMWATER POLLUTION PREVENTION PLAN

The SWPPP was developed and certified by a Qualified SWPPP Developer (QSD) and the Contractor has provided a QSD, identified below to act as the Construction QSD for the remainder of the project[1]. The Construction QSD will provide appropriate certification and or registration called out in Section VII.B.1 of the CGP and Section 5 of this SWPPP. Evidence of QSD certification can be found in Appendix B and E.

____
(Signature of Construction QSD)

Aaron Pellow
(Typed Name of Construction QSD)

10-21-2019
(Signature Date)

1 – Contractor may replace or have additional Construction QSDs for the project. In the event additional Construction QSDs occur, a copy of this page should be available for subsequent Construction QSD certification.

Amendment Log

Project Name: ______________________________

Amendment No.	Date	Brief Description of Amendment, include section and page number	Prepared and Approved By
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#

Table of Contents

Section 1 SWPPP Requirements 1
1.1 Introduction 1
1.2 Permit Registration Documents 2
1.3 SWPPP Availability and Implementation 2
1.4 SWPPP Amendments 5
1.5 Retention of Records 6
1.6 Required Non-Compliance Reporting 7
1.7 Annual Report 7
1.8 Changes to Permit Coverage 7
1.9 Notice of Termination 8
Section 2 Project Information 9
2.1 Project and Site Description 9
2.1.1 Site Description 9
2.1.2 Existing Conditions 9
2.1.3 Existing Drainage 9
2.1.4 Geology and Groundwater 10
2.1.5 Project Description 10
2.1.6 Developed Condition 10
2.2 Permits and Governing Documents 10
2.3 Stormwater Run-On from Offsite Areas 11
2.4 Findings of the Construction Site Sediment and Receiving Water Risk Determination 12
2.5 Construction Schedule 13
2.6 Potential Construction Activity and Pollutant Sources 13
2.7 Identification of Non-Stormwater Discharges 15
2.8 Required Site Map Information 16
Section 3 Best Management Practices 17
3.1 Erosion Control (Soil Stabilization) 17
3.2 Sediment Control 19
3.3 Tracking Control 21
3.4 Wind Erosion Control BMPs 21

3.5 Non-Stormwater Management BMPs 23
3.6 Waste Management and Materials Pollution Control BMPs 25
3.7 Post construction Stormwater Management Measures 29
Section 4 BMP Inspection and Maintenance 30
4.1 BMP Inspection and Maintenance 30
Section 5 Training 31
5.1 QSD Training 31
5.2 QSP Training 32
5.3 Contractor/Subcontractor/Worker Training 32
Section 6 Responsible Parties and Operators 33
6.1 Responsible Parties 33
6.2 Contractor List 34
Section 7 Construction Site Monitoring Program 35
7.1 Purpose 35
7.2 Roles/Responsibilities for Stormwater Monitoring 35
7.3 Applicability of Permit Requirements 36
7.3. Weather and Rain Event Tracking 37
7.3.1 Weather Tracking 37
7.3.2 Rain Gauges 38
7.4 Monitoring Locations 38
7.5 Safety and Monitoring Exemptions 38
7.6 Site Inspections 39
7.6.1 Inspection Records 39
7.6.2 BMP Inspections 39
7.6.3 Visual Observation inspections of rain events 40
7.6.3.1 Baseline or Pre-Storm Inspection 40
7.6.3.2 Daily and post-storm inspections 41
7.6.3.3 Non-stormwater Discharge Monitoring – 42
7.6.3.4 Quarterly Visual Observations For Non-Stormwater Discharges 42
7.6.4 Discharge Visual Observation Inspections 43
7.6.4.1 Non-visible Pollutant Source Observations 43
7.6.4.2 Discharge Observations 43

7.7 Water Quality Sampling and Analysis ... 44
7.7.1 Sampling and Analysis Plan for Non-Visible Pollutants in Stormwater Runoff Discharges ... 44
7.7.1.1 Sampling Schedule ... 45
7.7.1.2 Sampling Locations ... 45
7.7.1.3 Monitoring Preparation ... 46
7.7.1.4 Analytical Constituents ... 47
7.7.1.5 Sample Collection ... 49
7.7.1.6 Sample Analysis ... 50
7.7.1.7 Data Evaluation and Reporting ... 52
7.7.2 Sampling and Analysis Plan for Non-Stormwater Discharges ... 52
7.7.3 Sampling and Analysis Plan for Other Pollutants Required by the Regional Water Board 52
7.7.4 Training of Sampling Personnel ... 52
7.7.5 Sample Collection and Handling ... 53
7.7.5.1 Sample Collection ... 53
7.7.5.2 Sample Handling ... 54
7.7.5.3 Sample Documentation Procedures ... 54
7.8 Active Treatment System Monitoring ... 55
7.9 Bioassessment Monitoring ... 55
7.10 Watershed Monitoring Option ... 55
7.11 Quality Assurance and Quality Control ... 55
7.11.1 Field Logs ... 55
7.11.2 Clean Sampling Techniques ... 55
7.11.3 Chain of Custody ... 56
7.11.4 QA/QC Samples ... 56
7.11.4.1 Field Duplicates ... 56
7.11.4.2 Equipment Blanks ... 56
7.11.4.3 Field Blanks ... 57
7.11.4.4 Travel Blanks ... 57
7.11.5 Data Verification ... 57
7.12 Records Retention ... 58

CSMP Attachment 1: Rain Gauge Log **59**

CSMP Attachment 2: Example Forms **60**

Section 8 References **63**

Appendix A: Site Maps **64**

Appendix B: Permit Registration Documents **65**

Appendix C: SWPPP Amendment Certifications **67**

Appendix D: Submitted Changes to PRDs **69**

Appendix E: Spill Prevention and Control Plan **71**

Appendix F: Construction Activities, Materials Used, and Associated Pollutants **72**

Appendix G: CASQA Stormwater BMP Handbook Portal: Construction Fact Sheets **76**

Appendix H: BMP Inspection Form **77**

Appendix I: Discharge Log **84**

Appendix J: Training Reporting Form **86**

Appendix K: Responsible Parties **88**

Appendix L: Contractors and Subcontractors **91**

Appendix M: Project Schedule **92**

Section 1 SWPPP Requirements

1.1 INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) was prepared for construction activities for:

Project Name: In-N-Out Burger Rancho Mirage

Project Address or Location: 42560 Bob Hope Drive, Rancho Mirage, CA 91702

Anticipated Construction Period (Start and completion dates): 03-01-19 to 09-01-19

Project Risk Level (From Section 2.5): 1

Project Size (acres): 1.50

The project location is shown on the Vicinity Map included in Appendix A. The property is currently owned by Paragon Commercial who will be leasing the site to In-N-Out Burger.

This SWPPP has been prepared to comply with State Water Resources Control Board (SWRCB), Order No. 2009-009-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002 Waste Discharge Requirements (WDRs) for Discharges of Stormwater Associated with Construction Activity. The General Permit No. CAS000002 also identified as the Construction General Permit (CGP) was adopted by the State Water Resources Control Board (SWRCB) on September 2, 2009 as Order No. 2009-009-DWQ and was enforced on July 1, 2010.

This SWPPP has five main objectives:

- All pollutants and their sources, including sources of sediment associated with construction, construction site erosion and all other activities associated with construction activity are controlled;
- Identify non-stormwater discharges and either eliminate, control, or treat them;
- Site Best Management Practices (BMPs) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology Economically Achievable (BAT) and the Best Conventional Pollutant Control Technology (BCT) standards;
- Calculations and design details as well as BMP controls for site run-on are complete and correct; and
- Stabilized BMPs installed to reduce or eliminate pollutants after construction is completed.

1.2 PERMIT REGISTRATION DOCUMENTS

Required Permit Registration Documents (PRDs) shall be submitted to the State Water Board via the Stormwater Multi Application and Report Tracking System (SMARTS) by the Legally Responsible Person (LRP), or authorized personnel (i.e., Approved Signatory) under the direction of the LRP. The project-specific PRDs include:

1. Notice of Intent (NOI);
2. Risk Assessment (Construction Site Sediment and Receiving Water Risk Determination);
3. Site Map;
4. Annual Fee;
5. Signed Certification Statement (LRP Certification is provided electronically with SMARTS PRD submittal); and
6. SWPPP.

An electronic copy of this SWPPP document will be submitted as part of the PRDs and will be submitted prior to the NOI Certification. The SWPPP Developer (the Design QSD), as a Data Submitter, will input the information required, to submit the NOI into SMARTS, or provide it to the City, for review. The LRP or Approved Signatory will certify the NOI for construction projects within its jurisdictional area. The SWRCB will issue a fee statement prior to a Waste Discharge Identification (WDID) number and send applicable materials to the RWQCB, which then enforces the CGP. A print out of the information submitted electronically in the NOI will be provided to the contractor by the City and shall be included in Appendix B of the SWPPP.

The project Erosion Control Plan can be found in Appendix A. A copy of the submitted PRDs shall also be kept in Appendix B along with the Waste Discharge Identification (WDID) confirmation.

1.3 SWPPP AVAILABILITY AND IMPLEMENTATION

The discharger shall make the SWPPP available at the construction site during working hours while construction is occurring and shall be made available upon request by a State or Municipal inspector. When the original SWPPP is retained by a crew member in a construction vehicle and is not currently at the construction site, current copies of the BMPs and map/drawing will be left with the field crew and the original SWPPP shall be made available via a request by radio/telephone. (CGP Section XIV.C)

The SWPPP shall be implemented concurrently with the start of ground disturbing activities.

The CGP requires a Qualified SWPPP Practitioner (QSP) to oversee implementation of the BMPs required at a project site in order to ensure proper oversight of the BMPs. The QSP shall have primary responsibility and significant authority for the implementation, maintenance, inspection and amendments – amendments also require QSD certification - to the approved SWPPP. The QSP will be available throughout the duration of the project. Duties of the QSP include but are not limited to:

- Ensuring full compliance with the SWPPP and the CGP.
- Implementing elements of the SWPPP, including but not limited to:
  - Implementation of prompt and effective erosion and sediment control measures
  - Implementing non-stormwater management, and materials and waste management activities such as: monitoring discharges (dewatering, diversion devices); general site clean-up; vehicle and equipment cleaning, fueling and maintenance; spill control; ensuring that no materials other than stormwater are discharged in quantities which will have an adverse effect on receiving waters or storm drain systems; etc.
- Implementing aspects of the Construction Site Monitoring Program including routine weekly, pre-, post- and daily (during at 24 hour intervals) storm event inspections (visual monitoring), quarterly non-stormwater visual monitoring and required sampling for visible and non-visible pollutants.
- Preparing the annual report for the City's signature.
- Ensuring elimination of unauthorized discharges.
- The QSP shall be assigned authority by the Contractor to mobilize crews in order to make immediate repairs to the control measures or to respond to spills.
- Coordinate with the Contractor to assure the necessary corrections/repairs are made as soon as possible and within 72 hours of observation or prior to stormwater or non-stormwater discharge circumstances – however, spills must be cleaned up immediately, and that the project complies with the SWPPP, the CGP and approved plans at all times.
- QSP must train all workers and trade contractors involved in the implementation of the SWPPP and its components. This includes training on inspection, use of spill kits, and sampling procedures and methods.
- Submitting Discharge Logs, non-compliance reporting and reports of illicit connections or illegal discharges. Discharge notification may be required for non-visible pollutants for both Risk Level 1 and 2.

The QSP shall oversee contractors, subcontractors, and individuals who have the potential to impact water quality. The Contractor is required to appoint the QSP (and the Construction QSD) for the project. The QSP must be appropriately trained. Evidence of the QSP training will be inserted in Appendix E.

The QSP shall be either a QSD or have one of the following certifications, **AND** have the listed State sponsored training:

- A certified erosion, sediment and stormwater inspector (CESSWI) registered through Enviro Cert International, Inc.; or
- A certified inspector of sediment and erosion control (CISEC) registered through Certified Inspector of Sediment and Erosion Control, Inc.
- The QSP shall have attended a State Water Board-sponsored or approved QSP training course.

Table 1.1 **QSD AND QSP IDENTIFICATION**	
Initial QSP specified by the Contractor	
QSP Name: Aaron Pellow	QSP Email: aaron@msleng.com
QSP Qualification: R.C.E. 77913 / QSP #20437	QSP Fax #: (909) 305-2397
QSP Telephone #: (909) 305-2395	Start/End Date: TBD
In the event other or subsequent QSPs are designated for this project additional space is provided below:	
QSP Name	QSP Email
QSP Qualification	QSP Fax #
QSP Telephone #	Start/End Date
Below is the QSD, designated as the Design QSD, who developed the initial SWPPP.	
Design QSD Name: Aaron Pellow	Design QSD Email: aaron@msleng.com
Design QSD Qualification: R.C.E. 77913 / QSD #20437	Design QSD Fax #: (909) 305-2397
Design QSD Telephone #: (909) 305-2395	Start/End Date: TBD
Below is the QSD, designated as the Construction QSD, who is assigned by the Contractor prior to SWPPP implementation.	
Construction QSD Name	Construction QSD Email
Construction QSD Qualification	Construction QSD Fax #
Construction QSD Telephone #	Start/End Date
In the event another Construction QSD is assigned to the project the following information should be completed.	
Construction QSD Name	Construction QSD Email
Construction QSD Qualification	Construction QSD Fax #
Construction QSD Telephone #	Start/End Date

1.4 SWPPP AMENDMENTS

The SWPPP should be revised when:

- There is a General Permit violation.
- There is a reduction or increase in total disturbed acreage (General Permit Section II Part C).
- BMPs do not meet the objectives of reducing or eliminating pollutants in stormwater discharges.
- There is a change in construction or operations which may affect the discharge of pollutants to surface waters, groundwater(s), or a municipal separate storm sewer system (MS4);
- When there is a change in the project duration that changes the project's risk level; or
- When deemed necessary by the QSD. The QSD has determined that the changes listed in Table 1.2 can be field determined by the QSP. All other changes shall be made by the QSD as formal amendments to the SWPPP.

The following items shall be included in each amendment:

- Who requested the amendment;
- The location of proposed change;
- The reason for change;
- The original BMP proposed, if any; and
- The new BMP proposed.

Amendments shall be logged at the front of the SWPPP and certification kept in Appendix C. The SWPPP text shall be revised replaced, and/or hand annotated as necessary to properly convey the amendment. SWPPP amendments must be made by a QSD. The following changes have been designated by the QSD as "to be field determined" and constitute minor changes that the QSP may implement based on field conditions.

Table 1.2 List of Changes to be Field Determined

Candidate changes for field location or determination by QSP(1)	Check changes that can be field located or field determined by QSP
Increase quantity of an Erosion or Sediment Control Measure	*X*
Relocate/Add stockpiles or stored materials	*X*
Relocate or add toilets	*X*
Relocate vehicle storage and/or fueling locations	*X*
Relocate areas for waste storage	*X*
Relocate water storage and/or water transfer location	*X*
Changes to access points (entrance/exits)	*X*
Change type of Erosion or Sediment Control Measure	*X*
Changes to location of erosion or sediment control	*X*
Minor changes to schedule or phases	*X*
Changes in construction materials	
(1) Any field changes not identified for field location or field determination by QSP must be approved by QSD	

1.5 RETENTION OF RECORDS

Copies of the SWPPP, required inspection reports, compliance certifications, non-compliance reports, training records and records of data used to complete the NOI must be retained for at least 3 years after the NOT has been approved. The Contractor must retain a copy of the SWPPP and inspection reports at the construction site from the date of project initiation to the date of the NOT. The Contractor and the QSP will be responsible to submit the complete SWPPP to the City for retention just prior to NOT (and a requirement of the NOT). It is generally recommended that the Contractor/QSP submit the original and complete SWPPP to the City; the Contractor can retain a complete copy.

1.6 REQUIRED NON-COMPLIANCE REPORTING

If a discharge violation occurs the QSP shall immediately notify the LRP and the LRP shall file a violation report electronically to the Regional Water Board within 30 days of identification of non-compliance using SMARTS. Corrective measures will be implemented immediately following the discharge or written notice of non-compliance from the Regional Water Board.

The report to the LRP and to the Regional Water Board will contain the following items:

- The date, time, location, nature of operation and type of unauthorized discharge.
- The cause or nature of the notice or order.
- The control measures (BMPs) deployed before the discharge event, or prior to receiving notice or order.

The date of deployment and type of control measures (BMPs) deployed after the discharge event, or after receiving the notice or order, including additional measures installed or planned to reduce or prevent re-occurrence.

1.7 ANNUAL REPORT

An Annual Report is required by the CGP for any project with an NOI lasting more than one continuous three-month period. The Annual Report verifies that the site is in compliance with the CGP requirements. The report must be prepared, certified, and electronically submitted by the LRP or Approved Signatory no later than September 1 of each year using SMARTS. The annual reports assess the temporal period from July to July, but the Annual Report can be submitted to SMARTS by September 1. The information contained in the annual report is a summary of inspection and monitoring results, corrective actions and training conducted throughout the year and maintained in the SWPPP.

An electronic or paper copy of each Annual Report for the project shall be retained for a minimum of three years after the date the Annual Report is filed. The annual reporting process within SMARTS may be updated with new forms for providing required information. As the State updates methods for providing annual report data, QSPs must accommodate for alteration for input.

1.8 CHANGES TO PERMIT COVERAGE

The General Permit allows for the reduction or increase of the total acreage covered under the General Permit when: a portion of the project is complete and/or conditions for termination of coverage have been met; when ownership of a portion of the project is purchased by a different entity; or when new acreage is added to the project.

Modified PRDs shall be filed electronically within 30 days of a reduction or increase in total disturbed area if a change in permit covered acreage is to be sought. The SWPPP shall be modified appropriately, shall be logged at the front of the SWPPP and cetrification of SWPPP amendments are to be kept in Appendix C. Updated PRDs submitted electronically via SMARTS can be found in Appendix B.

1.9 NOTICE OF TERMINATION

To terminate coverage under the CGP, a Notice of Termination (NOT) must be submitted. The NOT shall be electronically submitted to the SWQCB when the construction project is complete or ownership has been transferred. A project is considered complete when all portions of the site have been transferred to a new owner, or all of the following conditions have been met:

- The site will not pose any additional sediment discharge risk than it did prior to the commencement of construction activity;
- There is no potential for construction-related stormwater pollutants to be discharged into site runoff
- Final stabilization has been reached;
- Construction materials and wastes have been disposed of properly;
- Compliance with the post-construction standards of the City's Storm Water Standards has been demonstrated;
- Post-construction stormwater management measures have been installed and a long-term maintenance plan has been established according to the SWPPP and Water Quality Technical Report (WQTR); and
- Construction-related equipment, materials and any temporary BMPs no longer needed are removed from the site.

In order to terminate coverage under the CGP, final stabilization conditions must be satisfied in the NOT. The NOT must attain final stabilization by one of the following methods:

- 70% final cover method - no computational proof required; or
- RUSLE or RUSLE2 method – computational proof required; or
- Custom method – the discharger shall demonstrate in some other manner than above that the site complies with the final stabilization requirement in Section II.D.1.a.

The construction QSD or QSP may provide relevant information for submitting the NOT via SMARTS. The Contractor's QSP will be responsible for implementing all aspects of the SWPPP until the NOT is submitted. The contractor/QSP must remain to perform SWPPP and CGP duties even if other contractual obligations have been met.

Section 2 Project Information

2.1 PROJECT AND SITE DESCRIPTION

2.1.1 Site Description

In-N-Out Burger is proposing to develop a 3,885 square foot restaurant building, with a property area of 1.57 acres and a total construction area of 1.50 acres. In-N-Out Burger is leasing the property from Paragon Commercial Group, but will be responsible for all construction, operation, and on-going maintenance of the facility. The site is located at 42560 Bob Hope Drive. The project is located at 33.73630, -116.4077 and is identified on the Vicinity Map in Appendix A.

2.1.2 Existing Conditions

The existing site is within a developed shopping center, with a vacant pad located onsite for the future building. Concrete sidewalks and AC parking are provided to the north and east of the vacant pad. The site topography is sloped from southwest to northeast away from the vacant pad, with a general slope of 3-4%. All existing improvements within the property limits will be demolished.

2.1.3 Existing Drainage

Surface runoff that lands within the project limits sheets flows to multiple onsite drain inlets that contain underground drywells. Therefore onsite runoff is contained without connection offsite to the public storm drain. Overflow from the site during storms greater than 100-year, or in the event of a failure of the onsite storm drain is ultimately tributary to the Whitewater River, which flows to the Salton Sea. The following table describes the all applicable 2016 California 303d impairments for any of the receiving waters listed above.

Table 1 – CA 303 (d) List

WATER BODY NAME	POLLUTANT	FINAL LISTING DECISION
Salton Sea	Arsenic	TMDL required list
Salton Sea	Chloride	TMDL required list
Salton Sea	Chlorpyrifos	TMDL required list
Salton Sea	Oxygen, Dissolved	TMDL required list
Salton Sea	DDT	TMDL required list
Salton Sea	Enterococcus	TMDL required list
Salton Sea	Nitrogen	TMDL required list
Salton Sea	Nutrients	TMDL required list
Salton Sea	Salinity	TMDL required list
Salton Sea	Toxicity	TMDL required list

2.1.4 Geology and Groundwater

As part of the site assessment, a Geotechnical Investigation Study was performed by Krazan & Associates. The Geotechnical Report found the subsurface conditions encountered appear typical of those found in the geologic region of the site. Ground surface at Borings B-4 and B-3 consisted of approximately 4 inches of asphalt pavement overlain by 3 inches of discernable base material for the existing asphalt pavements. In general, the subsurface soils generally consisted of medium dense to very dense, silty sand up to a depth of approximately 9 feet below site grades. Below the silty sand, medium dense to very dense poorly-graded sand alluvium with varying amounts of gravel content were encountered from a depth of approximately 8 feet below site grades to the maximum depth explored, twenty feet below site grade. No significant fill material was encountered in the borings. However, undocumented fill materials may be present at the site between our boring locations. Verification of any fill material should be determined during site grading. Test boring locations were checked for the presence of groundwater during and immediately following the drilling operations. Groundwater was not encountered in any of the borings drilled as part of this investigation. Historic groundwater depths for the vicinity indicate groundwater depths in excess of fifty feet below ground surface.

Infiltration rates were determined using the results of open borehole infiltration testing performed at the subject site. Infiltration testing performed on the near surface silty sand soil indicates infiltration rates of approximately 1.52 and 1.95 inches per hour.

2.1.5 Project Description

In-N-Out Burger is proposing to develop a 3,885 square foot restaurant building, with a property area of 1.57 acres and a total construction area of 1.50 acres. In-N-Out Burger is leasing the property from Paragon Commercial, but will be responsible for all construction, operation, and on-going maintenance of the facility. The site is located at 42560 Bob Hope Drive, see Vicinity Map in Figure 1.

2.1.6 Developed Condition

Post construction surface drainage will be collected with a series of existing onsite drain box inlets that are connected to drywell units, which treat the runoff through infiltration into the native soils.

Table 2.1 Construction Site Estimates

Construction site area	1.50	acres
Percent impervious before construction	62	%
Percent impervious after construction	73	%

2.2 PERMITS AND GOVERNING DOCUMENTS

In addition to the General Permit, the following documents have been taken into account while preparing this SWPPP

- Regional Water Board requirements

- Basin Plan requirements
- Contract Documents
- Air Quality Regulations and Permits

2.3 STORMWATER RUN-ON FROM OFFSITE AREAS

There is no run-on of stormwater through the construction site.

2.4 FINDINGS OF THE CONSTRUCTION SITE SEDIMENT AND RECEIVING WATER RISK DETERMINATION

A construction site risk assessment has been performed for the project and the resultant risk level is Risk Level 1.

The risk level was determined through the use of the SMARTS. The risk level is based on project duration, location, proximity to impaired receiving waters and soil conditions. A copy of the Risk Level determination submitted on SMARTS with the PRDs is included in Appendix B.

Table 2.2 and Table 2.3 summarize the sediment and receiving water risk factors and document the sources of information used to derive the factors.

Table 2.2 Summary of Sediment Risk

RUSLE Factor	**Value**	**Method for establishing value**	
R	5.52	EPA Rainfall Erosivity Factor Calculator for Small Construction Sites using an estimated construction window between 03-01-19 to 09-01-19	
K	0.1	Populated by SMARTS using Lat/Lon	
LS	1.61	Populated by SMARTS using Lat/Lon	
Total Predicted Sediment Loss (tons/acre)			**0.9**
Overall Sediment Risk Low Sediment Risk < 15 tons/ acre Medium Sediment Risk >= 15 and < 75 tons/acre High Sediment Risk >= 75 tons/acre			☒ **Low** ☐ **Medium** ☐ **High**

Runoff from the project discharges to Whitewater River then Salton Sea

Table 2.3 Summary of Receiving Water Risk

Receiving Water Name	**303(d) Listed for Sediment Related Pollutant[(1)]**	**TMDL for Sediment Related Pollutant[(1)]**	**Beneficial Uses of COLD, SPAWN, and MIGRATORY[(1)]**
Whitewater River/Salton Sea	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Overall Receiving Water Risk			☒ **Low** ☐ **High**
(1) If yes is selected for any option the Receiving Water Risk is High			

Risk Level 1 sites are subject to the narrative effluent limitations specified in the General Permit. The narrative effluent limitations require stormwater discharges associated with construction activity to minimize or prevent pollutants in stormwater and authorized non-stormwater through the use of controls, structures, and best management practices. This SWPPP has been prepared to address Risk Level 1 requirements (General Permit Attachment C).

2.5 CONSTRUCTION SCHEDULE

The site sediment risk was determined based on construction taking place between 03-01-19 to 09-01-19. Modification or extension of the schedule (start and end dates) may affect risk determination and permit requirements. The LRP shall contact the QSD if the schedule changes during construction to address potential impact to the SWPPP. The estimated schedule for planned work is dependent upon the start of construction and will be continuously updated throughout the project.

2.6 POTENTIAL CONSTRUCTION ACTIVITY AND POLLUTANT SOURCES

The CGP requires that potential pollutant sources must be identified and products used and/or expected to be used and the end products produced are to be inventoried. Table 2.4 identifies the types of construction activities and associated characteristic pollutants anticipated to be present at this construction site. The Product/Pollutant Inventory form in Appendix G provides a form for inventory of material (or wastes) that could present pollutants in site runoff. The Hazardous Materials Inventory required by the Safety Plan may be used as background for materials that may have pollutants and indicate potential pollutants that are not hazardous materials.

Table 2.4 provides an initial assessment by the Design QSD. The list must be modified by the QSP and Construction QSD as conditions change. The Product/Pollutant Inventory form in Appendix F provides a mechanism to track related pollutants.

Table 2.4
ANTICIPATED CONSTRUCTION SITE POLLUTANTS

Construction Type	Associated Activity/Products With Potential To Cause Stormwater Pollution	Associated Potential Pollutants
☒Demolition	☐Structure Demolition/Removal Over or Adjacent to Water ☐Building Demolition (HVAC, insulation)	Sediment, concrete particles, wood debris, asbestos, freon, aluminum, zinc

Table 2.4 ANTICIPATED CONSTRUCTION SITE POLLUTANTS		
☒Earthwork	☒Clearing and grubbing ☒Grading activities ☒Stockpiling ☐Disturbance of contaminated soil ☐Dewatering ☐Temporary Stream Crossing ☒Drainage Construction ☐Dredging ☐Pile Driving ☒Utilities ☒Line Flushing (hydrostatic test water, pipe flushing) ☒Fire Line and Temporary Water (bacteria testing) ☒Landscaping (vegetation control, (herbicides) planting and plant maintenance; use of soil additives, production of solid waste such as trees, shrubs green waste and mulch) ☐Material and Equipment Use Over Water	Sediment, Soil Amendments (gypsum, lime) List identified soil and dredged contaminant Chlorine, BOD, fertilizers, herbicides, nutrients (nitrogen, phosphorous, and potassium) acidity/ alkalinity, metals, aluminum sulfate, sulfur
☒Masonry, Concrete, Asphalt Work	☒Saw Cutting (cement and brick dust, saw cut slurries) ☒Paving and Grinding ☒Concrete Placement (colored chalks) ☒Concrete Curing (curing and glazing compounds ☒Concrete Finishing (surface cleaners) ☒Concrete Waste Management	Concrete, sediments, acidity, metals, asbestos, particulates, cold mix, asphalt emulsion, liquid asphalt

Table 2.4 ANTICIPATED CONSTRUCTION SITE POLLUTANTS		
Construction Type	Associated Activity/Products With Potential To Cause Stormwater Pollution	Associated Potential Pollutants
☒Building Construction	☒Painting (paint thinners, acetone, methyl ethyl ketone, stripper paints, lacquers, varnish, enamels, turpentine, gum spirit, solvents, dyes, stripping pigments and sanding) ☒Material Use ☒Material Delivery and Storage ☒Fire Proofing ☒Adhesives (glues, resins, epoxy synthetics, caulks, sealers, putty, sealing agents and coal tars) ☒Cleaners (polishes (metal, ceramic, tile), etching agents, cleaners, ammonia, lye, caustic, sodas, bleaching agents and chromate salts) ☒Plumbing (solder (lead, tin), flux (zinc chloride), pipe fitting) ☒Wood Products (sawdust, particle board dust and treated woods) ☒Exterior Construction (stucco and finishing materials) ☒Interior Construction (tile cutting, flashing, saw-cutting drywall, galvanized metal in nails and fences, and electric wiring)	VOCs, metals, phenolics and mineral spirits, BOD, formaldehyde, copper and creosote Phenolics, formaldehydes, asbestos, benzene, phenols and naphthalene Metals, acidity/alkalinity, chromium Lead, zinc and tin Copper, aluminum, sediments, minerals, and asbestos
☒Equipment Use	☒Vehicle and Equipment Cleaning ☒Vehicle and Equipment Fueling ☒Vehicle and Equipment Maintenance	Total petroleum hydrocarbons, oils and grease, coolants, benzene and derivatives
☒Waste Management	☒Hazardous Waste Management ☒Contaminated Soil Management ☒Solid Waste Management (litter, trash, and debris) ☒Liquid Waste Management (wash waters) ☒Sanitary Septic Waste Management (portable toilets, disturbance of existing sewer lines)	Plastic, paper, cigarettes, wood products, steel, etc. Concrete, sediment, oil and grease, detergents Bacteria, BOD, pathogens Hydrocarbons and metals
☐ Other____________________	________________________	___________________

This does not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks, etc.). Include any special BMPs or hazmat requirements such as secondary containment.

The anticipated activities and associated pollutants were used in Section 3 to select the Best Management Practices for the project.

2.7 IDENTIFICATION OF NON-STORMWATER DISCHARGES

Non-stormwater discharges consist of discharges which do not originate from precipitation events. The General Permit provides allowances for specified non-stormwater discharges that do not cause erosion or carry other pollutants.

Non-stormwater discharges into storm drainage systems or waterways, which are not authorized under the General Permit and listed in the SWPPP, or authorized under a separate NPDES permit, are prohibited.

Steps will be taken, including the implementation of appropriate BMPs, to ensure that unauthorized discharges are eliminated, controlled, disposed, or treated on-site.

Discharges of construction materials and wastes, such as fuel or paint, resulting from dumping, spills, or direct contact with rainwater or stormwater runoff, are also prohibited.

2.8 REQUIRED SITE MAP INFORMATION

The construction project's Site Map(s) showing the project location, surface water boundaries, geographic features, construction site perimeter and general topography and other requirements identified in Attachment B of the General Permit is located in Appendix A. Table 2.5 identifies Map or Sheet Nos. where required elements are illustrated.

Table 2.5 Required Map Information

Included on Map/Plan Sheet No. (1)	Required Element
Vicinity Map	The project's surrounding area (vicinity)
Site Plan/ECP	Site layout
ECP	Construction site boundaries
Site Plan	Drainage areas
N/A	Discharge locations
N/A	Sampling locations
ECP	Areas of soil disturbance (temporary or permanent)
ECP	Active areas of soil disturbance (cut or fill)
ECP	Locations of runoff BMPs
ECP	Locations of erosion control BMPs
ECP	Locations of sediment control BMPs
N/A	ATS location (if applicable)
N/A	Locations of sensitive habitats, watercourses, or other features which are not to be disturbed
Site Plan	Locations of all post construction BMPs
ECP	Waste storage areas
ECP	Vehicle storage areas
ECP	Material storage areas
ECP	Entrance and Exits
ECP	Fueling Locations

Notes: (1) Indicate maps or drawings that information is included on (e.g., Vicinity Map, Site Map, Drainage Plans, Grading Plans, Progress Maps, etc.)

Section 3 Best Management Practices

This section contains a series of BMPs to eliminate or reduce pollutants in stormwater runoff and authorized non-stormwater discharges from the project site during construction. The CGP prohibits the discharge of stormwater that causes or threatens to cause pollution, contamination or nuisance. It also allows the developer/owner to choose the most economical, effective, and possibly innovative BMPs to reduce or eliminate pollutants in runoff. The BMPs described in this section are designed to meet the BAT/BCT standards to reduce or eliminate stormwater pollution, as required by the regulations.

Appendix G contains copies of the California Stormwater Quality Association (CASQA) BMP Factsheets from the 2009 CASQA Construction BMP Handbook/Portal (CASQA BMP Handbook). The BMP Factsheets have the working details of the BMPs that have been selected for implementation in this project. Tables 3.1 through 3.6summarize the CASQA Construction BMP Guidance Handbook factsheets included in the SWPPP that correspond to BMPs selected for this project.

Implementation and location of BMPs are shown on the Erosion Control Plan in Appendix A.

3.1 EROSION CONTROL (SOIL STABILIZATION)

Erosion control, in the form of soil stabilization, consists of source control measures that are designed to prevent soil particles from detaching and becoming transported in stormwater runoff. Erosion Control BMPs protect the soil surface by covering and/or binding soil particles. This project will incorporate erosion control measures required by the contract documents, and other measures selected by the QSP. This project will implement the following minimum practices for effective temporary and final soil stabilization during construction:

1. Effective wind erosion control.
2. Soil cover for inactive areas and all finished slopes, open space, utility backfill, and completed lots.
3. Limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist. Where plastics are deemed necessary, the discharger shall consider the use of plastic materials resistant to solar degradation. Use of plastic for cover will be specifically justified/explained in BMP inspection form.

Sufficient erosion control materials will be maintained onsite to allow implementation in conformance with the CGP requirements and described in this SWPPP. This includes implementation requirements for active and non-active areas that require deployment before the onset of rain.

The following erosion control BMP consideration checklist indicates the BMPs that will be implemented to control erosion on the construction site. The following list of BMPs also includes narrative explaining how the selected BMPs will be incorporated into the project:

Table 3.1 TEMPORARY EROSION CONTROL BMPs[1]				
BMP No.	**BMP**	**CHECK IF USED**	**DESCRIBE WHERE AND HOW THE BMP WILL BE USED OR DESCRIBE WHY BMP WAS NOT SELECTED**	**CONSTRUCTION PHASE**
NA	Soil cover for inactive areas (14 or more days of inactivity)	☐	Inactive areas not anticipated based on size of project and project schedule.	
NA	Limit use of plastic erosion control materials	☒	Use of plastic should be limited as erosion control or cover. If plastic covers are used, temporary application should be considered.	All phases
WE-1	Wind Erosion Control	☒	Dust suppression by application of water will be conducted over pavement, soil, and material stockpiles to prevent sediment erosion by wind or rain as needed.	All phases
EC-1	Scheduling	☒	Insofar as possible, construction activities will be scheduled to avoid wet weather conditions.	All phases
EC-2	Preservation of Existing Vegetation	☐	All construction activities are limited to within the area shown on the Erosion Control Plan	Demolition, grading.
EC-3	Hydraulic Mulch	☐	Immediate stabilization not anticipated.	
EC-4	Hydroseeding	☐	Immediate stabilization not anticipated.	
EC-5	Soil Binder	☐	Immediate stabilization not anticipated.	
EC-6	Straw Mulch	☐	Immediate stabilization not anticipated.	
EC-7	Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats	☐	No applicable slopes	
EC-8	Wood Mulching	☐	Immediate stabilization not anticipated	
EC-9	Earth Dikes/Drainage Swales & Lined Ditches	☐	Diversion of water not applicable.	
EC-10	Outlet Protection/ Velocity Dissipation Devices	☐	No applicable outlets.	
EC-11	Slope Drains	☐	Not applicable	
EC-12	Streambank Stabilization	☐	No streambanks	
ADDITIONAL EROSION CONTROL BMPs USED ☐Yes ☒No			**DESCRIBE WHERE AND HOW THE BMP WILL BE USED AND WHY BMP WAS SELECTED**	**CONSTRUCTION PHASE**
	Runoff Containment/Diversions			
	Roof Drain Diversions			

1 – The Design QSD must specify and QSP must implement an effective form of erosion control during all phases of construction including grading and demolition.

WE-1 Wind Erosion Control: Dust suppression by application of water will be conducted over pavement, soil, and material stockpiles to prevent sediment erosion by wind or rain as needed.

Sand and/or gravel bag and/or fiber rolls and/or a silt fence barriers will be placed around portions of stockpile perimeters, as needed, to capture potential surface water discharge.

EC-1 Scheduling: Insofar as possible, construction activities will be scheduled to avoid wet weather conditions.

3.2 SEDIMENT CONTROL

Sediment controls are structural measures that are intended to complement and enhance the erosion control (including soil stabilization) measures and reduce sediment discharges from construction areas. Sediment controls are designed to intercept soil particles that have been detached and transported by the force of water. This project will incorporate minimum temporary sediment control requirements, temporary sediment control measures required by the contract documents, and other measures selected by the contractor. The site can not rely solely on sediment barriers to control runoff. There must be erosion control implemented, especially prior to rain under mass and fine grading phases.

Sediment control BMPs will be installed at appropriate locations along the site perimeter and at operational internal inlets to the storm drain system at all times during the project, and indicated on ECP. Adequate sediment control materials will be available to control sediment discharges at the downgradiant perimeter and operational inlets in the event of a predicted storm.

Temporary sediment control materials, equivalent to 10% of the installed quantities on the site will be maintained onsite throughout the duration of the project to allow implementation of temporary sediment controls in the event of predicted rain, rapid response to failures or emergencies, and as described in the SWPPP. This includes implementation requirements for active areas and non-active areas before the onset of rain.

The following sediment control BMP consideration checklist indicates the BMPs that will be implemented to control sediment on the construction site. Implementation and locations of temporary sediment control BMPs are shown on the ECP. The following list of BMPs and narrative explains how the selected BMPs will be incorporated into the project:

Table 3.2
TEMPORARY SEDIMENT CONTROL BMPs[1]

BMP No.	BMP	CHECK IF USED	DESCRIBE WHERE AND HOW THE BMP WILL BE USED OR DESCRIBE WHY BMP WAS NOT SELECTED	CONSTRUCTION PHASE
SE-1	Silt Fence	☐	Alternative BMPs used	
SE-2	Desilting Basin	☐	Alternative BMPs used	
SE-3	Sediment Trap	☐	Alternative BMPs used.	
SE-4	Check Dam	☐	No applicable swale/drainage ditch.	
SE-5	Fiber Rolls[2]	☒	Straw wattle fiber rolls will be placed around the perimeter of the project boundaries	Demolition, earthwork, grading, paving
SE-6	Gravel Bag Berm	☐		

SE-7	Street Sweeping and Vacuuming	☒	Street sweeping shall be provided at points of ingress and egress from the construction site and along any point where construction site debris may leave sediment.	All phases
SE-8	Sandbag Barrier	☐	Alternative BMPs used	
SE-9	Straw Bale Barrier	☐	Alternative BMPs used.	
SE-10	Storm Drain Inlet Protection	☒	Existing and proposed storm drain inlets shall be protected through the use of a barrier provided by gravel bags.	All phases
ADDITIONAL SEDIMENT CONTROL BMPs USED ☐Yes ☒No			**DESCRIBE WHERE AND HOW THE BMP WILL BE USED AND WHY BMP WAS SELECTED**	**CONSTRUCTION PHASE**
	Other Innovative Activity			
1 – The Design QSD and QSP must implement a combination of erosion and erosion control during all phases of construction including grading and demolition. 2 – See Table 10 for fiber roll installation specific to the face of slopes.				

SE-5 Fiber Rolls: Straw wattle fiber rolls and/or gravel and/or sand bag barriers will be placed around the perimeter of the project boundaries. As needed, straw wattle fiber rolls and/or gravel and/or sand bag barriers will also be placed around stockpile areas.

SE-7 Street Sweeping: Street sweeping shall be provided at points of ingress and egress from the construction site and along any point where construction site debris may leave sediment. All immediate access roads shall be inspected daily to determine the need for street sweeping. Street sweeping shall be provided daily (at a minimum) prior to any rain event.

SE-10 Storm Drain Inlet Protection: Existing storm drain inlets shall be protected through the use of a barrier provided by gravel bags. The barrier shall provide a ponding and settling area outside of the storm drain inlet to allow for sedimentation to settle out of the discharge and allow for only clean runoff to enter the storm drain.

Implementation of Temporary Sediment Controls

- Temporary sediment controls will be implemented year round at the downgradient perimeter of disturbed soil areas and at the storm drain downstream from disturbed areas before rain events.
- Storm drain inlet protection will be used at all operational internal inlets to the storm drain system during the project.

3.3 TRACKING CONTROL

The following tracking control BMP consideration checklist indicates the BMPs that will be implemented to prevent sediment tracking from the construction site onto private or public roads. Implementation and locations of sediment tracking BMPs are shown on the ECP.

Table 3.3
TEMPORARY TRACKING CONTROL BMPs

BMP No.	BMP	CHECK IF USED	DESCRIBE WHERE AND HOW THE BMP WILL BE USED OR DESCRIBE WHY BMP WAS NOT SELECTED	CONSTRUCTION PHASE
TC-1	Stabilized Construction Entrance/Exit	☒	A stabilized entrance/exit will be constructed adjacent to paved roadways to capture tire sediment prior to exiting each project area.	All phases
TC-2	Stabilized Construction Roadway	☐	Not applicable.	
TC-3	Entrance/Outlet Tire Wash	☐	Alternative BMPs chosen.	
SE-7	Street Sweeping and Vacuuming	☒	Street sweeping shall be provided at points of ingress and egress from the construction site and along any point where construction site debris may leave sediment.	All phases
ADDITIONAL TRACKING CONTROL BMPs USED ☐Yes ☒No			**DESCRIBE WHERE AND HOW THE BMP WILL BE USED AND WHY BMP WAS SELECTED**	**CONSTRUCTION PHASE**

TC-1: Tracking of sediment from construction vehicle traffic will be mitigated where necessary. A stabilized entrance/exit will be constructed adjacent to paved roadways to capture tire sediment prior to exiting each project area. Tracking controls include street sweeping and stabilized construction entrances/exits.

SE-7 Street Sweeping: Street sweeping shall be provided at points of ingress and egress from the construction site and along any point where construction site debris may leave sediment. All immediate access roads shall be inspected daily to determine the need for street sweeping. Street sweeping shall be provided daily (at a minimum) prior to any rain event.

3.4 WIND EROSION CONTROL BMPS

The following wind erosion control BMP consideration checklist indicates the BMPs that will be implemented to control wind erosion on the construction site. Implementation and locations of wind erosion control BMPs are shown on the ECP.

Table 3.4
TEMPORARY WIND EROSION CONTROL BMPs

BMP No.	BMP	CHECK IF USED	DESCRIBE WHERE AND HOW THE BMP WILL BE USED OR DESCRIBE WHY BMP WAS NOT SELECTED	CONSTRUCTION PHASE
WE-1	Wind Erosion Control	☒	Dust suppression by application of water will be conducted over pavement, soil, and material stockpiles to prevent sediment erosion by wind or rain as needed.	All phases
TC-1	Stabilized Construction Entrance/Exit	☒	A stabilized entrance/exit will be constructed adjacent to paved roadways to capture tire sediment prior to exiting each project area.	All phases
TC-2	Stabilized Construction Roadway	☐	Not applicable.	
SE-7	Street Sweeping and Vacuuming	☒	Street sweeping shall be provided at points of ingress and egress from the construction site and along any point where construction site debris may leave sediment.	All phases
EC-3	Hydraulic Mulch	☐	Immediate stabilization not anticipated.	
EC-4	Hydroseeding	☐	Immediate stabilization not anticipated.	
EC-5	Soil Binder	☐	Immediate stabilization not anticipated.	
EC-6	Straw Mulch	☐	Immediate stabilization not anticipated.	
EC-7	Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats	☐	No applicable slopes	
EC-8	Wood Mulch	☐	Immediate stabilization not anticipated.	
WM-3	Stockpile Management	☒	Locate stockpiles a minimum of 50 feet away from concentrated flows of stormwater. Protect all stockpiles from run-on using a temporary barrier such as berms, dikes, or fiber rolls.	Demolition, grading, paving, landscaping.
ADDITIONAL WIND EROSION CONTROL BMPs USED ☐Yes ☒No			**DESCRIBE WHERE AND HOW THE BMP WILL BE USED AND WHY BMP WAS SELECTED**	**CONSTRUCTION PHASE**
	Other Innovative Activity			
	Dust Palliative			

Wind erosion or dust control can typically be addressed with soil stabilization for water erosion control and stabilized construction roadway. Address wind erosion during dry months anticipating remedied beyond site watering.

WE-1 Wind Erosion Control: Dust suppression by application of water will be conducted over pavement, soil, and material stockpiles to prevent sediment erosion by wind or rain as needed.

Sand and/or gravel bag and/or fiber rolls and/or a silt fence barriers will be placed around portions of stockpile perimeters, as needed, to capture potential surface water discharge.

TC-1: Tracking of sediment from construction vehicle traffic will be mitigated where necessary. A stabilized entrance/exit will be constructed adjacent to paved roadways to capture tire sediment prior to exiting each project area. Tracking controls include street sweeping and stabilized construction entrances/exits.

SE-7 Street Sweeping: Street sweeping shall be provided at points of ingress and egress from the construction site and along any point where construction site debris may leave sediment. All immediate access roads shall be inspected daily to determine the need for street sweeping. Street sweeping shall be provided daily (at a minimum) prior to any rain event.

WM-3 Stockpile Management: Locate stockpiles a minimum of 50 feet away from concentrated flows of stormwater. Protect all stockpiles from run-on using a temporary barrier such as berms, dikes, or fiber rolls. Contain and securely protect stockpiled waste material from wind and rain at all times unless being actively used. Place bagged material on pallets and under cover.

3.5 NON-STORMWATER MANAGEMENT BMPS

An inventory of construction activities and potential non-stormwater discharges is provided in Section 2.6. The following BMP consideration checklist indicates the BMPs that have been selected to control non-stormwater pollution on the construction site. Implementation and locations of non-stormwater control BMPs are shown on the ECP.

Table 3.5
NON-STORMWATER MANAGEMENT BMPs

BMP No.	BMP	CHECK IF USED	DESCRIBE WHERE AND HOW THE BMP WILL BE USED OR DESCRIBE WHY BMP WAS NOT SELECTED	CONSTRUCTION PHASE
NS-1	Water Conservation Practices	☒	Water-use practices that avoid causing erosion and the transport of pollutants offsite.	All phases
NS-2	Dewatering Operations	☐	Dewatering not anticipated.	
NS-3	Paving and Grinding Operations	☒	BMPs shall be implemented to ensure to prevention of pollutant discharge from paving operations. BMPs shall be implemented to prevent runon and runoff pollution, waste disposal, and training of employees and sub-contractors.	Paving.
NS-4	Temporary Stream Crossing	☐	No onsite streams.	
NS-5	Clear Water Diversion	☐	No onsite water bodies	
NS-6	Illicit Discharge/Illegal Dumping Reporting	☒	Procedures and practices shall be implemented for construction contractors to recognize illicit connections or illegally dumped or discharged	All phases

Table 3.5
NON-STORMWATER MANAGEMENT BMPs

			materials on a construction site and report incidents.	
NS-7	Potable Water/Irrigation	☒	Implement BMPs to manage the discharge of potential pollutants generated during discharges from irrigation water lines, landscape irrigation, lawn or garden watering, planned and unplanned discharges from potable water sources, water line flushing, and hydrant flushing.	Demolition, landscaping
NS-8	Vehicle and Equipment Cleaning	☒	Cleaning practices shall be implemented to eliminate or reduce the discharge of pollutants to stormwater from vehicle and equipment cleaning operations.	All phases
NS-9	Vehicle and Equipment Fueling	☒	Onsite refueling and/or maintenance of construction vehicles and equipment will be conducted in project areas where surface water has not accumulated or is likely to discharge.	All phases
NS-10	Vehicle and Equipment Maintenance	☒	Onsite refueling and/or maintenance of construction vehicles and equipment will be conducted in project areas where surface water has not accumulated or is likely to discharge.	All phases
NS-11	Pile Driving Operations	☐	No pile driving.	
NS-12	Concrete Curing	☒	Proper procedures and care should be taken when managing concrete curing materials to prevent them from coming into contact with stormwater flows	Paving.
NS-13	Concrete Finishing	☐	Finishing practices not applicable.	
NS-14	Material and Equipment Use Over Water	☐	No material or equipment use over water.	
NS-15	Structure Demolition/Removal Over or Adjacent to Water	☐	No adjacent water bodies.	
ADDITIONAL NON-STORMWATER MANAGEMENT BMPs USED ☐Yes ☒No			**DESCRIBE WHERE AND HOW THE BMP WILL BE USED AND WHY BMP WAS SELECTED**	**CONSTRUCTION PHASE**
	Other Innovative Activity			

NS-1 Water Conservation Practices: Water-use practices that avoid causing erosion and the transport of pollutants offsite. These practices can reduce or eliminate non-stormwater discharges.

NS-3 Paving and Grinding Operations: BMPs shall be implemented to ensure to prevention of pollutant discharge from paving operations. BMPs shall be implemented to prevent runon and runoff pollution, waste disposal, and training of employees and sub-contractors.

NS-6 Illicit Connection/Discharge: Procedures and practices shall be implemented for construction contractors to recognize illicit connections or illegally dumped or discharged materials on a construction site and report incidents.

NS-7 Potable Water/Irrigation: Implement BMPs to manage the discharge of potential pollutants generated during discharges from irrigation water lines, landscape irrigation, lawn or garden watering, planned and unplanned discharges from potable water sources, water line flushing, and hydrant flushing. Direct water from offsite sources around or through a construction site, where feasible, in a way that minimizes contact with the construction site. Discharges from water line flushing should be reused for landscaping purposes where feasible.

NS-8 Vehicle and Equipment Cleaning: Cleaning areas must be located away from storm drain inlets and drainage facilities. Cleaning of vehicles and equipment with soap, solvents or steam should not occur on the project site unless resulting wastes are fully contained and disposed of. Resulting wastes should not be discharged or buried.

NS-9, NS-10 Vehicle and Equipment Fueling/Maintenance: Onsite refueling and/or maintenance of construction vehicles and equipment will be conducted in project areas where surface water has not accumulated or is likely to discharge. Personnel will be instructed to avoid accidental overfilling of fuels. Dry sorbent materials will be available onsite to clean up incidental oil, fuel and grease spillage. Designated material storage areas will be selected to minimize pollutant discharge. Vehicles and equipment shall be maintained and stored in a designated area fitted with appropriate BMPs. All leaks shall be cleaned immediately and leaked materials shall be disposed of properly.

NS-12 Concrete Curing: Avoid over spray of curing compounds. Minimize the drift by applying the curing compound close to the concrete surface. Apply an amount of compound that covers the surface, but does not allow any runoff of the compound.

3.6 WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL BMPS

The following BMP consideration checklist indicates the BMPs that have been selected to control construction site wastes and materials. Implementation and locations of some materials handling and waste management BMPs are shown on the ECP.

Table 3.6
WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL BMPs

BMP No.	BMP	CHECK IF USED	DESCRIBE WHERE AND HOW THE BMP WILL BE USED OR DESCRIBE WHY BMP WAS NOT SELECTED	CONSTRUCTION PHASE
WM-1	Material Delivery and Storage	☒	Construction materials will be stored in designated, fenced areas in a manner, which will eliminate pollutant discharges.	All phases
WM-2	Material Use	☒	All chemicals shall be stored in watertight containers with appropriate secondary containment to prevent spillage. Minimize the exposure of construction materials to precipitation, for materials that are not intended to be exposed to outdoor conditions.	All phases
WM-3	Stockpile Management	☒	Locate stockpiles a minimum of 50 feet away from concentrated flows of stormwater. Protect all stockpiles from run-on using a temporary barrier such as berms, dikes, or fiber rolls.	Demolition, grading, landscaping.
WM-4	Spill Prevention and Control	☒	Equipment and materials for cleanup of spills shall be available on site. Spills and leaks shall be cleaned up immediately and disposed of properly.	All phases
WM-5	Solid Waste Management	☒	Regular collection and offsite disposal of litter and trash will be conducted during the project.	All phases
WM-6	Hazardous Waste Management	☒	Petroleum products and other hazardous materials will be covered and/or containerized to prevent discharge	All phases
WM-7	Contaminated Soil Management	☐	Contaminated soil not anticipated.	
WM-8	Concrete Waste Management	☒	There shall be no discharge into the underlying soil or the surrounding areas for concrete washout areas. Locate the washout area at least 50 feet from storm drains, open ditches, or water bodies.	Paving.
WM-9	Sanitary/Septic Waste Management	☒	Portable toilets will be located onsite in project areas not subject to surface water accumulation or discharge.	All phases
WM-10	Liquid Waste Management	☒	There shall be no disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the storm drain system.	All phases
ADDITIONAL NON-STORMWATER MANAGEMENT BMPs USED ☐Yes ☒No			**DESCRIBE WHERE AND HOW THE BMP WILL BE USED AND WHY BMP WAS SELECTED**	**CONSTRUCTION PHASE**
BMP No.	BMP			
	Other Innovative Activity			

WM-1, WM-2 Material Use, Delivery and Storage: Construction materials will be stored in designated, fenced areas in a manner, which will eliminate pollutant discharges. Use and storage of dry sorbent materials will be conducted to clean up incidental fuel, oil and grease spillage by construction vehicles and equipment. Personnel will be instructed to avoid accidental overfilling of fuels in vehicles and equipment and to conduct fueling operations within project areas where surface water has not accumulated or is likely to discharge. All chemicals shall be stored in watertight containers with appropriate secondary containment to prevent spillage. Minimize the exposure of construction materials to precipitation, for materials that are not intended to be exposed to outdoor conditions.

WM-3 Stockpile Management: Locate stockpiles a minimum of 50 feet away from concentrated flows of stormwater. Protect all stockpiles from run-on using a temporary barrier such as berms, dikes, or fiber rolls. Contain and securely protect stockpiled waste material from wind and rain at all times unless being actively used. Place bagged material on pallets and under cover.

WM-4 Spill Prevention and Control: Equipment and materials for cleanup of spills shall be available on site. Spills and leaks shall be cleaned up immediately and disposed of properly. The appropriate spill response personnel shall be assigned and trained. Each employee shall be trained in order to classify a “significant spill” and an “insignificant spill” and the procedure for cleanup of each. There shall be a stockpile of cleanup materials that are readily accessible. Do not bury or wash spills with water. The BMP WM-4 shall be used to develop a Spill and Implementation Plan prior to the commencement of construction activity.

WM-5 Solid Waste Management: Regular collection and offsite disposal of litter and trash will be conducted during the project.

WM-6 Hazardous Materials Management: Petroleum products and other hazardous materials will be covered and/or containerized to prevent discharge.

WM-8 Concrete Waste Management: There shall be no discharge into the underlying soil or the surrounding areas for concrete washout areas. Locate the washout area at least 50 feet from storm drains, open ditches, or water bodies. Wash out wastes into a temporary pit where the concrete can set, be broken up, and then disposed of properly.

WM-9 Sanitary Waste Management: Portable toilets will be located onsite in project areas not subject to surface water accumulation or discharge. Portable toilets will be inspected and serviced on a regular basis. All portable toilets shall be provided with containment to prevent the discharge of any spills or leaks.

WM-10 Liquid Waste Management: There shall be no disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the storm drain system.

3.6.1 Spill Prevention and Control

Equipment and materials for the cleanup of spills will be available on site through the duration of the project. In the event of a spill, spills and leaks will be cleaned up immediately and disposed of properly. Appropriate spill response personnel are assigned for the project and are trained in spill response. Training must be documented with a completed training form, and inserted in Appendix E.

Leaks and spills will be cleaned up immediately upon observation using nearby accessible spill kits, and will be documented in the spill log.

All spills and spill clean ups will be documented or logged in the Spill/Discharge Log provided in Appendix I. Minor spills are viewed as spills that are cleaned up and appropriately disposed by first response trained workers on site. Significant spill are viewed as spills that require clean up and containment assistance by outside contractors, but do not result in an offsite discharge.

All sewage or petroleum spills that enter a storm drain and are not fully contained or spills 5 gallons or greater of potentially hazardous materials, and/or any spill of hazardous material of Federal Reportable Quantity (as established under 40 CFR Parts 110, 117, or 302), shall be documented in Reportable Spill Log in Appendix I, and the QSP shall notify the LRP. The City will notify the National Response Center by telephone at (800) 424-8802, if appropriate. In addition, related spills will require completion of the Discharge Log in Appendix I.

This Reportable Spill log will be completed for any release of petroleum products or sewage that enters a storm drain and are not fully contained and/or reach a receiving water body, any release 5 gallons or greater of potentially hazardous material, and/or any Reportable Quantity spill of hazardous materials (as established under 40 CFR Part 1101, 40 CFR Part 1172, or 40 CFR 3023) that occurs on site.

1. 40 CFR Part 110 addresses the discharge of oil in such quantities as may be harmful pursuant to Section 311(b)(4) of the Clean Water Act.
2. 40 CFR Part 117 addresses the determination of such quantities of hazardous substances that may be harmful pursuant to Section 311(b)(3) of the Clean Water Act.
3. 40 CFR Part 302 addresses the designation, reportable quantities, and notification requirements for the release of substances designated under Section 311(b)(2)(A) of the Clean Water Act.
4. The above regulations can be accessed at the Government Printing Office on-line catalogue at: http://catalog.qpo.gov.

3.7 POST CONSTRUCTION STORMWATER MANAGEMENT MEASURES

Post construction BMPs are permanent measures installed during construction, designed to reduce or eliminate pollutant discharges from the site after construction is completed.

This site is located in an area subject to a Phase I or Phase II Municipal Separate Storm Sewer System (MS4) permit approved Stormwater Management Plan. ☒ Yes ☐ No

Post construction runoff reduction requirements have been satisfied through the MS4 program, this project is exempt from provision XIII A of the General Permit.

The implemented BMPs are described within the City of Rancho Mirage approved MS4 documents.

Section 4 BMP Inspection and Maintenance

4.1 BMP INSPECTION AND MAINTENANCE

The General Permit requires routine weekly inspections of BMPs, along with inspections before, during, and after qualifying rain events. A BMP inspection checklist must be filled out for inspections and maintained on-site with the SWPPP. The inspection checklist includes the necessary information covered in Section 7.6. A blank inspection checklist can be found in Appendix H. Completed checklists shall be kept onsite with the project SWPPP.

BMPs shall be maintained regularly to ensure proper and effective functionality. If necessary, corrective actions shall be implemented within 72 hours of identified deficiencies and associated amendments to the SWPPP shall be prepared by the QSD.

Specific details for maintenance, inspection, and repair of Construction Site BMPs can be found in the BMP Factsheets in Appendix G.

Section 5 Training

The CGP requires specific training requirements for QSDs and QSPs. Beyond and including the QSD and QSP, the SWPPP must include procedures to ensure that all personnel responsible for implementing the SWPPP and personnel performing the inspections are appropriately trained according to the CGP. Training should be both formal and informal, occur on an ongoing basis, and should include training offered by recognized governmental agencies or professional organizations. When properly trained, site personnel are more capable of managing materials properly, preventing spills, and implementing BMPs efficiently and correctly. The following are CGP training requirements.

5.1 QSD TRAINING

A Qualified SWPPP Developer (QSD) shall be designated to write, amend, and certify the SWPPP. Each project includes a Design QSD and a Construction QSD. The Design QSD is the QSD that initially developed the SWPPP. The Construction QSD will be assigned by the Contractor before implementation of the SWPPP and will be responsible for certifying SWPPP amendments throughout the duration of the project. The QSD shall have one of the following registrations or certifications and appropriate experience:

- A California registered professional civil engineer;
- A California registered professional geologist or engineering geologist;
- A California registered landscape architect;
- A professional hydrologist registered through the American Institute of Hydrology;
- A Certified Professional in Erosion and Sediment Control (CPESC) registered through Enviro Cert International, Inc.;
- A Certified Professional in Stormwater Quality (CPSWQ) registered through Enviro Cert International, Inc.;
- A professional in erosion and sediment control registered through the National Institute for Certification in Engineering Technologies (NICET); or
- Effective September 2, 2011, the QSD shall have attended a State Water Board-sponsored or approved QSD training course, and pass the State sponsored CGP test.

The SWPPP document will be developed by a QSD recognized by the State. The initial SWPPP developing QSD will certify the initial SWPPP and is designated as the Design QSD. Prior to start of construction and SWPPP implementation, the contractor will assign a QSD for the remainder of the project and will be referred to as the Construction QSD.

5.2 QSP TRAINING

The Contractor shall designate a Qualified SWPPP Practitioner (QSP) who shall be the primary contact for issues related to the SWPPP or its implementation. The QSP shall have one of the qualifications/certifications discussed in Section 1.3 of this SWPPP. The QSP is responsible for the implementation and adequate functioning of various water pollution control practices employed. The QSP is also responsible for all monitoring and sampling for the project site.

The SWPPP shall include evidence of training or certification for the QSD and the QSP. Relevant documentation should be available in Appendix J.

5.3 CONTRACTOR/SUBCONTRACTOR/WORKER TRAINING

Personnel at all levels shall be trained in the components and goals of the CGP. Specifically, employees of the Contractor and any subcontractors or other contractors working on the construction site shall be informed of the goals of the SWPPP at a training meeting prior to commencing construction activities. The training meeting shall cover basic stormwater information as well as the specific requirements of the CGP. Specifically, the meeting will focus on implementation, inspection, spill response and maintenance of stormwater BMPs that apply to all construction activities and the work elements to be conducted by the Trade Contractor or Subcontractor. Specific to the CGP requirements, workers must be trained in spill response. Therefore, training forms in Appendix J must be completed and inserted into the SWPPP training workers on use of the site spill kits.

Employees responsible for implementing, inspecting, maintaining, or repairing stormwater BMPs will receive copies of relevant portions of the SWPPP, such as BMP factsheets. The Contractor shall train all new employees and subcontractors before they will be permitted to work on the site. Refresher sessions on stormwater pollution control will be conducted in the Fall prior to anticipated rain events. Additional training will be provided as necessary based on site inspections and evidence of stormwater quality problems. Training will be specifically required to address BMP deficiencies that resulted from contractor or worker's lack of knowledge on relevant BMP implementation.

Section 6 Responsible Parties and Operators

6.1 RESPONSIBLE PARTIES

The Approved Signatories who are responsible for SWPPP implementation and have authority to sign permit-related documents shall be listed below. Written authorizations from the LRP for these individuals shall be provided in Appendix K. The Approved Signatories assigned to this project are:

Name	Title	Phone Number

QSPs identified for the project are identified in Appendix K. The QSP shall have primary responsibility and significant authority for the implementation, maintenance and inspection/monitoring of SWPPP requirements. The QSP will be available at all times throughout the duration of the project. Duties of the QSP include but are not limited to:

- Implementing all elements of the General Permit and SWPPP, including but not limited to:
  - Ensuring all BMPs are implemented, inspected, and properly maintained;
  - Performing non-stormwater and stormwater visual observations and inspections;
  - Performing non-stormwater and storm sampling and analysis, as required;
  - Performing routine inspections and observations;
  - Implementing non-stormwater management, and materials and waste management activities such as: monitoring discharges; general Site clean-up; vehicle and equipment cleaning, fueling and maintenance; spill control; ensuring that no materials other than stormwater are discharged in quantities which will have an adverse effect on receiving waters or storm drain systems; etc.;
- The QSP may delegate these inspections and activities to an appropriately trained employee, but shall ensure adequacy and adequate deployment.
- Ensuring elimination of unauthorized discharges.
- The QSPs shall be assigned authority by the LRP to mobilize crews in order to make immediate repairs to the control measures.
- Coordinate with the Contractor(s) to assure all of the necessary corrections/repairs are made immediately and that the project complies with the SWPPP, the General Permit and approved plans at all times.

- Notifying the LRP or Authorized Signatory immediately of off-site discharges or other non-compliance events.

6.2 CONTRACTOR LIST

A complete contractor/subcontractor list shall be included within Appendix L prior to the start of construction, which includes the information shown below:

Contractor

Name:

Title:

Company:

Address:

Phone Number:

Number (24/7):

Section 7 Construction Site Monitoring Program

7.1 PURPOSE

This Construction Site Monitoring Program was developed to address the following objectives:

1. To demonstrate that the site is in compliance with the Discharge Prohibitions of the Construction General Permit;
2. To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives;
3. To determine whether immediate corrective actions, additional Best Management Practices (BMP) implementation, or SWPPP revisions are necessary to reduce pollutants in stormwater discharges and authorized non-stormwater discharges;
4. To determine whether BMPs included in the SWPPP are effective in preventing or reducing pollutants in stormwater discharges and authorized non-stormwater discharges.

7.2 ROLES/RESPONSIBILITIES FOR STORMWATER MONITORING

The QSP is required to oversee the implementation of the CSMP including all visual observation inspections and any sampling that may be needed due to possible non-visible pollutant discharges. The QSP may delegate any or all of these activities to appropriately trained individuals with appropriate training documentation included in SWPPP – see Training Form in Appenix J. However, the QSP will maintain overall responsibility for the monitoring effort, non-stormwater and stormwater visual observations, sampling and analysis, full compliance with the CGP, and implementation of all elements of the SWPPP. This person shall:

- be responsible for site hazards and safety information related to conducting visual observations or sample collection, particularly in inclement weather;
- conduct the visual inspections or train others to perform the inspections;
- ensure implementation of repairs or design changes to BMPs within 72 hours of identification of failures or shortcomings, or sooner in event of rain;
- serve as primary contact with the analytical laboratory regarding sampling/analytical issues;
- conduct or oversee sample collection;
- coordinate sample delivery to the analytical laboratory;
- ensure that proper documentation is recorded; and
- ensure that QA/QC procedures are followed.

The QSP or appropriately trained inspectors shall conduct the following tasks:

- visual monitoring/observations with regard to qualifying rain events,
- weekly monitoring/observations of all BMPs,
- non-stormwater discharge monitoring,
- non-visible pollutant source monitoring, and
- proper documentation of all inspections.

The QSP or appropriately trained sampling team will conduct or be assisted by others in the following tasks:

- preparation of stormwater monitoring equipment,
- collection of stormwater in laboratory-provided sample bottles,
- performance of field measurements,
- calibration of field pH meter and turbidity meter,
- completion of applicable documentation (site logs, checklists, chain-of-custody forms), and
- delivery of samples to the analytical laboratory.

7.3 APPLICABILITY OF PERMIT REQUIREMENTS

This project has been determined to be a Risk Level 1 project. The General Permit identifies the following types of monitoring as being applicable for a Risk Level 1 project.

Table 7.1
SUMMARY OF MONITORING REQUIREMENTS

Risk Level	Visual Inspections						Sample Collection	
	Quarterly Non-stormwater Discharge	Pre-storm Event		During Storm	Post Storm	BMP	Stormwater Discharge	Non-Visible
		Baseline	REAP					
1	**X**	**X**		**X**	**X**	**X**		When required
Visual Inspections	BMPs shall be inspected on a weekly (routine) basis and every 24 hours during extended rain events.							
	Pre-storm baseline inspections shall be performed within two business days of each forecasted qualified rain event (50% or greater chance of rain).							
	Inspections should be conducted at 24-hour intervals during extended rain events.							
	Post-storm inspections shall be performed within two business days after each qualifying rain event.							
	Non-stormwater discharge inspections shall be administratively performed and documented for each drainage area on a quarterly basis. Observations of all non-stormwater discharge are also documented when observed.							
	Stormwater discharges will be visually monitored and documented.							
Sampling and Analysis	Suspected non-visible pollutant discharge sampling/analysis from site shall be conducted within the first two hours of runoff. Collect samples of runoff affected by the spilled or released material(s) and uncontaminated runoff from upstream of the spill or release.							
	If needed to justify site specific sediment risk assessment or when discharging to receiving water impaired for sediment or when sediment basins are used, collect samples of run-on and runoff to test for particle size or turbidity.							
	If the receiving water has a Total Maximum Daily Load (TMDL) requirement, the RWQCB may require additional monitoring. The RWQCB may require additional monitoring for waterbodies sensitive to certain pollutants.							

7.3. WEATHER AND RAIN EVENT TRACKING

Visual monitoring and inspections requirements of the General Permit are triggered by a qualifying rain event. The General Permit defines a qualifying rain event as any event that produces ½ inch of precipitation. A minimum of 48 hours of dry weather will be used to distinguish between separate qualifying storm events.

7.3.1 Weather Tracking

The QSP should daily consult the National Oceanographic and Atmospheric Administration (NOAA) for the weather forecasts. These forecasts can be obtained at http://www.srh.noaa.gov/. Weather reports should be printed and maintained with each BMP inspection report and kept onsite with the project SWPPP.

7.3.2 Rain Gauges

The QSP shall install a rain gauge on the project site. Locate the gauge in an open area away from obstructions such as trees or overhangs. Mount the gauge on a post at a height of 3 to 5 feet with the gauge extending several inches beyond the post. Make sure that the top of the gauge is level. Make sure the post is not in an area where rainwater can indirectly splash from sheds, equipment, trailers, etc.

The rain gauge(s) shall be read daily during normal site scheduled hours. The rain gauge should be read at approximately the same time every day and the date and time of each reading recorded. Log rain gauge readings in CSMP Attachment 1 “Rain Gauge Log”. Follow the rain gauge instructions to obtain accurate measurements.

7.4 MONITORING LOCATIONS

The entire site should be monitored for stormwater and non-stormwater discharges.

7.5 SAFETY AND MONITORING EXEMPTIONS

This project is not required to collect samples or conduct visual observations (inspections) under the following conditions:

- During dangerous weather conditions such as flooding and electrical storms.
- Outside of scheduled site business hours.

Scheduled site business hours are: 7am-4pm, until determined by the contractor.

If monitoring of the site is unsafe because of the dangerous conditions noted above then the QSP shall document the conditions for why an exception to performing the monitoring was necessary. The exemption documentation shall be within the BMP inspection report.

7.6 SITE INSPECTIONS

The QSP will ensure that the site is in compliance with the CGP through the use of visual inspection and observation monitoring procedures. Visual inspections are required for the duration of the project with the goal of confirming that appropriately selected BMPs have been implemented, are being maintained, and are effective in preventing potential pollutants from contact with stormwater – or non-stormwater.

Copies of the completed checklists shall be kept with the SWPPP. A tracking or follow-up procedure shall follow any inspection that identifies deficiencies in BMPs or required corrective actions – see Corrective Action Table and corrective action portion of BMP Inspection Form in Appendix H. If the required site inspections identify controls that are not operating effectively, maintenance shall be performed within 72 hours of identifying the deficiency. In the event deficiencies are identified prior to or during storms that require immediate attention to prevent discharge of unauthorized discharges, appropriate repairs should be performed barring concerns for safety. A summary of all inspections and corrective action taken must be submitted as part of the Annual Report. Written documentation of the inspection shall be maintained for three years. A BMP inspection report form is contained in Appendix H.

7.6.1 Inspection Records

All visual observation inspections must be documented. Forms that may be used for inspection reporting are included in Appendix H. If alternative forms are used, they must include, at a minimum:

- name(s) and contact information of the personnel performing the observations,
- observation time(s) and date(s),
- weather conditions (including the rain gauge – on site rain gauge - reading for the rain event),
- description of locations observed, and
- corrective actions taken in response to observations.

Completed visual observation inspection forms (BMPs and storm related) shall be kept in Appendix H of the SWPPP or in a designated binder, which will be kept with the SWPPP onsite. If completed forms are stored in a separate designated binder, the SWPPP must clearly identify the existance of the binder. Dischargers shall retain records of all stormwater monitoring information and copies of all reports (including Annual Reports) for a period of at least three years following site NOT.

7.6.2 BMP Inspections

The CGP requires that BMPs be inspected:

- weekly (Routine);
- prior to a forecast storm (Pre-storm);
- after a rain event <u>that causes runoff</u> from the site (Post-storm);

- once each 24-hour period during extended storm events (During Storm); and
- during Quarterly Non-stormwater discharge assessments.

The purpose of these inspections is to identify BMPs that:

- need maintenance to operate effectively,
- failed and need to be repaired, or
- could fail to operate as intended.

If deficiencies are identified during a BMP inspection, maintenance, repairs, and/or design changes to the BMPs and the SWPPP, if applicable, shall be initiated within 72 hours of identification and need to be completed as soon as possible. If BMP repairs or maintenance are indicated in pre-storm or during storm inspections, repairs should be made as soon as possible to deter potential unauthorized discharges.

7.6.3 Visual Observation inspections of rain events

Storm related site inspections using the BMP Inspection form in Appendix H will be performed:

- within 48 hours of a forecast storm of a 50% or more chance of rain;
- within 48 hours after a rain event that causes 0.5 inches or more of rain; and
- at 24-hour intervals during extended rain events (Storm events are determined to be separate events if they incur a 48 hour or greater dry period).

The results of all storm-related inspections and assessments will be documented and copies of the completed inspection checklists will be maintained within the SWPPP. Any BMP/Storm inspections that are not completed because conditions for not completing forms are met will log missing (and completed inspections) in a BMP Inspection Form in Appendix H.

7.6.3.1 Baseline or Pre-Storm Inspection

The CGP requires that dischargers only use weather forecasts from the National Oceanographic and Atmospheric Administration (NOAA). Pre-storm inspections shall be initiated after consulting NOAA for qualifying rain events of 50% or greater probability of precipitation. These forecasts can be obtained at http://www.srh.noaa.gov, and is typically initiated by input of the site's zip code. A copy of the probability forecast should accompany a copy of the Pre-storm BMP inspection report.

Within 2 business days, (48) hours of a rain event of 50% or greater probability, a Pre-storm BMP inspection will be completed and will include assessment of the following locations:

- all stormwater drainage areas (identify all discharge points),

- any non-stormwater discharges (identify any spills, leaks, or uncontrolled pollutant sources and schedule the appropriate repair or BMP installation and, if necessary, remediation prior to the rain event),
- all BMPs (identify if they have been properly designed and installed, and identify where additional BMPs need to be installed prior to the rain event), and
- all stormwater storage and containment areas (identify potential problems; note the available storage volume; schedule maintenance or repair prior to the rain event if necessary).

Maintain onsite records of all visual observations. The QSP shall be prepared to conduct visual observation inspections until the minimum CGP requirements are met and coverage under the CGP is terminated. The QSP is not required to conduct visual observation inspections under the following conditions:

- dangerous weather conditions such as electrical storms or flooding, and
- outside scheduled business hours.

If no required visual observation inspections are collected due to these exceptions, the QSP shall include an explanation in the SWPPP, log the information in the BMP Inspection Report in Appendix H and describe in the Annual Report documenting why the visual observation inspections were not conducted.

7.6.3.2 Daily and post-storm inspections

The daily (or during storm - every 24 hours) storm inspection, as well as the post-storm inspection, shall include:

- all stormwater drainage areas (inspect all discharge points),
- all material and waste stockpiles (identify any discharge or damage due to rain),
- all stormwater storage and containment areas (identify any leaks and the presence of adequate freeboard; note the presence or absence of floating and suspended materials or a sheen on the surface as well as discolorations, turbidity, odors; note the source(s) of any observed pollutants), and
- all BMPs (identify if they were adequately designed, implemented, and effective, if additional BMPs are required, which changes the erosion control plan, revise the SWPPP accordingly).
- Identify discharges that would require subsequent completion of a Discharge Log (in Appendix I).

Any areas that are identified as a breach in BMPs, leaks, malfunction, or spills will be recorded, tracked, and include follow-up procedures. If deficiencies are identified during a BMP inspection, maintenance, repairs, and/or design changes to the BMPs, and the SWPPP, if applicable, shall be initiated within 72 hours of identification unless safety factors prevent this from happening, in which case they shall be completed as soon as possible. Safety factors preventing a timely correction of deficiencies shall be documented.

If deficiencies observed may result in unauthorized discharges, and safety features do not prevent repairs, then repairs should be performed prior to further rainfall or discharge.

7.6.3.3 Non-stormwater Discharge Monitoring –

The CSMP describes the non-stormwater visual observation requirements to include the following items.

- For non-stormwater site visual monitoring, visual observations of each drainage area will be made for the presence of, or prior indications of, unauthorized and authorized non-stormwater discharges and their sources.
- Evidence of non-stormwater discharges will be documented in the BMP Inspection Form, when the site is being assessed.
- The presence or absence of non-stormwater discharges based on site observations will be documented on the BMP inspection form in Appendix H.
- Documentation of observed non-stormwater discharges will include presence or absence of floating and suspended materials, sheen on the surface, discolorations, turbidity, odors, and source(s) of any observed pollutants as indicated on the BMP inspection form in Appendix H.
- If non-stormwater discharges occur, the Discharge Log in Appendix I will be completed. Further assessment for the presence of non-visible pollutants, and subsequent requirements for sampling and analysis for non-visible pollutants should be conducted.
- Non-stormwater discharges will be identified and logged in the Non-stormwater Discharge log in Appendix I as they are observed and assessed.

7.6.3.4 Quarterly Visual Observations For Non-Stormwater Discharges

A stormwater visual observation site inspection for non-stormwater discharges will be conducted quarterly for each drainage area for the presence of (or indications of prior) unauthorized and authorized non-stormwater discharges.

A quarterly visual observation shall be conducted once in each of the following periods: January-March, April-June, July-September, and October-December.

When non-stormwater discharges occur outside of the Quarterly assessment, the discharges are described in the Discharge Log in Appendix I.

Results of the quarterly monitoring will be recorded in the Discharge Log located in Appendix I. The observer will check or indicate for a “Quarterly Inspection”. The Quarterly Inspection will also require the completion of the typical BMP Inspection Form for that same day, and a copy of a site map edited to reflect each contributing area and discharge point. Quarterly inspections shall include each drainage area of the project and document:

- The presence or evidence of any non-stormwater discharge (authorized or unauthorized) and their sources;
- Pollutant characteristics of the non-stormwater discharge (floating and suspended material, sheen, discoloration, turbidity, oder, etc.);
- The person performing the visual observations (QSP must sign or co-sign form);
- The dates and approximate times each drainage area and non stormwater discharge was observed; and
- The response taken to eliminate unauthorized non-stormwater discharges and to reduce or prevent pollutants from contacting authorized non-stormwater discharges.

7.6.4 Discharge Visual Observation Inspections

7.6.4.1 Non-visible Pollutant Source Observations

The presence of non-visible pollutant sources are routinely assessed through daily operations and is specifically assessed during storm and BMP inspection observations. The BMP inspection form addresses many site conditions that may indicate the presence of non-visible pollutants. Sources of non-visible pollutants may influence in non-stormwater discharges, which must be assessed for each non-stormwater discharge and described in a Discharge Log provided in Appendix I.

Sampling and analysis of stormwater and non-stormwater samples for non-visible pollutants is described in Section 7.7.1, but assessment for analytical requirements is based on visual observations of the discharge and knowledge of the discharge source.

Contaminated soil conditions may be present that could trigger non-visible pollutant sampling/analysis. Known contaminants in soil should be assessed for sampling in relevant inspections.

7.6.4.2 Discharge Observations

The Discharge Log in Appendix I must be completed and inserted in Appendix I. The Discharge Log is completed for every offsite discharge including:

- Authorized stormwater discharges;
- Authorized non-stormwater discharges; and
- Unauthorized stormwater and non-stormwater discharges.

Stormwater discharges are typically visually observed During-Storm Inspections and possibly during Post-storm inspections. The observable quality of the discharge is described. If stormwater discharges are viewed unauthorized, non-compliance reporting shall be provided in accordance with Section 1.6.

When non-stormwater discharges occur, the Appendix I Discharge Log is also completed to assess the visual quality of the discharge. Subsequently the Notice of Discharge form is completed if the non-stormwater discharge is view as unauthorized.

Completed Discharge Logs must be inserted into the SWPPP.

7.7 WATER QUALITY SAMPLING AND ANALYSIS

All projects under the CGP are required to conduct non-visible pollutant sampling and analysis monitoring. This section identifies the sampling strategy to comply with the required sampling requirements for these projects.

Non-visible pollutant sampling/analysis is required under certain conditions described under section 6.4.5, and requires a particular sampling strategy and corrective actions to improve BMPs related to non-visible pollutants samples.

The following describes water quality limitations to assess analytical results and a detailed description of: 1) Non-Visible pollutant Sampling and Analysis

7.7.1 Sampling and Analysis Plan for Non-Visible Pollutants in Stormwater Runoff Discharges

This Sampling and Analysis Plan for Non-Visible Pollutants describes the sampling and analysis strategy and schedule for monitoring non-visible pollutants in stormwater runoff discharges from the project site.

Sampling for non-visible pollutants will be conducted when (1) a breach, leakage, malfunction, or spill is observed; and (2) the leak or spill has not been cleaned up prior to the rain event; and (3) there is the potential for discharge of non-visible pollutants to surface waters or drainage system.

The potential sources of non-visible pollutants from construction materials, wastes, or activities, are identified in Section 2.6. Storage, use, and operational locations are shown on the Erosion Control Plan.

7.7.1.1 Sampling Schedule

Samples for the potential non-visible pollutant(s) and a sufficiently large unaffected background sample shall be collected during the first two hours of discharge from rain events that result in a sufficient discharge for sample collection. Samples shall be collected during the site's scheduled hours and shall be collected regardless of the time of year and phase of the construction.

Collection of discharge samples for non-visible pollutant monitoring will be triggered when any of the following conditions are observed during site inspections conducted prior to or during a rain event.

- Materials or wastes containing potential non-visible pollutants are not stored under watertight conditions. Watertight conditions are defined as (1) storage in a watertight container, (2) storage under a watertight roof or within a building, or (3) protected by temporary cover and containment that prevents stormwater contact and runoff from the storage area.
- Materials or wastes containing potential non-visible pollutants are stored under watertight conditions, but (1) a breach, malfunction, leakage, or spill is observed, (2) the leak or spill is not cleaned up prior to the rain event, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- A construction activity, including but not limited to those in Section 2.6, with the potential to contribute non-visible pollutants (1) was occurring during or within 24 hours prior to the rain event, (2) BMPs were observed to be breached, malfunctioning, or improperly implemented, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- Soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil have been applied, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- Stormwater runoff from an area contaminated by historical usage of the site has been observed to combine with stormwater runoff from the site, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.

7.7.1.2 Sampling Locations

Sampling locations are based on proximity to planned non-visible pollutant storage, occurrence or use; accessibility for sampling, and personnel safety. Planned non-visible pollutant sampling locations are at the project outfall locations, but ultimately will be as determined in the field in the event of a spill or leak..

If a stormwater visual monitoring site inspection conducted prior to or during a storm event identifies the presence of a material storage, waste storage, or operations area with spills or the potential for the discharge of non-visible pollutants to surface waters or a storm drain system that is at a location not listed above and has not been identified on the Site Maps, sampling locations will be selected by the QSP using the same rationale as that used to identify planned locations. Non-visible pollutant sampling locations shall be identified by the QSP on the pre-rain event inspection form prior to a forecasted qualifying rain event.

7.7.1.3 Monitoring Preparation

Non-visible pollutant samples will be collected by:

Contractor*	☒ Yes	☐ No
Consultant	☐ Yes	☐ No
Laboratory	☐ Yes	☐ No

*Under supervision of the QSP

Samples on the project site will be collected by the following contractor sampling personnel:

Name/Telephone Number:

Alternate(s)/Telephone Number:

An adequate stock of monitoring supplies and equipment for monitoring non-visible pollutants will be available on the project site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool temperature environment that will not come into contact with rain or direct sunlight. Sampling personnel will be available to collect samples in accordance with the sampling schedule. Supplies maintained at the project site will include, but are not limited to, clean powder-free nitrile gloves, sample collection equipment, coolers, appropriate number and volume of sample bottles, identification labels, re-sealable storage bags, paper towels, personal rain gear, ice, and *Effluent Sampling Field Log Sheets* and Chain of Custody (CoC) forms, which are provided in CSMP Attachment 2 “Example Forms”.

7.7.1.4 Analytical Constituents

Table 7.2 lists the specific sources and types of potential non-visible pollutants on the project site and the water quality indicator constituent(s) for that pollutant.

Table 7.2 Potential Non-Visible Pollutants and Water Quality Indicator Constituents

Common Non-Visible Pollutants and Water Quality Indicator Constituents Worksheet	
General Work Activity/Potential Pollutants	**Water Quality Indicators of Potential Constituents** (Review product literature and Material Safety Data Sheets to confirm potential constituents)
Adhesives	COD, Phenols, SVOCs
Asphalt Work	VOCs
Cleaning	
Acids	pH
Bleaches	Residual chlorine
TSP	Phosphate
Solvents	VOCs, SVOCs
Detergents	MBAS
Concrete / Masonry Work	
Sealant (Methyl methacrylate)	SVOC
Curing compounds	VOCs, SVOCs, pH
Ash, slag, sand	pH, Al, Ca, Va, Zn
Drywall	Cu, Al, General Minerals
Framing / Carpentry	
Treated Wood	Cu, Cr, As, Zn
Particle board	Formaldehyde
Untreated wood	BOD
Grading / Earthworks	
Gypsum / Lime amendments	pH
Contaminated Soil	Constituents specific to known contaminants, check with Laboratory
Heating, Ventilation, Air Conditioning	Freon
Insulation	Al, Zn
Landscaping	

Table 7.2 Potential Non-Visible Pollutants and Water Quality Indicator Constituents

Common Non-Visible Pollutants and Water Quality Indicator Constituents Worksheet	
General Work Activity/Potential Pollutants	**Water Quality Indicators of Potential Constituents** (Review product literature and Material Safety Data Sheets to confirm potential constituents)
Pesticides/Herbicides	Product dependent, see label and check with Laboratory
Fertilizers	TKN, NO_3, BOD, COD, DOC, Sulfate, NH_3, Phosphate, Potassium
Aluminum sulfate	Al, TDS, Sulfate
Liquid Waste	Constituents specific to materials, check with Laboratory
Painting	
Resins	COD, SVOCs
Thinners	COD, VOCs
Paint strippers	VOCs, SVOCs, metals
Lacquers, varnishes, enamels	COD, VOCs, SVOCs
Sealants	COD
Adhesives	Phenols, SVOCs
Planting / Vegetation Management	
Vegetation stockpiles	BOD
Fertilizers	TKN, NO_3, BOD, COD, DOC, sulfate, NH_3, Phosphate, Potassium
Pesticides/Herbicides	Product dependent, see label and check with Laboratory
Plumbing	
Solder, flux, pipe fitting	Cu, Pb, Sn, Zn
Pools and Fountains	Residual chlorine, Cu, chloramines
Removal of existing structures	Zn, VOCs, PCBs (see also other applicable activity categories, e.g., grading, painting)
Roofing	Cu, Pb, VOCs
Sanitary Waste Sewer line breaks and Portable Toilets (using clear fluid – blue fluid is visible if discharged)	BOD, Total/Fecal coliform

Table 7.2 Potential Non-Visible Pollutants and Water Quality Indicator Constituents

Common Non-Visible Pollutants and Water Quality Indicator Constituents Worksheet	
General Work Activity/Potential Pollutants	**Water Quality Indicators of Potential Constituents** (Review product literature and Material Safety Data Sheets to confirm potential constituents)
Soil Preparation / Amendments/Dust Control	
Polymer/Co-polymers	TKN, NO_3, BOD, COD, DOC, Sulfate, Ni
Lignin sulfate	TDS, alkalinity
Psyllium	COD, TOC
Guar/Plant Gums	COD, TOC, Ni
Solid Waste (leakage)	BOD
Utility Line Testing and Flushing	Residual chlorine, chloramines
Vehicle and Equipment Use	
Batteries	Sulfuric acid; Pb, pH

Adapted from *Attachment S, Caltrans SWPPP/WPCP Preparation Manual, February 2003*, and *CASQA Construction BMP Handbook*, 2003

7.7.1.5 Sample Collection

Samples of discharge shall be collected at the locations determined by observed breaches, malfunctions, leakages, spills, operational areas, soil amendment application areas, and historical site usage areas that triggered the sampling event.

Grab samples shall be collected and preserved in accordance with the methods identified in the Table, “Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants” provided in Section 7.7.1.6. Only the QSP, or personnel trained in water quality sampling under the direction of the QSP shall collect samples.

Sample collection and handling requirements are described in Section 7.7.5.

7.7.1.6 Sample Analysis

Samples shall be analyzed using the analytical methods identified in the Table 7.3. The QSP shall select a certified lab and include the information below.

Samples will be analyzed by:

Laboratory Name:	
Street Address:	
City, State Zip:	
Telephone Number:	
Point of Contact:	
ELAP Certification Number:	

Samples will be delivered to the laboratory by:

Driven by Contractor	☒ Yes	☐ No
Picked up by Laboratory Courier	☐ Yes	☐ No
Shipped	☐ Yes	☐ No

Table 7.3 Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants

Constituent	Analytical Method	Minimum Sample Volume	Sample Containers	Sample Preservation	Reporting Limit	Maximum Holding Time
Notes:						

7.7.1.7 Data Evaluation and Reporting

The QSP shall complete an evaluation of the water quality sample analytical results.

Runoff/downgradient results shall be compared with the associated upgradient/unaffected results and any associated run-on results. Should the runoff/downgradient sample show an increased level of the tested analyte relative to the unaffected background sample, which cannot be explained by run-on results, the BMPs, site conditions, and surrounding influences shall be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs shall be repaired or modified to mitigate discharges of non-visible pollutant concentrations. Any revisions to the BMPs shall be recorded as an amendment to the SWPPP.

The General Permit prohibits the storm water discharges that contain hazardous substances equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4. The results of any non-stormwater discharge results that indicate the presence of a hazardous substance in excess of established reportable quantities shall be immediately reported to the Regional Water Board and other agencies as required by 40 C.F.R. §§ 117.3 and 302.4.

Results of non-visible pollutant monitoring shall be reported in the Annual Report.

7.7.2 Sampling and Analysis Plan for Non-Stormwater Discharges

This project is not subject to the non-stormwater sampling and analysis requirements of the General Permit because it is a Risk Level 1 project.

7.7.3 Sampling and Analysis Plan for Other Pollutants Required by the Regional Water Board

The Regional Water Board has not specified monitoring for additional pollutants.

7.7.4 Training of Sampling Personnel

Sampling personnel shall be trained to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring program (SWAMP) 2008 Quality Assurance Program Plan (QAPrP). Training records of designated contractor sampling personnel are provided in Appendix J.

The stormwater sampler(s) and alternate(s) have received the following stormwater sampling training:

Name	Training

7.7.5 Sample Collection and Handling

7.7.5.1 Sample Collection

Samples shall be collected at the designated sampling locations shown on the Site Maps and listed in the preceding sections. Samples shall be collected, maintained and shipped in accordance with the SWAMP 2008 Quality Assurance Program Plan (QAPrP).

Grab samples shall be collected and preserved in accordance with the methods identified in preceding sections.

To maintain sample integrity and prevent cross-contamination, sample collection personnel shall follow the protocols below.

- Collect samples (for laboratory analysis) only in analytical laboratory-provided sample containers;
- Wear clean, powder-free nitrile gloves when collecting samples;
- Change gloves whenever something not known to be clean has been touched;
- Change gloves between sites;
- Decontaminate all equipment (e.g. bucket, tubing) prior to sample collection using a trisodium phosphate water wash, distilled water rinse, and final rinse with distilled water. (Dispose of wash and rinse water appropriately, i.e., do not discharge to storm drain or receiving water). Do not decontaminate laboratory provided sample containers;
- Do not smoke during sampling events;
- Never sample near a running vehicle;
- Do not park vehicles in the immediate sample collection area (even non-running vehicles);
- Do not eat or drink during sample collection; and
- Do not breathe, sneeze, or cough in the direction of an open sample container.

The most important aspect of grab sampling is to collect a sample that represents the entire runoff stream. Typically, samples are collected by dipping the collection container in the runoff flow paths and streams as noted below.

i. For small streams and flow paths, simply dip the bottle facing upstream until full.
ii. For larger stream that can be safely accessed, collect a sample in the middle of the flow stream by directly dipping the mouth of the bottle. Once again making sure that the opening of the bottle is facing upstream as to avoid any contamination by the sampler.
iii. For larger streams that cannot be safely waded, pole-samplers may be needed to safely access the representative flow.
iv. Avoid collecting samples from ponded, sluggish or stagnant water.
v. Avoid collecting samples directly downstream from a bridge as the samples can be affected by the bridge structure or runoff from the road surface.

Note, that depending upon the specific analytical test, some containers may contain preservatives. These containers should **never** be dipped into the stream, but filled indirectly from the collection container.

7.7.5.2 Sample Handling

Samples for laboratory analysis must be handled as follows. Immediately following sample collection:

- Cap sample containers;
- Complete sample container labels;
- Sealed containers in a re-sealable storage bag;
- Place sample containers into an ice-chilled cooler;
- Document sample information on the *Effluent Sampling Field Log Sheet*; and
- Complete the CoC.

All samples for laboratory analysis must be maintained between 0-6 degrees Celsius during delivery to the laboratory. Samples must be kept on ice, or refrigerated, from sample collection through delivery to the laboratory. Place samples to be shipped inside coolers with ice. Make sure the sample bottles are well packaged to prevent breakage and secure cooler lids with packaging tape.

Ship samples that will be laboratory analyzed to the analytical laboratory right away. Hold times are measured from the time the sample is collected to the time the sample is analyzed. The General Permit requires that samples be received by the analytical laboratory within 48 hours of the physical sampling (unless required sooner by the analytical laboratory).

Laboratory Name:

Address:

City, State Zip:

Telephone Number:

Point of Contact:

7.7.5.3 Sample Documentation Procedures

All original data documented on sample bottle identification labels, *Effluent Sampling Field Log Sheet*, and CoCs shall be recorded using waterproof ink. These shall be considered accountable documents. If an error is made on an accountable document, the individual shall make corrections by lining through the error and entering the correct information. The erroneous information shall not be obliterated. All corrections shall be initialed and dated.

Duplicate samples shall be identified consistent with the numbering system for other samples to prevent the laboratory from identifying duplicate samples. Duplicate samples shall be identified in the Effluent Sampling Field Log Sheet.

Sample documentation procedures include the following:

<u>Sample Bottle Identification Labels:</u> Sampling personnel shall attach an identification label to each sample bottle. Sample identification shall uniquely identify each sample location.

<u>Field Log Sheets:</u> Sampling personnel shall complete the *Effluent Sampling Field Log Sheet* and *Receiving Water Sampling Field Log Sheet* for each sampling event, as appropriate.

Chain of Custody: Sampling personnel shall complete the CoC for each sampling event for which samples are collected for laboratory analysis. The sampler will sign the CoC when the sample(s) is turned over to the testing laboratory or courier.

7.8 ACTIVE TREATMENT SYSTEM MONITORING

An Active Treatment System (ATS) will be deployed on the site?

☐ Yes ☒ No

This project does not require a project specific Sampling and Analysis Plan for an ATS because deployment of an ATS is not planned.

7.9 BIOASSESSMENT MONITORING

This project is not subject to bioassessment monitoring because it is not a Risk Level 3 project.

7.10 WATERSHED MONITORING OPTION

This project is not participating in a watershed monitoring option.

7.11 QUALITY ASSURANCE AND QUALITY CONTROL

An effective Quality Assurance and Quality Control (QA/QC) plan shall be implemented as part of the CSMP to ensure that analytical data can be used with confidence. QA/QC procedures to be initiated include the following:

- Field logs;
- Clean sampling techniques;
- CoCs;
- QA/QC Samples; and
- Data verification.

Each of these procedures is discussed in more detail in the following sections.

7.11.1 Field Logs

The purpose of field logs is to record sampling information and field observations during monitoring that may explain any uncharacteristic analytical results. Sampling information to be included in the field log include the date and time of water quality sample collection, sampling personnel, sample container identification numbers, and types of samples that were collected. Field observations should be noted in the field log for any abnormalities at the sampling location (color, odor, BMPs, etc.). Field measurements for pH and turbidity should also be recorded in the field log. A Visual Inspection Field Log and an Effluent Sampling Field Log Sheet are included in CSMP Attachment 2 “Example Forms”.

7.11.2 Clean Sampling Techniques

Clean sampling techniques involve the use of certified clean containers for sample collection and clean powder-free nitrile gloves during sample collection and handling. As discussed in Section

7.7.5, adoption of a clean sampling approach will minimize the chance of field contamination and questionable data results.

7.11.3 Chain of Custody

The sample CoC is an important documentation step that tracks samples from collection through analysis to ensure the validity of the sample. Sample CoC procedures include the following:

- Proper labeling of samples;
- Use of CoC forms for all samples; and
- Prompt sample delivery to the analytical laboratory.

Analytical laboratories usually provide CoC forms to be filled out for sample containers. An example CoC is included in CSMP Attachment 2 "Example Forms".

7.11.4 QA/QC Samples

QA/QC samples provide an indication of the accuracy and precision of the sample collection; sample handling; field measurements; and analytical laboratory methods. The following types of QA/QC will be conducted for this project:

☐ Field Duplicates at a frequency of [5 percent or 1 duplicate minimum per sampling event]
(Required for all sampling plans with field measurements or laboratory analysis)

☐ Equipment Blanks at a frequency of [Insert frequency required by method]
(Only needed if equipment used to collect samples could add the pollutants to sample)

☐ Field Blanks at a frequency of [Insert frequency required by method]
(Only required if sampling method calls for field blanks)

☐ Travel Blanks at a frequency of [Insert frequency required by method]
(Required for sampling plans that include VOC laboratory analysis)

7.11.4.1 Field Duplicates

Field duplicates provide verification of laboratory or field analysis and sample collection. Duplicate samples shall be collected, handled, and analyzed using the same protocols as primary samples. The sample location where field duplicates are collected shall be randomly selected from the discharge locations. Duplicate samples shall be collected immediately after the primary sample has been collected. Duplicate samples must be collected in the same manner and as close in time as possible to the original sample. Duplicate samples shall not influence any evaluations or conclusion.

7.11.4.2 Equipment Blanks

Equipment blanks provide verification that equipment has not introduced a pollutant into the sample. Equipment blanks are typically collected when:

- New equipment is used;
- Equipment that has been cleaned after use at a contaminated site;
- Equipment that is not dedicated for surface water sampling is used; or
- Whenever a new lot of filters is used when sampling metals.

7.11.4.3 Field Blanks

Field blanks assess potential sample contamination levels that occur during field sampling activities. De-ioninzed water field blanks are taken to the field, transferred to the appropriate container, and treated the same as the corresponding sample type during the course of a sampling event.

7.11.4.4 Travel Blanks

Travel blanks assess the potential for cross-contamination of volatile constituents between sample containers during shipment from the field to the laboratory. De-ioninzed water blanks are taken along for the trip and held unopened in the same cooler with the VOC samples.

7.11.5 Data Verification

After results are received from the analytical laboratory, the QSP shall verify the data to ensure that it is complete, accurate, and the appropriate QA/QC requirements were met. Data must be verified as soon as the data reports are received. Data verification shall include:

- Check the CoC and laboratory reports.
  Make sure all requested analyses were performed and all samples are accounted for in the reports.
- Check laboratory reports to make sure hold times were met and that the reporting levels meet or are lower than the reporting levels agreed to in the contract.
- Check data for outlier values and follow up with the laboratory.
  Occasionally typographical errors, unit reporting errors, or incomplete results are reported and should be easily detected. These errors need to be identified, clarified, and corrected quickly by the laboratory. The QSP should especially note data that is an order of magnitude or more different than similar locations, or is inconsistent with previous data from the same location.
- Check laboratory QA/QC results.
  EPA establishes QA/QC checks and acceptable criteria for laboratory analyses. These data are typically reported along with the sample results. The QSP shall evaluate the reported QA/QC data to check for contamination (method, field, and equipment blanks), precision (laboratory matrix spike duplicates), and accuracy (matrix spikes and laboratory control samples). When QA/QC checks are outside acceptable ranges, the laboratory must flag the data, and usually provides an explanation of the potential impact to the sample results.
- Check the data set for outlier values and, accordingly, confirm results and re-analyze samples where appropriate.
  Sample re-analysis should only be undertaken when it appears that some part of the QA/QC resulted in a value out of the accepted range. Sample results may not be discounted unless the analytical laboratory identifies the required QA/QC criteria were not met and confirms this in writing.

Field data including inspections and observations must be verified as soon as the field logs are received, typically at the end of the sampling event. Field data verification shall include:

- Check field logs to make sure all required measurements were completed and appropriately documented;
- Check reported values that appear out of the typical range or inconsistent; Follow-up immediately to identify potential reporting or equipment problems, if appropriate, recalibrate equipment after sampling;
- Verify equipment calibrations;
- Review observations noted on the field logs; and
- Review notations of any errors and actions taken to correct the equipment or recording errors.

7.12 RECORDS RETENTION

All records of stormwater monitoring information and copies of reports (including Annual Reports) must be retained for a period of at least three years from date of submittal or longer if required by the Regional Water Board.

Results of visual monitoring, field measurements, and laboratory analyses must be kept in the SWPPP along with CoCs, and other documentation related to the monitoring.

Records are to be kept onsite while construction is ongoing. Records to be retained include:

- The date, place, and time of inspections, sampling, visual observations, and/or measurements, including precipitation;
- The individual(s) who performed the inspections, sampling, visual observation, and/or field measurements;
- The date and approximate time of field measurements and laboratory analyses;
- The individual(s) who performed the laboratory analyses;
- A summary of all analytical results, the method detection limits and reporting limits, and the analytical techniques or methods used;
- Rain gauge readings from site inspections;
- QA/QC records and results;
- Calibration records;
- Visual observation and sample collection exemption records;
- The records of any corrective actions and follow-up activities that resulted from analytical results, visual observations, or inspections;

CSMP Attachment 1: Rain Gauge Log

CSMP Attachment 2: Example Forms

Rain Gauge Log Sheet				
Construction Site Name:				
WDID #:				
Date (mm/dd/yy)	Time (24-hr)	Initials	Rainfall Depth (Inches)	Notes:

CHAIN-OF-CUSTODY **DATE:** **Lab ID:**

DESTINATION LAB:

ATTN:

ADDRESS:

Office Phone:

Cell Phone:

SAMPLED BY:

Contact:

Project Name

REQUESTED ANALYSIS

Notes:

Client Sample ID	**Sample Date**	**Sample Time**	**Sample Matrix**	**Container #**	**Container Type**	**Container Pres.**					

SENDER COMMENTS:

RELINQUISHED BY

Signature:
Print:
Company:
Date: TIME:

LABORATORY COMMENTS:

RECEIVED BY

Signature:
Print:
Company:
Date: TIME:

Section 8 References

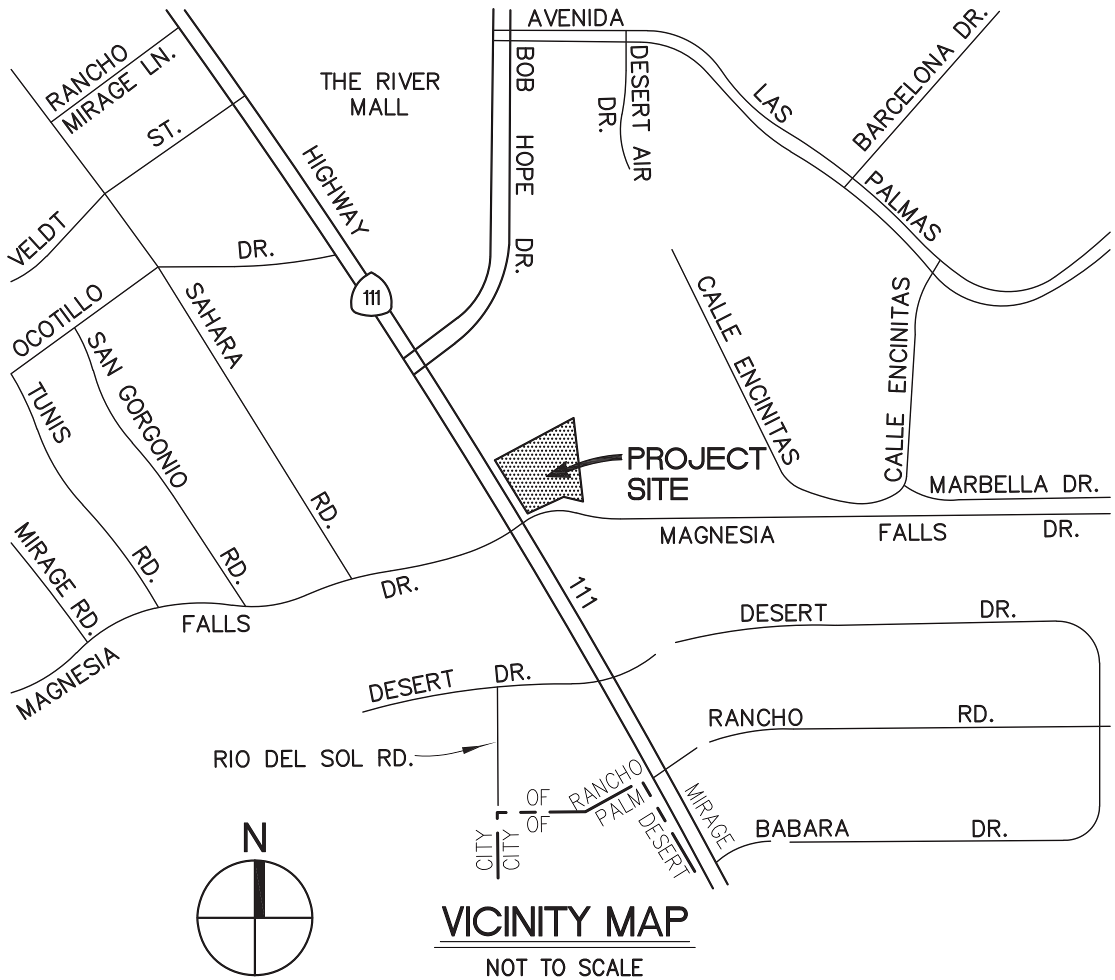
Project Plans and Specifications, prepared by MSL Engineering, Inc.

State Water Resources Control Board (2009). Order 2009-0009-DWQ, NPDES General Permit No. CAS000002: National Pollutant Discharges Elimination System (NPDES) California General Permit for Storm Water Discharge Associated with Construction and Land Disturbing Activities. Available on-line at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml.

State Water Resources Control Board (2010). Order 2010-0014-DWQ, NPDES General Permit No. CAS000002: National Pollutant Discharges Elimination System (NPDES) California General Permit for Storm Water Discharge Associated with Construction and Land Disturbing Activities. Available on-line at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml.

CASQA 2009, *Stormwater BMP Handbook Portal: Construction*, November 2009, www.casqa.org

Appendix A: Site Maps

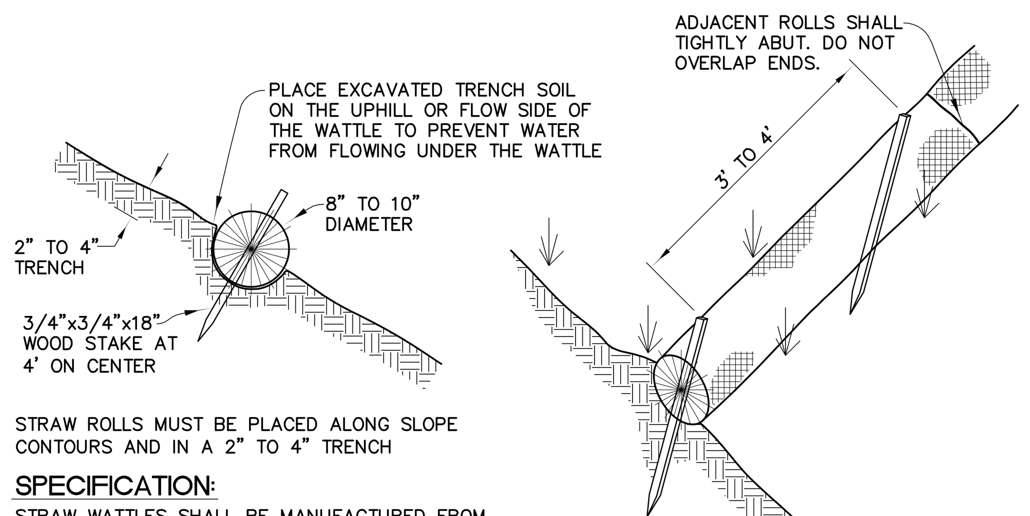


VICINITY MAP

NOT TO SCALE

BMP LEGEND

(straw wattle symbol)	INSTALL STRAW WATTLES BARRIER PER CONSTRUCTION NOTE (101) AND DETAIL "Y" SHOWN HEREON.
(gravel bag symbol)	INSTALL GRAVEL BAG BERM PER SE-6 AND PER DETAIL "X" SHOWN HEREON.
(crosshatch)	VEHICLE STAGING, STORAGE, CLEANING, FUELING AND MAINTENANCE PER BMP's NS-8, NS-9 AND NS-10; CONSTRUCTION MATERIAL DELIVERY AND STORAGE PER BMP's WM-1, WM-2 AND WM-4; AND WASTE MANAGEMENT PER BMP'S WM-5, WM-8 AND WM-9.
(hatch)	TEMPORARY ROCK AT A STABILIZED CONSTRUCTION ENTRANCE/EXIT WITH CORRUGATED STEEL PANELS PER BMP TC-1 MODIFIED TO FIT SITE CONDITIONS.



STRAW ROLLS MUST BE PLACED ALONG SLOPE CONTOURS AND IN A 2" TO 4" TRENCH

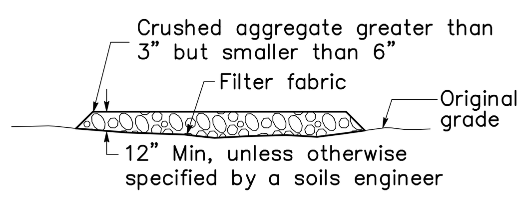
SPECIFICATION:

STRAW WATTLES SHALL BE MANUFACTURED FROM RICE STRAW AND SHALL BE WRAPPED IN A TUBULAR BLACK PLASTIC NETTING. THE NETTING SHALL HAVE A STRAND THICKNESS OF 0.30 INCH, A KNOT THICKNESS OF 0.055, AND A WEIGHT OF 0.35 OUNCE PER FOOT (EACH PLUS/MINUS 10%) AND SHALL BE MADE FROM 85% HIGH DENSITY POLYETHYLENE, 14% ETHYL VINYL ACETATE AND 1% COLOR FOR UV INHIBITION. STRAW WATTLES SHALL BE NINE INCHES IN DIAMETER (PLUS OR MINUS ONE INCH), TWENTY-FIVE FEET LONG (PLUS OR MINUS 0.5 FEET) AND WEIGH 35 LBS. (PLUS OR MINUS 10%).

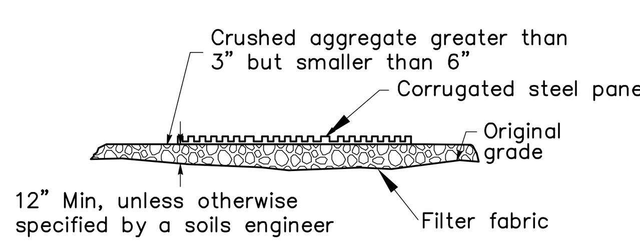
LOCAL DISTRIBUTOR:
HYDRO-SCAPE CUSTOMER SERVICE (800) 395-4477

DETAIL 'Y' (101)
STRAW WATTLES BARRIER DETAIL OPTION
NOT TO SCALE

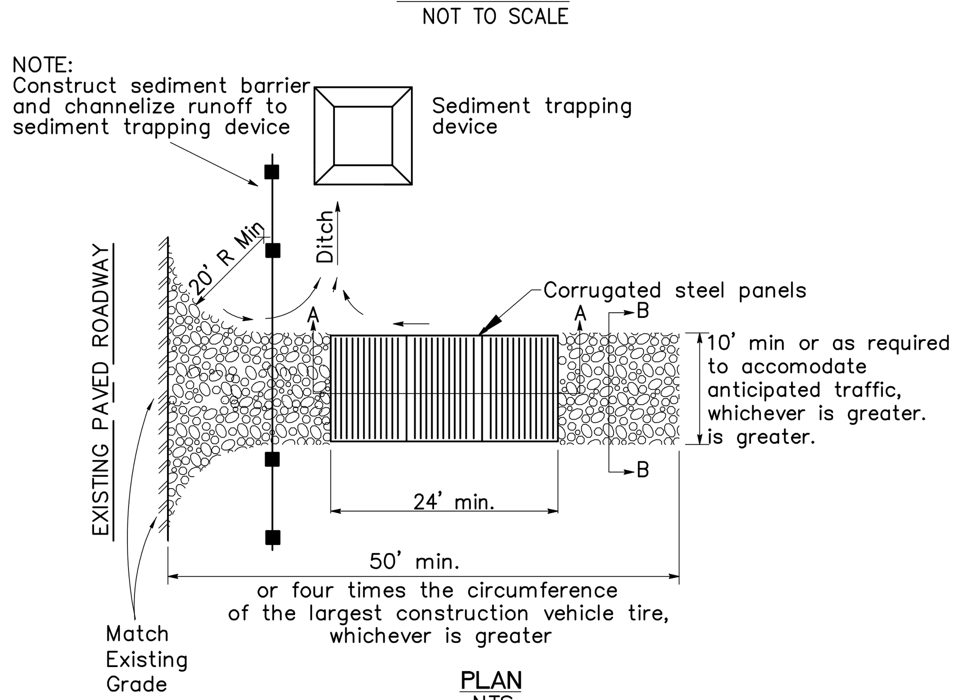
Stabilized Construction Entrance/Exit TC-1



SECTION B-B
NOT TO SCALE



SECTION A-A
NOT TO SCALE



PLAN
NTS

6 of 6 | California Stormwater BMP Handbook | January 2003

construction
www.cabmphandbooks.comm

PRIVATE CIVIL ENGINEER'S EROSION CONTROL PLAN GENERAL NOTES

1. THIS EROSION CONTROL PLAN WAS PREPARED AT THE REQUEST OF IN-N-OUT BURGER, DEVELOPER OF THE PROPERTY BEING DEVELOPED AT 42560 BOB HOPE DRIVE, RANCHO MIRAGE, IN RIVERSIDE COUNTY, CALIFORNIA. THE PROPOSED CONSTRUCTION ACTIVITY INCLUDES CONSTRUCTION OF A NEW RESTAURANT BUILDING AND SITE IMPROVEMENTS WITH A TOTAL OF 1.5 ACRES OF TOTAL AREA CONSTRUCTED/GRADED ONSITE.
2. THE EROSION CONTROL PLAN AND THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE KEPT ON SITE DURING CONSTRUCTION ACTIVITY. THE APPLICABLE BMP'S (BEST MANAGEMENT PRACTICE) LISTED ON THIS PLAN AND WITHIN THE SWPPP SHALL BE IMPLEMENTED AS SOON AS POSSIBLE TO CONTROL STORM WATER POLLUTION DURING CONSTRUCTION.
3. THROUGHOUT THE DURATION OF CONSTRUCTION, THE CONTRACTOR SHALL HAVE A STATE CERTIFIED QUALIFIED SWPPP DEVELOPER (QSD) ASSIGNED TO THE PROJECT IN ACCORDANCE WITH SECTION VII OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITY (CONSTRUCTION GENERAL PERMIT). THE QSD IS RESPONSIBLE FOR ALL CHANGES TO THE PROJECT SWPPP AND EROSION CONTROL PLAN.
4. THROUGHOUT THE DURATION OF CONSTRUCTION, THE CONTRACTOR SHALL HAVE A STATE CERTIFIED QUALIFIED SWPPP PRACTITIONER (QSP) ASSIGNED TO THE PROJECT IN ACCORDANCE WITH SECTION VII OF THE CONSTRUCTION GENERAL PERMIT (CGP). THE QSP IS RESPONSIBLE FOR IMPLEMENTATION OF ALL ASPECTS OF THE EROSION CONTROL PLAN, THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND THE SWPPP SPECIFICATIONS.
5. THE QSP OR PERSONNEL TRAINED BY THE QSP ARE RESPONSIBLE FOR PROVIDING WEEKLY, QUARTERLY, PRE-STORM, DURING STORM AND POST STORM BMP INSPECTIONS IN ACCORDANCE TO THE SWPPP. ALL INSPECTION RECORDS SHALL BE KEPT ONSITE FOR THE DURATION OF THE PROJECT.
6. ALL CONTRACTORS AND THEIR PERSONNEL WHOSE WORK CAN CONTRIBUTE TO OR CAUSE STORM WATER POLLUTION SHOULD BE MADE FAMILIAR WITH THIS PLAN AND THE SWPPP. ADEQUATE TRAINING FOR THE IMPLEMENTATION OF THE MEASURES PRESENTED HEREIN SHALL BE PROVIDED BY THE CONTRACTORS FOR THEIR PERSONNEL.
7. CHANGES IN CONSTRUCTION OR IN CONDITIONS WHICH ARE NOT COVERED BY THIS PLAN SHOULD BE BROUGHT TO THE ATTENTION OF THE QSD. IF NECESSARY THIS PLAN WILL BE REVISED TO REFLECT THE CHANGES.
8. ALL PREVENTION AND CLEAN UP MEASURES SHALL BE CONDUCTED IN ACCORDANCE WITH CITY AND COUNTY ORDINANCES, AS WELL AS STATE, AND FEDERAL REGULATIONS. WASTE MATERIALS SHOULD BE DISPOSED OF IN A LEGAL MANNER.
9. ONLY STORM WATER FROM THE PROJECT SITE SHALL BE ALLOWED TO FLOW INTO THE PUBLIC STORM DRAIN SYSTEM. REGULAR INSPECTION OF THE STRUCTURAL AND NON-STRUCTURAL BEST MANAGEMENT PRACTICES USED ON THIS PROJECT SHALL BE PERFORMED IN CONFORMANCE WITH THE SWPPP TO INSURE PROPER OPERATION.
10. ON A DAILY BASIS, AS-NECESSARY, AND AFTER CONSTRUCTION HAS BEEN COMPLETED, THE SITE HARDSCAPE AND ADJOINING STREETS AND SIDEWALKS SHALL BE SWEPT CLEAN. ALL WASTE AND LEFTOVER MATERIALS SHALL BE REMOVED FROM THE SITE. ALL LANDSCAPING AND PLANTING AREAS SHALL BE WELL MAINTAINED TO PREVENT EROSION. AVOID OVERWATERING.
11. DISTURBED SOILS SHALL BE WATERED AS OFTEN AS NECESSARY TO KEEP SOIL VISIBLY DAMP DURING GRADING AND CONSTRUCTION TO MINIMIZE DUST GENERATION. COMPLY WITH AQMD RULE 403 TO INSURE THE CLEANUP OF CONSTRUCTION RELATED DIRT ON APPROACH ROUTES TO THE SITE.
12. AFTER A RAINSTORM, ALL SILT AND DEBRIS SHALL BE REMOVED FROM GRAVEL BAG BARRIERS.
13. PAUL KOSHMIDER, IN-N-OUT BURGER DIRECTOR OF NEW CONSTRUCTION (UNTIL A QSP HIRED BY THE GENERAL CONTRACTOR HAS BEEN ASSIGNED) SHALL BE NOTIFIED AT (626) 905-1016 IN AN EMERGENCY.
14. THE QSP SHALL PREPARE AN ANNUAL REPORT FOR EACH REPORTING PERIOD FROM JULY 1st TO JUNE 30th. THE ANNUAL REPORT SHALL INCLUDE STORMWATER MONITORING INFORMATION AND DOCUMENTATION OF ALL TRAINING AND BMP INSPECTIONS.
15. WITHIN 90 DAYS OF THE FINAL COMPLETION OF CONSTRUCTION THE QSP SHALL ELECTRONICALLY FILE A NOTICE OF TERMINATION (NOT) THROUGH SMARTS AND UPLOAD A FINAL SITE MAP AND PHOTOS. ADDITIONALLY THE QSP SHALL UPLOAD THE FINAL ANNUAL REPORT.
16. I DO HEREBY CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WILL BE CARRIED OUT UNDER MY DIRECTION AND SUPERVISION. I UNDERSTAND THAT AT THE CONCLUSION OF THIS PROJECT, I WILL BE REQUIRED TO SUBMIT CERTIFICATION THAT ALL ELEMENTS OF THIS PROJECT WERE CARRIED OUT IN ACCORDANCE WITH THIS EROSION CONTROL PLAN AND ALL OF ITS ATTACHMENTS.

PAUL KOSHMIDER, IN-N-OUT BURGER DIRECTOR OF NEW CONSTRUCTION — 10-21-19
NAME — DATE

PROJECT N.P.D.E.S. COORDINATOR — (626) 905-1016
TITLE — TELEPHONE NUMBER

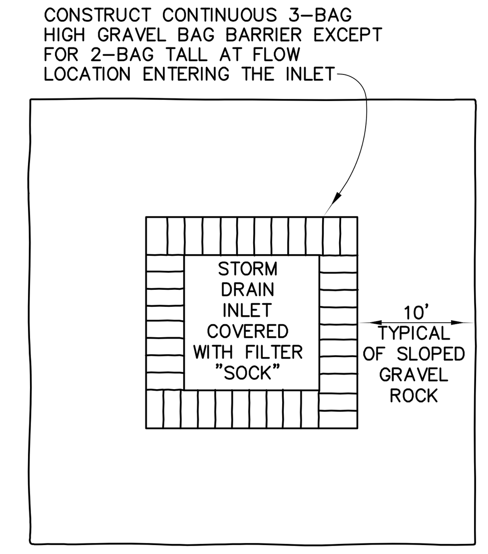
EROSION CONTROL PLAN CONSTRUCTION NOTES

(100) INSTALL GRAVEL BAG BARRIER PER DETAIL "X" SHOWN HEREON AND PER BMP SE-6. WHEN THIS BARRIER IS INSTALLED AROUND A DRAIN BOX, STORM DRAIN, OR CATCH BASIN INLET, INSTALL A PERMEABLE FILTER FABRIC ON TOP OF THE INLET TO PREVENT SILT FROM ENTERING THE INLET.

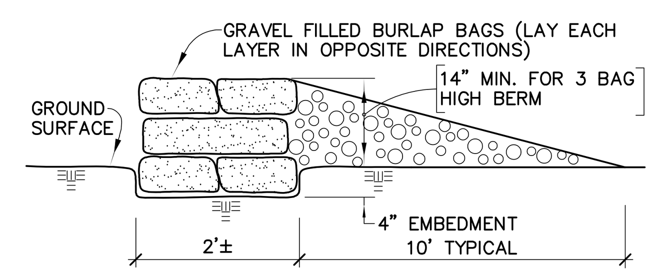
(101) INSTALL BMP SE-5 STRAW WATTLES FIBER ROLL BARRIER PER DETAIL "Y" SHOWN HEREON AS AN ACCEPTABLE SUBSTITUTION TO THE SLOPEGARD MATERIAL CALLED OUT TO INSTALL ON THIS PLAN.

LIST OF MAJOR CONSTRUCTION MATERIALS, WASTE AND ACTIVITIES AT THE PROJECT SITE

1. CONCRETE PAVEMENT.
2. CONCRETE CURBS AND WALKS.
3. COVERED TRASH ENCLOSURE.
4. UTILITY SERVICES TO PROPOSED BUILDING AND COVERED TRASH ENCLOSURE.
5. PARKING LOT LIGHTS.
6. LANDSCAPING AND IRRIGATION.
7. STORM DRAIN PIPE AND CATCH BASIN INLETS.
8. ASPHALT PAVEMENT.
9. EARTHWORK MOVED AND GRADED.
10. OUTDOOR SEATING CANOPY.
11. CONSTRUCTION OF A NEW BUILDING.



DRAINAGE INLET AREA



GRAVEL BAG BARRIER

DETAIL "X" (100)
STORM INLET GRAVEL BAG
PROTECTION DETAIL AND BARRIER DETAIL OPTION
NOT TO SCALE

LIST OF BEST MANAGEMENT PRACTICES (BMP's)-USE AS APPLICABLE

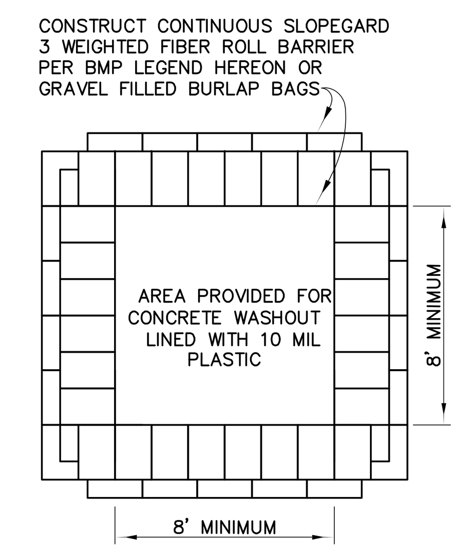
(REFERENCE: CALIFORNIA STORM WATER BEST MANAGEMENT PRACTICE HANDBOOK FOR CONSTRUCTION ACTIVITY, NOVEMBER 2009)

EROSION AND SEDIMENT CONTROL BMP's

EC-1 SCHEDULING
EC-2 PRESERVATION OF EXISTING VEGETATION
EC-3 HYDRAULIC MULCH
EC-4 HYDROSEEDING
EC-5 SOIL BINDERS
EC-6 STRAW MULCH
EC-7 GEOTEXTILES AND MATS
EC-8 WOOD MULCHING
EC-9 EARTH DIKES AND DRAINAGE SWALES
EC-10 VELOCITY DISSIPATION DEVICES
EC-11 SLOPE DRAINS
EC-12 STREAMBANK STABILIZATION
EC-13 POLYACRYLAMIDE
SE-1 SILT FENCE
SE-2 SEDIMENT BASIN
SE-3 SEDIMENT TRAP
SE-4 CHECK DAM
SE-5 FIBER ROLLS (SEE BMP LEGEND HEREON)
SE-6 GRAVEL BAG BERM
SE-7 STREET SWEEPING AND VACUUMING
SE-8 SANDBAG BARRIER
SE-9 STRAW BALE BARRIER
SE-10 STORM DRAIN INLET PROTECTION
WE-1 WIND EROSION CONTROL
TC-1 STABILIZED CONSTRUCTION ENTRANCE/EXIT
TC-2 STABILIZED CONSTRUCTION ROADWAY
TC-3 ENTRANCE/OUTLET TIRE WASH

NON-STORMWATER MANAGEMENT AND MATERIAL MANAGEMENT (BMP's)

NS-1 WATER CONSERVATION PRACTICES
NS-2 DEWATERING OPERATIONS
NS-3 PAVING AND GRINDING OPERATIONS
NS-4 TEMPORARY STREAM CROSSING
NS-5 CLEAR WATER DIVERSION
NS-6 ILLICIT CONNECTION/DISCHARGE
NS-7 POTABLE WATER/IRRIGATION
NS-8 VEHICLE AND EQUIPMENT CLEANING
NS-9 VEHICLE AND EQUIPMENT FUELING
NS-10 VEHICLE AND EQUIPMENT MAINTENANCE
NS-11 PILE DRIVING OPERATIONS
NS-12 CONCRETE CURING
NS-13 CONCRETE FINISHING
NS-14 MATERIAL AND EQUIPMENT USE
NS-15 DEMOLITION ADJACENT TO WATER
NS-16 TEMPORARY BATCH PLANTS
WM-1 MATERIAL DELIVERY AND STORAGE
WM-2 MATERIAL USE
WM-3 STOCKPILE MANAGEMENT
WM-4 SPILL PREVENTION AND CONTROL
WM-5 SOLID WASTE MANAGEMENT
WM-6 HAZARDOUS WASTE MANAGEMENT
WM-7 CONTAMINATED SOIL MANAGEMENT
WM-8 CONCRETE WASTE MANAGEMENT
WM-9 SANITARY/SEPTIC WASTE MANAGEMENT
WM-10 LIQUID WASTE MANAGEMENT



DETAIL "W"
CONCRETE WASHOUT AREA
NOT TO SCALE

IMPORTANT NOTICE
CALL BEFORE YOU DIG
SECTION 4216 OF THE GOVERNMENT CODE REQUIRES AN INQUIRY IDENTIFICATION NUMBER BE ISSUED BEFORE A PERMIT TO EXCAVATE WILL BE VALID. FOR YOUR PRE-EXCAVATION I.D. NUMBER CALL:
UNDERGROUND SERVICE ALERT
TOLL FREE 1-800-227-2600
TWO WORKING DAYS BEFORE YOU DIG

UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

ENGINEER'S NOTE TO CONTRACTOR: CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABLITY, REAL OR ALLEGED. IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABLITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN IN THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN, AND IS RESPONSIBLE FOR THE PROTECTION OF, AND ANY DAMAGE TO THESE LINES OR STRUCTURES.

#	REVISIONS	DATE	APP.

(BENCH MARK, SEA LEVEL REF.)
CITY BENCH MARK NO. RM. 28
NAVD 88, 2008 ADJUSTMENT
ELEV. = 252.775 FEET

(BASIS OF BEARING)
THE BEARING OF NORTH 31°07'36" WEST OF THE CENTERLINE OF HIGHWAY 111 PER RECORD OF SURVEY FILED NOVEMBER 09, 2017, RSB 149/37-40

MSL ENGINEERING, INC.
CIVIL ENGINEERS AND LAND SURVEYORS SPECIALIZING IN SITE DEVELOPMENT
402 WEST ARROW HWY., SUITE 4, SAN DIMAS, CA. 91773
(909) 305-2395 FAX (909) 305-2397

IN-N-OUT BURGER

DEVELOPER:
IN-N-OUT BURGER
13502 HAMBURGER LANE
BALDWIN PARK, CA 91706
CONTACT: JIM LOCKINGTON
PHONE: 626 813-8289

PREPARED UNDER THE DIRECT SUPERVISION OF:
Mark S Lamoureux — 10-21-19
MARK S. LAMOUREUX — DATE
R.C.E. 38382

GEOTECHNICAL CERTIFICATION, IF REQUIRED, BY:
R.C.E. — DATE

RECOMMENDED FOR APPROVAL BY:
R.C.E. — DATE

APPROVED BY CITY OF RANCHO MIRAGE:
WILLIAM A. ENOS, CITY ENGINEER — DATE
R.C.E. 43910

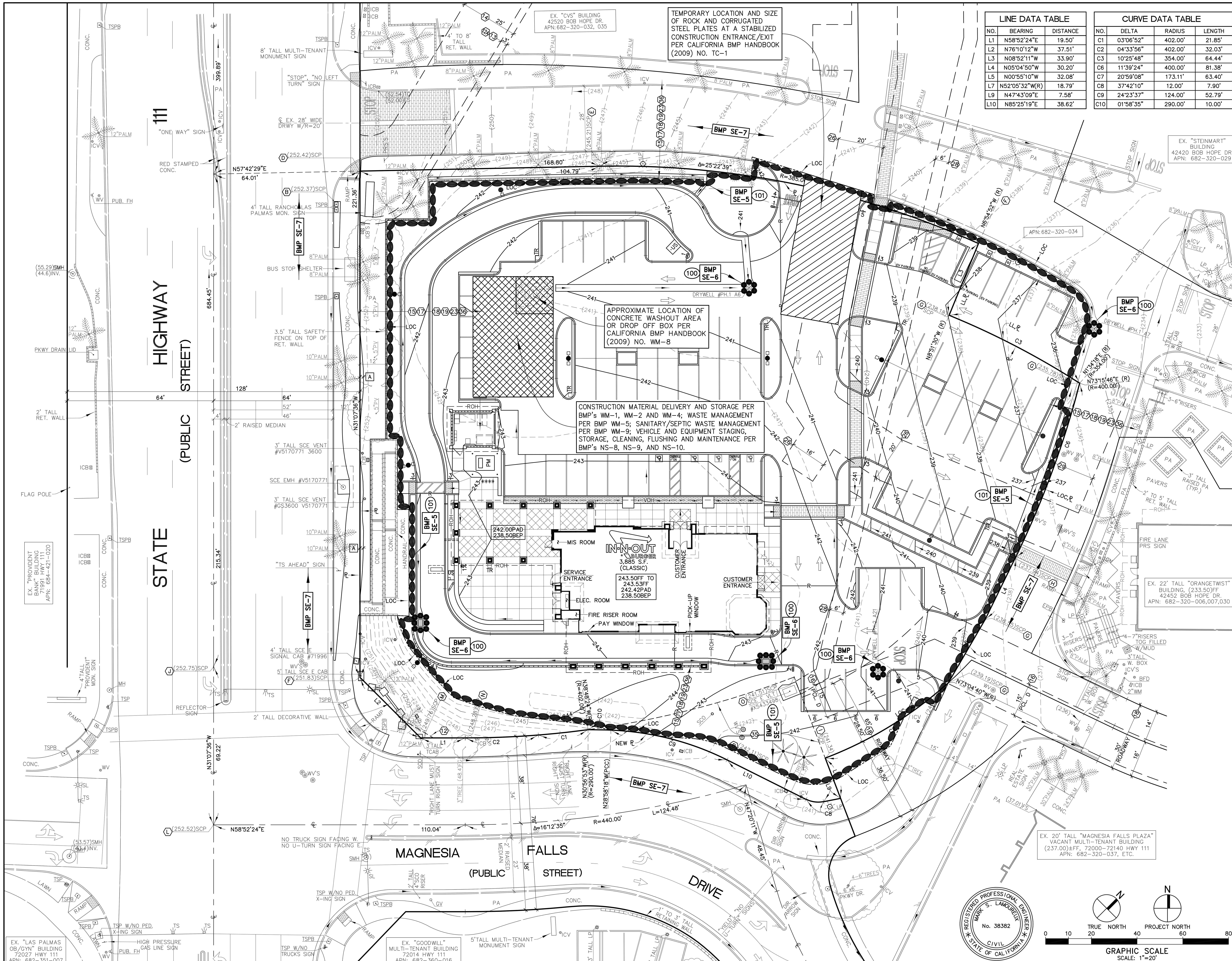
CITY OF RANCHO MIRAGE

PROJECT DESCRIPTION
EROSION CONTROL PLAN TITLE SHEET

SITE ADDRESS 42560 BOB HOPE DRIVE, RANCHO MIRAGE, CA 92270
LEGAL DESCRIPTION PCL. C OF LLA 14-04 AND A PTN. OF VACATED LOT "C" OF TR. 14447
SEC. 18 , T. 5 S., R. 6 E., S.B.B.& M. A.P.N. 682-320-033

SHEET 7 OF 20
PRIVATE REFERENCE # C7
CITY REFERENCE #

JN 19001-19001 C7ecpts



LINE DATA TABLE

NO.	BEARING	DISTANCE
L1	N58°52'24"E	19.50'
L2	N76°10'12"W	37.51'
L3	N08°52'11"W	33.90'
L4	N05°04'50"W	30.20'
L5	N00°55'10"W	32.08'
L7	N52°05'32"W(R)	18.79'
L9	N47°43'09"E	7.58'
L10	N85°25'19"E	38.62'

CURVE DATA TABLE

NO.	DELTA	RADIUS	LENGTH
C1	03°06'52"	402.00'	21.85'
C2	04°33'56"	402.00'	32.03'
C3	10°25'48"	354.00'	64.44'
C6	11°39'24"	400.00'	81.38'
C7	20°59'08"	173.11'	63.40'
C8	37°42'10"	12.00'	7.90'
C9	24°23'37"	124.00'	52.79'
C10	01°58'35"	290.00'	10.00'

REFER TO SHEET 5 GRADING AND DRAINAGE PLAN FOR ACCURATE ONSITE ELEVATIONS AND DETAILS. DO NOT USE THE ELEVATIONS SHOWN HERON TO CONSTRUCT THE HARDSCAPE OR GRADED DIRT AREAS.

REFER TO SHEET C7 EROSION CONTROL PLAN TITLE SHEET FOR GENERAL NOTES, DETAILS, AND BMP'S.

NOTE:
REFER TO SHEETS C1, C9 AND C13 FOR A COMPLETE GENERAL LEGEND OF ABBREVIATIONS AND SYMBOLS SHOWN HEREON, EASEMENT NOTES, LEGAL DESCRIPTION AND THE BOUNDARY MONUMENTS AND SURVEY CONTROL POINTS.

EROSION CONTROL PLAN CONSTRUCTION NOTES

(100) INSTALL GRAVEL BAG BARRIER PER DETAIL "X" SHOWN ON SHEET C7 AND PER BMP SE-6. WHEN THIS BARRIER IS INSTALLED AROUND A DRAIN BOX, STORM DRAIN, OR CATCH BASIN INLET, INSTALL A PERMEABLE FILTER FABRIC ON TOP OF THE INLET TO PREVENT SILT FROM ENTERING THE INLET.

(101) INSTALL BMP SE-5 STRAW WATTLES FIBER ROLL BARRIER PER DETAIL "Y" SHOWN ON SHEET C7 AS AN ACCEPTABLE SUBSTITUTION TO THE SLOPEGARD MATERIAL CALLED OUT TO INSTALL ON THIS PLAN.

ENCROACHMENT NOTES

A APPROXIMATELY 100 FEET OF STATE HIGHWAY 111 PUBLIC SIDEWALK ENCROACHES UP TO 1.2 FEET INTO AND EAST OF THE SURVEYED WEST PROPERTY LINE.

NOTE: THERE ARE NO IDENTIFIED ENCROACHMENTS OF EXISTING ONSITE IMPROVEMENTS SINCE THE SURVEYED PROPERTY BOUNDARY LIMITS HAS RECIPROCAL EASEMENTS OVER THE COMMON AREA OF THE OVERALL SHOPPING CENTER.

IMPORTANT NOTICE
CALL BEFORE YOU DIG
SECTION 4216 OF THE GOVERNMENT CODE REQUIRES AN INQUIRY IDENTIFICATION NUMBER BE ISSUED BEFORE A PERMIT TO EXCAVATE WILL BE VALID. FOR YOUR PRE-EXCAVATION I.D. NUMBER CALL:
UNDERGROUND SERVICE ALERT
TOLL FREE 1-800-227-2600
TWO WORKING DAYS BEFORE YOU DIG

UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.
ENGINEER'S NOTE TO CONTRACTOR: CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABLITY, REAL OR ALLEGED. IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABLITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.
THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN IN THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN, AND IS RESPONSIBLE FOR THE PROTECTION OF, AND ANY DAMAGE TO THESE LINES OR STRUCTURES.

#	REVISIONS	DATE	APP.

(BENCH MARK, SEA LEVEL REF.)
CITY BENCH MARK NO. RM. 28
NAVD 88, 2008 ADJUSTMENT
ELEV. = 252.775 FEET

(BASIS OF BEARING)
THE BEARING OF NORTH 31°07'36" WEST OF THE CENTERLINE OF HIGHWAY 111 PER RECORD OF SURVEY FILED NOVEMBER 09, 2017, RSB 149/37-40

MSL ENGINEERING, INC.
CIVIL ENGINEERS AND LAND SURVEYORS SPECIALIZING IN SITE DEVELOPMENT
402 WEST ARROW HWY., SUITE 4, SAN DIMAS, CA. 91773
(909) 305-2395 FAX (909) 305-2397

DEVELOPER:
IN-N-OUT BURGER
13502 HAMBURGER LANE
BALDWIN PARK, CA 91706
CONTACT: JIM LOCKINGTON
PHONE: 626 813-8289

PREPARED UNDER THE DIRECT SUPERVISION OF:
Mark S Lamoureux 10-21-19
MARK S. LAMOUREUX DATE
R.C.E. 38382

GEOTECHNICAL CERTIFICATION, IF REQUIRED, BY:
R.C.E. DATE

RECOMMENDED FOR APPROVAL BY:
R.C.E. DATE

APPROVED BY CITY OF RANCHO MIRAGE:
WILLIAM A. ENOS, CITY ENGINEER DATE
R.C.E. 43910

CITY OF RANCHO MIRAGE

PROJECT DESCRIPTION **EROSION CONTROL PLAN**

SITE ADDRESS 42560 BOB HOPE DRIVE, RANCHO MIRAGE, CA 92270
LEGAL DESCRIPTION PCL. C OF LLA 14-04 AND A PTN. OF VACATED LOT "C" OF TR. 14447
SEC. 18 , T. 5 S., R. 6 E., S.B.B.& M. A.P.N. 682-320-033

SHEET 8 OF 20
PRIVATE REFERENCE # C8
CITY REFERENCE #

JN 19001-19001 C8ecp

PLEASE READ AND FILL OUT THIS DOCUMENT APPROPRIATELY. EVEN SMALL PROJECTS MUST DO THEIR PART. PM_{10} DUST (POWDERY DUST OF 10 MICRONS OR SMALLER DIAMETER) HAS BEEN IDENTIFIED AS A POTENTIALLY SERIOUS HEALTH THREAT. THIS FINE DUST CAN LODGE DEEP IN THE LUNGS AND HAS BEEN ASSOCIATED WITH BRONCHITIS AND OTHER RESPIRATORY ILLNESSES. DESERT DUST CAN BE PARTICULARLY UNHEALTHFUL, BEING ASSOCIATED WITH "DESERT LUNG SYNDROME" AND LUNG INFECTIONS CAUSED BY FUNGAL SPORES CARRIED IN DESERT DUST. CHILDREN, THE ELDERLY, AND PERSONS WITH RESPIRATORY CONDITIONS, ARE PARTICULARLY SENSITIVE TO FINE DUST, BUT EVERYONE IS ADVERSELY AFFECTED BY THE RELATIVELY HIGH LEVELS OF PM_{10} THAT OCCUR IN THE COACHELLA VALLEY. LARGER SAND PARTICLES CAN BE TURNED INTO THIS DUST THROUGH THE GRINDING ACTION OF TIRES ON ROADWAYS AND THROUGH REPETITIVE PLOWING AND DISKING OPERATIONS.

PROJECT DATA (SEE ATTACHED PLAN ALSO)

DATE: 10-21-2019 PROJECT NAME: IN-N-OUT BURGER NEW RESTAURANT
STREET ADDRESS / SITE LOCATION: 42560 BOB HOPE DRIVE, RANCHO MIRAGE, CA 92270

ADJOINING PROPERTY INFO. (FOR SENSITIVITY, TYP. WINDS BLOW N.W. TO S.E.)
EASTERLY WHITESTAR MANAGEMENT (OFFICE BUILDING)
SOUTHEASTERLY SINGLE FAMILY HOME
SOUTHERLY GOODWILL OF SOUTHERN CALIFORNIA (RETAIL)
SOUTHWESTERLY MEDICAL OFFICES
WESTERLY PROVIDENT BANK (FINANCIAL INSTITUTION)
NORTHWESTERLY VACANT LAND
NORTHERLY PAVED PARKING LOT
NORTHEASTERLY MULTI-TENANT RETAIL BUILDING

CURRENT LAND USAGE: PAVED PARKING LOT
PROPOSED LAND USAGE: IN-N-OUT BURGER NEW RESTAURANT, DRIVE-THRU LANE, AND PARKING LOT
LOT: PARCEL C TRACT/PM: LLA 14-04 LAND USE PERMIT NO.: PDP 19002
A.P.N. 682-320-033 PARCEL SIZE: 1.6 ACRES 68,560 SQ. FT.

EARTHWORK QUANTITIES ESTIMATE (BALANCED SITE PREFERRED)

TOTAL AREA TO BE DISTURBED 1.6 ACRES 68,560 SQ. FT.
STRIPPING & SUBSIDENCE LOSSES (TYP. 0.3' X AREA/27CF./CY.) 760 C.Y.
RAW CUT VOLUME: 900 C.Y. CUT AFTER SHRINKAGE: 2,240 C.Y.
RAW IMPORT VOLUME: 360 C.Y. IMPORT AFTER SHRINKAGE: 340 C.Y.
COMPACTED FILL VOLUME: 3,000 C.Y.
RAW EXPORT VOLUME: 0 C.Y. COMPACTED EXPORT VOL.: 200 C.Y.
(SEE HAUL ROUTE DETAIL ON ATTACHED PLAN IF ANY IMPORT OR EXPORT, EXCEPT TRASH.)

PHASING OF GRADING ACTIVITIES

THE AMOUNT OF ACTIVE DISTURBED AREA MUST BE LIMITED TO WHAT CAN BE EFFECTIVELY WATERED 4 TIMES PER DAY BY EITHER SPRINKLERS OR WATER TRUCKS. TYPICAL 2000 GALLON WATER TRUCKS CAN EFFECTIVELY WATER ABOUT 4 ACRES PER HOUR. THEREFORE AN 8 HR. WORKDAY DIVIDED BY 4 WATERINGS PER DAY TIMES 4 AC./HR. = 8 ACRES PER TRUCK. SINCE WATER TRUCKS ARE ALLOWED TO WORK 7 DAYS A WEEK, 24 HOURS A DAY, IN SOME LOCATIONS, UP TO 24 AC. PER TRUCK MAY BE ACHIEVED THAT WAY, WITH SPECIAL PERMISSION. LARGER PROJECTS MUST HAVE MORE TRUCKS, MORE HOURS, MORE SPRINKLERS, OR LESS DISTURBED AREA AT ANY ONE TIME. AREAS ALREADY GRADED OR STOCKPILED MUST BE STABILIZED WITH CHEMICALS, HYDROMULCH, OR VEGETATION, BEFORE ADDITIONAL AREAS CAN BE STRIPPED FOR GRADING. THE PHASING PATTERN BELOW SHALL BE SHOWN IN THE REFERENCE MAP ON THIS SHEET AT UPPER RIGHT. DRIVING ROUTES THROUGH A PROJECT MUST BE COUNTED IN ALL PHASES WHERE THEY ARE ONLY TREATED WITH WATER. IT IS BETTER TO TREAT THEM WITH AN APPROVED "OIL" (LIKE ENVIROKLEEN) OR SIMILAR NON-CRUSTING DUST PALLIATIVE, TO SAVE WATER.

PHASE "A" ROUGH GRADING (SITE PREPARATION / MOBILIZATION)					
SUB-PHASE	APPROX. DATE	DISTURBED AC.	SPRINKLER AC.	WATER TRUCK AC.	# OF TRUCKS
A1	03-01-2020	1.6	1.6	1.6	1
A2	N/A				
A3	N/A				
PHASE "B" ROUGH GRADING (MASS GRADING OF STREETS, PADS, RET. BASINS, PERIMETER WALL)					
SUB-PHASE	APPROX. DATE	DISTURBED AC.	SPRINKLER AC.	WATER TRUCK AC.	# OF TRUCKS
B1	03-15-2020	1.6	1.6	1.6	1
B2	N/A				
B3	N/A				
PHASE "C" FINISH GRADING (MAJOR UTILITY AND STREET CONSTRUCTION)					
SUB-PHASE	APPROX. DATE	DISTURBED AC.	SPRINKLER AC.	WATER TRUCK AC.	# OF TRUCKS
C1	N/A				
C2	N/A				
C3	N/A				
PHASE "D" FINISH GRADING (BUILDING UTILITIES, BUILDING CONSTRUCTION, LANDSCAPING)					
SUB-PHASE	APPROX. DATE	DISTURBED AC.	SPRINKLER AC.	WATER TRUCK AC.	# OF TRUCKS
D1	04-01-2020 TO 07-15-2020	1.6	1.6	1.6	1
D2					
D3					

FUGITIVE PM_{10} DUST CONTROL MEASURES

HERE IS THE SUMMARIZED MATRIX OF REQUIRED DUST MITIGATION MEASURES IDENTIFIED BY PHASE:

A	B	C	D	
X				PRE-GRADING SITE WATERING (IRRIGATION SYSTEM FOR MIN. 72 HRS.)
X	X	X	X	SIGNS POSTED ON SITE WITH 24 HR. PHONE NUMBER(S) FOR DUST CONTROLLER
X	X	X	X	SAND FENCING (ON ALL SIDES OF PROJECT LACKING EXISTING MASONRY WALLS)
X	X	X	X	SITE WATERING 7 DAYS A WEEK (IRRIGATION SYSTEM, MIN. 4 TIMES PER 24 HRS., OR BY WATER TRUCKS, MIN. 4 TIMES PER 24 HRS., 1 TRUCK / 8 ACRES)
X	X	X	X	PERIMETER SPRINKLER SYSTEM (ALL SIDES, CONTINUOUS NIGHT WATERING WHEN WINDY)
X	X	X	X	GRAVEL (MIN. 1" DIAM. X 6" DEEP AT OFF-STREET STORAGE AND PARKING AREAS)
X	X	X	X	WHEEL CLEANING AT TRUCK EXITS, ("RUMBLE STRIPS", DRIVE-THROUGH PONDS, GRAVEL AREAS, ETC. DETAIL METHOD ON REFERENCE MAP AT AT RIGHT)
X	X	X	X	INACTIVE AREA SOIL STABILIZERS (POLYMER, HYDROMULCH, APPROVED OIL, OR PLANTS)
X	X	X	X	ACTIVE AREA SOIL STABILIZERS (ENVIROKLEEN "OIL", OR SIMILAR WETTING AGENTS)
X	X	X	X	STOP ALL VEHICLE ACTIVITY EXCEPT WATER TRUCKS WHEN WIND > 25 MPH
X	X	X	X	STREET SWEEPING WHENEVER NEEDED
	X	X	X	PERMANENT VEGETATION / LANDSCAPING
	X	X	X	BLOCK WALLS
		X	X	ROAD PAVING

NOTE: THESE CONTROL METHODS ARE DISCUSSED IN DETAIL IN THE "DUST CONTROL PLAN REVIEW GUIDANCE FOR LOCAL GOVERNMENT" FROM THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, AVAILABLE FROM THE CITY OF RANCHO MIRAGE OR THE S.C.A.Q.M.D.

PROJECT RECORDKEEPING/REPORT: RECORD ALL ACTIVITIES, CONTRACTS AND MATERIALS PURCHASES ASSOCIATED WITH BLOWSAND/FUGITIVE DUST PROGRAM. WEEKLY REPORTS SHOULD BE SUBMITTED TO THE PUBLIC WORKS DEPARTMENT FOR REVIEW. THIS "FEEDBACK" WILL EVENTUALLY HELP THE CITY TO DETERMINE WHAT METHODS OF DUST CONTROL ARE MOST COST EFFECTIVE IN BOTH SHORT TERM AND LONG TERM SITUATIONS. SEE THE REPORT FORM THAT'S AVAILABLE FROM THE CITY OR IN THE AFORESAID DOCUMENT.

FUGITIVE PM_{10} DUST CONTROL PROGRAM DETAILS

EACH MITIGATION MEASURE OR CONTROL PROGRAM SHALL BE DESCRIBED IN DETAIL BELOW AND ON ADDITIONAL SHEETS AS NECESSARY. PLEASE USE THE REQUIRED DUST CONTROL PLAN EXHIBIT (AT RIGHT OR ATTACHED) TO INDICATE THE LOCATION OF ON-SITE WATER AVAILABILITY, STAGING AREAS TEMPORARY IRRIGATION LINES, TRUCK/WHEEL WASHERS, TEMPORARY SAND FENCING, CONSTRUCTION PHASING, WORKER'S PARKING AREAS, GRAVELED ENTRANCE/EXIT, AND OTHER THINGS AS NEEDED.

PHASE "A": ROUGH GRADING (SITE PREP. & MOBILIZATION)

GENERAL REQUIREMENTS:

1. WRITTEN AND NOTARIZED PERMISSION LETTERS SHALL BE SUBMITTED TO THE PUBLIC WORKS DEPARTMENT FROM ANY ADJACENT LAND OWNERS WHOSE PROPERTY WILL BE USED IN ANY MANNER FOR CONSTRUCTION, STAGING, ACCESS, ETC., PRIOR TO ANY SUCH USAGE. THE OWNER AND AUTHORIZED DUST CONTROLLER FOR THIS PROJECT WILL BE RESPONSIBLE FOR THE DUST CONTROL ON ANY OFF-SITE DISTURBED AREAS AS WELL AS ON THIS PROJECT. A DUST CONTROL SECURITY OF $2,000 PER ACRE, OR AS OTHERWISE APPROVED BY THE CITY ENGINEER, SHALL BE POSTED FOR ALL AREAS TO BE DISTURBED BY THE PROJECT, BOTH ON-SITE AND OFF-SITE. DISTURBANCE OF SITE AREAS NOT INCLUDED IN THIS AGREEMENT SHALL BE REASON FOR THE CITY TO ASSESS ADDITIONAL CHARGES, AND POSSIBLY STOP ALL WORK AT THE SITE UNTIL THE EXTENT OF THE DISTURBANCE IS MEASURED. THEREFORE, IF IT IS SUSPECTED THAT OFF-SITE AREAS MAY BE DISTURBED DURING THE WORK, SHOW THEM ON THIS PLAN AND MAKE THE APPROPRIATE ARRANGEMENTS IN ADVANCE.
2. SAND FENCING, OF EITHER THE WOOD AND WIRE OR THE PLASTIC TYPE, SHALL BE INSTALLED AROUND THE PERIMETER OF THE PROJECT ON ALL SIDES THAT DO NOT HAVE EXISTING MASONRY WALLS OR SIMILAR SOLID FENCING OR HEDGES. THIS SERVES THE MULTIPLE PURPOSES OF: CATCHING SOME WINDBLOWN DUST; REDUCING WIND SPEEDS ON THE PROJECT PERIMETER, AND RESTRICTING VEHICULAR ACCESS POINTS INTO THE PROJECT. THIS RESTRICTED ACCESS HELPS REDUCE DAMAGE TO ANY "CRUST" OF STABILIZED SOIL ON THE PROJECT, AND ALLOWS PLACING OF THE EXIT WHERE "TRACK OUT" CAN BE STOPPED PER #5 BELOW.
3. PRE-WATERING SHALL COMMENCE AT LEAST THREE (3) DAYS PRIOR TO ACTUAL GRADING USING A TEMPORARY ON-SITE IRRIGATION SYSTEM. CONNECTION TO ANY EXISTING WATER SYSTEM SHALL BE DONE IN COMPLIANCE WITH C.V.W.D. TEMPORARY WATER LINES SHALL BE INSTALLED WITH A MINIMAL DISTURBANCE OF ANY OFF-SITE AREAS THEY PASS THROUGH. WHEN THE GRADING BEGINS, A SPRINKLER SYSTEM SHALL BE PLACED AROUND THE PERIMETER OF THE PROJECT, WITH FREQUENT WATERING, ESPECIALLY IN THE TYPICALLY WINDY EVENINGS. PLACING THE PERIMETER SPRINKLERS ON THE SAND FENCE KEEPS THEM SAFE AND EFFECTIVE. WATERING FOR AREAS NOT COVERED BY THE SPRINKLERS SHALL BE PROVIDED BY WATER TRUCKS. (ONE TRUCK PER 8 ACRES FOR 8 HR. WORKDAYS. SEE ABOVE.)
4. ACTIVITY AREAS SUCH AS: EQUIPMENT STORAGE AREA, MATERIALS STORAGE AREA, TEMPORARY OFFICE TRAILERS, AND EMPLOYEE PARKING, SHOULD BE LOCATED IF POSSIBLE ON EXISTING PAVED SURFACES, IF TRAFFIC WOULD NOT BE AFFECTED. IN LIEU OF EXISTING PAVING, A SOIL STABILIZER THAT DOES NOT REQUIRE CONSTANT WATERING, SUCH AS A WASHED GRAVEL, OR "BIODEGRADABLE OIL" COULD BE USED FOR THE INITIAL STAGING AREA. ANY CHEMICALS USED MUST BE CLEARED WITH THE CITY AND REGIONAL WATER QUALITY CONTROL BOARD.

PHASE "A": ROUGH GRADING (SITE PREP. & MOBILIZATION) CONTINUED

5. THE TIRES OF VEHICLES BEING USED ON-SITE SHOULD BE INSPECTED AND WASHED IF NECESSARY TO STOP TRACKING OF DIRT ONTO PUBLIC STREETS. IF EXTENSIVE EXPORT OR IMPORT OF DIRT IS TO BE DONE, A PAVED (100'x20') OR GRAVELED (6"DEEPx50'x20') WHEEL WASHING AREA OR "RUMBLE STRIP" (24'x10') OR APPROVED ALTERNATIVE WHEEL CLEANING METHOD SHOULD BE PROVIDED AT THE EXIT, TO FACILITATE THE INSPECTION AND CLEANING OF TIRES. FENCES OR SIMILAR BARRICADES SHALL BE USED TO MAKE AVOIDANCE OF THE CLEANING AREA UNLIKELY. STREET SWEEPING AND/OR WASHING IS STILL TYPICALLY REQUIRED, BUT MAY BE REDUCED BY PROPER USE OF A "WHEEL WASHING AREA" LIKE THIS. THEY ARE REQUIRED ON PROJECTS OVER 5 ACRES OR WITH OVER 100 CUBIC YARDS OF IMPORT OR EXPORT PER DAY.
6. A STANDARD SIGN WITH THE FOLLOWING INFORMATION MUST BE POSTED ON THE SITE, AT LEAST ONE SIGN PER FRONTING STREET. THE SIGN MUST INCLUDE: THE GRADING PERMIT NUMBER, THE PROJECT NAME, MAP NUMBER IF APPROPRIATE, THE AUTHORIZED DUST CONTROLLER PHONE NUMBER(S), THE CITY PHONE NUMBER, AND THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (S.C.A.Q.M.D.) PHONE NUMBER. THE SIGNS MUST BE OBTAINED AND INSTALLED BY THE DEVELOPER USING THE SAMPLE FORMAT. THE SIGNS MUST BE PRESENT AT THE PRE-CONSTRUCTION MEETING OR THE GRADING PERMIT WILL NOT BE ISSUED. THE DEVELOPER MUST KEEP THE CONTACT NAME AND PHONE NUMBER ACTIVE AND CURRENT AT ALL TIMES. FAILURE OF THE CONTACT SYSTEM MAY BE CONSIDERED GROUNDS FOR TEMPORARY OR PERMANENT CANCELLATION OF THE PERMIT.
7. VEHICLES TRAVELING ON DIRT AND/OR ON UNPAVED ROADS SHOULD RESTRICT THEIR SPEED TO 15 M.P.H. MAXIMUM. SIGNS TO THAT EFFECT SHOULD BE PLACED AT THE PROJECT ENTRANCE ON PROJECTS OVER 5 ACRES TO IMPROVE COMPLIANCE.
8. WHEN WIND SPEEDS EXCEED 25 MPH, BY CONTINUOUS ANEMOMETER READING, OR IN GUSTS AT LEAST TWICE WITHIN A THIRTY MINUTE PERIOD, MEASURED ON THE SITE, VEHICULAR ACTIVITY ON THE SITE SHALL CEASE, EITHER VOLUNTARILY, OR BY CITY OR A.Q.M.D. INSPECTOR NOTIFICATION, EXCEPT FOR WATER TRUCKS AND SPRINKLER-TENDING VEHICLES, IF ANY.

SITE SPECIFIC DETAILS:
(PLEASE DESCRIBE ANY SPECIFIC OR ADDITIONAL CONTROL MEASURE PROPOSED.)

1. PRE-WATERING METHOD (AS SHOWN IN 3. OR AS DETAILED HERE): ______
   WATER AVAILABILITY, INITIAL STAGE ______
2. OFF-SITE WORK PERMISSION NEEDED: YES
3. ACCESS WILL BE CONTROLLED BY: ______
4. INITIAL STAGING AREA: ______
   EQUIPMENT STORAGE ______
   TEMPORARY OFFICE ______
   EMPLOYEE PARKING ______
5. WHEEL WASHING PROVISIONS: ______
6. SPEED RESTRICTION SIGN LOCATION: ______
7. NUMBER OF POSTED "DUST CONTROL SIGNS" ______
   (TYP. 1 PER FRONTING ROAD OR 1 PER 660 FEET OF FRONTAGE)
8. OTHER PRELIMINARY WORK: ______

PHASE "B": ROUGH GRADING (MASS GRADING, PERIMETER WALLS)

GENERAL REQUIREMENTS

1. HAULING PROCEDURES:
   ALL VEHICLES GOING FROM DIRT AREAS ONTO PAVED STREETS SHALL HAVE TIRES AND WHEELS INSPECTED AND WASHED IF NECESSARY TO AVOID "TRACKING-OUT" DIRT.
   TRUCKS HAULING DIRT ON PAVED STREETS SHALL MAINTAIN AT LEAST A HALF FOOT "FREEBOARD" FROM RIM TO DIRT, AND COVER ALL DIRT OR DUSTY DEBRIS LOADS WITH AN APPROPRIATE TARP.
   THE HAUL ROUTE SHOULD BE SHOWN HEREON OR ON AN ATTACHED SHEET, AND SHALL BE CLEARED WITH THE CITY ENGINEER FOR ANY APPLICABLE TRANSPORT PERMITS PRIOR TO ITS USE. ALL HAULING TRUCKS SHALL HAVE A COPY OF THESE PROVISIONS WITH THEM AT ALL TIMES.
   THE IMPORT OR EXPORT SITE MUST HAVE A VALID GRADING PERMIT ALSO, AND SHOULD BE COMPLYING WITH ALL APPROPRIATE DUST MITIGATION MEASURES ALSO.
   WHEN PRACTICAL, TRUCKS AND EQUIPMENT, SHOULD SHUT OFF ENGINES RATHER THAN IDLING FOR EXTENDED PERIODS, TO MINIMIZE EXHAUST EMISSIONS AND NOISE. THIS BECOMES MORE CRITICAL AS THE SIZE AND NUMBERS OF VEHICLES INCREASES.
2. ALL STRIPPED, GRADED OR OTHERWISE DISTURBED AREAS SHALL BE STABILIZED BY SOME APPROPRIATE MEANS. AREAS ACTIVELY BEING GRADED CAN USUALLY BE STABILIZED BY APPLYING LOTS OF WATER. DISTURBED AREAS NOT ACTIVELY BEING WORKED MAY BE EFFECTIVELY TREATED WITH SOME MORE DURABLE SOIL STABILIZER, SUCH AS HYDROMULCH, TO AVOID CONSTANT WATERING. THE PREFERRED METHOD OF SITE WATERING IS BY SPRINKLER, ESPECIALLY AROUND THE PERIMETER. SPRINKLERS MUST BE SET TO RUN ON WEEKENDS AND EVENINGS WHEN WATER TRUCK DRIVERS ARE NOT AVAILABLE. A TYPICAL WATER TRUCK CAN ONLY HANDLE WELL ABOUT 4 ACRES PER HOUR.
3. IF PERIMETER BLOCK WALLS ARE TO BE BUILT THEY SHOULD BE GIVEN A HIGH PRIORITY SINCE THEY WILL HELP TO CATCH BLOWSAND AND COULD THEREBY REDUCE THE AMOUNT OF STREET SWEEPING REQUIRED.

SITE SPECIFIC DETAILS:
(PLEASE DESCRIBE ANY SPECIFIC OR ADDITIONAL CONTROL MEASURE PROPOSED.)

1. HAULING PROCEDURES: (AS SHOWN ABOVE UNLESS OTHERWISE DETAILED)
2. SOIL STABILIZATION METHODS:
   ACTIVE AREA WATER SCHEDULE: (MIN. 4 TIMES PER 24 HRS.)
   WEEKEND WATERING SCHEDULE: (MIN. 4 TIMES PER 24 HRS.)
   INACTIVE AREA STABILIZATION METHOD(S): (ACRYLIC POLYMER, HYDROMULCH, PLANTINGS, BIODEGRADABLE "OIL", OR AS SHOWN HERE) ______
3. PERIMETER BLOCK WALL SCHEDULE: ______
4. OTHER: ______

PHASE "C": FINISH GRADING (UTILITY & STREET CONST.)

GENERAL REQUIREMENTS:

1. DIRT STOCKPILED NEXT TO UTILITY TRENCHES SHALL BE KEPT WATERED OR OTHERWISE STABILIZED OR COVERED TO HELP COUNTERACT THEIR HIGH PROFILE EXPOSURE TO THE WIND.
2. ALL PREVIOUSLY ROUGH GRADED AREAS THAT WILL BE INACTIVE IN THIS PHASE SHOULD BE TREATED WITH A DURABLE SOIL STABILIZER OR GROUND COVER SYSTEM. IF A VEGETATED GROUND COVER IS UTILIZED IT IS ONLY NECESSARY TO GET IT INITIALLY ESTABLISHED. THE ROOT SYSTEM AND TOP STUBBLE MAY BE SUFFICIENT TO HOLD THE DUST EVEN IF WATERING IS DISCONTINUED.
3. FOR TRACTS, MULTIPLE PARCELS, AND EXTENSIVE COMMERCIAL SITES, PAVED ACCESS TO THE BUILDING SITES WILL BE REQUIRED PRIOR TO FRAMING OF THE BUILDINGS. THIS CONSTRUCTION STAGE USUALLY INDICATES AN INCREASE IN THE NUMBERS OF WORKERS AND THEIR VEHICLES. ALSO, THE PAVED ACCESS IS RECOMMENDED FOR FIRE FIGHTING PURPOSES. IF PAVING IS DESIRED BEFORE ALL UTILITIES AND/OR LATERALS ARE INSTALLED, THE BASE LIFT OF ASPHALT IS SUFFICIENT FOR ACCESS. THE A.C. CAN BE "CAPPED" LATER, LEAVING A FINAL SURFACE THAT IS FREE OF UTILITY CUTS AND PATCHES.
4. AS PAVED ACCESS IS EXTENDED, THE STAGING AREA CAN BE MOVED CLOSER TO THE BUILDING SITES. THE STORAGE AND OFFICE TRAILERS, EQUIPMENT, AND EMPLOYEE PARKING CAN BE MOVED ONTO PAVED PORTIONS OF THE SITE.

SITE SPECIFIC DETAILS:
(PLEASE DESCRIBE ANY SPECIFIC OR ADDITIONAL CONTROL MEASURE PROPOSED.)

1. TRENCH STOCKPILE TREATMENT: (WATER AS NECESSARY) ______
2. INACTIVE AREA TREATMENT: (SEAL WITH HYDROMULCH, ACRYLIC POLYMER, PLANTINGS, ETC.)
3. STREET PAVING SCHEDULE: ______
4. STAGING AREA MOVEMENT SCHEDULE: ______
5. OTHER: ______

PHASE "D": FINISH GRADING (BLDG. UTIL., BLDG. CONST., LANDSCAPING)

GENERAL REQUIREMENTS:

1. ALL INACTIVE AREAS SHOULD HAVE BEEN STABILIZED BY THIS STAGE. IF PREVIOUSLY COVERED, THE ACTUAL BUILDING PADS MAY NOW NEED TO BE STRIPPED, SCARIFIED, AND RECOMPACTED FOR BUILDING PAD COMPACTION AND ELEVATION CERTIFICATIONS. DUST WOULD BE KEPT DOWN BY WATERING, USUALLY BY TEMPORARY SPRINKLERS.
2. TRENCHING FOR BUILDING UTILITIES, DRYWELL CONSTRUCTION, POOLS, AND TENNIS COURT CONSTRUCTION FORM THE BULK OF EARTHWORK AFTER THE PADS HAVE BEEN CERTIFIED. TEMPORARY SPRINKLERS MAY STILL BE USED ON THE BUILDING SITE FOR DUST CONTROL PRIOR TO THE BEGINNING OF FRAMING. TREATMENT WITH A BIODEGRADABLE "OIL" APPROVED FOR DUST CONTROL IS RECOMMENDED WHERE IT IS DIFFICULT TO WATER.
3. ESTABLISHING THE LANDSCAPE AND SPRINKLER SYSTEM AROUND THE PERIMETER OF LARGE PROJECTS SHOULD BE DONE AT THIS STAGE. PLANTINGS AROUND THE PERIMETER SERVE AS A WIND BUFFER AND COLLECTION SYSTEM FOR DUST AND SAND. IT IS GOOD TO HAVE DUST AND SAND WELL UNDER CONTROL PRIOR TO THE BUILDING PHASE FOR THE SAKE OF CERTAIN GLUING AND PAINTING PROCESSES THAT CAN BE RUINED BY BLOWSAND OR DUST.
4. DISTURBED AREAS AROUND BUILDINGS SHOULD BE WATERED BY HAND FOR DUST CONTROL UNTIL SUCH TIME THAT THE SPRINKLER SYSTEM IS FULLY FUNCTIONAL AND GROUND COVER AND/OR LANDSCAPING IS ESTABLISHED. IF WATERING IS DIFFICULT DUE TO BUILDING INTERFERENCE, CHEMICAL OR MULCH TREATMENTS ARE AVAILABLE THAT CAN STABILIZE THE SOIL WITHOUT FREQUENT WATERING.
5. CONSTRUCTION DUST SUCH AS FROM CEMENT, PLASTER, PAINT OVERSPRAY, WOOD CUTTING, GRINDING OPERATIONS, ETC., SHOULD BE MINIMIZED ALSO. A PERIMETER BARRIER OF SPRINKLERS AND PLANTINGS CAN SERVE TO CATCH SOME OF THIS POTENTIALLY HAZARDOUS MATERIAL AS WELL AS NATURAL DUST AND BLOWSAND. CONCENTRATIONS OF CONSTRUCTION DUSTS CAN RESULT FROM WASHING OF EQUIPMENT AND SHOULD BE PROPERLY DISPOSED OF BEFORE THEY CAN DRY OUT AND BLOW OR BE WASHED ACROSS PROJECT BOUNDARIES.
6. NOTE THAT SWALES SHOULD BE INSPECTED BY CITY PRIOR TO SETTING OF PERMANENT GROUND COVER OR OTHER PLANTS.

SITE SPECIFIC DETAILS:
(PLEASE DESCRIBE ANY SPECIFIC OR ADDITIONAL CONTROL MEASURE PROPOSED.)

1. BUILDING PAD WATERING: (BY HAND WATERING AS NECESSARY AROUND BUILDING SITE)
2. FORMWORK AND TRENCH WATERING: (BY HAND WATERING AS NECESSARY)
3. PERIMETER LANDSCAPE SCHEDULE: (AS SOON AS POSSIBLE)
4. OTHER: ______

ABATEMENT OF DUST MITIGATION FAILURE

AN IRREVOCABLE LICENSE IS HEREBY GRANTED OR CAUSED TO BE GRANTED TO PERMIT THE CITY OR THEIR DESIGNEE TO ENTER UPON THE SITE UNDER THE FOLLOWING CIRCUMSTANCES:

A. IN THE EVENT THAT WIND SPEEDS IN EXCESS OF 25 M.P.H. ARE FORECAST TO OCCUR BY THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (S.C.A.Q.M.D.) FOR A PARTICULAR DAY;
B. IN THE EVENT OF AN ON-SITE ANEMOMETER THAT CONFORMS TO ALL S.C.A.Q.M.D. STANDARDS REGISTERING 2 WIND GUSTS IN EXCESS OF 25 M.P.H. WITHIN A CONSECUTIVE 30 MINUTE PERIOD; OR
C. IN THE EVENT FUGITIVE DUST EMISSIONS ARE VISIBLE FOR A DISTANCE OF 50 FEET FROM ANY BOUNDARY LINE; OR
D. THE CITY IS UNABLE, BY TELEPHONE, TO ESTABLISH A PERSONAL CONTACT WITH THE "AUTHORIZED DUST CONTROLLER" AFTER A 60 MINUTE CONSECUTIVE PERIOD WHICH SHALL START WITH THE FIRST TELEPHONE CALL, WHETHER ANSWERED OR NOT; THEN THE CITY WILL UNDERTAKE TO INITIATE ONE OR ALL OF THE BELOW LISTED ACTIONS:
   1. THE CITY WILL CAUSE THE CESSATION OF ANY ON-SITE ACTIVITY, INCLUDING BUT NOT LIMITED TO EARTH MOVING, CONSTRUCTION, DEMOLITION OR VEHICULAR MOVEMENT AND MANEUVERING. ANY WATER TRUCKS OR VEHICLES SERVICING SPRINKLERS WOULD CONTINUE.
   2. IN THE EVENT THAT AN ON-SITE IRRIGATION SYSTEM IS NOT INSTALLED AND/OR OPERATIONAL, THE CITY WILL CAUSE THE SITE TO BE WATERED OR TREATED WITH DUST CONTROL CHEMICALS. THE DUST CONTROL SECURITY WILL BE UTILIZED FIRST TO COVER ANY COSTS INCURRED. IF COSTS EXCEED ANY DUST CONTROL SECURITY REMAINING, ADDITIONAL COSTS MAY BE ASSESSED AGAINST THE OWNER OF THE PROJECT.
   3. IN THE EVENT AN ON-SITE IRRIGATION SYSTEM IS INSTALLED, BUT ITS CONTROL CLOCK HAS NOT TURNED THE SYSTEM ON WHEN NEEDED, THE CITY MAY TAKE ALL NECESSARY STEPS TO TURN ON THE SYSTEM. IF IT IS INACCESSIBLE BEHIND LOCKED GATES OR LOCKED CONTROL BOXES, AND THE CITY CAN NOT FIND THE APPROPRIATE KEYS, THE CITY MAY CUT OR BREAK LOCKS AS NECESSARY.
E. IF, IN THE OPINION OF THE CITY ENGINEER OR HIS DESIGNEE, THE INTENSITY, FREQUENCY OR DURATION OF FUGITIVE DUST EMISSIONS FROM THE SITE CONSTITUTES A HAZARD TO THE SAFETY OF THE PUBLIC, BY INTRUSION BEYOND THE PROJECT BOUNDARY, THE CITY ENGINEER OR HIS DESIGNEE OR AGENT MAY IMMEDIATELY ENTER UPON THE SITE OR IMMEDIATELY TAKE OTHER SUCH ACTION AS MAY BE NECESSARY TO REMEDY THE HAZARD, SUCH AS, BUT NOT LIMITED TO COMMENCING WATERING ON THE SITE OR ORDERING THE CESSATION OF ANY EMISSION-GENERATING ACTIVITY OCCURRING ON-SITE.
F. ANY OF THE ABOVE ACTIONS MAY BE CONSTRUED AS AN ABATEMENT FOR WHICH THE CITY WILL "BACK CHARGE" THE GENERAL CONTRACTOR, DEVELOPER, AND/OR THE OWNER AS THE CITY SHALL DEEM APPROPRIATE.

APPLICATION CONSENT

APPLICATION FOR APPROVAL OF A LOCAL AIR QUALITY MANAGEMENT (L.A.Q.M.P.) PLAN IS HEREBY MADE TO THE CITY ENGINEER OR HIS DESIGNEE, AS PART OF A GRADING PERMIT APPLICATION, SUBJECT TO THE CONDITIONS AND RESTRICTIONS SET FORTH HEREIN:

1. EACH PERSON UPON WHOSE BEHALF THIS APPLICATION IS MADE AND EACH PERSON AT WHOSE REQUEST AND FOR WHOSE BENEFIT WORK IS PERFORMED UNDER AND PURSUANT TO ANY PERMIT ISSUED AS A RESULT OF THIS APPLICATION AGREES TO, AND SHALL INDEMNIFY AND HOLD HARMLESS THE CITY OF RANCHO MIRAGE, ITS OFFICERS, AGENTS AND EMPLOYEES.
2. ANY PERMIT ISSUED AS A RESULT OF THIS APPLICATION BECOMES NULL AND VOID IF WORK IS NOT COMMENCED WITHIN 90 DAYS FROM THE DATE OF ISSUANCE OF SUCH PERMIT.
3. THE APPLICANT, OWNER, CONTRACTOR(S), SUBCONTRACTOR(S) OR OTHER AGENTS, HEIRS OR ASSIGNEES SHALL CONFORM TO THE ATTACHED DUST CONTROL PLAN AS APPROVED BY THE CITY. SAID PLAN INCLUDES NOTES AND/OR DRAWINGS OF TEMPORARY OR PERMANENT CONTROL METHODS OR DEVICES PROPOSED TO BE USED. THIS L.A.Q.M.P. SHALL BE CONSIDERED AN ADDENDUM TO, AND A NECESSARY PART OF, ANY GRADING, STOCKPILE, IMPROVEMENT, OR DEMOLITION PLAN OTHERWISE REQUIRED FOR CITY PERMITS.
4. BY AGREEING TO CONFORM TO THIS PLAN AS APPROVED BY THE CITY, THE OWNER AND DESIGNATED "AUTHORIZED DUST CONTROLLER" DO ALSO AGREE TO ABIDE BY THE PROVISIONS OF THE ABATEMENT PROCEDURES AS SHOWN ABOVE.

OWNER'S CERTIFICATION:

I CERTIFY THAT I HAVE READ THIS APPLICATION AND UNDERSTAND THAT I AM RESPONSIBLE FOR THE COMPLIANCE OF THIS PROJECT TO THE DUST CONTROL PROVISIONS NOTED OR REFERENCED HERE. I UNDERSTAND THAT THE DUST CONTROL SECURITY THAT I'VE POSTED WITH THE CITY MAY BE USED BY THE CITY, PLUS ADDITIONAL CHARGES IF NEEDED, IF I FAIL TO KEEP THE DUST UNDER CONTROL. I UNDERSTAND THAT DUST CONTROL IS REQUIRED 24 HOURS A DAY, 7 DAYS A WEEK, FROM THE TIME THAT THIS SITE IS DISTURBED IN ANY WAY FROM THE NATURAL VEGETATED CONDITION, AND MUST CONTINUE UNTIL THE TIME THAT THE PROJECT SITE IS ACCEPTABLY RE-VEGETATED OR PAVED. RESPONSIBILITY FOR THE DUST CONTROL ON THIS SITE CAN NOT BE TRANSFERRED SOLELY BY TRANSFERRING ALL OR A PORTION OF THIS PROPERTY TO OTHER PEOPLE. A REPLACEMENT L.A.Q.M.P. AND DUST CONTROL SECURITY MUST BE SUBMITTED FOR ANY TRANSFERRED PORTION. I HEREBY AUTHORIZE THE PERSON LISTED BELOW AS "AUTHORIZED DUST CONTROLLER" TO BE MY REPRESENTATIVE AND CONTACT PERSON FOR ALL DUST COMPLAINTS INVOLVING THIS PROJECT. I CERTIFY THAT I HAVE READ THIS APPLICATION AND THAT THE INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT. I AGREE TO COMPLY WITH CITY ORDINANCE 398 (MUNI. CODE SEC. 15.32) AND ALL LAWS RELATING TO GRADING OPERATIONS. I AUTHORIZE REPRESENTATIVES OF THE CITY OF RANCHO MIRAGE TO ENTER UPON THE ABOVE-MENTIONED PROPERTY FOR INSPECTION AND/OR ABATEMENT PURPOSES, AND I AGREE TO HOLD HARMLESS THE CITY AND ITS REPRESENTATIVES FROM LIABILITY FOR ANY ACTIONS RELATED TO THIS PERMIT.

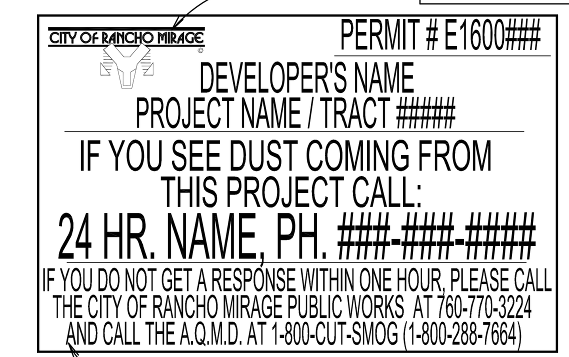
OWNER'S NAME(S) JIM LOCKINGTON, MANAGER, NEW STORE DEVELOPMENT FOR IN-N-OUT BURGERS
OWNER'S ADDRESS 13502 HAMBURGER LANE, BALDWIN PARK, CA 91706
OWNER'S SIGNATURE(S) ______ ______
DATE 10-21-2019

AUTHORIZED DUST CONTROLLER CERTIFICATION: #____________

I CERTIFY THAT I HAVE READ THIS APPLICATION AND UNDERSTAND THAT I AM RESPONSIBLE FOR THE COMPLIANCE OF THIS PROJECT TO THE DUST CONTROL PROVISIONS NOTED OR REFERENCED HERE. AS THE "AUTHORIZED DUST CONTROLLER" FOR THIS PROJECT I WILL HAVE MY PHONE NUMBER ON THE REQUIRED SITE SIGNS, AND WILL RESPOND TO DUST COMPLAINTS WITHIN THE 1 HOUR LIMIT. I UNDERSTAND THAT DUST CONTROL IS REQUIRED 24 HOURS A DAY, 7 DAYS A WEEK, FROM THE TIME THAT THIS SITE IS DISTURBED IN ANY WAY FROM THE NATURAL VEGETATED CONDITION, AND MUST CONTINUE UNTIL THE TIME THAT THE PROJECT SITE IS ACCEPTABLY RE-VEGETATED OR PAVED.

DUST CONTROLLER NAME (PRINT) TBD
DUST CONTROLLER ADDRESS ______
DUST CONTROLLER SIGNATURE ______ DATE ______
CONTACT PHONE NUMBERS (24HR) ______

COPYRIGHTED CITY LOGO



CONTRASTING COLOR, TYPICALLY BLACK LETTERS ON WHITE BACKGROUND

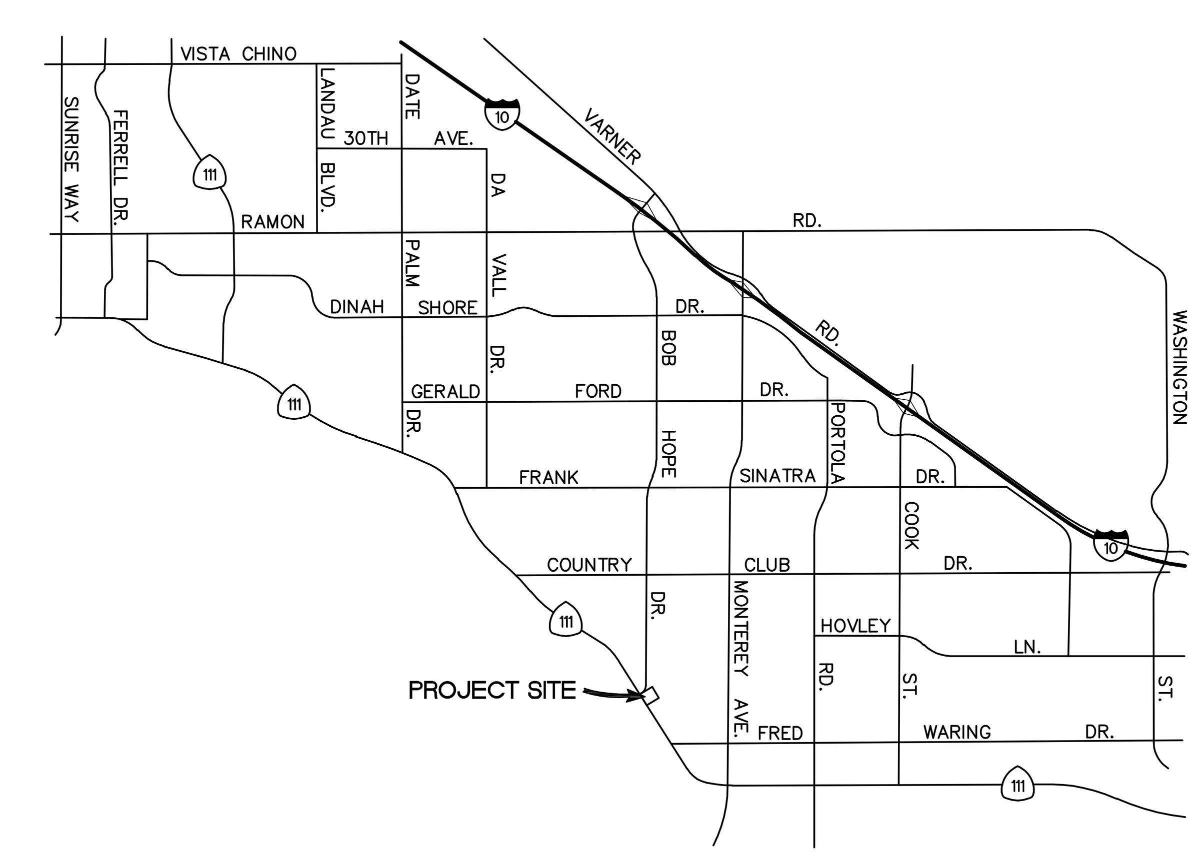
SIGN AND LETTER SIZE CRITERIA			
PROJECT SIZE	0-1 ACRE	1-10 ACRE	OVER 10 ACRE
SIGN SIZE	24"Hx36"W	36"Hx48"W	48"Hx96"W
	2"	3"	4"
	2"	3"	4"
	2"	3"	4"
	2"	3"	4"
	2"	3"	4"
	3"	4.5"	4.5"
	1.5"	2.25"	3"
	1.5"	2.25"	3"
	1.5"	2.25"	3"

DUST CONTROL SIGN CRITERIA

ADD A DRAWING HERE FOR SPECIAL DUST CONTROL ITEMS NOT TYPICALLY SHOWN ON GRADING PLANS, SUCH AS: TRUCK WHEEL WASH AREAS, EMPLOYEE PARKING AREAS, WATER TOWER LOCATIONS, HAUL ROAD DETAILS, SPEED SIGN LOCATION, SAND FENCE LOCATIONS, PERIMETER SPRINKLER LOCATIONS, STAGING AREAS, BORROW PITS, ETC. IF ALL REQUIRED FEATURES ARE ALREADY SHOWN ON THE GRADING PLAN WHICH IS ATTACHED, OWNER INITIAL HERE ______

REFERENCE MAP / GRADING PLAN FEATURES

SCALE ______ = ______



SHOW THE ROADS WHICH WILL BE USED FOR IMPORT OR EXPORT OF DIRT FOR THE PROJECT. IF THE PLANS INDICATE A DIRT BALANCE AND THUS NO HAUL ROUTE IS REQUIRED, OWNER INITIAL HERE ______

VICINITY MAP/HAUL ROUTE

NOT TO SCALE

NOTE: PROJECTS OF 10 ACRES OR LARGER MUST ALSO FILE THE 8.5"x11" FORM WITH THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SEE THEIR WEB SITE OR CITY ENGINEERING FOR APPROPRIATE FORMS)

FORM REVISED 7/25/2016

PREPARED BY: CERT. # 38382
SIGNATURE Mark S Lamoureux 10-21-19 DATE
PRINT NAME: MARK S. LAMOUREUX
ADDRESS: 402 W. ARROW HWY., SUITE 4, SAN DIMAS, CA. 91773, PH.(909) 305-2395
APPROVED BY CITY OF RANCHO MIRAGE:
WILLIAM A. ENOS, CITY ENGINEER DATE
R.C.E. 43910

CITY OF RANCHO MIRAGE
LOCAL AIR QUALITY MANAGEMENT PLAN
PM_{10} DUST MITIGATION
PROJECT NAME: IN-N-OUT BURGER RESTAURANT
SITE ADDRESS: 42560 BOB HOPE DRIVE A.P.N. 682-320-033
SEC. 18, T 5 S., R. 6 E., S.B.B.& M.

SHEET 18 OF 20
GRADING PERMIT # E ______

JN 19001-19001 C18laqmp

Appendix B: Permit Registration Documents

Permit Registration Documents included in this Appendix

Y/N	Permit Registration Document
	Notice of Intent
	Risk Assessment
	Certification
	Post Construction Water Balance
	Copy of Annual Fee Receipt
	ATS Design Documents
	Site Map, see Appendix A

Facility Information

Start Date: 03/02/2020	**Latitude:** 33.7363
End Date: 09/02/2020	**Longitude:** -116.4077

Calculation Results

Rainfall erosivity factor (R Factor) = **5.52**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Appendix C: SWPPP Amendment Certifications

SWPPP Amendment No. ____________

Project Name: ____

Project Number: ____

Qualified SWPPP Developer's Certification of the Stormwater Pollution Prevention Plan Amendment

"This Stormwater Pollution Prevention Plan and attachments were prepared under my direction to meet the requirements of the California Construction General Permit (SWRCB Order No. 2009-009-DWQ as amended by 2010-0014-DWQ). I certify that I am a Qualified SWPPP Developer in good standing as of the date signed below."

QSD's Signature	Date
QSD Name	QSD Certificate Number
Title and Affiliation	Telephone
Address	Email

Appendix D: Submitted Changes to PRDs

Log of Updated PRDs

The General Permit allows for the reduction or increase of the total acreage covered under the General Permit when a portion of the project is complete and/or conditions for termination of coverage have been met; when ownership of a portion of the project is purchased by a different entity; or when new acreage is added to the project.

Modified PRDs shall be filed electronically within 30 days of a reduction or increase in total disturbed area if a change in permit covered acreage is to be sought. The SWPPP shall be modified appropriately, with revisions and amendments recorded in Appendix C. Updated PRDs submitted electronically via SMARTS can be found in this Appendix.

This appendix includes all of the following updated PRDs (check all that apply):

☐ Revised Notice of Intent (NOI);

☐ Revised Site Map;

☐ Revised Risk Assessment;

☐ New landowner's information (name, address, phone number, email address); and

☐ New signed certification statement.

____
Legally Responsible Person [if organization]

Signature of [Authorized Representative of] Legally Responsible Person or Approved Signatory	Date
Name of [Authorized Representative of] Legally Responsible Person or Approved Signatory	Telephone Number

Appendix E: Spill Prevention and Control Plan

Spill Prevention and Control Plan

Spill Control Manager:

Name	*Telephone Number*
In-N-Out Job Site Superintendent	
Title and Affiliation	

The Spill Control Manager shall ensure that all employees and sub-contractors are aware of the Spill Prevention and Control Plan.

Education – Employees and sub-contractors shall be aware of the following items related to the spill prevention and control at the site:

- Types of materials present at the site that have potential to pollute stormwater in the event of a spill.
- Potential dangers to humans and the environment from spills.
- Responsibility of sub-contractors to educate their employees regarding their responsibilities in the event of a spill.
- BMP WM-4 Spill Prevention and Control shall be used for general measures, maintenance, inspection and additional prevention education.

In the event of a material spill at the job site the following procedures should be followed based on the type of spill.

Minor Spills – Involving small quantities of oil, gasoline, paint, etc.

- Minor spills shall be controlled by the first responder at the discovery of the spill.
- Minor spills shall be cleaned using absorbent materials rather than hosing down or burying the spill.
    - Absorbent material shall be removed of properly.
- Minor spills shall be handled using the following procedure:
    - Contain the spread of the spill.
    - Recover the spilled material.
    - Clean the contaminated area and properly dispose of contaminated materials.

Semi-significant Spills – Involving larger quantities of material, with the potential to rapidly spread from the spill location.

- First responder shall control the spill with the aid of other personnel in the area.
- The Spill Control Manager shall be contacted immediately.
- Semi-significant spills shall be handled using the following procedure:
    - Contain the spread of the spill.
    - Notify the Spill Control Manager.
    - If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter, and/or rags).
    - If the spill occurs in dirt areas, immediately contain the spill by construction an earten dike. Dig up and properly dispose of contaminated soil.
    - If spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills – Spills that cannot be controlled by personnel in the immediate vicinity.

- The services of a spills contractor or Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staff have arrived at the job site.
- Notify the local emergency response by dialing 911.
- For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110, 119, and 302, the contractor should notify the National Response Center (800) 424-8802.

Disposal of Hazardous Materials – Hazardous materials including absorbent materials used to contain hazardous materials and soil that has been contaminated by a hazardous material spill shall be disposed in compliance with all federal and state statutes. Local landfills may be able to advise the contractor regarding acceptance contaminated material disposal.

Appendix F: Construction Activities, Materials Used, and Associated Pollutants

Table F.a POLLUTANTS ASSOCIATED WITH CONSTRUCTION ACTIVITIES

General Work Activity/ Products With Potential Stormwater Pollutants	Specific Work Activity/Products With Potential Stormwater Pollutants	Pollutant Categories
Adhesives	• Adhesives, glues, resins, epoxy synthetics, PVC cement • Caulks, sealers, putty, sealing agents and • Coal tars (naphtha, pitch)	Oil and Grease, Synthetic Organics[1]
Asphalt paving/curbs	• Hot and cold mix asphalt	Oil and Grease
Cleaners	• Polishes (metal, ceramic, tile) • Etching agents • Cleaners, ammonia, lye, caustic sodas, bleaching agents and chromate salts	Metals, Synthetic Organics
Concrete / Masonry	• Cement and brick dust • Colored chalks • Concrete curing compounds • Glazing compounds • Surfaces cleaners • Saw cut slurries • Tile cutting	Metals, Synthetic Organics
Drywall	• Saw-cutting drywall	Metals
Framing/Carpentry	• Sawdust, particle board dust, and treated woods • Saw cut slurries	Metals, Synthetic Organics
Heating, Ventilation, Air Conditioning	• Demolition or construction of air condition and heating systems	Metals, Synthetic Organics
Insulation	• Demolition or construction involving insulation, venting systems	Metals, Synthetic Organics
Liquid waste	• Wash waters • Irrigation line testing/flushing	Metals, Synthetic Organics
Painting	• Paint thinners, acetone, methyl ethyl ketone, stripper paints, lacquers, varnish, enamels, turpentine, gum spirit, solvents, dyes, stripping pigments and sanding	Metals, Synthetic Organics
Planting / Vegetation Management	• Vegetation control (pesticides/herbicides) • Planting • Plant maintenance • Vegetation removal	Nutrients, Metals, Synthetic Organics
Plumbing	• Solder (lead, tin), flux (zinc chloride), pipe fitting • Galvanized metal in nails, fences, and electric wiring	Metals, Synthetic Organics
Pools/fountains	• Chlorinated water	Synthetic Organics
Removal of existing structures	• Demolition of asphalt, concrete, masonry, framing, roofing, metal structures.	Metals, Oil and Grease, Synthetic Organics
Roofing	• Flashing • Saw cut slurries (tile cutting) • Shingle scrap and debris	Metals, Oil and Grease, Synthetic Organics
Sanitary waste	• Portable toilets • Disturbance of existing sewer lines.	Nutrients
Soil preparation/amendments	• Use of soil additives/amendments	Nutrients

Table F.a POLLUTANTS ASSOCIATED WITH CONSTRUCTION ACTIVITIES

General Work Activity/ Products With Potential Stormwater Pollutants	Specific Work Activity/Products With Potential Stormwater Pollutants	Pollutant Categories
Solid waste	• Litter, trash and debris • Vegetation	Gross Pollutants
Utility line testing and flushing	• Hydrostatic test water • Pipe flushing	Synthetic Organics
Vehicle and equipment use	• Equipment operation • Equipment maintenance • Equipment washing • Equipment fueling	Oil and Grease
[1] Synthetic Organics are defined in Table 1.2 of the CASQA *Stormwater BMP Handbook Portal: Construction* as adhesives, cleaners, sealants, solvents, etc. These are generally categorized as VOCs or SVOCs.		

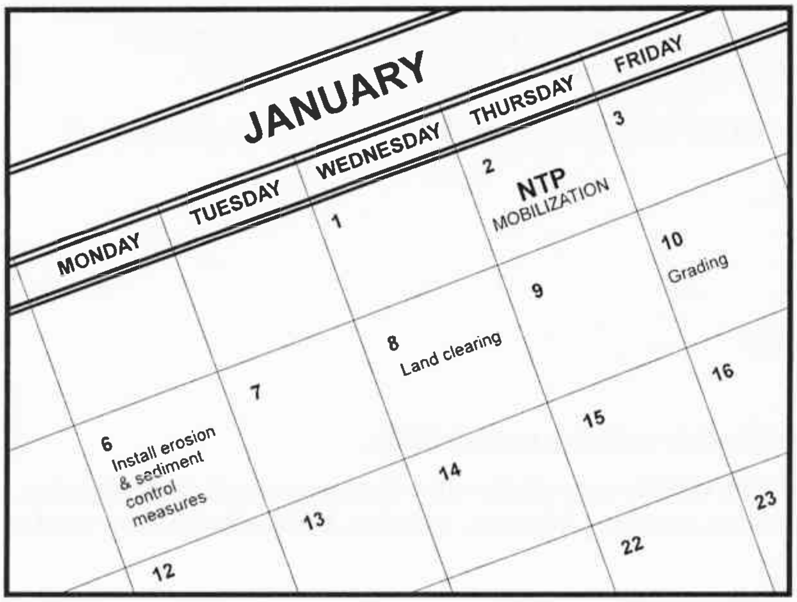
Table F.1 Construction Activities and Associated Pollutants

Phase	Activity	Associated Materials or Pollutants	Pollutant Category[(1)]
Grading and Land Development			
Streets and Utilities Phase			
Vertical Construction Phase			
Landscaping and Site Stabilization Phase			

(1) Categories per CASQA BMP Handbook (i.e., Sediment, Nutrients, Bacteria and Viruses, Oil and Grease, Metals, Synthetic Organics, Pesticides, Gross Pollutants, and Vector Production)

Appendix G: CASQA Stormwater BMP Handbook Portal: Construction Fact Sheets

Scheduling EC-1



Categories

EC	Erosion Control	☑
SE	Sediment Control	☒
TC	Tracking Control	☒
WE	Wind Erosion Control	☒
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

Description and Purpose

Scheduling is the development of a written plan that includes sequencing of construction activities and the implementation of BMPs such as erosion control and sediment control while taking local climate (rainfall, wind, etc.) into consideration. The purpose is to reduce the amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking, and to perform the construction activities and control practices in accordance with the planned schedule.

Suitable Applications

Proper sequencing of construction activities to reduce erosion potential should be incorporated into the schedule of every construction project especially during rainy season. Use of other, more costly yet less effective, erosion and sediment control BMPs may often be reduced through proper construction sequencing.

Limitations

- Environmental constraints such as nesting season prohibitions reduce the full capabilities of this BMP.

Implementation

- Avoid rainy periods. Schedule major grading operations during dry months when practical. Allow enough time before rainfall begins to stabilize the soil with vegetation or physical means or to install sediment trapping devices.

- Plan the project and develop a schedule showing each phase of construction. Clearly show how the rainy season relates to soil disturbing and re-stabilization activities. Incorporate the construction schedule into the SWPPP.

- Include on the schedule, details on the rainy season implementation and deployment of:
  - Erosion control BMPs
  - Sediment control BMPs
  - Tracking control BMPs
  - Wind erosion control BMPs
  - Non-stormwater BMPs
  - Waste management and materials pollution control BMPs
- Include dates for activities that may require non-stormwater discharges such as dewatering, sawcutting, grinding, drilling, boring, crushing, blasting, painting, hydro-demolition, mortar mixing, pavement cleaning, etc.
- Work out the sequencing and timetable for the start and completion of each item such as site clearing and grubbing, grading, excavation, paving, foundation pouring utilities installation, etc., to minimize the active construction area during the rainy season.
  - Sequence trenching activities so that most open portions are closed before new trenching begins.
  - Incorporate staged seeding and re-vegetation of graded slopes as work progresses.
  - Schedule establishment of permanent vegetation during appropriate planting time for specified vegetation.
- Non-active areas should be stabilized as soon as practical after the cessation of soil disturbing activities or one day prior to the onset of precipitation.
- Monitor the weather forecast for rainfall.
- When rainfall is predicted, adjust the construction schedule to allow the implementation of soil stabilization and sediment treatment controls on all disturbed areas prior to the onset of rain.
- Be prepared year round to deploy erosion control and sediment control BMPs. Erosion may be caused during dry seasons by un-seasonal rainfall, wind, and vehicle tracking. Keep the site stabilized year round, and retain and maintain rainy season sediment trapping devices in operational condition.
- Apply permanent erosion control to areas deemed substantially complete during the project's defined seeding window.

Costs

Construction scheduling to reduce erosion may increase other construction costs due to reduced economies of scale in performing site grading. The cost effectiveness of scheduling techniques should be compared with the other less effective erosion and sedimentation controls to achieve a cost effective balance.

Inspection and Maintenance

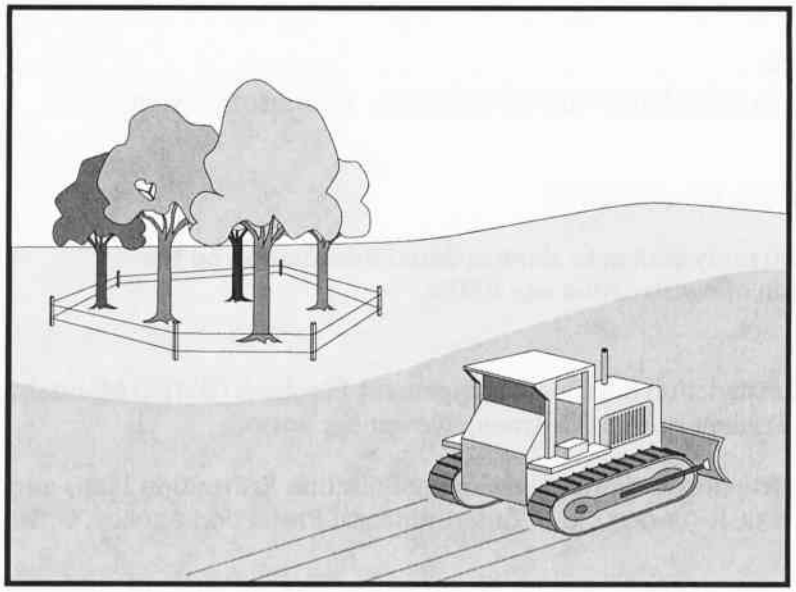
- Verify that work is progressing in accordance with the schedule. If progress deviates, take corrective actions.
- Amend the schedule when changes are warranted.
- Amend the schedule prior to the rainy season to show updated information on the deployment and implementation of construction site BMPs.

References

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities Developing Pollution Prevention Plans and Best Management Practices (EPA 832-R-92-005), U.S. Environmental Protection Agency, Office of Water, September 1992.

Preservation Of Existing Vegetation EC-2



Categories

EC	Erosion Control	☑
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Carefully planned preservation of existing vegetation minimizes the potential of removing or injuring existing trees, vines, shrubs, and grasses that protect soil from erosion.

Suitable Applications

Preservation of existing vegetation is suitable for use on most projects. Large project sites often provide the greatest opportunity for use of this BMP. Suitable applications include the following:

- Areas within the site where no construction activity occurs, or occurs at a later date. This BMP is especially suitable to multi year projects where grading can be phased.
- Areas where natural vegetation exists and is designated for preservation. Such areas often include steep slopes, watercourse, and building sites in wooded areas.
- Areas where local, state, and federal government require preservation, such as vernal pools, wetlands, marshes, certain oak trees, etc. These areas are usually designated on the plans, or in the specifications, permits, or environmental documents.
- Where vegetation designated for ultimate removal can be temporarily preserved and be utilized for erosion control and sediment control.

Limitations

- Requires forward planning by the owner/developer,

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

contractor, and design staff.

- Limited opportunities for use when project plans do not incorporate existing vegetation into the site design.

- For sites with diverse topography, it is often difficult and expensive to save existing trees while grading the site satisfactory for the planned development.

Implementation

The best way to prevent erosion is to not disturb the land. In order to reduce the impacts of new development and redevelopment, projects may be designed to avoid disturbing land in sensitive areas of the site (e.g., natural watercourses, steep slopes), and to incorporate unique or desirable existing vegetation into the site's landscaping plan. Clearly marking and leaving a buffer area around these unique areas during construction will help to preserve these areas as well as take advantage of natural erosion prevention and sediment trapping.

Existing vegetation to be preserved on the site must be protected from mechanical and other injury while the land is being developed. The purpose of protecting existing vegetation is to ensure the survival of desirable vegetation for shade, beautification, and erosion control. Mature vegetation has extensive root systems that help to hold soil in place, thus reducing erosion. In addition, vegetation helps keep soil from drying rapidly and becoming susceptible to erosion. To effectively save existing vegetation, no disturbances of any kind should be allowed within a defined area around the vegetation. For trees, no construction activity should occur within the drip line of the tree.

Timing

- Provide for preservation of existing vegetation prior to the commencement of clearing and grubbing operations or other soil disturbing activities in areas where no construction activity is planned or will occur at a later date.

Design and Layout

- Mark areas to be preserved with temporary fencing. Include sufficient setback to protect roots.

  - Orange colored plastic mesh fencing works well.

  - Use appropriate fence posts and adequate post spacing and depth to completely support the fence in an upright position.

- Locate temporary roadways, stockpiles, and layout areas to avoid stands of trees, shrubs, and grass.

- Consider the impact of grade changes to existing vegetation and the root zone.

- Maintain existing irrigation systems where feasible. Temporary irrigation may be required.

- Instruct employees and subcontractors to honor protective devices. Prohibit heavy equipment, vehicular traffic, or storage of construction materials within the protected area.

Costs

There is little cost associated with preserving existing vegetation if properly planned during the project design, and these costs may be offset by aesthetic benefits that enhance property values. During construction, the cost for preserving existing vegetation will likely be less than the cost of applying erosion and sediment controls to the disturbed area. Replacing vegetation inadvertently destroyed during construction can be extremely expensive, sometimes in excess of $10,000 per tree.

Inspection and Maintenance

During construction, the limits of disturbance should remain clearly marked at all times. Irrigation or maintenance of existing vegetation should be described in the landscaping plan. If damage to protected trees still occurs, maintenance guidelines described below should be followed:

- Verify that protective measures remain in place. Restore damaged protection measures immediately.
- Serious tree injuries shall be attended to by an arborist.
- Damage to the crown, trunk, or root system of a retained tree shall be repaired immediately.
- Trench as far from tree trunks as possible, usually outside of the tree drip line or canopy. Curve trenches around trees to avoid large roots or root concentrations. If roots are encountered, consider tunneling under them. When trenching or tunneling near or under trees to be retained, place tunnels at least 18 in. below the ground surface, and not below the tree center to minimize impact on the roots.
- Do not leave tree roots exposed to air. Cover exposed roots with soil as soon as possible. If soil covering is not practical, protect exposed roots with wet burlap or peat moss until the tunnel or trench is ready for backfill.
- Cleanly remove the ends of damaged roots with a smooth cut.
- Fill trenches and tunnels as soon as possible. Careful filling and tamping will eliminate air spaces in the soil, which can damage roots.
- If bark damage occurs, cut back all loosened bark into the undamaged area, with the cut tapered at the top and bottom and drainage provided at the base of the wood. Limit cutting the undamaged area as much as possible.
- Aerate soil that has been compacted over a trees root zone by punching holes 12 in. deep with an iron bar, and moving the bar back and forth until the soil is loosened. Place holes 18 in. apart throughout the area of compacted soil under the tree crown.
- Fertilization
  - Fertilize stressed or damaged broadleaf trees to aid recovery.
  - Fertilize trees in the late fall or early spring.

- Apply fertilizer to the soil over the feeder roots and in accordance with label instructions, but never closer than 3 ft to the trunk. Increase the fertilized area by one-fourth of the crown area for conifers that have extended root systems.

■ Retain protective measures until all other construction activity is complete to avoid damage during site cleanup and stabilization.

References

County of Sacramento Tree Preservation Ordinance, September 1981.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Water Quality Management Plan for The Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

Water Conservation Practices NS-1

Categories

EC	Erosion Control	☒
SE	Sediment Control	☒
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Water conservation practices are activities that use water during the construction of a project in a manner that avoids causing erosion and the transport of pollutants offsite. These practices can reduce or eliminate non-stormwater discharges.

Suitable Applications

Water conservation practices are suitable for all construction sites where water is used, including piped water, metered water, trucked water, and water from a reservoir.

Limitations

- None identified.

Implementation

- Keep water equipment in good working condition.
- Stabilize water truck filling area.
- Repair water leaks promptly.
- Washing of vehicles and equipment on the construction site is discouraged.
- Avoid using water to clean construction areas. If water must be used for cleaning or surface preparation, surface should be swept and vacuumed first to remove dirt. This will minimize amount of water required.
- Direct construction water runoff to areas where it can soak

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

into the ground or be collected and reused.

- Authorized non-stormwater discharges to the storm drain system, channels, or receiving waters are acceptable with the implementation of appropriate BMPs.

- Lock water tank valves to prevent unauthorized use.

Costs
The cost is small to none compared to the benefits of conserving water.

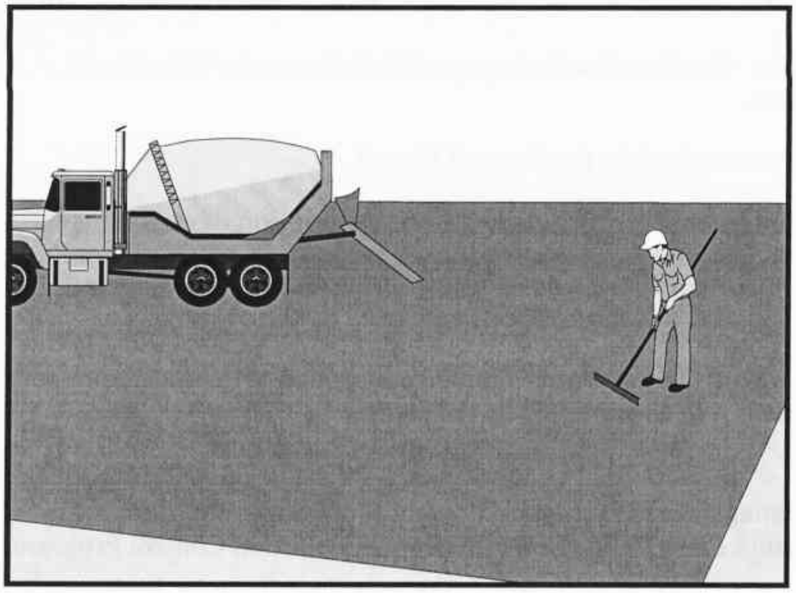
Inspection and Maintenance
- Inspect and verify that activity based BMPs are in place prior to the commencement of authorized non-stormwater discharges.

- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges are occuring.

- Repair water equipment as needed to prevent unintended discharges.
  - Water trucks
  - Water reservoirs (water buffalos)
  - Irrigation systems
  - Hydrant connections

References
Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Paving and Grinding Operations NS-3



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	☒

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

Description and Purpose

Prevent or reduce the discharge of pollutants from paving operations, using measures to prevent runon and runoff pollution, properly disposing of wastes, and training employees and subcontractors.

The General Permit incorporates Numeric Effluent Limits (NEL) and Numeric Action Levels (NAL) for pH and turbidity (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Many types of construction materials associated with paving and grinding operations, including mortar, concrete, and cement and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows, which could lead to exceedances of the General Permit requirements.

Suitable Applications

These procedures are implemented where paving, surfacing, resurfacing, or sawcutting, may pollute stormwater runoff or discharge to the storm drain system or watercourses.

Limitations

- Paving opportunities may be limited during wet weather.
- Discharges of freshly paved surfaces may raise pH to environmentally harmful levels and trigger permit violations.

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

Implementation

General

- Avoid paving during the wet season when feasible.
- Reschedule paving and grinding activities if rain is forecasted.
- Train employees and sub-contractors in pollution prevention and reduction.
- Store materials away from drainage courses to prevent stormwater runon (see WM-1, Material Delivery and Storage).
- Protect drainage courses, particularly in areas with a grade, by employing BMPs to divert runoff or to trap and filter sediment.
- Stockpile material removed from roadways away from drain inlets, drainage ditches, and watercourses. These materials should be stored consistent with WM-3, Stockpile Management.
- Disposal of PCC (Portland cement concrete) and AC (asphalt concrete) waste should be in conformance with WM-8, Concrete Waste Management.

Saw Cutting, Grinding, and Pavement Removal

- Shovel or vacuum saw-cut slurry and remove from site. Cover or barricade storm drains during saw cutting to contain slurry.
- When paving involves AC, the following steps should be implemented to prevent the discharge of grinding residue, uncompacted or loose AC, tack coats, equipment cleaners, or unrelated paving materials:
  - AC grindings, pieces, or chunks used in embankments or shoulder backing should not be allowed to enter any storm drains or watercourses. Install inlet protection and perimeter controls until area is stabilized (i.e. cutting, grinding or other removal activities are complete and loose material has been properly removed and disposed of)or permanent controls are in place. Examples of temporary perimeter controls can be found in EC-9, Earth Dikes and Drainage Swales; SE-1, Silt Fence; SE-5, Fiber Rolls, or SE-13 Compost Socks and Berms
  - Collect and remove all broken asphalt and recycle when practical. Old or spilled asphalt should be recycled or disposed of properly.
- Do not allow saw-cut slurry to enter storm drains or watercourses. Residue from grinding operations should be picked up by a vacuum attachment to the grinding machine, or by sweeping, should not be allowed to flow across the pavement, and should not be left on the surface of the pavement. See also WM-8, Concrete Waste Management, and WM-10, Liquid Waste Management.
- Pavement removal activities should not be conducted in the rain.
- Collect removed pavement material by mechanical or manual methods. This material may be recycled for use as shoulder backing or base material.

- If removed pavement material cannot be recycled, transport the material back to an approved storage site.

Asphaltic Concrete Paving

- If paving involves asphaltic cement concrete, follow these steps:
  - Do not allow sand or gravel placed over new asphalt to wash into storm drains, streets, or creeks. Vacuum or sweep loose sand and gravel and properly dispose of this waste by referring to WM-5, Solid Waste Management.
  - Old asphalt should be disposed of properly. Collect and remove all broken asphalt from the site and recycle whenever possible.

Portland Cement Concrete Paving

- Do not wash sweepings from exposed aggregate concrete into a storm drain system. Collect waste materials by dry methods, such as sweeping or shoveling, and return to aggregate base stockpile or dispose of properly. Allow aggregate rinse to settle. Then, either allow rinse water to dry in a temporary pit as described in WM-8, Concrete Waste Management, or pump the water to the sanitary sewer if authorized by the local wastewater authority.

Sealing Operations

- During chip seal application and sweeping operations, petroleum or petroleum covered aggregate should not be allowed to enter any storm drain or water courses. Apply temporary perimeter controls until structure is stabilized (i.e. all sealing operations are complete and cured and loose materials have been properly removed and disposed).
- Inlet protection (SE-10, Storm Drain Inlet Protection) should be used during application of seal coat, tack coat, slurry seal, and fog seal.
- Seal coat, tack coat, slurry seal, or fog seal should not be applied if rainfall is predicted to occur during the application or curing period.

Paving Equipment

- Leaks and spills from paving equipment can contain toxic levels of heavy metals and oil and grease. Place drip pans or absorbent materials under paving equipment when not in use. Clean up spills with absorbent materials and dispose of in accordance with the applicable regulations. See NS-10, Vehicle and Equipment Maintenance, WM-4, Spill Prevention and Control, and WM-10, Liquid Waste Management.
- Substances used to coat asphalt transport trucks and asphalt spreading equipment should not contain soap and should be non-foaming and non-toxic.
- Paving equipment parked onsite should be parked over plastic to prevent soil contamination.
- Clean asphalt coated equipment offsite whenever possible. When cleaning dry, hardened asphalt from equipment, manage hardened asphalt debris as described in WM-5, Solid Waste Management. Any cleaning onsite should follow NS-8, Vehicle and Equipment Cleaning.

Thermoplastic Striping

- Thermoplastic striper and pre-heater equipment shutoff valves should be inspected to ensure that they are working properly to prevent leaking thermoplastic from entering drain inlets, the stormwater drainage system, or watercourses.
- Pre-heaters should be filled carefully to prevent splashing or spilling of hot thermoplastic. Leave six inches of space at the top of the pre-heater container when filling thermoplastic to allow room for material to move.
- Do not pre-heat, transfer, or load thermoplastic near drain inlets or watercourses.
- Clean truck beds daily of loose debris and melted thermoplastic. When possible, recycle thermoplastic material.

Raised/Recessed Pavement Marker Application and Removal

- Do not transfer or load bituminous material near drain inlets, the stormwater drainage system, or watercourses.
- Melting tanks should be loaded with care and not filled to beyond six inches from the top to leave room for splashing.
- When servicing or filling melting tanks, ensure all pressure is released before removing lids to avoid spills.
- On large-scale projects, use mechanical or manual methods to collect excess bituminous material from the roadway after removal of markers.

Costs

- All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of paving and grinding operations.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Sample stormwater runoff required by the General Permit.
- Keep ample supplies of drip pans or absorbent materials onsite.
- Inspect and maintain machinery regularly to minimize leaks and drips.

References

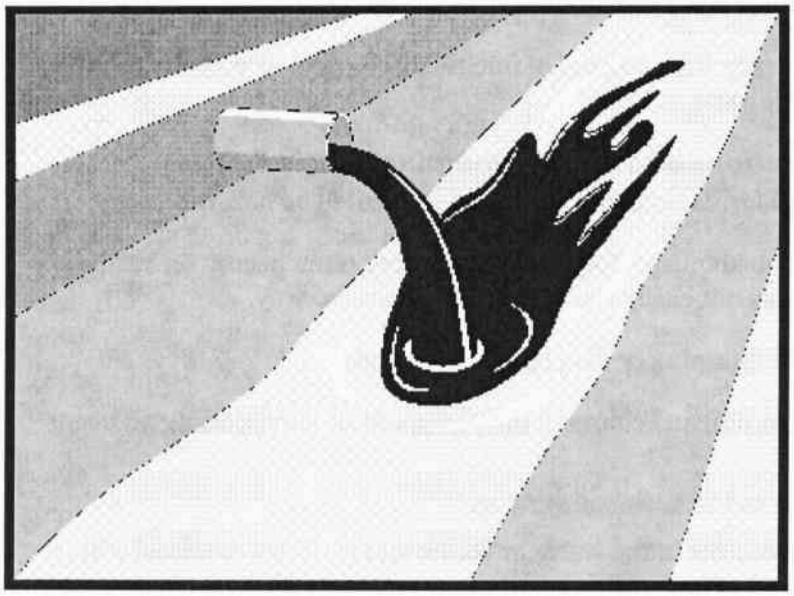
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Hot Mix Asphalt-Paving Handbook AC 150/5370-14, Appendix I, U.S. Army Corps of Engineers, July 1991.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

Illicit Connection/Discharge NS-6



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

Description and Purpose

Procedures and practices designed for construction contractors to recognize illicit connections or illegally dumped or discharged materials on a construction site and report incidents.

Suitable Applications

This best management practice (BMP) applies to all construction projects. Illicit connection/discharge and reporting is applicable anytime an illicit connection or discharge is discovered or illegally dumped material is found on the construction site.

Limitations

Illicit connections and illegal discharges or dumping, for the purposes of this BMP, refer to discharges and dumping caused by parties other than the contractor. If pre-existing hazardous materials or wastes are known to exist onsite, they should be identified in the SWPPP and handled as set forth in the SWPPP.

Implementation

Planning

- Review the SWPPP. Pre-existing areas of contamination should be identified and documented in the SWPPP.
- Inspect site before beginning the job for evidence of illicit connections, illegal dumping or discharges. Document any pre-existing conditions and notify the owner.
- Inspect site regularly during project execution for evidence

of illicit connections, illegal dumping or discharges.

- Observe site perimeter for evidence for potential of illicitly discharged or illegally dumped material, which may enter the job site.

Identification of Illicit Connections and Illegal Dumping or Discharges

- **General** – unlabeled and unidentifiable material should be treated as hazardous.
- **Solids** - Look for debris, or rubbish piles. Solid waste dumping often occurs on roadways with light traffic loads or in areas not easily visible from the traveled way.
- **Liquids** - signs of illegal liquid dumping or discharge can include:
  - Visible signs of staining or unusual colors to the pavement or surrounding adjacent soils
  - Pungent odors coming from the drainage systems
  - Discoloration or oily substances in the water or stains and residues detained within ditches, channels or drain boxes
  - Abnormal water flow during the dry weather season
- **Urban Areas** - Evidence of illicit connections or illegal discharges is typically detected at storm drain outfall locations or at manholes. Signs of an illicit connection or illegal discharge can include:
  - Abnormal water flow during the dry weather season
  - Unusual flows in sub drain systems used for dewatering
  - Pungent odors coming from the drainage systems
  - Discoloration or oily substances in the water or stains and residues detained within ditches, channels or drain boxes
  - Excessive sediment deposits, particularly adjacent to or near active offsite construction projects
- **Rural Areas** - Illicit connections or illegal discharges involving irrigation drainage ditches are detected by visual inspections. Signs of an illicit discharge can include:
  - Abnormal water flow during the non-irrigation season
  - Non-standard junction structures
  - Broken concrete or other disturbances at or near junction structures

Reporting

Notify the owner of any illicit connections and illegal dumping or discharge incidents at the time of discovery. For illicit connections or discharges to the storm drain system, notify the local stormwater management agency. For illegal dumping, notify the local law enforcement agency.

Cleanup and Removal

The responsibility for cleanup and removal of illicit or illegal dumping or discharges will vary by location. Contact the local stormwater management agency for further information.

Costs

Costs to look for and report illicit connections and illegal discharges and dumping are low. The best way to avoid costs associated with illicit connections and illegal discharges and dumping is to keep the project perimeters secure to prevent access to the site, to observe the site for vehicles that should not be there, and to document any waste or hazardous materials that exist onsite before taking possession of the site.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.

- Inspect the site regularly to check for any illegal dumping or discharge.

- Prohibit employees and subcontractors from disposing of non-job related debris or materials at the construction site.

- Notify the owner of any illicit connections and illegal dumping or discharge incidents at the time of discovery.

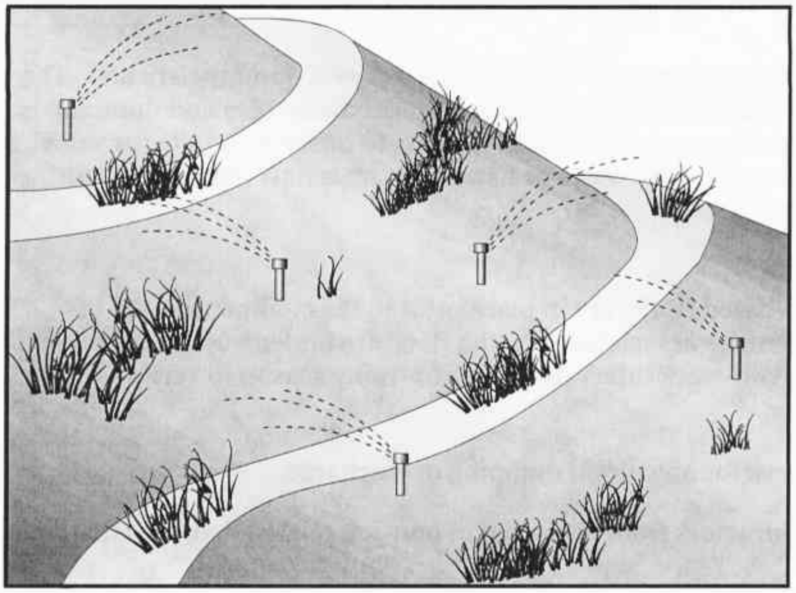
References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Potable Water/Irrigation NS-7



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	
Metals	☑
Bacteria	
Oil and Grease	
Organics	☑

Potential Alternatives

None

Description and Purpose

Potable Water/Irrigation consists of practices and procedures to manage the discharge of potential pollutants generated during discharges from irrigation water lines, landscape irrigation, lawn or garden watering, planned and unplanned discharges from potable water sources, water line flushing, and hydrant flushing.

Suitable Applications

Implement this BMP whenever potable water or irrigation water discharges occur at or enter a construction site.

Limitations

None identified.

Implementation

- Direct water from offsite sources around or through a construction site, where feasible, in a way that minimizes contact with the construction site.

- Discharges from water line flushing should be reused for landscaping purposes where feasible.

- Shut off the water source to broken lines, sprinklers, or valves as soon as possible to prevent excess water flow.

- Protect downstream stormwater drainage systems and watercourses from water pumped or bailed from trenches excavated to repair water lines.

- Inspect irrigated areas within the construction limits for

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

excess watering. Adjust watering times and schedules to ensure that the appropriate amount of water is being used and to minimize runoff. Consider factors such as soil structure, grade, time of year, and type of plant material in determining the proper amounts of water for a specific area.

Costs

Cost to manage potable water and irrigation are low and generally considered to be a normal part of related activities.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Repair broken water lines as soon as possible.
- Inspect irrigated areas regularly for signs of erosion and/or discharge.

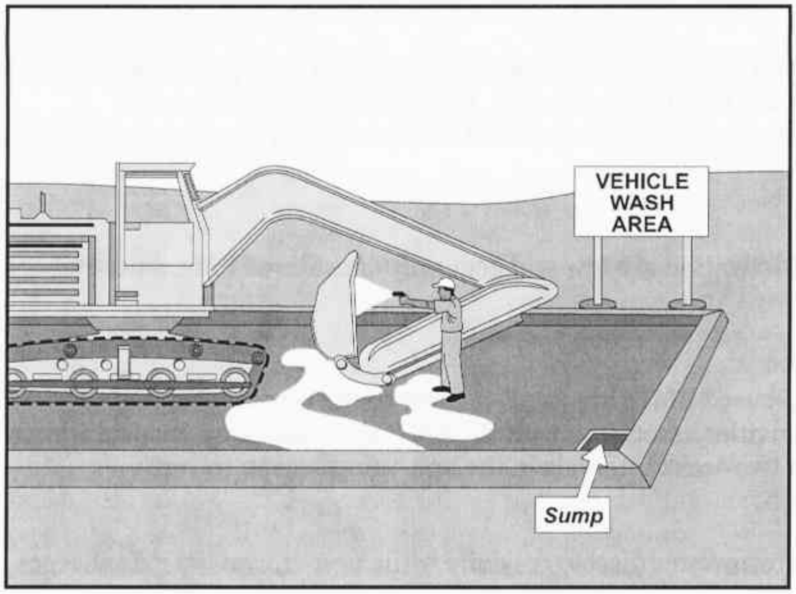
References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Vehicle and Equipment Cleaning NS-8



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Vehicle and equipment cleaning procedures and practices eliminate or reduce the discharge of pollutants to stormwater from vehicle and equipment cleaning operations. Procedures and practices include but are not limited to: using offsite facilities; washing in designated, contained areas only; eliminating discharges to the storm drain by infiltrating the wash water; and training employees and subcontractors in proper cleaning procedures.

Suitable Applications

These procedures are suitable on all construction sites where vehicle and equipment cleaning is performed.

Limitations

Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades. Sending vehicles/equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/Exit.

Implementation

Other options to washing equipment onsite include contracting with either an offsite or mobile commercial washing business. These businesses may be better equipped to handle and dispose of the wash waters properly. Performing this work offsite can also be economical by eliminating the need for a separate washing operation onsite.

If washing operations are to take place onsite, then:

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

- Use phosphate-free, biodegradable soaps.
- Educate employees and subcontractors on pollution prevention measures.
- Do not permit steam cleaning onsite. Steam cleaning can generate significant pollutant concentrates.
- Cleaning of vehicles and equipment with soap, solvents or steam should not occur on the project site unless resulting wastes are fully contained and disposed of. Resulting wastes should not be discharged or buried, and must be captured and recycled or disposed according to the requirements of WM-10, Liquid Waste Management or WM-6, Hazardous Waste Management, depending on the waste characteristics. Minimize use of solvents. Use of diesel for vehicle and equipment cleaning is prohibited.
- All vehicles and equipment that regularly enter and leave the construction site must be cleaned offsite.
- When vehicle and equipment washing and cleaning must occur onsite, and the operation cannot be located within a structure or building equipped with appropriate disposal facilities, the outside cleaning area should have the following characteristics:
  - Located away from storm drain inlets, drainage facilities, or watercourses
  - Paved with concrete or asphalt and bermed to contain wash waters and to prevent runon and runoff
  - Configured with a sump to allow collection and disposal of wash water
  - No discharge of wash waters to storm drains or watercourses
  - Used only when necessary
- When cleaning vehicles and equipment with water:
  - Use as little water as possible. High-pressure sprayers may use less water than a hose and should be considered
  - Use positive shutoff valve to minimize water usage
  - Facility wash racks should discharge to a sanitary sewer, recycle system or other approved discharge system and must not discharge to the storm drainage system, watercourses, or to groundwater

Costs

Cleaning vehicles and equipment at an offsite facility may reduce overall costs for vehicle and equipment cleaning by eliminating the need to provide similar services onsite. When onsite cleaning is needed, the cost to establish appropriate facilities is relatively low on larger, long-duration projects, and moderate to high on small, short-duration projects.

Inspection and Maintenance

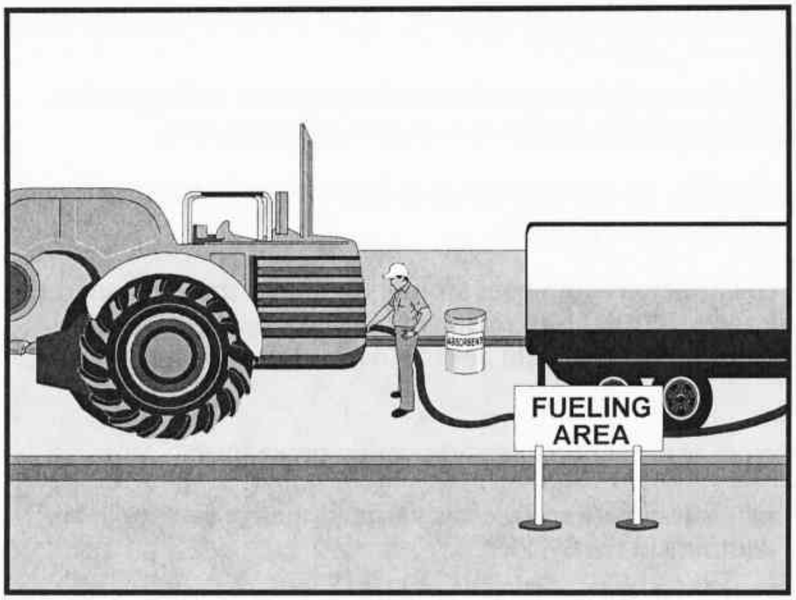
- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Inspection and maintenance is minimal, although some berm repair may be necessary.
- Monitor employees and subcontractors throughout the duration of the construction project to ensure appropriate practices are being implemented.
- Inspect sump regularly and remove liquids and sediment as needed.
- Prohibit employees and subcontractors from washing personal vehicles and equipment on the construction site.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Swisher, R.D. Surfactant Biodegradation, Marcel Decker Corporation, 1987.

Vehicle and Equipment Fueling NS-9



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

Description and Purpose

Vehicle equipment fueling procedures and practices are designed to prevent fuel spills and leaks, and reduce or eliminate contamination of stormwater. This can be accomplished by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors in proper fueling procedures.

Suitable Applications

These procedures are suitable on all construction sites where vehicle and equipment fueling takes place.

Limitations

Onsite vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite for fueling. Sending vehicles and equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/ Exit.

Implementation

- Use offsite fueling stations as much as possible. These businesses are better equipped to handle fuel and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate fueling area at a site.
- Discourage "topping-off" of fuel tanks.
- Absorbent spill cleanup materials and spill kits should be available in fueling areas and on fueling trucks, and should

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

be disposed of properly after use.

- Drip pans or absorbent pads should be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area.

- Use absorbent materials on small spills. Do not hose down or bury the spill. Remove the adsorbent materials promptly and dispose of properly.

- Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas. With the exception of tracked equipment such as bulldozers and large excavators, most vehicles should be able to travel to a designated area with little lost time.

- Train employees and subcontractors in proper fueling and cleanup procedures.

- When fueling must take place onsite, designate an area away from drainage courses to be used. Fueling areas should be identified in the SWPPP.

- Dedicated fueling areas should be protected from stormwater runon and runoff, and should be located at least 50 ft away from downstream drainage facilities and watercourses. Fueling must be performed on level-grade areas.

- Protect fueling areas with berms and dikes to prevent runon, runoff, and to contain spills.

- Nozzles used in vehicle and equipment fueling should be equipped with an automatic shutoff to control drips. Fueling operations should not be left unattended.

- Use vapor recovery nozzles to help control drips as well as air pollution where required by Air Quality Management Districts (AQMD).

- Federal, state, and local requirements should be observed for any stationary above ground storage tanks.

Costs

- All of the above measures are low cost except for the capital costs of above ground tanks that meet all local environmental, zoning, and fire codes.

Inspection and Maintenance

- Vehicles and equipment should be inspected each day of use for leaks. Leaks should be repaired immediately or problem vehicles or equipment should be removed from the project site.

- Keep ample supplies of spill cleanup materials onsite.

- Immediately clean up spills and properly dispose of contaminated soil and cleanup materials.

References

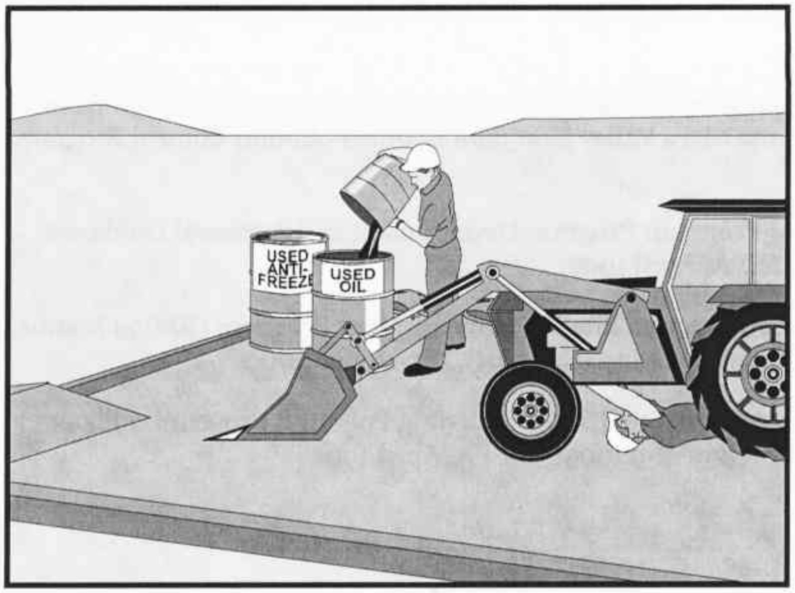
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Vehicle & Equipment Maintenance NS-10



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents	
Sediment	
Nutrients	☑
Trash	☑
Metals	
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Prevent or reduce the contamination of stormwater resulting from vehicle and equipment maintenance by running a "dry and clean site". The best option would be to perform maintenance activities at an offsite facility. If this option is not available then work should be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately. Employees and subcontractors must be trained in proper procedures.

Suitable Applications

These procedures are suitable on all construction projects where an onsite yard area is necessary for storage and maintenance of heavy equipment and vehicles.

Limitations

Onsite vehicle and equipment maintenance should only be used where it is impractical to send vehicles and equipment offsite for maintenance and repair. Sending vehicles/equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/Exit.

Outdoor vehicle or equipment maintenance is a potentially significant source of stormwater pollution. Activities that can contaminate stormwater include engine repair and service, changing or replacement of fluids, and outdoor equipment storage and parking (engine fluid leaks). For further information on vehicle or equipment servicing, see NS-8, Vehicle and Equipment Cleaning, and NS-9, Vehicle and

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

Equipment Fueling.

Implementation

- Use offsite repair shops as much as possible. These businesses are better equipped to handle vehicle fluids and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate maintenance area.
- If maintenance must occur onsite, use designated areas, located away from drainage courses. Dedicated maintenance areas should be protected from stormwater runon and runoff, and should be located at least 50 ft from downstream drainage facilities and watercourses.
- Drip pans or absorbent pads should be used during vehicle and equipment maintenance work that involves fluids, unless the maintenance work is performed over an impermeable surface in a dedicated maintenance area.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- All fueling trucks and fueling areas are required to have spill kits and/or use other spill protection devices.
- Use adsorbent materials on small spills. Remove the absorbent materials promptly and dispose of properly.
- Inspect onsite vehicles and equipment daily at startup for leaks, and repair immediately.
- Keep vehicles and equipment clean; do not allow excessive build-up of oil and grease.
- Segregate and recycle wastes, such as greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic and transmission fluids. Provide secondary containment and covers for these materials if stored onsite.
- Train employees and subcontractors in proper maintenance and spill cleanup procedures.
- Drip pans or plastic sheeting should be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is planned to be idle for more than 1 hour.
- For long-term projects, consider using portable tents or covers over maintenance areas if maintenance cannot be performed offsite.
- Consider use of new, alternative greases and lubricants, such as adhesive greases, for chassis lubrication and fifth-wheel lubrication.
- Properly dispose of used oils, fluids, lubricants, and spill cleanup materials.
- Do not place used oil in a dumpster or pour into a storm drain or watercourse.
- Properly dispose of or recycle used batteries.
- Do not bury used tires.

- Repair leaks of fluids and oil immediately.

Listed below is further information if you must perform vehicle or equipment maintenance onsite.

Safer Alternative Products

- Consider products that are less toxic or hazardous than regular products. These products are often sold under an "environmentally friendly" label.

- Consider use of grease substitutes for lubrication of truck fifth-wheels. Follow manufacturers label for details on specific uses.

- Consider use of plastic friction plates on truck fifth-wheels in lieu of grease. Follow manufacturers label for details on specific uses.

Waste Reduction

Parts are often cleaned using solvents such as trichloroethylene, trichloroethane, or methylene chloride. Many of these cleaners are listed in California Toxic Rule as priority pollutants. These materials are harmful and must not contaminate stormwater. They must be disposed of as a hazardous waste. Reducing the number of solvents makes recycling easier and reduces hazardous waste management costs. Often, one solvent can perform a job as well as two different solvents. Also, if possible, eliminate or reduce the amount of hazardous materials and waste by substituting non-hazardous or less hazardous materials. For example, replace chlorinated organic solvents with non-chlorinated solvents. Non-chlorinated solvents like kerosene or mineral spirits are less toxic and less expensive to dispose of properly. Check the list of active ingredients to see whether it contains chlorinated solvents. The "chlor" term indicates that the solvent is chlorinated. Also, try substituting a wire brush for solvents to clean parts.

Recycling and Disposal

Separating wastes allows for easier recycling and may reduce disposal costs. Keep hazardous wastes separate, do not mix used oil solvents, and keep chlorinated solvents (like,-trichloroethane) separate from non-chlorinated solvents (like kerosene and mineral spirits). Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around. Provide cover and secondary containment until these materials can be removed from the site.

Oil filters can be recycled. Ask your oil supplier or recycler about recycling oil filters.

Do not dispose of extra paints and coatings by dumping liquid onto the ground or throwing it into dumpsters. Allow coatings to dry or harden before disposal into covered dumpsters.

Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries, even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Costs

All of the above are low cost measures. Higher costs are incurred to setup and maintain onsite maintenance areas.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Keep ample supplies of spill cleanup materials onsite.
- Maintain waste fluid containers in leak proof condition.
- Vehicles and equipment should be inspected on each day of use. Leaks should be repaired immediately or the problem vehicle(s) or equipment should be removed from the project site.
- Inspect equipment for damaged hoses and leaky gaskets routinely. Repair or replace as needed.

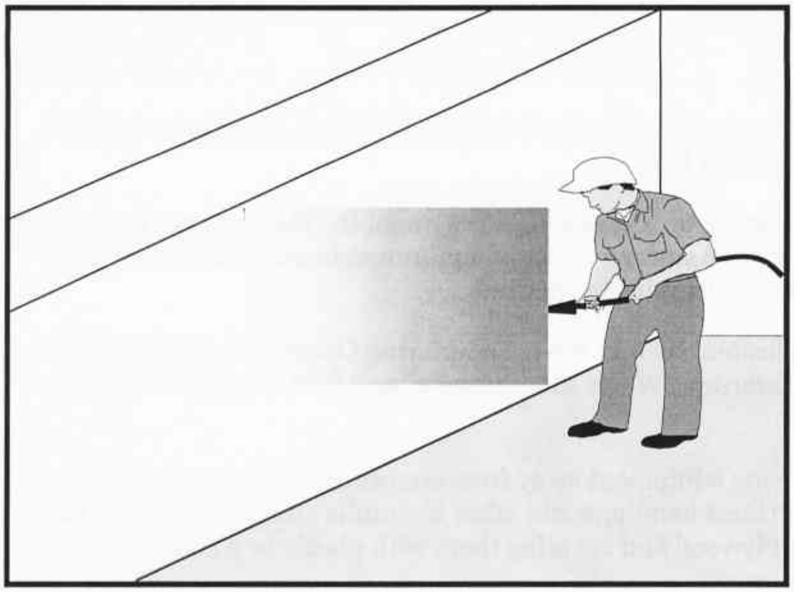
References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program; Program Development and Approval Guidance, Working Group, Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Concrete Curing NS-12



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

Description and Purpose

Concrete curing is used in the construction of structures such as bridges, retaining walls, pump houses, large slabs, and structured foundations. Concrete curing includes the use of both chemical and water methods.

Concrete and its associated curing materials have basic chemical properties that can raise the pH of water to levels outside of the permitted range. Discharges of stormwater and non-stormwater exposed to concrete during curing may have a high pH and may contain chemicals, metals, and fines. The General Permit incorporates Numeric Effluent Limits (NEL) and Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Proper procedures and care should be taken when managing concrete curing materials to prevent them from coming into contact with stormwater flows, which could result in a high pH discharge.

Suitable Applications

Suitable applications include all projects where Portland Cement Concrete (PCC) and concrete curing chemicals are placed where they can be exposed to rainfall, runoff from other areas, or where runoff from the PCC will leave the site.

Limitations

- Runoff contact with concrete waste can raise pH levels in the water to environmentally harmful levels and trigger permit violations.

Implementation

Chemical Curing

- Avoid over spray of curing compounds.
- Minimize the drift by applying the curing compound close to the concrete surface. Apply an amount of compound that covers the surface, but does not allow any runoff of the compound.
- Use proper storage and handling techniques for concrete curing compounds. Refer to WM-1, Material Delivery and Storage.
- Protect drain inlets prior to the application of curing compounds.
- Refer to WM-4, Spill Prevention and Control.

Water Curing for Bridge Decks, Retaining Walls, and other Structures

- Direct cure water away from inlets and watercourses to collection areas for evaporation or other means of removal in accordance with all applicable permits. See WM-8 Concrete Waste Management.
- Collect cure water at the top of slopes and transport to a concrete waste management area in a non-erosive manner. See EC-9 Earth Dikes and Drainage Swales, EC-10, Velocity Dissipation Devices, and EC-11, Slope Drains.
- Utilize wet blankets or a similar method that maintains moisture while minimizing the use and possible discharge of water.

Education

- Educate employees, subcontractors, and suppliers on proper concrete curing techniques to prevent contact with discharge as described herein.
- Arrange for the QSP or the appropriately trained contractor's superintendent or representative to oversee and enforce concrete curing procedures.

Costs

All of the above measures are generally low cost.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Sample non-stormwater discharges and stormwater runoff that contacts uncured and partially cured concrete as required by the General Permit.
- Ensure that employees and subcontractors implement appropriate measures for storage, handling, and use of curing compounds.
- Inspect cure containers and spraying equipment for leaks.

References

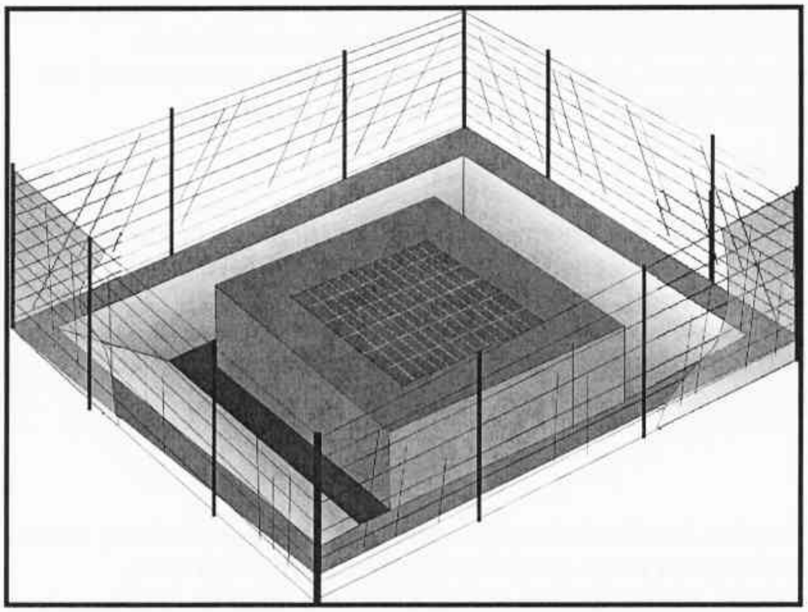
Blue Print for a Clean Bay-Construction-Related Industries: Best Management Practices for Stormwater Pollution Prevention; Santa Clara Valley Non Point Source Pollution Control Program, 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

Storm Drain Inlet Protection SE-10



Categories		
EC	Erosion Control	
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	☒
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence

SE-5 Fiber Rolls

SE-6 Gravel Bag Berm

SE-8 Sandbag Barrier

SE-14 Biofilter Bags

Description and Purpose

Storm drain inlet protection consists of a sediment filter or an impounding area in, around or upstream of a storm drain, drop inlet, or curb inlet. Storm drain inlet protection measures temporarily pond runoff before it enters the storm drain, allowing sediment to settle. Some filter configurations also remove sediment by filtering, but usually the ponding action results in the greatest sediment reduction. Temporary geotextile storm drain inserts attach underneath storm drain grates to capture and filter storm water.

Suitable Applications

Every storm drain inlet receiving runoff from unstabilized or otherwise active work areas should be protected. Inlet protection should be used in conjunction with other erosion and sediment controls to prevent sediment-laden stormwater and non-stormwater discharges from entering the storm drain system.

Limitations

- Drainage area should not exceed 1 acre.
- In general straw bales should not be used as inlet protection.
- Requires an adequate area for water to pond without encroaching into portions of the roadway subject to traffic.

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

- Sediment removal may be inadequate to prevent sediment discharges in high flow conditions or if runoff is heavily sediment laden. If high flow conditions are expected, use other onsite sediment trapping techniques in conjunction with inlet protection.
- Frequent maintenance is required.
- Limit drainage area to 1 acre maximum. For drainage areas larger than 1 acre, runoff should be routed to a sediment-trapping device designed for larger flows. See BMPs SE-2, Sediment Basin, and SE-3, Sediment Traps.
- Excavated drop inlet sediment traps are appropriate where relatively heavy flows are expected, and overflow capability is needed.

Implementation

General

Inlet control measures presented in this handbook should not be used for inlets draining more than one acre. Runoff from larger disturbed areas should be first routed through SE-2, Sediment Basin or SE-3, Sediment Trap and/or used in conjunction with other drainage control, erosion control, and sediment control BMPs to protect the site. Different types of inlet protection are appropriate for different applications depending on site conditions and the type of inlet. Alternative methods are available in addition to the methods described/shown herein such as prefabricated inlet insert devices, or gutter protection devices.

Design and Layout

Identify existing and planned storm drain inlets that have the potential to receive sediment-laden surface runoff. Determine if storm drain inlet protection is needed and which method to use.

- The key to successful and safe use of storm drain inlet protection devices is to know where runoff that is directed toward the inlet to be protected will pond or be diverted as a result of installing the protection device.
  - Determine the acceptable location and extent of ponding in the vicinity of the drain inlet. The acceptable location and extent of ponding will influence the type and design of the storm drain inlet protection device.
  - Determine the extent of potential runoff diversion caused by the storm drain inlet protection device. Runoff ponded by inlet protection devices may flow around the device and towards the next downstream inlet. In some cases, this is acceptable; in other cases, serious erosion or downstream property damage can be caused by these diversions. The possibility of runoff diversions will influence whether or not storm drain inlet protection is suitable; and, if suitable, the type and design of the device.
- The location and extent of ponding, and the extent of diversion, can usually be controlled through appropriate placement of the inlet protection device. In some cases, moving the inlet protection device a short distance upstream of the actual inlet can provide more efficient sediment control, limit ponding to desired areas, and prevent or control diversions.

- Six types of inlet protection are presented below. However, it is recognized that other effective methods and proprietary devices exist and may be selected.
  - Silt Fence: Appropriate for drainage basins with less than a 5% slope, sheet flows, and flows under 0.5 cfs.
  - Excavated Drop Inlet Sediment Trap: An excavated area around the inlet to trap sediment (SE-3).
  - Gravel bag barrier: Used to create a small sediment trap upstream of inlets on sloped, paved streets. Appropriate for sheet flow or when concentrated flow may exceed 0.5 cfs, and where overtopping is required to prevent flooding.
  - Block and Gravel Filter: Appropriate for flows greater than 0.5 cfs.
  - Temporary Geotextile Storm drain Inserts: Different products provide different features. Refer to manufacturer details for targeted pollutants and additional features.
  - Biofilter Bag Barrier: Used to create a small retention area upstream of inlets and can be located on pavement or soil. Biofilter bags slowly filter runoff allowing sediment to settle out. Appropriate for flows under 0.5 cfs.
- Select the appropriate type of inlet protection and design as referred to or as described in this fact sheet.
- Provide area around the inlet for water to pond without flooding structures and property.
- Grates and spaces around all inlets should be sealed to prevent seepage of sediment-laden water.
- Excavate sediment sumps (where needed) 1 to 2 ft with 2:1 side slopes around the inlet.

Installation

- ***DI Protection Type 1 - Silt Fence*** - Similar to constructing a silt fence; see BMP SE-1, Silt Fence. Do not place fabric underneath the inlet grate since the collected sediment may fall into the drain inlet when the fabric is removed or replaced and water flow through the grate will be blocked resulting in flooding. See typical Type 1 installation details at the end of this fact sheet.
  1. Excavate a trench approximately 6 in. wide and 6 in. deep along the line of the silt fence inlet protection device.
  2. Place 2 in. by 2 in. wooden stakes around the perimeter of the inlet a maximum of 3 ft apart and drive them at least 18 in. into the ground or 12 in. below the bottom of the trench. The stakes should be at least 48 in.
  3. Lay fabric along bottom of trench, up side of trench, and then up stakes. See SE-1, Silt Fence, for details. The maximum silt fence height around the inlet is 24 in.
  4. Staple the filter fabric (for materials and specifications, see SE-1, Silt Fence) to wooden stakes. Use heavy-duty wire staples at least 1 in. in length.

5. Backfill the trench with gravel or compacted earth all the way around.

- ***DI Protection Type 2 - Excavated Drop Inlet Sediment Trap*** - Install filter fabric fence in accordance with DI Protection Type 1. Size excavated trap to provide a minimum storage capacity calculated at the rate 67 yd^3/acre of drainage area. See typical Type 2 installation details at the end of this fact sheet.

- ***DI Protection Type 3 - Gravel bag*** - Flow from a severe storm should not overtop the curb. In areas of high clay and silts, use filter fabric and gravel as additional filter media. Construct gravel bags in accordance with SE-6, Gravel Bag Berm. Gravel bags should be used due to their high permeability. See typical Type 3 installation details at the end of this fact sheet.

1. Construct on gently sloping street.

2. Leave room upstream of barrier for water to pond and sediment to settle.

3. Place several layers of gravel bags – overlapping the bags and packing them tightly together.

4. Leave gap of one bag on the top row to serve as a spillway. Flow from a severe storm (e.g., 10 year storm) should not overtop the curb.

- ***DI Protection Type 4 – Block and Gravel Filter*** - Block and gravel filters are suitable for curb inlets commonly used in residential, commercial, and industrial construction. See typical Type 4 installation details at the end of this fact sheet.

1. Place hardware cloth or comparable wire mesh with 0.5 in. openings over the drop inlet so that the wire extends a minimum of 1 ft beyond each side of the inlet structure. If more than one strip is necessary, overlap the strips. Place woven geotextile over the wire mesh.

2. Place concrete blocks lengthwise on their sides in a single row around the perimeter of the inlet, so that the open ends face outward, not upward. The ends of adjacent blocks should abut. The height of the barrier can be varied, depending on design needs, by stacking combinations of blocks that are 4 in., 8 in., and 12 in. wide. The row of blocks should be at least 12 in. but no greater than 24 in. high.

3. Place wire mesh over the outside vertical face (open end) of the concrete blocks to prevent stone from being washed through the blocks. Use hardware cloth or comparable wire mesh with 0.5 in. opening.

4. Pile washed stone against the wire mesh to the top of the blocks. Use 0.75 to 3 in.

- ***DI Protection Type 5 – Temporary Geotextile Insert (proprietary)*** – Many types of temporary inserts are available. Most inserts fit underneath the grate of a drop inlet or inside of a curb inlet and are fastened to the outside of the grate or curb. These inserts are removable and many can be cleaned and reused. Installation of these inserts differs between manufacturers. Please refer to manufacturer instruction for installation of proprietary devices.

- ***DI Protection Type 6 - Biofilter bags*** – Biofilter bags may be used as a substitute for gravel bags in low-flow situations. Biofilter bags should conform to specifications detailed in SE-14, Biofilter bags.

    1. Construct in a gently sloping area.
    2. Biofilter bags should be placed around inlets to intercept runoff flows.
    3. All bag joints should overlap by 6 in.
    4. Leave room upstream for water to pond and for sediment to settle out.
    5. Stake bags to the ground as described in the following detail. Stakes may be omitted if bags are placed on a paved surface.

Costs

- Average annual cost for installation and maintenance of DI Type 1-4 and 6 (one year useful life) is $200 per inlet.
- Temporary geotextile inserts are proprietary and cost varies by region. These inserts can often be reused and may have greater than 1 year of use if maintained and kept undamaged. Average cost per insert ranges from $50-75 plus installation, but costs can exceed $100. This cost does not include maintenance.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Silt Fences. If the fabric becomes clogged, torn, or degrades, it should be replaced. Make sure the stakes are securely driven in the ground and are in good shape (i.e., not bent, cracked, or splintered, and are reasonably perpendicular to the ground). Replace damaged stakes. At a minimum, remove the sediment behind the fabric fence when accumulation reaches one-third the height of the fence or barrier height.
- Gravel Filters. If the gravel becomes clogged with sediment, it should be carefully removed from the inlet and either cleaned or replaced. Since cleaning gravel at a construction site may be difficult, consider using the sediment-laden stone as fill material and put fresh stone around the inlet. Inspect bags for holes, gashes, and snags, and replace bags as needed. Check gravel bags for proper arrangement and displacement.
- Sediment that accumulates in the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height.
- Inspect and maintain temporary geotextile insert devices according to manufacturer's specifications.
- Remove storm drain inlet protection once the drainage area is stabilized.

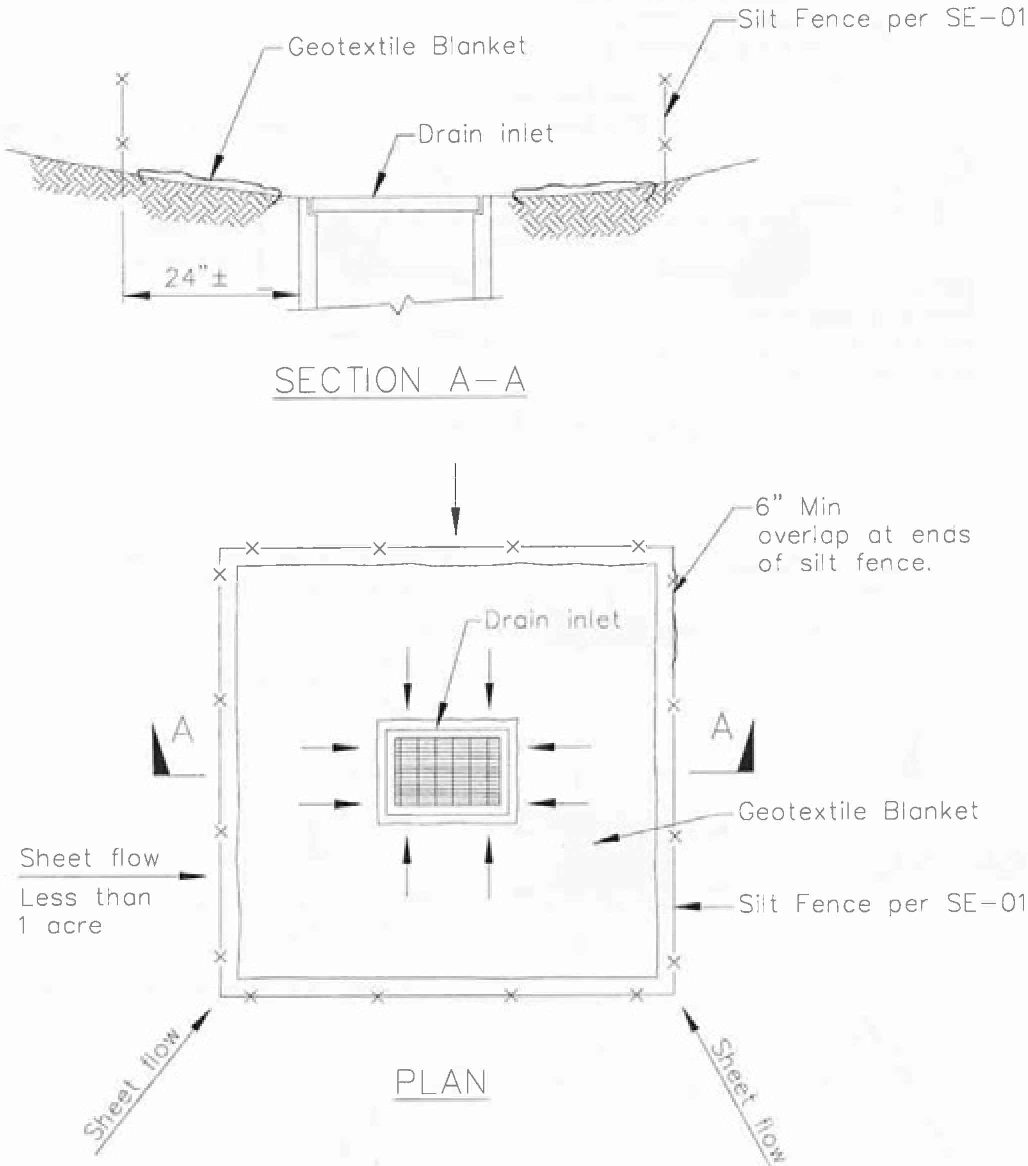
- Clean and regrade area around the inlet and clean the inside of the storm drain inlet, as it should be free of sediment and debris at the time of final inspection.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management Manual for The Puget Sound Basin, Washington State Department of Ecology, Public Review Draft, 1991.

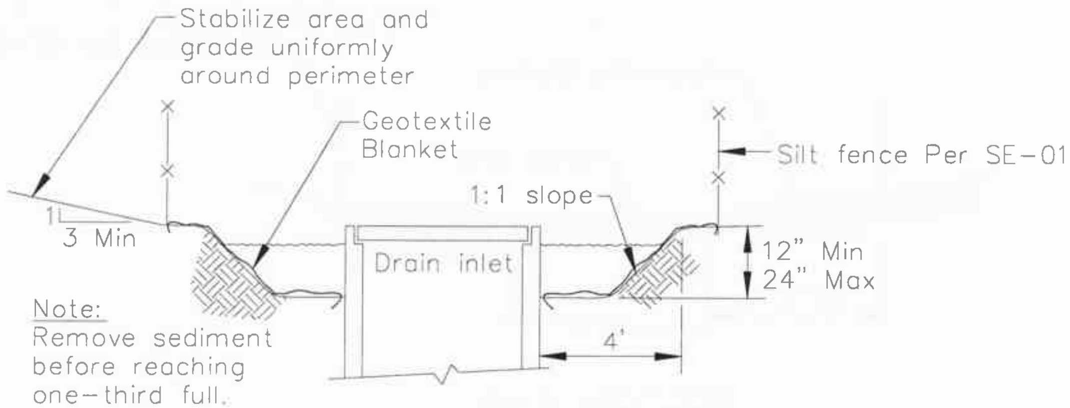
Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.



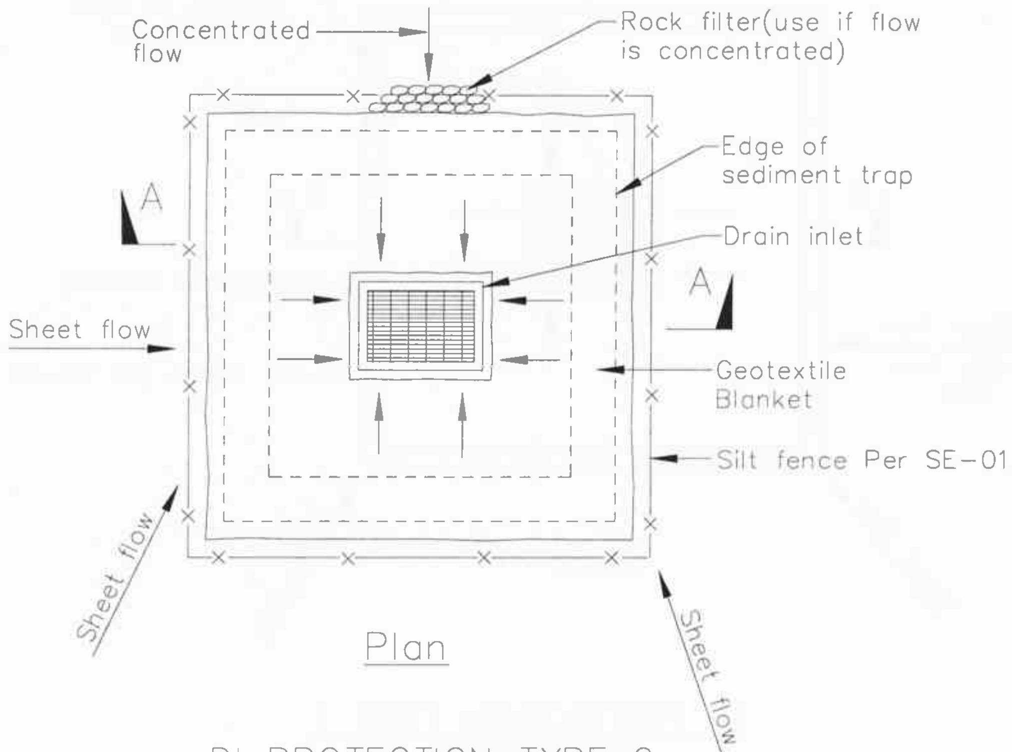
DI PROTECTION TYPE 1
NOT TO SCALE

NOTES:

1. For use in areas where grading has been completed and final soil stabilization and seeding are pending.
2. Not applicable in paved areas.
3. Not applicable with concentrated flows.



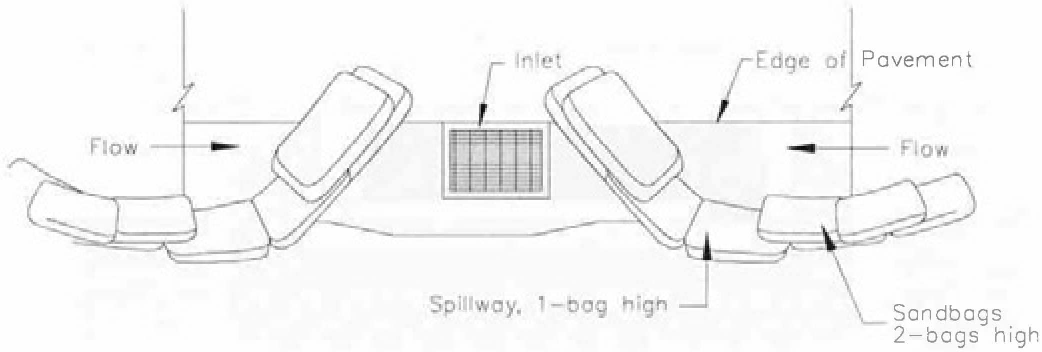
Section A–A



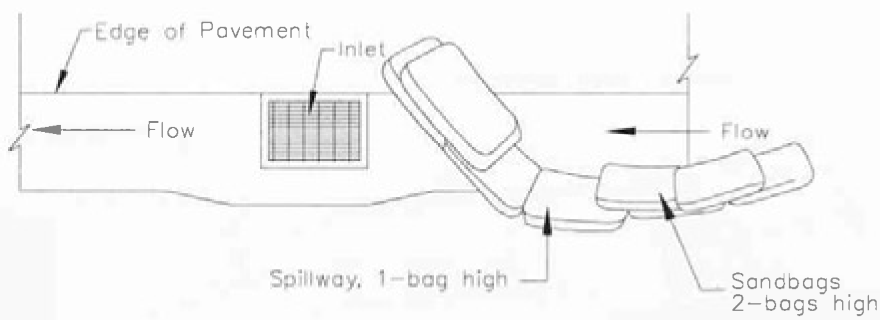
Plan

DI PROTECTION TYPE 2
NOT TO SCALE

Notes
1. For use in cleared and grubbed and in graded areas.
2. Shape basin so that longest inflow area faces longest length of trap.
3. For concentrated flows, shape basin in 2:1 ratio with length oriented towards direction of flow.



TYPICAL PROTECTION FOR INLET ON SUMP

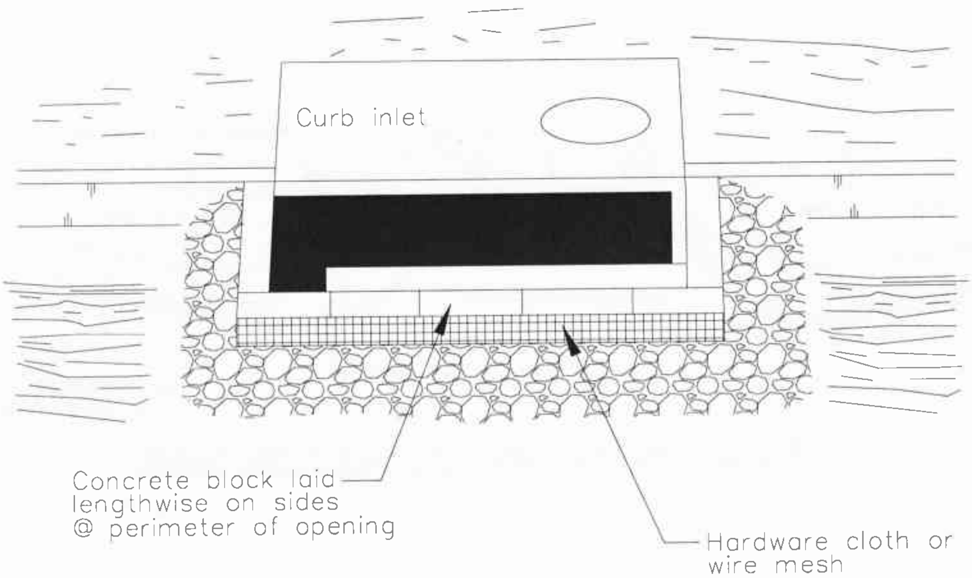


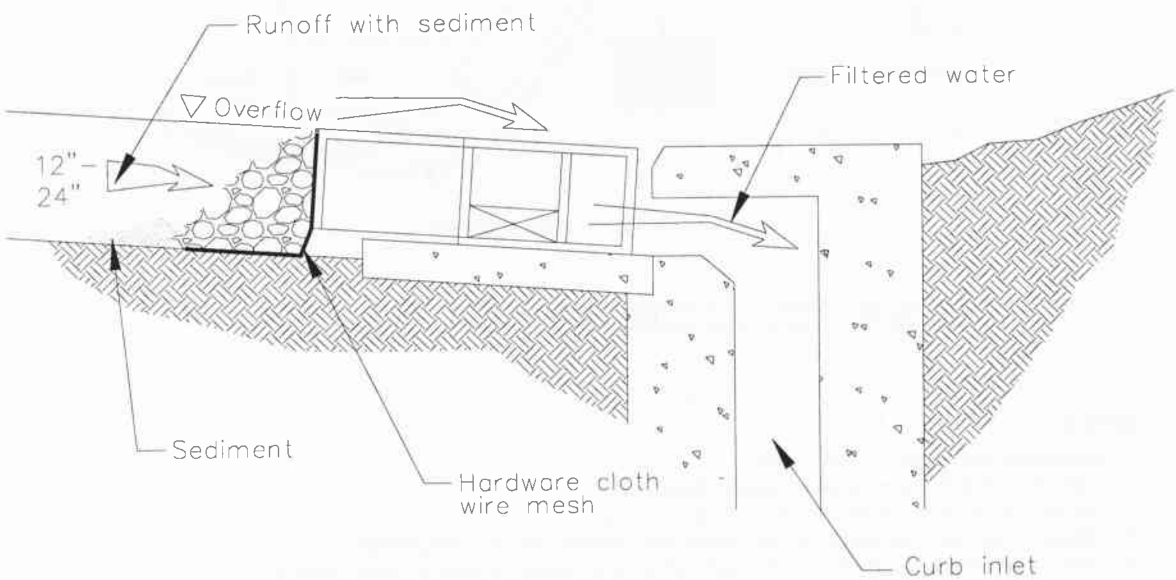
TYPICAL PROTECTION FOR INLET ON GRADE

NOTES:

1. Intended for short-term use.
2. Use to inhibit non-storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed
5. Not applicable in areas with high silts and clays without filter fabric.

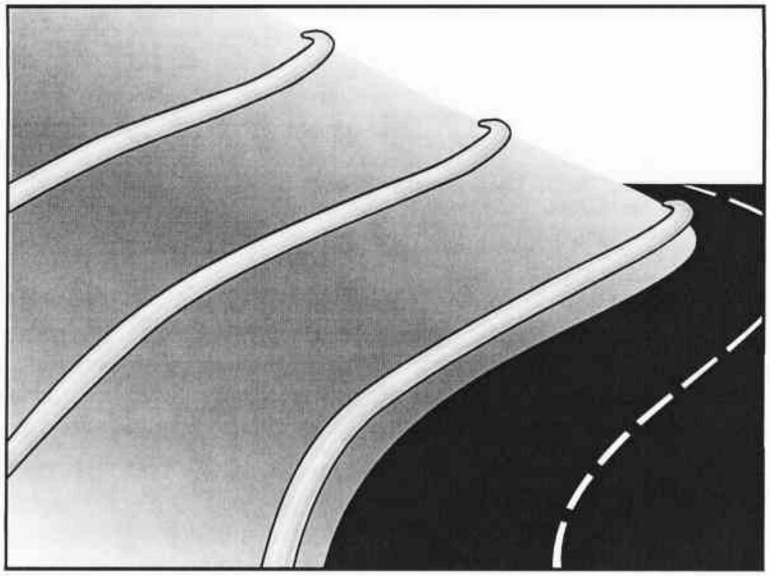
DI PROTECTION TYPE 3
NOT TO SCALE





DI PROTECTION – TYPE 4
NOT TO SCALE

Fiber Rolls SE-5



Categories

EC	Erosion Control	☒
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence

SE-6 Gravel Bag Berm

SE-8 Sandbag Barrier

SE-14 Biofilter Bags

Description and Purpose

A fiber roll consists of straw, coir, or other biodegradable materials bound into a tight tubular roll wrapped by netting, which can be photodegradable or natural. Additionally, gravel core fiber rolls are available, which contain an imbedded ballast material such as gravel or sand for additional weight when staking the rolls are not feasible (such as use as inlet protection). When fiber rolls are placed at the toe and on the face of slopes along the contours, they intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff (through sedimentation). By interrupting the length of a slope, fiber rolls can also reduce sheet and rill erosion until vegetation is established.

Suitable Applications

Fiber rolls may be suitable:

- Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.
- At the end of a downward slope where it transitions to a steeper slope.
- Along the perimeter of a project.
- As check dams in unlined ditches with minimal grade.
- Down-slope of exposed soil areas.
- At operational storm drains as a form of inlet protection.

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

- Around temporary stockpiles.

Limitations

- Fiber rolls are not effective unless trenched in and staked.
- Not intended for use in high flow situations.
- Difficult to move once saturated.
- If not properly staked and trenched in, fiber rolls could be transported by high flows.
- Fiber rolls have a very limited sediment capture zone.
- Fiber rolls should not be used on slopes subject to creep, slumping, or landslide.
- Rolls typically function for 12-24 months depending upon local conditions.

Implementation

Fiber Roll Materials

- Fiber rolls should be prefabricated.
- Fiber rolls may come manufactured containing polyacrylamide (PAM), a flocculating agent within the roll. Fiber rolls impregnated with PAM provide additional sediment removal capabilities and should be used in areas with fine, clayey or silty soils to provide additional sediment removal capabilities. Monitoring may be required for these installations.
- Fiber rolls are made from weed free rice straw, flax, or a similar agricultural material bound into a tight tubular roll by netting.
- Typical fiber rolls vary in diameter from 9 in. to 20 in. Larger diameter rolls are available as well.

Installation

- Locate fiber rolls on level contours spaced as follows:
  - Slope inclination of 4:1 (H:V) or flatter: Fiber rolls should be placed at a maximum interval of 20 ft.
  - Slope inclination between 4:1 and 2:1 (H:V): Fiber Rolls should be placed at a maximum interval of 15 ft. (a closer spacing is more effective).
  - Slope inclination 2:1 (H:V) or greater: Fiber Rolls should be placed at a maximum interval of 10 ft. (a closer spacing is more effective).
- Prepare the slope before beginning installation.
- Dig small trenches across the slope on the contour. The trench depth should be ¼ to 1/3 of the thickness of the roll, and the width should equal the roll diameter, in order to provide area to backfill the trench.

- It is critical that rolls are installed perpendicular to water movement, and parallel to the slope contour.
- Start building trenches and installing rolls from the bottom of the slope and work up.
- It is recommended that pilot holes be driven through the fiber roll. Use a straight bar to drive holes through the roll and into the soil for the wooden stakes.
- Turn the ends of the fiber roll up slope to prevent runoff from going around the roll.
- Stake fiber rolls into the trench.
  - Drive stakes at the end of each fiber roll and spaced 4 ft maximum on center.
  - Use wood stakes with a nominal classification of 0.75 by 0.75 in. and minimum length of 24 in.
- If more than one fiber roll is placed in a row, the rolls should be overlapped, not abutted.
- See typical fiber roll installation details at the end of this fact sheet.

Removal

- Fiber rolls can be left in place or removed depending on the type of fiber roll and application (temporary vs. permanent installation). Typically, fiber rolls encased with plastic netting are used for a temporary application because the netting does not biodegrade. Fiber rolls used in a permanent application are typically encased with a biodegradeable material and are left in place. Removal of a fiber roll used in a permanent application can result in greater disturbance.
- Temporary installations should only be removed when up gradient areas are stabilized per General Permit requirements, and/or pollutant sources no longer present a hazard. But, they should also be removed before vegetation becomes too mature so that the removal process does not disturb more soil and vegetation than is necessary.

Costs

Material costs for regular fiber rolls range from $20 - $30 per 25 ft roll.

Material costs for PAM impregnated fiber rolls range between 7.00-$9.00 per linear foot, based upon vendor research.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Repair or replace split, torn, unraveling, or slumping fiber rolls.
- If the fiber roll is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates in the BMP should be periodically removed

in order to maintain BMP effectiveness. Sediment should be removed when sediment accumulation reaches one-third the designated sediment storage depth.

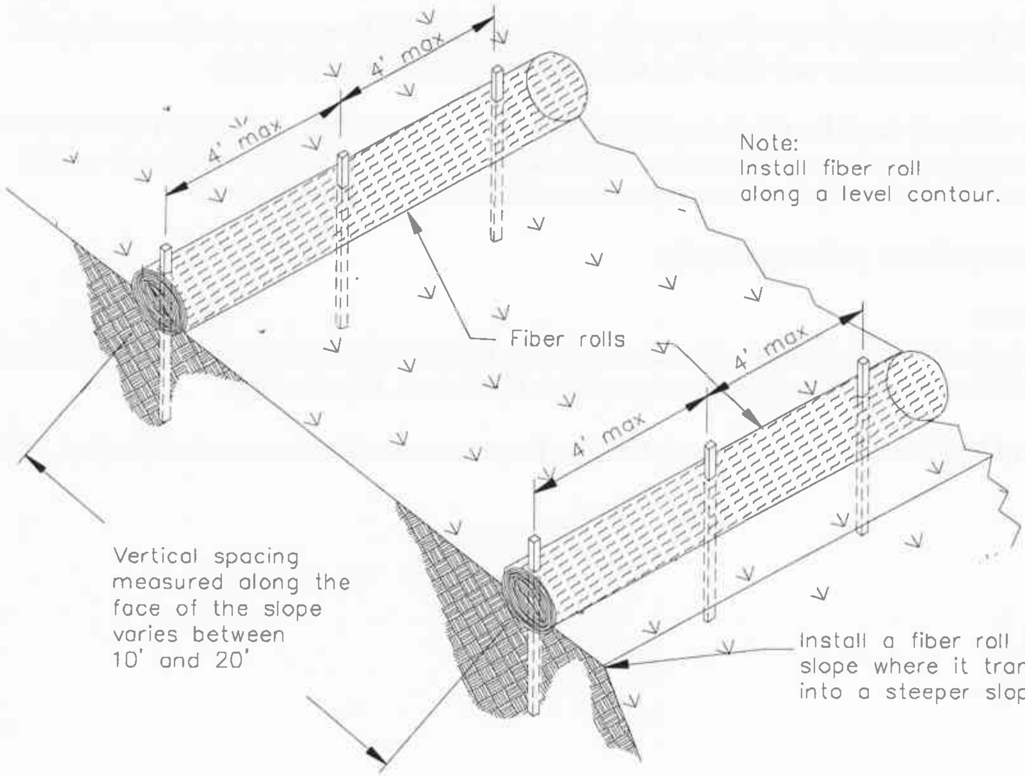
- If fiber rolls are used for erosion control, such as in a check dam, sediment removal should not be required as long as the system continues to control the grade. Sediment control BMPs will likely be required in conjunction with this type of application.

- Repair any rills or gullies promptly.

References

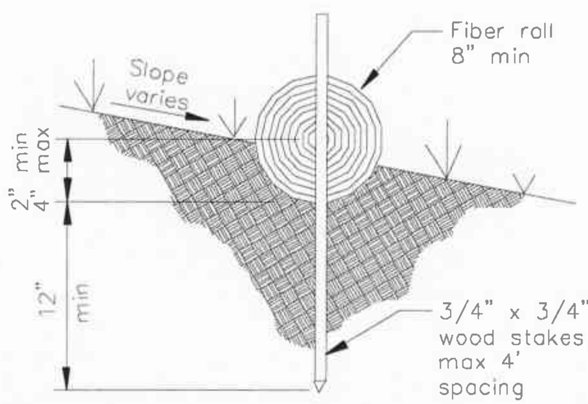
Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.



TYPICAL FIBER ROLL INSTALLATION

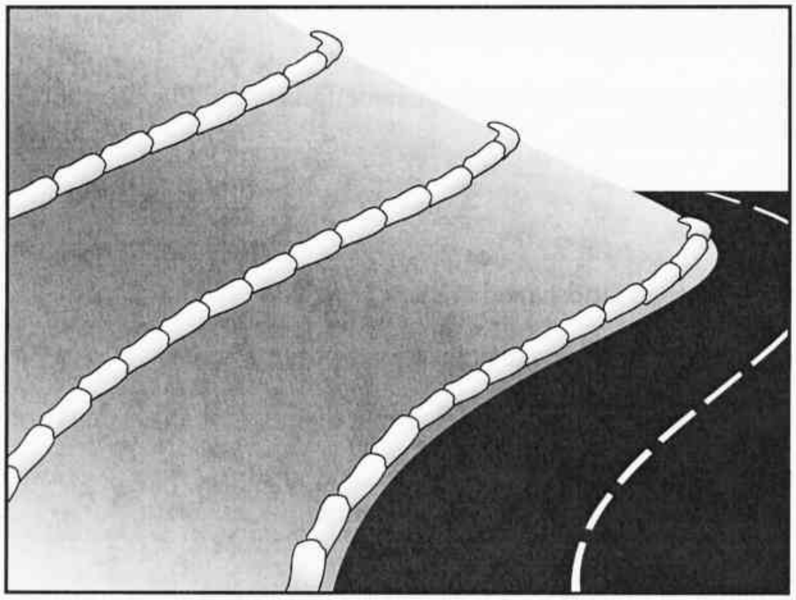
N.T.S.



ENTRENCHMENT DETAIL

N.T.S.

Gravel Bag Berm SE-6



Categories

EC	Erosion Control	☒
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Fiber Roll
SE-8 Sandbag Barrier
SE-14 Biofilter Bags

Description and Purpose

A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out, and release runoff slowly as sheet flow, preventing erosion.

Suitable Applications

Gravel bag berms may be suitable:

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes
  - As sediment traps at culvert/pipe outlets
  - Below other small cleared areas
  - Along the perimeter of a site
  - Down slope of exposed soil areas
  - Around temporary stockpiles and spoil areas
  - Parallel to a roadway to keep sediment off paved areas
  - Along streams and channels
- As a linear erosion control measure:
  - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

- At the top of slopes to divert runoff away from disturbed slopes.
- As chevrons (small check dams) across mildly sloped construction roads. For use check dam use in channels, see SE-4, Check Dams.

Limitations

- Gravel berms may be difficult to remove.
- Removal problems limit their usefulness in landscaped areas.
- Gravel bag berm may not be appropriate for drainage areas greater than 5 acres.
- Runoff will pond upstream of the berm, possibly causing flooding if sufficient space does not exist.
- Degraded gravel bags may rupture when removed, spilling contents.
- Installation can be labor intensive.
- Durability of gravel bags is somewhat limited and bags may need to be replaced when installation is required for longer than 6 months.
- Easily damaged by construction equipment.
- When used to detain concentrated flows, maintenance requirements increase.

Implementation

General

A gravel bag berm consists of a row of open graded gravel-filled bags placed on a level contour. When appropriately placed, a gravel bag berm intercepts and slows sheet flow runoff, causing temporary ponding. The temporary ponding allows sediment to settle. The open graded gravel in the bags is porous, which allows the ponded runoff to flow slowly through the bags, releasing the runoff as sheet flows. Gravel bag berms also interrupt the slope length and thereby reduce erosion by reducing the tendency of sheet flows to concentrate into rivulets, which erode rills, and ultimately gullies, into disturbed, sloped soils. Gravel bag berms are similar to sand bag barriers, but are more porous. Generally, gravel bag berms should be used in conjunction with temporary soil stabilization controls up slope to provide effective erosion and sediment control.

Design and Layout

- Locate gravel bag berms on level contours.
- When used for slope interruption, the following slope/sheet flow length combinations apply:
  - Slope inclination of 4:1 (H:V) or flatter: Gravel bags should be placed at a maximum interval of 20 ft, with the first row near the slope toe.
  - Slope inclination between 4:1 and 2:1 (H:V): Gravel bags should be placed at a maximum interval of 15 ft. (a closer spacing is more effective), with the first row near the slope toe.

Slope inclination 2:1 (H:V) or greater: Gravel bags should be placed at a maximum interval of 10 ft. (a closer spacing is more effective), with the first row near the slope toe.

- Turn the ends of the gravel bag barriers up slope to prevent runoff from going around the berm.
- Allow sufficient space up slope from the gravel bag berm to allow ponding, and to provide room for sediment storage.
- For installation near the toe of the slope, gravel bag barriers should be set back from the slope toe to facilitate cleaning. Where specific site conditions do not allow for a set-back, the gravel bag barrier may be constructed on the toe of the slope. To prevent flows behind the barrier, bags can be placed perpendicular to a berm to serve as cross barriers.
- Drainage area should not exceed 5 acres.
- In Non-Traffic Areas:
  - Height = 18 in. maximum
  - Top width = 24 in. minimum for three or more layer construction
  - Top width = 12 in. minimum for one or two layer construction
  - Side slopes = 2:1 (H:V) or flatter
- In Construction Traffic Areas:
  - Height = 12 in. maximum
  - Top width = 24 in. minimum for three or more layer construction.
  - Top width = 12 in. minimum for one or two layer construction.
  - Side slopes = 2:1 (H:V) or flatter.
- Butt ends of bags tightly.
- On multiple row, or multiple layer construction, overlap butt joints of adjacent row and row beneath.
- Use a pyramid approach when stacking bags.

Materials

- ***Bag Material:*** Bags should be woven polypropylene, polyethylene or polyamide fabric or burlap, minimum unit weight of 4 ounces/yd^2, Mullen burst strength exceeding 300 lb/in^2 in conformance with the requirements in ASTM designation D3786, and ultraviolet stability exceeding 70% in conformance with the requirements in ASTM designation D4355.

- ***Bag Size:*** Each gravel-filled bag should have a length of 18 in., width of 12 in., thickness of 3 in., and mass of approximately 33 lbs. Bag dimensions are nominal, and may vary based on locally available materials.

- ***Fill Material:*** Fill material should be 0.5 to 1 in. crushed rock, clean and free from clay, organic matter, and other deleterious material, or other suitable open graded, non-cohesive, porous gravel.

Costs

Material costs for gravel bags are average and are dependent upon material availability. $2.50-3.00 per filled gravel bag is standard based upon vendor research.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- Gravel bags exposed to sunlight will need to be replaced every two to three months due to degrading of the bags.

- Reshape or replace gravel bags as needed.

- Repair washouts or other damage as needed.

- Sediment that accumulates in the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height.

- Remove gravel bag berms when no longer needed and recycle gravel fill whenever possible and properly dispose of bag material. Remove sediment accumulation and clean, re-grade, and stabilize the area.

References

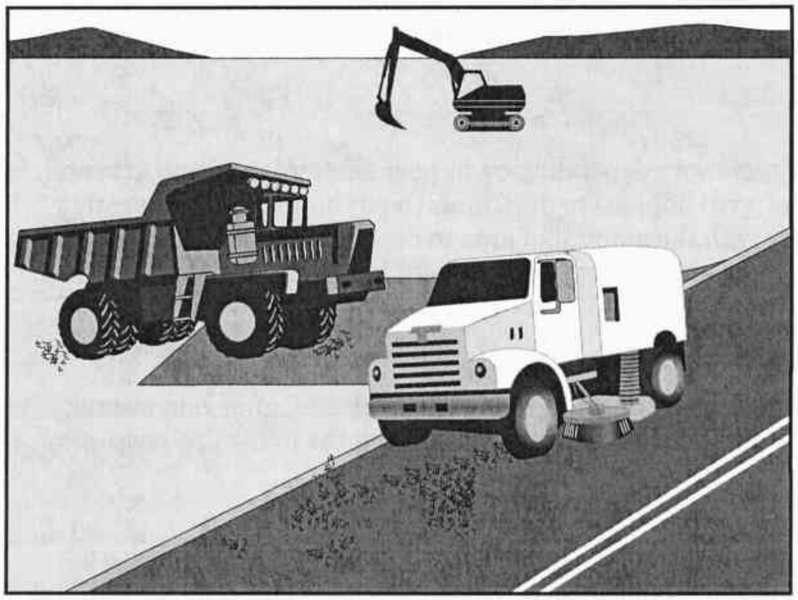
Handbook of Steel Drainage and Highway Construction, American Iron and Steel Institute, 1983.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Pollution Plan Handbook, First Edition, State of California, Department of Transportation Division of New Technology, Materials and Research, October 1992.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

Street Sweeping and Vacuuming SE-7



Categories		
EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

Description and Purpose

Street sweeping and vacuuming includes use of self-propelled and walk-behind equipment to remove sediment from streets and roadways, and to clean paved surfaces in preparation for final paving. Sweeping and vacuuming prevents sediment from the project site from entering storm drains or receiving waters.

Suitable Applications

Sweeping and vacuuming are suitable anywhere sediment is tracked from the project site onto public or private paved streets and roads, typically at points of egress. Sweeping and vacuuming are also applicable during preparation of paved surfaces for final paving.

Limitations

Sweeping and vacuuming may not be effective when sediment is wet or when tracked soil is caked (caked soil may need to be scraped loose).

Implementation

- Controlling the number of points where vehicles can leave the site will allow sweeping and vacuuming efforts to be focused, and perhaps save money.
- Inspect potential sediment tracking locations daily.
- Visible sediment tracking should be swept or vacuumed on a daily basis.
- Do not use kick brooms or sweeper attachments. These tend to spread the dirt rather than remove it.

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

- If not mixed with debris or trash, consider incorporating the removed sediment back into the project

Costs

Rental rates for self-propelled sweepers vary depending on hopper size and duration of rental. Expect rental rates from $58/hour (3 yd^3 hopper) to $88/hour (9 yd^3 hopper), plus operator costs. Hourly production rates vary with the amount of area to be swept and amount of sediment. Match the hopper size to the area and expect sediment load to minimize time spent dumping.

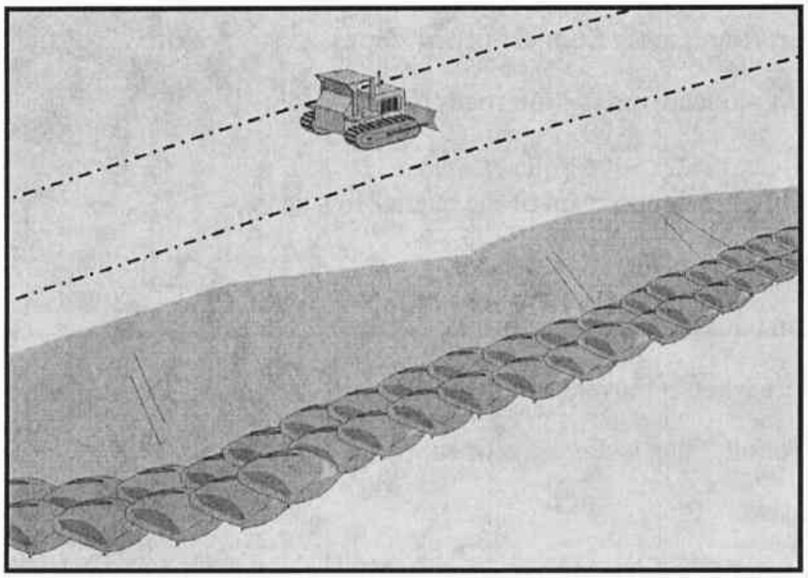
Inspection and Maintenance

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- When actively in use, points of ingress and egress must be inspected daily.
- When tracked or spilled sediment is observed outside the construction limits, it must be removed at least daily. More frequent removal, even continuous removal, may be required in some jurisdictions.
- Be careful not to sweep up any unknown substance or any object that may be potentially hazardous.
- Adjust brooms frequently; maximize efficiency of sweeping operations.
- After sweeping is finished, properly dispose of sweeper wastes at an approved dumpsite.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Labor Surcharge and Equipment Rental Rates, State of California Department of Transportation (Caltrans), April 1, 2002 – March 31, 2003.



Categories

EC	Erosion Control	☒
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence

SE-5 Fiber Rolls

SE-6 Gravel Bag Berm

SE-14 Biofilter Bags

Description and Purpose

A sandbag barrier is a series of sand-filled bags placed on a level contour to intercept or to divert sheet flows. Sandbag barriers placed on a level contour pond sheet flow runoff, allowing sediment to settle out.

Suitable Applications

Sandbag barriers may be suitable:

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes.
  - As sediment traps at culvert/pipe outlets.
  - Below other small cleared areas.
  - Along the perimeter of a site.
  - Down slope of exposed soil areas.
  - Around temporary stockpiles and spoil areas.
  - Parallel to a roadway to keep sediment off paved areas.
  - Along streams and channels.
- As linear erosion control measure:
  - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

- At the top of slopes to divert runoff away from disturbed slopes.
- As check dams across mildly sloped construction roads.

Limitations

- It is necessary to limit the drainage area upstream of the barrier to 5 acres.
- Sandbags are not intended to be used as filtration devices.
- Easily damaged by construction equipment.
- Degraded sandbags may rupture when removed, spilling sand.
- Sand is easily transported by runoff if bag is damaged or ruptured.
- Installation can be labor intensive.
- Durability of sandbags is somewhat limited and bags may need to be replaced when installation is required for longer than 6 months. When used to detain concentrated flows, maintenance requirements increase.
- Burlap should not be used for sandbags.

Implementation

General

A sandbag barrier consists of a row of sand-filled bags placed on a level contour. When appropriately placed, a sandbag barrier intercepts and slows sheet flow runoff, causing temporary ponding. The temporary ponding allows sediment to settle. Sand-filled bags have limited porosity, which is further limited as the fine sand tends to quickly plug with sediment, limiting or completely blocking the rate of flow through the barrier. If a porous barrier is desired, consider SE-1, Silt Fence, SE-5, Fiber Rolls, SE-6, Gravel Bag Berms or SE-14, Biofilter Bags. Sandbag barriers also interrupt the slope length and thereby reduce erosion by reducing the tendency of sheet flows to concentrate into rivulets which erode rills, and ultimately gullies, into disturbed, sloped soils. Sandbag barriers are similar to gravel bag berms, but less porous. Generally, sandbag barriers should be used in conjunction with temporary soil stabilization controls up slope to provide effective erosion and sediment control.

Design and Layout

- Locate sandbag barriers on a level contour.
- When used for slope interruption, the following slope/sheet flow length combinations apply:
  - Slope inclination of 4:1 (H:V) or flatter: Sandbags should be placed at a maximum interval of 20 ft, with the first row near the slope toe.
  - Slope inclination between 4:1 and 2:1 (H:V): Sandbags should be placed at a maximum interval of 15 ft. (a closer spacing is more effective), with the first row near the slope toe.

    Slope inclination 2:1 (H:V) or greater: Sandbags should be placed at a maximum interval of 10 ft. (a closer spacing is more effective), with the first row near the slope toe.

- Turn the ends of the sandbag barrier up slope to prevent runoff from going around the barrier.
- Allow sufficient space up slope from the barrier to allow ponding, and to provide room for sediment storage.
- For installation near the toe of the slope, sand bag barriers should be set back from the slope toe to facilitate cleaning. Where specific site conditions do not allow for a set-back, the sand bag barrier may be constructed on the toe of the slope. To prevent flows behind the barrier, bags can be placed perpendicular to a berm to serve as cross barriers.
- Drainage area should not exceed 5 acres.
- Stack sandbags at least three bags high.
- Butt ends of bags tightly.
- Overlap butt joints of row beneath with each successive row.
- Use a pyramid approach when stacking bags.
- In non-traffic areas
  - Height = 18 in. maximum
  - Top width = 24 in. minimum for three or more layer construction
  - Side slope = 2:1 (H:V) or flatter
- In construction traffic areas
  - Height = 12 in. maximum
  - Top width = 24 in. minimum for three or more layer construction.
  - Side slopes = 2:1 (H:V) or flatter.
- See typical sandbag barrier installation details at the end of this fact sheet.

Materials

- ***Sandbag Material:*** Sandbag should be woven polypropylene, polyethylene or polyamide fabric, minimum unit weight of 4 ounces/yd^2, Mullen burst strength exceeding 300 lb/in^2 in conformance with the requirements in ASTM designation D3786, and ultraviolet stability exceeding 70% in conformance with the requirements in ASTM designation D4355. Use of burlap is not an acceptable substitute, as sand can more easily mobilize out of burlap.
- ***Sandbag Size:*** Each sand-filled bag should have a length of 18 in., width of 12 in., thickness of 3 in., and mass of approximately 33 lbs. Bag dimensions are nominal, and may vary based on locally available materials.

- ***Fill Material:*** All sandbag fill material should be non-cohesive, Class 3 (Caltrans Standard Specification, Section 25) permeable material free from clay and deleterious material, such as recycled concrete or asphalt..

Costs

Empty sandbags cost $0.25 - $0.75. Average cost of fill material is $8 per yd³. Additional labor is required to fill the bags. Pre-filled sandbags are more expensive at $1.50 - $2.00 per bag. These costs are based upon vendor research.

Inspection and Maintenance

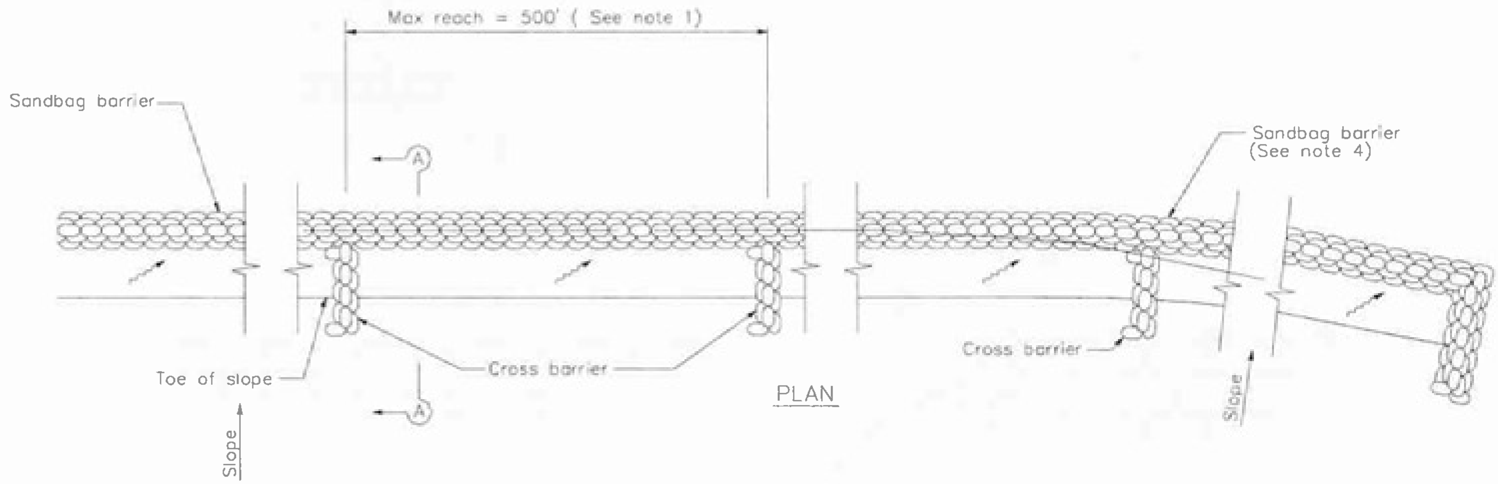
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Sandbags exposed to sunlight will need to be replaced every two to three months due to degradation of the bags.
- Reshape or replace sandbags as needed.
- Repair washouts or other damage as needed.
- Sediment that accumulates behind the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height.
- Remove sandbags when no longer needed and recycle sand fill whenever possible and properly dispose of bag material. Remove sediment accumulation, and clean, re-grade, and stabilize the area.

References

Standard Specifications for Construction of Local Streets and Roads, California Department of Transportation (Caltrans), July 2002.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

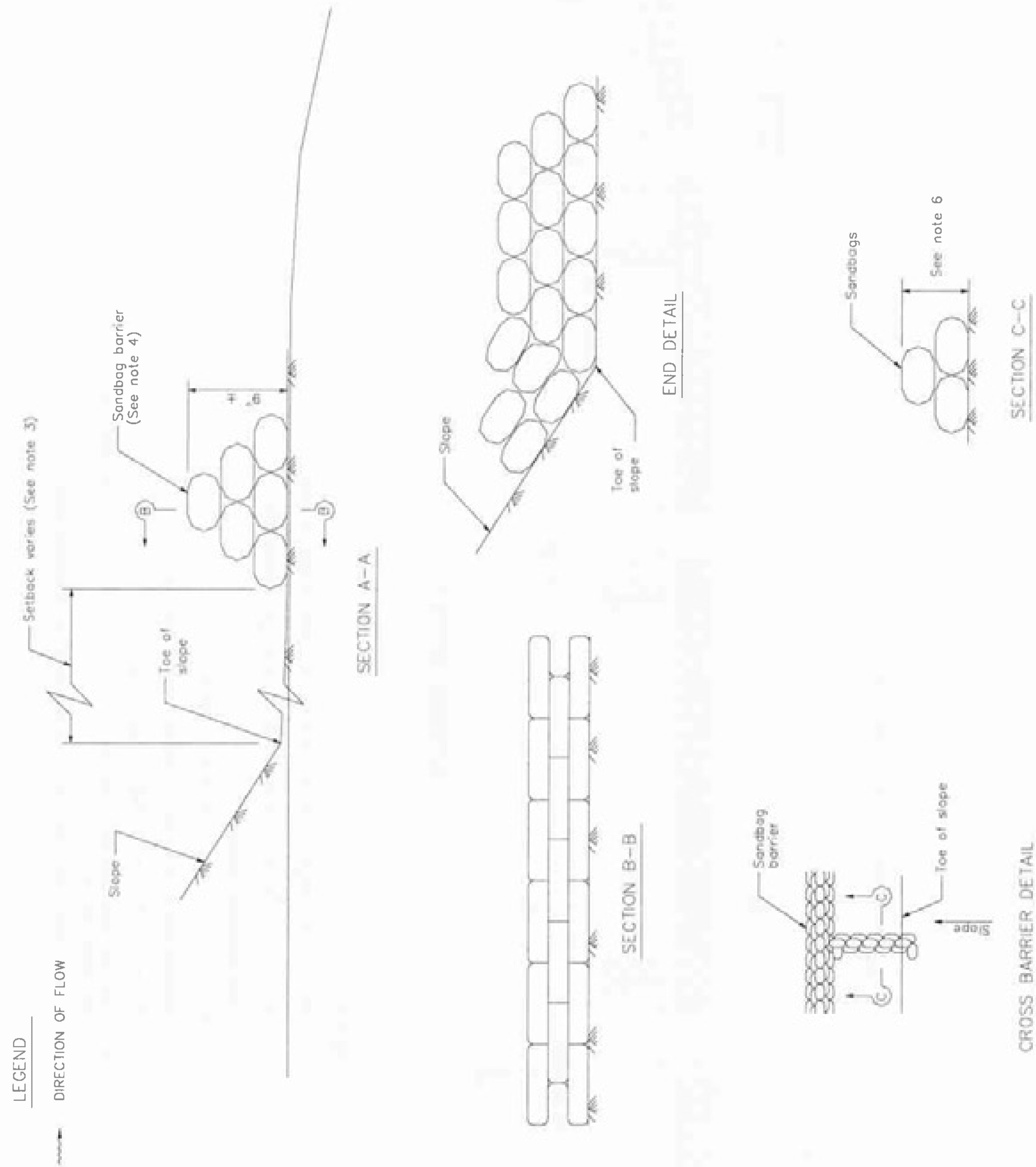
Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

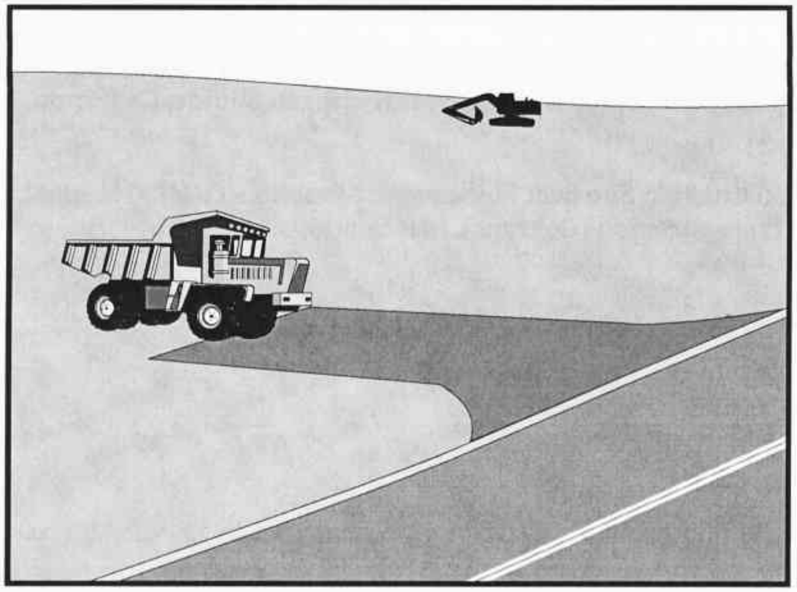


SANDBAG BARRIER

NOTES

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/2 the height of the linear barrier. In no case shall the reach length exceed 500'.
2. Place sandbags tightly.
3. Dimension may vary to fit field condition.
4. Sandbag barrier shall be a minimum of 3 bags high.
5. The end of the barrier shall be turned up slope.
6. Cross barriers shall be a min of 1/2 and a max of 2/3 the height of the linear barrier.
7. Sandbag rows and layers shall be staggered to eliminate gaps.


LEGEND
DIRECTION OF FLOW
Slope
Toe of slope
Setback varies (See note 3)
Sandbag barrier (See note 4)
9' ±
B
SECTION A-A
Slope
Toe of slope
END DETAIL
SECTION B-B
Sandbags
See note 6
SECTION C-C
Sandbag barrier
Toe of slope
Slope
C
CROSS BARRIER DETAIL



Categories

EC	Erosion Control	☒
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

Suitable Applications

Use at construction sites:

- Where dirt or mud can be tracked onto public roads.
- Adjacent to water bodies.
- Where poor soils are encountered.
- Where dust is a problem during dry weather conditions.

Limitations

- Entrances and exits require periodic top dressing with additional stones.
- This BMP should be used in conjunction with street sweeping on adjacent public right of way.
- Entrances and exits should be constructed on level ground only.
- Stabilized construction entrances are rather expensive to construct and when a wash rack is included, a sediment trap of some kind must also be provided to collect wash water

runoff.

Implementation

General

A stabilized construction entrance is a pad of aggregate underlain with filter cloth located at any point where traffic will be entering or leaving a construction site to or from a public right of way, street, alley, sidewalk, or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking of sediment onto public rights of way or streets. Reducing tracking of sediments and other pollutants onto paved roads helps prevent deposition of sediments into local storm drains and production of airborne dust.

Where traffic will be entering or leaving the construction site, a stabilized construction entrance should be used. NPDES permits require that appropriate measures be implemented to prevent tracking of sediments onto paved roadways, where a significant source of sediments is derived from mud and dirt carried out from unpaved roads and construction sites.

Stabilized construction entrances are moderately effective in removing sediment from equipment leaving a construction site. The entrance should be built on level ground. Advantages of the Stabilized Construction Entrance/Exit is that it does remove some sediment from equipment and serves to channel construction traffic in and out of the site at specified locations. Efficiency is greatly increased when a washing rack is included as part of a stabilized construction entrance/exit.

Design and Layout

- Construct on level ground where possible.
- Select 3 to 6 in. diameter stones.
- Use minimum depth of stones of 12 in. or as recommended by soils engineer.
- Construct length of 50 ft minimum, and 30 ft minimum width.
- Rumble racks constructed of steel panels with ridges and installed in the stabilized entrance/exit will help remove additional sediment and to keep adjacent streets clean.
- Provide ample turning radii as part of the entrance.
- Limit the points of entrance/exit to the construction site.
- Limit speed of vehicles to control dust.
- Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
- Route runoff from stabilized entrances/exits through a sediment trapping device before discharge.
- Design stabilized entrance/exit to support heaviest vehicles and equipment that will use it.

- Select construction access stabilization (aggregate, asphaltic concrete, concrete) based on longevity, required performance, and site conditions. Do not use asphalt concrete (AC) grindings for stabilized construction access/roadway.
- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 in. depth, or place aggregate to a depth recommended by a geotechnical engineer. A crushed aggregate greater than 3 in. but smaller than 6 in. should be used.
- Designate combination or single purpose entrances and exits to the construction site.
- Require that all employees, subcontractors, and suppliers utilize the stabilized construction access.
- Implement SE-7, Street Sweeping and Vacuuming, as needed.
- All exit locations intended to be used for more than a two-week period should have stabilized construction entrance/exit BMPs.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMPs are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect local roads adjacent to the site daily. Sweep or vacuum to remove visible accumulated sediment.
- Remove aggregate, separate and dispose of sediment if construction entrance/exit is clogged with sediment.
- Keep all temporary roadway ditches clear.
- Check for damage and repair as needed.
- Replace gravel material when surface voids are visible.
- Remove all sediment deposited on paved roadways within 24 hours.
- Remove gravel and filter fabric at completion of construction

Costs

Average annual cost for installation and maintenance may vary from $1,200 to $4,800 each, averaging $2,400 per entrance. Costs will increase with addition of washing rack, and sediment trap. With wash rack, costs range from $1,200 - $6,000 each, averaging $3,600 per entrance.

References

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas, USEPA Agency, 2002.

Proposed Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Work Group Working Paper, USEPA, April 1992.

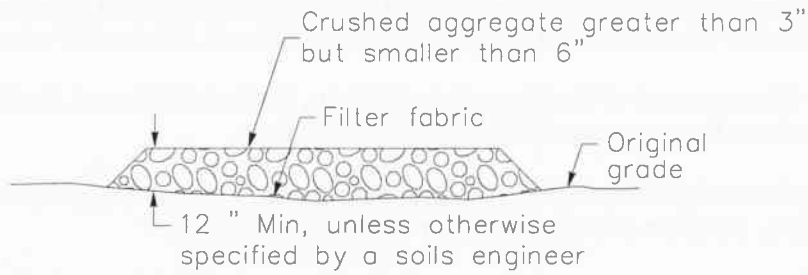
Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

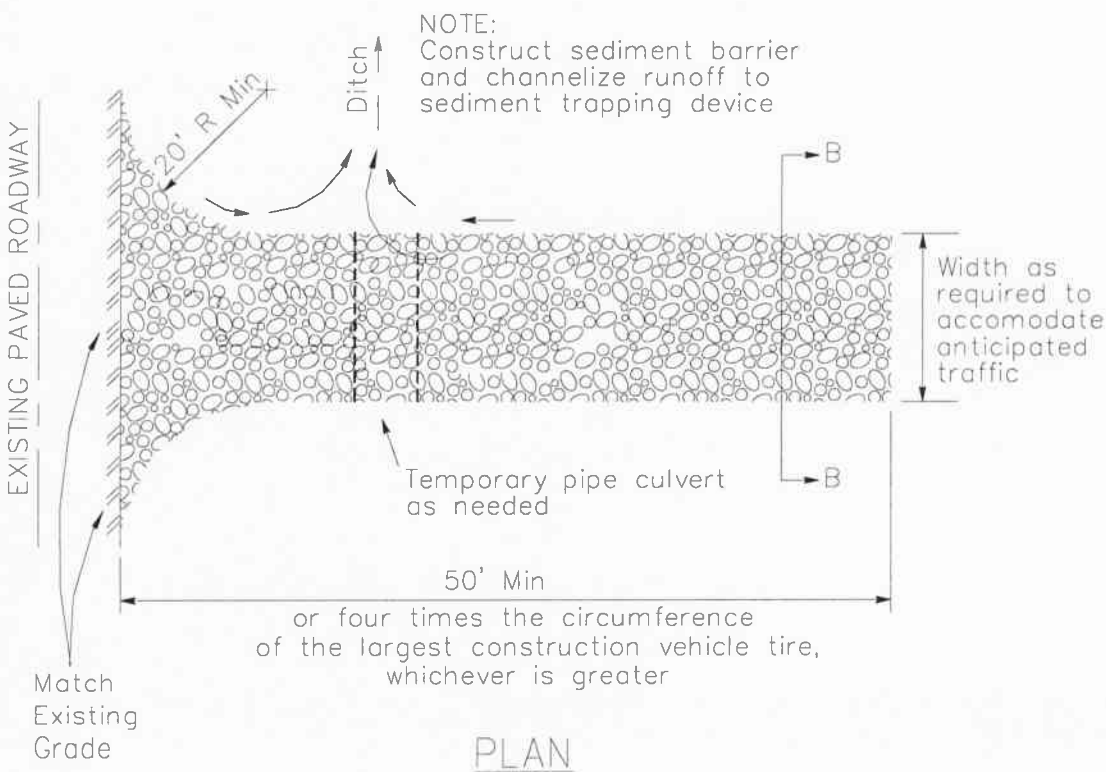
Virginia Erosion and Sedimentation Control Handbook, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation, 1991.

Guidance Specifying Management Measures for Nonpoint Pollution in Coastal Waters, EPA 840-B-9-002, USEPA, Office of Water, Washington, DC, 1993.

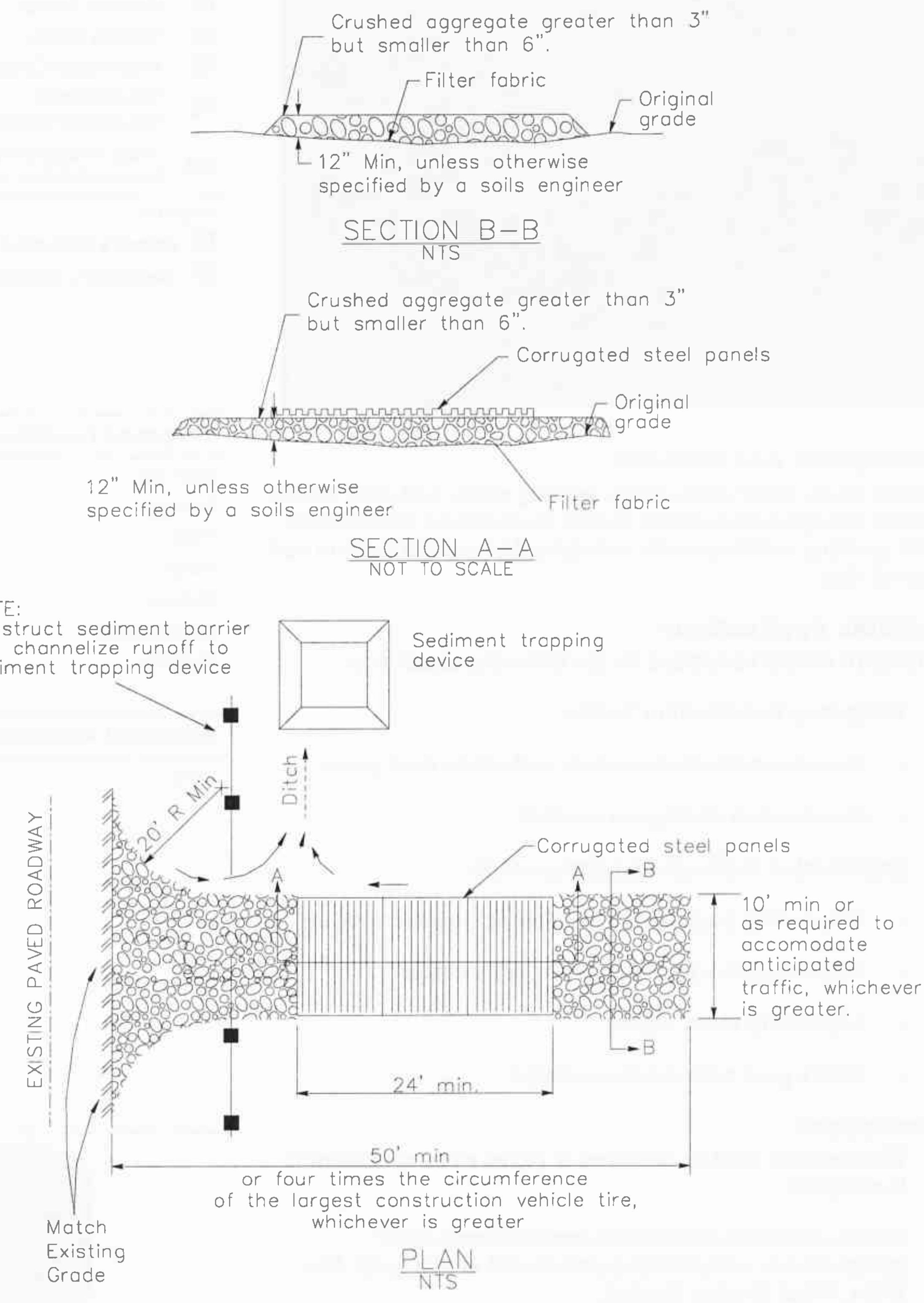
Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

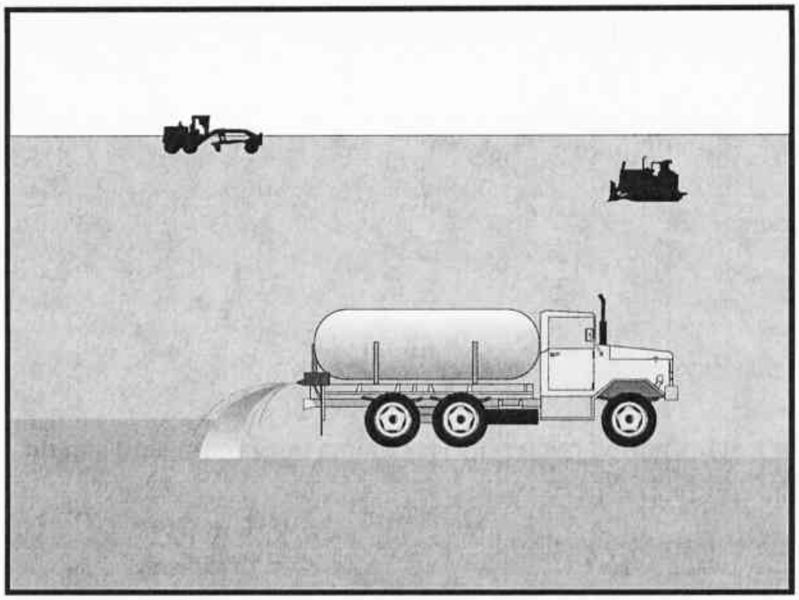


SECTION B–B
NTS



PLAN
NTS


Crushed aggregate greater than 3" but smaller than 6".
Filter fabric
Original grade
12" Min, unless otherwise specified by a soils engineer
SECTION B-B
NTS
Crushed aggregate greater than 3" but smaller than 6".
Corrugated steel panels
Original grade
12" Min, unless otherwise specified by a soils engineer
Filter fabric
SECTION A-A
NOT TO SCALE
NOTE:
Construct sediment barrier and channelize runoff to sediment trapping device
Sediment trapping device
Ditch
20' R Min
EXISTING PAVED ROADWAY
Corrugated steel panels
A
A
B
B
10' min or as required to accomodate anticipated traffic, whichever is greater.
24' min.
50' min
or four times the circumference of the largest construction vehicle tire, whichever is greater
Match Existing Grade
PLAN
NTS



Categories

EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	
WE	Wind Erosion Control	☑
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

EC-5 Soil Binders

Description and Purpose

Wind erosion or dust control consists of applying water or other chemical dust suppressants as necessary to prevent or alleviate dust nuisance generated by construction activities. Covering small stockpiles or areas is an alternative to applying water or other dust palliatives.

California's Mediterranean climate, with a short "wet" season and a typically long, hot "dry" season, allows the soils to thoroughly dry out. During the dry season, construction activities are at their peak, and disturbed and exposed areas are increasingly subject to wind erosion, sediment tracking and dust generated by construction equipment. Site conditions and climate can make dust control more of an erosion problem than water based erosion. Additionally, many local agencies, including Air Quality Management Districts, require dust control and/or dust control permits in order to comply with local nuisance laws, opacity laws (visibility impairment) and the requirements of the Clean Air Act. Wind erosion control is required to be implemented at all construction sites greater than 1 acre by the General Permit.

Suitable Applications

Most BMPs that provide protection against water-based erosion will also protect against wind-based erosion and dust control requirements required by other agencies will generally meet wind erosion control requirements for water quality protection. Wind erosion control BMPs are suitable during the following construction activities:

- Construction vehicle traffic on unpaved roads
- Drilling and blasting activities
- Soils and debris storage piles
- Batch drop from front-end loaders
- Areas with unstabilized soil
- Final grading/site stabilization

Limitations

- Watering prevents dust only for a short period (generally less than a few hours) and should be applied daily (or more often) to be effective.
- Over watering may cause erosion and track-out.
- Oil or oil-treated subgrade should not be used for dust control because the oil may migrate into drainageways and/or seep into the soil.
- Chemical dust suppression agents may have potential environmental impacts. Selected chemical dust control agents should be environmentally benign.
- Effectiveness of controls depends on soil, temperature, humidity, wind velocity and traffic.
- Chemical dust suppression agents should not be used within 100 feet of wetlands or water bodies.
- Chemically treated subgrades may make the soil water repellant, interfering with long-term infiltration and the vegetation/re-vegetation of the site. Some chemical dust suppressants may be subject to freezing and may contain solvents and should be handled properly.
- In compacted areas, watering and other liquid dust control measures may wash sediment or other constituents into the drainage system.
- If the soil surface has minimal natural moisture, the affected area may need to be pre-wetted so that chemical dust control agents can uniformly penetrate the soil surface.

Implementation

Dust Control Practices

Dust control BMPs generally stabilize exposed surfaces and minimize activities that suspend or track dust particles. The following table presents dust control practices that can be applied to varying site conditions that could potentially cause dust. For heavily traveled and disturbed areas, wet suppression (watering), chemical dust suppression, gravel asphalt surfacing, temporary gravel construction entrances, equipment wash-out areas, and haul truck covers can be employed as dust control applications. Permanent or temporary vegetation and mulching can be employed for areas of occasional or no construction traffic. Preventive measures include minimizing surface areas to be disturbed, limiting onsite vehicle traffic to 15 mph or less, and controlling the number and activity of vehicles on a site at any given time.

Chemical dust suppressants include: mulch and fiber based dust palliatives (e.g. paper mulch with gypsum binder), salts and brines (e.g. calcium chloride, magnesium chloride), non-petroleum based organics (e.g. vegetable oil, lignosulfonate), petroleum based organics (e.g. asphalt emulsion, dust oils, petroleum resins), synthetic polymers (e.g. polyvinyl acetate, vinyls, acrylic), clay additives (e.g. bentonite, montimorillonite) and electrochemical products (e.g. enzymes, ionic products).

Site Condition	Dust Control Practices							
	Permanent Vegetation	Mulching	Wet Suppression (Watering)	Chemical Dust Suppression	Gravel or Asphalt	Temporary Gravel Construction Entrances/Equipment Wash Down	Synthetic Covers	Minimize Extent of Disturbed Area
Disturbed Areas not Subject to Traffic	X	X	X	X	X			X
Disturbed Areas Subject to Traffic			X	X	X	X		X
Material Stockpiles		X	X	X			X	X
Demolition			X			X	X	
Clearing/ Excavation			X	X				X
Truck Traffic on Unpaved Roads			X	X	X	X	X	
Tracking					X	X		

Additional preventive measures include:

- Schedule construction activities to minimize exposed area (see EC-1, Scheduling).
- Quickly treat exposed soils using water, mulching, chemical dust suppressants, or stone/gravel layering.
- Identify and stabilize key access points prior to commencement of construction.
- Minimize the impact of dust by anticipating the direction of prevailing winds.
- Restrict construction traffic to stabilized roadways within the project site, as practicable.
- Water should be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses and nozzles that will ensure even distribution.
- All distribution equipment should be equipped with a positive means of shutoff.
- Unless water is applied by means of pipelines, at least one mobile unit should be available at all times to apply water or dust palliative to the project.
- If reclaimed waste water is used, the sources and discharge must meet California Department of Health Services water reclamation criteria and the Regional Water Quality

Control Board (RWQCB) requirements. Non-potable water should not be conveyed in tanks or drain pipes that will be used to convey potable water and there should be no connection between potable and non-potable supplies. Non-potable tanks, pipes, and other conveyances should be marked, "NON-POTABLE WATER - DO NOT DRINK."

- Pave or chemically stabilize access points where unpaved traffic surfaces adjoin paved roads.
- Provide covers for haul trucks transporting materials that contribute to dust.
- Provide for rapid clean up of sediments deposited on paved roads. Furnish stabilized construction road entrances and wheel wash areas.
- Stabilize inactive areas of construction sites using temporary vegetation or chemical stabilization methods.

For chemical stabilization, there are many products available for chemically stabilizing gravel roadways and stockpiles. If chemical stabilization is used, the chemicals should not create any adverse effects on stormwater, plant life, or groundwater and should meet all applicable regulatory requirements.

Costs

Installation costs for water and chemical dust suppression vary based on the method used and the length of effectiveness. Annual costs may be high since some of these measures are effective for only a few hours to a few days.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Check areas protected to ensure coverage.
- Most water-based dust control measures require frequent application, often daily or even multiple times per day. Obtain vendor or independent information on longevity of chemical dust suppressants.

References

Best Management Practices and Erosion Control Manual for Construction Sites, Flood Control District of Maricopa County, Arizona, September 1992.

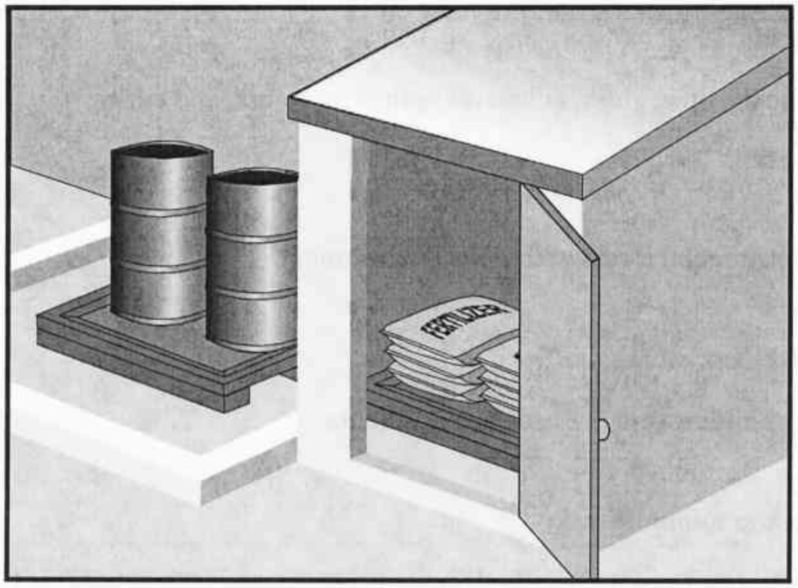
California Air Pollution Control Laws, California Air Resources Board, updated annually.

Construction Manual, Chapter 4, Section 10, "Dust Control"; Section 17, "Watering"; and Section 18, "Dust Palliative", California Department of Transportation (Caltrans), July 2001.

Prospects for Attaining the State Ambient Air Quality Standards for Suspended Particulate Matter (PM10), Visibility Reducing Particles, Sulfates, Lead, and Hydrogen Sulfide, California Air Resources Board, April 1991.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Material Delivery and Storage WM-1



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in watertight containers and/or a completely enclosed designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.

This best management practice covers only material delivery and storage. For other information on materials, see WM-2, Material Use, or WM-4, Spill Prevention and Control. For information on wastes, see the waste management BMPs in this section.

Suitable Applications

These procedures are suitable for use at all construction sites with delivery and storage of the following materials:

- Soil stabilizers and binders
- Pesticides and herbicides
- Fertilizers
- Detergents
- Plaster
- Petroleum products such as fuel, oil, and grease

- Asphalt and concrete components
- Hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds
- Concrete compounds
- Other materials that may be detrimental if released to the environment

Limitations

- Space limitation may preclude indoor storage.
- Storage sheds often must meet building and fire code requirements.

Implementation

The following steps should be taken to minimize risk:

- Chemicals must be stored in water tight containers with appropriate secondary containment or in a storage shed.
- When a material storage area is located on bare soil, the area should be lined and bermed.
- Use containment pallets or other practical and available solutions, such as storing materials within newly constructed buildings or garages, to meet material storage requirements.
- Stack erodible landscape material on pallets and cover when not in use.
- Contain all fertilizers and other landscape materials when not in use.
- Temporary storage areas should be located away from vehicular traffic.
- Material Safety Data Sheets (MSDS) should be available on-site for all materials stored that have the potential to effect water quality.
- Construction site areas should be designated for material delivery and storage.
- Material delivery and storage areas should be located away from waterways, if possible.
  - Avoid transport near drainage paths or waterways.
  - Surround with earth berms or other appropriate containment BMP. See EC-9, Earth Dikes and Drainage Swales.
  - Place in an area that will be paved.
- Storage of reactive, ignitable, or flammable liquids must comply with the fire codes of your area. Contact the local Fire Marshal to review site materials, quantities, and proposed storage area to determine specific requirements. See the Flammable and Combustible Liquid Code, NFPA30.
- An up to date inventory of materials delivered and stored onsite should be kept.

- Hazardous materials storage onsite should be minimized.
- Hazardous materials should be handled as infrequently as possible.
- Keep ample spill cleanup supplies appropriate for the materials being stored. Ensure that cleanup supplies are in a conspicuous, labeled area.
- Employees and subcontractors should be trained on the proper material delivery and storage practices.
- Employees trained in emergency spill cleanup procedures must be present when dangerous materials or liquid chemicals are unloaded.
- If significant residual materials remain on the ground after construction is complete, properly remove and dispose of materials and any contaminated soil. See WM-7, Contaminated Soil Management. If the area is to be paved, pave as soon as materials are removed to stabilize the soil.

Material Storage Areas and Practices

- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 should be stored in approved containers and drums and should not be overfilled. Containers and drums should be placed in temporary containment facilities for storage.
- A temporary containment facility should provide for a spill containment volume able to contain precipitation from a 25 year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest container within its boundary, whichever is greater.
- A temporary containment facility should be impervious to the materials stored therein for a minimum contact time of 72 hours.
- A temporary containment facility should be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills should be collected and placed into drums. These liquids should be handled as a hazardous waste unless testing determines them to be non-hazardous. All collected liquids or non-hazardous liquids should be sent to an approved disposal site.
- Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.
- Incompatible materials, such as chlorine and ammonia, should not be stored in the same temporary containment facility.
- Materials should be covered prior to, and during rain events.
- Materials should be stored in their original containers and the original product labels should be maintained in place in a legible condition. Damaged or otherwise illegible labels should be replaced immediately.

- Bagged and boxed materials should be stored on pallets and should not be allowed to accumulate on the ground. To provide protection from wind and rain throughout the rainy season, bagged and boxed materials should be covered during non-working days and prior to and during rain events.
- Stockpiles should be protected in accordance with WM-3, Stockpile Management.
- Materials should be stored indoors within existing structures or completely enclosed storage sheds when available.
- Proper storage instructions should be posted at all times in an open and conspicuous location.
- An ample supply of appropriate spill clean up material should be kept near storage areas.
- Also see WM-6, Hazardous Waste Management, for storing of hazardous wastes.

Material Delivery Practices

- Keep an accurate, up-to-date inventory of material delivered and stored onsite.
- Arrange for employees trained in emergency spill cleanup procedures to be present when dangerous materials or liquid chemicals are unloaded.

Spill Cleanup

- Contain and clean up any spill immediately.
- Properly remove and dispose of any hazardous materials or contaminated soil if significant residual materials remain on the ground after construction is complete. See WM-7, Contaminated Soil Management.
- See WM-4, Spill Prevention and Control, for spills of chemicals and/or hazardous materials.
- If spills or leaks of materials occur that are not contained and could discharge to surface waters, non-visible sampling of site discharge may be required. Refer to the General Permit or to your project specific Construction Site Monitoring Plan to determine if and where sampling is required.

Cost

- The largest cost of implementation may be in the construction of a materials storage area that is covered and provides secondary containment.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Keep storage areas clean and well organized, including a current list of all materials onsite.
- Inspect labels on containers for legibility and accuracy.

- Repair or replace perimeter controls, containment structures, covers, and liners as needed to maintain proper function.

References

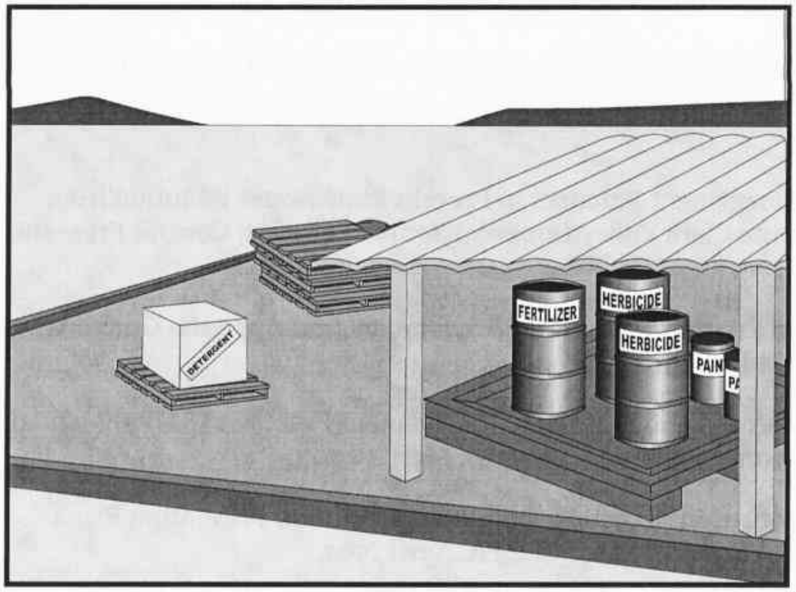
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Material Use



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Prevent or reduce the discharge of pollutants to the storm drain system or watercourses from material use by using alternative products, minimizing hazardous material use onsite, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for use at all construction projects. These procedures apply when the following materials are used or prepared onsite:

- Pesticides and herbicides
- Fertilizers
- Detergents
- Petroleum products such as fuel, oil, and grease
- Asphalt and other concrete components
- Other hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds
- Other materials that may be detrimental if released to the environment

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

Limitations

Safer alternative building and construction products may not be available or suitable in every instance.

Implementation

The following steps should be taken to minimize risk:

- Minimize use of hazardous materials onsite.
- Follow manufacturer instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.
- Train personnel who use pesticides. The California Department of Pesticide Regulation and county agricultural commissioners license pesticide dealers, certify pesticide applicators, and conduct onsite inspections.
- The preferred method of termiticide application is soil injection near the existing or proposed structure foundation/slab; however, if not feasible, soil drench application of termiticides should follow EPA label guidelines and the following recommendations (most of which are applicable to most pesticide applications):
  - Do not treat soil that is water-saturated or frozen.
  - Application shall not commence within 24-hours of a predicted precipitation event with a 40% or greater probability. Weather tracking must be performed on a daily basis prior to termiticide application and during the period of termiticide application.
  - Do not allow treatment chemicals to runoff from the target area. Apply proper quantity to prevent excess runoff. Provide containment for and divert stormwater from application areas using berms or diversion ditches during application.
  - Dry season: Do not apply within 10 feet of storm drains. Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or ponds; estuaries; and commercial fish farm ponds).
  - Wet season: Do not apply within 50 feet of storm drains or aquatic habitats (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or ponds; estuaries; and commercial fish farm ponds) unless a vegetative buffer is present (if so, refer to dry season requirements).
  - Do not make on-grade applications when sustained wind speeds are above 10 mph (at application site) at nozzle end height.
  - Cover treatment site prior to a rain event in order to prevent run-off of the pesticide into non-target areas. The treated area should be limited to a size that can be backfilled and/or covered by the end of the work shift. Backfilling or covering of the treated area shall be done by the end of the same work shift in which the application is made.
  - The applicator must either cover the soil him/herself or provide written notification of the above requirement to the contractor on site and to the person commissioning the

application (if different than the contractor). If notice is provided to the contractor or the person commissioning the application, then they are responsible under the Federal Insecticide Fungicide, and Rodenticide Act (FIFRA) to ensure that: 1) if the concrete slab cannot be poured over the treated soil within 24 hours of application, the treated soil is covered with a waterproof covering (such as polyethylene sheeting), and 2) the treated soil is covered if precipitation is predicted to occur before the concrete slab is scheduled to be poured.

- Do not over-apply fertilizers, herbicides, and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over-application is expensive and environmentally harmful. Unless on steep slopes, till fertilizers into the soil rather than hydraulic application. Apply surface dressings in several smaller applications, as opposed to one large application, to allow time for infiltration and to avoid excess material being carried offsite by runoff. Do not apply these chemicals before predicted rainfall.
- Train employees and subcontractors in proper material use.
- Supply Material Safety Data Sheets (MSDS) for all materials.
- Dispose of latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths, when thoroughly dry and are no longer hazardous, with other construction debris.
- Do not remove the original product label; it contains important safety and disposal information. Use the entire product before disposing of the container.
- Mix paint indoors or in a containment area. Never clean paintbrushes or rinse paint containers into a street, gutter, storm drain, or watercourse. Dispose of any paint thinners, residue, and sludge(s) that cannot be recycled, as hazardous waste.
- For water-based paint, clean brushes to the extent practicable, and rinse to a drain leading to a sanitary sewer where permitted, or contain for proper disposal off site. For oil-based paints, clean brushes to the extent practicable, and filter and reuse thinners and solvents.
- Use recycled and less hazardous products when practical. Recycle residual paints, solvents, non-treated lumber, and other materials.
- Use materials only where and when needed to complete the construction activity. Use safer alternative materials as much as possible. Reduce or eliminate use of hazardous materials onsite when practical.
- Document the location, time, chemicals applied, and applicator's name and qualifications.
- Keep an ample supply of spill clean up material near use areas. Train employees in spill clean up procedures.
- Avoid exposing applied materials to rainfall and runoff unless sufficient time has been allowed for them to dry.
- Discontinue use of erodible landscape material within 2 days prior to a forecasted rain event and materials should be covered and/or bermed.

- Provide containment for material use areas such as masons' areas or paint mixing/preparation areas to prevent materials/pollutants from entering stormwater.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Ensure employees and subcontractors throughout the job are using appropriate practices.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

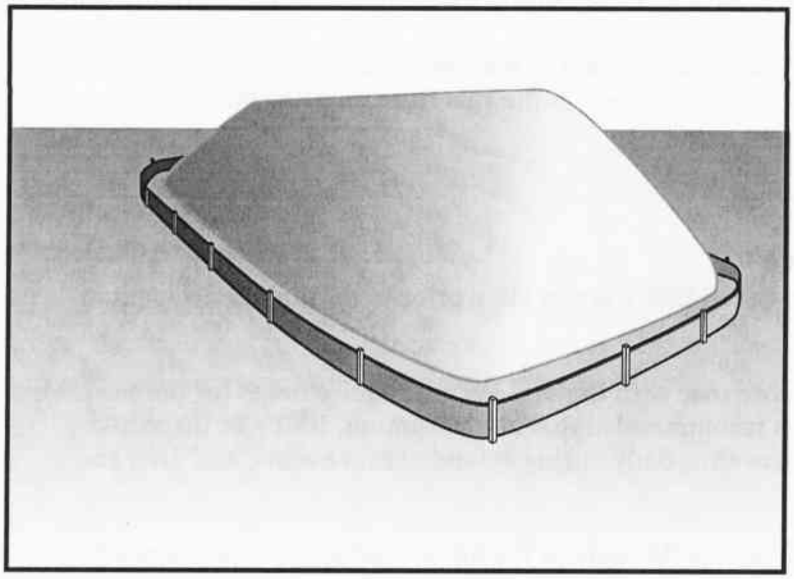
Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Comments on Risk Assessments Risk Reduction Options for Cypermethrin: Docket No. OPP–2005–0293; California Stormwater Quality Association (CASQA) letter to USEPA, 2006.Environmental Hazard and General Labeling for Pyrethroid Non-Agricultural Outdoor Products, EPA-HQ-OPP-2008-0331-0021; USEPA, 2008.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Stockpile Management WM-3



Categories

EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☒
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, soil amendments, sand, paving materials such as portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called "cold mix" asphalt), and pressure treated wood.

Suitable Applications

Implement in all projects that stockpile soil and other loose materials.

Limitations

- Plastic sheeting as a stockpile protection is temporary and hard to manage in windy conditions. Where plastic is used, consider use of plastic tarps with nylon reinforcement which may be more durable than standard sheeting.
- Plastic sheeting can increase runoff volume due to lack of infiltration and potentially cause perimeter control failure.
- Plastic sheeting breaks down faster in sunlight.
- The use of Plastic materials and photodegradable plastics should be avoided.

Implementation

Protection of stockpiles is a year-round requirement. To properly manage stockpiles:

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

- On larger sites, a minimum of 50 ft separation from concentrated flows of stormwater, drainage courses, and inlets is recommended.
- All stockpiles are required to be protected immediately if they are not scheduled to be used within 14 days.
- Protect all stockpiles from stormwater runon using temporary perimeter sediment barriers such as compost berms (SE-13), temporary silt dikes (SE-12), fiber rolls (SE-5), silt fences (SE-1), sandbags (SE-8), gravel bags (SE-6), or biofilter bags (SE-14). Refer to the individual fact sheet for each of these controls for installation information.
- Implement wind erosion control practices as appropriate on all stockpiled material. For specific information, see WE-1, Wind Erosion Control.
- Manage stockpiles of contaminated soil in accordance with WM-7, Contaminated Soil Management.
- Place bagged materials on pallets and under cover.
- Ensure that stockpile coverings are installed securely to protect from wind and rain.
- Some plastic covers withstand weather and sunlight better than others. Select cover materials or methods based on anticipated duration of use.

Protection of Non-Active Stockpiles

Non-active stockpiles of the identified materials should be protected further as follows:

Soil stockpiles

- Soil stockpiles should be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.
- Temporary vegetation should be considered for topsoil piles that will be stockpiled for extended periods.

Stockpiles of Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, or aggregate sub base

- Stockpiles should be covered and protected with a temporary perimeter sediment barrier at all times.

Stockpiles of "cold mix"

- Cold mix stockpiles should be placed on and covered with plastic sheeting or comparable material at all times and surrounded by a berm.

Stockpiles of fly ash, stucco, hydrated lime

- Stockpiles of materials that may raise the pH of runoff (i.e., basic materials) should be covered with plastic and surrounded by a berm.

Stockpiles/Storage of wood (Pressure treated with chromated copper arsenate or ammoniacal copper zinc arsenate

- Treated wood should be covered with plastic sheeting or comparable material at all times and surrounded by a berm.

Protection of Active Stockpiles

Active stockpiles of the identified materials should be protected as follows:

- All stockpiles should be covered and protected with a temporary linear sediment barrier prior to the onset of precipitation.
- Stockpiles of "cold mix" and treated wood, and basic materials should be placed on and covered with plastic sheeting or comparable material and surrounded by a berm prior to the onset of precipitation.
- The downstream perimeter of an active stockpile should be protected with a linear sediment barrier or berm and runoff should be diverted around or away from the stockpile on the upstream perimeter.

Costs

For cost information associated with stockpile protection refer to the individual erosion or sediment control BMP fact sheet considered for implementation (For example, refer to SE-1 Silt Fence for installation of silt fence around the perimeter of a stockpile.)

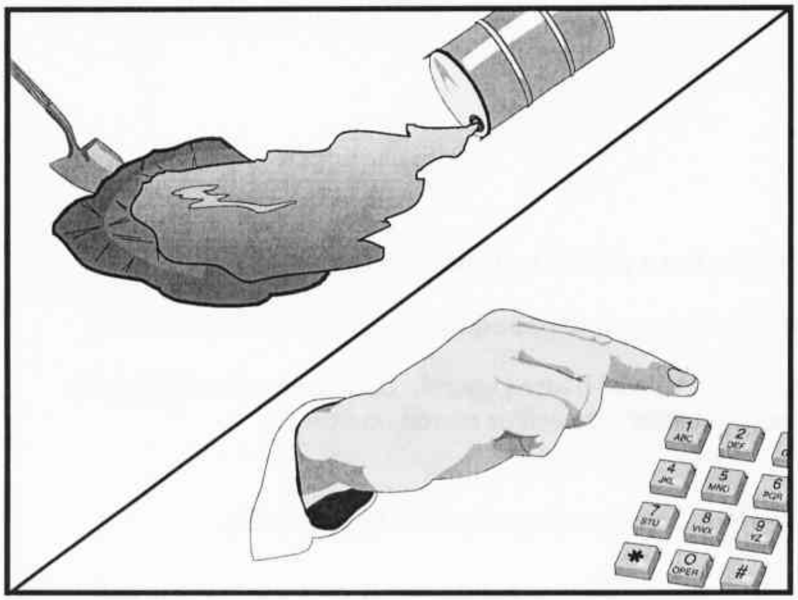
Inspection and Maintenance

- Stockpiles must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- It may be necessary to inspect stockpiles covered with plastic sheeting more frequently during certain conditions (for example, high winds or extreme heat).
- Repair and/or replace perimeter controls and covers as needed to keep them functioning properly.
- Sediment shall be removed when it reaches one-third of the barrier height.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Spill Prevention and Control WM-4



Description and Purpose

Prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

This best management practice covers only spill prevention and control. However, WM-1, Materials Delivery and Storage, and WM-2, Material Use, also contain useful information, particularly on spill prevention. For information on wastes, see the waste management BMPs in this section.

Suitable Applications

This BMP is suitable for all construction projects. Spill control procedures are implemented anytime chemicals or hazardous substances are stored on the construction site, including the following materials:

- Soil stabilizers/binders
- Dust palliatives
- Herbicides
- Growth inhibitors
- Fertilizers
- Deicing/anti-icing chemicals

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

- Fuels
- Lubricants
- Other petroleum distillates

Limitations

- In some cases it may be necessary to use a private spill cleanup company.
- This BMP applies to spills caused by the contractor and subcontractors.
- Procedures and practices presented in this BMP are general. Contractor should identify appropriate practices for the specific materials used or stored onsite

Implementation

The following steps will help reduce the stormwater impacts of leaks and spills:

Education

- Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills.
- Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
- Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.
- Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

- To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
- Store hazardous materials and wastes in covered containers and protect from vandalism.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- Train employees in spill prevention and cleanup.
- Designate responsible individuals to oversee and enforce control measures.
- Spills should be covered and protected from stormwater runon during rainfall to the extent that it doesn't compromise clean up activities.
- Do not bury or wash spills with water.

- Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
- Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with WM-10, Liquid Waste Management.
- Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
- Place proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
- Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

- Clean up leaks and spills immediately.
- Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to either a certified laundry (rags) or disposed of as hazardous waste.
- Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

- Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
- Use absorbent materials on small spills rather than hosing down or burying the spill.
- Absorbent materials should be promptly removed and disposed of properly.
- Follow the practice below for a minor spill:
  - Contain the spread of the spill.
  - Recover spilled materials.
  - Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

- Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.

- Spills should be cleaned up immediately:
  - Contain spread of the spill.
  - Notify the project foreman immediately.
  - If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
  - If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
  - If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

- For significant or hazardous spills that cannot be controlled by personnel in the immediate vicinity, the following steps should be taken:
  - Notify the local emergency response by dialing 911. In addition to 911, the contractor will notify the proper county officials. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
  - Notify the Governor's Office of Emergency Services Warning Center, (916) 845-8911.
  - For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
  - Notification should first be made by telephone and followed up with a written report.
  - The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
  - Other agencies which may need to be consulted include, but are not limited to, the Fire Department, the Public Works Department, the Coast Guard, the Highway Patrol, the City/County Police Department, Department of Toxic Substances, California Division of Oil and Gas, Cal/OSHA, etc.

Reporting

- Report significant spills to local agencies, such as the Fire Department; they can assist in cleanup.
- Federal regulations require that any significant oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hours).

Use the following measures related to specific activities:

Vehicle and Equipment Maintenance

- If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.
- Regularly inspect onsite vehicles and equipment for leaks and repair immediately
- Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
- Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- Place drip pans or absorbent materials under paving equipment when not in use.
- Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
- Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around
- Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.
- Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

- If fueling must occur onsite, use designate areas, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.
- Discourage "topping off" of fuel tanks.
- Always use secondary containment, such as a drain pan, when fueling to catch spills/ leaks.

Costs

Prevention of leaks and spills is inexpensive. Treatment and/ or disposal of contaminated soil or water can be quite expensive.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.

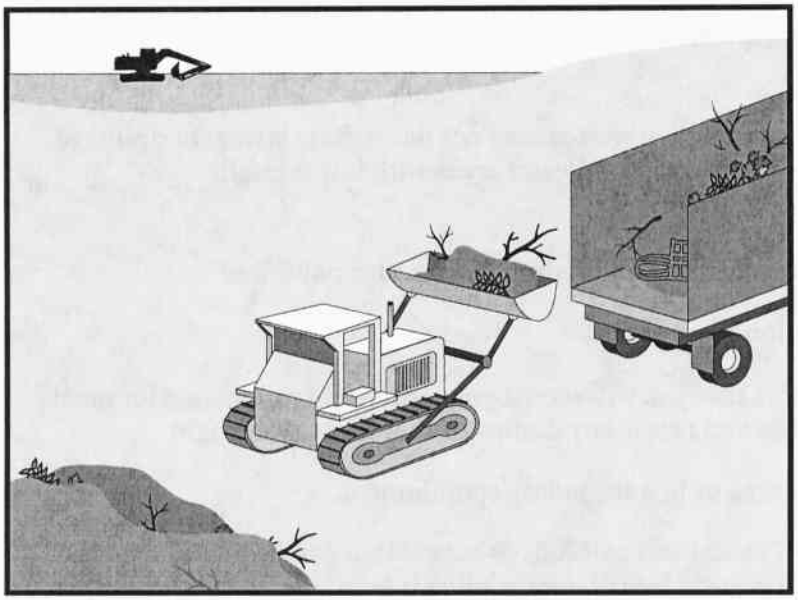
- Keep ample supplies of spill control and cleanup materials onsite, near storage, unloading, and maintenance areas.
- Update your spill prevention and control plan and stock cleanup materials as changes occur in the types of chemicals onsite.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for construction sites where the following wastes are generated or stored:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction
- Packaging materials including wood, paper, and plastic
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces and masonry products
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes
- Construction wastes including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, styrofoam and other materials used to transport and package construction materials
- Highway planting wastes, including vegetative material,

CASQA

CALIFORNIA STORMWATER QUALITY ASSOCIATION

plant containers, and packaging materials

Limitations
Temporary stockpiling of certain construction wastes may not necessitate stringent drainage related controls during the non-rainy season or in desert areas with low rainfall.

Implementation
The following steps will help keep a clean site and reduce stormwater pollution:

- Select designated waste collection areas onsite.
- Inform trash-hauling contractors that you will accept only watertight dumpsters for onsite use. Inspect dumpsters for leaks and repair any dumpster that is not watertight.
- Locate containers in a covered area or in a secondary containment.
- Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy.
- Plan for additional containers and more frequent pickup during the demolition phase of construction.
- Collect site trash daily, especially during rainy and windy conditions.
- Remove this solid waste promptly since erosion and sediment control devices tend to collect litter.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor.
- Arrange for regular waste collection before containers overflow.
- Clean up immediately if a container does spill.
- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas.

Education
- Have the contractor's superintendent or representative oversee and enforce proper solid waste management procedures and practices.
- Instruct employees and subcontractors on identification of solid waste and hazardous waste.
- Educate employees and subcontractors on solid waste storage and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).

- Require that employees and subcontractors follow solid waste handling and storage procedures.
- Prohibit littering by employees, subcontractors, and visitors.
- Minimize production of solid waste materials wherever possible.

Collection, Storage, and Disposal

- Littering on the project site should be prohibited.
- To prevent clogging of the storm drainage system, litter and debris removal from drainage grates, trash racks, and ditch lines should be a priority.
- Trash receptacles should be provided in the contractor's yard, field trailer areas, and at locations where workers congregate for lunch and break periods.
- Litter from work areas within the construction limits of the project site should be collected and placed in watertight dumpsters at least weekly, regardless of whether the litter was generated by the contractor, the public, or others. Collected litter and debris should not be placed in or next to drain inlets, stormwater drainage systems, or watercourses.
- Dumpsters of sufficient size and number should be provided to contain the solid waste generated by the project.
- Full dumpsters should be removed from the project site and the contents should be disposed of by the trash hauling contractor.
- Construction debris and waste should be removed from the site biweekly or more frequently as needed.
- Construction material visible to the public should be stored or stacked in an orderly manner.
- Stormwater runon should be prevented from contacting stored solid waste through the use of berms, dikes, or other temporary diversion structures or through the use of measures to elevate waste from site surfaces.
- Solid waste storage areas should be located at least 50 ft from drainage facilities and watercourses and should not be located in areas prone to flooding or ponding.
- Except during fair weather, construction and highway planting waste not stored in watertight dumpsters should be securely covered from wind and rain by covering the waste with tarps or plastic.
- Segregate potentially hazardous waste from non-hazardous construction site waste.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- For disposal of hazardous waste, see WM-6, Hazardous Waste Management. Have hazardous waste hauled to an appropriate disposal and/or recycling facility.

- Salvage or recycle useful vegetation debris, packaging and surplus building materials when practical. For example, trees and shrubs from land clearing can be used as a brush barrier, or converted into wood chips, then used as mulch on graded areas. Wood pallets, cardboard boxes, and construction scraps can also be recycled.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.

- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur

- Inspect construction waste area regularly.

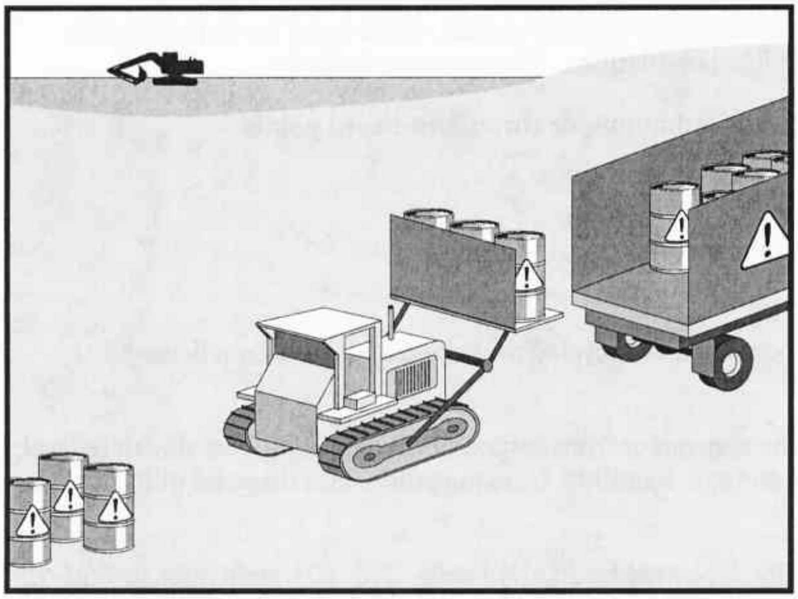
- Arrange for regular waste collection.

References

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Prevent or reduce the discharge of pollutants to stormwater from hazardous waste through proper material use, waste disposal, and training of employees and subcontractors.

Suitable Applications

This best management practice (BMP) applies to all construction projects. Hazardous waste management practices are implemented on construction projects that generate waste from the use of:

- Petroleum Products
- Asphalt Products
- Concrete Curing Compounds
- Pesticides
- Palliatives
- Acids
- Septic Wastes
- Paints
- Stains
- Solvents
- Wood Preservatives
- Roofing Tar
- Any materials deemed a hazardous waste in California, Title 22 Division 4.5, or listed in 40 CFR Parts 110, 117, 261, or 302

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

In addition, sites with existing structures may contain wastes, which must be disposed of in accordance with federal, state, and local regulations. These wastes include:

- Sandblasting grit mixed with lead-, cadmium-, or chromium-based paints
- Asbestos
- PCBs (particularly in older transformers)

Limitations

- Hazardous waste that cannot be reused or recycled must be disposed of by a licensed hazardous waste hauler.
- Nothing in this BMP relieves the contractor from responsibility for compliance with federal, state, and local laws regarding storage, handling, transportation, and disposal of hazardous wastes.
- This BMP does not cover aerially deposited lead (ADL) soils. For ADL soils refer to WM-7, Contaminated Soil Management.

Implementation

The following steps will help reduce stormwater pollution from hazardous wastes:

Material Use

- Wastes should be stored in sealed containers constructed of a suitable material and should be labeled as required by Title 22 CCR, Division 4.5 and 49 CFR Parts 172, 173, 178, and 179.
- All hazardous waste should be stored, transported, and disposed as required in Title 22 CCR, Division 4.5 and 49 CFR 261-263.
- Waste containers should be stored in temporary containment facilities that should comply with the following requirements:
  - Temporary containment facility should provide for a spill containment volume equal to 1.5 times the volume of all containers able to contain precipitation from a 25 year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest tank within its boundary, whichever is greater.
  - Temporary containment facility should be impervious to the materials stored there for a minimum contact time of 72 hours.
  - Temporary containment facilities should be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills should be placed into drums after each rainfall. These liquids should be handled as a hazardous waste unless testing determines them to be non-hazardous. Non-hazardous liquids should be sent to an approved disposal site.
  - Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.

- Incompatible materials, such as chlorine and ammonia, should not be stored in the same temporary containment facility.

- Throughout the rainy season, temporary containment facilities should be covered during non-working days, and prior to rain events. Covered facilities may include use of plastic tarps for small facilities or constructed roofs with overhangs.

- Drums should not be overfilled and wastes should not be mixed.

- Unless watertight, containers of dry waste should be stored on pallets.

- Do not over-apply herbicides and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over application is expensive and environmentally harmful. Apply surface dressings in several smaller applications, as opposed to one large application. Allow time for infiltration and avoid excess material being carried offsite by runoff. Do not apply these chemicals just before it rains. People applying pesticides must be certified in accordance with federal and state regulations.

- Paint brushes and equipment for water and oil based paints should be cleaned within a contained area and should not be allowed to contaminate site soils, watercourses, or drainage systems. Waste paints, thinners, solvents, residues, and sludges that cannot be recycled or reused should be disposed of as hazardous waste. When thoroughly dry, latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths should be disposed of as solid waste.

- Do not clean out brushes or rinse paint containers into the dirt, street, gutter, storm drain, or stream. "Paint out" brushes as much as possible. Rinse water-based paints to the sanitary sewer. Filter and reuse thinners and solvents. Dispose of excess oil-based paints and sludge as hazardous waste.

- The following actions should be taken with respect to temporary contaminant:

  - Ensure that adequate hazardous waste storage volume is available.

  - Ensure that hazardous waste collection containers are conveniently located.

  - Designate hazardous waste storage areas onsite away from storm drains or watercourses and away from moving vehicles and equipment to prevent accidental spills.

  - Minimize production or generation of hazardous materials and hazardous waste on the job site.

  - Use containment berms in fueling and maintenance areas and where the potential for spills is high.

  - Segregate potentially hazardous waste from non-hazardous construction site debris.

  - Keep liquid or semi-liquid hazardous waste in appropriate containers (closed drums or similar) and under cover.

- Clearly label all hazardous waste containers with the waste being stored and the date of accumulation.
- Place hazardous waste containers in secondary containment.
- Do not allow potentially hazardous waste materials to accumulate on the ground.
- Do not mix wastes.
- Use all of the product before disposing of the container.
- Do not remove the original product label; it contains important safety and disposal information.

Waste Recycling Disposal

- Select designated hazardous waste collection areas onsite.
- Hazardous materials and wastes should be stored in covered containers and protected from vandalism.
- Place hazardous waste containers in secondary containment.
- Do not mix wastes, this can cause chemical reactions, making recycling impossible and complicating disposal.
- Recycle any useful materials such as used oil or water-based paint.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Arrange for regular waste collection before containers overflow.
- Make sure that hazardous waste (e.g., excess oil-based paint and sludge) is collected, removed, and disposed of only at authorized disposal areas.

Disposal Procedures

- Waste should be disposed of by a licensed hazardous waste transporter at an authorized and licensed disposal facility or recycling facility utilizing properly completed Uniform Hazardous Waste Manifest forms.
- A Department of Health Services certified laboratory should sample waste to determine the appropriate disposal facility.
- Properly dispose of rainwater in secondary containment that may have mixed with hazardous waste.
- Attention is directed to "Hazardous Material", "Contaminated Material", and "Aerially Deposited Lead" of the contract documents regarding the handling and disposal of hazardous materials.

Education

- Educate employees and subcontractors on hazardous waste storage and disposal procedures.
- Educate employees and subcontractors on potential dangers to humans and the environment from hazardous wastes.
- Instruct employees and subcontractors on safety procedures for common construction site hazardous wastes.
- Instruct employees and subcontractors in identification of hazardous and solid waste.
- Hold regular meetings to discuss and reinforce hazardous waste management procedures (incorporate into regular safety meetings).
- The contractor's superintendent or representative should oversee and enforce proper hazardous waste management procedures and practices.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.
- Warning signs should be placed in areas recently treated with chemicals.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- If a container does spill, clean up immediately.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur
- Hazardous waste should be regularly collected.
- A foreman or construction supervisor should monitor onsite hazardous waste storage and disposal procedures.
- Waste storage areas should be kept clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored.
- Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.
- Hazardous spills should be cleaned up and reported in conformance with the applicable Material Safety Data Sheet (MSDS) and the instructions posted at the project site.

- The National Response Center, at (800) 424-8802, should be notified of spills of federal reportable quantities in conformance with the requirements in 40 CFR parts 110, 117, and 302. Also notify the Governors Office of Emergency Services Warning Center at (916) 845-8911.

- A copy of the hazardous waste manifests should be provided.

References

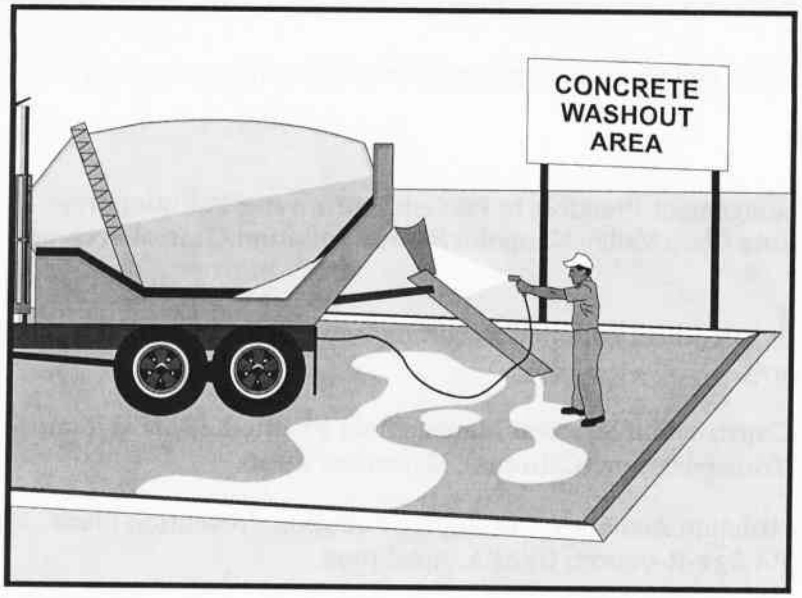
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Concrete Waste Management WM-8



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☒
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Prevent the discharge of pollutants to stormwater from concrete waste by conducting washout onsite or offsite in a designated area, and by employee and subcontractor training.

The General Permit incorporates Numeric Effluent Limits (NEL) and Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Many types of construction materials, including mortar, concrete, stucco, cement and block and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows and raising pH to levels outside the accepted range.

Suitable Applications

Concrete waste management procedures and practices are implemented on construction projects where:

- Concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Slurries containing portland cement concrete (PCC) are generated, such as from saw cutting, coring, grinding, grooving, and hydro-concrete demolition.

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

- Concrete trucks and other concrete-coated equipment are washed onsite.
- Mortar-mixing stations exist.
- Stucco mixing and spraying .
- See also NS-8, Vehicle and Equipment Cleaning.

Limitations

- Offsite washout of concrete wastes may not always be possible.
- Multiple washouts may be needed to assure adequate capacity and to allow for evaporation.

Implementation

The following steps will help reduce stormwater pollution from concrete wastes:

- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Store dry and wet materials under cover, away from drainage areas. Refer to WM-1, Material Delivery and Storage for more information.
- Avoid mixing excess amounts of concrete.
- Perform washout of concrete trucks in designated areas only, where washout will not reach stormwater.
- Do not wash out concrete trucks into storm drains, open ditches, streets, streams or onto the ground. Trucks should always be washed out into designated facilities.
- Do not allow excess concrete to be dumped onsite, except in designated areas.
- For onsite washout:
    - On larger sites, it is recommended to locate washout areas at least 50 feet from storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
    - Washout wastes into the temporary washout where the concrete can set, be broken up, and then disposed properly.
    - Washout should be lined so there is no discharge into the underlying soil.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose in the trash.
- See typical concrete washout installation details at the end of this fact sheet.

Education

- Educate employees, subcontractors, and suppliers on the concrete waste management techniques described herein.

- Arrange for contractor's superintendent or representative to oversee and enforce concrete waste management procedures.

- Discuss the concrete management techniques described in this BMP (such as handling of concrete waste and washout) with the ready-mix concrete supplier before any deliveries are made.

Concrete Demolition Wastes

- Stockpile concrete demolition waste in accordance with BMP WM-3, Stockpile Management.

- Dispose of or recycle hardened concrete waste in accordance with applicable federal, state or local regulations.

Concrete Slurry Wastes

- PCC and AC waste should not be allowed to enter storm drains or watercourses.

- PCC and AC waste should be collected and disposed of or placed in a temporary concrete washout facility (as described in Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures, below).

- A foreman or construction supervisor should monitor onsite concrete working tasks, such as saw cutting, coring, grinding and grooving to ensure proper methods are implemented.

- Saw-cut concrete slurry should not be allowed to enter storm drains or watercourses. Residue from grinding operations should be picked up by means of a vacuum attachment to the grinding machine or by sweeping. Saw cutting residue should not be allowed to flow across the pavement and should not be left on the surface of the pavement. See also NS-3, Paving and Grinding Operations; and WM-10, Liquid Waste Management.

- Concrete slurry residue should be disposed in a temporary washout facility (as described in Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures, below) and allowed to dry. Dispose of dry slurry residue in accordance with WM-5, Solid Waste Management.

Onsite Temporary Concrete Washout Facility, Transit Truck Washout Procedures

- Temporary concrete washout facilities should be located a minimum of 50 ft from storm drain inlets, open drainage facilities, and watercourses. Each facility should be located away from construction traffic or access areas to prevent disturbance or tracking.

- A sign should be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.

- Temporary concrete washout facilities should be constructed above grade or below grade at the option of the contractor. Temporary concrete washout facilities should be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations.

- Temporary washout facilities should have a temporary pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete materials generated during washout procedures.
- Temporary washout facilities should be lined to prevent discharge to the underlying ground or surrounding area.
- Washout of concrete trucks should be performed in designated areas only.
- Only concrete from mixer truck chutes should be washed into concrete wash out.
- Concrete washout from concrete pumper bins can be washed into concrete pumper trucks and discharged into designated washout area or properly disposed of or recycled offsite.
- Once concrete wastes are washed into the designated area and allowed to harden, the concrete should be broken up, removed, and disposed of per WM-5, Solid Waste Management. Dispose of or recycle hardened concrete on a regular basis.
- Temporary Concrete Washout Facility (Type Above Grade)
  - Temporary concrete washout facility (type above grade) should be constructed as shown on the details at the end of this BMP, with a recommended minimum length and minimum width of 10 ft; however, smaller sites or jobs may only need a smaller washout facility. With any washout, always maintain a sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations.
  - Materials used to construct the washout area should conform to the provisions detailed in their respective BMPs (e.g., SE-8 Sandbag Barrier).
  - Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.
  - Alternatively, portable removable containers can be used as above grade concrete washouts. Also called a "roll-off"; this concrete washout facility should be properly sealed to prevent leakage, and should be removed from the site and replaced when the container reaches 75% capacity.
- Temporary Concrete Washout Facility (Type Below Grade)
  - Temporary concrete washout facilities (type below grade) should be constructed as shown on the details at the end of this BMP, with a recommended minimum length and minimum width of 10 ft. The quantity and volume should be sufficient to contain all liquid and concrete waste generated by washout operations.
  - Lath and flagging should be commercial type.
  - Plastic lining material should be a minimum of 10 mil polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

- The base of a washout facility should be free of rock or debris that may damage a plastic liner.

Removal of Temporary Concrete Washout Facilities

- When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and properly disposed or recycled in accordance with federal, state or local regulations. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and properly disposed or recycled in accordance with federal, state or local regulations..

- Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

Costs

All of the above are low cost measures. Roll-off concrete washout facilities can be more costly than other measures due to removal and replacement; however, provide a cleaner alternative to traditional washouts. The type of washout facility, size, and availability of materials will determine the cost of the washout.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- Temporary concrete washout facilities should be maintained to provide adequate holding capacity with a minimum freeboard of 4 in. for above grade facilities and 12 in. for below grade facilities. Maintaining temporary concrete washout facilities should include removing and disposing of hardened concrete and returning the facilities to a functional condition. Hardened concrete materials should be removed and properly disposed or recycled in accordance with federal, state or local regulations.

- Washout facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75% full.

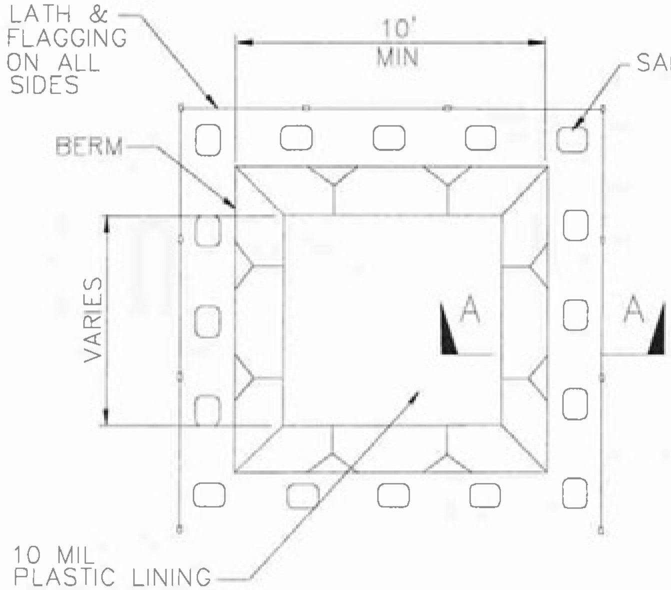
- Inspect washout facilities for damage (e.g. torn liner, evidence of leaks, signage, etc.). Repair all identified damage.

References

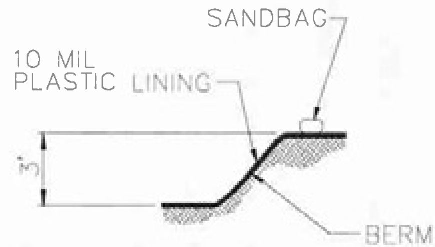
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000, Updated March 2003.

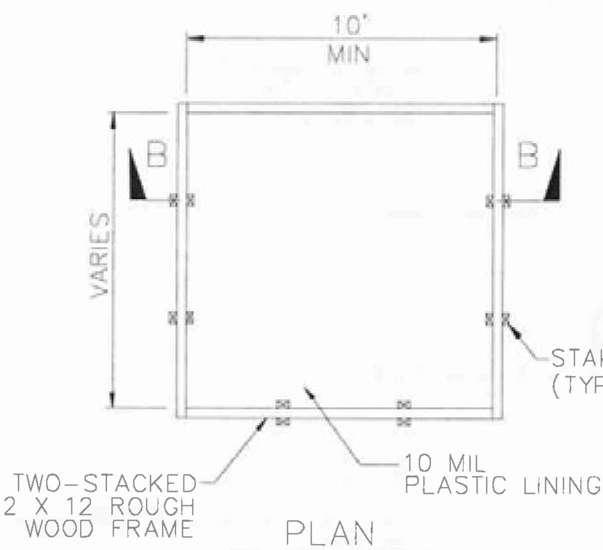
Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.



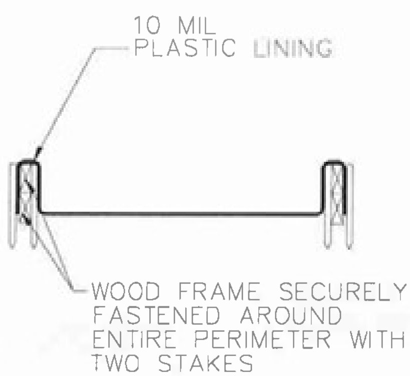
PLAN
NOT TO SCALE
TYPE "BELOW GRADE"



SECTION A–A
NOT TO SCALE



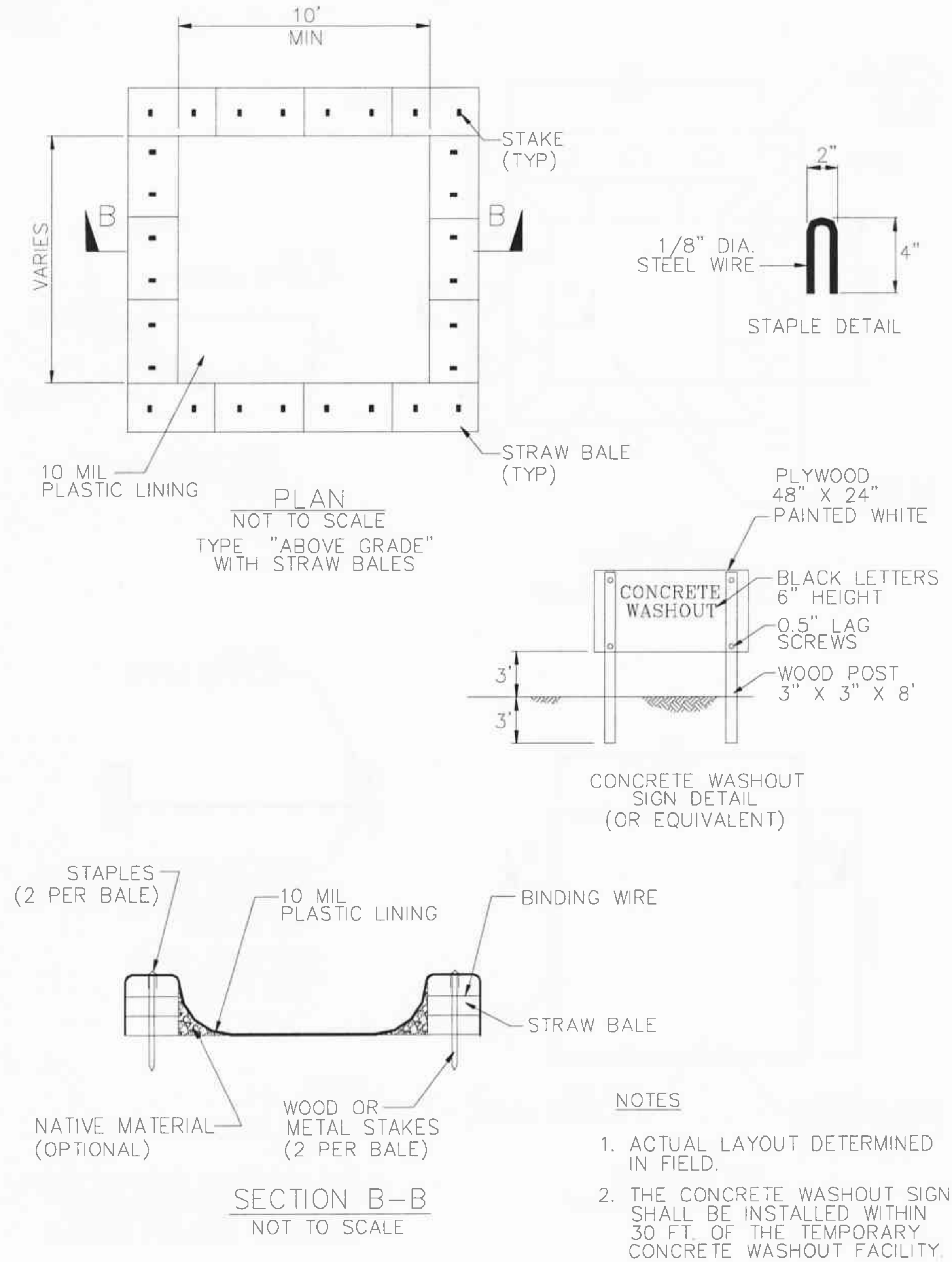
PLAN
NOT TO SCALE
TYPE "ABOVE GRADE"



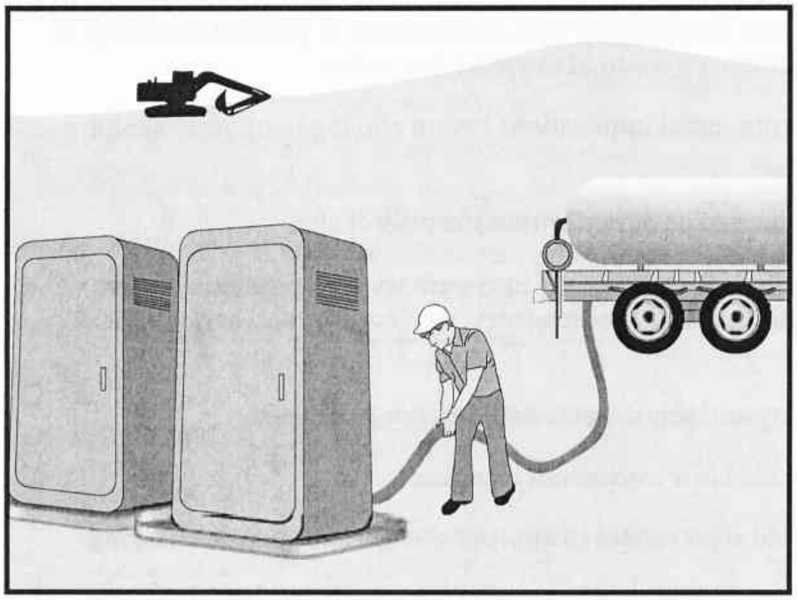
SECTION B–B
NOT TO SCALE

NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.


10' MIN
VARIES
B
B
STAKE (TYP)
10 MIL PLASTIC LINING
STRAW BALE (TYP)
PLAN
NOT TO SCALE
TYPE "ABOVE GRADE" WITH STRAW BALES
2"
1/8" DIA. STEEL WIRE
4"
STAPLE DETAIL
PLYWOOD 48" X 24" PAINTED WHITE
CONCRETE WASHOUT
BLACK LETTERS 6" HEIGHT
0.5" LAG SCREWS
3'
3'
WOOD POST 3" X 3" X 8'
CONCRETE WASHOUT SIGN DETAIL (OR EQUIVALENT)
STAPLES (2 PER BALE)
10 MIL PLASTIC LINING
BINDING WIRE
STRAW BALE
NATIVE MATERIAL (OPTIONAL)
WOOD OR METAL STAKES (2 PER BALE)
SECTION B–B
NOT TO SCALE
NOTES
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

Sanitary/Septic Waste Management WM-9



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	
Nutrients	☑
Trash	☑
Metals	
Bacteria	☑
Oil and Grease	
Organics	☑

Potential Alternatives

None

Description and Purpose

Proper sanitary and septic waste management prevent the discharge of pollutants to stormwater from sanitary and septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal.

Suitable Applications

Sanitary septic waste management practices are suitable for use at all construction sites that use temporary or portable sanitary and septic waste systems.

Limitations

None identified.

Implementation

Sanitary or septic wastes should be treated or disposed of in accordance with state and local requirements. In many cases, one contract with a local facility supplier will be all that it takes to make sure sanitary wastes are properly disposed.

Storage and Disposal Procedures

- Temporary sanitary facilities should be located away from drainage facilities, watercourses, and from traffic circulation. If site conditions allow, place portable facilities a minimum of 50 feet from drainage conveyances and traffic areas. When subjected to high winds or risk of high winds, temporary sanitary facilities should be secured to prevent overturning.

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

- Temporary sanitary facilities must be equipped with containment to prevent discharge of pollutants to the stormwater drainage system of the receiving water.
- Consider safety as well as environmental implications before placing temporary sanitary facilities.
- Wastewater should not be discharged or buried within the project site.
- Sanitary and septic systems that discharge directly into sanitary sewer systems, where permissible, should comply with the local health agency, city, county, and sewer district requirements.
- Only reputable, licensed sanitary and septic waste haulers should be used.
- Sanitary facilities should be located in a convenient location.
- Temporary septic systems should treat wastes to appropriate levels before discharging.
- If using an onsite disposal system (OSDS), such as a septic system, local health agency requirements must be followed.
- Temporary sanitary facilities that discharge to the sanitary sewer system should be properly connected to avoid illicit discharges.
- Sanitary and septic facilities should be maintained in good working order by a licensed service.
- Regular waste collection by a licensed hauler should be arranged before facilities overflow.
- If a spill does occur from a temporary sanitary facility, follow federal, state and local regulations for containment and clean-up.

Education

- Educate employees, subcontractors, and suppliers on sanitary and septic waste storage and disposal procedures.
- Educate employees, subcontractors, and suppliers of potential dangers to humans and the environment from sanitary and septic wastes.
- Instruct employees, subcontractors, and suppliers in identification of sanitary and septic waste.
- Hold regular meetings to discuss and reinforce the use of sanitary facilities (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.

Costs

All of the above are low cost measures.

Inspection and Maintenance

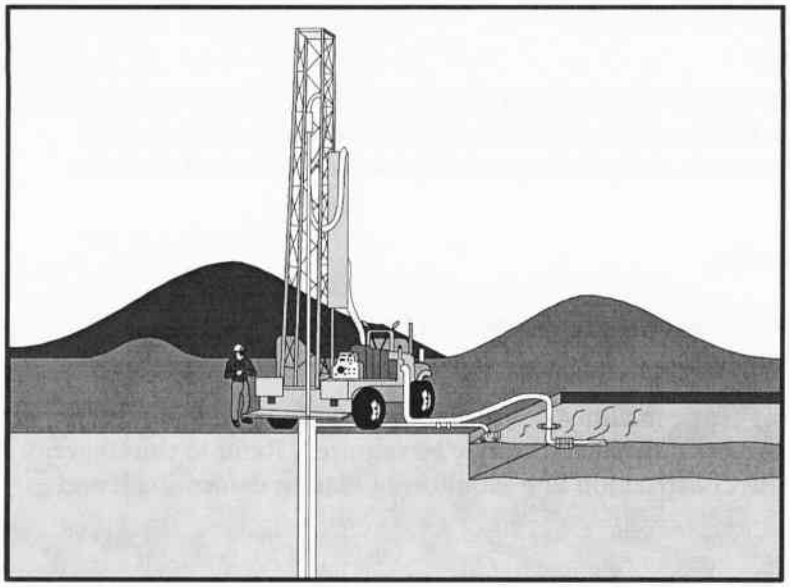
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Arrange for regular waste collection.
- If high winds are expected, portable sanitary facilities must be secured with spikes or weighed down to prevent over turning.
- If spills or leaks from sanitary or septic facilities occur that are not contained and discharge from the site, non-visible sampling of site discharge may be required. Refer to the General Permit or to your project specific Construction Site Monitoring Plan to determine if and where sampling is required.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Liquid Waste Management WM-10



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

Description and Purpose

Liquid waste management includes procedures and practices to prevent discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes.

Suitable Applications

Liquid waste management is applicable to construction projects that generate any of the following non-hazardous by-products, residuals, or wastes:

- Drilling slurries and drilling fluids
- Grease-free and oil-free wastewater and rinse water
- Dredgings
- Other non-stormwater liquid discharges not permitted by separate permits

Limitations

- Disposal of some liquid wastes may be subject to specific laws and regulations or to requirements of other permits secured for the construction project (e.g., NPDES permits, Army Corps permits, Coastal Commission permits, etc.).
- Liquid waste management does not apply to dewatering operations (NS-2 Dewatering Operations), solid waste management (WM-5, Solid Waste Management), hazardous wastes (WM-6, Hazardous Waste Management), or concrete slurry residue (WM-8, Concrete Waste

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

Management).

- Typical permitted non-stormwater discharges can include: water line flushing; landscape irrigation; diverted stream flows; rising ground waters; uncontaminated pumped ground water; discharges from potable water sources; foundation drains; irrigation water; springs; water from crawl space pumps; footing drains; lawn watering; flows from riparian habitats and wetlands; and discharges or flows from emergency fire fighting activities.

Implementation

General Practices

- Instruct employees and subcontractors how to safely differentiate between non-hazardous liquid waste and potential or known hazardous liquid waste.
- Instruct employees, subcontractors, and suppliers that it is unacceptable for any liquid waste to enter any storm drainage device, waterway, or receiving water.
- Educate employees and subcontractors on liquid waste generating activities and liquid waste storage and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Verify which non-stormwater discharges are permitted by the statewide NPDES permit; different regions might have different requirements not outlined in this permit.
- Apply NS-8, Vehicle and Equipment Cleaning for managing wash water and rinse water from vehicle and equipment cleaning operations.

Containing Liquid Wastes

- Drilling residue and drilling fluids should not be allowed to enter storm drains and watercourses and should be disposed of.
- If an appropriate location is available, drilling residue and drilling fluids that are exempt under Title 23, CCR § 2511(g) may be dried by infiltration and evaporation in a containment facility constructed in conformance with the provisions concerning the Temporary Concrete Washout Facilities detailed in WM-8, Concrete Waste Management.
- Liquid wastes generated as part of an operational procedure, such as water-laden dredged material and drilling mud, should be contained and not allowed to flow into drainage channels or receiving waters prior to treatment.
- Liquid wastes should be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank.
- Containment devices must be structurally sound and leak free.
- Containment devices must be of sufficient quantity or volume to completely contain the liquid wastes generated.

- Precautions should be taken to avoid spills or accidental releases of contained liquid wastes. Apply the education measures and spill response procedures outlined in WM-4, Spill Prevention and Control.

- Containment areas or devices should not be located where accidental release of the contained liquid can threaten health or safety or discharge to water bodies, channels, or storm drains.

Capturing Liquid Wastes

- Capture all liquid wastes that have the potential to affect the storm drainage system (such as wash water and rinse water from cleaning walls or pavement), before they run off a surface.

- Do not allow liquid wastes to flow or discharge uncontrolled. Use temporary dikes or berms to intercept flows and direct them to a containment area or device for capture.

- Use a sediment trap (SE-3, Sediment Trap) for capturing and treating sediment laden liquid waste or capture in a containment device and allow sediment to settle.

Disposing of Liquid Wastes

- A typical method to handle liquid waste is to dewater the contained liquid waste, using procedures such as described in NS-2, Dewatering Operations, and SE-2, Sediment Basin, and dispose of resulting solids per WM-5, Solid Waste Management.

- Methods of disposal for some liquid wastes may be prescribed in Water Quality Reports, NPDES permits, Environmental Impact Reports, 401 or 404 permits, and local agency discharge permits, etc. Review the SWPPP to see if disposal methods are identified.

- Liquid wastes, such as from dredged material, may require testing and certification whether it is hazardous or not before a disposal method can be determined.

- For disposal of hazardous waste, see WM-6, Hazardous Waste Management.

- If necessary, further treat liquid wastes prior to disposal. Treatment may include, though is not limited to, sedimentation, filtration, and chemical neutralization.

Costs

Prevention costs for liquid waste management are minimal. Costs increase if cleanup or fines are involved.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.

- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.

- Remove deposited solids in containment areas and capturing devices as needed and at the completion of the task. Dispose of any solids as described in WM-5, Solid Waste Management.
- Inspect containment areas and capturing devices and repair as needed.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Appendix H: BMP Inspection Form

BMP INSPECTION REPORT

Date and Time of Inspection:			Date Report Written:	
Inspection Type: (Circle one)	Weekly *Complete Parts I,II,III and VII*	Pre-Storm *Complete Parts I,II,III,IV and VII*	During Rain Event *Complete Parts I, II, III, V, and VII*	Post-Storm *Complete Parts I,II,III,VI and VII*

Part I. General Information

Site Information			
Construction Site Name:			
Construction stage and completed activities:			Approximate area of site that is exposed:
Photos Taken: (Circle one)	Yes	No	Photo Reference IDs:

Weather	
Estimate storm beginning: (date and time)	Estimate storm duration: (hours)
Estimate time since last storm: (days or hours)	Rain gauge reading and location: (in)
Is a “Qualifying Event” predicted or did one occur (i.e., 0.5” rain with 48-hrs or greater between events)? (Y/N) If yes, summarize forecast:	

Exemption Documentation (explanation required if inspection could not be conducted). Visual inspections are not required outside of business hours or during dangerous weather conditions such as flooding or electrical storms.

Inspector Information	
Inspector Name:	Inspector Title:
Signature:	Date:

Part II. BMP Observations. Describe deficiencies in Part III.

Minimum BMPs for Risk Level _____ Sites	Failures or other short comings (yes, no, N/A)	Action Required (yes/no)	Action Implemented (Date)
Good Housekeeping for Construction Materials			
Inventory of products (excluding materials designed to be outdoors)			
Stockpiled construction materials not actively in use are covered and bermed			
All chemicals are stored in watertight containers with appropriate secondary containment, or in a completely enclosed storage shed			
Construction materials are minimally exposed to precipitation			
BMPs preventing the off-site tracking of materials are implemented and properly effective			
Good Housekeeping for Waste Management			
Wash/rinse water and materials are prevented from being disposed into the storm drain system			
Portable toilets are contained to prevent discharges of waste			
Sanitation facilities are clean and with no apparent for leaks and spills			
Equipment is in place to cover waste disposal containers at the end of business day and during rain events			
Discharges from waste disposal containers are prevented from discharging to the storm drain system / receiving water			
Stockpiled waste material is securely protected from wind and rain if not actively in use			
Procedures are in place for addressing hazardous and non-hazardous spills			
Appropriate spill response personnel are assigned and trained			
Equipment and materials for cleanup of spills is available onsite			
Washout areas (e.g., concrete) are contained appropriately to prevent discharge or infiltration into the underlying soil			
Good Housekeeping for Vehicle Storage and Maintenance			
Measures are in place to prevent oil, grease, or fuel from leaking into the ground, storm drains, or surface waters			
All equipment or vehicles are fueled, maintained, and stored in a designated area with appropriate BMPs			
Vehicle and equipment leaks are cleaned immediately and disposed of properly			

Part II. BMP Observations Continued. Describe deficiencies in Part III.			
Minimum BMPs for Risk Level _____ Sites	Adequately designed, implemented and effective	Action Required (yes/no)	Action Implemented (Date)

	(yes, no, N/A)		
Good Housekeeping for Landscape Materials			
Stockpiled landscape materials such as mulches and topsoil are contained and covered when not actively in use			
Erodible landscape material has not been applied 2 days before a forecasted rain event or during an event			
Erodible landscape materials are applied at quantities and rates in accordance with manufacturer recommendations			
Bagged erodible landscape materials are stored on pallets and covered			
Good Housekeeping for Air Deposition of Site Materials			
Good housekeeping measures are implemented onsite to control the air deposition of site materials and from site operations			
Non-Stormwater Management			
Non-Stormwater discharges are properly controlled			
Vehicles are washed in a manner to prevent non-stormwater discharges to surface waters or drainage systems			
Streets are cleaned in a manner to prevent unauthorized non-stormwater discharges to surface waters or drainage systems.			
Erosion Controls			
Wind erosion controls are effectively implemented			
Effective soil cover is provided for disturbed areas inactive (i.e., not scheduled to be disturbed for 14 days) as well as finished slopes, open space, utility backfill, and completed lots			
The use of plastic materials is limited in cases when a more sustainable, environmentally friendly alternative exists.			
Sediment Controls			
Perimeter controls are established and effective at controlling erosion and sediment discharges from the site			
Entrances and exits are stabilized to control erosion and sediment discharges from the site			
Sediment basins are properly maintained			
Linear sediment control along toe of slope, face of slope an at grade breaks (Risk Level 2 & 3 Only)			
Limit construction activity to and from site to entrances and exits that employ effective controls to prevent offsite tracking (Risk Level 2 & 3 Only)			
Ensure all storm, drain inlets and perimeter controls, runoff control BMPs and pollutants controls at entrances and exits are maintained and protected from activities the reduce their effectiveness (Risk Level 2 & 3 Only)			
Inspect all immediate access roads daily (Risk Level 2 & 3 Only)			
Run-On and Run-Off Controls			

Run-on to the site is effectively managed and directed away from all disturbed areas.			
Other			
Are the project SWPPP and BMP plan up to date, available on-site and being properly implemented?			

Part III. Descriptions of BMP Deficiencies		
Deficiency	**Repairs Implemented: Note - Repairs must begin within 72 hours of identification and, complete repairs as soon as possible.**	
	Start Date	**Action**
1.		
2.		
3.		
4.		

Part IV. Additional Pre-Storm Observations. Note the presence or absence of floating and suspended materials, sheen, discoloration, turbidity, odors, and source(s) of pollutants(s).	
	Yes, No, N/A
Do stormwater storage and containment areas have adequate freeboard? If no, complete Part III.	
Are drainage areas free of spills, leaks, or uncontrolled pollutant sources? If no, complete Part VII and describe below.	
Notes:	
Are stormwater storage and containment areas free of leaks? If no, complete Parts III and/or VII and describe below.	
Notes:	

Part V. Additional During Storm Observations. **If BMPs cannot be inspected during inclement weather, list the results of visual inspections at all relevant outfalls, discharge points, and downstream locations. Note odors or visible sheen on the surface of discharges. Complete Part VII (Corrective Actions) as needed.**	
Outfall, Discharge Point, or Other Downstream Location	
Location	Description
Location	Description
Location	Description
Location	Description
Location	Description
Location	Description
Location	Description
Location	Description

Part VI. Additional Post-Storm Observations. Visually observe (inspect) stormwater discharges at all discharge locations within two business days (48 hours) after each qualifying rain event, and observe (inspect) the discharge of stored or contained stormwater that is derived from and discharged subsequent to a qualifying rain event producing precipitation of ½ inch or more at the time of discharge. Complete Part VII (Corrective Actions) as needed.	
Discharge Location, Storage or Containment Area	**Visual Observation**

Part VII. Additional Corrective Actions Required. Identify additional corrective actions not included with BMP Deficiencies (Part III) above. Note if SWPPP change is required.	
Required Actions	**Implementation Date**

Appendix I: Discharge Log

SWPPP LOG, REPORTABLE QUANTITY RELEASES[1]

Minor				
Date	Material Spilled/Location/Source	Approximate Quantity	First Response Team Members	Disposal Date
Significant				
Date	Material Spilled/Location/Source	Approximate Quantity	First Response Team Members/Contracted Offsite Response Team	Disposal Date
Reportable				
Date of Spill	Material Spilled/Location/Source	Approximate Quantity	Agencies Notified	Date Notified
1 See Discussion in SWPPP Section 3.7 for completing table.				

Appendix J: Training Reporting Form

Trained Contractor Personnel Log

Stormwater Management Training Log and Documentation

Project Name: ____
WDID #: ________________________________

Stormwater Management Topic: (check as appropriate)

- ☐ Erosion Control
- ☐ Sediment Control
- ☐ Wind Erosion Control
- ☐ Tracking Control
- ☐ Non-Stormwater Management
- ☐ Waste Management and Materials Pollution Control
- ☐ Stormwater Sampling

Specific Training Objective: ____

Location: _____________________ Date: ________________________

Instructor:_____________________ Telephone: ___________________

Course Length (hours): __________

Attendee Roster (Attach additional forms if necessary)

Name	Company	Phone

As needed, add proof of external training (e.g., course completion certificates, credentials for QSP, QSD).

Appendix K:Responsible Parties

Authorization of Approved Signatories

Project Name: ____

WDID #: _________________________________

Name of Personnel	Project Role	Company	Signature	Date

____________________________ ____________________________

LRP's Signature Date

____________________________ ____________________________

LRP Name and Title Telephone Number

Identification of QSP

Project Name: ____

WDID #: _________________________________

The following are QSPs associated with this project

Name of Personnel[(1)]	Company	Date

(1) If additional QSPs are required on the job site add additional lines and include information here

Appendix L: Contractors and Subcontractors

Appendix M: Project Schedule

APPENDIX F

Noise Worksheets

APPENDIX F.1

Ambient Noise Measurements

Monitoring Location: Site 1
Monitoring Date: 06/28/2019

Monitoring Period

Time	**LAeq**	**LASmax**	**LASmin**
7:01:50	52.3	55.6	50.3
7:02:00	57.3	67.4	50.4
7:03:00	54.1	62.3	48.7
7:04:00	50.7	54.4	47.1
7:05:00	56.4	62.3	49.4
7:06:00	53.8	62.4	47.3
7:07:00	74.7	83.7	48.0
7:08:00	57.8	66.5	49.4
7:09:00	61.0	68.2	48.8
7:10:00	51.6	63.8	47.1
7:11:00	58.8	70.2	45.8
7:12:00	50.8	54.8	46.9
7:13:00	56.7	69.7	44.7
7:14:00	52.3	56.5	46.5
7:15:00	56.4	64.4	49.1
7:16:00	52.5	56.0	47.2
7:17:00	51.2	51.2	50.4
		83.7	44.7

15-minute LAeq **63.5**

Monitoring Location: Site 2
Monitoring Date: 6/28/2019

Monitoring Period

Time	**LAeq**	**LASmax**	**LASmin**
7:22:11	51.0	57.4	44.3
7:23:00	52.4	55.8	49.6
7:24:00	54.4	61.2	48.3
7:25:00	58.1	65.1	51.6
7:26:00	51.6	55.8	47.6
7:27:00	53.3	57.2	49.4
7:28:00	53.4	57.0	48.0
7:29:00	57.0	64.0	49.1
7:30:00	60.3	69.9	45.9
7:31:00	51.4	54.9	45.9
7:32:00	53.3	61.8	45.1
7:33:00	52.5	56.3	45.6
7:34:00	55.0	61.1	48.9
7:35:00	56.0	66.5	46.6
7:36:00	52.2	55.6	49.1
7:37:00	54.5	58.7	51.1
		69.9	44.3

15-minute LAeq **55.0**

Monitoring Location: Site 3
Monitoring Date: 6/28/2019

Monitoring Period

Time	LAeq	LASmax	LASmin
8:27:13	47.5	57.2	42.5
8:28:00	53.9	66.2	43.0
8:29:00	44.9	50.5	40.6
8:30:00	45.7	48.4	42.4
8:31:00	46.6	55.1	40.2
8:32:00	54.6	63.0	45.7
8:33:00	47.9	53.7	41.6
8:34:00	43.2	47.2	39.0
8:35:00	45.5	49.0	41.9
8:36:00	54.9	66.3	41.4
8:37:00	46.1	50.5	42.3
8:38:00	58.2	65.9	44.0
8:39:00	54.8	67.2	42.1
8:40:00	56.2	64.4	45.4
8:41:00	56.7	68.2	45.0
8:42:00	47.0	51.0	45.2
		68.2	39.0

15-minute LAeq **52.8**

Monitoring Location: Site 4
Monitoring Date: 6/28/2019

Monitoring Period

Time	LAeq	LASmax	LASmin
8:07:26	62.6	67.5	48.3
8:08:00	60.0	67.0	45.9
8:09:00	62.3	71.3	47.1
8:10:00	58.7	66.0	47.8
8:11:00	65.7	77.6	50.3
8:12:00	61.4	66.4	53.3
8:13:00	58.1	66.2	46.6
8:14:00	60.5	65.3	46.5
8:15:00	61.9	69.7	53.9
8:16:00	61.6	68.3	53.4
8:17:00	60.0	65.5	48.7
8:18:00	61.0	67.6	45.8
8:19:00	59.6	68.3	46.0
8:20:00	60.6	66.0	45.7
8:21:00	64.9	72.8	51.7
8:22:00	58.0	63.1	49.4
		77.6	45.7

15-minute LAeq **61.6**

Monitoring Location: Site 5
Monitoring Date: 6/28/2019

Monitoring Period

Time	**LAeq**	**LASmax**	**LASmin**
7:45:58	43.9	43.6	41.7
7:46:00	44.6	50.9	40.8
7:47:00	43.4	48.4	40.0
7:48:00	43.5	46.9	41.6
7:49:00	48.8	53.7	44.1
7:50:00	49.5	55.6	43.3
7:51:00	45.0	49.1	42.5
7:52:00	45.5	51.8	41.6
7:53:00	51.6	56.3	42.3
7:54:00	47.6	52.6	41.0
7:55:00	47.3	53.9	41.1
7:56:00	45.7	48.9	42.6
7:57:00	44.2	48.4	41.5
7:58:00	43.6	46.4	41.4
7:59:00	46.3	50.1	41.1
8:00:00	45.7	54.6	41.6
8:01:00	54.6	56.2	52.2
		56.3	40.0

15-minute LAeq **46.7**

APPENDIX F.2

Roadway Noise Calculations

Project Name: INO Rancho Mirage rev. (Date)

Weekday (PM Peak Hour) and Saturday (Midday)

Intersection: 1

Hwy 111 & Rancho Las Palmas Drive

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Hwy 111

Southbound

	right	through	left
Existing Weekday (PM Peak)	23	1,244	87
Existing Saturday (Midday)	23	1,351	71
Existing with Project Weekday (PM Peak)	23	1,258	87
Existing with Project Saturday (Midday)	23	1,384	71
Year 2022 without Project Weekday (PM Pea	24	1,316	90
Year 2022 without Project Saturday (Midday)	24	1,430	74
Year 2022 with Project Weekday (PM peak)	24	1,330	90
Year 2022 with Project Saturday (Midday)	24	1,463	74

Rancho Las Palmas

Eastbound

	left	through	right
Existing Weekday (PM Peak)	35	48	26
Existing Saturday (Midday)	19	21	13
Existing with Project Weekday (PM Peak)	35	48	27
Existing with Project Saturday (Midday)	19	21	15
Year 2022 without Project Weekday (PM Pea	36	50	27
Year 2022 without Project Saturday (Midday)	20	22	14
Year 2022 with Project Weekday (PM peak)	36	50	28
Year 2022 with Project Saturday (Midday)	20	22	16

N

W E

S

Westbound

	right	through	left
Existing Weekday (PM Peak)	75	30	89
Existing Saturday (Midday)	68	20	55
Existing with Project Weekday (PM Peak)	75	30	89
Existing with Project Saturday (Midday)	68	20	55
Year 2022 without Project Weekday (PM Peal	78	31	93
Year 2022 without Project Saturday (Midday)	71	21	57
Year 2022 with Project Weekday (PM peak)	78	31	93
Year 2022 with Project Saturday (Midday)	71	21	57

Northbound

	left	through	right
Existing Weekday (PM Peak)	11	1,335	48
Existing Saturday (Midday)	10	1,384	54
Existing with Project Weekday (PM Peak)	12	1,347	48
Existing with Project Saturday (Midday)	12	1,416	54
Year 2022 without Project Weekday (PM Pea	11	1,408	50
Year 2022 without Project Saturday (Midday)	10	1,462	56
Year 2022 with Project Weekday (PM peak)	12	1420	50
Year 2022 with Project Saturday (Midday)	12	1,494	56

ADT

Road	Hwy 111		Rancho Las Palmas Drive	
Leg	North of	South of	East of	West of
Cross Street	Rancho Las Palmas Drive		Hwy 111	
Existing Weekda	22,392.0	22,024.0	3,016.0	1,384.0
Existing Saturday	23,328.0	22,936.0	2,312.0	848.0
Existing with Pro	22,600.0	22,248.0	3,016.0	1,400.0
Existing with Pro	23,848.0	23,488.0	2,312.0	880.0
Year 2022 withou	23,616.0	23,240.0	3,136.0	1,432.0
Year 2022 withou	24,648.0	24,232.0	2,408.0	888.0
Year 2022 with P	23,824.0	23,464.0	3,136.0	1,448.0
Year 2022 with P	25,168.0	24,784.0	2,408.0	920.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Heavy Trucks	dB(A) CNEL
Hwy 111 n/o Rancho Las											
Existing Weekday (PM Peak)		6	10	22,392	45	75	0	0	1.8%	0.7%	68.0
Existing Saturday (Midday)		6	10	23,328	45	75	0	0	1.8%	0.7%	68.2
Existing with Project Weekday (PM Peak)		6	10	22,600	45	75	0	0	1.8%	0.7%	68.1
Existing with Project Saturday (Midday)		6	10	23,848	45	75	0	0	1.8%	0.7%	68.3
Year 2022 without Project Weekday (PM Peak)		6	10	23,616	45	75	0	0	1.8%	0.7%	68.3
Year 2022 without Project Saturday (Midday)		6	10	24,648	45	75	0	0	1.8%	0.7%	68.5
Year 2022 with Project Weekday (PM peak)		6	10	23,824	45	75	0	0	1.8%	0.7%	68.3
Year 20220 with Project Saturday (Midday)		6	10	25,168	45	75	0	0	1.8%	0.7%	68.5
Hwy 111 s/o Rancho Las											
Existing Weekday (PM Peak)		6	10	22,024	45	75	0	0	1.8%	0.7%	68.0
Existing Saturday (Midday)		6	10	22,936	45	75	0	0	1.8%	0.7%	68.1
Existing with Project Weekday (PM Peak)		6	10	22,248	45	75	0	0	1.8%	0.7%	68.0
Existing with Project Saturday (Midday)		6	10	23,488	45	75	0	0	1.8%	0.7%	68.2
Year 2022 without Project Weekday (PM Peak)		6	10	23,240	45	75	0	0	1.8%	0.7%	68.2
Year 2022 without Project Saturday (Midday)		6	10	24,232	45	75	0	0	1.8%	0.7%	68.4
Year 2022 with Project Weekday (PM peak)		6	10	23,464	45	75	0	0	1.8%	0.7%	68.2
Year 20220 with Project Saturday (Midday)		6	10	24,784	45	75	0	0	1.8%	0.7%	68.5
Rancho Las Palmas Drive e/o											
Existing Weekday (PM Peak)		2	0	3,016	40	75	0	0	1.8%	0.7%	57.6
Existing Saturday (Midday)		2	0	2,312	40	75	0	0	1.8%	0.7%	56.4
Existing with Project Weekday (PM Peak)		2	0	3,016	40	75	0	0	1.8%	0.7%	57.6
Existing with Project Saturday (Midday)		2	0	2,312	40	75	0	0	1.8%	0.7%	56.4
Year 2022 without Project Weekday (PM Peak)		2	0	3,136	40	75	0	0	1.8%	0.7%	57.8
Year 2022 without Project Saturday (Midday)		2	0	2,408	40	75	0	0	1.8%	0.7%	56.6
Year 2022 with Project Weekday (PM peak)		2	0	3,136	40	75	0	0	1.8%	0.7%	57.8
Year 20220 with Project Saturday (Midday)		2	0	2,408	40	75	0	0	1.8%	0.7%	56.6
Rancho Las Palmas Drive w/o											
Existing Weekday (PM Peak)		2	0	1,384	40	75	0	0	1.8%	0.7%	54.2
Existing Saturday (Midday)		2	0	848	40	75	0	0	1.8%	0.7%	52.1
Existing with Project Weekday (PM Peak)		2	0	1,400	40	75	0	0	1.8%	0.7%	54.3
Existing with Project Saturday (Midday)		2	0	880	40	75	0	0	1.8%	0.7%	52.2
Year 2022 without Project Weekday (PM Peak)		2	0	1,432	40	75	0	0	1.8%	0.7%	54.4
Year 2022 without Project Saturday (Midday)		2	0	888	40	75	0	0	1.8%	0.7%	52.3
Year 2022 with Project Weekday (PM peak)		2	0	1,448	40	75	0	0	1.8%	0.7%	54.4
Year 20220 with Project Saturday (Midday)		2	0	920	40	75	0	0	1.8%	0.7%	52.4

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: INO Rancho Mirage
Weekday (PM Peak Hour) and Saturday (Midday)

rev. (Date)

Intersection: 2
Hwy 111 & Bob Hope Drive

Hwy 111

Southbound

	right	through	left
Existing Weekday (PM Peak)	7	1,326	87
Existing Saturday (Midday)	11	1,304	101
Existing with Project Weekday (PM Peak)	7	1,341	87
Existing with Project Saturday (Midday)	11	1,339	101
Year 2022 without Project Weekday (PM Peak)	15	1,393	90
Year 2022 without Project Saturday (Midday)	21	1,371	105
Year 2022 with Project Weekday (PM peak)	15	1,408	90
Year 2022 with Project Saturday (Midday)	21	1,406	105

Bob Hope Drive

Eastbound

	left	through	right
Existing Weekday (PM Peak)	8	14	12
Existing Saturday (Midday)	12	20	18
Existing with Project Weekday (PM Peak)	8	14	12
Existing with Project Saturday (Midday)	12	20	18
Year 2022 without Project Weekday (PM Peak	16	18	24
Year 2022 without Project Saturday (Midday)	21	25	33
Year 2022 with Project Weekday (PM peak)	16	18	24
Year 2022 with Project Saturday (Midday)	21	25	33

N
W E
S

Westbound

	right	through	left
Existing Weekday (PM Peak)	44	7	527
Existing Saturday (Midday)	51	11	541
Existing with Project Weekday (PM Peak)	44	7	519
Existing with Project Saturday (Midday)	51	11	522
Year 2022 without Project Weekday (PM Peak)	46	10	563
Year 2022 without Project Saturday (Midday)	53	15	578
Year 2022 with Project Weekday (PM peak)	46	10	555
Year 2022 with Project Saturday (Midday)	53	15	559

Northbound

	left	through	right
Existing Weekday (PM Peak)	22	1,496	493
Existing Saturday (Midday)	33	1,511	494
Existing with Project Weekday (PM Peak)	22	1,509	487
Existing with Project Saturday (Midday)	33	1,545	480
Year 2022 without Project Weekday (PM Peak)	35	1,568	521
Year 2022 without Project Saturday (Midday)	49	1,585	524
Year 2022 with Project Weekday (PM peak)	35	1,581	515
Year 2022 with Project Saturday (Midday)	49	1,619	510

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

ADT

Road	Hwy 111		Bob Hope Drive	
Leg	North of	South of	East of	West of
Cross Street	Bob Hope Drive		Hwy 111	
Existing Weekda	23,744.0	31,008.0	9,376.0	560.0
Existing Saturday	23,920.0	31,208.0	9,744.0	840.0
Existing with Proj	23,968.0	31,120.0	9,264.0	560.0
Existing with Proj	24,472.0	31,496.0	9,480.0	840.0
Year 2022 withou	25,024.0	32,832.0	9,984.0	944.0
Year 2022 withou	25,248.0	33,120.0	10,400.0	1,312.0
Year 2022 with P	25,248.0	32,944.0	9,872.0	944.0
Year 2022 with P	25,800.0	33,408.0	10,136.0	1,312.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Hwy 111 n/o Bob Hope Drive											
Existing Weekday (PM Peak)		6	10	23,744	45	75	0	0	1.8%	0.7%	68.3
Existing Saturday (Midday)		6	10	23,920	45	75	0	0	1.8%	0.7%	68.3
Existing with Project Weekday (PM Peak)		6	10	23,968	45	75	0	0	1.8%	0.7%	68.3
Existing with Project Saturday (Midday)		6	10	24,472	45	75	0	0	1.8%	0.7%	68.4
Year 2022 without Project Weekday (PM Peak)		6	10	25,024	45	75	0	0	1.8%	0.7%	68.5
Year 2022 without Project Saturday (Midday)		6	10	25,248	45	75	0	0	1.8%	0.7%	68.6
Year 2022 with Project Weekday (PM peak)		6	10	25,248	45	75	0	0	1.8%	0.7%	68.6
Year 20220 with Project Saturday (Midday)		6	10	25,800	45	75	0	0	1.8%	0.7%	68.7
Hwy 111 s/o Bob Hope Drive											
Existing Weekday (PM Peak)		6	10	31,008	45	75	0	0	1.8%	0.7%	69.5
Existing Saturday (Midday)		6	10	31,208	45	75	0	0	1.8%	0.7%	69.5
Existing with Project Weekday (PM Peak)		6	10	31,120	45	75	0	0	1.8%	0.7%	69.5
Existing with Project Saturday (Midday)		6	10	31,496	45	75	0	0	1.8%	0.7%	69.5
Year 2022 without Project Weekday (PM Peak)		6	10	32,832	45	75	0	0	1.8%	0.7%	69.7
Year 2022 without Project Saturday (Midday)		6	10	33,120	45	75	0	0	1.8%	0.7%	69.7
Year 2022 with Project Weekday (PM peak)		6	10	32,944	45	75	0	0	1.8%	0.7%	69.7
Year 20220 with Project Saturday (Midday)		6	10	33,408	45	75	0	0	1.8%	0.7%	69.8
Bob Hope Drive e/o Hwy 111											
Existing Weekday (PM Peak)		4	15	9,376	45	75	0	0	1.8%	0.7%	64.0
Existing Saturday (Midday)		4	15	9,744	45	75	0	0	1.8%	0.7%	64.2
Existing with Project Weekday (PM Peak)		4	15	9,264	45	75	0	0	1.8%	0.7%	63.9
Existing with Project Saturday (Midday)		4	15	9,480	45	75	0	0	1.8%	0.7%	64.0
Year 2022 without Project Weekday (PM Peak)		4	15	9,984	45	75	0	0	1.8%	0.7%	64.3
Year 2022 without Project Saturday (Midday)		4	15	10,400	45	75	0	0	1.8%	0.7%	64.4
Year 2022 with Project Weekday (PM peak)		4	15	9,872	45	75	0	0	1.8%	0.7%	64.2
Year 20220 with Project Saturday (Midday)		4	15	10,136	45	75	0	0	1.8%	0.7%	64.3
Bob Hope Drive w/o Hwy 111											
Existing Weekday (PM Peak)		2	0	560	15	75	0	0	1.8%	0.7%	42.6
Existing Saturday (Midday)		2	0	840	15	75	0	0	1.8%	0.7%	44.3
Existing with Project Weekday (PM Peak)		2	0	560	15	75	0	0	1.8%	0.7%	42.6
Existing with Project Saturday (Midday)		2	0	840	15	75	0	0	1.8%	0.7%	44.3
Year 2022 without Project Weekday (PM Peak)		2	0	944	15	75	0	0	1.8%	0.7%	44.8
Year 2022 without Project Saturday (Midday)		2	0	1,312	15	75	0	0	1.8%	0.7%	46.3
Year 2022 with Project Weekday (PM peak)		2	0	944	15	75	0	0	1.8%	0.7%	44.8
Year 20220 with Project Saturday (Midday)		2	0	1,312	15	75	0	0	1.8%	0.7%	46.3

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: INO Rancho Mirage
Weekday (PM Peak Hour) and Saturday (Midday)

rev. (Date)

Intersection: 3
Hwy 111 & Magnesia Falls Drive

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

ADT

Road	Hwy 111		Bob Hope Drive	
Leg	North of	South of	East of	West of
Cross Street	Bob Hope Drive		Hwy 111	
Existing Weekda	30,800.0	32,232.0	1,920.0	1,080.0
Existing Saturday	31,000.0	32,800.0	2,416.0	968.0
Existing with Proj	30,936.0	32,472.0	2,528.0	1,088.0
Existing with Proj	31,328.0	33,448.0	3,936.0	1,000.0
Year 2022 withou	32,616.0	34,088.0	2,008.0	1,128.0
Year 2022 withou	32,880.0	34,736.0	2,520.0	1,000.0
Year 2022 with P	32,752.0	34,328.0	2,616.0	1,136.0
Year 2022 with P	33,208.0	35,384.0	4,040.0	1,032.0

Hwy 111

Southbound

	right	through	left
Existing Weekday (PM Peak)	14	1,781	23
Existing Saturday (Midday)	15	1,817	31
Existing with Project Weekday (PM Peak)	14	1,757	54
Existing with Project Saturday (Midday)	15	1,760	104
Year 2022 without Project Weekday (PM Peak	15	1,891	25
Year 2022 without Project Saturday (Midday)	16	1,932	33
Year 2022 with Project Weekday (PM peak)	15	1,867	56
Year 2022 with Project Saturday (Midday)	16	1,875	106

Bob Hope Drive

Eastbound

	left	through	right
Existing Weekday (PM Peak)	20	11	39
Existing Saturday (Midday)	11	8	35
Existing with Project Weekday (PM Peak)	20	11	39
Existing with Project Saturday (Midday)	12	9	35
Year 2022 without Project Weekday (PM Peak	21	11	41
Year 2022 without Project Saturday (Midday)	11	8	36
Year 2022 with Project Weekday (PM peak)	21	11	41
Year 2022 with Project Saturday (Midday)	12	9	36

N
W E
S

Westbound

	right	through	left
Existing Weekday (PM Peak)	21	9	128
Existing Saturday (Midday)	26	8	158
Existing with Project Weekday (PM Peak)	21	10	165
Existing with Project Saturday (Midday)	26	10	255
Year 2022 without Project Weekday (PM Peal	23	9	133
Year 2022 without Project Saturday (Midday)	28	8	164
Year 2022 with Project Weekday (PM peak)	23	10	170
Year 2022 with Project Saturday (Midday)	28	10	261

Northbound

	left	through	right
Existing Weekday (PM Peak)	42	1,991	48
Existing Saturday (Midday)	44	1,975	71
Existing with Project Weekday (PM Peak)	42	2,001	55
Existing with Project Saturday (Midday)	44	1,999	88
Year 2022 without Project Weekday (PM Peal	44	2102	50
Year 2022 without Project Saturday (Midday)	46	2090	74
Year 2022 with Project Weekday (PM peak)	44	2,112	57
Year 2022 with Project Saturday (Midday)	46	2,114	91

2

NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Hwy 111 n/o Magnesia Falls											
Existing Weekday (PM Peak)		6	10	30,800	45	75	0	0	1.8%	0.7%	69.4
Existing Saturday (Midday)		6	10	31,000	45	75	0	0	1.8%	0.7%	69.5
Existing with Project Weekday (PM Peak)		6	10	30,936	45	75	0	0	1.8%	0.7%	69.4
Existing with Project Saturday (Midday)		6	10	31,328	45	75	0	0	1.8%	0.7%	69.5
Year 2022 without Project Weekday (PM Peak)		6	10	32,616	45	75	0	0	1.8%	0.7%	69.7
Year 2022 without Project Saturday (Midday)		6	10	32,880	45	75	0	0	1.8%	0.7%	69.7
Year 2022 with Project Weekday (PM peak)		6	10	32,752	45	75	0	0	1.8%	0.7%	69.7
Year 20220 with Project Saturday (Midday)		6	10	33,208	45	75	0	0	1.8%	0.7%	69.8
Hwy 111 s/o Magnesia Falls											
Existing Weekday (PM Peak)		6	10	32,232	45	75	0	0	1.8%	0.7%	69.6
Existing Saturday (Midday)		6	10	32,800	45	75	0	0	1.8%	0.7%	69.7
Existing with Project Weekday (PM Peak)		6	10	32,472	45	75	0	0	1.8%	0.7%	69.7
Existing with Project Saturday (Midday)		6	10	33,448	45	75	0	0	1.8%	0.7%	69.8
Year 2022 without Project Weekday (PM Peak)		6	10	34,088	45	75	0	0	1.8%	0.7%	69.9
Year 2022 without Project Saturday (Midday)		6	10	34,736	45	75	0	0	1.8%	0.7%	69.9
Year 2022 with Project Weekday (PM peak)		6	10	34,328	45	75	0	0	1.8%	0.7%	69.9
Year 20220 with Project Saturday (Midday)		6	10	35,384	45	75	0	0	1.8%	0.7%	70.0
Magnesia Falls Drive e/o Hwy											
Existing Weekday (PM Peak)		2	0	1,920	25	75	0	0	1.8%	0.7%	51.7
Existing Saturday (Midday)		2	0	2,416	25	75	0	0	1.8%	0.7%	52.7
Existing with Project Weekday (PM Peak)		2	0	2,528	25	75	0	0	1.8%	0.7%	52.9
Existing with Project Saturday (Midday)		2	0	3,936	25	75	0	0	1.8%	0.7%	54.8
Year 2022 without Project Weekday (PM Peak)		2	0	2,008	25	75	0	0	1.8%	0.7%	51.9
Year 2022 without Project Saturday (Midday)		2	0	2,520	25	75	0	0	1.8%	0.7%	52.9
Year 2022 with Project Weekday (PM peak)		2	0	2,616	25	75	0	0	1.8%	0.7%	53.0
Year 20220 with Project Saturday (Midday)		2	0	4,040	25	75	0	0	1.8%	0.7%	54.9
Magnesia Falls Drive w/o											
Existing Weekday (PM Peak)		2	0	1,080	25	75	0	0	1.8%	0.7%	49.2
Existing Saturday (Midday)		2	0	968	25	75	0	0	1.8%	0.7%	48.7
Existing with Project Weekday (PM Peak)		2	0	1,088	25	75	0	0	1.8%	0.7%	49.2
Existing with Project Saturday (Midday)		2	0	1,000	25	75	0	0	1.8%	0.7%	48.8
Year 2022 without Project Weekday (PM Peak)		2	0	1,128	25	75	0	0	1.8%	0.7%	49.4
Year 2022 without Project Saturday (Midday)		2	0	1,000	25	75	0	0	1.8%	0.7%	48.8
Year 2022 with Project Weekday (PM peak)		2	0	1,136	25	75	0	0	1.8%	0.7%	49.4
Year 20220 with Project Saturday (Midday)		2	0	1,032	25	75	0	0	1.8%	0.7%	49.0

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: INO Rancho Mirage rev. (Date)
Weekday (PM Peak Hour) and Saturday (Midday)

Intersection: 4
Rancho Las Palmas Ctr & Magnesia Falls Drive

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

ADT

Road	Rancho Las Palmas Ctr		Magnesia Falls Drive	
Leg	North of	South of	East of	West of
Cross Street	Magnesia Falls Drive		Rancho Las Palmas Ctr	
Existing Weekda	1,048.0	408.0	384.0	1,504.0
Existing Saturday	1,704.0	432.0	272.0	2,072.0
Existing with Pro	1,664.0	408.0	392.0	2,112.0
Existing with Pro	3,248.0	432.0	320.0	3,616.0
Year 2022 withou	1,088.0	424.0	408.0	1,584.0
Year 2022 withou	1,768.0	448.0	320.0	2,200.0
Year 2022 with P	1,704.0	424.0	416.0	2,192.0
Year 2022 with P	3,312.0	448.0	344.0	3,720.0

Rancho Las Palmas Ctr

Southbound

	right	through	left
Existing Weekday (PM Peak)	89		
Existing Saturday (Midday)	127		
Existing with Project Weekday (PM Peak)	127		
Existing with Project Saturday (Midday)	226		
Year 2022 without Project Weekday (PM Peak	93		
Year 2022 without Project Saturday (Midday)	132		
Year 2022 with Project Weekday (PM peak)	131		
Year 2022 with Project Saturday (Midday)	231		

Magnesia Falls Drive

Eastbound

	left	through	right
Existing Weekday (PM Peak)	32	24	14
Existing Saturday (Midday)	67	12	21
Existing with Project Weekday (PM Peak)	70	24	14
Existing with Project Saturday (Midday)	158	15	21
Year 2022 without Project Weekday (PM Peak	33	26	15
Year 2022 without Project Saturday (Midday)	70	17	22
Year 2022 with Project Weekday (PM peak)	71	26	15
Year 2022 with Project Saturday (Midday)	161	17	22

N
W E
S

Westbound

	right	through	left
Existing Weekday (PM Peak)	4	9	2
Existing Saturday (Midday)	11	9	1
Existing with Project Weekday (PM Peak)	5	9	2
Existing with Project Saturday (Midday)	14	9	1
Year 2022 without Project Weekday (PM Peak	4	10	2
Year 2022 without Project Saturday (Midday)	11	10	1
Year 2022 with Project Weekday (PM peak)	5	10	2
Year 2022 with Project Saturday (Midday)	14	10	1

Northbound

	left	through	right
Existing Weekday (PM Peak)	20	6	9
Existing Saturday (Midday)	23	8	1
Existing with Project Weekday (PM Peak)	20	6	9
Existing with Project Saturday (Midday)	23	8	1
Year 2022 without Project Weekday (PM Peak	21	6	9
Year 2022 without Project Saturday (Midday)	24	8	1
Year 2022 with Project Weekday (PM peak)	21	6	9
Year 2022 with Project Saturday (Midday)	24	8	1

2

NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Rancho Las Palmas Center											
Existing Weekday (PM Peak)		2	0	1,048	15	75	0	0	1.8%	0.7%	45.3
Existing Saturday (Midday)		2	0	1,704	15	75	0	0	1.8%	0.7%	47.4
Existing with Project Weekday (PM Peak)		2	0	1,664	15	75	0	0	1.8%	0.7%	47.3
Existing with Project Saturday (Midday)		2	0	3,248	15	75	0	0	1.8%	0.7%	50.2
Year 2022 without Project Weekday (PM Peak)		2	0	1,088	15	75	0	0	1.8%	0.7%	45.4
Year 2022 without Project Saturday (Midday)		2	0	1,768	15	75	0	0	1.8%	0.7%	47.5
Year 2022 with Project Weekday (PM peak)		2	0	1,704	15	75	0	0	1.8%	0.7%	47.4
Year 20220 with Project Saturday (Midday)		2	0	3,312	15	75	0	0	1.8%	0.7%	50.3
Rancho Las Palmas Center											
Existing Weekday (PM Peak)		2	0	408	15	75	0	0	1.8%	0.7%	41.2
Existing Saturday (Midday)		2	0	432	15	75	0	0	1.8%	0.7%	41.4
Existing with Project Weekday (PM Peak)		2	0	408	15	75	0	0	1.8%	0.7%	41.2
Existing with Project Saturday (Midday)		2	0	432	15	75	0	0	1.8%	0.7%	41.4
Year 2022 without Project Weekday (PM Peak)		2	0	424	15	75	0	0	1.8%	0.7%	41.3
Year 2022 without Project Saturday (Midday)		2	0	448	15	75	0	0	1.8%	0.7%	41.6
Year 2022 with Project Weekday (PM peak)		2	0	424	15	75	0	0	1.8%	0.7%	41.3
Year 20220 with Project Saturday (Midday)		2	0	448	15	75	0	0	1.8%	0.7%	41.6
Magnesia Falls Drive e/o											
Existing Weekday (PM Peak)		2	0	384	25	75	0	0	1.8%	0.7%	44.7
Existing Saturday (Midday)		2	0	272	25	75	0	0	1.8%	0.7%	43.2
Existing with Project Weekday (PM Peak)		2	0	392	25	75	0	0	1.8%	0.7%	44.8
Existing with Project Saturday (Midday)		2	0	320	25	75	0	0	1.8%	0.7%	43.9
Year 2022 without Project Weekday (PM Peak)		2	0	408	25	75	0	0	1.8%	0.7%	44.9
Year 2022 without Project Saturday (Midday)		2	0	320	25	75	0	0	1.8%	0.7%	43.9
Year 2022 with Project Weekday (PM peak)		2	0	416	25	75	0	0	1.8%	0.7%	45.0
Year 20220 with Project Saturday (Midday)		2	0	344	25	75	0	0	1.8%	0.7%	44.2
Magnesia Falls Drive w/o											
Existing Weekday (PM Peak)		2	0	1,504	25	75	0	0	1.8%	0.7%	50.6
Existing Saturday (Midday)		2	0	2,072	25	75	0	0	1.8%	0.7%	52.0
Existing with Project Weekday (PM Peak)		2	0	2,112	25	75	0	0	1.8%	0.7%	52.1
Existing with Project Saturday (Midday)		2	0	3,616	25	75	0	0	1.8%	0.7%	54.4
Year 2022 without Project Weekday (PM Peak)		2	0	1,584	25	75	0	0	1.8%	0.7%	50.8
Year 2022 without Project Saturday (Midday)		2	0	2,200	25	75	0	0	1.8%	0.7%	52.3
Year 2022 with Project Weekday (PM peak)		2	0	2,192	25	75	0	0	1.8%	0.7%	52.2
Year 20220 with Project Saturday (Midday)		2	0	3,720	25	75	0	0	1.8%	0.7%	54.5

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: INO Rancho Mirage rev. (Date)
Weekday (PM Peak Hour) and Saturday (Midday)

Intersection: 5
Highway 111 & Park View Drive

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

ADT

Road	Hwy 111		Park View Drive	
Leg	North of	South of	East of	West of
Cross Street	Park View Drive		Hwy 111	
Existing Weekda	31,552.0	29,704.0	3,616.0	1,384.0
Existing Saturday	32,784.0	31,160.0	3,008.0	1,480.0
Existing with Pro	31,816.0	29,928.0	3,656.0	1,384.0
Existing with Pro	33,448.0	31,712.0	3,120.0	1,480.0
Year 2022 withou	33,376.0	31,440.0	3,776.0	1,440.0
Year 2022 withou	34,736.0	33,016.0	3,152.0	1,544.0
Year 2022 with P	33,640.0	31,664.0	3,816.0	1,440.0
Year 2022 with P	35,400.0	33,568.0	3,264.0	1,544.0

Hwy 111

Southbound

	right	through	left
Existing Weekday (PM Peak)	63	1,791	137
Existing Saturday (Midday)	88	1,838	91
Existing with Project Weekday (PM Peak)	63	1,804	140
Existing with Project Saturday (Midday)	88	1,872	99
Year 2022 without Project Weekday (PM Peak	66	1,901	143
Year 2022 without Project Saturday (Midday)	92	1,953	96
Year 2022 with Project Weekday (PM peak)	66	1,914	146
Year 2022 with Project Saturday (Midday)	92	1987	104

Park View Drive

Eastbound

	left	through	right
Existing Weekday (PM Peak)	42	24	6
Existing Saturday (Midday)	46	13	8
Existing with Project Weekday (PM Peak)	42	24	6
Existing with Project Saturday (Midday)	46	13	8
Year 2022 without Project Weekday (PM Peak	44	25	6
Year 2022 without Project Saturday (Midday)	48	14	8
Year 2022 with Project Weekday (PM peak)	44	25	6
Year 2022 with Project Saturday (Midday)	48	14	8

N
W E
S

Westbound

	right	through	left
Existing Weekday (PM Peak)	129	33	39
Existing Saturday (Midday)	120	24	48
Existing with Project Weekday (PM Peak)	131	33	39
Existing with Project Saturday (Midday)	126	24	48
Year 2022 without Project Weekday (PM Peak	135	34	41
Year 2022 without Project Saturday (Midday)	126	25	50
Year 2022 with Project Weekday (PM peak)	137	34	41
Year 2022 with Project Saturday (Midday)	132	25	50

Northbound

	left	through	right
Existing Weekday (PM Peak)	5	1,782	90
Existing Saturday (Midday)	6	1,915	80
Existing with Project Weekday (PM Peak)	5	1,797	90
Existing with Project Saturday (Midday)	6	1,950	80
Year 2022 without Project Weekday (PM Peak	5	1,883	94
Year 2022 without Project Saturday (Midday)	6	2,027	83
Year 2022 with Project Weekday (PM peak)	5	1,898	94
Year 2022 with Project Saturday (Midday)	6	2,062	83

2

NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Hwy 111 n/o Park View Drive											
Existing Weekday (PM Peak)		6	10	31,552	45	75	0	0	1.8%	0.7%	69.5
Existing Saturday (Midday)		6	10	32,784	45	75	0	0	1.8%	0.7%	69.7
Existing with Project Weekday (PM Peak)		6	10	31,816	45	75	0	0	1.8%	0.7%	69.6
Existing with Project Saturday (Midday)		6	10	33,448	45	75	0	0	1.8%	0.7%	69.8
Year 2022 without Project Weekday (PM Peak)		6	10	33,376	45	75	0	0	1.8%	0.7%	69.8
Year 2022 without Project Saturday (Midday)		6	10	34,736	45	75	0	0	1.8%	0.7%	69.9
Year 2022 with Project Weekday (PM peak)		6	10	33,640	45	75	0	0	1.8%	0.7%	69.8
Year 20220 with Project Saturday (Midday)		6	10	35,400	45	75	0	0	1.8%	0.7%	70.0
Hwy 111 s/o Park View Drive											
Existing Weekday (PM Peak)		6	10	29,704	45	75	0	0	1.8%	0.7%	69.3
Existing Saturday (Midday)		6	10	31,160	45	75	0	0	1.8%	0.7%	69.5
Existing with Project Weekday (PM Peak)		6	10	29,928	45	75	0	0	1.8%	0.7%	69.3
Existing with Project Saturday (Midday)		6	10	31,712	45	75	0	0	1.8%	0.7%	69.6
Year 2022 without Project Weekday (PM Peak)		6	10	31,440	45	75	0	0	1.8%	0.7%	69.5
Year 2022 without Project Saturday (Midday)		6	10	33,016	45	75	0	0	1.8%	0.7%	69.7
Year 2022 with Project Weekday (PM peak)		6	10	31,664	45	75	0	0	1.8%	0.7%	69.5
Year 20220 with Project Saturday (Midday)		6	10	33,568	45	75	0	0	1.8%	0.7%	69.8
Park View Drive e/o Hwy 111											
Existing Weekday (PM Peak)		2	10	3,616	45	75	0	0	1.8%	0.7%	59.6
Existing Saturday (Midday)		2	10	3,008	45	75	0	0	1.8%	0.7%	58.8
Existing with Project Weekday (PM Peak)		2	10	3,656	45	75	0	0	1.8%	0.7%	59.7
Existing with Project Saturday (Midday)		2	10	3,120	45	75	0	0	1.8%	0.7%	59.0
Year 2022 without Project Weekday (PM Peak)		2	10	3,776	45	75	0	0	1.8%	0.7%	59.8
Year 2022 without Project Saturday (Midday)		2	10	3,152	45	75	0	0	1.8%	0.7%	59.0
Year 2022 with Project Weekday (PM peak)		2	10	3,816	45	75	0	0	1.8%	0.7%	59.9
Year 20220 with Project Saturday (Midday)		2	10	3,264	45	75	0	0	1.8%	0.7%	59.2
Park View Drive w/o Hwy											
Existing Weekday (PM Peak)		2	0	1,384	25	75	0	0	1.8%	0.7%	50.2
Existing Saturday (Midday)		2	0	1,480	25	75	0	0	1.8%	0.7%	50.5
Existing with Project Weekday (PM Peak)		2	0	1,384	25	75	0	0	1.8%	0.7%	50.2
Existing with Project Saturday (Midday)		2	0	1,480	25	75	0	0	1.8%	0.7%	50.5
Year 2022 without Project Weekday (PM Peak)		2	0	1,440	25	75	0	0	1.8%	0.7%	50.4
Year 2022 without Project Saturday (Midday)		2	0	1,544	25	75	0	0	1.8%	0.7%	50.7
Year 2022 with Project Weekday (PM peak)		2	0	1,440	25	75	0	0	1.8%	0.7%	50.4
Year 20220 with Project Saturday (Midday)		2	0	1,544	25	75	0	0	1.8%	0.7%	50.7

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: INO Rancho Mirage
Weekday (PM Peak Hour) and Saturday (Midday)

rev. (Date)

Intersection: 6
Highway 111 & Fred Waring Drive

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

ADT

Road	Hwy 111		Fred Waring Drive	
Leg	North of	South of	East of	West of
Cross Street	Fred Waring Drive		Hwy 111	
Existing Weekda	30,616.0	25,088.0	12,648.0	5,936.0
Existing Saturday	30,760.0	27,240.0	13,296.0	8,016.0
Existing with Pro	30,840.0	25,240.0	12,720.0	5,936.0
Existing with Pro	31,328.0	27,632.0	13,472.0	8,016.0
Year 2022 withou	32,384.0	26,584.0	13,200.0	6,184.0
Year 2022 withou	32,600.0	28,880.0	13,896.0	8,336.0
Year 2022 with P	32,608.0	26,736.0	13,272.0	6,184.0
Year 2022 with P	33,152.0	29,256.0	14,072.0	8,336.0

Hwy 111

Southbound

	right	through	left
Existing Weekday (PM Peak)	123	1,325	486
Existing Saturday (Midday)	144	1,328	409
Existing with Project Weekday (PM Peak)	123	1,334	490
Existing with Project Saturday (Midday)	144	1,351	420
Year 2022 without Project Weekday (PM Peak	128	1,413	508
Year 2022 without Project Saturday (Midday)	150	1,418	429
Year 2022 with Project Weekday (PM peak)	128	1,422	512
Year 2022 with Project Saturday (Midday)	150	1,441	440

Fred Waring Drive

Eastbound

	left	through	right
Existing Weekday (PM Peak)	138	170	78
Existing Saturday (Midday)	183	214	109
Existing with Project Weekday (PM Peak)	138	170	78
Existing with Project Saturday (Midday)	183	214	109
Year 2022 without Project Weekday (PM Peak	144	177	81
Year 2022 without Project Saturday (Midday)	190	223	113
Year 2022 with Project Weekday (PM peak)	144	177	81
Year 2022 with Project Saturday (Midday)	190	223	113

N
W E
S

Westbound

	right	through	left
Existing Weekday (PM Peak)	426	164	182
Existing Saturday (Midday)	358	244	239
Existing with Project Weekday (PM Peak)	431	164	182
Existing with Project Saturday (Midday)	369	244	239
Year 2022 without Project Weekday (PM Peak)	446	171	189
Year 2022 without Project Saturday (Midday)	376	254	249
Year 2022 with Project Weekday (PM peak)	451	171	189
Year 2022 with Project Saturday (Midday)	387	254	249

Northbound

	left	through	right
Existing Weekday (PM Peak)	69	1,329	153
Existing Saturday (Midday)	108	1,423	198
Existing with Project Weekday (PM Peak)	69	1,339	153
Existing with Project Saturday (Midday)	108	1,449	198
Year 2022 without Project Weekday (PM Peak	72	1,409	159
Year 2022 without Project Saturday (Midday)	112	1,512	206
Year 2022 with Project Weekday (PM peak)	72	1,419	159
Year 2022 with Project Saturday (Midday)	112	1,536	206

2
NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Hwy 111 n/o Fred Waring											
Existing Weekday (PM Peak)		6	10	30,616	45	75	0	0	1.8%	0.7%	69.4
Existing Saturday (Midday)		6	10	30,760	45	75	0	0	1.8%	0.7%	69.4
Existing with Project Weekday (PM Peak)		6	10	30,840	45	75	0	0	1.8%	0.7%	69.4
Existing with Project Saturday (Midday)		6	10	31,328	45	75	0	0	1.8%	0.7%	69.5
Year 2022 without Project Weekday (PM Peak)		6	10	32,384	45	75	0	0	1.8%	0.7%	69.6
Year 2022 without Project Saturday (Midday)		6	10	32,600	45	75	0	0	1.8%	0.7%	69.7
Year 2022 with Project Weekday (PM peak)		6	10	32,608	45	75	0	0	1.8%	0.7%	69.7
Year 20220 with Project Saturday (Midday)		6	10	33,152	45	75	0	0	1.8%	0.7%	69.7
Hwy 111 s/o Fred Waring											
Existing Weekday (PM Peak)		6	10	25,088	45	75	0	0	1.8%	0.7%	68.5
Existing Saturday (Midday)		6	10	27,240	45	75	0	0	1.8%	0.7%	68.9
Existing with Project Weekday (PM Peak)		6	10	25,240	45	75	0	0	1.8%	0.7%	68.6
Existing with Project Saturday (Midday)		6	10	27,632	45	75	0	0	1.8%	0.7%	69.0
Year 2022 without Project Weekday (PM Peak)		6	10	26,584	45	75	0	0	1.8%	0.7%	68.8
Year 2022 without Project Saturday (Midday)		6	10	28,880	45	75	0	0	1.8%	0.7%	69.1
Year 2022 with Project Weekday (PM peak)		6	10	26,736	45	75	0	0	1.8%	0.7%	68.8
Year 20220 with Project Saturday (Midday)		6	10	29,256	45	75	0	0	1.8%	0.7%	69.2
Fred Waring Drive e/o Hwy											
Existing Weekday (PM Peak)		6	25	12,648	45	75	0	0	1.8%	0.7%	65.9
Existing Saturday (Midday)		6	25	13,296	45	75	0	0	1.8%	0.7%	66.1
Existing with Project Weekday (PM Peak)		6	25	12,720	45	75	0	0	1.8%	0.7%	65.9
Existing with Project Saturday (Midday)		6	25	13,472	45	75	0	0	1.8%	0.7%	66.1
Year 2022 without Project Weekday (PM Peak)		6	25	13,200	45	75	0	0	1.8%	0.7%	66.1
Year 2022 without Project Saturday (Midday)		6	25	13,896	45	75	0	0	1.8%	0.7%	66.3
Year 2022 with Project Weekday (PM peak)		6	25	13,272	45	75	0	0	1.8%	0.7%	66.1
Year 20220 with Project Saturday (Midday)		6	25	14,072	45	75	0	0	1.8%	0.7%	66.3
Fred Waring Drive w/o Hwy											
Existing Weekday (PM Peak)		4	25	5,936	45	75	0	0	1.8%	0.7%	62.1
Existing Saturday (Midday)		4	25	8,016	45	75	0	0	1.8%	0.7%	63.4
Existing with Project Weekday (PM Peak)		4	25	5,936	45	75	0	0	1.8%	0.7%	62.1
Existing with Project Saturday (Midday)		4	25	8,016	45	75	0	0	1.8%	0.7%	63.4
Year 2022 without Project Weekday (PM Peak)		4	25	6,184	45	75	0	0	1.8%	0.7%	62.3
Year 2022 without Project Saturday (Midday)		4	25	8,336	45	75	0	0	1.8%	0.7%	63.6
Year 2022 with Project Weekday (PM peak)		4	25	6,184	45	75	0	0	1.8%	0.7%	62.3
Year 20220 with Project Saturday (Midday)		4	25	8,336	45	75	0	0	1.8%	0.7%	63.6

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: INO Rancho Mirage rev. (Date)
Weekday (PM Peak Hour) and Saturday (Midday)

Intersection: 7
Bob Hope Drive & Rancho Las Palmas Drive

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

ADT

Road	Bob Hope Drive		Rancho Las Palmas Drive	
Leg	North of	South of	East of	West of
Cross Street	Rancho Las Palmas Drive		Bob Hope Drive	
Existing Weekda	12,880.0	10,192.0	312.0	4,616.0
Existing Saturday	12,672.0	11,424.0	1,152.0	3,152.0
Existing with Pro	12,968.0	10,280.0	312.0	4,616.0
Existing with Pro	12,896.0	11,648.0	1,152.0	3,152.0
Year 2022 withou	13,624.0	10,832.0	312.0	4,800.0
Year 2022 withou	13,448.0	12,144.0	1,192.0	3,264.0
Year 2022 with P	13,712.0	10,920.0	312.0	4,800.0
Year 2022 with P	13,672.0	12,368.0	1,192.0	3,264.0

Bob Hope Drive

Southbound

	right	through	left
Existing Weekday (PM Peak)	203	540	5
Existing Saturday (Midday)	153	664	29
Existing with Project Weekday (PM Peak)	203	546	5
Existing with Project Saturday (Midday)	153	678	29
Year 2022 without Project Weekday (PM Peak	211	580	5
Year 2022 without Project Saturday (Midday)	159	710	30
Year 2022 with Project Weekday (PM peak)	211	586	5
Year 2022 with Project Saturday (Midday)	159	724	30

Rancho Las Palmas

Eastbound

	left	through	right
Existing Weekday (PM Peak)	258	2	63
Existing Saturday (Midday)	128	9	60
Existing with Project Weekday (PM Peak)	258	2	63
Existing with Project Saturday (Midday)	128	9	60
Year 2022 without Project Weekday (PM Peak	268	2	66
Year 2022 without Project Saturday (Midday)	133	9	62
Year 2022 with Project Weekday (PM peak)	268	2	66
Year 2022 with Project Saturday (Midday)	133	9	62

N
W E
S

Westbound

	right	through	left
Existing Weekday (PM Peak)	2	6	12
Existing Saturday (Midday)	19	9	34
Existing with Project Weekday (PM Peak)	2	6	12
Existing with Project Saturday (Midday)	19	9	34
Year 2022 without Project Weekday (PM Peak)	2	6	12
Year 2022 without Project Saturday (Midday)	20	9	35
Year 2022 with Project Weekday (PM peak)	2	6	12
Year 2022 with Project Saturday (Midday)	20	9	35

Northbound

	left	through	right
Existing Weekday (PM Peak)	45	602	12
Existing Saturday (Midday)	35	591	44
Existing with Project Weekday (PM Peak)	45	607	12
Existing with Project Saturday (Midday)	35	605	44
Year 2022 without Project Weekday (PM Peak	47	637	12
Year 2022 without Project Saturday (Midday)	36	629	46
Year 2022 with Project Weekday (PM peak)	47	642	12
Year 2022 with Project Saturday (Midday)	36	643	46

2

NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Bob Hope Drive n/o Rancho											
Existing Weekday (PM Peak)		4	15	12,880	45	75	0	0	1.8%	0.7%	65.4
Existing Saturday (Midday)		4	15	12,672	45	75	0	0	1.8%	0.7%	65.3
Existing with Project Weekday (PM Peak)		4	15	12,968	45	75	0	0	1.8%	0.7%	65.4
Existing with Project Saturday (Midday)		4	15	12,896	45	75	0	0	1.8%	0.7%	65.4
Year 2022 without Project Weekday (PM Peak)		4	15	13,624	45	75	0	0	1.8%	0.7%	65.6
Year 2022 without Project Saturday (Midday)		4	15	13,448	45	75	0	0	1.8%	0.7%	65.6
Year 2022 with Project Weekday (PM peak)		4	15	13,712	45	75	0	0	1.8%	0.7%	65.6
Year 20220 with Project Saturday (Midday)		4	15	13,672	45	75	0	0	1.8%	0.7%	65.6
Bob Hope Drive s/o Rancho											
Existing Weekday (PM Peak)		4	15	10,192	45	75	0	0	1.8%	0.7%	64.4
Existing Saturday (Midday)		4	15	11,424	45	75	0	0	1.8%	0.7%	64.9
Existing with Project Weekday (PM Peak)		4	15	10,280	45	75	0	0	1.8%	0.7%	64.4
Existing with Project Saturday (Midday)		4	15	11,648	45	75	0	0	1.8%	0.7%	64.9
Year 2022 without Project Weekday (PM Peak)		4	15	10,832	45	75	0	0	1.8%	0.7%	64.6
Year 2022 without Project Saturday (Midday)		4	15	12,144	45	75	0	0	1.8%	0.7%	65.1
Year 2022 with Project Weekday (PM peak)		4	15	10,920	45	75	0	0	1.8%	0.7%	64.7
Year 20220 with Project Saturday (Midday)		4	15	12,368	45	75	0	0	1.8%	0.7%	65.2
Rancho Las Palmas Dr e/o											
Existing Weekday (PM Peak)		2	0	312	10	75	0	0	1.8%	0.7%	37.6
Existing Saturday (Midday)		2	0	1,152	10	75	0	0	1.8%	0.7%	43.2
Existing with Project Weekday (PM Peak)		2	0	312	10	75	0	0	1.8%	0.7%	37.6
Existing with Project Saturday (Midday)		2	0	1,152	10	75	0	0	1.8%	0.7%	43.2
Year 2022 without Project Weekday (PM Peak)		2	0	312	10	75	0	0	1.8%	0.7%	37.6
Year 2022 without Project Saturday (Midday)		2	0	1,192	10	75	0	0	1.8%	0.7%	43.4
Year 2022 with Project Weekday (PM peak)		2	0	312	10	75	0	0	1.8%	0.7%	37.6
Year 20220 with Project Saturday (Midday)		2	0	1,192	10	75	0	0	1.8%	0.7%	43.4
Rancho Las Palmas Dr w/o											
Existing Weekday (PM Peak)		4	15	4,616	45	75	0	0	1.8%	0.7%	60.9
Existing Saturday (Midday)		4	15	3,152	45	75	0	0	1.8%	0.7%	59.3
Existing with Project Weekday (PM Peak)		4	15	4,616	45	75	0	0	1.8%	0.7%	60.9
Existing with Project Saturday (Midday)		4	15	3,152	45	75	0	0	1.8%	0.7%	59.3
Year 2022 without Project Weekday (PM Peak)		4	15	4,800	45	75	0	0	1.8%	0.7%	61.1
Year 2022 without Project Saturday (Midday)		4	15	3,264	45	75	0	0	1.8%	0.7%	59.4
Year 2022 with Project Weekday (PM peak)		4	15	4,800	45	75	0	0	1.8%	0.7%	61.1
Year 20220 with Project Saturday (Midday)		4	15	3,264	45	75	0	0	1.8%	0.7%	59.4

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: INO Rancho Mirage
Weekday (PM Peak Hour) and Saturday (Midday)

rev. (Date)

Intersection: 8
Bob Hope Drive & Rancho Las Palmas Ctr Dwy No. 2

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

ADT

Road	Bob Hope Drive		Rancho Las Palmas Ctr	
Leg	North of	South of	East of	West of
Cross Street	Rancho Las Palmas Ctr		Bob Hope Drive	
Existing Weekda	9,944.0	9,072.0	6,024.0	4,224.0
Existing Saturda	10,992.0	9,592.0	7,064.0	4,416.0
Existing with Pro	10,024.0	8,960.0	6,168.0	4,176.0
Existing with Pro	11,216.0	9,328.0	7,440.0	4,304.0
Year 2022 withou	10,576.0	9,664.0	6,352.0	4,480.0
Year 2022 withou	11,704.0	10,240.0	7,464.0	4,704.0
Year 2022 with P	10,656.0	9,552.0	6,496.0	4,432.0
Year 2022 with P	11,928.0	9,976.0	7,840.0	4,592.0

Bob Hope Drive

Southbound

	right	through	left
Existing Weekday (PM Peak)		548	98
Existing Saturday (Midday)		569	167
Existing with Project Weekday (PM Peak)		540	112
Existing with Project Saturday (Midday)		550	200
Year 2022 without Project Weekday (PM Peak)		588	102
Year 2022 without Project Saturday (Midday)		611	174
Year 2022 with Project Weekday (PM peak)		580	116
Year 2022 with Project Saturday (Midday)		592	207

Rancho Las Palmas

Eastbound

	left	through	right
Existing Weekday (PM Peak)		470	58
Existing Saturday (Midday)		474	78
Existing with Project Weekday (PM Peak)		464	58
Existing with Project Saturday (Midday)		460	78
Year 2022 without Project Weekday (PM Peak)		500	60
Year 2022 without Project Saturday (Midday)		507	81
Year 2022 with Project Weekday (PM peak)		494	60
Year 2022 with Project Saturday (Midday)		493	81

N
W E
S

Westbound

	right	through	left
Existing Weekday (PM Peak)	127		
Existing Saturday (Midday)	164		
Existing with Project Weekday (PM Peak)	137		
Existing with Project Saturday (Midday)	192		
Year 2022 without Project Weekday (PM Peak	132		
Year 2022 without Project Saturday (Midday)	171		
Year 2022 with Project Weekday (PM peak)	142		
Year 2022 with Project Saturday (Midday)	199		

Northbound

	left	through	right
Existing Weekday (PM Peak)		470	58
Existing Saturday (Midday)		474	78
Existing with Project Weekday (PM Peak)		464	58
Existing with Project Saturday (Midday)		460	78
Year 2022 without Project Weekday (PM Peak)		500	60
Year 2022 without Project Saturday (Midday)		507	81
Year 2022 with Project Weekday (PM peak)		494	60
Year 2022 with Project Saturday (Midday)		493	81

2

NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Bob Hope Drive n/o Rancho											
Existing Weekday (PM Peak)		4	15	9,944	45	75	0	0	1.8%	0.7%	64.3
Existing Saturday (Midday)		4	15	10,992	45	75	0	0	1.8%	0.7%	64.7
Existing with Project Weekday (PM Peak)		4	15	10,024	45	75	0	0	1.8%	0.7%	64.3
Existing with Project Saturday (Midday)		4	15	11,216	45	75	0	0	1.8%	0.7%	64.8
Year 2022 without Project Weekday (PM Peak)		4	15	10,576	45	75	0	0	1.8%	0.7%	64.5
Year 2022 without Project Saturday (Midday)		4	15	11,704	45	75	0	0	1.8%	0.7%	65.0
Year 2022 with Project Weekday (PM peak)		4	15	10,656	45	75	0	0	1.8%	0.7%	64.6
Year 20220 with Project Saturday (Midday)		4	15	11,928	45	75	0	0	1.8%	0.7%	65.0
Bob Hope Drive s/o Rancho											
Existing Weekday (PM Peak)		4	15	9,072	45	75	0	0	1.8%	0.7%	63.9
Existing Saturday (Midday)		4	15	9,592	45	75	0	0	1.8%	0.7%	64.1
Existing with Project Weekday (PM Peak)		4	15	8,960	45	75	0	0	1.8%	0.7%	63.8
Existing with Project Saturday (Midday)		4	15	9,328	45	75	0	0	1.8%	0.7%	64.0
Year 2022 without Project Weekday (PM Peak)		4	15	9,664	45	75	0	0	1.8%	0.7%	64.1
Year 2022 without Project Saturday (Midday)		4	15	10,240	45	75	0	0	1.8%	0.7%	64.4
Year 2022 with Project Weekday (PM peak)		4	15	9,552	45	75	0	0	1.8%	0.7%	64.1
Year 20220 with Project Saturday (Midday)		4	15	9,976	45	75	0	0	1.8%	0.7%	64.3
Rancho Las Palmas Dr Dwy											
Existing Weekday (PM Peak)		2	0	6,024	15	75	0	0	1.8%	0.7%	52.9
Existing Saturday (Midday)		2	0	7,064	15	75	0	0	1.8%	0.7%	53.6
Existing with Project Weekday (PM Peak)		2	0	6,168	15	75	0	0	1.8%	0.7%	53.0
Existing with Project Saturday (Midday)		2	0	7,440	15	75	0	0	1.8%	0.7%	53.8
Year 2022 without Project Weekday (PM Peak)		2	0	6,352	15	75	0	0	1.8%	0.7%	53.1
Year 2022 without Project Saturday (Midday)		2	0	7,464	15	75	0	0	1.8%	0.7%	53.8
Year 2022 with Project Weekday (PM peak)		2	0	6,496	15	75	0	0	1.8%	0.7%	53.2
Year 20220 with Project Saturday (Midday)		2	0	7,840	15	75	0	0	1.8%	0.7%	54.0
Rancho Las Palmas Dr Dwy											
Existing Weekday (PM Peak)		2	0	4,224	15	75	0	0	1.8%	0.7%	51.3
Existing Saturday (Midday)		2	0	4,416	15	75	0	0	1.8%	0.7%	51.5
Existing with Project Weekday (PM Peak)		2	0	4,176	15	75	0	0	1.8%	0.7%	51.3
Existing with Project Saturday (Midday)		2	0	4,304	15	75	0	0	1.8%	0.7%	51.4
Year 2022 without Project Weekday (PM Peak)		2	0	4,480	15	75	0	0	1.8%	0.7%	51.6
Year 2022 without Project Saturday (Midday)		2	0	4,704	15	75	0	0	1.8%	0.7%	51.8
Year 2022 with Project Weekday (PM peak)		2	0	4,432	15	75	0	0	1.8%	0.7%	51.5
Year 20220 with Project Saturday (Midday)		2	0	4,592	15	75	0	0	1.8%	0.7%	51.7

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Project Name: INO Rancho Mirage rev. (Date)
Weekday (PM Peak Hour) and Saturday (Midday)

Intersection: 9
Hwy 111 & Rancho Las Palmas Ctr Dwy No. 3

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Hwy 111

Southbound

	right	through	left
Existing Weekday (PM Peak)		1,860	
Existing Saturday (Midday)		1,863	
Existing with Project Weekday (PM Peak)		1,867	
Existing with Project Saturday (Midday)		1,879	
Year 2022 without Project Weekday (PM Peak)		1,975	
Year 2022 without Project Saturday (Midday)		1,982	
Year 2022 with Project Weekday (PM peak)		1,982	
Year 2022 with Project Saturday (Midday)		1,998	

Rancho Las Palmas

Eastbound

	left	through	right
Existing Weekday (PM Peak)			
Existing Saturday (Midday)			
Existing with Project Weekday (PM Peak)			
Existing with Project Saturday (Midday)			
Year 2022 without Project Weekday (PM Peak)			
Year 2022 without Project Saturday (Midday)			
Year 2022 with Project Weekday (PM peak)			
Year 2022 with Project Saturday (Midday)			

N
W E
S

Westbound

	right	through	left
Existing Weekday (PM Peak)	37		
Existing Saturday (Midday)	63		
Existing with Project Weekday (PM Peak)	60		
Existing with Project Saturday (Midday)	119		
Year 2022 without Project Weekday (PM Peak	38		
Year 2022 without Project Saturday (Midday)	66		
Year 2022 with Project Weekday (PM peak)	61		
Year 2022 with Project Saturday (Midday)	122		

Northbound

	left	through	right
Existing Weekday (PM Peak)		1,974	58
Existing Saturday (Midday)		1,918	82
Existing with Project Weekday (PM Peak)		1,958	85
Existing with Project Saturday (Midday)		1,880	145
Year 2022 without Project Weekday (PM Peak)		2,086	60
Year 2022 without Project Saturday (Midday)		2,033	85
Year 2022 with Project Weekday (PM peak)		2,070	87
Year 2022 with Project Saturday (Midday)		1,995	148

ADT

Road	Hwy 111		Rancho Las Palmas Ctr (Dwy No. 3	
Leg	North of	South of	East of	West of
Cross Street	Rancho Las Palmas Ctr (Dwy No. 3		Hwy 111	
Existing Weekda	30,968.0	31,136.0	760.0	0.0
Existing Saturday	30,752.0	30,904.0	1,160.0	0.0
Existing with Proj	31,080.0	31,280.0	1,160.0	0.0
Existing with Proj	31,024.0	31,232.0	2,112.0	0.0
Year 2022 withou	32,792.0	32,968.0	784.0	0.0
Year 2022 withou	32,648.0	32,800.0	1,208.0	0.0
Year 2022 with P	32,904.0	33,112.0	1,184.0	0.0
Year 2022 with P	32,920.0	33,128.0	2,160.0	0.0

2

NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Hwy 111 n/o Rancho Las											
Existing Weekday (PM Peak)		6	10	30,968	45	75	0	0	1.8%	0.7%	69.5
Existing Saturday (Midday)		6	10	30,752	45	75	0	0	1.8%	0.7%	69.4
Existing with Project Weekday (PM Peak)		6	10	31,080	45	75	0	0	1.8%	0.7%	69.5
Existing with Project Saturday (Midday)		6	10	31,024	45	75	0	0	1.8%	0.7%	69.5
Year 2022 without Project Weekday (PM Peak)		6	10	32,792	45	75	0	0	1.8%	0.7%	69.7
Year 2022 without Project Saturday (Midday)		6	10	32,648	45	75	0	0	1.8%	0.7%	69.7
Year 2022 with Project Weekday (PM peak)		6	10	32,904	45	75	0	0	1.8%	0.7%	69.7
Year 20220 with Project Saturday (Midday)		6	10	32,920	45	75	0	0	1.8%	0.7%	69.7
Hwy 111 s/o Rancho Las											
Existing Weekday (PM Peak)		6	10	31,136	45	75	0	0	1.8%	0.7%	69.5
Existing Saturday (Midday)		6	10	30,904	45	75	0	0	1.8%	0.7%	69.4
Existing with Project Weekday (PM Peak)		6	10	31,280	45	75	0	0	1.8%	0.7%	69.5
Existing with Project Saturday (Midday)		6	10	31,232	45	75	0	0	1.8%	0.7%	69.5
Year 2022 without Project Weekday (PM Peak)		6	10	32,968	45	75	0	0	1.8%	0.7%	69.7
Year 2022 without Project Saturday (Midday)		6	10	32,800	45	75	0	0	1.8%	0.7%	69.7
Year 2022 with Project Weekday (PM peak)		6	10	33,112	45	75	0	0	1.8%	0.7%	69.7
Year 20220 with Project Saturday (Midday)		6	10	33,128	45	75	0	0	1.8%	0.7%	69.7
Rancho Las Palmas Dr Dwy											
Existing Weekday (PM Peak)		2	0	760	15	75	0	0	1.8%	0.7%	43.9
Existing Saturday (Midday)		2	0	1,160	15	75	0	0	1.8%	0.7%	45.7
Existing with Project Weekday (PM Peak)		2	0	1,160	15	75	0	0	1.8%	0.7%	45.7
Existing with Project Saturday (Midday)		2	0	2,112	15	75	0	0	1.8%	0.7%	48.3
Year 2022 without Project Weekday (PM Peak)		2	0	784	15	75	0	0	1.8%	0.7%	44.0
Year 2022 without Project Saturday (Midday)		2	0	1,208	15	75	0	0	1.8%	0.7%	45.9
Year 2022 with Project Weekday (PM peak)		2	0	1,184	15	75	0	0	1.8%	0.7%	45.8
Year 20220 with Project Saturday (Midday)		2	0	2,160	15	75	0	0	1.8%	0.7%	48.4
Rancho Las Palmas Dr Dwy											
Existing Weekday (PM Peak)		2	0	0	15	75	0	0	1.8%	0.7%	#NUM!
Existing Saturday (Midday)		2	0	0	15	75	0	0	1.8%	0.7%	#NUM!
Existing with Project Weekday (PM Peak)		2	0	0	15	75	0	0	1.8%	0.7%	#NUM!
Existing with Project Saturday (Midday)		2	0	0	15	75	0	0	1.8%	0.7%	#NUM!
Year 2022 without Project Weekday (PM Peak)		2	0	0	15	75	0	0	1.8%	0.7%	#NUM!
Year 2022 without Project Saturday (Midday)		2	0	0	15	75	0	0	1.8%	0.7%	#NUM!
Year 2022 with Project Weekday (PM peak)		2	0	0	15	75	0	0	1.8%	0.7%	#NUM!
Year 20220 with Project Saturday (Midday)		2	0	0	15	75	0	0	1.8%	0.7%	#NUM!

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

APPENDIX F.3

Construction Noise Worksheets

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/1/2020
Case Description: INO Rancho Mirage_Demolition & Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Magnesia Falls Drive (East)	Residential	52.8	52.8	52.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	175	0
Dozer	No	40		81.7	175	0
Tractor	No	40	84		175	0
Tractor	No	40	84		175	0

Results

Equipment		Calculated (dBA) *Lmax	Leq
Concrete Saw		78.7	71.7
Dozer		70.8	66.8
Tractor		73.1	69.1
Tractor		73.1	69.1
	Total	78.7	75.6

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Cil Encinitas	Residential	46.7	46.7	46.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	550	0
Dozer	No	40		81.7	550	0
Tractor	No	40	84		550	0
Tractor	No	40	84		550	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Concrete Saw		68.8	61.8
Dozer		60.8	56.9
Tractor		63.2	59.2
Tractor		63.2	59.2
	Total	68.8	65.6

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Magnesia Falls Drive (W	Residential	61.6	61.6	61.6

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	385	0
Dozer	No	40		81.7	385	0
Tractor	No	40	84		385	0
Tractor	No	40	84		385	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Concrete Saw		71.9	64.9
Dozer		63.9	60
Tractor		66.3	62.3
Tractor		66.3	62.3
	Total	71.9	68.7

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/1/2019
Case Description: INO Building Construction

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Magnesia Falls Drive (East)	Residential	52.8	52.8	52.8

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Forklift	No	40		85	175	0
Forklift	No	40		85	175	0
Tractor	No	40	84		175	0
Tractor	No	40	84		175	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Forklift		74.1	70.1
Forklift		74.1	70.1
Tractor		73.1	69.1
Tractor		73.1	69.1
	Total	74.1	75.7

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Cil Encinitas	Residential	46.7	46.7	46.7

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Forklift	No	40		85	550	0
Forklift	No	40		85	550	0
Tractor	No	40	84		550	0
Tractor	No	40	84		550	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Forklift		64.2	60.2
Forklift		64.2	60.2
Tractor		63.2	59.2
Tractor		63.2	59.2
	Total	64.2	65.7

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Magnesia Falls Drive (West)	Residential	61.6	61.6	61.6

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Forklift	No	40		85	385	0
Forklift	No	40		85	385	0
Tractor	No	40	84		385	0
Tractor	No	40	84		385	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Forklift		67.3	63.3
Forklift		67.3	63.3
Tractor		66.3	62.3
Tractor		66.3	62.3
	Total	67.3	68.8

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/1/2019
Case Description: INO Rancho Mirage_Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Magnesia Falls Drive (East)	Residential	52.8	52.8	52.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	175	0
Concrete Mixer Truck	No	40		78.8	175	0
Concrete Mixer Truck	No	40		78.8	175	0
Concrete Mixer Truck	No	40		78.8	175	0
Paver	No	50		77.2	175	0
Roller	No	20		80	175	0
Tractor	No	40	84		175	0

Results

Equipment		Calculated (dBA) *Lmax	Leq
Concrete Mixer Truck		67.9	63.9
Concrete Mixer Truck		67.9	63.9
Concrete Mixer Truck		67.9	63.9
Concrete Mixer Truck		67.9	63.9
Paver		66.3	63.3
Roller		69.1	62.1
Tractor		73.1	69.1
	Total	73.1	73.4

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Cil Encinitas	Residential	46.7	46.7	46.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

Concrete Mixer Truck	No	40		78.8	550	0
Concrete Mixer Truck	No	40		78.8	550	0
Concrete Mixer Truck	No	40		78.8	550	0
Concrete Mixer Truck	No	40		78.8	550	0
Paver	No	50		77.2	550	0
Roller	No	20		80	550	0
Tractor	No	40	84		550	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Concrete Mixer Truck		58	54
Concrete Mixer Truck		58	54
Concrete Mixer Truck		58	54
Concrete Mixer Truck		58	54
Paver		56.4	53.4
Roller		59.2	52.2
Tractor		63.2	59.2
	Total	63.2	63.5

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Magnesia Falls Drive (West)	Residential	61.6	61.6	61.6

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Mixer Truck	No	40		78.8	385	0
Concrete Mixer Truck	No	40		78.8	385	0
Concrete Mixer Truck	No	40		78.8	385	0
Concrete Mixer Truck	No	40		78.8	385	0
Paver	No	50		77.2	385	0
Roller	No	20		80	385	0
Tractor	No	40	84		385	0

Results

	Calculated (dBA)	
Equipment	*Lmax	Leq
Concrete Mixer Truck	61.1	57.1
Concrete Mixer Truck	61.1	57.1

Concrete Mixer Truck	61.1	57.1
Concrete Mixer Truck	61.1	57.1
Paver	59.5	56.5
Roller	62.3	55.3
Tractor	66.3	62.3
Total	66.3	66.6

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/1/2019
Case Descripti INO Rancho Mirage_ArchitecturalCoating

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Magnesia Falls Drive (East)	Residential	52.8	52.8	52.8

	Impact		Equipment Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	175	0

Results

	Calculated (dBA)	
Equipment	*Lmax	Leq
Compressor (air)	66.8	62.8
Total	66.8	62.8

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Cil Encinitas	Residential	46.7	46.7	46.7

	Impact		Equipment Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	550	0

Results

	Calculated (dBA)	
Equipment	*Lmax	Leq
Compressor (air)	56.8	52.9
Total	56.8	52.9

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Magnesia Falls Drive (West)	Residential	61.6	61.6	61.6

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	385	0

Results

Equipment		Calculated (dBA) *Lmax	Leq
Compressor (air)		59.9	56
	Total	59.9	56

*Calculated Lmax is the Loudest value.

APPENDIX F.4

Construction Vibration Worksheets

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	175	0.005	0.001	62
Jackhammer		1	0.035	175	0.002	0.000	53
Large bulldozer		1	0.089	175	0.005	0.001	62
Loaded trucks		1	0.076	175	0.004	0.001	60
Pile Drive (impact)		1	0.644	175	0.035	0.009	79
Vibratory Roller		1	0.210	175	0.011	0.003	69
Small bulldozer		1	0.003	175	0.000	0.000	32

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.**

-Fragile Buildings- 0.20 in/sec

INO - Rancho Mirage
Construction Vibration Model
(550 feet)

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	550	0.001	0.000	47
Jackhammer		1	0.035	550	0.000	0.000	39
Large bulldozer		1	0.089	550	0.001	0.000	47
Loaded trucks		1	0.076	550	0.001	0.000	45
Pile Drive (impact)		1	0.644	550	0.006	0.002	64
Vibratory Roller		1	0.210	550	0.002	0.001	54
Small bulldozer		1	0.003	550	0.000	0.000	17

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.**

-Fragile Buildings- 0.20 in/sec

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	385	0.001	0.000	51
Jackhammer		1	0.035	385	0.001	0.000	43
Large bulldozer		1	0.089	385	0.001	0.000	51
Loaded trucks		1	0.076	385	0.001	0.000	50
Pile Drive (impact)		1	0.644	385	0.011	0.003	69
Vibratory Roller		1	0.210	385	0.003	0.001	59
Small bulldozer		1	0.003	385	0.000	0.000	22

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.**

-Fragile Buildings- 0.20 in/sec

APPENDIX F.5

SoundPLAN Output Sheets

Receiver	CNEL/dB(A)	Ld/dB(A)	Le/dB(A)	Ln/dB(A)
Resident Along Cil Encinitas	28.1	23.9	25.2	21.1
Resident along Magnesia Falls Dr (East)	36.8	32.6	34	29.9
Resident Along Magnesia Falls Dr (West)	30.4	26.2	27.6	23.5

Source	CNEL dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)	0-1 o'clock dB(A)	1-2 o'clock dB(A)	2-3 o'clock dB(A)
Drive Through	24.5	20.2	21.6	17.5	21.6	18.6	0
Parking	19.2	14.9	16.3	12.2	16.3	13.3	0
Speakerbox	7	2.7	4.1	0	4.1	1.1	0
Trash Compactor	24.5	20.2	21.6	17.5	21.6	18.6	0
Drive Through	35.9	31.7	33.1	29	33.1	30	0
Parking	26.8	22.5	23.9	19.8	23.9	20.9	0
Speakerbox	9.5	5.2	6.6	2.5	6.6	3.6	0
Trash Compactor	26.3	22.1	23.4	19.3	23.4	20.4	0
Drive Through	27.8	23.5	24.9	20.8	24.9	21.9	0
Parking	19	14.8	16.1	12	16.1	13.1	0
Speakerbox	8.2	3.9	5.3	1.2	5.3	2.3	0
Trash Compactor	26.2	21.9	23.3	19.2	23.3	20.3	0

3-4 o'clock dB(A)	4-5 o'clock dB(A)	5-6 o'clock dB(A)	6-7 o'clock dB(A)	7-8 o'clock dB(A)	8-9 o'clock dB(A)	9-10 o'clock dB(A)
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

10-11 o'clock dB(A)	11-12 o'clock dB(A)	12-13 o'clock dB(A)	13-14 o'clock dB(A)	14-15 o'clock dB(A)	15-16 o'clock dB(A)	16-17 o'clock dB(A)
21.6	21.6	21.6	21.6	21.6	21.6	21.6
16.3	16.3	16.3	16.3	16.3	16.3	16.3
4.1	4.1	4.1	4.1	4.1	4.1	4.1
21.6	21.6	21.6	21.6	21.6	21.6	21.6
33.1	33.1	33.1	33.1	33.1	33.1	33.1
23.9	23.9	23.9	23.9	23.9	23.9	23.9
6.6	6.6	6.6	6.6	6.6	6.6	6.6
23.4	23.4	23.4	23.4	23.4	23.4	23.4
24.9	24.9	24.9	24.9	24.9	24.9	24.9
16.1	16.1	16.1	16.1	16.1	16.1	16.1
5.3	5.3	5.3	5.3	5.3	5.3	5.3
23.3	23.3	23.3	23.3	23.3	23.3	23.3

17-18 o'clock dB(A)	18-19 o'clock dB(A)	19-20 o'clock dB(A)	20-21 o'clock dB(A)	21-22 o'clock dB(A)	22-23 o'clock dB(A)	23-24 o'clock dB(A)
21.6	21.6	21.6	21.6	21.6	21.6	21.6
16.3	16.3	16.3	16.3	16.3	16.3	16.3
4.1	4.1	4.1	4.1	4.1	4.1	4.1
21.6	21.6	21.6	21.6	21.6	21.6	21.6
33.1	33.1	33.1	33.1	33.1	33.1	33.1
23.9	23.9	23.9	23.9	23.9	23.9	23.9
6.6	6.6	6.6	6.6	6.6	6.6	6.6
23.4	23.4	23.4	23.4	23.4	23.4	23.4
24.9	24.9	24.9	24.9	24.9	24.9	24.9
16.1	16.1	16.1	16.1	16.1	16.1	16.1
5.3	5.3	5.3	5.3	5.3	5.3	5.3
23.3	23.3	23.3	23.3	23.3	23.3	23.3

APPENDIX G

Public Service Correspondences

APPENDIX G.1

Fire Response Letter

CAL FIRE – RIVERSIDE UNIT
RIVERSIDE COUNTY FIRE DEPARTMENT

SHAWN C. NEWMAN - FIRE CHIEF
210 WEST SAN JACINTO AVENUE, PERRIS, CA 92570-1915
BUS: (951) 940-6900 FAX: (951) 940-6373 WWW.RVCFIRE.ORG

PROUDLY SERVING THE UNINCORPORATED AREAS OF RIVERSIDE COUNTY AND THE CITIES OF:

BANNING
BEAUMONT
CANYON LAKE
COACHELLA
DESERT HOT SPRINGS
EASTVALE
INDIAN WELLS
INDIO
JURUPA VALLEY
LAKE ELSINORE
LA QUINTA
MENIFEE
MORENO VALLEY
NORCO
PALM DESERT
PERRIS
RANCHO MIRAGE
RUBIDOUX CSD
SAN JACINTO
TEMECULA
WILDOMAR

BOARD OF SUPERVISORS:

KEVIN JEFFRIES
DISTRICT 1

KAREN SPIEGEL
DISTRICT 2

CHARLES WASHINGTON
DISTRICT 3

V. MANUEL PEREZ
DISTRICT 4

JEFF HEWITT
DISTRICT 5

May 8, 2020

Mr. Nader Khalil
Meridian Consultants

RE: In N Out Burger (APN 682-320-033)

Dear Mr. Khalil,

In response to your request of the existing fire protection for the above referenced parcels, please see the responses to your questions below.

1. Which RCFD Fire Stations serve the Project Site, specifically within 2 miles?
• Identification of the first-in and backup stations
Station 33 located at 44400 Town Center Way, Palm Desert is approximately 1.25 miles from the project site. Station 50 located at 70801 Highway 111, Rancho Mirage is approximately 2 miles from project site.
• Existing staffing levels (i.e. Captains, Lieutenants, firefighters, paramedics, EMTs, HazMat-trained personnel, etc.) for each station serving the Project Site
See below
• Existing equipment (i.e. number of engines, trucks, ambulances, etc.) for each station serving the Project Site
Station 33 is equipped with (1) Type 1 Engine with 3 personnel, (1) Truck with 3 personnel and (1) medic squad with 2 personnel.
Station 50 is equipped with (1) Type 1 Engine with 3 personnel and 1 Medic with 2 personnel.
• A map of the service area and associated population for each station serving the Project Site (if applicable) n/a
• Average response times for each station serving the Project Site.
Station 33 response time is approximately 4 minutes.
Station 50 response time is approximately 5 minutes.

2. Do the response times and distances for each fire station serving the Project Site meet the performance standards of the RCFD? yes
3. Does RCFD have any plans to construct new or expand existing fire stations that would serve the Project? Not at this time
4. What are the minimum fire flow, hydrant, and residual water pressure requirements for the Project Site? Minimum fire flow for this project is 1500 gpm at 20psi for 2 hours.
5. Is the City's existing infrastructure, including access, traffic circulation, water, and hydrant systems adequate for current RCFD needs as well as the projected needs of the Project? yes

If we can be of further assistance, please contact us by email at rrustrategicplanning@fire.ca.gov

Sincerely,

Adria Reinertson
Deputy Fire Marshal
Riverside County Fire – Office of the Fire Marshal

APPENDIX G.2

Sheriff's Response Letter

From: Benoit, Jennifer <jxbenoit@riversidesheriff.org>
Sent: Thursday, May 14, 2020 18:38
To: Nader Khalil
Subject: RE: In-N-Out Project: Rancho Mirage: Request for Information

Hello Nader,

Below is the information requested for the In-N-Out Project on behalf of the city of Rancho Mirage. If you have any question's let me know!

1. Current number of sworn Rancho Mirage Sheriff's Station officers and civilian personnel.
   Approximately 30 personnel assigned to include patrol and specialty teams.

2. What are the existing operating conditions at the Rancho Mirage Sheriff's Station? Is it operating at full or partial capacity? Are the facilities adequate to meet the Project Site's demand for sheriff services?
   Yes, the Sheriff's Station is fully operating and doing so with adequate facilities for sheriff personnel to provide the highest level of service to it's residents.

3. Number of crimes per 1,000 residents.
   FTP = 40.2 / DTP = 24.4
   FTP (Full-Time Population) / DTP (Day Time Population)

4. Types of Crimes
   Part 1 Crimes (4% of 2019 CFS)

5. Number of calls per 1,000 residents.
   FTP – 1,015.6 / DTP – 615.8
   FTP (Full-Time Population) / DTP (Day Time Population)

6. Will there be any adjacent stations that could respond to calls to the Project Site?
   Yes, personnel assigned to the Palm Desert Sheriff's Station would be able to respond to a critical incident should the need dictate such a response.

7. What is the average response time for emergency calls and non-emergency calls?
   Emergency calls: approximately 5 minutes
   Non-emergency calls: approximately 30 minutes

8. What is the department's goal response time for emergency calls?
   Our goal is to arrive as expeditiously as possible, while driving with due regard and providing the highest level of service to the residents we serve.

9. Does Riverside County Sheriff's Department have any plans to construct new or expand existing facilities that would serve the Project Site?
   We currently do not have any plans for expansion of sheriff facilities; however, have adequate facilities to service all areas served out of the Palm Desert Sheriff's Station.

10. Would development of the proposed Project be expected to affect emergency access routes or the emergency response times of the Sheriff's department?
    No, the project is not expected to significantly affect sheriff services.

Jennifer Benoit, #N5482 – Community Service Officer
Rancho Mirage Crime Prevention Division

Station Desk # (760) 836-1738
73-705 Gerald Ford Drive
Palm Desert, CA 92211
(760) 836-1600

CHAD BIANCO
SHERIFF-CORONER
RIVERSIDE COUNTY, CALIFORNIA

APPENDIX H

Traffic Study

LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT ANALYSIS REPORT

RANCHO LAS PALMAS IN-N-OUT

Rancho Mirage, California

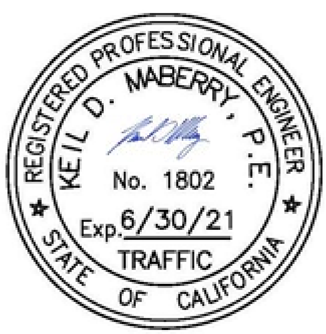
September 4, 2020

(Revision of June 18, 2020 Report)

Prepared for:

G&I IX RANCHO OUTPARCEL LP
133 Penn Street
El Segundo, CA 90245

LLG Ref. 2-20-4258-1



Prepared by:
Daniel A. Kloos, P.E.
Associate Principal
and
Justin Tucker
Transportation Engineer II

Under the Supervision of:
Keil D. Maberry, P.E.
Principal

Linscott, Law & Greenspan, Engineers
2 Executive Circle
Suite 250
Irvine, CA 92614
949.825.6175 T
949.825.6173 F
www.llgengineers.com

TABLE OF CONTENTS

SECTION PAGE

Executive Summary .... **vi**

1.0 Introduction **1**
1.1 Study Area 2
1.2 Traffic Impact Analysis Components 2
1.3 Traffic Impact Analysis Scenarios 3

2.0 Project Description and Location **4**
2.1 Site Access 4

3.0 Analysis Conditions and Methodology **5**
3.1 Existing Street Network 5
3.2 Existing Traffic Volumes 5
3.3 Level of Service (LOS) Analysis Methodologies 6
3.3.1 Highway Capacity Manual 6 (HCM 6) Method of Analysis (Signalized Intersections) 6
3.3.2 Highway Capacity Manual 6 (HCM 6) Method of Analysis (Unsignalized Intersections) 6
3.3.2.1 Two-Way Stop-Controlled Intersections 6
3.4 Impact Criteria and Thresholds 7
3.4.1 City of Rancho Mirage Criteria 7
3.4.2 City of Palm Desert Criteria 7
3.5 Existing Level of Service Results 7

4.0 Traffic Forecasting Methodology **11**

5.0 Project Traffic Characteristics **12**
5.1 Project Trip Generation Forecast 12
5.2 Project Trip Distribution and Assignment 12

6.0 Future Traffic Conditions **14**
6.1 Existing With Project Traffic Volumes 14
6.2 Year 2022 Without Project Traffic Volumes 14
6.2.1 Ambient Growth Traffic 14
6.2.2 Cumulative Projects Traffic 14
6.3 Year 2022 With Project Traffic Volumes 15

7.0 Existing Plus Project Analysis **18**
7.1 Existing Traffic Conditions 18
7.2 Existing Plus Project Traffic Conditions 18

TABLE OF CONTENTS (CONTINUED)

SECTION	PAGE

8.0 Year 2022 Cumulative Plus Project Analysis 20

8.1 Year 2022 Cumulative Traffic Conditions 20

8.2 Year 2022 Cumulative Plus Project Traffic Conditions 20

9.0 Site Access and Internal Circulation Evaluation 22

9.1 Site Access 22

9.2 Queuing Analysis For Project Access Locations 24

9.3 Internal Circulation Evaluation 24

9.4 Drive-Through Queuing Analysis 24

10.0 Area-Wide Traffic Improvements 29

10.1 Recommended Improvements 29

10.1.1 Existing Plus Project Traffic Conditions 29

10.1.2 Year 2022 Cumulative Plus Project Traffic Conditions 29

11.0 Multimodal Circulation 30

12.0 Congestion Management Program (CMP) Assessment 32

13.0 Vehicle Miles Traveled (VMT) Assessment 33

APPENDICES

APPENDIX

A. Traffic Study Scope of Work

B. Existing Traffic Count Data
- B-I Intersection Counts

C. Existing Traffic Conditions Intersection Level of Service Calculation Worksheets
- C-I Existing Traffic Conditions
- C-II Existing Plus Project Traffic Conditions

D. Year 2022 Traffic Conditions Intersection Level of Service Calculation Worksheets
- D-I Year 2022 Cumulative Traffic Conditions
- D-II Year 2022 Cumulative Plus Project Traffic Conditions

E. Project Driveway Intersection Level of Service Calculation Worksheets
- E-I Existing Traffic Conditions
- E-II Existing Plus Project Traffic Conditions
- E-III Year 2022 Cumulative Plus Project Traffic Conditions

F. Drive-Through Queuing Study Data

LIST OF FIGURES

SECTION – FIGURE #		FOLLOWING PAGE
1–1	Vicinity Map	3
2–1	Existing Site Aerial	4
2–2	Proposed Site Plan	4
3–1	Existing Roadway Conditions and Intersection Controls	6
3–2	Existing Weekday PM Peak Hour Traffic Volumes	6
3–3	Existing Saturday Midday Peak Hour Traffic Volumes	6
5–1	Project Traffic Distribution Pattern	13
5–2	Weekday PM Peak Hour Project Traffic Volumes	13
5–3	Saturday Midday Peak Hour Project Traffic Volumes	13
6–1	Existing With Project Weekday PM Peak Hour Traffic Volumes	17
6–2	Existing With Project Saturday Midday Peak Hour Traffic Volumes	17
6–3	Location of Cumulative Projects	17
6–4	Weekday PM Peak Hour Cumulative Projects Traffic Volumes	17
6–5	Saturday Midday Peak Hour Cumulative Projects Traffic Volumes	17
6–6	Year 2022 Without Project Weekday PM Peak Hour Traffic Volumes	17
6–7	Year 2022 Without Project Saturday Midday Peak Hour Traffic Volumes	17
6–8	Year 2022 With Project Weekday PM Peak Hour Traffic Volumes	17
6–9	Year 2022 With Project Saturday Midday Peak Hour Traffic Volumes	17

LIST OF TABLES

SECTION-TABLE#		PAGE
3-1	Level of Service Criteria For Signalized Intersections (HCM 6 Methodology)	8
3-2	Level of Service Criteria For Unsignalized Intersections (HCM 6 Methodology)	9
3-3	Existing Peak Hour Levels of Service	10
5-1	Project Trip Generation Forecast	13
6-1	Location and Description of Cumulative Projects	16
6-2	Cumulative Projects Trip Generation Forecast	17
7-1	Existing Plus Project Conditions Peak Hour Intersection Capacity Analysis Summary	19
8-1	Year 2022 Conditions Peak Hour Intersection Capacity Analysis Summary	21
9-1	Project Driveway Peak Hour Levels of Service Summary	23
9-2	Project Driveway Peak Hour Queuing Analysis	26
9-3	Weekday Drive-Through Lane Queuing Analysis Summary	27
9-4	Weekend Drive-Through Lane Queuing Analysis Summary	28

EXECUTIVE SUMMARY

Project Description

- The Project site is located in the existing Rancho Las Palmas Center in the City of Rancho Mirage, generally on the northeast corner of Highway 111 at Magnesia Falls Drive. The Project site is currently vacant but was previously occupied with a 5,484 square-foot (SF) building as part of the existing Rancho Las Palmas Center.

- Project is proposing to construct a 3,885 SF In-N-Out Burger restaurant (74 indoor seats) with drive-through window with storage to accommodate up to twenty-three (23) vehicles. In addition, the restaurant will include a 1,762 SF covered patio and a 632 SF outside dining area to accommodate an additional 82 seats, totaling 156 seats for the entire restaurant. The Project site will include 75 parking spaces and 4 bicycle parking racks. The Project is expected to be constructed in one phase and fully operational by the Year 2022.

- Access to the Project is currently provided and will continue to be provided via the one (1) full-ingress/right-turn out only driveway located along Magnesia Falls Drive (i.e. referred to as Private Driveway #4), the one (1) full-ingress/right-turn out only driveway located along Bob Hope Drive (i.e. referred to as Private Driveway #8), and the one (1) right-turn in/right-turn out only driveway located along Highway 111 (i.e. referred to as Private Driveway #9).

Study Area

- Six (6) key study intersections and three (3) private driveways were selected for evaluation based on discussions with City of Rancho Mirage staff. The key study intersections and private driveways listed below provide both local and regional access to the study area and define the extent of the boundaries for this traffic impact investigation. All key study intersections and private driveways are located in the City of Rancho Mirage except for key study intersections #5 and #6, which are located in the City of Palm Desert.

Key Study Intersections

1. Highway 111 at Rancho Las Palmas Drive (Rancho Mirage)
2. Highway 111 at Bob Hope Drive (Rancho Mirage)
3. Highway 111 at Magnesia Falls Drive (Rancho Mirage)
5. Highway 111 at Painters Path/Park View Drive (Palm Desert)
6. Highway 111 at Fred Waring Drive (Palm Desert)
7. Bob Hope Drive at Rancho Las Palmas Drive (Rancho Mirage)

Private Driveways

4. Rancho Las Palmas Center Dwy No. 1 at Magnesia Falls Dr. (Private Driveway)
8. Bob Hope Drive at Rancho Las Palmas Center Dwy No. 2 (Private Driveway)
9. Highway 111 at Rancho Las Palmas Center Dwy No. 3 (Private Driveway)

Project Trip Generation

- The proposed Project is forecast to generate 2,284 net weekday daily trips, with 75 net trips (40 inbound, 35 outbound) produced in the PM peak hour on a "typical" weekday and 2,766 net Saturday daily trips, with 186 net trips (95 inbound, 91 outbound) produced in the Midday peak hour on a "typical" Saturday.

Cumulative Projects Description

- The Cities of Rancho Mirage and Palm Desert identified a total of nine (9) cumulative projects within the Project study area. The nine (9) cumulative consist of the following: 1) Chase Bank, 2) Carefield Senior Living, 3) Betty Ford Expansion, 4) Roberge Condominiums, 5) Arc Village, 6) Avenida Senior Living, 7) Wolff Senior Living, 8) Crystal Palms and 9) Palm Desert Chase Bank.

- The nine (9) cumulative projects are expected to generate 3,725 weekday daily trips, with 346 trips (162 inbound, 184 outbound) produced in the PM peak hour on a "typical" weekday and 3,412 Saturday daily trips, with 391 trips (194 inbound, 197 outbound) produced in the Midday peak hour on a "typical" Saturday.

Traffic Impact Analysis

Existing Traffic Conditions

- For Existing traffic conditions, all six (6) key study intersections currently operate at an acceptable level of service (i.e. LOS D or better) during the weekday PM and Saturday Midday peak hours.

Existing Plus Project Traffic Conditions

- For Existing Plus Project traffic conditions, the proposed Project ***will not*** significantly impact any of the six (6) key study intersections when compared to the LOS standards and significant impact criteria specified in this report. The six (6) key study intersections currently operate and are forecast to continue to operate at an acceptable LOS during the weekday PM and Saturday Midday peak hours with the addition of Project generated traffic to existing traffic.

Year 2022 Cumulative Traffic Conditions

- For Year 2022 Cumulative traffic conditions, all six (6) key study intersections are forecast to operate at an acceptable level of service during the weekday PM and Saturday Midday peak hours when compared to the LOS standards defined in this report.

Year 2022 Cumulative Plus Project Traffic Conditions

- For Year 2022 Cumulative Plus Project traffic conditions, the proposed Project ***will not*** significantly impact any of the six (6) key study intersections when compared to the LOS standards and significant impact criteria specified in this report. The six (6) key study intersections are forecast to continue to operate at an acceptable LOS during the weekday PM and Saturday Midday peak hours with the addition of Project generated traffic to Year 2022 cumulative traffic.

Site Access and Internal Circulation Evaluation

- The three (3) private driveways currently operate at acceptable LOS D or better during the weekday PM peak hour and Saturday Midday peak hour. The three (3) private driveways are forecast to operate at acceptable LOS D or better during the weekday PM peak hour and Saturday Midday peak hour under Existing Plus Project traffic conditions, except for Highway 111 at Rancho Las Palmas Center Driveway No. 3, which is forecast to operate at unacceptable LOS F during the Saturday Midday peak hour. The three (3) private driveways are forecast to operate at acceptable LOS D or better during the weekday PM peak hour and Saturday Midday peak hour under Year 2022 Cumulative Plus Project traffic conditions, except for Highway 111 at Rancho Las Palmas Center Driveway No. 3, which is forecast to operate at unacceptable LOS E during the PM peak hour and unacceptable LOS F during the Saturday Midday peak hour.

  Although the private driveway of Highway 111 at Rancho Las Palmas Center Driveway No. 3 is forecast to operate at unacceptable levels of service during the weekday PM and/or Saturday Midday peak hours under Existing Plus Project and Year 2022 Cumulative Plus Project traffic conditions, it is not uncommon for unsignalized private driveways that have direct access to primary arterials, such as Highway 111, to operate at an unacceptable LOS due to the limited gaps in traffic and the high volume of traffic on the major street, but technically do not operate as a congested facility similar to a public street intersection since there is no traffic impact to the transportation network. Furthermore, the unacceptable delay occurs to the right-out movement, which can typically perform better than the LOS calculation, and the peak driveway queue can be accommodated entirely within the driveway throat without impacting the internal circulation system of the shopping center. Based on these considerations, the adverse level of service is not considered significant. As such, project access will be adequate. Motorists entering and exiting the Project site will be able to do so comfortably, safely, and without undue congestion.

- Adequate storage is provided at all three (3) Project driveways under Existing Plus Project and Year 2022 Cumulative Plus Project traffic conditions.

- The on-site circulation layout of the proposed In-N-Out Burger Restaurant Project on an overall basis is adequate. Curb return radii have been confirmed and are generally adequate for service/delivery trucks and trash trucks. Ingress and egress for the drive-through window lane is not impeded by any on-site vehicular queueing and any potential overflow of the drive-through pick-up lane will not impact on-site circulation of the shopping center.

- The results of our queuing study indicate that the distance between the proposed entry of the drive-through lane and the pick-up window of the proposed Project is of sufficient length and can accommodate the peak stacking requirements of the proposed fast-food restaurant. The drive-thru lane provides enough storage to accommodate up to twenty-three (23) vehicles. Therefore, the drive-through lane storage capacity is adequate to accommodate the projected queues for the 85th percentile (i.e. 17 vehicles) and 95th percentile (i.e. 19 vehicles) needs for the site. It should be noted that the maximum queue of 24 vehicles, which only occurred one time and only at one site throughout the survey days, can be safely accommodated on-site within the drive aisles.

Recommended Improvements

Existing Plus Project Traffic Conditions

- The results of the Existing Plus Project traffic conditions level of service analysis indicate that the proposed Project ***will not*** significantly impact any of the six (6) key study intersections. As such, no mitigation measures have been recommended.

Year 2022 Cumulative Plus Project Traffic Conditions

- The results of the Year 2022 Cumulative Plus Project traffic conditions level of service analysis indicate that the proposed Project ***will not*** significantly impact any of the six (6) key study intersections. As such, no mitigation measures have been recommended.

Multimodal Circulation

- Refer to Section 11.0 for the findings and conclusions for Multimodal Circulation.

CMP Assessment

- Per the Riverside County Congestion Management Program (CMP) criteria, the proposed Project does not have any significant impacts at the City's Circulation Element roadway analyzed locations and therefore the proposed Project does not conflict with the Riverside County Congestion Management Program.

VMT Assessment

- For the VMT screening analysis, the project was analyzed using the example screening criteria identified in the City of Rancho Mirage *Transportation Analysis Policy (June 18, 2020)* and the "Technical Advisory on Evaluating Transportation Impacts in CEQA", dated December 2018 from the Governor's Office of Planning and Research (OPR). Given that the proposed Project is considered a local serving retail use and would be presumed to have less than significant impacts, the Project can be evaluated against the OPR screening criteria. According to City of Rancho Mirage *Transportation Analysis Policy* Section 1.A. *Project Screening Criteria*, projects that are local serving retail developments less than 50,000 SF generally may be assumed to create a less-than-significant transportation impact. Therefore, since the proposed In-N-Out Burger fast-food restaurant is considered local-serving retail for the purposes of project screening and is significantly less than 50,000 SF, this Project could be screened from a VMT analysis and be presumed to have a less than significant impact on VMT, per the OPR Technical Advisory.

TRAFFIC IMPACT ANALYSIS REPORT

RANCHO LAS PALMAS IN-N-OUT

Rancho Mirage, California

September 4, 2020

(Revision of June 18, 2020 Report)

1.0 INTRODUCTION

This traffic impact analysis addresses the potential traffic impacts and circulation needs associated with the proposed Rancho Las Palmas In-N-Out Project (hereinafter referred to as Project). The Project site is currently vacant but was previously occupied with a 5,484 square-foot (SF) building as part of the existing Rancho Las Palmas Center. The Project is proposing to construct a 3,885 SF In-N-Out Burger restaurant (74 indoor seats) with drive-through window with storage to accommodate up to twenty-three (23) vehicles. In addition, the restaurant will include a 1,762 SF covered patio and a 632 SF outside dining area to accommodate an additional 82 seats, totaling 156 seats for the entire restaurant. The Project site will include 75 parking spaces and 4 bicycle parking racks. The Project site is located in the existing Rancho Las Palmas Center in the City of Rancho Mirage, generally on the northeast corner of Highway 111 at Magnesia Falls Drive.

This report documents the findings and recommendations of a traffic impact analysis conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine the potential impacts associated with the Project. The traffic analysis evaluates the existing operating conditions at six (6) key study intersections and three (3) private driveways within the Project vicinity, estimates the trip generation potential of the Project, and forecasts future operating conditions without and with the proposed Project. Where necessary, intersection improvements/mitigation measures are identified.

This traffic impact analysis report satisfies the traffic impact requirements of the City of Rancho Mirage and is consistent with the requirements and procedures outlined in the *Riverside County Transportation Department Traffic Impact Analysis Preparation Guide (April 2008).* The Scope of Work for this traffic study, which is included in ***Appendix A***, was developed in conjunction with City of Rancho Mirage staff.

The Project site has been visited and an inventory of adjacent area roadways and intersections was performed. Existing peak hour traffic information has been collected at six (6) key study intersections and three (3) private driveways for use in the preparation of intersection level of service calculations. Information concerning cumulative projects (planned and/or approved) in the vicinity of the proposed Project has been researched at the Cities of Rancho Mirage and Palm Desert. Based on our research, there are three (3) cumulative projects in the City of Rancho Mirage and six (6) cumulative projects in the City of Palm Desert within the vicinity of the subject site. These nine (9) planned and/or approved cumulative projects were considered in the cumulative traffic analysis for this project.

This traffic report analyzes existing and future weekday PM peak hour and Saturday Midday peak hour traffic conditions for a near-term (Year 2022) traffic setting upon completion of the proposed Project. Peak hour traffic forecasts for the Year 2022 horizon year have been projected by increasing existing traffic volumes by an annual growth rate of 2.0% per year and adding traffic volumes generated by nine (9) cumulative projects.

1.1 Study Area

Six (6) key study intersections and three (3) private driveways were selected for evaluation based on discussions with City of Rancho Mirage staff. The key study intersections and private driveways listed below provide both local and regional access to the study area and define the extent of the boundaries for this traffic impact investigation. All key study intersections and private driveways are located in the City of Rancho Mirage except for key study intersections #5 and #6, which are located in the City of Palm Desert.

Key Study Intersections

1. Highway 111 at Rancho Las Palmas Drive (Rancho Mirage)
2. Highway 111 at Bob Hope Drive (Rancho Mirage)
3. Highway 111 at Magnesia Falls Drive (Rancho Mirage)
5. Highway 111 at Painters Path/Park View Drive (Palm Desert)
6. Highway 111 at Fred Waring Drive (Palm Desert)
7. Bob Hope Drive at Rancho Las Palmas Drive (Rancho Mirage)

Private Driveways

4. Rancho Las Palmas Center Dwy No. 1 at Magnesia Falls Drive (Private Driveway)
8. Bob Hope Drive at Rancho Las Palmas Center Dwy No. 2 (Private Driveway)
9. Highway 111 at Rancho Las Palmas Center Dwy No. 3 (Private Driveway)

1.2 Traffic Impact Analysis Components

The Highway Capacity Manual (HCM) Delay and corresponding Level of Service (LOS) calculations at the key study locations were used to evaluate the potential traffic-related impacts associated with area growth, cumulative projects and the Project. When necessary, this report recommends intersection improvements that may be required to accommodate future traffic volumes and restore/maintain an acceptable Level of Service and/or addresses the impact of the Project.

Included in this Traffic Impact Analysis are:

- Existing Traffic Counts,
- Estimated Project trip generation/distribution/assignment,
- Estimated Cumulative Projects trip generation/distribution/assignment,
- Weekday PM and Saturday Midday peak hour capacity analyses for Existing (Year 2020) Conditions,

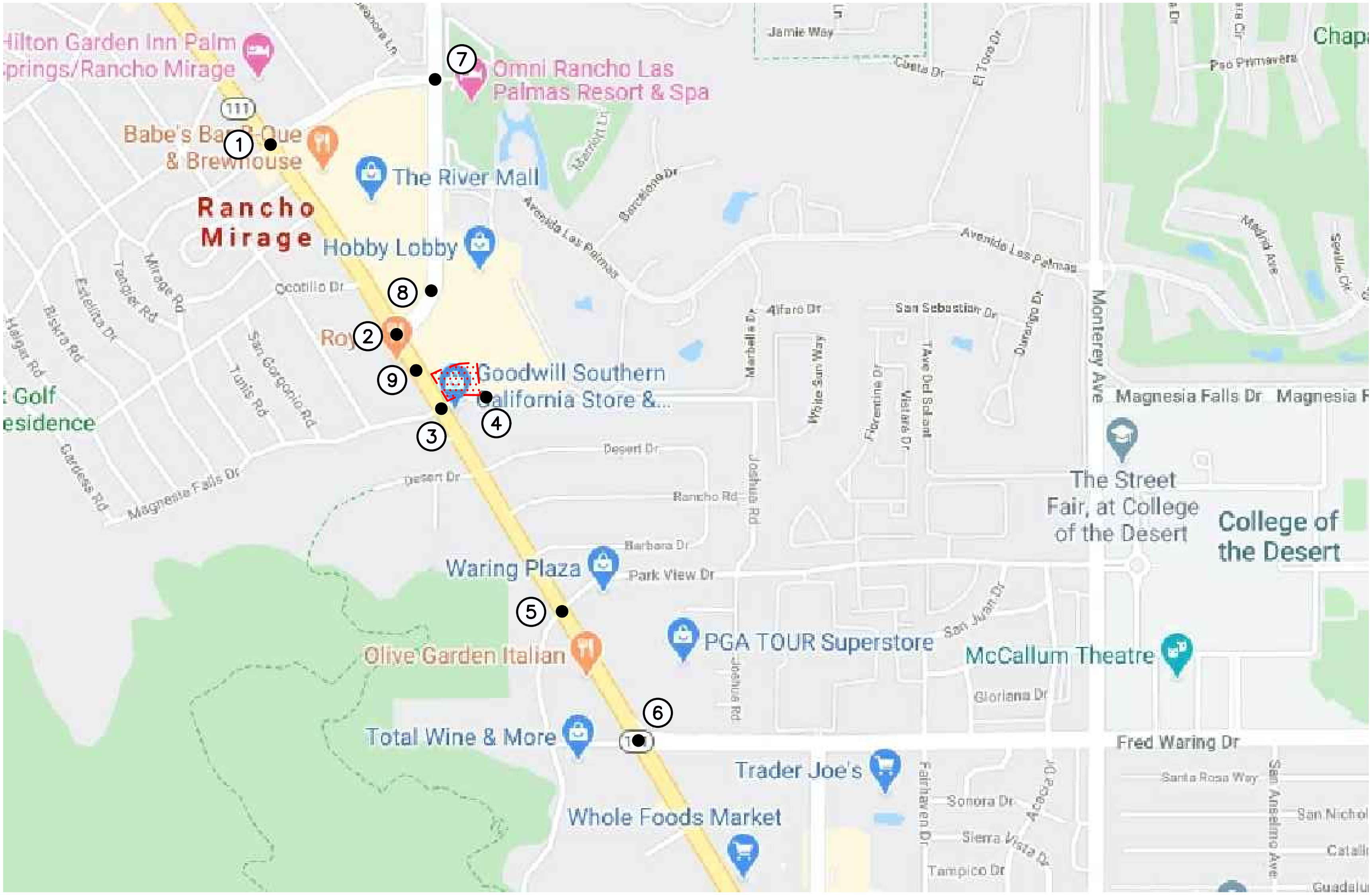
- Weekday PM and Saturday Midday peak hour capacity analyses for Existing (Year 2020) Conditions with Project traffic,
- Weekday PM and Saturday Midday peak hour capacity analyses for Near-Term (Year 2022) Conditions without and with Project traffic,
- Planned and Recommended Improvements, if any,
- Intersection Queuing for Project Access Locations,
- Site Access and Internal Circulation Evaluation, and
- Drive-Through Queuing Analysis.

Figure 1-1 presents a Vicinity Map, which illustrates the general location of the Project and depicts the study locations and surrounding street system.

1.3 Traffic Impact Analysis Scenarios

The following scenarios are those for which Delay and corresponding LOS calculations have been performed at the key intersections and private driveways for existing and near-term traffic conditions:

A. Existing (Year 2020) Traffic Conditions,
B. Existing Plus Project Traffic Conditions,
C. Scenario (B) with Recommended Improvements, if any,
D. Year 2022 Cumulative Traffic Conditions,
E. Year 2022 Cumulative Plus Project Traffic Conditions, and
F. Scenario (E) With Recommended Improvements, if any.



SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

LINSCOTT LAW & GREENSPAN engineers

NO SCALE

FIGURE 1–1

VICINITY MAP

RANCHO LAS PALMAS IN–N–OUT, RANCHO MIRAGE

n:\4200\2204258 – rancho las palmas in–n–out, rancho mirage\dwg\4258 f1–1.dwg LDP 09:52:02 04–02–2020 tucker

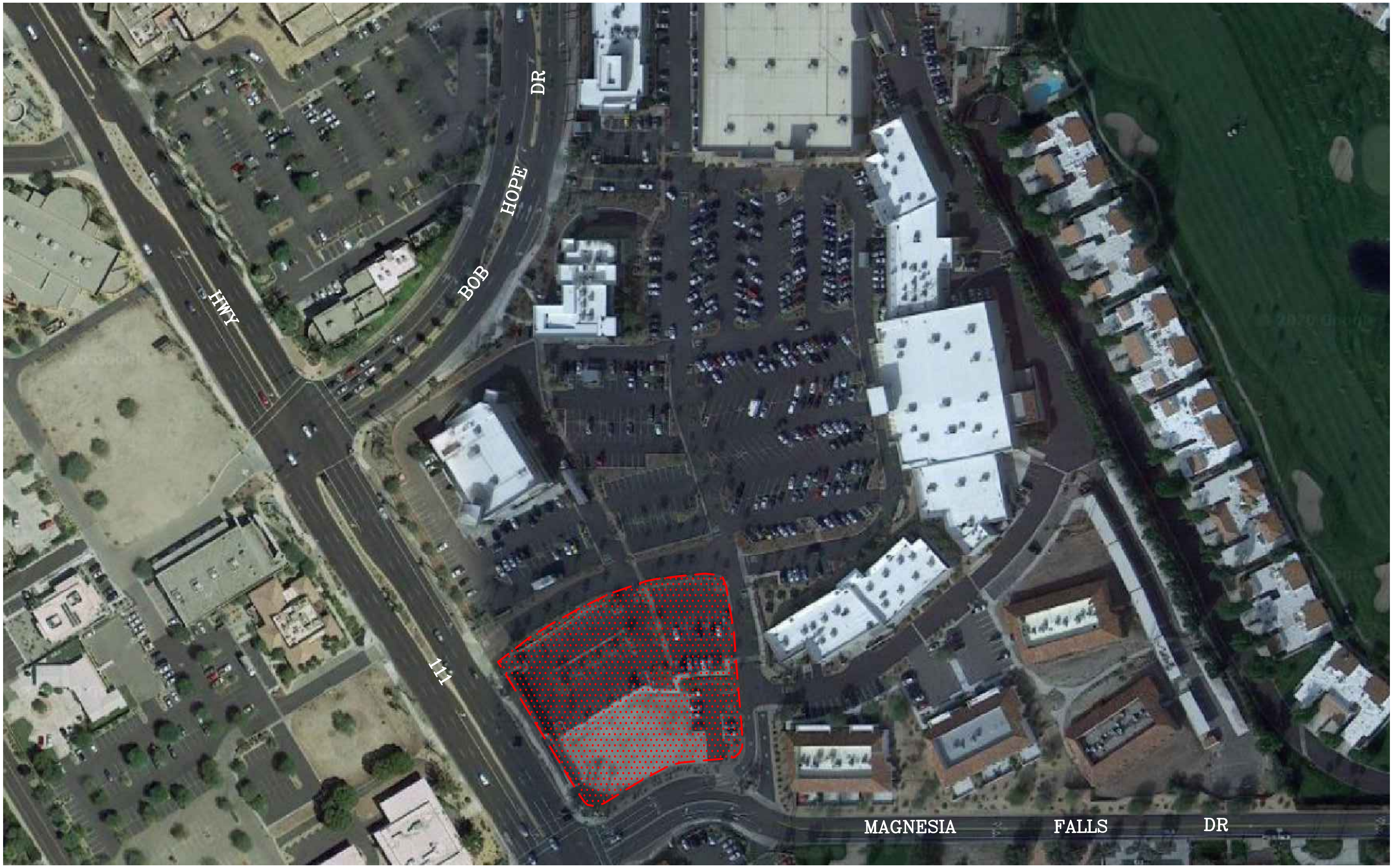
2.0 PROJECT DESCRIPTION AND LOCATION

The Project site is located in the existing Rancho Las Palmas Center in the City of Rancho Mirage, generally on the northeast corner of Highway 111 at Magnesia Falls Drive. The Project site is currently vacant but was previously occupied with a 5,484 square-foot (SF) building as part of the existing Rancho Las Palmas Center. ***Figure 2-1*** presents an aerial depiction of the existing site.

Based on review of the proposed site plan prepared by MSL Engineering, Inc., the Project is proposing to construct a 3,885 SF In-N-Out Burger restaurant (74 indoor seats) with drive-through window with storage to accommodate up to twenty-three (23) vehicles. In addition, the restaurant will include a 1,762 SF covered patio and a 632 SF outside dining area to accommodate an additional 82 seats, totaling 156 seats for the entire restaurant. The Project site will include 75 parking spaces and 4 bicycle parking racks. The Project is expected to be constructed in one phase and fully operational by the Year 2022. ***Figure 2-2*** presents the proposed site plan prepared by MSL Engineering, Inc.

2.1 Site Access

Access to the Project is currently provided and will continue to be provided via the one (1) full-ingress/right-turn out only driveway located along Magnesia Falls Drive (i.e. referred to as Private Driveway #4), the one (1) full-ingress/right-turn out only driveway located along Bob Hope Drive (i.e. referred to as Private Driveway #8), and the one (1) right-turn in/right-turn out only driveway located along Highway 111 (i.e. referred to as Private Driveway #9).



Linscott Law & Greenspan engineers

N NO SCALE

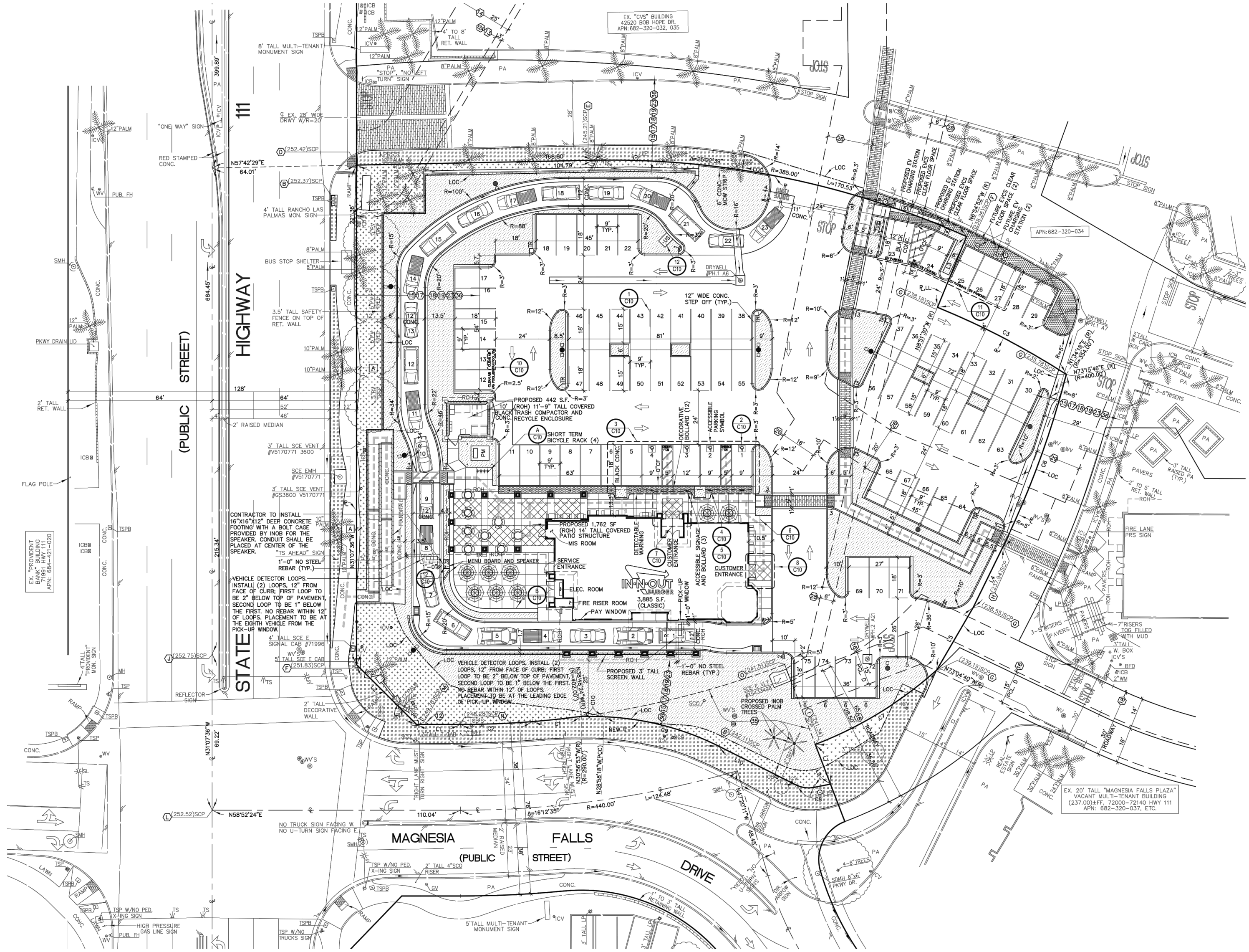
KEY
= SITE PLAN

FIGURE 2–1

EXISTING SITE AERIAL

RANCHO LAS PALMAS IN–N–OUT, RANCHO MIRAGE

n:\4200\2204258 – rancho las palmas in–n–out, rancho mirage\dwg\4258 f2–1.dwg LDP 21:24:21 04–27–2020 tucker



n:\4200\2204258 – rancho las palmas in-n-out, rancho mirage\dwg\4258 f2-2.dwg LDP 15:01:41 03-04-2020 besa

LINSCOTT LAW & GREENSPAN engineers

NO SCALE

SOURCE: MSL ENGINEERING, INC.

FIGURE 2-2

PROPOSED SITE PLAN

RANCHO LAS PALMAS IN-N-OUT, RANCHO MIRAGE

3.0 ANALYSIS CONDITIONS AND METHODOLOGY

3.1 Existing Street Network

The Principal local network of streets serving the site consists of Highway 111, Bob Hope Drive, and Magnesia Falls Drive. The following discussion provides a brief synopsis of the key area streets.

Highway 111 is generally a north-south, six-lane divided roadway in the vicinity of the Project. Highway 111 borders the Project site on the west. Parking is not permitted along either side of the roadway within the immediate vicinity of the Project. Highway 111 has a posted speed limit of 45 miles per hour (mph) in the immediate vicinity of the Project. The intersections of Highway 111 and Rancho Las Palmas Drive, Bob Hope Drive, Magnesia Falls Drive, Painters Path/Park View Drive, and Fred Waring Drive are controlled by traffic signals. The intersection of Highway 111 and Rancho Las Palmas Center Driveway No. 3 is stop-controlled (i.e. side-street stop).

Bob Hope Drive is a north-south, four-lane divided roadway located north of the Project site. Bob Hope Drive has a posted speed limit of 45 mph in the immediate vicinity of the Project. Parking is not permitted along either side of the roadway within the immediate vicinity of the Project. The intersection of Bob Hope Drive and Rancho Las Palmas Drive is controlled by a traffic signal. The intersection of Bob Hope Drive and Rancho Las Palmas Center Driveway No. 2 is stop-controlled (i.e. side-street stop).

Magnesia Falls Drive is an east-west, two-lane undivided roadway bordering the Project site to the south. Magnesia Falls Drive has a posted speed limit of 30 mph. Parking is not permitted along either side of the roadway within the immediate vicinity of the Project, except on the south side of Magnesia Falls Drive, east of Rancho Las Palmas Center Driveway No. 1. The intersection of Magnesia Falls Drive and Highway 111 is controlled by a traffic signal. The intersection of Magnesia Falls Drive and Rancho Las Palmas Center Driveway No. 1 is stop-controlled (i.e. side-street stop).

Figure 3-1 presents an inventory of the existing roadway conditions for the arterials and intersections evaluated in this report. This figure identifies the number of travel lanes for key arterials, as well as intersection configurations and controls for the key area study intersections.

3.2 Existing Traffic Volumes

Existing weekday PM and Saturday Midday peak hour traffic volumes for the six (6) key study intersections and three (3) private driveways evaluated in this report, were collected by Counts Unlimited on Tuesday, March 17th, 2020, and Saturday, March 14th, 2020, respectively. While the traffic counts were conducted prior to the State of California "Stay at Home" order as a result of the Covid-19 Coronavirus Pandemic, the weekday PM and Saturday Midday peak hour traffic volumes were grown by 50% and 25%, respectively, to provide for a conservative baseline condition. These traffic volumes were further adjusted upward, accordingly, to ensure appropriate conservation of flow along Highway 111. It should be noted that the final existing traffic volumes were validated against historical traffic data during the peak season in order to create a conservative baseline condition compared to other historical traffic count data in the area. ***Figures 3-2*** and ***3-3*** present the existing weekday PM and Saturday Midday peak hour traffic volumes, respectively, for the six (6) key study intersections and three (3) private driveways. ***Appendix B*** contains the detailed peak hour traffic count sheets for the six (6) key study intersections and three (3) private driveways evaluated in this report.

3.3 Level of Service (LOS) Analysis Methodologies

Weekday PM and Saturday Midday peak hour operating conditions for the key study intersections were evaluated using the methodology outlined in *Chapter 19 of the Highway Capacity Manual 6 (HCM 6)* for signalized intersections and the methodology outlined in *Chapter 20 of the HCM 6* for two-way stop-controlled intersections.

3.3.1 *Highway Capacity Manual 6 (HCM 6) Method of Analysis (Signalized Intersections)*

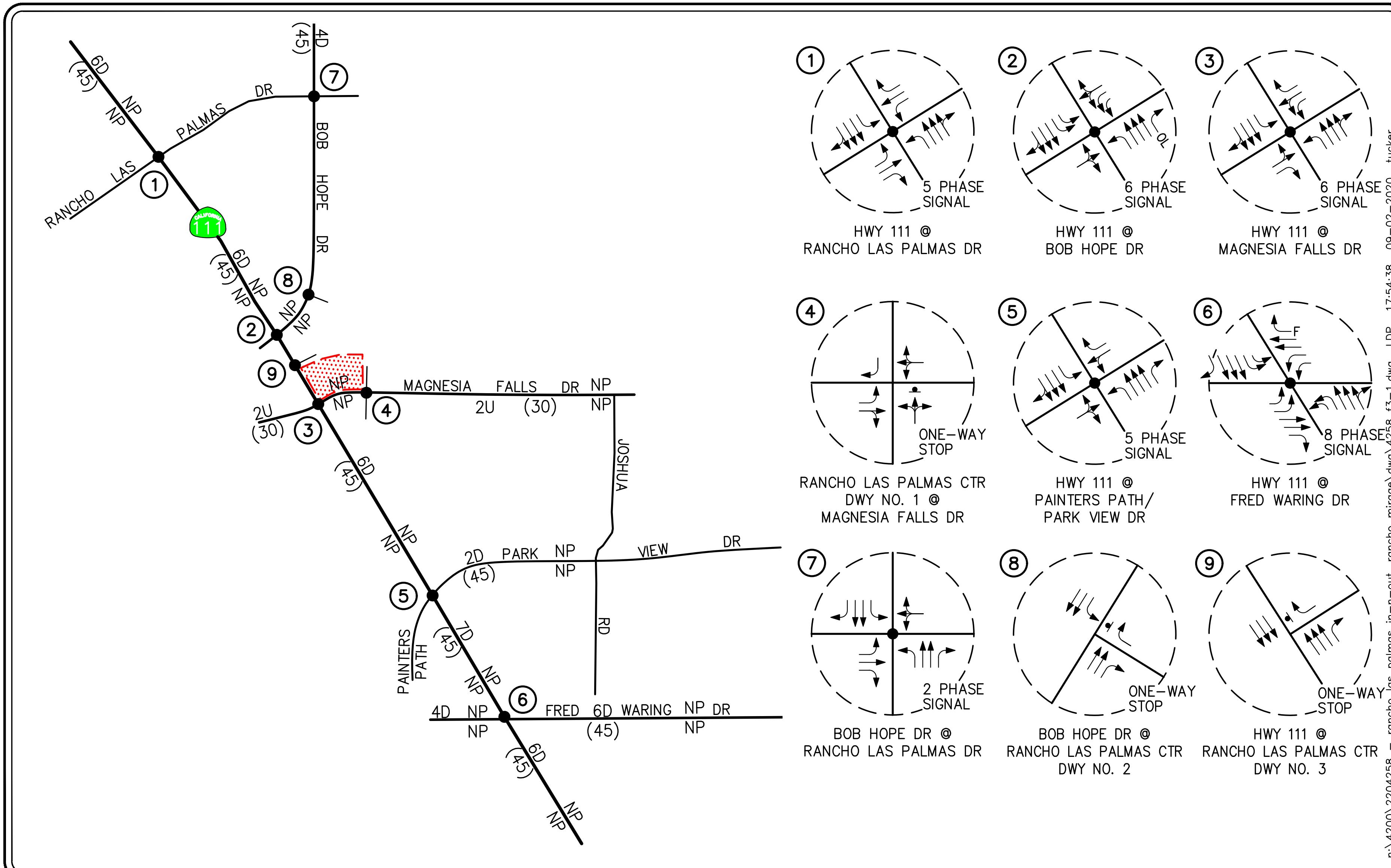
Based on the HCM operations method of analysis, level of service for signalized intersections and approaches is defined in terms of control delay, which is a measure of the increase in travel time due to traffic signal control, driver discomfort, and fuel consumption. Control delay includes the delay associated with vehicles slowing in advance of an intersection, the time spent stopped on an intersection approach, the time spent as vehicles move up in the queue, and the time needed for vehicles to accelerate to their desired speed. LOS criteria for traffic signals are stated in terms of the control delay in seconds per vehicle. The LOS thresholds established for the automobile mode at a signalized intersection are shown in ***Table 3-1***.

3.3.2 *Highway Capacity Manual 6 (HCM 6) Method of Analysis (Unsignalized Intersections)*

The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. LOS criteria for unsignalized intersections differ from LOS criteria for signalized intersections as signalized intersections are designed for heavier traffic and therefore a greater delay. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable, which can reduce users' delay tolerance.

3.3.2.1 Two-Way Stop-Controlled Intersections

Two-way stop-controlled intersections are comprised of a major street, which is uncontrolled, and a minor street, which is controlled by stop signs. Level of service for a two-way stop-controlled intersection is determined by the computed or measured control delay. The control delay by movement, by approach, and for the intersection as a whole is estimated by the computed capacity for each movement. LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. The worst side street approach delay is reported. LOS is not defined for the intersection as a whole or for major-street approaches, as it is assumed that major-street through vehicles experience zero delay. The HCM control delay value ranges for two-way stop-controlled intersections are shown in ***Table 3-2***.



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

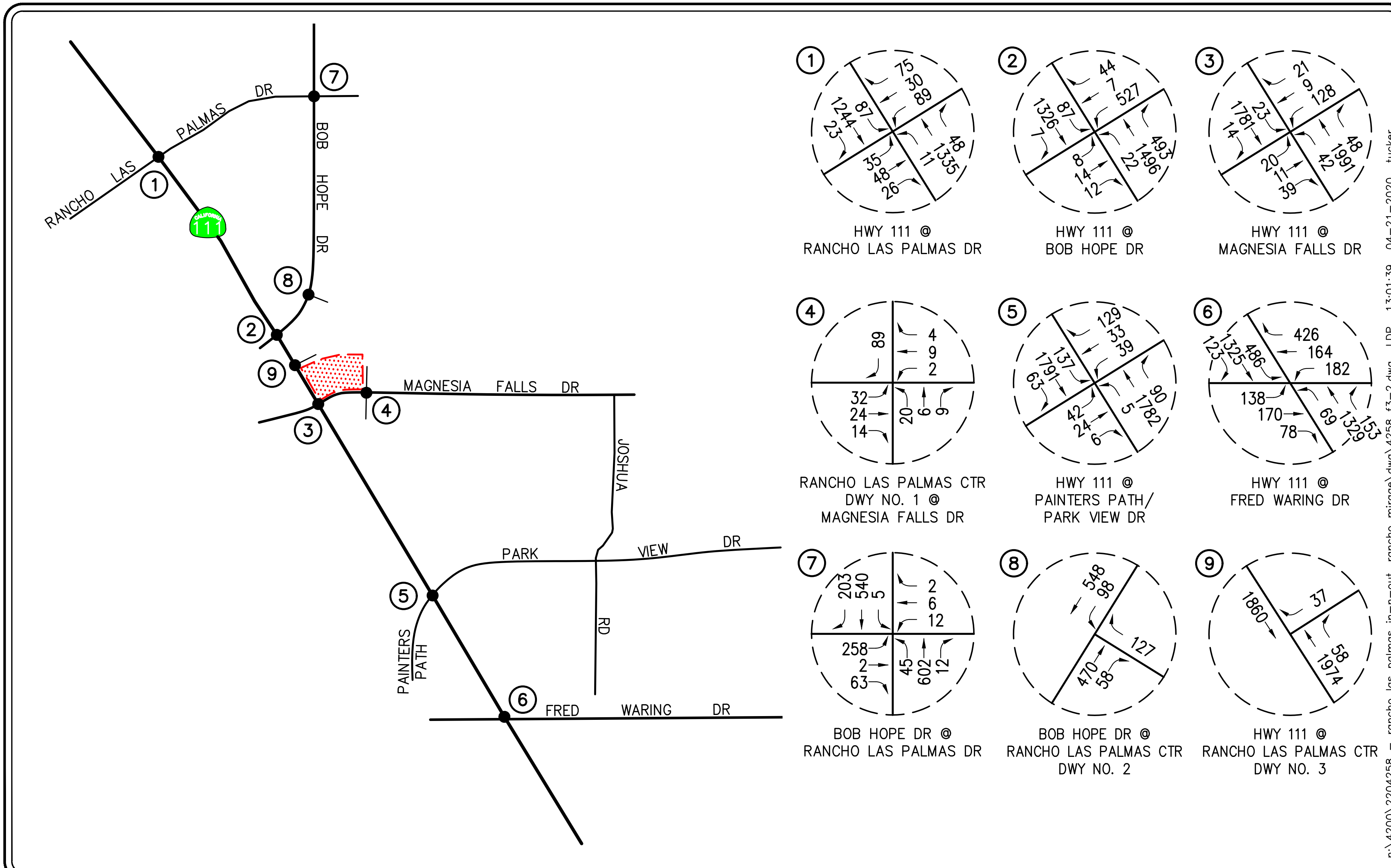
KEY

← = APPROACH LANE ASSIGNMENT
● = TRAFFIC SIGNAL, ⊤ = STOP SIGN
P = PARKING, NP = NO PARKING
U = UNDIVIDED, D = DIVIDED
2 = NUMBER OF TRAVEL LANES
(XX)= POSTED SPEED LIMIT (MPH)
F = FREE-RIGHT
▒ = PROJECT SITE

FIGURE 3-1

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

RANCHO LAS PALMAS IN-N-OUT, RANCHO MIRAGE



LINSCOTT LAW & GREENSPAN engineers

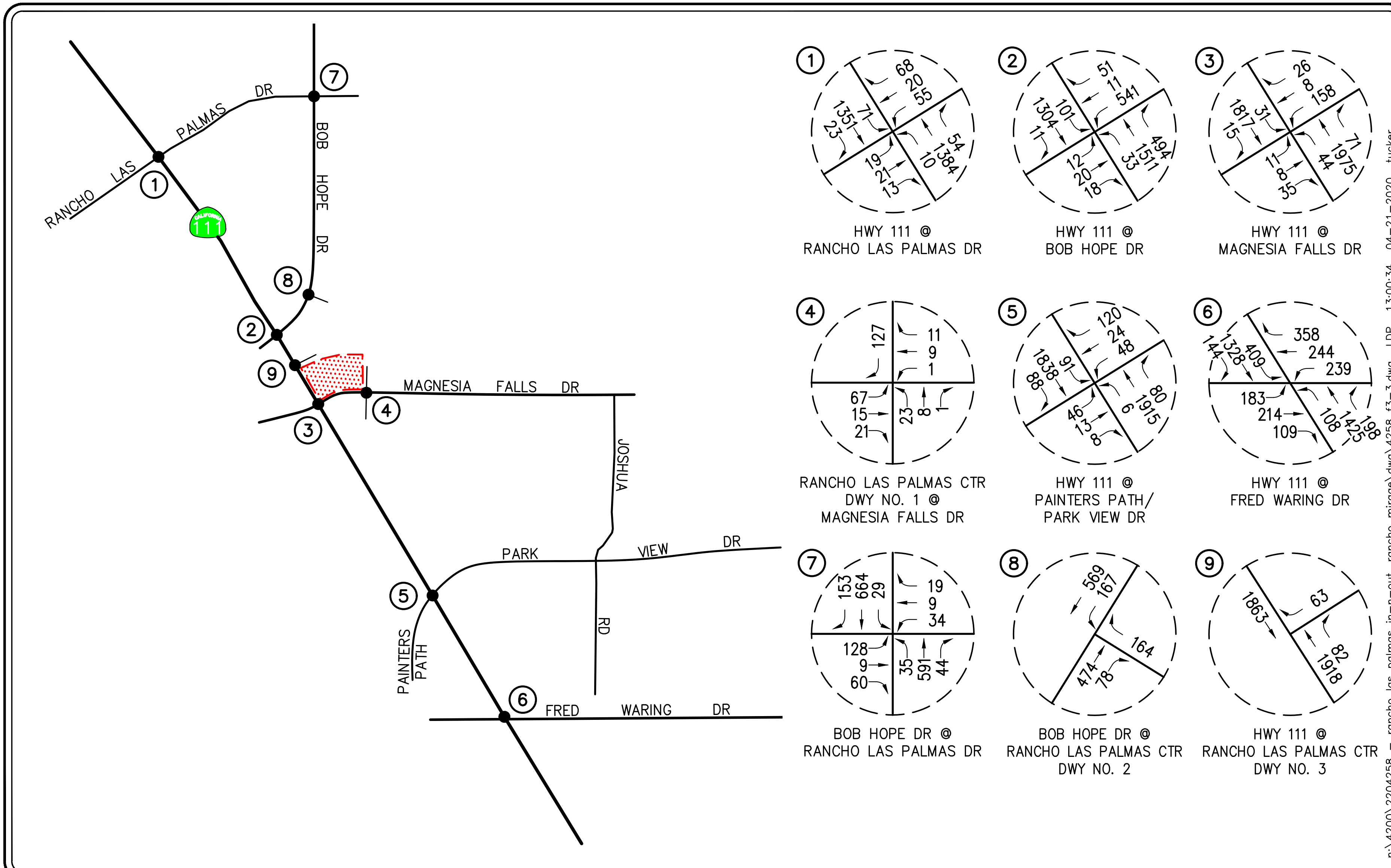
N NO SCALE

KEY
= STUDY INTERSECTION
= PROJECT SITE

FIGURE 3–2

EXISTING WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

RANCHO LAS PALMAS IN–N–OUT, RANCHO MIRAGE



LINSCOTT LAW & GREENSPAN engineers

NO SCALE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 3–3

EXISTING SATURDAY MIDDAY PEAK HOUR TRAFFIC VOLUMES

RANCHO LAS PALMAS IN–N–OUT, RANCHO MIRAGE

3.4 Impact Criteria and Thresholds

3.4.1 *City of Rancho Mirage Criteria*

According to the *City of Rancho Mirage General Plan 2017 Update*, "*While LOS C has long been considered the desirable and optimal level of traffic volume on any given roadway, it represents a standard that is progressively more difficult and less cost-effective to achieve in urban areas. For peak operating periods, LOS D or a maximum volume to capacity ratio of 0.90 is now considered the generally acceptable service level.*"

Therefore, any of the seven (7) City of Rancho Mirage study intersections/private driveways (i.e. intersections #1, #2, #3, #4, #7, #8, and #9) operating at LOS E or F shall be considered deficient.

3.4.2 *City of Palm Desert Criteria*

According to the *City of Palm Desert Comprehensive General Plan Circulation Element*, "*The Circulation Element establishes and directs actions to maintain acceptable levels of service on all community roadways. The City traffic engineers and transportation planners strive to provide optimum roadway operating conditions while controlling the costs of building and maintaining infrastructure to assure those conditions. For many years, LOS C was considered the desirable and optimal level of traffic volume on any given roadway and continues to be the goal in Palm Desert. However, as traffic volumes increase, LOS C represents a standard that is progressively more difficult and costly to achieve in urban areas. For peak operating periods, LOS D and/or a maximum volume to capacity ratio of 0.90 is provisionally considered the generally acceptable service level. With the planned roadway improvements set forth in the Circulation Element and the General Plan EIR and associated traffic study, buildout of the City General Plan is not expected to result in any intersections operating at levels worse than LOS D. Exceedance of the City's LOS C goal is only acceptable where maximum feasible intersection improvements have been implemented.*"

Based on the aforementioned criteria, any of the two (2) City of Palm Desert key study intersections (i.e. intersections #5 and #6) operating at LOS E or F shall be considered deficient.

3.5 Existing Level of Service Results

Table 3-3 summarizes the existing peak hour service level calculations for the six (6) key study intersections based on existing traffic volumes and current street geometry. Review of *Table 3-3* indicates that all six (6) key study intersections currently operate at acceptable levels of service during the weekday PM and Saturday Midday peak hours when compared to the LOS criteria identified in this report. ***Appendix C*** presents the Existing Delay/LOS calculations for the six (6) key study intersections for the weekday PM and Saturday Midday peak hours.

TABLE 3-1

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM 6 METHODOLOGY)[1]

Level of Service (LOS)	Control Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	≤ 10.0	This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10.0 and ≤ 20.0	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
C	> 20.0 and ≤ 35.0	Average traffic delays. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	> 35.0 and ≤ 55.0	Long traffic delays at level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55.0 and ≤ 80.0	Very long traffic delays This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths and high *v/c* ratios. Individual cycle failures are frequent occurrences.
F	≥ 80.0	Severe congestion This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

[1] Source: *Highway Capacity Manual 6*, Chapter 19: Signalized Intersections.

TABLE 3-2
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM 6 METHODOLOGY)[2,3]

Level of Service (LOS)	Highway Capacity Manual (HCM) Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	≤ 10.0	Little or no delay
B	> 10.0 and ≤ 15.0	Short traffic delays
C	> 15.0 and ≤ 25.0	Average traffic delays
D	> 25.0 and ≤ 35.0	Long traffic delays
E	> 35.0 and ≤ 50.0	Very long traffic delays
F	> 50.0	Severe congestion

2 Source: *Highway Capacity Manual 6*, Chapter 20: Two-Way Stop-Controlled Intersections. The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

3 Source: *Highway Capacity Manual 6*, Chapter 21: All-Way Stop-Controlled Intersections. For approaches and intersection-wide assessment, LOS is defined solely by control delay.

TABLE 3-3
EXISTING PEAK HOUR LEVELS OF SERVICE

Key Intersection		Time Period	Jurisdiction	Minimum Acceptable LOS	Control Type	Existing Traffic Conditions HCM	LOS	V/C
1.	Highway 111 at Rancho Las Palmas Drive	PM Sat. MD	Rancho Mirage	LOS D	5Ø Traffic Signal	12.3 s/v 9.7 s/v	B A	0.487 0.466
2.	Highway 111 at Bob Hope Drive	PM Sat. MD	Rancho Mirage	LOS D	6Ø Traffic Signal	16.7 s/v 18.2 s/v	B B	0.558 0.583
3.	Highway 111 at Magnesia Falls Drive	PM Sat. MD	Rancho Mirage	LOS D	6Ø Traffic Signal	13.2 s/v 13.3 s/v	B B	0.570 0.575
5.	Highway 111 at Painters Path/Park View Drive	PM Sat. MD	Palm Desert	LOS D	5Ø Traffic Signal	10.9 s/v 9.7 s/v	B A	0.595 0.609
6.	Highway 111 at Fred Waring Drive	PM Sat. MD	Palm Desert	LOS D	8Ø Traffic Signal	39.1 s/v 30.9 s/v	D C	0.632 0.678
7.	Bob Hope Drive at Rancho Las Palmas Drive	PM Sat. MD	Rancho Mirage	LOS D	2Ø Traffic Signal	11.7 s/v 8.5 s/v	B A	0.417 0.320

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report.

4.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the Project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations and/or rates to the Project development tabulation.

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound Project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of Project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds.

Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway segments and intersection turning movements throughout the study area.

With the forecasting process complete and Project traffic assignments developed, the impact of the Project is isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast Project traffic. If necessary, the need for site-specific and/or cumulative local area improvements can then be evaluated.

5.0 PROJECT TRAFFIC CHARACTERISTICS

5.1 Project Trip Generation Forecast

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation equations and/or rates used in the traffic forecasting procedure are found in the 10th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2017].

Table 5-1 summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed Project and also presents the Project's forecast peak hour and daily traffic volumes. As shown, the trip generation potential of the Project was estimated using ITE Land Use 934: Fast-Food Restaurant With Drive-Through trip rates. Review of *Table 5-1* indicates that the proposed Project is forecast to generate 2,284 weekday daily trips, with 75 trips (40 inbound, 35 outbound) produced in the PM peak hour on a "typical" weekday and 2,766 Saturday daily trips, with 186 trips (95 inbound, 91 outbound) produced in the Midday peak hour on a "typical" Saturday.

Please note that the aforementioned overall project trip generation includes adjustments for pass-by per the *Trip Generation Handbook, 3rd Edition*, published by ITE (2014), to account for trips that are already in the everyday traffic stream on the adjoining streets (i.e. Highway 111 and Bob Hope Drive) and will stop as they pass by the project site as a matter of convenience on their path to another destination. Per the *Trip Generation Handbook,* a pass-by reduction factor of 50% is recommended for the weekday PM peak hour for the fast-food restaurant with drive-through land use. Given that the *Trip Generation Handbook* does not explicitly have published pass-by percentages for the weekday daily, Saturday daily and Saturday Midday peak hour, the weekday daily and Saturday daily pass-by percentages were estimated to be 25%. These percentages are based on our experience/traffic engineering judgment. The Saturday Midday peak hour of 50% was estimated to be the same as the weekday PM peak hour.

5.2 Project Trip Distribution and Assignment

Figure 5-1 illustrates the general, directional traffic distribution pattern for the proposed Project. Project traffic volumes both entering and exiting the project site have been distributed and assigned to the adjacent street system based on the following considerations:

- the site's proximity to major traffic carriers (i.e. Highway 111, Bob Hope Drive, etc.),
- expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals, and
- ingress/egress availability at the Project site.

The anticipated weekday PM and Saturday Midday peak hour project traffic volumes associated with the Project are presented in ***Figures 5-2*** and ***5-3***, respectively. The traffic volume assignments presented in *Figures 5-2* and *5-3* reflect the traffic distribution characteristics shown in *Figure 5-1* and the traffic generation forecast presented in *Table 5-1*.

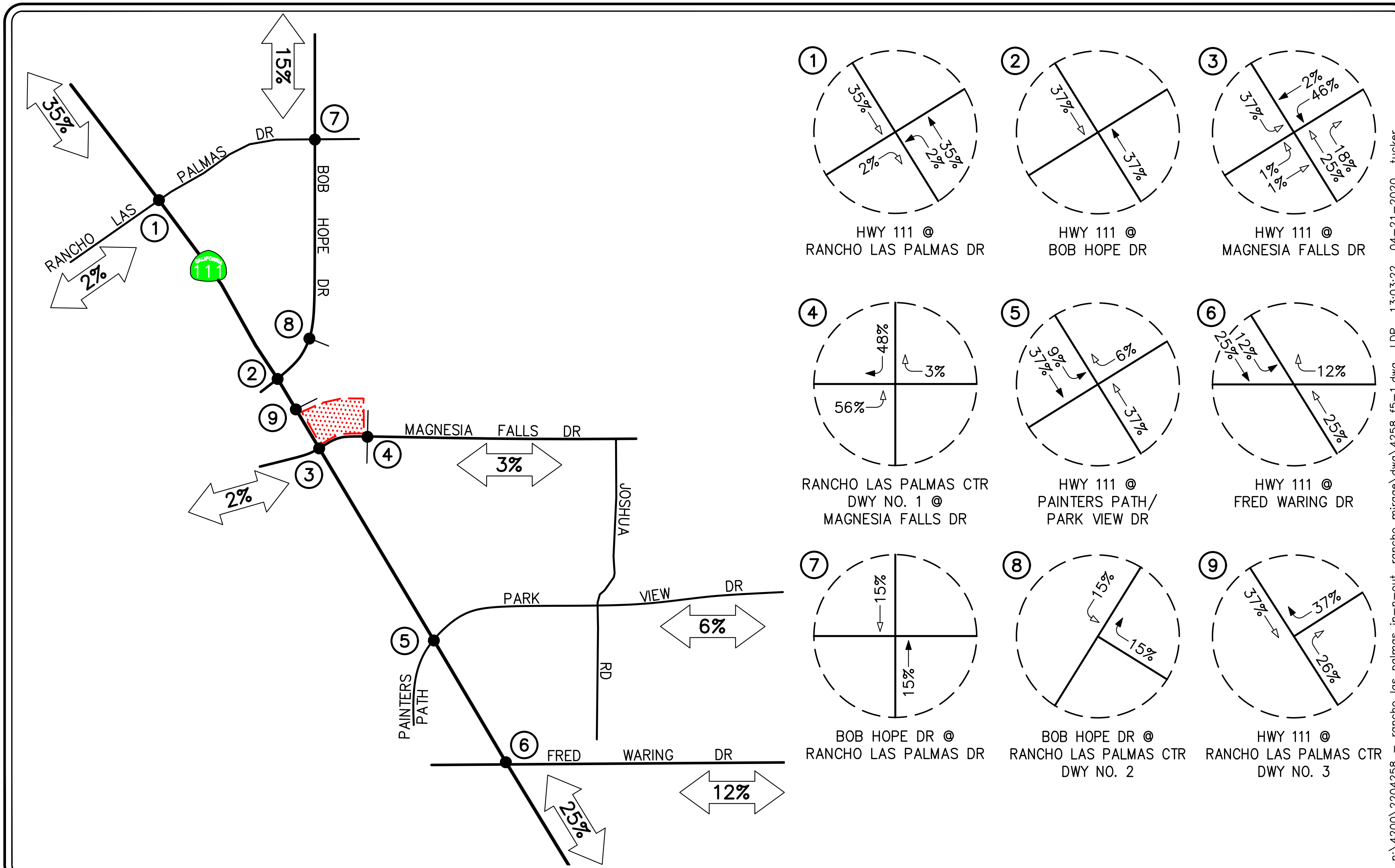
TABLE 5-1
PROJECT TRIP GENERATION FORECAST[4]

ITE Land Use Code / Project Description	Weekday				Saturday			
	Daily 2-Way	PM Peak Hour			Daily 2-Way	Midday Peak Hour		
		Enter	Exit	Total		Enter	Exit	Total
Generation Factors:								
▪ 934: Fast-Food Restaurant with Drive-Thru Window (TE/Seat)	19.52	53%	47%	0.97	23.64	51%	49%	2.39
Generation Forecasts:								
▪ Proposed In-N-Out Restaurant (156 Seats)[5]	3,045	80	71	151	3,688	190	183	373
Pass-By (Weekday Daily: 25%, Weekday PM: 50%, Saturday Daily: 25%, Saturday Midday: 50%)[6]	-761	-40	-36	-76	-922	-95	-92	-187
Total Project Trip Generation	**2,284**	**40**	**35**	**75**	**2,766**	**95**	**91**	**186**

4 Source: Trip rates based on *Trip Generation, 10th Edition,* Institute of Transportation Engineers, (ITE) [Washington, D.C. (2017).

5 Includes 74 indoor seats and 82 outdoor patio seats.

6 Source: *Trip Generation Handbook, 3rd Edition,* Institute of Transportation Engineers, (ITE) [Washington, D.C. (2017). Based on the *Trip Generation Handbook,* the PM peak hour pass-by for ITE Land Use 934: Fast-Food Restaurant with Drive-Through Window is 50%. The weekday daily and Saturday daily pass-by percentages were estimated to be 25%. These percentages are based on our experience/traffic engineering judgment. The Saturday Midday peak hour of 50% was estimated to be the same as the weekday PM peak hour.



n:\4200\2204258 - rancho las palmas in-n-out, rancho mirage\dwg\4258 f5-1.dwg LDP 13:03:22 04-21-2020 tucker

LINSCOTT LAW & GREENSPAN engineers

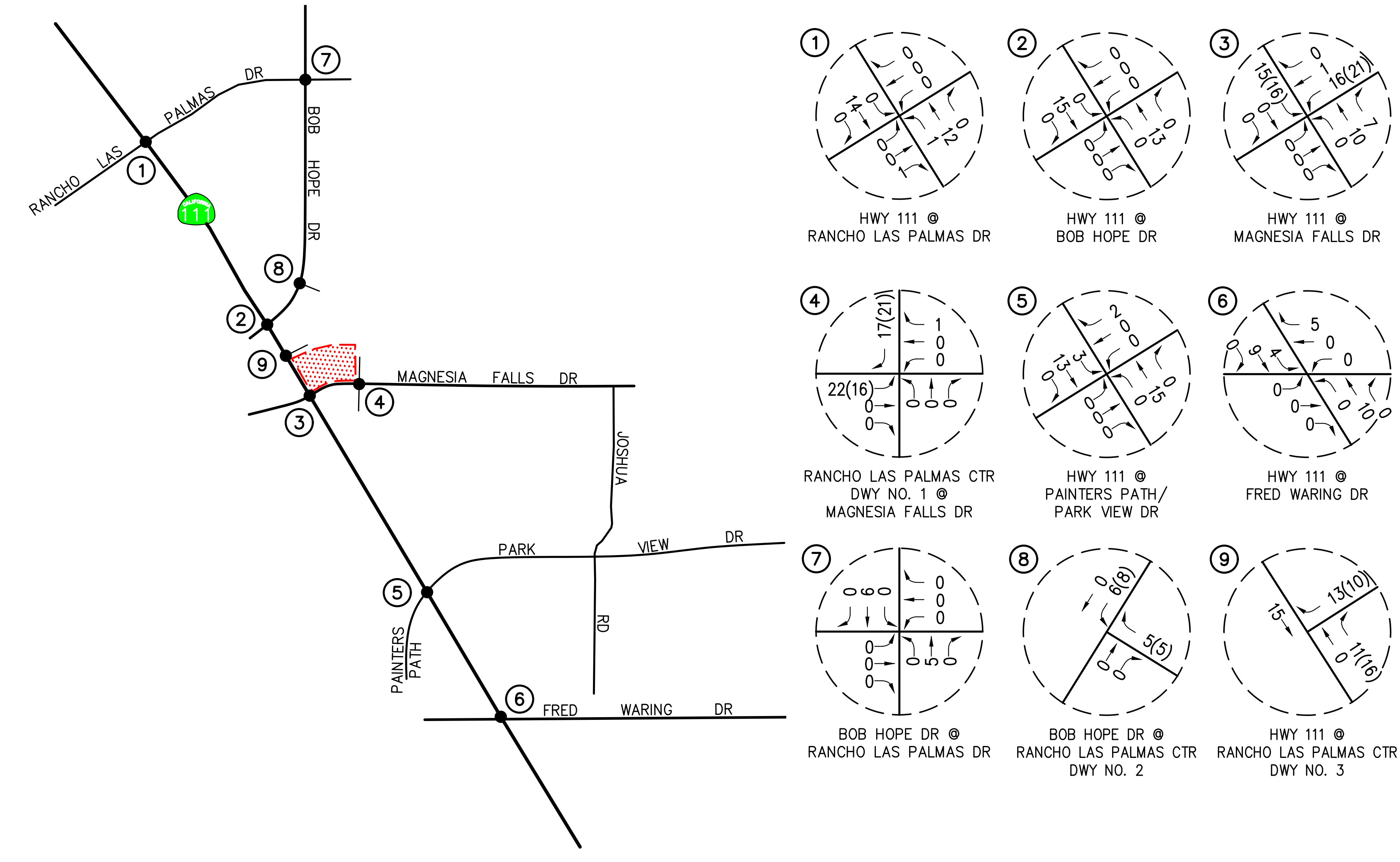
N NO SCALE

KEY
(#) = STUDY INTERSECTION
= INBOUND PERCENTAGE
= OUTBOUND PERCENTAGE
= PROJECT SITE

FIGURE 5-1

PROJECT TRAFFIC DISTRIBUTION PATTERN

RANCHO LAS PALMAS IN-N-OUT, RANCHO MIRAGE



n:\4200\2204258 – rancho las palmas in-n-out, rancho mirage\dwg\4258 f5-2.dwg LDP 13:05:29 04-21-2020 tucker

LINSCOTT LAW & GREENSPAN
engineers

N
NO SCALE

KEY

XX(XX) = PROJECT TRIPS (PASS-BY TRIPS)

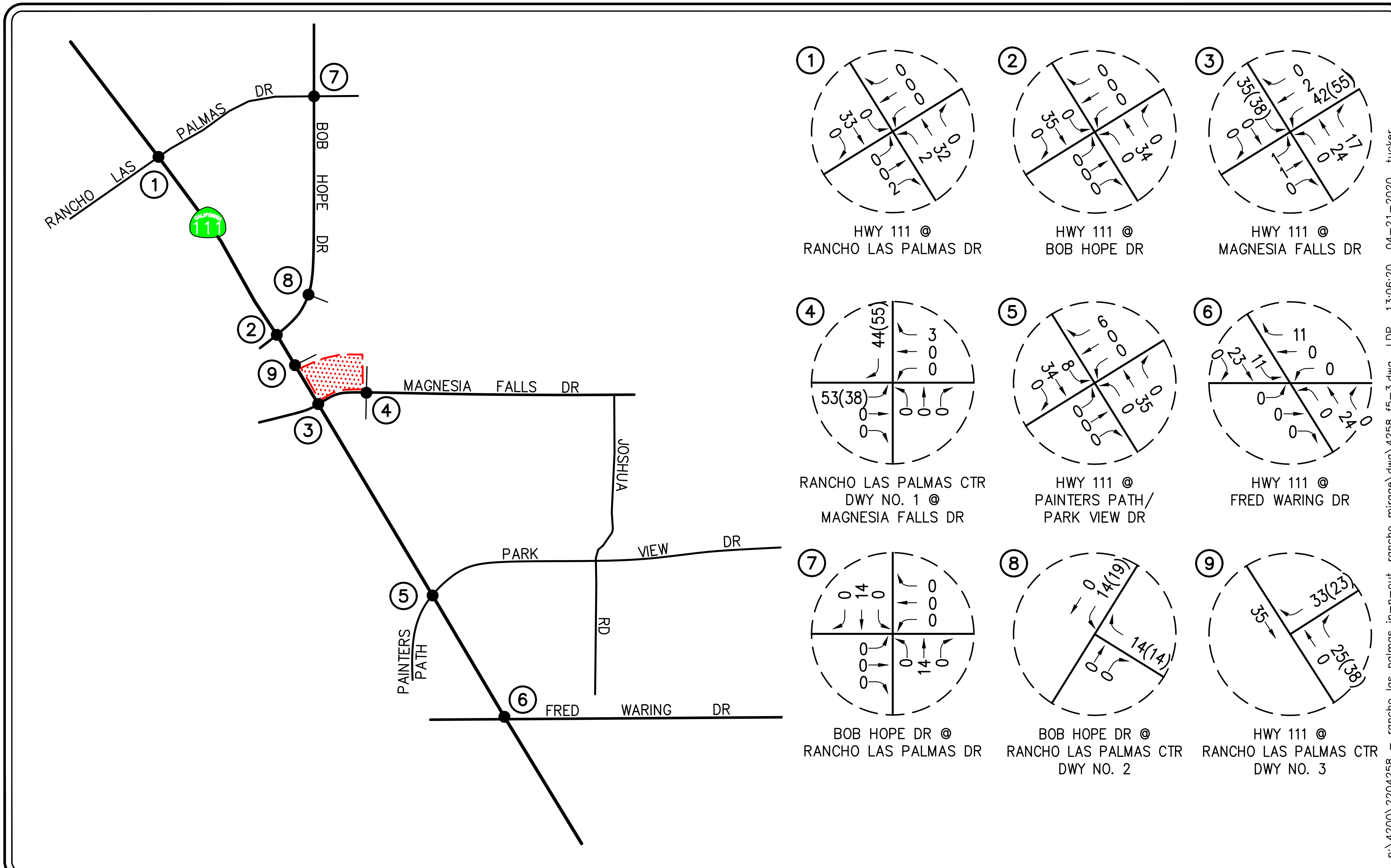
= STUDY INTERSECTION

= PROJECT SITE

FIGURE 5-2

WEEKDAY PM
PEAK HOUR PROJECT TRAFFIC VOLUMES

RANCHO LAS PALMAS IN-N-OUT, RANCHO MIRAGE



n:\4200\2204258 – rancho las palmas in-n-out, rancho mirage\dwg\4258 f5-3.dwg LDP 13:06:20 04-21-2020 tucker

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY
XX(XX) = PROJECT TRIPS (PASS-BY TRIPS)
# = STUDY INTERSECTION
= PROJECT SITE

FIGURE 5-3

SATURDAY MIDDAY
PEAK HOUR PROJECT TRAFFIC VOLUMES
RANCHO LAS PALMAS IN-N-OUT, RANCHO MIRAGE

6.0 Future Traffic Conditions

6.1 Existing With Project Traffic Volumes

The estimates of Project generated traffic volumes were added to the Existing traffic conditions to develop traffic projections for the Existing Plus Project traffic conditions. ***Figures 6-1*** and ***6-2*** present the anticipated weekday PM and Saturday Midday peak hour Existing Plus Project traffic volumes, respectively, at the key study intersections/private driveways.

6.2 Year 2022 Without Project Traffic Volumes

6.2.1 *Ambient Growth Traffic*

Near-term horizon year traffic growth estimates have been calculated using an ambient growth factor of 2.0% per year. The ambient growth factor is intended to include unknown and future cumulative projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. Applied to the Year 2020 existing traffic volumes, this factor results in a 4.0% growth in existing volumes to the near-term horizon Year 2022.

6.2.2 *Cumulative Projects Traffic*

The Cities of Rancho Mirage and Palm Desert identified a total of nine (9) cumulative projects within the Project study area. Cumulative projects, as defined by Section 15355 of the CEQA Guidelines, are "closely related past, present and reasonably foreseeable probable future projects". The Traffic Impact Analysis assumes that these cumulative projects will be developed and operational when the proposed Project is operational. This is the most conservative, worst-case approach since the exact timing of each cumulative project is uncertain. In addition, impacts for these cumulative projects would likely be, or have been, subject to mitigation measures, which could reduce potential impacts. Under this analysis, however, those mitigation measures are not considered. The locations of these nine (9) cumulative projects are presented in ***Figure 6-3***.

Table 6-1 presents the jurisdiction, description and development totals of the nine (9) cumulative projects. ***Table 6-2*** presents the resultant trip generation for the nine (9) cumulative projects. As shown in *Table 6-2*, the cumulative projects are expected to generate 3,725 weekday daily trips, with 346 trips (162 inbound, 184 outbound) produced in the PM peak hour on a "typical" weekday and 3,412 Saturday daily trips, with 391 trips (194 inbound, 197 outbound) produced in the Midday peak hour on a "typical" Saturday.

The anticipated weekday PM and Saturday Midday peak hour cumulative projects traffic volumes at the key study intersections/private driveways are presented in ***Figures 6-4*** and ***6-5***, respectively.

Figures 6-6 and ***6-7*** present Year 2022 Without Project weekday PM and Saturday Midday peak hour traffic volumes at the key study intersections/private driveways, respectively. It should be noted that the Year 2022 Without Project traffic volumes include ambient traffic growth as well as the traffic from the nine (9) cumulative projects.

It should again be emphasized that because this traffic impact analysis utilizes both an ambient growth factor along with a list of cumulative projects approach to analyze cumulative impacts, this traffic impact analysis is highly conservative and would tend to overstate cumulative traffic impacts.

6.3 Year 2022 With Project Traffic Volumes

The estimates of Project generated traffic volumes were added to the Year 2022 Without Project traffic conditions to develop traffic projections for the Year 2022 With Project traffic conditions. ***Figures 6-8*** and ***6-9*** present the anticipated weekday PM and Saturday Midday peak hour Year 2022 With Project traffic volumes, respectively, at the key study intersections/private driveways.

TABLE 6-1
LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[7]

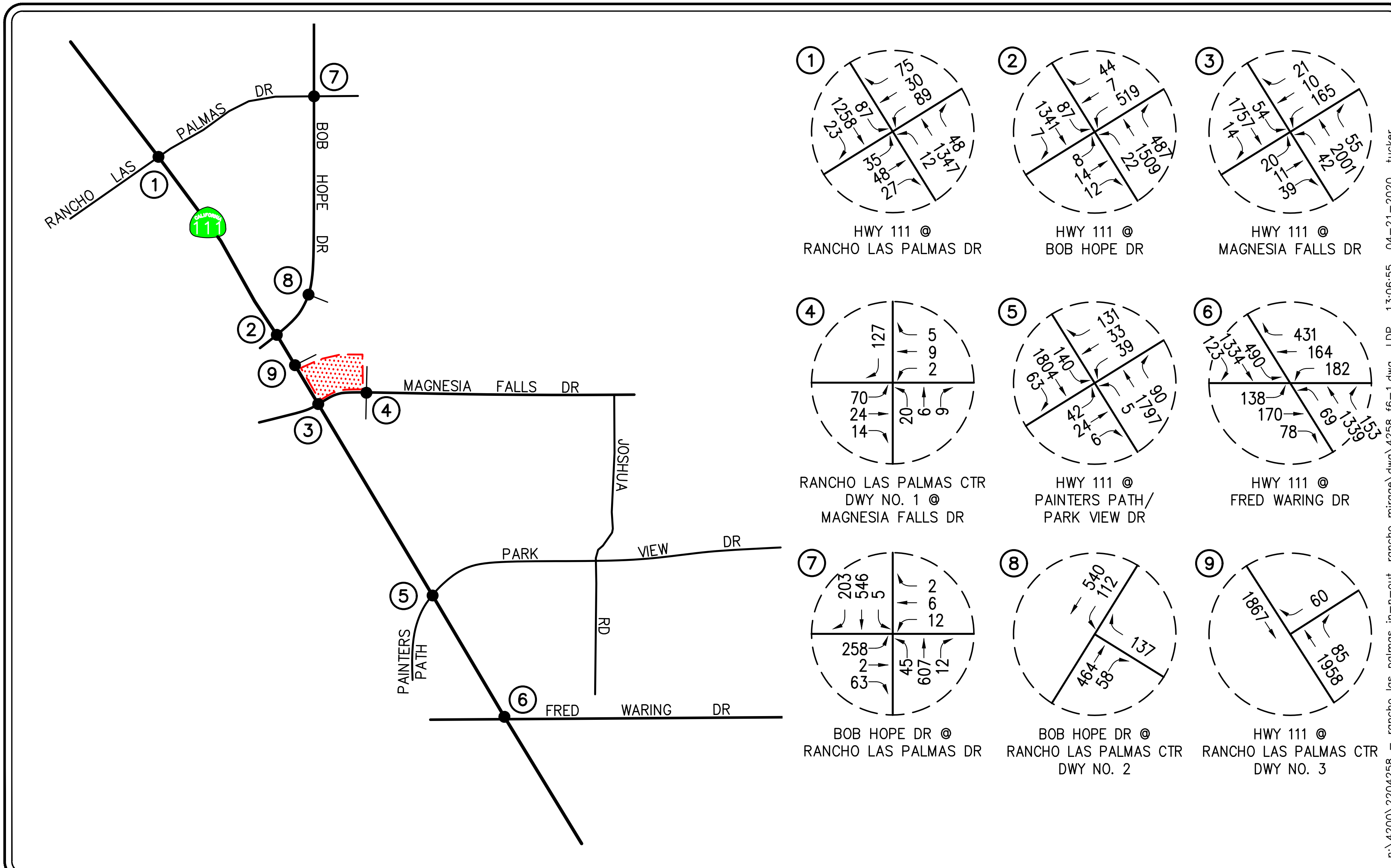
No.	Cumulative Project	Location/Address	Description
City of Rancho Mirage			
1.	Chase Bank	South of Highway 111 at Bob Hope Drive	3,470 SF Chase Bank with Drive-Through
2.	Carefield Senior Living	SEC of Country Club Drive and John Sinn Rd	84 Bed Senior Assisted Living
3.	Betty Ford Expansion	39000 Bob Hope Drive	*Removal of 4 Existing Residential Buildings* • *51,694 SF* • *20 Beds per Building (80 Beds Total)* 2 New Residential Buildings Totaling 61,870 SF • 92 Beds Total 22,748 SF Day-Treatment Facility • 44 Patients 6,400 SF Administrative Space
City of Palm Desert			
4.	Roberge Condominiums	73-995 El Paseo	55 DU Multi-Family (4-Story)
5.	Arc Village	73-255 Country Club Drive	36 DU Multi-Family 8,200 SF Clubhouse *(Ancillary to the Multifamily Units)*
6.	Avenida Senior Living	40-445 Portola Avenue	161 DU Senior Adult Housing
7.	Wolff Senior Living	74-300 Country Club Drive	164 DU Senior Living Facility
8.	Crystal Palms	73-338 Highway 111	2,500 SF Desert Social Business Club Expansion
9.	Palm Desert Chase Bank	72-950 Highway 111	4,400 SF Chase Bank with Drive-Through

7 Source: Cities of Rancho Mirage and Palm Desert Planning Departments.

TABLE 6-2
CUMULATIVE PROJECTS TRIP GENERATION FORECAST[8]

Cumulative Project Description	Weekday				Saturday			
	Daily 2-Way	PM Peak Hour			Daily 2-Way	Midday Peak Hour		
		In	Out	Total		In	Out	Total
1. Chase Bank	312	23	23	46	270	29	27	56
2. Carefield Senior Living	218	8	14	22	246	11	12	23
3. Betty Ford Expansion	961	24	61	85	917	25	56	81
4. Roberge Condominiums	299	15	9	24	270	12	12	24
5. Arc Village	264	13	7	20	293	12	13	25
6. Avenida Senior Living	596	23	19	42	520	33	20	53
7. Wolff Senior Living	607	24	19	43	530	33	21	54
8. Crystal Palms	72	3	3	6	23	2	1	3
9. Palm Desert Chase Bank	396	29	29	58	343	37	35	72
Cumulative Projects Trip Generation Forecast	**3,725**	**162**	**184**	**346**	**3,412**	**194**	**197**	**391**

[8] Unless otherwise noted; Source: *Trip Generation, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017)*. Where applicable, pass-by adjustment factors were utilized and are reflected in the cumulative projects trip generation potential.



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

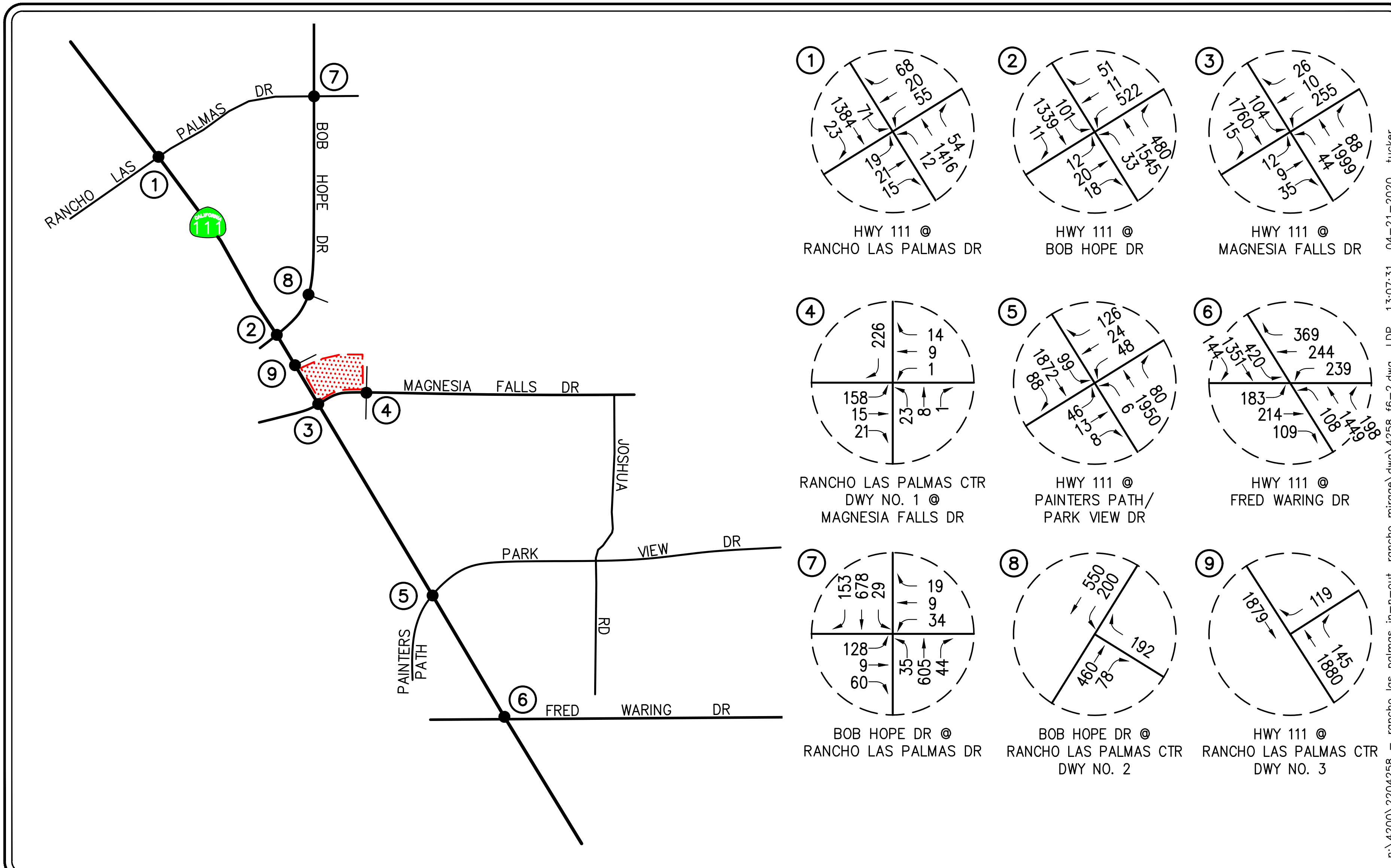
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6–1

EXISTING WITH PROJECT
WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

RANCHO LAS PALMAS IN–N–OUT, RANCHO MIRAGE



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

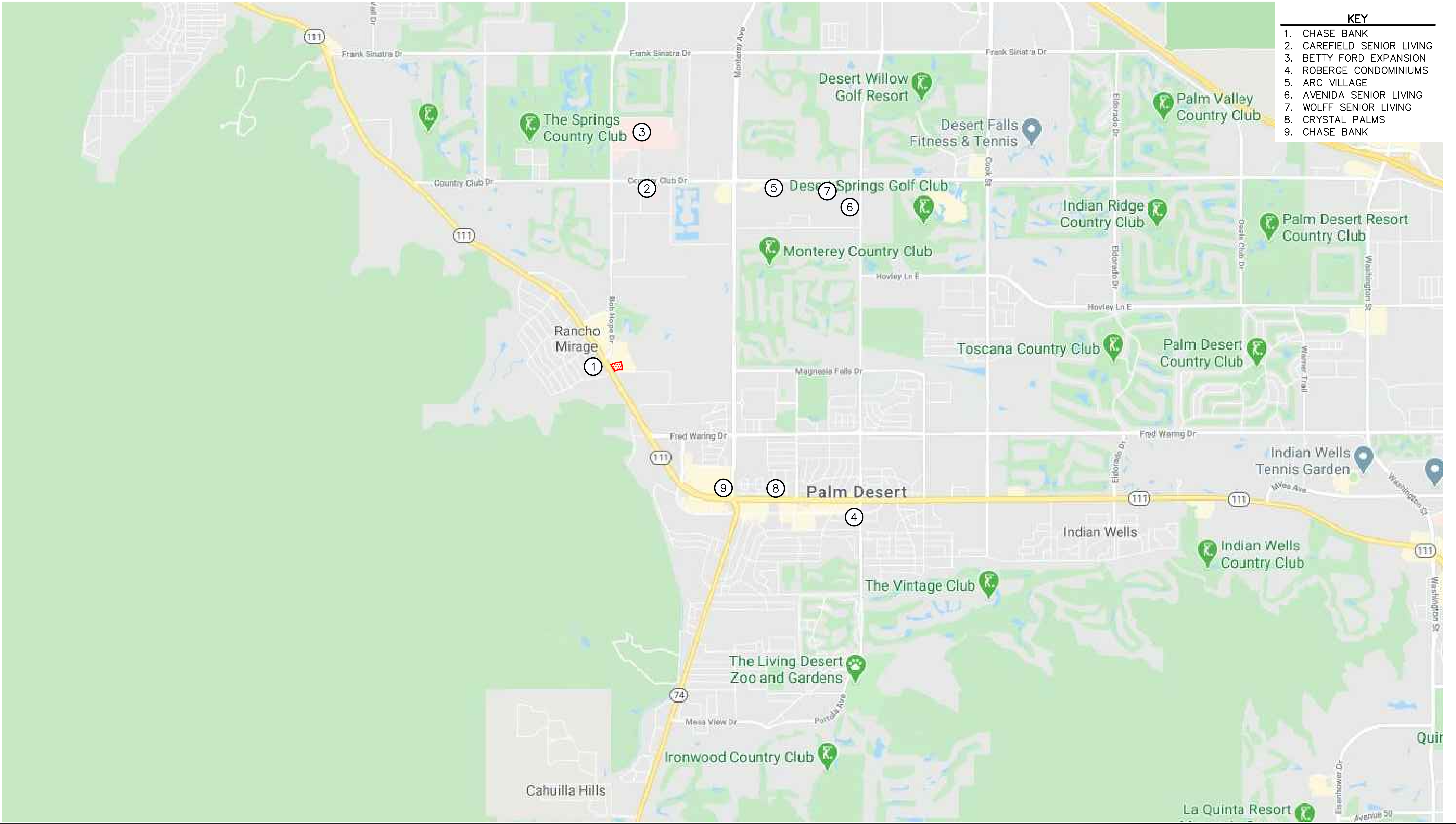
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6-2

EXISTING WITH PROJECT SATURDAY MIDDAY PEAK HOUR TRAFFIC VOLUMES

RANCHO LAS PALMAS IN-N-OUT, RANCHO MIRAGE



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

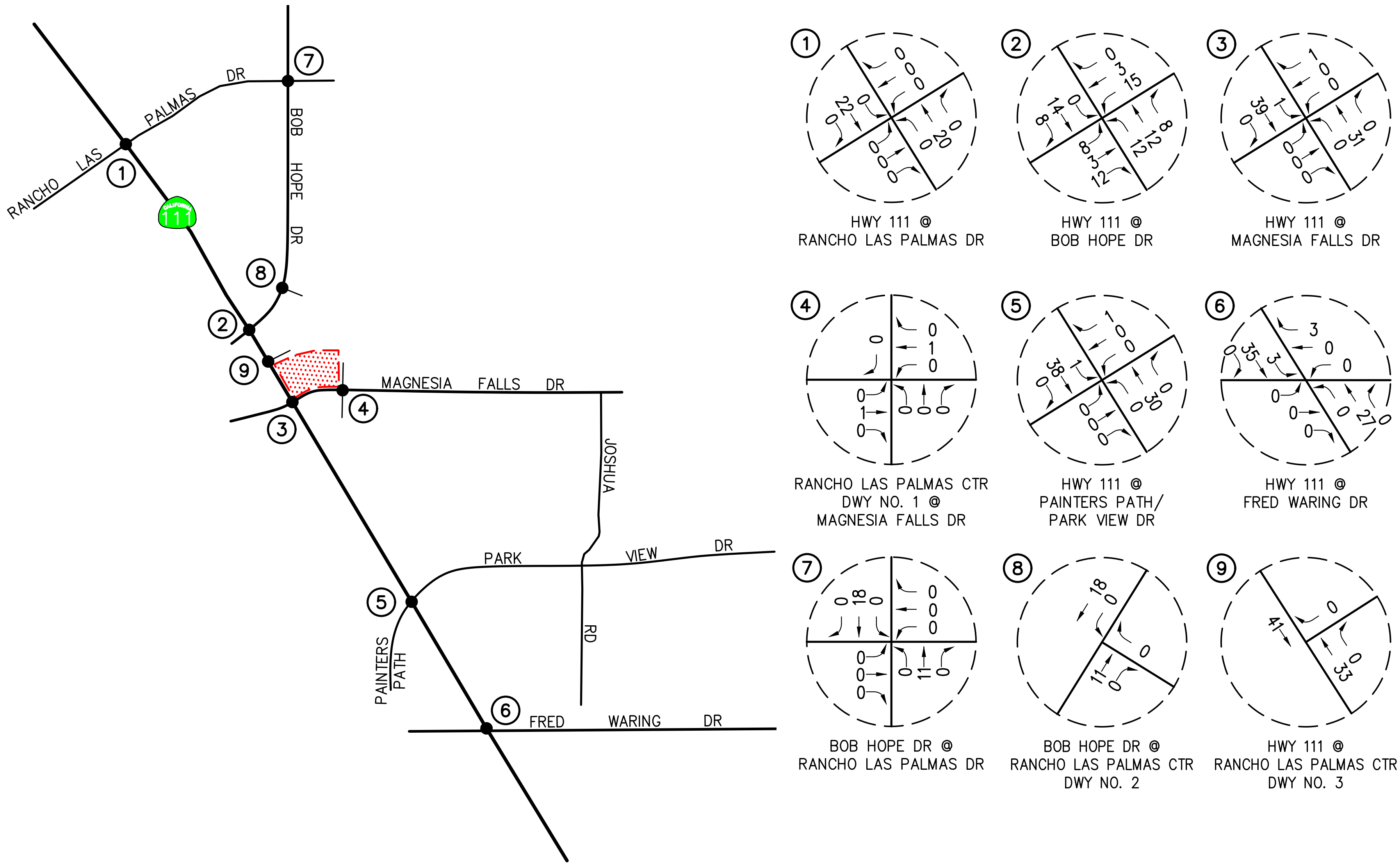
(#) = CUMULATIVE PROJECT LOCATION

= PROJECT SITE

FIGURE 6–3

LOCATION OF CUMULATIVE PROJECTS

RANCHO LAS PALMAS IN–N–OUT, RANCHO MIRAGE



n:\4200\2204258 - rancho las palmas in-n-out, rancho mirage\dwg\4258 f6-4.dwg LDP 21:12:07 04-20-2020 tucker

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

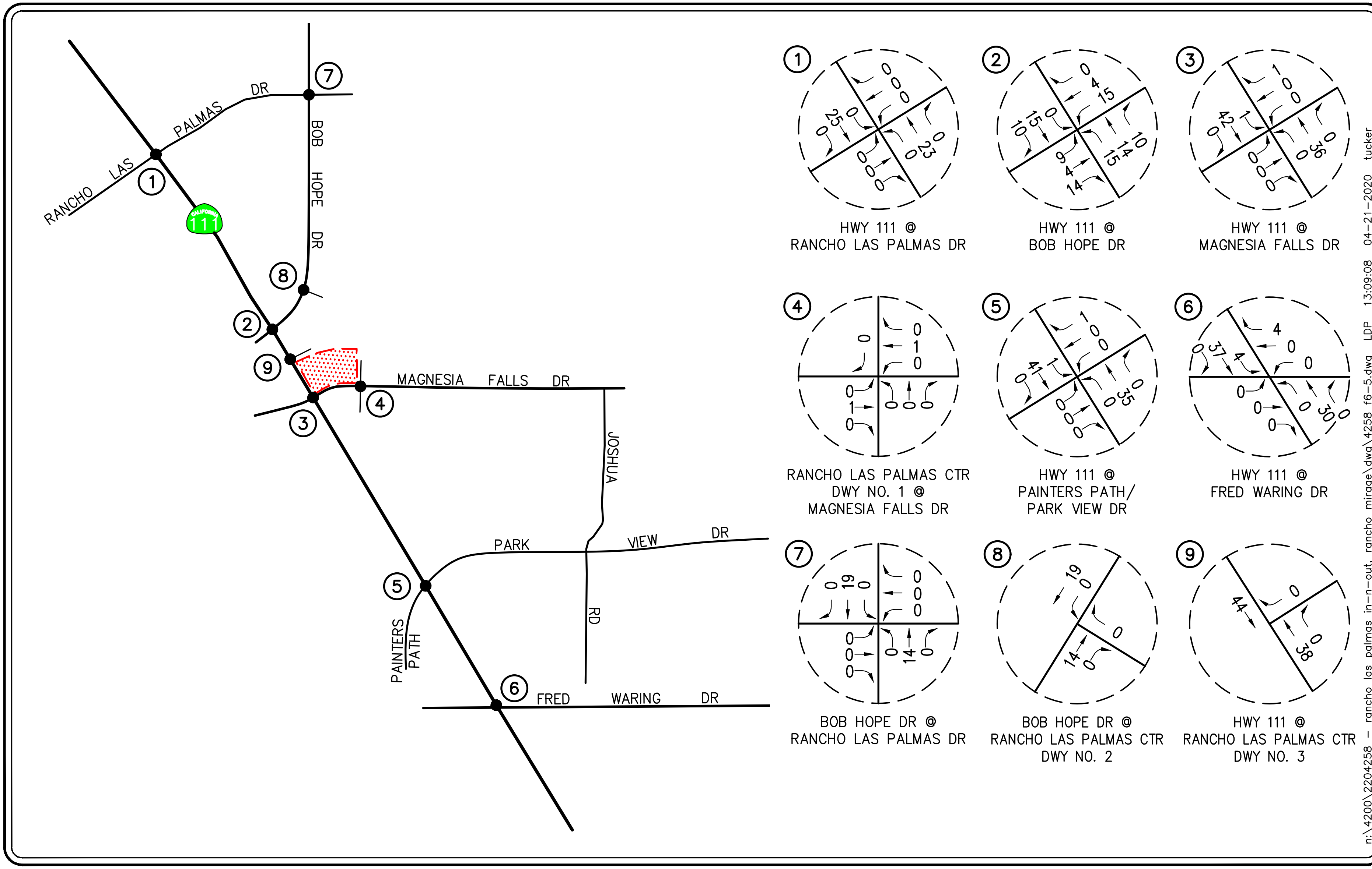
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6–4

WEEKDAY PM PEAK HOUR CUMULATIVE PROJECTS TRAFFIC VOLUMES

RANCHO LAS PALMAS IN-N-OUT, RANCHO MIRAGE



LINSCOTT LAW & GREENSPAN engineers

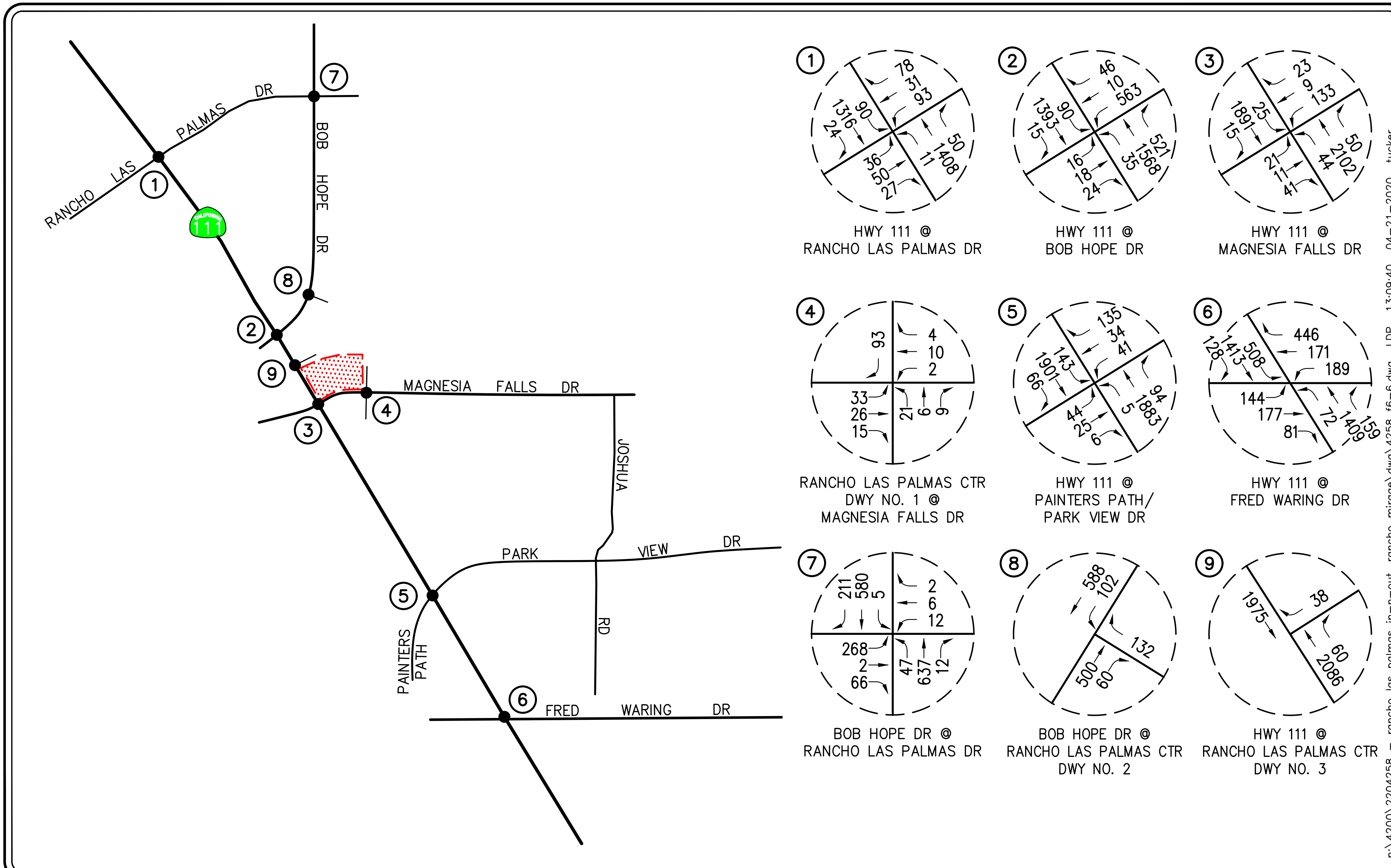
N NO SCALE

KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 6–5

SATURDAY MIDDAY PEAK HOUR CUMULATIVE PROJECTS TRAFFIC VOLUMES

RANCHO LAS PALMAS IN–N–OUT, RANCHO MIRAGE



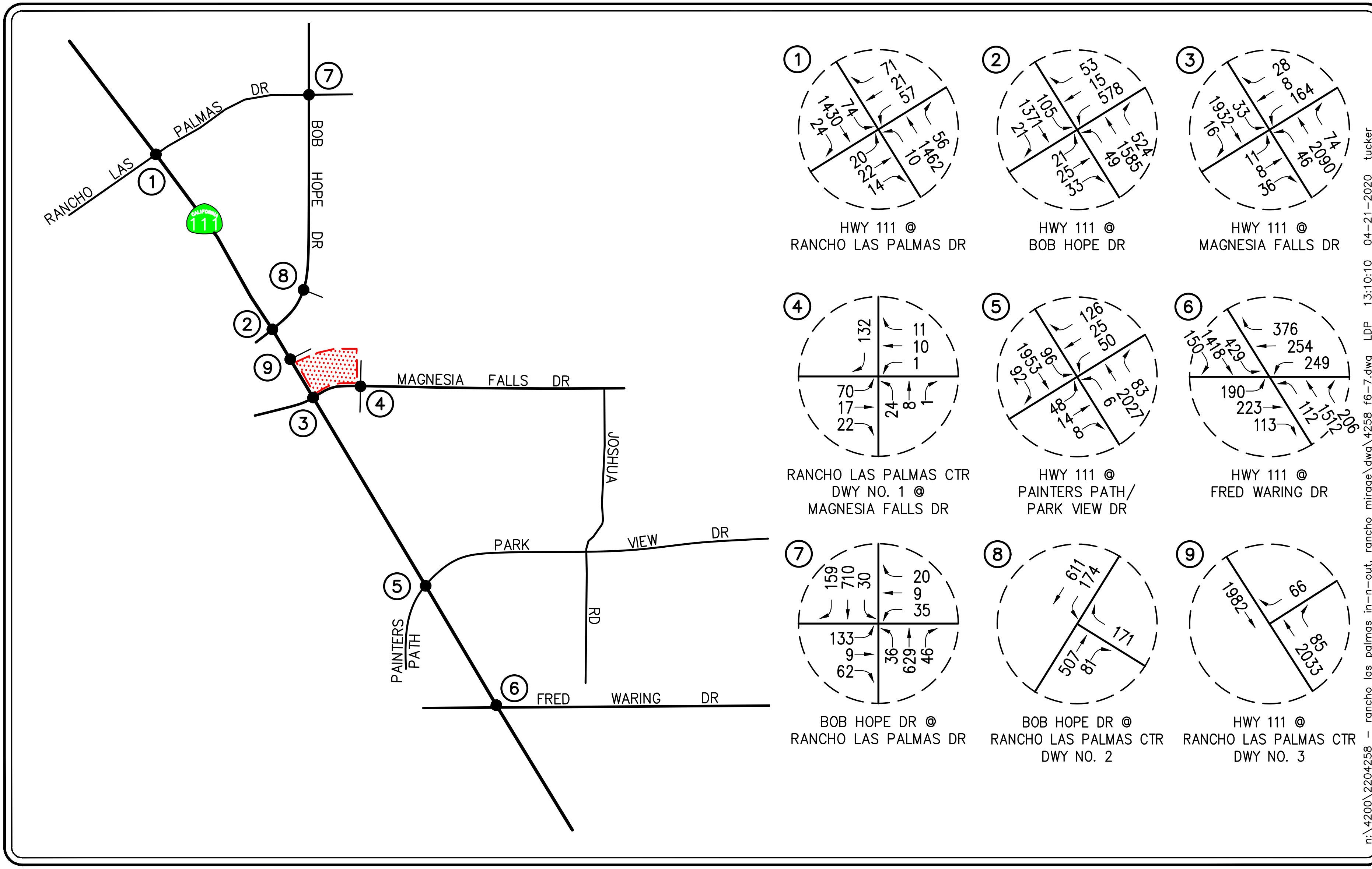
LINSCOTT LAW & GREENSPAN engineers

NO SCALE

KEY
= STUDY INTERSECTION
= PROJECT SITE

FIGURE 6–6

YEAR 2022 WITHOUT PROJECT
WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES
RANCHO LAS PALMAS IN–N–OUT, RANCHO MIRAGE



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

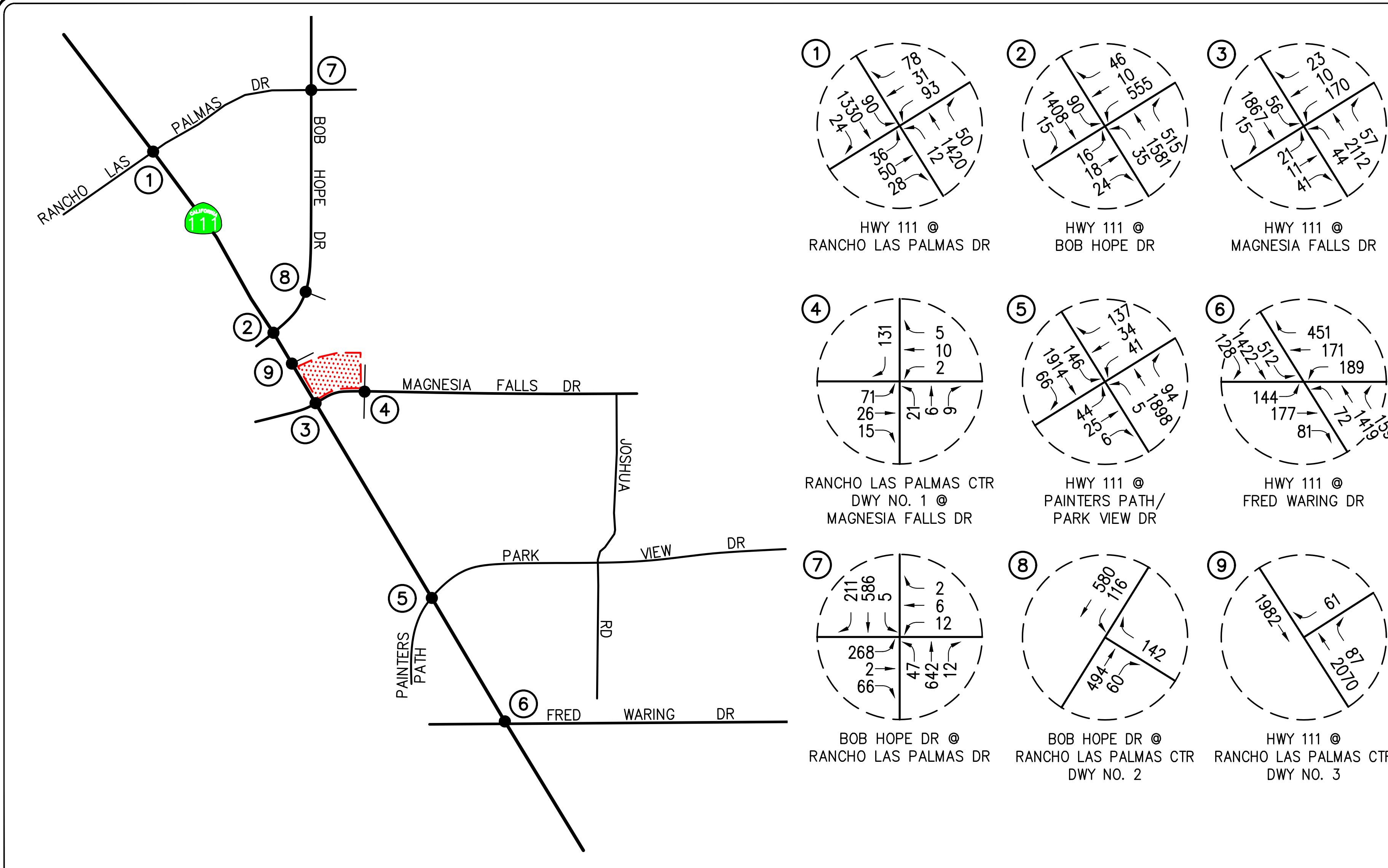
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6–7

YEAR 2022 WITHOUT PROJECT
SATURDAY MIDDAY PEAK HOUR TRAFFIC VOLUMES

RANCHO LAS PALMAS IN–N–OUT, RANCHO MIRAGE



n:\4200\2204258 – rancho las palmas in-n-out, rancho mirage\dwg\4258 f6-8.dwg LDP 13:10:41 04-21-2020 tucker

LINSCOTT LAW & GREENSPAN
engineers

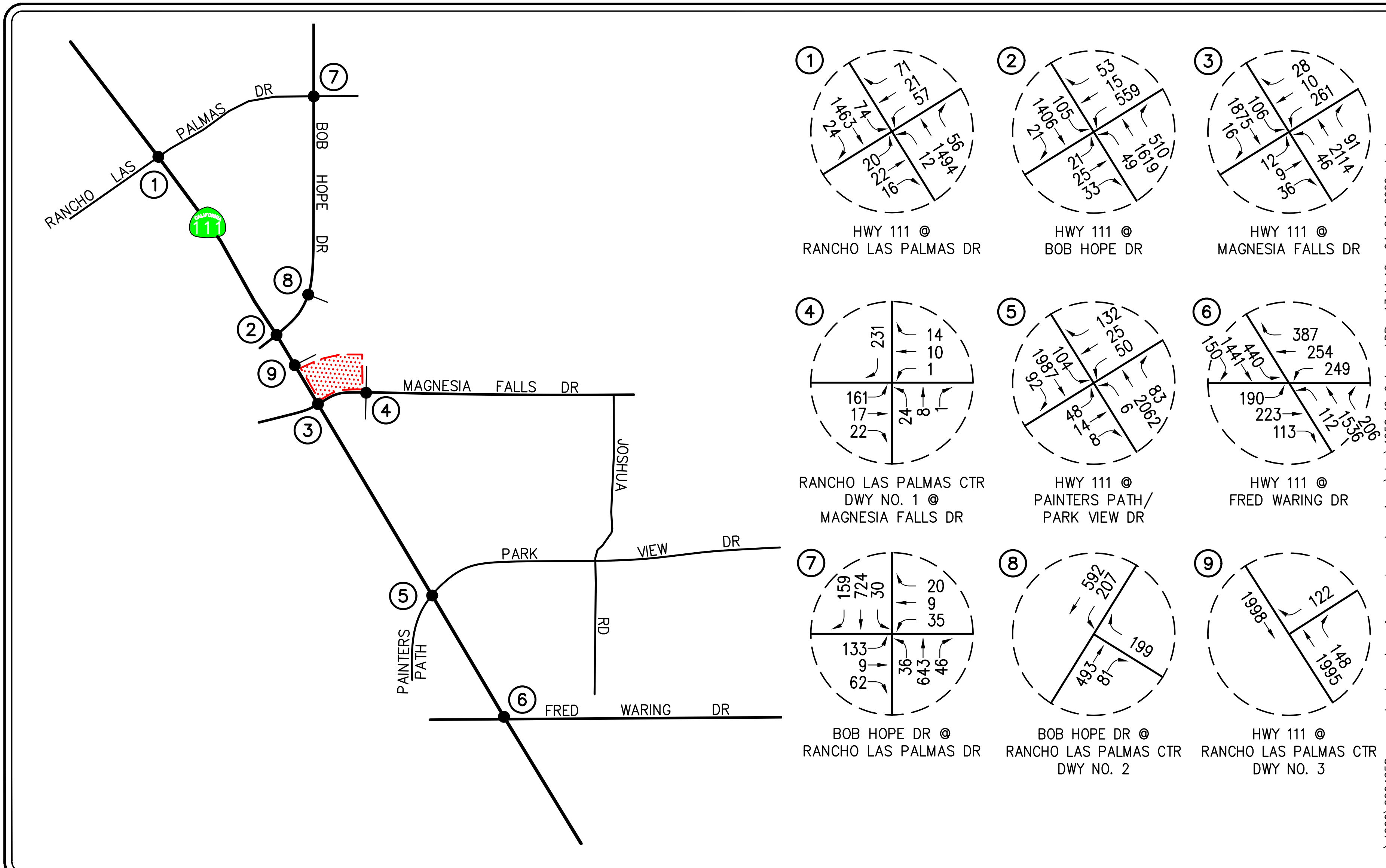
N
NO SCALE

KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 6-8

YEAR 2022 WITH PROJECT
WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

RANCHO LAS PALMAS IN-N-OUT, RANCHO MIRAGE



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6–9

YEAR 2022 WITH PROJECT
SATURDAY MIDDAY PEAK HOUR TRAFFIC VOLUMES

RANCHO LAS PALMAS IN–N–OUT, RANCHO MIRAGE

7.0 EXISTING PLUS PROJECT ANALYSIS

Table 7-1 summarizes the peak hour level of service results at the six (6) key study intersections for Existing Plus Project traffic conditions. The first column (1) of HCM/LOS values in *Table 7-1* presents a summary of existing weekday PM and Saturday Midday peak hour traffic conditions (which were also presented in *Table 3-3*). The second column (2) lists Existing Plus Project traffic conditions. The third column (3) indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards and significant impact criteria defined in this report.

7.1 Existing Traffic Conditions

Review of column (1) of *Table 7-1* (also shown in *Table 3-3*) indicates that for Existing traffic conditions, all of the existing key study intersections currently operate at an acceptable level of service (i.e. LOS D or better) during the weekday PM and Saturday Midday peak hours.

7.2 Existing Plus Project Traffic Conditions

Review of columns 2 and 3 of *Table 7-1* indicates that traffic associated with the proposed Project ***will not*** significantly impact any of the six (6) key study intersections when compared to the LOS standards and significant impact criteria specified in this report. The six (6) key study intersections currently operate and are forecast to continue to operate at an acceptable LOS during the weekday PM and Saturday Midday peak hours with the addition of Project generated traffic to existing traffic.

Appendix C also contains the Delay/LOS calculation worksheets for the six (6) key study intersections for Existing Plus Project Traffic Conditions.

TABLE 7-1
EXISTING PLUS PROJECT CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[9]

Key Intersection		Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions			(2) Existing Plus Project Traffic Conditions			(3) Significant Impact
				HCM	LOS	V/C	HCM	LOS	V/C	Yes/No
1.	Highway 111 at Rancho Las Palmas Drive	D	PM	12.3 s/v	B	0.487	12.3 s/v	B	0.490	No
			Sat. MD	9.7 s/v	A	0.466	9.8 s/v	A	0.474	No
2.	Highway 111 at Bob Hope Drive	D	PM	16.7 s/v	B	0.558	16.7 s/v	B	0.553	No
			Sat. MD	18.2 s/v	B	0.583	18.2 s/v	B	0.574	No
3.	Highway 111 at Magnesia Falls Drive	D	PM	13.2 s/v	B	0.570	14.6 s/v	B	0.609	No
			Sat. MD	13.3 s/v	B	0.575	17.3 s/v	B	0.671	No
5.	Highway 111 at Painters Path/Park View Drive	D	PM	10.9 s/v	B	0.595	11.0 s/v	B	0.602	No
			Sat. MD	9.7 s/v	A	0.609	10.2 s/v	B	0.619	No
6.	Highway 111 at Fred Waring Drive	D	PM	39.1 s/v	D	0.632	39.6 s/v	D	0.636	No
			Sat. MD	30.9 s/v	C	0.678	31.9 s/v	C	0.687	No
7.	Bob Hope Drive at Rancho Las Palmas Drive	D	PM	11.7 s/v	B	0.417	11.7 s/v	B	0.418	No
			Sat. MD	8.5 s/v	A	0.320	8.8 s/v	A	0.323	No

Notes:
- s/v = seconds per vehicle (delay)
- HCM = Highway Capacity Manual
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- V/C = Volume to Capacity Ratio
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report.

9 *Appendix C* contains the Delay/LOS calculation worksheets for all study intersections.

8.0 YEAR 2022 CUMULATIVE PLUS PROJECT ANALYSIS

Table 8-1 summarizes the peak hour level of service results at the six (6) key study intersections for Year 2022 traffic conditions. The first column (1) of HCM/LOS values in *Table 8-1* presents a summary of existing weekday PM and Saturday Midday peak hour traffic conditions (which were also presented in *Table 3-3*). The second column (2) lists projected cumulative traffic conditions (existing plus ambient traffic plus cumulative project traffic) based on existing intersection geometry, but without any traffic generated from the proposed Project. The third column (3) presents forecast Year 2022 near-term traffic conditions with the addition of Project traffic. The fourth column (4) indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards and significant impact criteria defined in this report.

8.1 Year 2022 Cumulative Traffic Conditions

Review of column (2) of *Table 8-1* indicates that for Year 2022 Cumulative traffic conditions, all six (6) key study intersections are forecast to operate at an acceptable level of service during the weekday PM and Saturday Midday peak hours when compared to the LOS standards defined in this report.

8.2 Year 2022 Cumulative Plus Project Traffic Conditions

Review of columns 3 and 4 of *Table 8-1* indicates that traffic associated with the proposed Project ***will not*** significantly impact any of the six (6) key study intersections when compared to the LOS standards and significant impact criteria specified in this report. The six (6) key study intersections are forecast to continue to operate at an acceptable LOS during the weekday PM and Saturday Midday peak hours with the addition of Project generated traffic to Year 2022 cumulative traffic.

Appendix D contains the Delay/LOS calculation worksheets for the six (6) key study intersections for Year 2022 Cumulative Traffic Conditions.

TABLE 8-1
YEAR 2022 CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[10]

Key Intersection		Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions			(2) Year 2022 Cumulative Traffic Conditions			(3) Year 2022 Cumulative Plus Project Traffic Conditions			(4) Significant Impact
				HCM	LOS	V/C	HCM	LOS	V/C	HCM	LOS	V/C	Yes/No
1.	Highway 111 at Rancho Las Palmas Drive	D	PM	12.3 s/v	B	0.487	12.6 s/v	B	0.511	12.7 s/v	B	0.514	No
			Sat. MD	9.7 s/v	A	0.466	9.7 s/v	A	0.498	9.7 s/v	A	0.510	No
2.	Highway 111 at Bob Hope Drive	D	PM	16.7 s/v	B	0.558	19.0 s/v	B	0.603	19.0 s/v	B	0.592	No
			Sat. MD	18.2 s/v	B	0.583	20.4 s/v	C	0.634	20.4 s/v	C	0.619	No
3.	Highway 111 at Magnesia Falls Drive	D	PM	13.2 s/v	B	0.570	13.2 s/v	B	0.583	14.9 s/v	B	0.622	No
			Sat. MD	13.3 s/v	B	0.575	13.7 s/v	B	0.601	18.0 s/v	B	0.695	No
5.	Highway 111 at Painters Path/Park View Drive	D	PM	10.9 s/v	B	0.595	11.3 s/v	B	0.626	11.5 s/v	B	0.633	No
			Sat. MD	9.7 s/v	A	0.609	10.1 s/v	B	0.646	10.5 s/v	B	0.656	No
6.	Highway 111 at Fred Waring Drive	D	PM	39.1 s/v	D	0.632	46.9 s/v	D	0.664	47.5 s/v	D	0.668	No
			Sat. MD	30.9 s/v	C	0.678	35.9 s/v	D	0.713	37.2 s/v	D	0.722	No
7.	Bob Hope Drive at Rancho Las Palmas Drive	D	PM	11.7 s/v	B	0.417	11.9 s/v	B	0.437	11.9 s/v	B	0.439	No
			Sat. MD	8.5 s/v	A	0.320	8.5 s/v	A	0.339	8.5 s/v	A	0.344	No

Notes:
- s/v = seconds per vehicle (delay)
- HCM = Highway Capacity Manual
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- V/C = Volume to Capacity Ratio
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report

10 *Appendix D* contains the Delay/LOS calculation worksheets for all study intersections.

9.0 SITE ACCESS AND INTERNAL CIRCULATION EVALUATION

9.1 Site Access

Access to the Project is currently provided and will continue to be provided via the one (1) full-ingress/right-turn out only driveway located along Magnesia Falls Drive (i.e. referred to as Private Driveway #4), the one (1) full-ingress/right-turn out only driveway located along Bob Hope Drive (i.e. referred to as Private Driveway #8), and the one (1) right-turn in/right-turn out only driveway located along Highway 111 (i.e. referred to as Private Driveway #9).

Table 9-1 summarizes the weekday PM peak hour and Saturday Midday peak hour intersection operations at the three (3) private driveways for Existing traffic conditions (column 1), Existing Plus Project traffic conditions (column 2) and Year 2022 Cumulative Plus Project traffic conditions (column 3). The operations analysis for the private driveways are based on the *Highway Capacity Manual 6th Edition* (HCM 6) unsignalized methodology. Review of column 1 of *Table 9-1* shows that the three (3) private driveways currently operate at acceptable LOS D or better during the weekday PM peak hour and Saturday Midday peak hour.

Review of column 2 of *Table 9-1* shows that the three (3) private driveways are forecast to operate at acceptable LOS D or better during the weekday PM peak hour and Saturday Midday peak hour under Existing Plus Project traffic conditions, except for Highway 111 at Rancho Las Palmas Center Driveway No. 3, which is forecast to operate at unacceptable LOS E during the Saturday Midday peak hour. Review of column 3 of *Table 9-1* shows that the three (3) private driveways are forecast to operate at acceptable LOS D or better during the weekday PM peak hour and Saturday Midday peak hour under Year 2022 Cumulative Plus Project traffic conditions, except for Highway 111 at Rancho Las Palmas Center Driveway No. 3, which is forecast to operate at unacceptable LOS F during the Saturday Midday peak hour.

Although the private driveway of Highway 111 at Rancho Las Palmas Center Driveway No. 3 is forecast to operate at unacceptable levels of service during the Saturday Midday peak hour under Existing Plus Project and Year 2022 Cumulative Plus Project traffic conditions, it is not uncommon for unsignalized private driveways that have direct access to primary arterials, such as Highway 111, to operate at an unacceptable LOS due to the limited gaps in traffic and the high volume of traffic on the major street, but technically do not operate as a congested facility similar to a public street intersection since there is no traffic impact to the transportation network. Furthermore, the unacceptable delay occurs to the right-out movement, which can typically perform better than the LOS calculation, and the peak driveway queue can be accommodated entirely within the driveway throat without impacting the internal circulation system of the shopping center. Furthermore, it should be noted that given the potential delay exiting Project Driveway No. 3, some of the outbound Project traffic forecast to utilize Project Driveway No. 3 during the peak hour conditions may utilize other driveways within the shopping center to travel northerly from the site. Based on these considerations, the adverse level of service is not considered significant. As such, project access will be adequate. Motorists entering and exiting the Project site will be able to do so comfortably, safely, and without undue congestion.

TABLE 9-1
PROJECT DRIVEWAY PEAK HOUR LEVELS OF SERVICE SUMMARY

Private Driveways	Time Period	Control Type	(1) Existing Traffic Conditions			(2) Existing Plus Project Traffic Conditions			(3) Year 2022 Cumulative Plus Project Traffic Conditions		
			HCM	LOS	V/C	HCM	LOS	V/C	HCM	LOS	V/C
4. Rancho Las Palmas Center Dwy No. 1 at Magnesia Falls Drive	PM	One–Way Stop	9.8 s/v	A	0.010	10.6 s/v	B	0.040	10.7 s/v	B	0.042
	Sat. MD		10.8 s/v	B	0.039	14.1 s/v	B	0.061	14.3 s/v	B	0.065
8. Bob Hope Drive at Rancho Las Palmas Center Dwy No. 2	PM	One–Way Stop	10.9 s/v	B	0.184	11.0 s/v	B	0.196	11.2 s/v	B	0.209
	Sat. MD		11.4 s/v	B	0.240	11.6 s/v	B	0.277	12.0 s/v	B	0.295
9. Highway 111 at Rancho Las Palmas Center Dwy No. 3	PM	One–Way Stop	26.3 s/v	D	0.183	29.1 s/v	D	0.291	32.4 s/v	D	0.323
	Sat. MD		29.4 s/v	D	0.307	**41.1 s/v**	**E**[11]	0.565	**50.0 s/v**	**F**[11]	0.634

__Notes__:

- s/v = seconds per vehicle (delay)
- HCM = Highway Capacity Manual
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- V/C = Volume to Capacity Ratio
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report

[11] The delay reported for the private driveway intersection of Highway 111 at Rancho Las Palmas Center Driveway No. 3 represents the minor street approach. It should be noted that the delay reported for the private driveway intersection of Highway 111 at Rancho Las Palmas Center Driveway No. 3 represents the minor street approach and it is not uncommon for unsignalized private driveways that have direct access to primary arterials, such as Highway 111, to operate at an unacceptable LOS due to the limited gaps in traffic and the high volume of traffic on the major street, but technically do not operate as a congested facility similar to a public street intersection since there is no traffic impact to the transportation network. Furthermore, the unacceptable delay occurs to the right-out movement, which can typically perform better than the LOS calculation, and the peak driveway queue can be accommodated entirely within the driveway throat without impacting the internal circulation system of the shopping center. Based on these considerations, the adverse level of service is not considered significant.

Appendix E presents the level of service calculation worksheets for the three (3) private driveways for Existing, Existing Plus Project and Year 2022 Cumulative plus Project traffic conditions.

9.2 Queuing Analysis For Project Access Locations

This section of the report analyzes weekday PM and Saturday Midday peak hour stacking/storage lengths for the following three (3) Project access points (private driveways):

- No. 4 – Rancho Las Palmas Center Dwy No. 1 at Magnesia Falls Drive
- No. 8 – Bob Hope Drive at Rancho Las Palmas Center Dwy No. 2
- No. 9 – Highway 111 at Rancho Las Palmas Center Dwy No. 3

A queuing evaluation was prepared for the inbound and outbound turn pockets at the three (3) aforementioned Project driveways. The queuing evaluation was conducted based on projected Existing Plus Project and Year 2022 Cumulative Plus Project peak hour traffic volumes and the Highway Capacity Manual (HCM) methodology. ***Table 9-2*** presents the 95th percentile queuing analysis results for the three (3) Project driveways. Column one (1) presents Existing Plus Project traffic conditions and column two (2) presents Year 2022 Cumulative Plus Project traffic conditions.

Review of column one (1) of *Table 9-2* indicates that adequate storage is provided at all three (3) Project driveways under Existing Plus Project traffic conditions. Review of column two (2) indicates that adequate storage is provided at all three (3) Project driveways under Year 2022 Cumulative Plus Project traffic conditions. *Appendix E* also presents the LOS/queuing calculations.

9.3 Internal Circulation Evaluation

The on-site circulation layout of the proposed In-N-Out Burger Restaurant Project on an overall basis is adequate. Curb return radii have been confirmed and are generally adequate for service/delivery trucks and trash trucks. Ingress and egress for the drive-through pick-up lane is not impeded by any on-site vehicular queueing and any potential overflow of the drive-through pick-up lane will not impact on-site circulation of the shopping center. Furthermore, based on the internal circulation pattern of the existing Rancho Las Palmas Center, Project traffic will be able to access Bob Hope Drive, Highway 111, and/or Magnesia Falls via primary drive aisles without circulating through the parking areas, except for the wide (±36’) portion along the quick-serve food shops near Bob Hope Drive.

9.4 Drive-Through Queuing Analysis

As requested by City Staff, existing queuing observations were performed at the following three (3) existing In-N-Out sites on Thursday June 27, 2019 and Saturday June 22, 2019 between 11:00 AM and 11:00 PM. The vehicular queues observed at the three sites were recorded at 5-minute intervals. The results of the queuing observations surveys are included in ***Appendix F*** along with the existing aerial map for each location.

- Site #1 = 72265 Varner Road, Thousand Palms
- Site #2 = 82043 State Highway 111, Indio
- Site #3 = 78611 State Highway 111, La Quinta

Tables 9-3 and ***9-4*** summarize the Queue Frequency that was observed at the three (3) existing In-N-Out locations for weekday (Thursday) and weekend (Saturday) peak periods, respectively. Our evaluation of this data indicates that on average during the weekday (Thursday) peak periods, an average queue of 12 vehicles in the drive-through lane can be expected, with an 85th percentile queue of approximately 17 vehicles, a 95th percentile queue of approximately 19 vehicles and a max queue of approximately 23 vehicles. Similarly, our evaluation of this data also indicates that on average during the weekend (Saturday) peak periods, an average queue of 12 vehicles in the drive-through lane can be expected, with an 85th percentile queue of approximately 16 vehicles, a 95th percentile queue of approximately 19 vehicles and a max queue of approximately 24 vehicles.

The 85th percentile queue represents the number of vehicles that can be expected in the drive-through lane during the peak period, and indicates that 85 percent of the drive-through customers will wait in a line no longer than 17 vehicles; 15 percent of the customers will wait in a queue of 18 cars or more. Whereas the 95th percentile queue indicates that 95 percent of the drive-through customers will wait in a line no longer than 19 vehicles; 5 percent of the customers will wait in a queue of 20 cars or more. Please note that the 85th percentile "criteria" is the design standard typically used in the traffic engineering profession.

The results of our queuing study indicate that the distance between the proposed entry of the drive-through lane and the pick-up window of the Project is of sufficient length and can accommodate the peak stacking requirements of the proposed fast-food restaurant. Review of *Figure 2-2* illustrates that the drive-thru lane provides enough storage to accommodate up to twenty-three (23) vehicles. Therefore, the drive-through lane storage capacity is adequate to accommodate the projected queues for the 85th percentile (i.e. 17 vehicles) and 95th percentile (i.e. 19 vehicles) needs for the site. It should be noted that the maximum queue of 24 vehicles, which only occurred one time and only at one site throughout the survey days, can be safely accommodated on-site within the drive aisles.

TABLE 9-2
PROJECT DRIVEWAY PEAK HOUR QUEUING ANALYSIS

Key Study Intersection	Estimated Storage Provided (feet)	(1) Existing Plus Project Traffic Conditions: Weekday PM Peak Hour Max. Queue/ Min. Storage Required[12]	(1) Weekday PM Peak Hour Adequate Storage (Yes/No)	(1) Saturday Midday Peak Hour Max. Queue/ Min. Storage Required[12]	(1) Saturday Midday Peak Hour Adequate Storage (Yes/No)	(2) Year 2022 Cumulative Plus Project Traffic Conditions: Weekday PM Peak Hour Max. Queue/ Min. Storage Required[12]	(2) Weekday PM Peak Hour Adequate Storage (Yes/No)	(2) Saturday Midday Peak Hour Max. Queue/ Min. Storage Required[12]	(2) Saturday Midday Peak Hour Adequate Storage (Yes/No)
4. Rancho Las Palmas Center Dwy No. 1 at Magnesia Falls Drive									
Southbound Right-Turn	120’	13’	Yes	22’	Yes	14’	Yes	23’	Yes
Eastbound Left-Turn	75’	5’	Yes	9’	Yes	5’	Yes	10’	Yes
8. Bob Hope Drive at Rancho Las Palmas Center Dwy No. 2									
Southbound Left -Turn	135’	11’	Yes	21’	Yes	11’	Yes	23’	Yes
Westbound Right -Turn	125’	19’	Yes	29’	Yes	20’	Yes	31’	Yes
9. Highway 111 at Rancho Las Palmas Center Dwy No. 3									
Westbound Right -Turn	190’	30’	Yes	78’	Yes	34’	Yes	93’	Yes

12 Queue is based on the 95th *Percentile Queue* and is reported in total queue length (feet).

TABLE 9-3
WEEKDAY DRIVE-THROUGH LANE QUEUING ANALYSIS SUMMARY[13]

Queue Length (Vehicles)	Queue Frequency of Vehicles Observed				Cumulative	
	Site #1 – 72265 Varner Rd, Thousand Palms	Site #2 – 82043 CA-111, Indio	Site #3 – 78611 CA-111, La Quinta	Total	Frequency	Percentage
0	0	0	0	0	**0**	**0.0%**
1	0	1	0	1	**1**	**0.2%**
2	0	0	2	2	**3**	**0.7%**
3	0	3	2	5	**8**	**1.9%**
4	1	8	1	10	**18**	**4.2%**
5	1	10	2	13	**31**	**7.2%**
6	5	15	3	23	**54**	**12.5%**
7	6	22	10	38	**92**	**21.3%**
8	4	24	2	30	**122**	**28.2%**
9	11	19	1	31	**153**	**35.4%**
10	12	17	0	29	**182**	**42.1%**
11	9	8	4	21	**203**	**47.0%**
12	15	12	10	37	**240**	**55.6%**
13	10	1	15	26	**266**	**61.6%**
14	14	2	9	25	**291**	**67.4%**
15	11	1	16	28	**319**	**73.8%**
16	10	1	12	23	**342**	**79.2%**
17	13	0	14	27	**369**	**85.4%**
18	11	0	16	27	**396**	**91.7%**
19	7	0	10	17	**413**	**95.6%**
20	3	0	5	8	**421**	**97.5%**
21	1	0	5	6	**427**	**98.8%**
22	0	0	4	4	**431**	**99.8%**
23	0	0	1	1	**432**	**100.0%**
Total	**144**	**144**	**144**	**432**	**--**	**--**
Average	**13.0**	**8.0**	**14.0**	**12.0**	**--**	**--**
85th Percentile	**18.0**	**11.0**	**19.0**	**17.0**	**--**	**--**
95th Percentile	**19.0**	**12.0**	**21.0**	**19.0**	**--**	**--**
Max	**21.0**	**16.0**	**23.0**	**23.0**	**--**	**--**

13 Source: Queuing surveys conducted every five minutes, between the hours of 11:00AM to 11:00PM, by Transportation Studies, Inc. on Thursday, June 27, 2019.

TABLE 9-4
WEEKEND DRIVE-THROUGH LANE QUEUING ANALYSIS SUMMARY [14]

Queue Length (Vehicles)	Queue Frequency of Vehicles Observed				Cumulative	
	Site #1 – 72265 Varner Rd, Thousand Palms	Site #2 – 82043 CA-111, Indio	Site #3 – 78611 CA-111, La Quinta	Total	Frequency	Percentage
0	0	0	0	0	**0**	**0.0%**
1	0	0	0	0	**0**	**0.0%**
2	1	0	1	2	**2**	**0.5%**
3	1	4	1	6	**8**	**1.9%**
4	0	7	2	9	**17**	**3.9%**
5	1	5	3	9	**26**	**6.0%**
6	5	10	3	18	**44**	**10.2%**
7	5	12	7	24	**68**	**15.7%**
8	4	15	13	32	**100**	**23.1%**
9	7	15	9	31	**131**	**30.3%**
10	8	10	11	29	**160**	**37.0%**
11	14	10	13	37	**197**	**45.6%**
12	19	10	13	42	**239**	**55.3%**
13	9	9	5	23	**262**	**60.6%**
14	16	9	15	40	**302**	**69.9%**
15	18	7	15	40	**342**	**79.2%**
16	15	4	13	32	**374**	**86.6%**
17	9	0	6	15	**389**	**90.0%**
18	6	5	8	19	**408**	**94.4%**
19	4	2	2	8	**416**	**96.3%**
20	2	5	3	10	**426**	**98.6%**
21	0	2	1	3	**429**	**99.3%**
22	0	2	0	2	**431**	**99.8%**
23	0	0	0	0	**431**	**99.8%**
24	0	1	0	1	**432**	**100.0%**
Total	**144**	**144**	**144**	**432**	**--**	**--**
Average	**13.0**	**11.0**	**12.0**	**12.0**	**--**	**--**
85th Percentile	**16.0**	**15.0**	**16.0**	**16.0**	**--**	**--**
95th Percentile	**18.0**	**20.0**	**18.0**	**19.0**	**--**	**--**
Max	**20.0**	**24.0**	**21.0**	**24.0**	**--**	**--**

14 Source: Queuing surveys conducted every five minutes, between the hours of 11:00AM to 11:00PM, by Transportation Studies, Inc. on Saturday, June 22, 2019.

10.0 AREA-WIDE TRAFFIC IMPROVEMENTS

For those intersections where projected traffic volumes are expected to result in significant impacts, this report recommends improvements that change the intersection geometry to increase capacity. These capacity improvements involve roadway widening and/or re-striping to reconfigure roadways (add lanes) to specific approaches of a key intersection and/or roadway segments. The identified improvements are expected to:

- Address the impact of existing traffic, Project traffic and future non-project (ambient traffic growth and related projects) traffic, and
- Improve Levels of Service to an acceptable range and/or to pre-project conditions.

10.1 Recommended Improvements

10.1.1 *Existing Plus Project Traffic Conditions*

As previously shown in *Table 7-1*, the results of the Existing Plus Project traffic conditions level of service analysis indicate that the proposed Project ***will not*** significantly impact any of the six (6) key study intersections. As such, no mitigation measures have been recommended.

10.1.2 *Year 2022 Cumulative Plus Project Traffic Conditions*

As previously shown in *Table 8-1*, the results of the Year 2022 Cumulative Plus Project traffic conditions level of service analysis indicate that the proposed Project ***will not*** significantly impact any of the six (6) key study intersections. As such, no mitigation measures have been recommended.

11.0 MULTIMODAL CIRCULATION

The on-site circulation layout of the proposed Project as illustrated in *Figure 2-2* on an overall basis is adequate for drivers, pedestrians, bicycles, and public transit users.

Pedestrian Circulation

Pedestrian circulation would be provided via existing public sidewalks along Highway 111, Magnesia Falls Drive and Bob Hope Drive within the vicinity of the project frontage, which will connect to the project's internal walkways. The Project will protect the existing sidewalk along project frontage and if necessary, repair or reconstruct sidewalks along the project frontage per the City's request. The existing sidewalk system within the project vicinity provides direct connectivity to the adjacent existing residential community, commercial development and public transit along Highway 111.

Bike Lanes

Bob Hope Drive is designated with proposed Class II bike lanes (on-road bike lanes delineated by painted strips and other features) and currently exist intermittently north of the Project site along both sides of Bob Hope Drive from Avenida Las Palmas to the north. In addition, bike parking facilities are provided within the Project site.

Public Transit

Public transit bus service is provided in the Project area by SunLine Transit Agency. A description of the transit services within the Project vicinity are as follows:

Route 20 Express:

- Route 20 provides weekday service only.
- Route 20 provides express service from Desert Hot Springs to Palm Desert; via West & Pierson, Palm & Two Bunch, Cook & University, and Town Center & Hahn.
- The route traverses the cities of Desert Hot Springs, Indian Wells, and Palm Desert.
- During the weekday AM and PM peak periods, Route 20 has approximate headways of 60 minutes in the northbound and southbound directions.

Route 21:

- Route 21 provides weekday service only.
- Route 21 provides service from Indian Wells to Palm Desert; via Gerald Ford & Cook, Cook & Fred Smith, and Town Center & Hahn.
- The route traverses the cities of Indian Wells and Palm Desert.
- Route 21 provides service outside of the weekday AM and PM peak periods, between approximately 11am and 4pm. During this period, Route 21 has approximate headways of 60 minutes in the northbound and southbound directions.

Route 32:

- Route 32 provides service every day of the week.

- Route 32 provides express service from Palm Springs to Palm Desert; via Ramon & San Luis Rey, Vista Chino & Gene Autry, Ramon & Date Palm, Ramon & Monterey, Country Club & John L Sinn, and Town Center & Hahn.
- The route traverses the cities of Palm Desert, Rancho Mirage, Thousand Palms, Cathedral City, and Palm Springs.
- During the weekday AM and PM peak periods, Route 32 has approximate headways of 50 minutes in the eastbound and westbound directions. During the weekend midday peak period, Route 32 has approximate headways of 60 minutes in the eastbound and westbound directions.

City Route 54:

- Route 54 provides weekday service only.
- Route 54 provides service from Indio to Palm Desert; via Highway 111 & Flower, Fred Waring & Washington, and Town Center & Hahn.
- The route traverses the cities of Indio, La Quinta, Indian Wells, and Palm Desert.
- During the weekday AM and PM peak periods, Route 54 has approximate headways of 45 minutes in the eastbound and westbound directions.

City Route 111:

- Route 111 provides service every day of the week.
- Route 111 provides express service from Palm Springs to Coachella; via palm Canyon & Stevens, Palm Canyon & Ramon, B Street & Buddy Rogers, Town Center & Hahn, Highway 111 & Adams, Highway 111 & Flower, and 5th Street & Vine.
- The route traverses the cities of Palm Springs, Cathedral City, Rancho Mirage, Palm Desert, Indian Wells, La Quinta, Indio, and Coachella.
- During the weekday AM, weekday PM, and weekend midday peak periods, Route 111 has approximate headways of 20 minutes in the eastbound and westbound directions.

The bus stops nearest to the Project site are located along Highway 111, just north of Magnesia Falls Drive on the east side of the road, and just south of Magnesia Falls Drive on the west side of the road.

12.0 CONGESTION MANAGEMENT PROGRAM (CMP) ASSESSMENT

The Riverside County Transportation Commission (RCTC) is designated as the Congestion Management Agency (CMA) to oversee the Congestion Management Program (CMP). Recently, the RCTC has approved modification of the CMP Land Use Coordination Element, which includes the elimination of the Traffic Impact Assessment (TIA) report process and replaced it with an Enhanced Traffic Monitoring System. Therefore, a TIA report is no longer required, but local jurisdictions are required to report deficient facilities (Circulation Element roadway intersections that cannot be mitigated to LOS E or better) along the CMP network, which are identified in traffic impact studies prepared for local agencies. Review of *Tables 7-1* and *8-1* in this report indicates that all six (6) key study Circulation Roadway intersections are forecast to operate at an acceptable LOS during the weekday PM and Saturday Midday peak hours under Existing Plus Project and Year 2022 Cumulative Plus Project traffic conditions. As such, the traffic study does not have any significant impacts at any of the relevant CMP study locations and therefore the proposed Project does not conflict with the Riverside County Congestion Management Program. It should be noted that SR-111/Highway 111 between the I-10 Freeway and the Imperial County Line is part of the Riverside County CMP System of Highways and Roadways.

13.0 VEHICLE MILES TRAVELED (VMT) ASSESSMENT

On December 28, 2018, the California Natural Resources Agency adopted revised CEQA Guidelines. Among the changes to the guidelines was the removal of vehicle delay and LOS from consideration for transportation impacts under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled (VMT). Lead agencies are allowed to continue using their current impact criteria, or to opt into the revised transportation guidelines. However, the new guidelines must be used starting July 1, 2020, as required in CEQA section 15064.3. As we understand it, the City of Rancho Mirage approved a *Transportation Analysis Policy* in June 2020 updating its thresholds for transportation impacts to be consistent with the CEQA revisions per SB 743. Given that the environmental process for this Project was initiated prior to the adoption of the new thresholds, this report includes both the analysis of vehicle LOS for determining a project's transportation impact per the City's General Plan and the newly adopted thresholds for transportation impacts utilizing VMT per SB 743.

In late 2019, State courts stated that under section 21099, subdivision (b)(2), existing law is that "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment" under CEQA, except for roadway capacity projects. While this project does not create a significant impact through LOS or delay, for the purposes of this recent court decision, this project was also screened for VMT analysis.

For the VMT screening analysis, the project was analyzed using the example screening criteria identified in the City of Rancho Mirage *Transportation Analysis Policy (June 18, 2020)* and the "Technical Advisory on Evaluating Transportation Impacts in CEQA", dated December 2018 from the Governor's Office of Planning and Research (OPR). Given that the proposed Project is considered a local serving retail use and would be presumed to have less than significant impacts, the Project can be evaluated against the OPR screening criteria. According to City of Rancho Mirage *Transportation Analysis Policy* Section 1.A. *Project Screening Criteria*, projects that are local serving retail developments less than 50,000 SF generally may be assumed to create a less-than-significant transportation impact. Therefore, since the proposed In-N-Out Burger fast-food restaurant is considered local-serving retail for the purposes of project screening and is significantly less than 50,000 SF, this Project could be screened from a VMT analysis and be presumed to have a less than significant impact on VMT, per the OPR Technical Advisory.

APPENDIX A

TRAFFIC STUDY SCOPE OF WORK

Exhibit B

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the Riverside County Transportation Department requirements for traffic impact analysis of the following project. The analysis must follow the Riverside County Transportation Department Traffic Study Guidelines dated February 2005.

Case No. ______
Related Cases -
SP No. ______
EIR No. ______
GPA No. ______
CZ No. ______
Project Name: Rancho Las Palmas In-N-Out
Project Address: 42560 Bob Hope Drive, Rancho Mirage, CA
Project Description: 3,885 SF Fast Food Restaurant With Drive Through, 156 Seats (74 indoor and 82 outdoor)
See attached Figure 2-1 Existing Aerial Site.

	Consultant	Developer
Name:	Linscott, Law & Greenspan, Engineers	G&I Rancho Outparcel LP, C/o Paragon Commercial Group
Address:	2 Executive Circle, Suite 250	133 Penn Street
	Irvine, CA 92614	El Segundo, CA 90245
Telephone:	(949) 825-6175	(310) 807-3373
Fax:	(949) 825-6173	

A. Trip Generation Source: ITE 10th Edition Trip Generation Manual

Current GP Land Use	Neighborhood Commercial	Proposed Land Use	Neighborhood Commercial
Current Zoning		Proposed Zoning	

	Current Trip Generation In	Out	Total	Proposed Trip Generation In	Out	Total
PM Trips	--	--	--	40	35	75
MD Trips	--	--	--	95	91	186

See attached Table 1 Project Traffic Generation Forecast.

Internal Trip Allowance ☐ Yes ☑ No (______ % Trip Discount)
Pass-By Trip Allowance ☑ Yes ☐ No (Daily 25%, PM 50%, MD 50% % Trip Discount)

The passby trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: N 52 % S 43 % E 3 % W 2 %
(attach exhibit for detailed assignment)
See attached F5-1 Project Traffic Distribution Pattern.

C. Background Traffic

Project Build-out Year: 2022 Annual Ambient Growth Rate: 2 %
time needed for approvals and construction.
Analysis Scenarios Ex, Ex+P, 2022, 2022+P
Other area projects to be analyzed: List of cumulative projects will be based on coordination with City of Rancho Mirage and City of Palm Desert.
Model/Forecast methodology N/A

Exhibit B – Scoping Agreement – Page 2

D. Study intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*
See attached F1-1 Vicinity Map.

1. Highway 111 at Rancho Las Palmas Drive (Rancho Mirage)
2. Highway 111 at Bob Hope Drive (Rancho Mirage)
3. Highway 111 at Magnesia Falls Drive (Rancho Mirage)
4. Rancho Las Palmas Center Dwy at Magnesia Falls Drive (Rancho Mirage)
5. Highway 111 at Painters Path/Park View Drive (Palm Desert)
6. Highway 111 at Fred Waring Drive (Palm Desert)
7. Bob Hope Drive at Rancho Las Palmas Drive (Rancho Mirage)
8. Bob Hope Drive at Rancho Las Palmas Center Dwy No. 2 (Rancho Mirage)
9. Highway 111 at Rancho Las Palmas Center Dwy No. 3 (Rancho Mirage)
10. ____

E. Study Roadway Segments: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1. ____
2. ____
3. ____
4. ____
5. ____
6. ____
7. ____
8. ____
9. ____
10. ____

E. Other Jurisdictional Impacts

Is this project within a City's Sphere of Influence or one-mile radius of City boundaries? ☑ Yes ☐ No

If so, name of City Jurisdiction: Rancho Mirage, Palm Desert

F. Site Plan (please attach reduced copy) See attached F2-2 Proposed Site Plan.

G. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Transportation Department)
(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

VMT Analysis & drive-through/onsite queuing & circulation analysis

H. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.
Date of counts March 2020

***NOTE* Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Transportation Department staff will not process the Scoping Agreement prior to receipt of the fee.**

Recommended by:

03.04.20
Consultant's Representative — Date

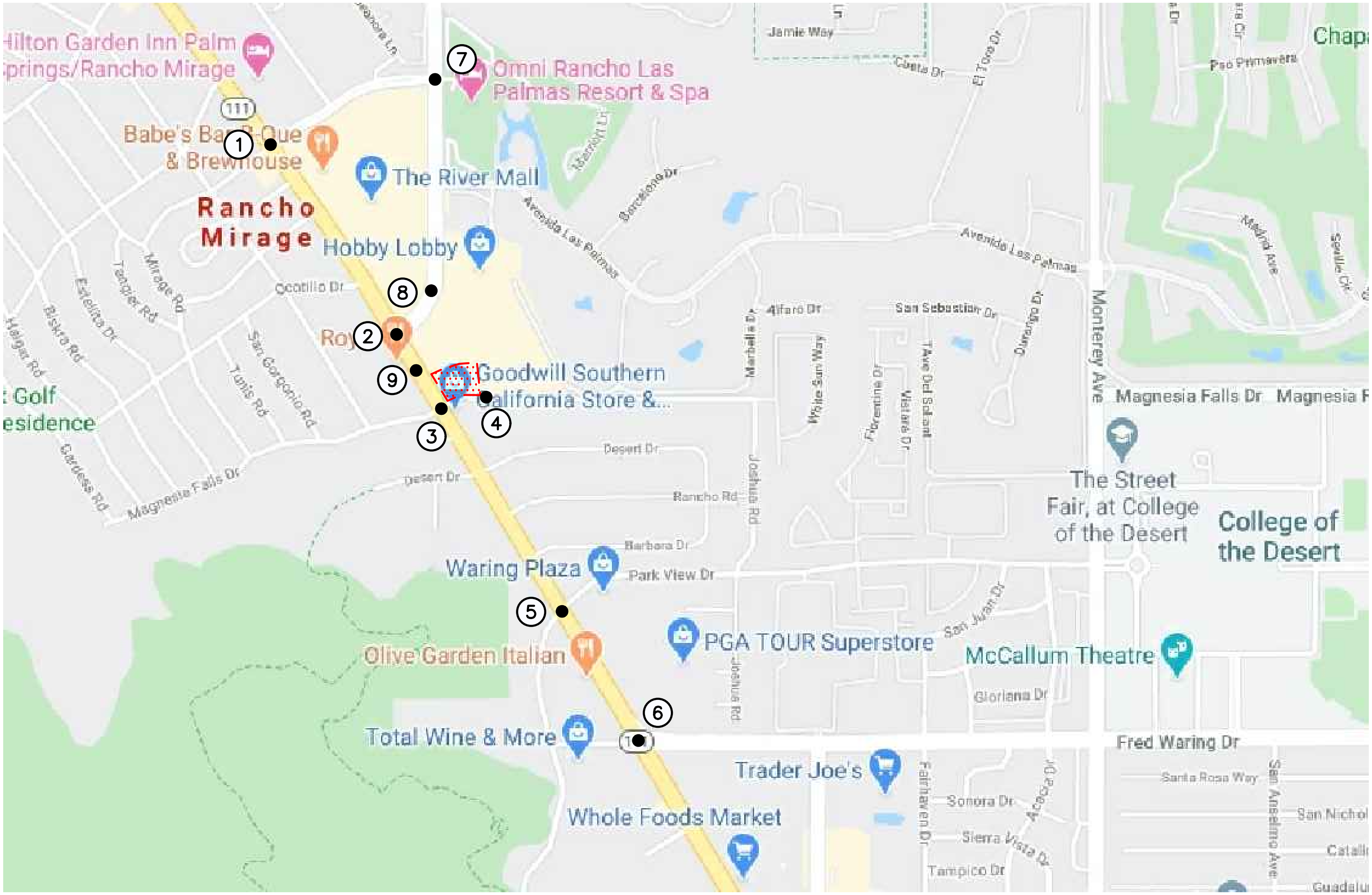
Scoping Agreement Submitted on 03.04.20

Revised on 04.02.20

Approved Scoping Agreement:

4/3/2020
Rancho Mirage Transportation Department — Date

Jeremy Glaim
Development Services Dir.



SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

FIGURE 1–1

VICINITY MAP

RANCHO LAS PALMAS IN–N–OUT, RANCHO MIRAGE

n:\4200\2204258 – rancho las palmas in–n–out, rancho mirage\dwg\4258 f1–1.dwg LDP 09:52:02 04–02–2020 tucker

n:\4200\2204258 - rancho las palmas in-n-out, rancho mirage\dwg\4258 f2-1.dwg LDP 08:05:10 03-04-2020 aguilar

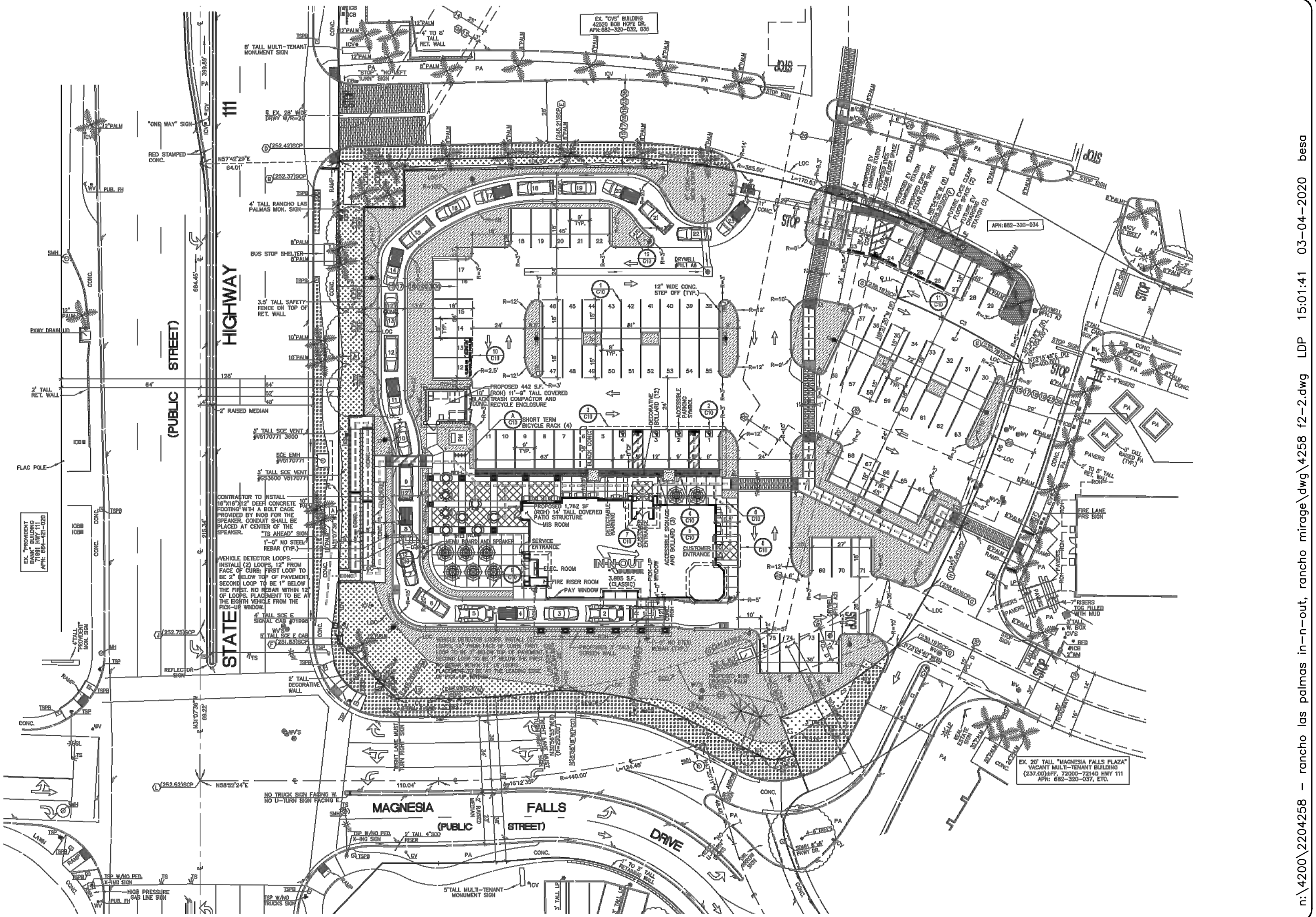
LINSCOTT
LAW &
GREENSPAN
engineers

N
NO SCALE

KEY
= SITE PLAN

FIGURE 2-1

EXISTING SITE AERIAL
RANCHO LAS PALMAS IN-N-OUT, RANCHO MIRAGE



LINSCOTT LAW & GREENSPAN engineers

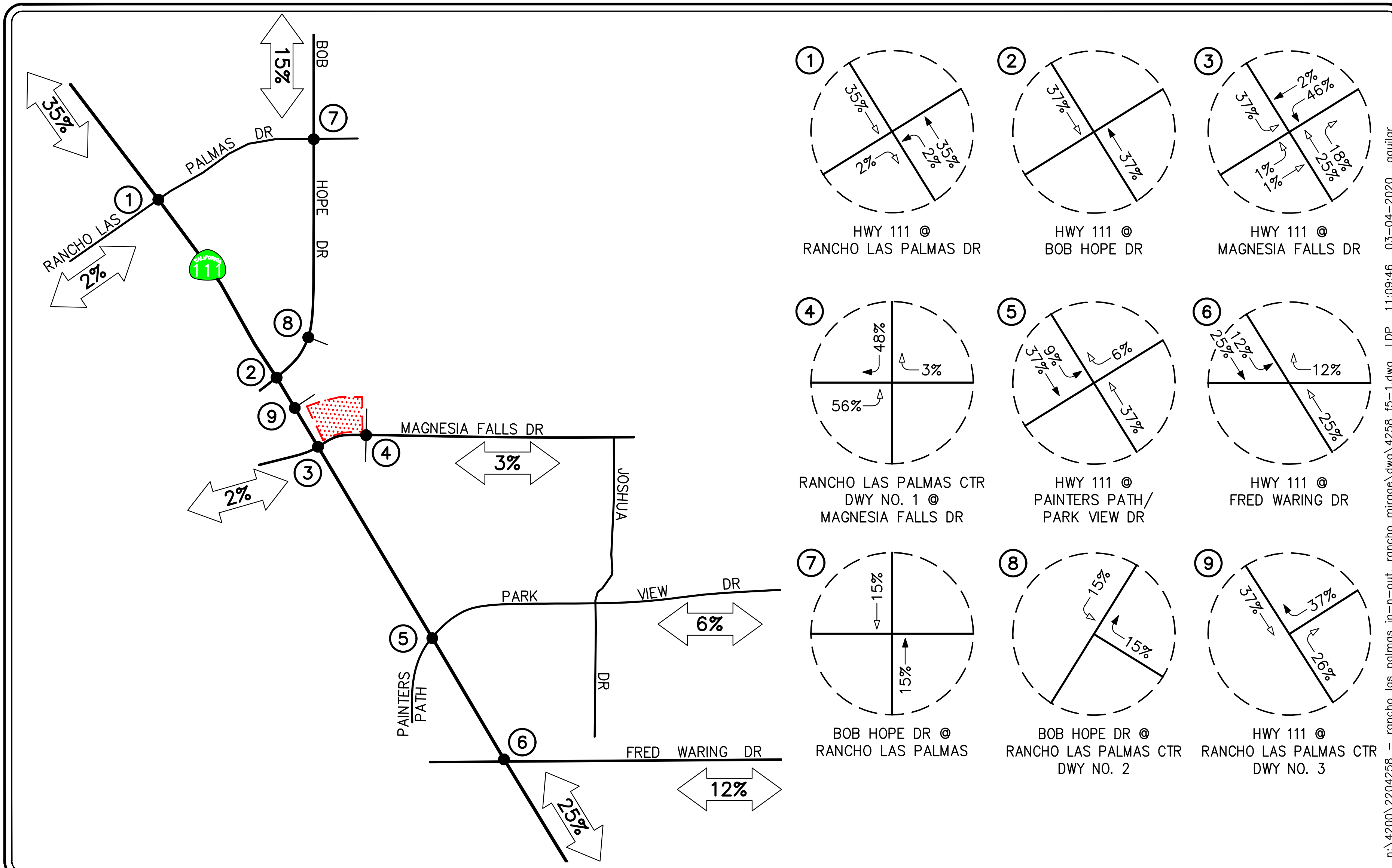
NO SCALE

SOURCE: MSL ENGINEERING, INC.

FIGURE 2-2

PROPOSED SITE PLAN

RANCHO LAS PALMAS IN-N-OUT, RANCHO MIRAGE



LINSCOTT LAW & GREENSPAN engineers

NO SCALE

KEY

(#) = STUDY INTERSECTION
= INBOUND PERCENTAGE
= OUTBOUND PERCENTAGE
= PROJECT SITE

FIGURE 5-1

PROJECT TRAFFIC DISTRIBUTION PATTERN

RANCHO LAS PALMAS IN-N-OUT, RANCHO MIRAGE

TABLE 1
PROJECT TRIP GENERATION FORECAST[1]
RANCHO LAS PALMAS IN-N-OUT, RANCHO MIRAGE

ITE Land Use Code / Project Description	Weekday				Saturday		
	Daily 2-Way	PM Peak Hour			Midday Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Generation Factors:							
▪ 934: Fast-Food Restaurant with Drive-Through Window (TE/Seat)	19.52	53%	47%	0.97	51%	49%	2.39
Generation Forecasts:							
▪ Proposed In-N-Out Restaurant (156 Seats)[2]	3,045	80	71	151	190	183	373
Pass-By (Daily: 25%, PM: 50%, Midday: 50%)[3]	-761	-40	-36	-76	-95	-92	-187
Total Project Trip Generation	**2,284**	**40**	**35**	**75**	**95**	**91**	**186**

Notes:

- TE/Seat = trip end per seat

[1] Source: Trip rates based on *Trip Generation, 10th Edition,* Institute of Transportation Engineers, (ITE) [Washington, D.C. (2017).

[2] Includes 74 indoor seats and 82 outdoor patio seats.

[3] Consistent with the *Trip Generation Handbook, 3rd Edition,* Institute of Transportation Engineers, (ITE) [Washington, D.C. (2017). Pass-by reductions for ITE Land Use 934: Fast-Food Restaurant with Drive-Through Window consist of the following: 25% weekday daily (estimated), 50% weekday PM, and 50% Saturday Midday (estimated).

APPENDIX B

EXISTING TRAFFIC COUNT DATA

APPENDIX B-I

INTERSECTION COUNTS

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Rancho Las Palmas Drive
Weather: Clear

File Name : 01_RNM_Hwy 111_RLP SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 1

Groups Printed- Total Volume

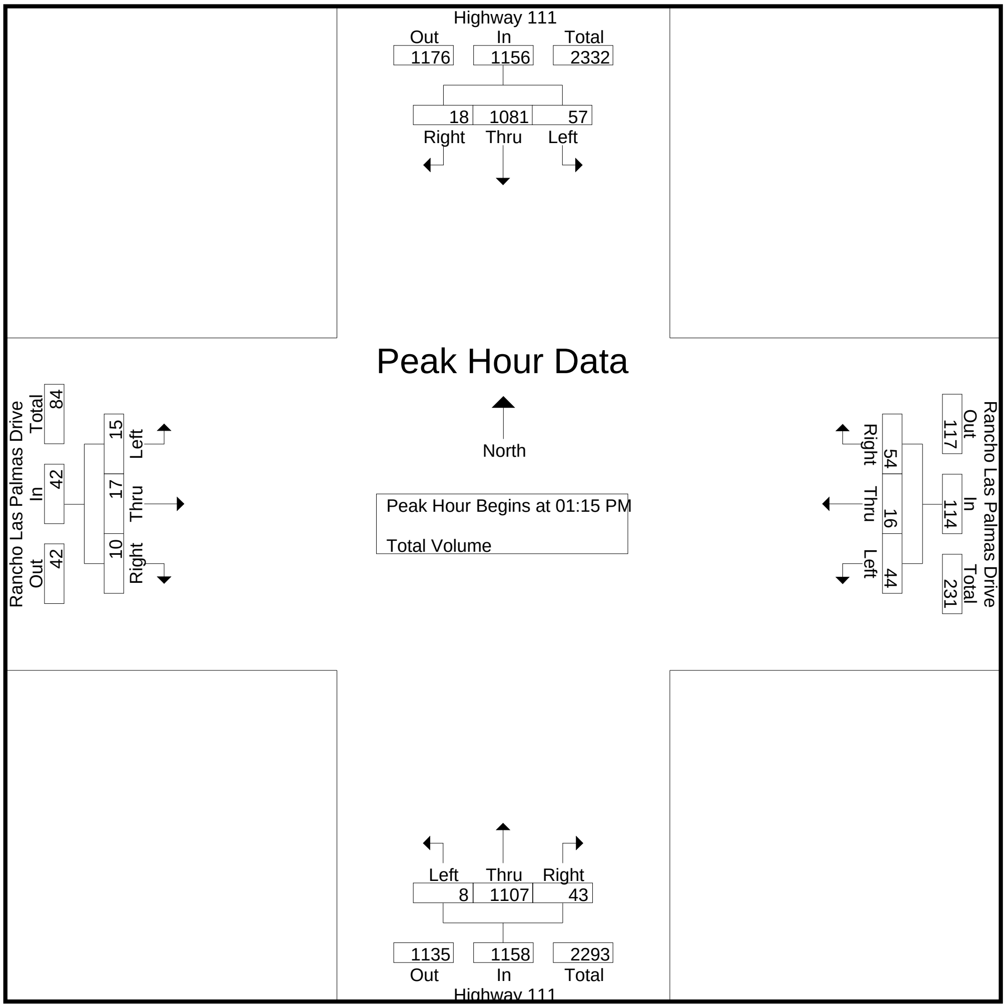
	Highway 111 Southbound				Rancho Las Palmas Drive Westbound				Highway 111 Northbound				Rancho Las Palmas Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	11	251	5	267	13	6	8	27	2	280	9	291	2	2	1	5	590
11:45 AM	16	267	2	285	10	9	9	28	4	221	14	239	7	4	1	12	564
Total	27	518	7	552	23	15	17	55	6	501	23	530	9	6	2	17	1154
12:00 PM	23	209	2	234	10	2	11	23	1	260	17	278	3	5	6	14	549
12:15 PM	19	252	2	273	11	3	11	25	0	245	10	255	2	2	3	7	560
12:30 PM	10	288	6	304	8	4	13	25	2	260	6	268	2	2	3	7	604
12:45 PM	26	252	5	283	14	4	20	38	5	252	6	263	2	15	2	19	603
Total	78	1001	15	1094	43	13	55	111	8	1017	39	1064	9	24	14	47	2316
01:00 PM	13	266	5	284	14	2	9	25	2	242	8	252	2	2	4	8	569
01:15 PM	20	251	2	273	10	3	10	23	4	278	9	291	4	5	3	12	599
01:30 PM	10	255	4	269	8	4	13	25	2	269	12	283	4	6	1	11	588
01:45 PM	19	281	3	303	12	6	13	31	2	268	14	284	4	1	3	8	626
Total	62	1053	14	1129	44	15	45	104	10	1057	43	1110	14	14	11	39	2382
02:00 PM	8	294	9	311	14	3	18	35	0	292	8	300	3	5	3	11	657
02:15 PM	15	252	1	268	13	0	15	28	4	271	9	284	3	2	2	7	587
Grand Total	190	3118	46	3354	137	46	150	333	28	3138	122	3288	38	51	32	121	7096
Apprch %	5.7	93	1.4		41.1	13.8	45		0.9	95.4	3.7		31.4	42.1	26.4		
Total %	2.7	43.9	0.6	47.3	1.9	0.6	2.1	4.7	0.4	44.2	1.7	46.3	0.5	0.7	0.5	1.7	

	Highway 111 Southbound				Rancho Las Palmas Drive Westbound				Highway 111 Northbound				Rancho Las Palmas Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:15 PM																	
01:15 PM	**20**	251	2	273	10	3	10	23	**4**	278	9	291	**4**	5	**3**	**12**	599
01:30 PM	10	255	4	269	8	4	13	25	2	269	12	283	4	**6**	1	11	588
01:45 PM	19	281	3	303	12	**6**	13	31	2	268	**14**	284	4	1	3	8	626
02:00 PM	8	**294**	**9**	**311**	**14**	3	**18**	**35**	0	**292**	8	**300**	3	5	3	11	**657**
Total Volume	57	1081	18	1156	44	16	54	114	8	1107	43	1158	15	17	10	42	2470
% App. Total	4.9	93.5	1.6		38.6	14	47.4		0.7	95.6	3.7		35.7	40.5	23.8		
PHF	.713	.919	.500	.929	.786	.667	.750	.814	.500	.948	.768	.965	.938	.708	.833	.875	.940

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Rancho Las Palmas Drive
Weather: Clear

File Name : 01_RNM_Hwy 111_RLP SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 2



Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:15 PM				01:30 PM				01:15 PM				12:45 PM			
+0 mins.	**20**	251	2	273	8	4	13	25	**4**	278	9	291	2	**15**	2	**19**
+15 mins.	10	255	4	269	12	**6**	13	31	2	269	12	283	2	2	**4**	8
+30 mins.	19	281	3	303	**14**	3	**18**	**35**	2	268	**14**	284	**4**	5	3	12
+45 mins.	8	**294**	**9**	**311**	13	0	15	28	0	**292**	8	**300**	4	6	1	11
Total Volume	57	1081	18	1156	47	13	59	119	8	1107	43	1158	12	28	10	50
% App. Total	4.9	93.5	1.6		39.5	10.9	49.6		0.7	95.6	3.7		24	56	20	
PHF	.713	.919	.500	.929	.839	.542	.819	.850	.500	.948	.768	.965	.750	.467	.625	.658

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Rancho Las Palmas Drive
Weather: Clear

File Name : 01_RNM_Hwy 111_RLP Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 1

Groups Printed- Total Volume

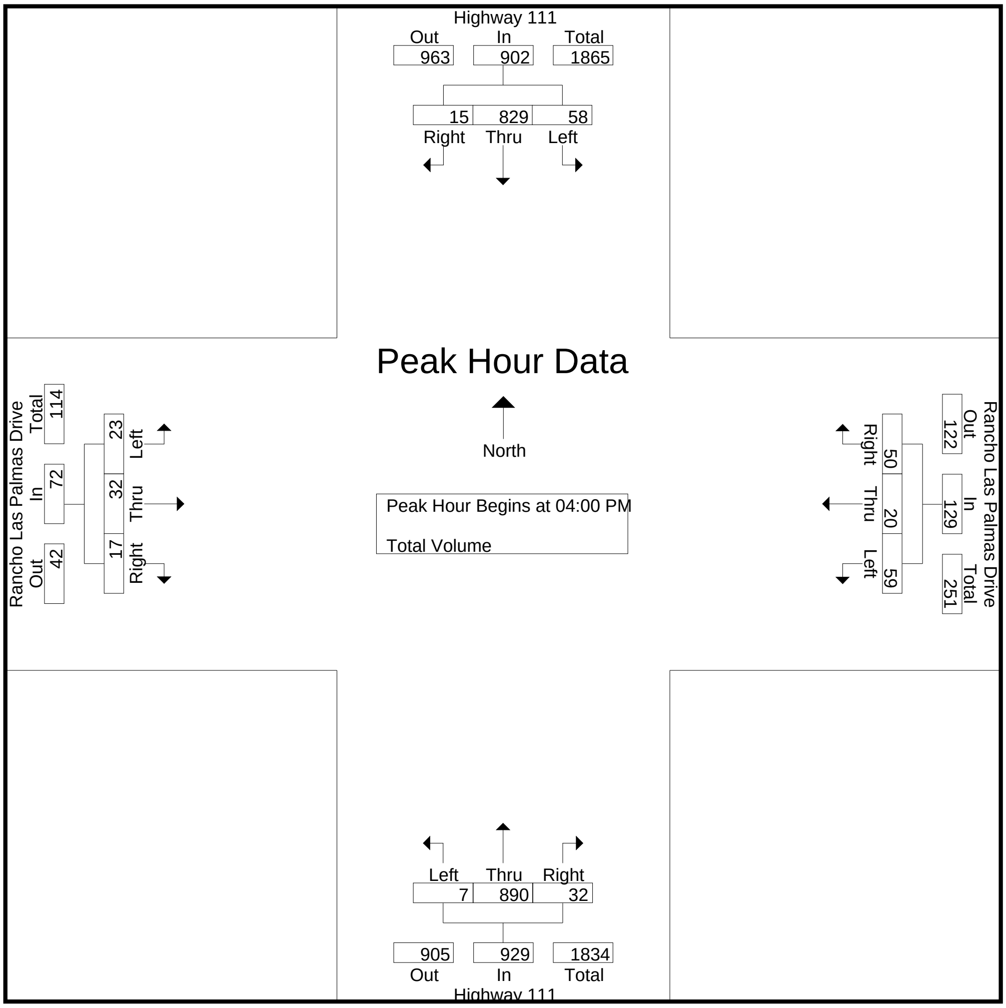
	Highway 111 Southbound				Rancho Las Palmas Drive Westbound				Highway 111 Northbound				Rancho Las Palmas Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	17	206	6	229	18	3	12	33	3	229	8	240	5	11	6	22	524
04:15 PM	15	217	4	236	10	4	15	29	0	225	11	236	9	8	6	23	524
04:30 PM	13	212	4	229	21	5	7	33	3	224	7	234	4	7	3	14	510
04:45 PM	13	194	1	208	10	8	16	34	1	212	6	219	5	6	2	13	474
Total	58	829	15	902	59	20	50	129	7	890	32	929	23	32	17	72	2032
05:00 PM	14	225	1	240	18	8	16	42	4	199	6	209	10	10	2	22	513
05:15 PM	19	229	4	252	12	3	13	28	5	230	4	239	3	3	4	10	529
05:30 PM	12	170	2	184	19	5	7	31	2	170	13	185	4	2	4	10	410
05:45 PM	10	162	3	175	8	4	8	20	6	192	10	208	1	8	2	11	414
Total	55	786	10	851	57	20	44	121	17	791	33	841	18	23	12	53	1866
Grand Total	113	1615	25	1753	116	40	94	250	24	1681	65	1770	41	55	29	125	3898
Apprch %	6.4	92.1	1.4		46.4	16	37.6		1.4	95	3.7		32.8	44	23.2		
Total %	2.9	41.4	0.6	45	3	1	2.4	6.4	0.6	43.1	1.7	45.4	1.1	1.4	0.7	3.2	

	Highway 111 Southbound				Rancho Las Palmas Drive Westbound				Highway 111 Northbound				Rancho Las Palmas Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**17**	206	**6**	229	18	3	12	33	**3**	**229**	8	**240**	5	**11**	**6**	22	**524**
04:15 PM	15	**217**	4	**236**	10	4	15	29	0	225	**11**	236	**9**	8	6	**23**	524
04:30 PM	13	212	4	229	**21**	5	7	33	3	224	7	234	4	7	3	14	510
04:45 PM	13	194	1	208	10	**8**	**16**	**34**	1	212	6	219	5	6	2	13	474
Total Volume	58	829	15	902	59	20	50	129	7	890	32	929	23	32	17	72	2032
% App. Total	6.4	91.9	1.7		45.7	15.5	38.8		0.8	95.8	3.4		31.9	44.4	23.6		
PHF	.853	.955	.625	.956	.702	.625	.781	.949	.583	.972	.727	.968	.639	.727	.708	.783	.969

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Rancho Las Palmas Drive
Weather: Clear

File Name : 01_RNM_Hwy 111_RLP Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:15 PM				04:00 PM				04:00 PM			
+0 mins.	13	212	**4**	229	10	4	15	29	**3**	**229**	8	**240**	5	**11**	**6**	22
+15 mins.	13	194	1	208	**21**	5	7	33	0	225	**11**	236	**9**	8	6	**23**
+30 mins.	14	225	1	240	10	**8**	**16**	34	3	224	7	234	4	7	3	14
+45 mins.	**19**	**229**	4	**252**	18	8	16	**42**	1	212	6	219	5	6	2	13
Total Volume	59	860	10	929	59	25	54	138	7	890	32	929	23	32	17	72
% App. Total	6.4	92.6	1.1		42.8	18.1	39.1		0.8	95.8	3.4		31.9	44.4	23.6	
PHF	.776	.939	.625	.922	.702	.781	.844	.821	.583	.972	.727	.968	.639	.727	.708	.783

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Bob Hope Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Bob Hope SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 1

Groups Printed- Total Volume

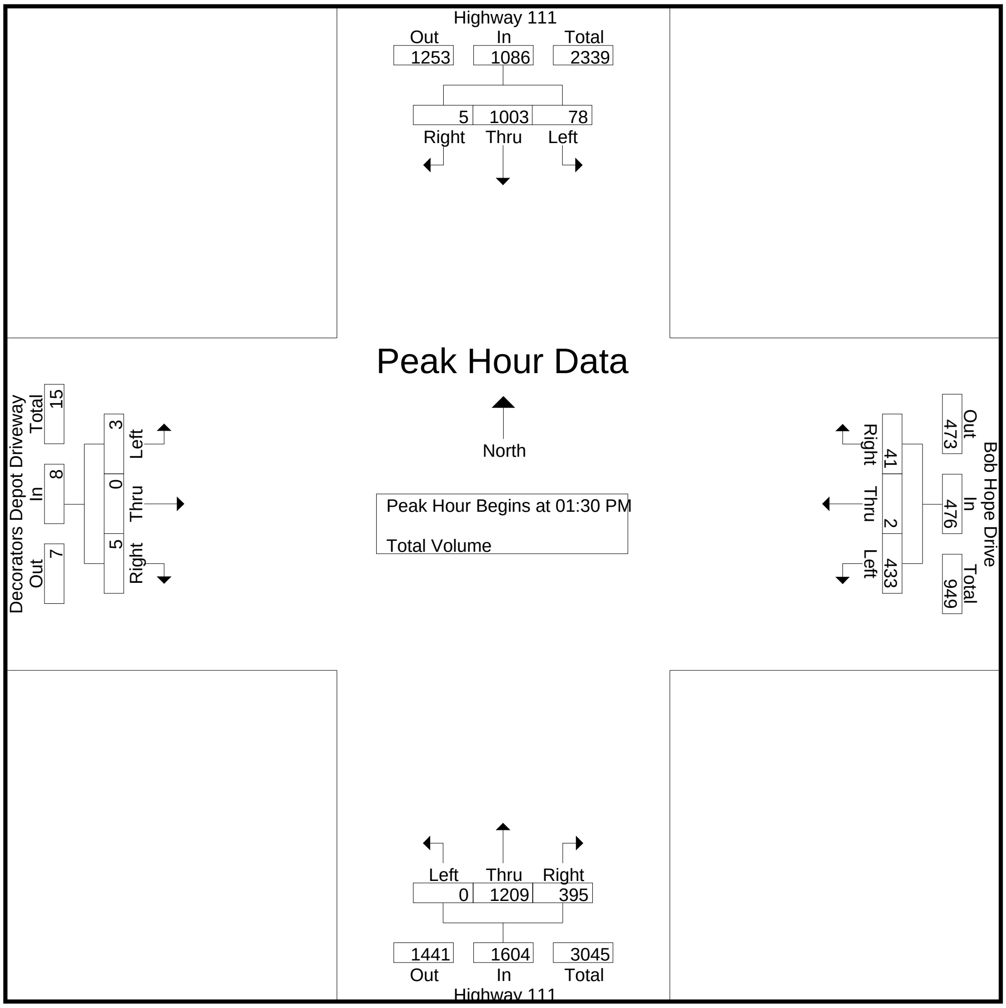
	Highway 111 Southbound				Bob Hope Drive Westbound				Highway 111 Northbound				Decorators Depot Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	23	246	4	273	114	0	14	128	4	303	101	408	1	0	1	2	811
11:45 AM	16	257	2	275	100	1	8	109	0	263	84	347	0	0	0	0	731
Total	39	503	6	548	214	1	22	237	4	566	185	755	1	0	1	2	1542
12:00 PM	12	212	2	226	118	0	7	125	1	307	115	423	0	0	1	1	775
12:15 PM	27	236	4	267	92	0	5	97	0	271	91	362	2	0	3	5	731
12:30 PM	21	267	1	289	113	1	9	123	1	283	86	370	0	0	0	0	782
12:45 PM	5	269	2	276	103	0	12	115	2	295	100	397	2	3	0	5	793
Total	65	984	9	1058	426	1	33	460	4	1156	392	1552	4	3	4	11	3081
01:00 PM	19	272	1	292	122	0	11	133	4	257	111	372	2	0	0	2	799
01:15 PM	18	238	2	258	97	0	8	105	3	281	94	378	2	1	0	3	744
01:30 PM	26	237	3	266	116	1	10	127	0	306	97	403	0	0	0	0	796
01:45 PM	21	259	1	281	109	0	11	120	0	302	91	393	0	0	1	1	795
Total	84	1006	7	1097	444	1	40	485	7	1146	393	1546	4	1	1	6	3134
02:00 PM	19	268	1	288	105	0	7	112	0	295	109	404	2	0	2	4	808
02:15 PM	12	239	0	251	103	1	13	117	0	306	98	404	1	0	2	3	775
Grand Total	219	3000	23	3242	1292	4	115	1411	15	3469	1177	4661	12	4	10	26	9340
Apprch %	6.8	92.5	0.7		91.6	0.3	8.2		0.3	74.4	25.3		46.2	15.4	38.5		
Total %	2.3	32.1	0.2	34.7	13.8	0	1.2	15.1	0.2	37.1	12.6	49.9	0.1	0	0.1	0.3	

	Highway 111 Southbound				Bob Hope Drive Westbound				Highway 111 Northbound				Decorators Depot Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:30 PM																	
01:30 PM	**26**	237	**3**	266	**116**	**1**	10	**127**	0	**306**	97	403	0	0	0	0	796
01:45 PM	21	259	1	281	109	0	11	120	0	302	91	393	0	0	1	1	795
02:00 PM	19	**268**	1	**288**	105	0	7	112	0	295	**109**	**404**	**2**	0	**2**	**4**	**808**
02:15 PM	12	239	0	251	103	1	**13**	117	0	306	98	404	1	0	2	3	775
Total Volume	78	1003	5	1086	433	2	41	476	0	1209	395	1604	3	0	5	8	3174
% App. Total	7.2	92.4	0.5		91	0.4	8.6		0	75.4	24.6		37.5	0	62.5		
PHF	.750	.936	.417	.943	.933	.500	.788	.937	.000	.988	.906	.993	.375	.000	.625	.500	.982

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Bob Hope Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Bob Hope SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 2



Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:15 PM				01:00 PM				01:30 PM				12:15 PM			
+0 mins.	**27**	236	**4**	267	**122**	0	**11**	**133**	0	**306**	97	403	**2**	0	**3**	**5**
+15 mins.	21	267	1	289	97	0	8	105	0	302	91	393	0	0	0	0
+30 mins.	5	269	2	276	116	**1**	10	127	0	295	**109**	**404**	2	**3**	0	5
+45 mins.	19	**272**	1	**292**	109	0	11	120	0	306	98	404	2	0	0	2
Total Volume	72	1044	8	1124	444	1	40	485	0	1209	395	1604	6	3	3	12
% App. Total	6.4	92.9	0.7		91.5	0.2	8.2		0	75.4	24.6		50	25	25	
PHF	.667	.960	.500	.962	.910	.250	.909	.912	.000	.988	.906	.993	.750	.250	.250	.600

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Bob Hope Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Bob Hope Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 1

Groups Printed- Total Volume

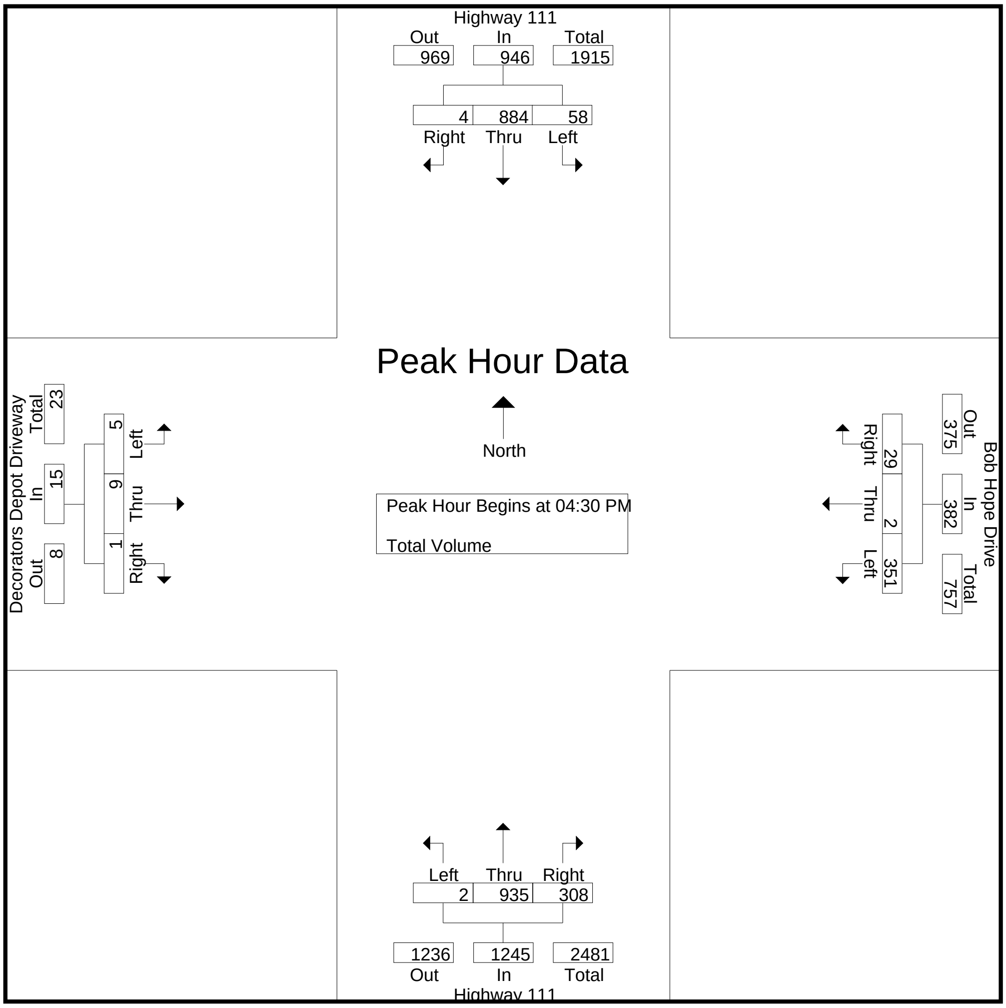
	Highway 111 Southbound				Bob Hope Drive Westbound				Highway 111 Northbound				Decorators Depot Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	18	207	2	227	108	0	12	120	1	241	64	306	3	3	1	7	660
04:15 PM	13	221	2	236	92	0	4	96	0	230	71	301	0	0	0	0	633
04:30 PM	11	217	0	228	83	0	9	92	0	232	89	321	0	3	0	3	644
04:45 PM	10	203	2	215	87	2	9	98	0	243	68	311	0	2	0	2	626
Total	52	848	6	906	370	2	34	406	1	946	292	1239	3	8	1	12	2563
05:00 PM	21	227	2	250	89	0	9	98	1	218	86	305	2	4	1	7	660
05:15 PM	16	237	0	253	92	0	2	94	1	242	65	308	3	0	0	3	658
05:30 PM	12	188	0	200	53	1	6	60	1	184	64	249	1	2	0	3	512
05:45 PM	9	168	2	179	54	0	4	58	0	218	57	275	0	2	2	4	516
Total	58	820	4	882	288	1	21	310	3	862	272	1137	6	8	3	17	2346
Grand Total	110	1668	10	1788	658	3	55	716	4	1808	564	2376	9	16	4	29	4909
Apprch %	6.2	93.3	0.6		91.9	0.4	7.7		0.2	76.1	23.7		31	55.2	13.8		
Total %	2.2	34	0.2	36.4	13.4	0.1	1.1	14.6	0.1	36.8	11.5	48.4	0.2	0.3	0.1	0.6	

	Highway 111 Southbound				Bob Hope Drive Westbound				Highway 111 Northbound				Decorators Depot Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	11	217	0	228	83	0	**9**	92	0	232	**89**	**321**	0	3	0	3	644
04:45 PM	10	203	**2**	215	87	**2**	9	**98**	0	**243**	68	311	0	2	0	2	626
05:00 PM	**21**	227	2	250	89	0	9	98	**1**	218	86	305	2	**4**	**1**	**7**	**660**
05:15 PM	16	**237**	0	**253**	**92**	0	2	94	1	242	65	308	**3**	0	0	3	658
Total Volume	58	884	4	946	351	2	29	382	2	935	308	1245	5	9	1	15	2588
% App. Total	6.1	93.4	0.4		91.9	0.5	7.6		0.2	75.1	24.7		33.3	60	6.7		
PHF	.690	.932	.500	.935	.954	.250	.806	.974	.500	.962	.865	.970	.417	.563	.250	.536	.980

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Bob Hope Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Bob Hope Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:00 PM				04:30 PM				05:00 PM			
+0 mins.	11	217	0	228	**108**	0	**12**	**120**	0	232	**89**	**321**	2	**4**	1	**7**
+15 mins.	10	203	**2**	215	92	0	4	96	0	**243**	68	311	**3**	0	0	3
+30 mins.	**21**	227	2	250	83	0	9	92	**1**	218	86	305	1	2	0	3
+45 mins.	16	**237**	0	**253**	87	**2**	9	98	1	242	65	308	0	2	**2**	4
Total Volume	58	884	4	946	370	2	34	406	2	935	308	1245	6	8	3	17
% App. Total	6.1	93.4	0.4		91.1	0.5	8.4		0.2	75.1	24.7		35.3	47.1	17.6	
PHF	.690	.932	.500	.935	.856	.250	.708	.846	.500	.962	.865	.970	.500	.500	.375	.607

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Magnesia Falls Drive
Weather: Clear

File Name : 03_RNM_Hwy 111_Mag Falls SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 1

Groups Printed- Total Volume

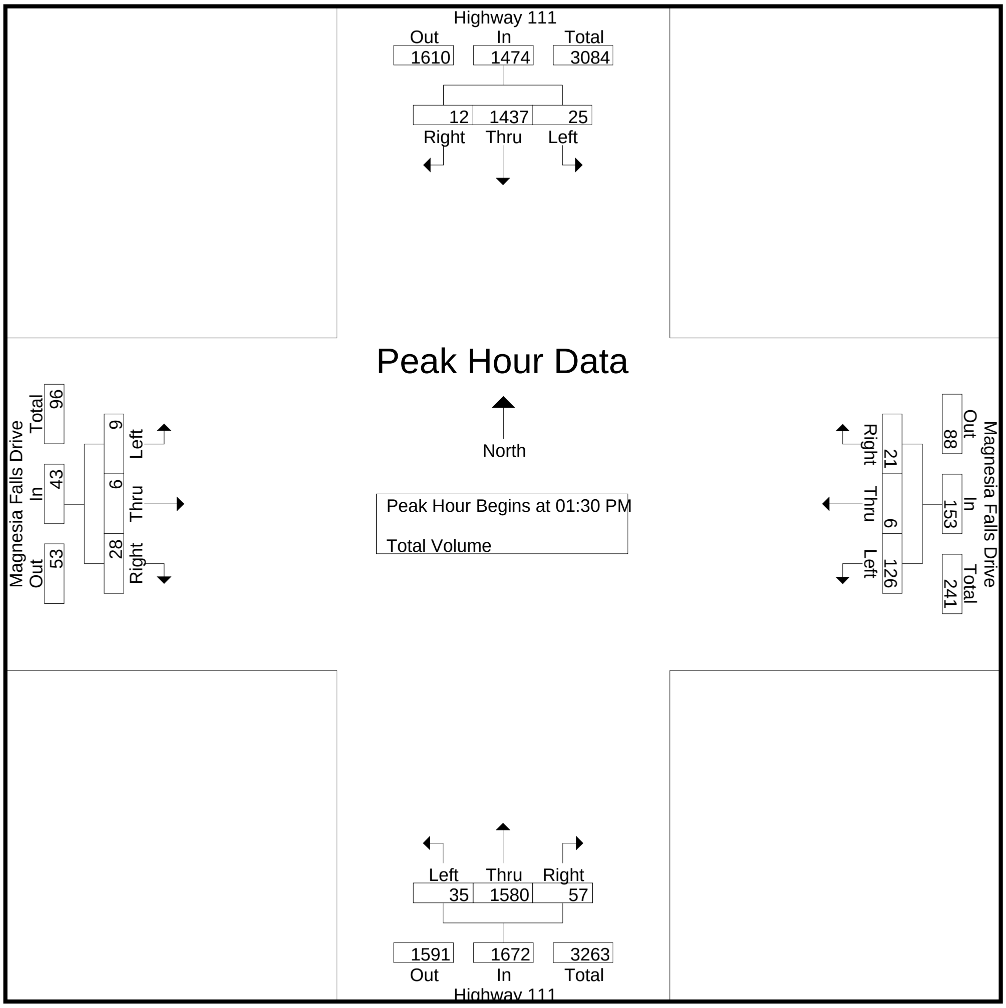
	Highway 111 Southbound				Magnesia Falls Drive Westbound				Highway 111 Northbound				Magnesia Falls Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	4	338	7	349	34	0	5	39	9	390	17	416	2	0	11	13	817
11:45 AM	3	374	3	380	33	1	8	42	7	325	18	350	1	1	7	9	781
Total	7	712	10	729	67	1	13	81	16	715	35	766	3	1	18	22	1598
12:00 PM	11	309	4	324	31	1	4	36	5	411	18	434	4	1	6	11	805
12:15 PM	5	339	2	346	30	1	7	38	8	364	12	384	4	3	12	19	787
12:30 PM	7	363	1	371	27	0	4	31	7	363	22	392	2	0	10	12	806
12:45 PM	4	356	7	367	30	4	3	37	7	388	17	412	0	5	5	10	826
Total	27	1367	14	1408	118	6	18	142	27	1526	69	1622	10	9	33	52	3224
01:00 PM	6	379	3	388	34	0	4	38	7	361	8	376	0	2	10	12	814
01:15 PM	7	342	2	351	21	0	5	26	7	384	16	407	1	1	9	11	795
01:30 PM	9	364	4	377	23	0	7	30	10	407	17	434	2	0	5	7	848
01:45 PM	5	359	7	371	40	2	8	50	9	377	15	401	1	3	11	15	837
Total	27	1444	16	1487	118	2	24	144	33	1529	56	1618	4	6	35	45	3294
02:00 PM	3	365	1	369	31	2	2	35	7	402	14	423	2	2	5	9	836
02:15 PM	8	349	0	357	32	2	4	38	9	394	11	414	4	1	7	12	821
Grand Total	72	4237	41	4350	366	13	61	440	92	4566	185	4843	23	19	98	140	9773
Apprch %	1.7	97.4	0.9		83.2	3	13.9		1.9	94.3	3.8		16.4	13.6	70		
Total %	0.7	43.4	0.4	44.5	3.7	0.1	0.6	4.5	0.9	46.7	1.9	49.6	0.2	0.2	1	1.4	

	Highway 111 Southbound				Magnesia Falls Drive Westbound				Highway 111 Northbound				Magnesia Falls Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:30 PM																	
01:30 PM	**9**	364	4	**377**	23	0	7	30	**10**	**407**	**17**	**434**	2	0	5	7	**848**
01:45 PM	5	359	**7**	371	**40**	**2**	**8**	**50**	9	377	15	401	1	**3**	**11**	**15**	837
02:00 PM	3	**365**	1	369	31	2	2	35	7	402	14	423	2	2	5	9	836
02:15 PM	8	349	0	357	32	2	4	38	9	394	11	414	**4**	1	7	12	821
Total Volume	25	1437	12	1474	126	6	21	153	35	1580	57	1672	9	6	28	43	3342
% App. Total	1.7	97.5	0.8		82.4	3.9	13.7		2.1	94.5	3.4		20.9	14	65.1		
PHF	.694	.984	.429	.977	.788	.750	.656	.765	.875	.971	.838	.963	.563	.500	.636	.717	.985

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Magnesia Falls Drive
Weather: Clear

File Name : 03_RNM_Hwy 111_Mag Falls SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 2



Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				11:30 AM				01:30 PM				12:15 PM			
+0 mins.	6	**379**	3	**388**	**34**	0	5	39	**10**	**407**	**17**	**434**	**4**	3	**12**	**19**
+15 mins.	7	342	2	351	33	**1**	**8**	**42**	9	377	15	401	2	0	10	12
+30 mins.	**9**	364	4	377	31	1	4	36	7	402	14	423	0	**5**	5	10
+45 mins.	5	359	**7**	371	30	1	7	38	9	394	11	414	0	2	10	12
Total Volume	27	1444	16	1487	128	3	24	155	35	1580	57	1672	6	10	37	53
% App. Total	1.8	97.1	1.1		82.6	1.9	15.5		2.1	94.5	3.4		11.3	18.9	69.8	
PHF	.750	.953	.571	.958	.941	.750	.750	.923	.875	.971	.838	.963	.375	.500	.771	.697

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Magnesia Falls Drive
Weather: Clear

File Name : 03_RNM_Hwy 111_Mag Falls Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 1

Groups Printed- Total Volume

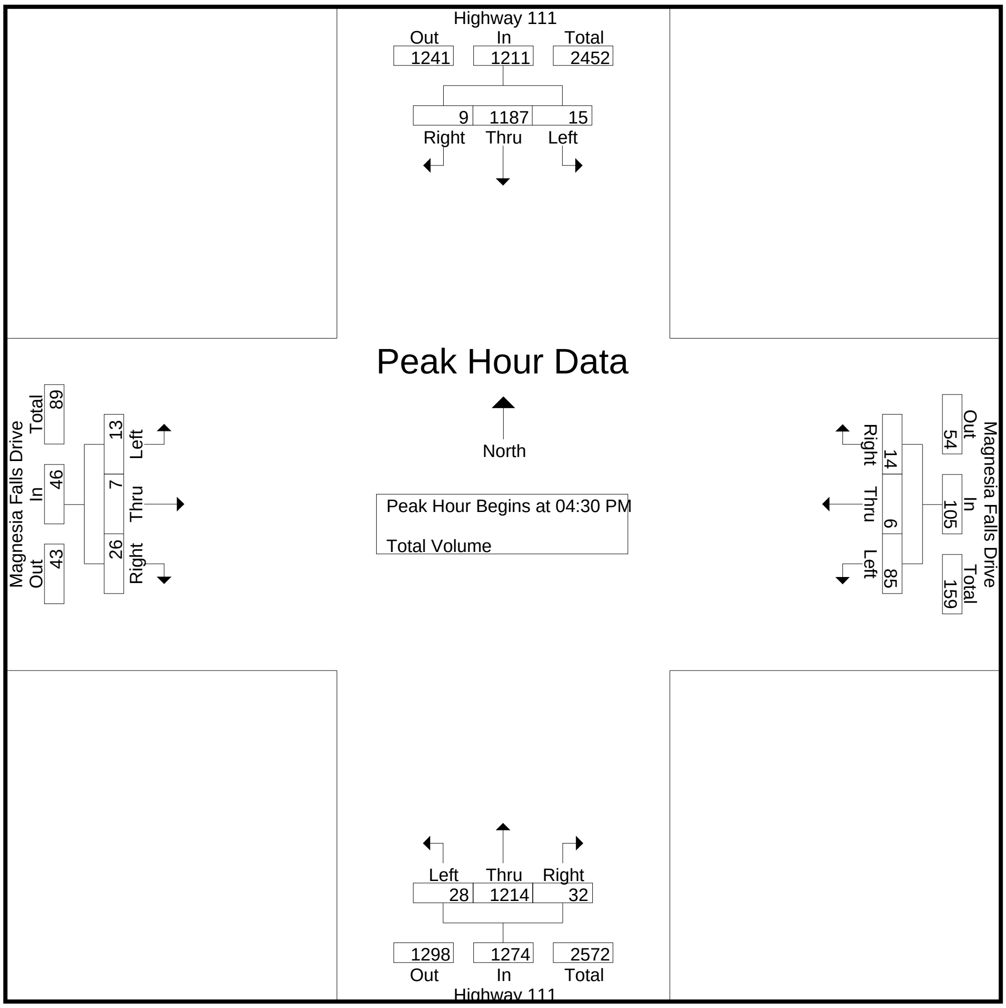
	Highway 111 Southbound				Magnesia Falls Drive Westbound				Highway 111 Northbound				Magnesia Falls Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	3	298	3	304	19	0	3	22	0	319	9	328	3	0	3	6	660
04:15 PM	1	307	2	310	12	1	8	21	4	259	9	272	2	2	8	12	615
04:30 PM	2	282	3	287	15	1	5	21	6	299	11	316	1	1	7	9	633
04:45 PM	3	283	0	286	18	2	4	24	11	312	4	327	5	1	7	13	650
Total	9	1170	8	1187	64	4	20	88	21	1189	33	1243	11	4	25	40	2558
05:00 PM	5	305	6	316	26	3	3	32	5	301	9	315	5	4	9	18	681
05:15 PM	5	317	0	322	26	0	2	28	6	302	8	316	2	1	3	6	672
05:30 PM	2	248	3	253	21	1	3	25	2	236	8	246	2	1	6	9	533
05:45 PM	5	205	7	217	9	0	0	9	4	241	6	251	6	0	8	14	491
Total	17	1075	16	1108	82	4	8	94	17	1080	31	1128	15	6	26	47	2377
Grand Total	26	2245	24	2295	146	8	28	182	38	2269	64	2371	26	10	51	87	4935
Apprch %	1.1	97.8	1		80.2	4.4	15.4		1.6	95.7	2.7		29.9	11.5	58.6		
Total %	0.5	45.5	0.5	46.5	3	0.2	0.6	3.7	0.8	46	1.3	48	0.5	0.2	1	1.8	

	Highway 111 Southbound				Magnesia Falls Drive Westbound				Highway 111 Northbound				Magnesia Falls Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	2	282	3	287	15	1	**5**	21	6	299	**11**	316	1	1	7	9	633
04:45 PM	3	283	0	286	18	2	4	24	**11**	**312**	4	**327**	**5**	1	7	13	650
05:00 PM	**5**	305	**6**	316	**26**	**3**	3	**32**	5	301	9	315	5	**4**	**9**	**18**	**681**
05:15 PM	5	**317**	0	**322**	26	0	2	28	6	302	8	316	2	1	3	6	672
Total Volume	15	1187	9	1211	85	6	14	105	28	1214	32	1274	13	7	26	46	2636
% App. Total	1.2	98	0.7		81	5.7	13.3		2.2	95.3	2.5		28.3	15.2	56.5		
PHF	.750	.936	.375	.940	.817	.500	.700	.820	.636	.973	.727	.974	.650	.438	.722	.639	.968

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Magnesia Falls Drive
Weather: Clear

File Name : 03_RNM_Hwy 111_Mag Falls Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:45 PM				04:30 PM				04:15 PM			
+0 mins.	2	282	3	287	18	2	**4**	24	6	299	**11**	316	2	2	8	12
+15 mins.	3	283	0	286	**26**	**3**	3	**32**	**11**	**312**	4	**327**	1	1	7	9
+30 mins.	**5**	305	**6**	316	26	0	2	28	5	301	9	315	**5**	1	7	13
+45 mins.	5	**317**	0	**322**	21	1	3	25	6	302	8	316	5	**4**	**9**	**18**
Total Volume	15	1187	9	1211	91	6	12	109	28	1214	32	1274	13	8	31	52
% App. Total	1.2	98	0.7		83.5	5.5	11		2.2	95.3	2.5		25	15.4	59.6	
PHF	.750	.936	.375	.940	.875	.500	.750	.852	.636	.973	.727	.974	.650	.500	.861	.722

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Rancho Las Palmas Center Driveway 1
E/W: Magnesia Falls Drive
Weather: Clear

File Name : 04_RNM_DW1_Mag Falls SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 1

Groups Printed- Total Volume

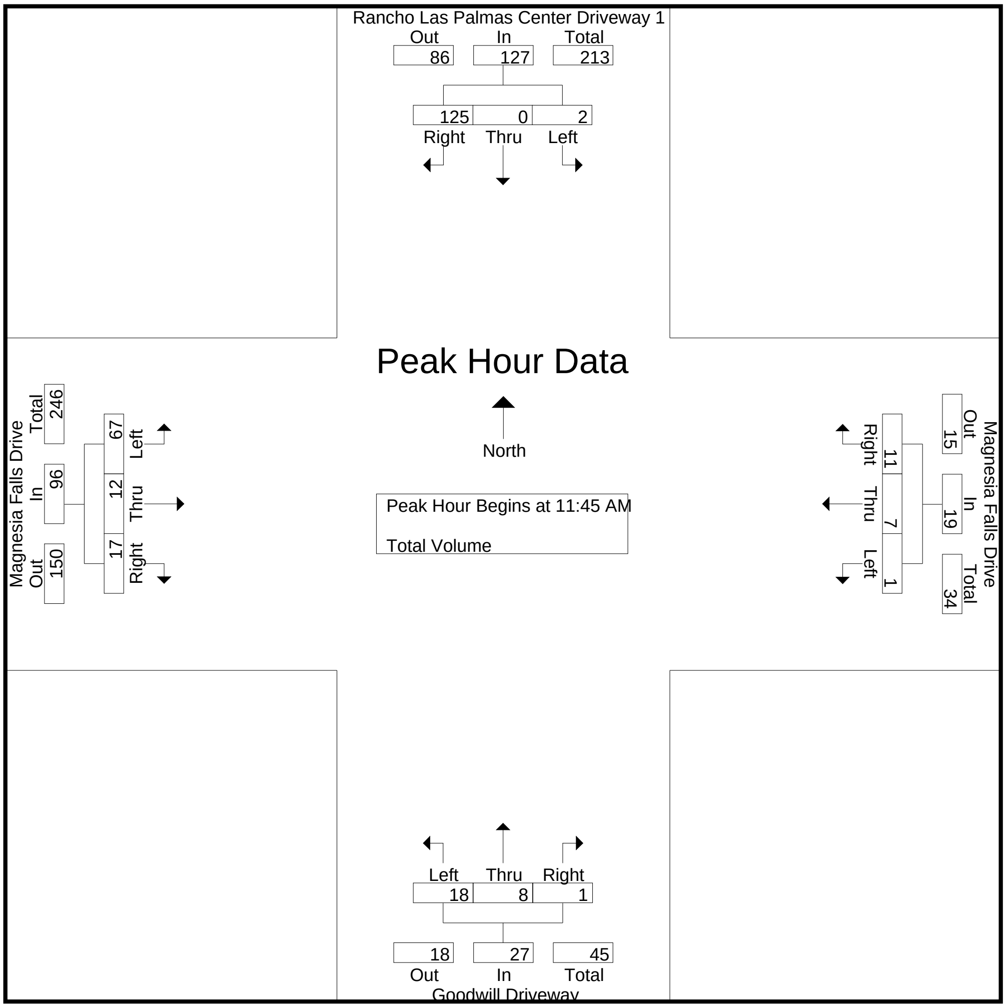
	Rancho Las Palmas Center Driveway 1 Southbound				Magnesia Falls Drive Westbound				Goodwill Driveway Northbound				Magnesia Falls Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	0	0	29	29	2	2	2	6	6	1	0	7	15	1	5	21	63
11:45 AM	0	0	31	31	0	6	3	9	6	1	1	8	20	4	0	24	72
Total	0	0	60	60	2	8	5	15	12	2	1	15	35	5	5	45	135
12:00 PM	1	0	32	33	0	0	3	3	3	2	0	5	19	3	7	29	70
12:15 PM	1	0	34	35	0	1	3	4	4	3	0	7	10	3	4	17	63
12:30 PM	0	0	28	28	1	0	2	3	5	2	0	7	18	2	6	26	64
12:45 PM	0	0	35	35	0	0	3	3	5	2	1	8	15	2	9	26	72
Total	2	0	129	131	1	1	11	13	17	9	1	27	62	10	26	98	269
01:00 PM	0	0	30	30	0	1	3	4	5	2	0	7	11	2	2	15	56
01:15 PM	0	0	21	21	0	2	0	2	3	2	0	5	14	3	4	21	49
01:30 PM	0	0	20	20	0	3	1	4	7	3	0	10	14	1	8	23	57
01:45 PM	0	0	39	39	0	2	1	3	7	0	0	7	11	5	8	24	73
Total	0	0	110	110	0	8	5	13	22	7	0	29	50	11	22	83	235
02:00 PM	1	0	33	34	0	0	2	2	6	1	0	7	8	3	8	19	62
02:15 PM	0	0	30	30	1	1	2	4	7	5	0	12	12	1	10	23	69
Grand Total	3	0	362	365	4	18	25	47	64	24	2	90	167	30	71	268	770
Apprch %	0.8	0	99.2		8.5	38.3	53.2		71.1	26.7	2.2		62.3	11.2	26.5		
Total %	0.4	0	47	47.4	0.5	2.3	3.2	6.1	8.3	3.1	0.3	11.7	21.7	3.9	9.2	34.8	

	Rancho Las Palmas Center Driveway 1 Southbound				Magnesia Falls Drive Westbound				Goodwill Driveway Northbound				Magnesia Falls Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	0	31	31	0	**6**	**3**	**9**	**6**	1	**1**	**8**	**20**	**4**	0	24	**72**
12:00 PM	**1**	0	32	33	0	0	3	3	3	2	0	5	19	3	**7**	**29**	70
12:15 PM	1	0	**34**	**35**	0	1	3	4	4	**3**	0	7	10	3	4	17	63
12:30 PM	0	0	28	28	**1**	0	2	3	5	2	0	7	18	2	6	26	64
Total Volume	2	0	125	127	1	7	11	19	18	8	1	27	67	12	17	96	269
% App. Total	1.6	0	98.4		5.3	36.8	57.9		66.7	29.6	3.7		69.8	12.5	17.7		
PHF	.500	.000	.919	.907	.250	.292	.917	.528	.750	.667	.250	.844	.838	.750	.607	.828	.934

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Rancho Las Palmas Center Driveway 1
E/W: Magnesia Falls Drive
Weather: Clear

File Name : 04_RNM_DW1_Mag Falls SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 2



Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:00 PM				11:30 AM				01:30 PM				12:00 PM			
+0 mins.	**1**	0	32	33	**2**	2	2	6	**7**	3	0	10	**19**	**3**	7	**29**
+15 mins.	1	0	34	**35**	0	**6**	**3**	**9**	7	0	0	7	10	3	4	17
+30 mins.	0	0	28	28	0	0	3	3	6	1	0	7	18	2	6	26
+45 mins.	0	0	**35**	35	0	1	3	4	7	**5**	0	**12**	15	2	**9**	26
Total Volume	2	0	129	131	2	9	11	22	27	9	0	36	62	10	26	98
% App. Total	1.5	0	98.5		9.1	40.9	50		75	25	0		63.3	10.2	26.5	
PHF	.500	.000	.921	.936	.250	.375	.917	.611	.964	.450	.000	.750	.816	.833	.722	.845

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Rancho Las Palmas Center Driveway 1
E/W: Magnesia Falls Drive
Weather: Clear

File Name : 04_RNM_DW1_Mag Falls Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 1

Groups Printed- Total Volume

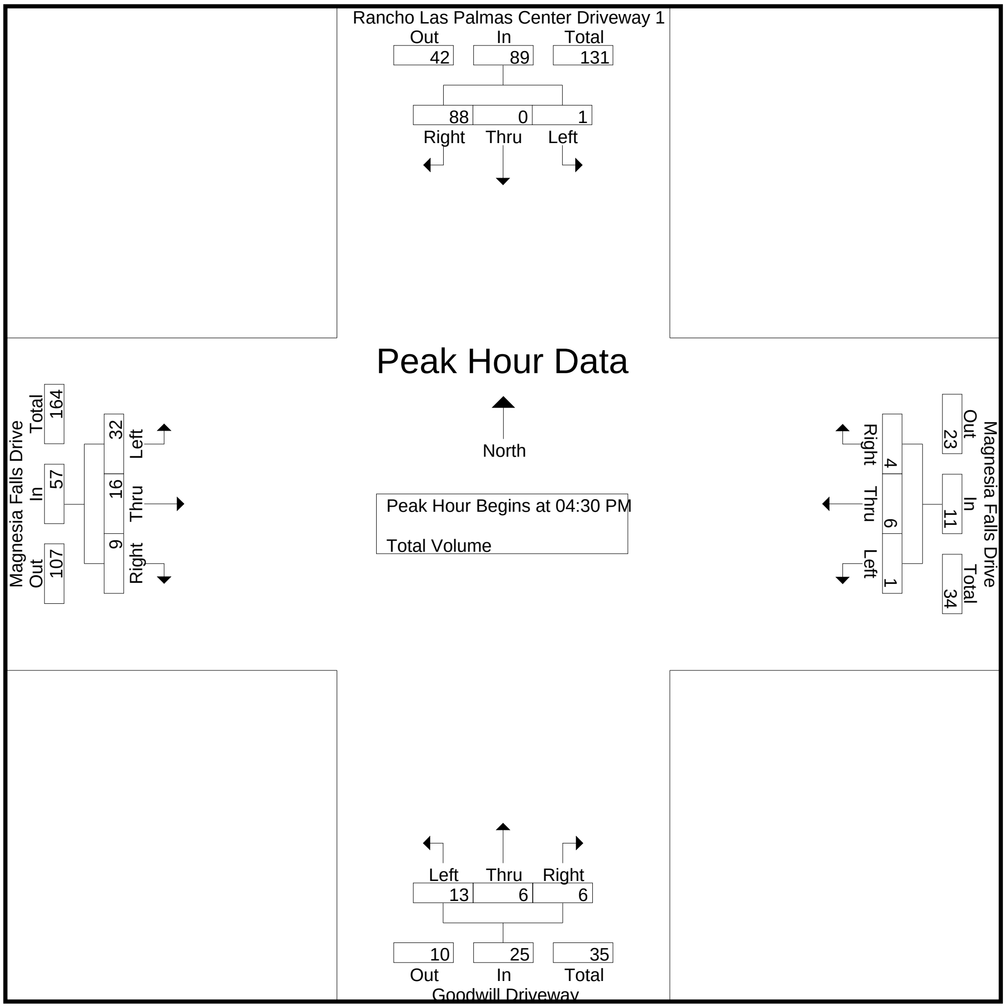
	Rancho Las Palmas Center Driveway 1 Southbound				Magnesia Falls Drive Westbound				Goodwill Driveway Northbound				Magnesia Falls Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	1	15	17	0	3	1	4	3	3	0	6	9	1	1	11	38
04:15 PM	0	0	16	16	0	0	1	1	5	1	0	6	8	0	4	12	35
04:30 PM	0	0	22	22	0	3	0	3	3	4	2	9	11	1	5	17	51
04:45 PM	0	0	15	15	1	2	2	5	4	1	0	5	3	3	2	8	33
Total	1	1	68	70	1	8	4	13	15	9	2	26	31	5	12	48	157
05:00 PM	1	0	28	29	0	1	2	3	3	0	3	6	9	8	0	17	55
05:15 PM	0	0	23	23	0	0	0	0	3	1	1	5	9	4	2	15	43
05:30 PM	0	0	23	23	0	1	1	2	2	0	0	2	6	1	4	11	38
05:45 PM	0	0	11	11	0	1	1	2	1	0	0	1	7	2	2	11	25
Total	1	0	85	86	0	3	4	7	9	1	4	14	31	15	8	54	161
Grand Total	2	1	153	156	1	11	8	20	24	10	6	40	62	20	20	102	318
Apprch %	1.3	0.6	98.1		5	55	40		60	25	15		60.8	19.6	19.6		
Total %	0.6	0.3	48.1	49.1	0.3	3.5	2.5	6.3	7.5	3.1	1.9	12.6	19.5	6.3	6.3	32.1	

	Rancho Las Palmas Center Driveway 1 Southbound				Magnesia Falls Drive Westbound				Goodwill Driveway Northbound				Magnesia Falls Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	22	22	0	**3**	0	3	3	**4**	2	**9**	**11**	1	**5**	**17**	51
04:45 PM	0	0	15	15	**1**	2	**2**	**5**	**4**	1	0	5	3	3	2	8	33
05:00 PM	**1**	0	**28**	**29**	0	1	2	3	3	0	**3**	6	9	**8**	0	17	**55**
05:15 PM	0	0	23	23	0	0	0	0	3	1	1	5	9	4	2	15	43
Total Volume	1	0	88	89	1	6	4	11	13	6	6	25	32	16	9	57	182
% App. Total	1.1	0	98.9		9.1	54.5	36.4		52	24	24		56.1	28.1	15.8		
PHF	.250	.000	.786	.767	.250	.500	.500	.550	.813	.375	.500	.694	.727	.500	.450	.838	.827

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Rancho Las Palmas Center Driveway 1
E/W: Magnesia Falls Drive
Weather: Clear

File Name : 04_RNM_DW1_Mag Falls Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:00 PM				04:00 PM				04:30 PM			
+0 mins.	0	0	15	15	0	**3**	1	4	3	3	0	6	**11**	1	**5**	**17**
+15 mins.	**1**	0	**28**	**29**	0	0	1	1	**5**	1	0	6	3	3	2	8
+30 mins.	0	0	23	23	0	3	0	3	3	**4**	**2**	**9**	9	**8**	0	17
+45 mins.	0	0	23	23	**1**	2	**2**	**5**	4	1	0	5	9	4	2	15
Total Volume	1	0	89	90	1	8	4	13	15	9	2	26	32	16	9	57
% App. Total	1.1	0	98.9		7.7	61.5	30.8		57.7	34.6	7.7		56.1	28.1	15.8	
PHF	.250	.000	.795	.776	.250	.667	.500	.650	.750	.563	.250	.722	.727	.500	.450	.838

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Painters Path/Park View Drive
Weather: Clear

File Name : 05_RNM_Hwy 111_Painters SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 1

Groups Printed- Total Volume

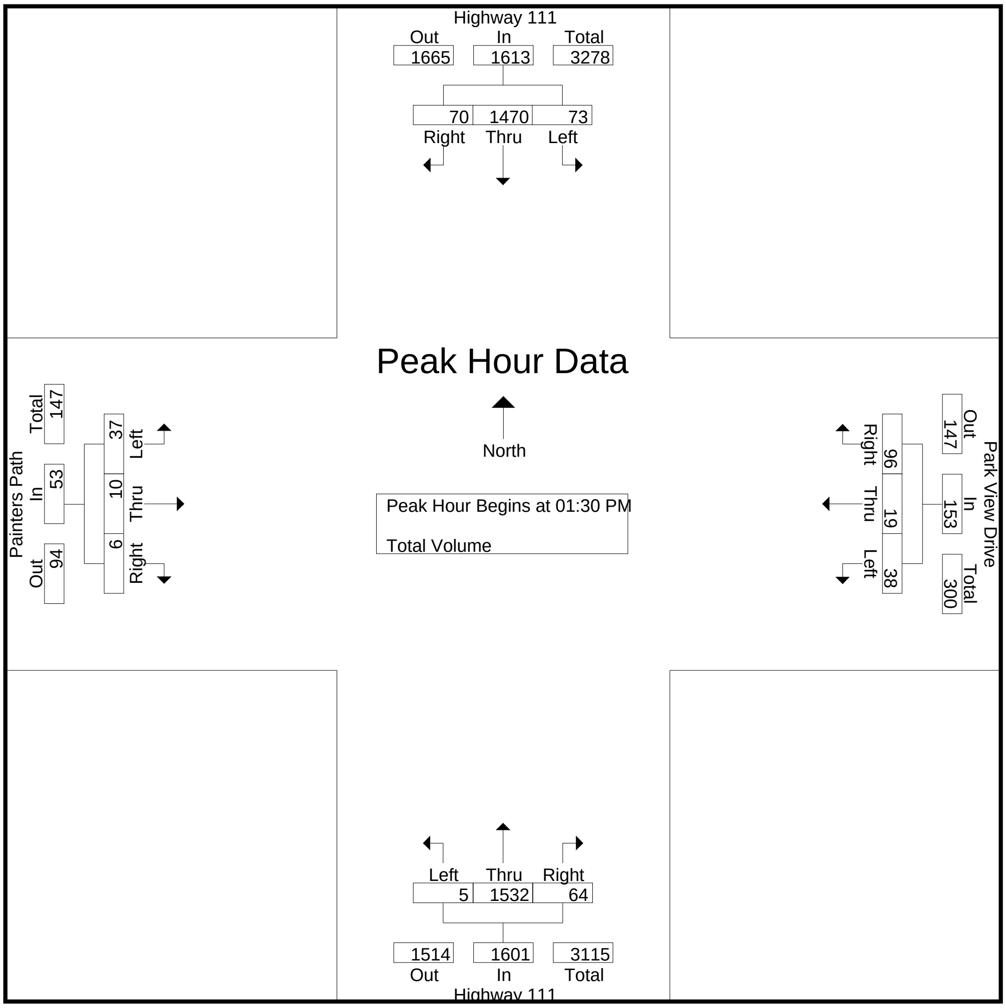
	Highway 111 Southbound				Park View Drive Westbound				Highway 111 Northbound				Painters Path Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	26	357	15	398	13	2	37	52	2	374	18	394	11	4	1	16	860
11:45 AM	17	388	18	423	13	3	31	47	4	317	23	344	4	3	4	11	825
Total	43	745	33	821	26	5	68	99	6	691	41	738	15	7	5	27	1685
12:00 PM	14	328	13	355	7	4	37	48	4	398	18	420	7	4	0	11	834
12:15 PM	26	326	17	369	7	5	22	34	2	351	20	373	18	1	1	20	796
12:30 PM	22	382	17	421	15	2	22	39	2	344	18	364	6	1	1	8	832
12:45 PM	24	337	16	377	9	2	21	32	1	382	13	396	6	4	2	12	817
Total	86	1373	63	1522	38	13	102	153	9	1475	69	1553	37	10	4	51	3279
01:00 PM	26	401	18	445	11	5	29	45	2	327	18	347	8	2	3	13	850
01:15 PM	20	340	17	377	8	3	33	44	1	391	10	402	8	3	1	12	835
01:30 PM	9	363	11	383	9	5	21	35	2	392	15	409	5	2	3	10	837
01:45 PM	19	385	23	427	8	8	20	36	1	386	17	404	12	3	2	17	884
Total	74	1489	69	1632	36	21	103	160	6	1496	60	1562	33	10	9	52	3406
02:00 PM	19	369	15	403	11	3	26	40	1	373	12	386	9	3	1	13	842
02:15 PM	26	353	21	400	10	3	29	42	1	381	20	402	11	2	0	13	857
Grand Total	248	4329	201	4778	121	45	328	494	23	4416	202	4641	105	32	19	156	10069
Apprch %	5.2	90.6	4.2		24.5	9.1	66.4		0.5	95.2	4.4		67.3	20.5	12.2		
Total %	2.5	43	2	47.5	1.2	0.4	3.3	4.9	0.2	43.9	2	46.1	1	0.3	0.2	1.5	

	Highway 111 Southbound				Park View Drive Westbound				Highway 111 Northbound				Painters Path Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:30 PM																	
01:30 PM	9	363	11	383	9	5	21	35	**2**	**392**	15	**409**	5	2	**3**	10	837
01:45 PM	19	**385**	**23**	**427**	8	**8**	20	36	1	386	17	404	**12**	**3**	2	**17**	**884**
02:00 PM	19	369	15	403	**11**	3	26	40	1	373	12	386	9	3	1	13	842
02:15 PM	**26**	353	21	400	10	3	**29**	**42**	1	381	**20**	402	11	2	0	13	857
Total Volume	73	1470	70	1613	38	19	96	153	5	1532	64	1601	37	10	6	53	3420
% App. Total	4.5	91.1	4.3		24.8	12.4	62.7		0.3	95.7	4		69.8	18.9	11.3		
PHF	.702	.955	.761	.944	.864	.594	.828	.911	.625	.977	.800	.979	.771	.833	.500	.779	.967

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Painters Path/Park View Drive
Weather: Clear

File Name : 05_RNM_Hwy 111_Painters SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 2



Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				11:30 AM				01:15 PM				11:30 AM			
+0 mins.	**26**	**401**	18	**445**	**13**	2	**37**	**52**	1	391	10	402	11	**4**	1	16
+15 mins.	20	340	17	377	13	3	31	47	**2**	**392**	15	**409**	4	3	**4**	11
+30 mins.	9	363	11	383	7	4	37	48	1	386	**17**	404	7	4	0	11
+45 mins.	19	385	**23**	427	7	**5**	22	34	1	373	12	386	**18**	1	1	**20**
Total Volume	74	1489	69	1632	40	14	127	181	5	1542	54	1601	40	12	6	58
% App. Total	4.5	91.2	4.2		22.1	7.7	70.2		0.3	96.3	3.4		69	20.7	10.3	
PHF	.712	.928	.750	.917	.769	.700	.858	.870	.625	.983	.794	.979	.556	.750	.375	.725

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Painters Path/Park View Drive
Weather: Clear

File Name : 05_RNM_Hwy 111_Painters Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 1

Groups Printed- Total Volume

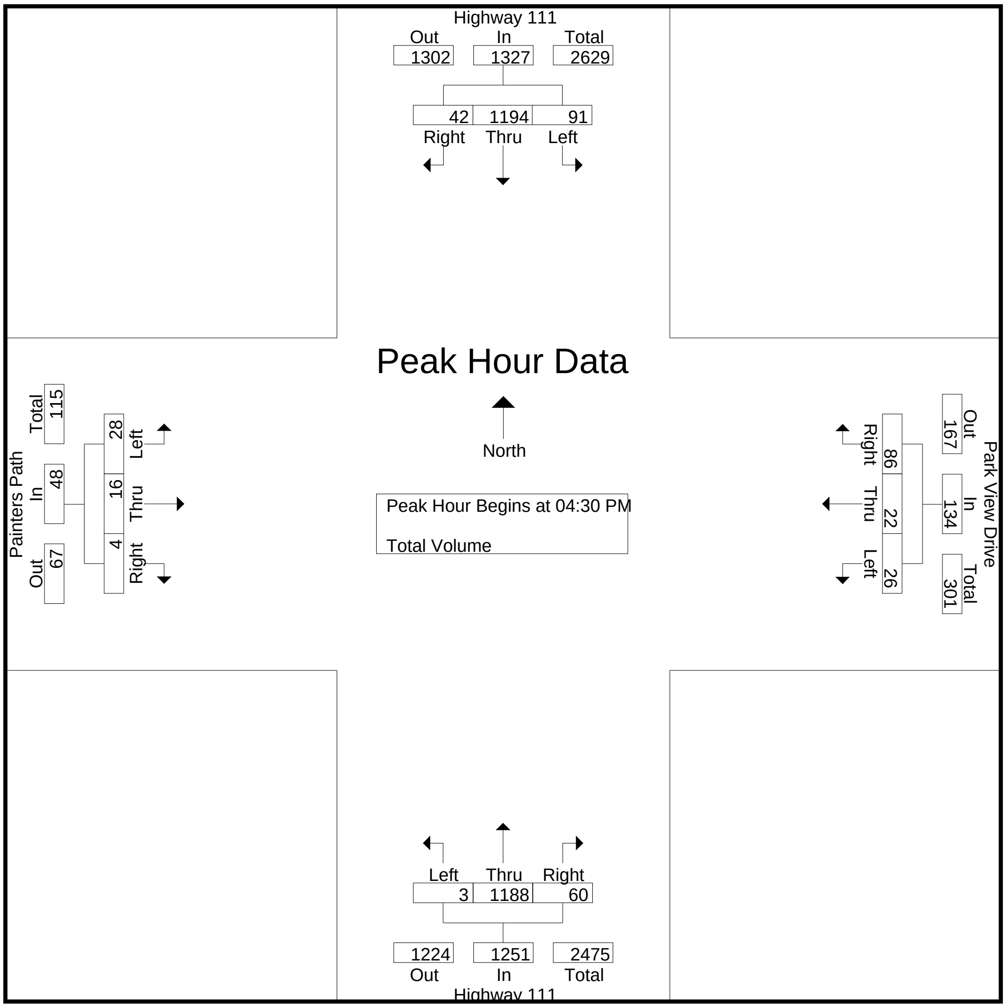
	Highway 111 Southbound				Park View Drive Westbound				Highway 111 Northbound				Painters Path Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	25	283	12	320	7	3	22	32	0	303	14	317	5	1	1	7	676
04:15 PM	17	345	8	370	9	3	12	24	0	268	15	283	4	3	0	7	684
04:30 PM	20	261	16	297	10	5	17	32	1	322	11	334	7	8	0	15	678
04:45 PM	26	294	8	328	8	7	32	47	0	292	13	305	5	1	2	8	688
Total	88	1183	44	1315	34	18	83	135	1	1185	53	1239	21	13	3	37	2726
05:00 PM	24	323	11	358	6	4	18	28	1	283	24	308	7	3	2	12	706
05:15 PM	21	316	7	344	2	6	19	27	1	291	12	304	9	4	0	13	688
05:30 PM	19	263	8	290	10	2	16	28	0	233	6	239	3	2	1	6	563
05:45 PM	8	215	8	231	4	3	13	20	1	232	10	243	8	2	0	10	504
Total	72	1117	34	1223	22	15	66	103	3	1039	52	1094	27	11	3	41	2461
Grand Total	160	2300	78	2538	56	33	149	238	4	2224	105	2333	48	24	6	78	5187
Apprch %	6.3	90.6	3.1		23.5	13.9	62.6		0.2	95.3	4.5		61.5	30.8	7.7		
Total %	3.1	44.3	1.5	48.9	1.1	0.6	2.9	4.6	0.1	42.9	2	45	0.9	0.5	0.1	1.5	

	Highway 111 Southbound				Park View Drive Westbound				Highway 111 Northbound				Painters Path Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	20	261	**16**	297	**10**	5	17	32	**1**	**322**	11	**334**	7	**8**	0	**15**	678
04:45 PM	**26**	294	8	328	8	**7**	**32**	**47**	0	292	13	305	5	1	**2**	8	688
05:00 PM	24	**323**	11	**358**	6	4	18	28	1	283	**24**	308	7	3	2	12	**706**
05:15 PM	21	316	7	344	2	6	19	27	1	291	12	304	**9**	4	0	13	688
Total Volume	91	1194	42	1327	26	22	86	134	3	1188	60	1251	28	16	4	48	2760
% App. Total	6.9	90	3.2		19.4	16.4	64.2		0.2	95	4.8		58.3	33.3	8.3		
PHF	.875	.924	.656	.927	.650	.786	.672	.713	.750	.922	.625	.936	.778	.500	.500	.800	.977

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Painters Path/Park View Drive
Weather: Clear

File Name : 05_RNM_Hwy 111_Painters Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:00 PM				04:30 PM				04:30 PM			
+0 mins.	17	**345**	8	**370**	7	3	22	32	**1**	**322**	11	**334**	7	**8**	0	**15**
+15 mins.	20	261	**16**	297	9	3	12	24	0	292	13	305	5	1	**2**	8
+30 mins.	**26**	294	8	328	**10**	5	17	32	1	283	**24**	308	7	3	2	12
+45 mins.	24	323	11	358	8	**7**	**32**	**47**	1	291	12	304	**9**	4	0	13
Total Volume	87	1223	43	1353	34	18	83	135	3	1188	60	1251	28	16	4	48
% App. Total	6.4	90.4	3.2		25.2	13.3	61.5		0.2	95	4.8		58.3	33.3	8.3	
PHF	.837	.886	.672	.914	.850	.643	.648	.718	.750	.922	.625	.936	.778	.500	.500	.800

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Fred Waring Drive
Weather: Clear

File Name : 06_RNM_Hwy 111_Fred SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 1

Groups Printed- Total Volume

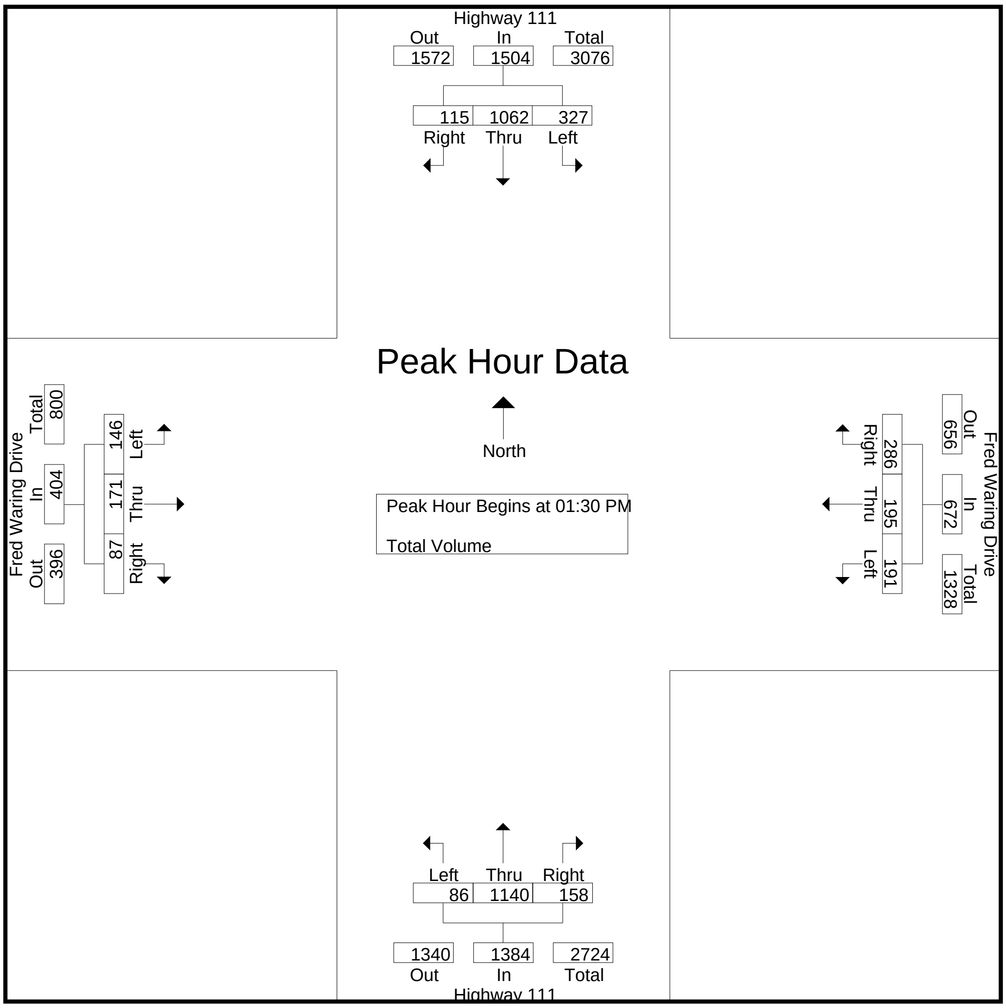
	Highway 111 Southbound				Fred Waring Drive Westbound				Highway 111 Northbound				Fred Waring Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	80	280	31	391	39	52	111	202	16	262	31	309	21	32	25	78	980
11:45 AM	66	274	35	375	59	57	74	190	21	226	43	290	26	29	23	78	933
Total	146	554	66	766	98	109	185	392	37	488	74	599	47	61	48	156	1913
12:00 PM	60	257	33	350	41	39	82	162	18	311	37	366	26	41	16	83	961
12:15 PM	70	209	31	310	43	46	78	167	23	269	37	329	29	44	20	93	899
12:30 PM	78	308	35	421	31	60	81	172	21	274	35	330	14	41	21	76	999
12:45 PM	65	257	38	360	53	49	64	166	18	282	34	334	41	35	17	93	953
Total	273	1031	137	1441	168	194	305	667	80	1136	143	1359	110	161	74	345	3812
01:00 PM	75	297	31	403	43	43	80	166	13	250	41	304	29	39	29	97	970
01:15 PM	68	226	28	322	59	37	71	167	18	281	37	336	31	41	25	97	922
01:30 PM	88	267	37	392	49	49	80	178	12	307	42	361	37	44	24	105	1036
01:45 PM	84	284	22	390	54	52	58	164	21	271	31	323	50	42	17	109	986
Total	315	1074	118	1507	205	181	289	675	64	1109	151	1324	147	166	95	408	3914
02:00 PM	73	271	31	375	42	44	78	164	28	284	44	356	31	50	20	101	996
02:15 PM	82	240	25	347	46	50	70	166	25	278	41	344	28	35	26	89	946
Grand Total	889	3170	377	4436	559	578	927	2064	234	3295	453	3982	363	473	263	1099	11581
Apprch %	20	71.5	8.5		27.1	28	44.9		5.9	82.7	11.4		33	43	23.9		
Total %	7.7	27.4	3.3	38.3	4.8	5	8	17.8	2	28.5	3.9	34.4	3.1	4.1	2.3	9.5	

	Highway 111 Southbound				Fred Waring Drive Westbound				Highway 111 Northbound				Fred Waring Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:30 PM																	
01:30 PM	**88**	267	**37**	**392**	49	49	**80**	**178**	12	**307**	42	**361**	37	44	24	105	**1036**
01:45 PM	84	**284**	22	390	**54**	**52**	58	164	21	271	31	323	**50**	42	17	**109**	986
02:00 PM	73	271	31	375	42	44	78	164	**28**	284	**44**	356	31	**50**	20	101	996
02:15 PM	82	240	25	347	46	50	70	166	25	278	41	344	28	35	**26**	89	946
Total Volume	327	1062	115	1504	191	195	286	672	86	1140	158	1384	146	171	87	404	3964
% App. Total	21.7	70.6	7.6		28.4	29	42.6		6.2	82.4	11.4		36.1	42.3	21.5		
PHF	.929	.935	.777	.959	.884	.938	.894	.944	.768	.928	.898	.958	.730	.855	.837	.927	.957

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Fred Waring Drive
Weather: Clear

File Name : 06_RNM_Hwy 111_Fred SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 2



Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM				11:30 AM				01:30 PM				01:15 PM			
+0 mins.	75	**297**	31	**403**	39	52	**111**	**202**	12	**307**	42	**361**	31	41	**25**	97
+15 mins.	68	226	28	322	**59**	**57**	74	190	21	271	31	323	37	44	24	105
+30 mins.	**88**	267	**37**	392	41	39	82	162	**28**	284	**44**	356	**50**	42	17	**109**
+45 mins.	84	284	22	390	43	46	78	167	25	278	41	344	31	**50**	20	101
Total Volume	315	1074	118	1507	182	194	345	721	86	1140	158	1384	149	177	86	412
% App. Total	20.9	71.3	7.8		25.2	26.9	47.9		6.2	82.4	11.4		36.2	43	20.9	
PHF	.895	.904	.797	.935	.771	.851	.777	.892	.768	.928	.898	.958	.745	.885	.860	.945

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Fred Waring Drive
Weather: Clear

File Name : 06_RNM_Hwy 111_Fred Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 1

Groups Printed- Total Volume

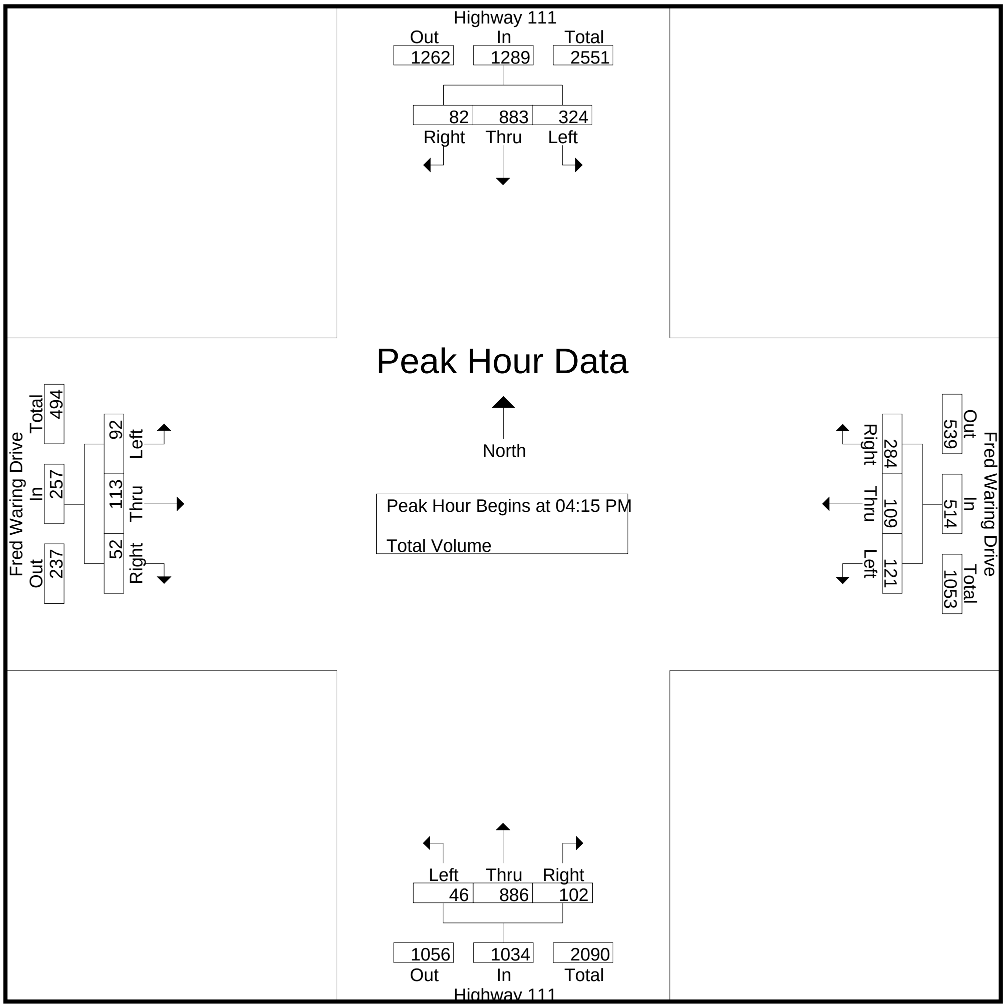
	Highway 111 Southbound				Fred Waring Drive Westbound				Highway 111 Northbound				Fred Waring Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	64	179	18	261	23	27	57	107	8	235	29	272	20	36	5	61	701
04:15 PM	104	256	21	381	31	21	60	112	16	229	25	270	18	21	12	51	814
04:30 PM	52	197	18	267	30	30	65	125	10	233	26	269	27	31	11	69	730
04:45 PM	84	210	22	316	27	34	80	141	11	207	22	240	29	25	16	70	767
Total	304	842	79	1225	111	112	262	485	45	904	102	1051	94	113	44	251	3012
05:00 PM	84	220	21	325	33	24	79	136	9	217	29	255	18	36	13	67	783
05:15 PM	101	209	23	333	29	34	56	119	11	217	20	248	21	22	7	50	750
05:30 PM	73	180	23	276	30	20	44	94	10	187	28	225	17	32	9	58	653
05:45 PM	58	147	15	220	13	19	49	81	7	185	22	214	15	30	12	57	572
Total	316	756	82	1154	105	97	228	430	37	806	99	942	71	120	41	232	2758
Grand Total	620	1598	161	2379	216	209	490	915	82	1710	201	1993	165	233	85	483	5770
Apprch %	26.1	67.2	6.8		23.6	22.8	53.6		4.1	85.8	10.1		34.2	48.2	17.6		
Total %	10.7	27.7	2.8	41.2	3.7	3.6	8.5	15.9	1.4	29.6	3.5	34.5	2.9	4	1.5	8.4	

	Highway 111 Southbound				Fred Waring Drive Westbound				Highway 111 Northbound				Fred Waring Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**104**	**256**	21	**381**	31	21	60	112	**16**	229	25	**270**	18	21	12	51	**814**
04:30 PM	52	197	18	267	30	30	65	125	10	**233**	26	269	27	31	11	69	730
04:45 PM	84	210	**22**	316	27	**34**	**80**	**141**	11	207	22	240	**29**	25	**16**	**70**	767
05:00 PM	84	220	21	325	**33**	24	79	136	9	217	**29**	255	18	**36**	13	67	783
Total Volume	324	883	82	1289	121	109	284	514	46	886	102	1034	92	113	52	257	3094
% App. Total	25.1	68.5	6.4		23.5	21.2	55.3		4.4	85.7	9.9		35.8	44	20.2		
PHF	.779	.862	.932	.846	.917	.801	.888	.911	.719	.951	.879	.957	.793	.785	.813	.918	.950

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Fred Waring Drive
Weather: Clear

File Name : 06_RNM_Hwy 111_Fred Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:30 PM				04:00 PM				04:15 PM			
+0 mins.	**104**	**256**	21	**381**	30	30	65	125	8	**235**	**29**	**272**	18	21	12	51
+15 mins.	52	197	18	267	27	**34**	**80**	**141**	**16**	229	25	270	27	31	11	69
+30 mins.	84	210	**22**	316	**33**	24	79	136	10	233	26	269	**29**	25	**16**	**70**
+45 mins.	84	220	21	325	29	34	56	119	11	207	22	240	18	**36**	13	67
Total Volume	324	883	82	1289	119	122	280	521	45	904	102	1051	92	113	52	257
% App. Total	25.1	68.5	6.4		22.8	23.4	53.7		4.3	86	9.7		35.8	44	20.2	
PHF	.779	.862	.932	.846	.902	.897	.875	.924	.703	.962	.879	.966	.793	.785	.813	.918

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Bob Hope Drive
E/W: Rancho Las Palmas Drive
Weather: Clear

File Name : 07_RNM_Bob_RLP SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 1

Groups Printed- Total Volume

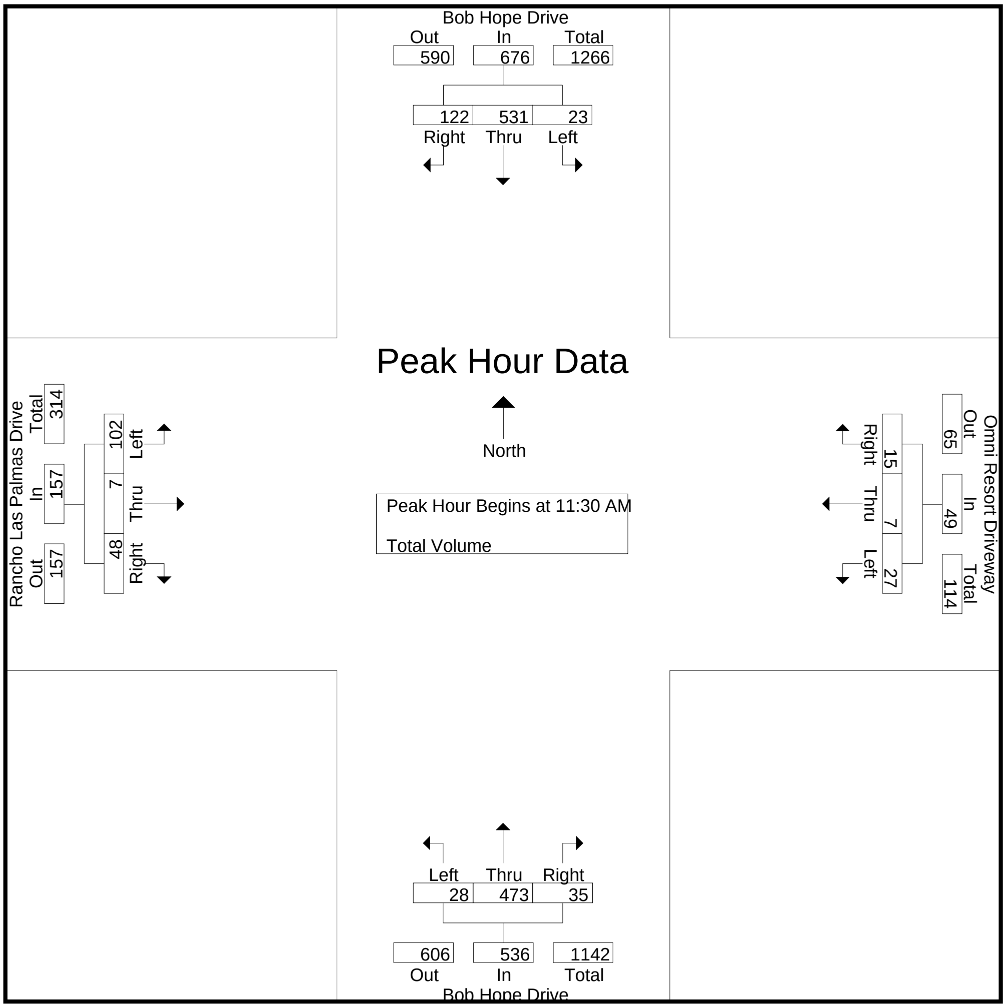
	Bob Hope Drive Southbound				Omni Resort Driveway Westbound				Bob Hope Drive Northbound				Rancho Las Palmas Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	8	150	36	194	5	2	5	12	2	117	10	129	18	1	13	32	367
11:45 AM	6	120	43	169	7	2	3	12	7	110	10	127	36	2	12	50	358
Total	14	270	79	363	12	4	8	24	9	227	20	256	54	3	25	82	725
12:00 PM	7	128	16	151	12	3	1	16	11	138	10	159	24	4	16	44	370
12:15 PM	2	133	27	162	3	0	6	9	8	108	5	121	24	0	7	31	323
12:30 PM	7	128	35	170	6	1	3	10	6	110	7	123	18	1	9	28	331
12:45 PM	2	127	24	153	10	2	4	16	7	125	9	141	28	4	11	43	353
Total	18	516	102	636	31	6	14	51	32	481	31	544	94	9	43	146	1377
01:00 PM	5	126	22	153	3	1	2	6	5	136	3	144	23	2	10	35	338
01:15 PM	5	107	18	130	4	0	2	6	6	114	7	127	42	2	6	50	313
01:30 PM	10	133	28	171	6	1	6	13	12	116	7	135	27	3	6	36	355
01:45 PM	11	101	28	140	5	3	5	13	6	105	12	123	33	3	9	45	321
Total	31	467	96	594	18	5	15	38	29	471	29	529	125	10	31	166	1327
02:00 PM	5	120	26	151	2	1	6	9	6	137	5	148	20	1	8	29	337
02:15 PM	9	124	28	161	3	3	3	9	5	133	3	141	26	3	8	37	348
Grand Total	77	1497	331	1905	66	19	46	131	81	1449	88	1618	319	26	115	460	4114
Apprch %	4	78.6	17.4		50.4	14.5	35.1		5	89.6	5.4		69.3	5.7	25		
Total %	1.9	36.4	8	46.3	1.6	0.5	1.1	3.2	2	35.2	2.1	39.3	7.8	0.6	2.8	11.2	

	Bob Hope Drive Southbound				Omni Resort Driveway Westbound				Bob Hope Drive Northbound				Rancho Las Palmas Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:30 AM																	
11:30 AM	**8**	**150**	36	**194**	5	2	5	12	2	117	**10**	129	18	1	13	32	367
11:45 AM	6	120	**43**	169	7	2	3	12	7	110	10	127	**36**	2	12	**50**	358
12:00 PM	7	128	16	151	**12**	**3**	1	**16**	**11**	**138**	10	**159**	24	**4**	**16**	44	**370**
12:15 PM	2	133	27	162	3	0	**6**	9	8	108	5	121	24	0	7	31	323
Total Volume	23	531	122	676	27	7	15	49	28	473	35	536	102	7	48	157	1418
% App. Total	3.4	78.6	18		55.1	14.3	30.6		5.2	88.2	6.5		65	4.5	30.6		
PHF	.719	.885	.709	.871	.563	.583	.625	.766	.636	.857	.875	.843	.708	.438	.750	.785	.958

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Bob Hope Drive
E/W: Rancho Las Palmas Drive
Weather: Clear

File Name : 07_RNM_Bob_RLP SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 2



Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:30 AM				12:00 PM				12:45 PM				01:00 PM			
+0 mins.	**8**	**150**	36	**194**	**12**	**3**	1	**16**	7	125	**9**	141	23	2	**10**	35
+15 mins.	6	120	**43**	169	3	0	**6**	9	5	**136**	3	**144**	**42**	2	6	**50**
+30 mins.	7	128	16	151	6	1	3	10	6	114	7	127	27	**3**	6	36
+45 mins.	2	133	27	162	10	2	4	16	**12**	116	7	135	33	3	9	45
Total Volume	23	531	122	676	31	6	14	51	30	491	26	547	125	10	31	166
% App. Total	3.4	78.6	18		60.8	11.8	27.5		5.5	89.8	4.8		75.3	6	18.7	
PHF	.719	.885	.709	.871	.646	.500	.583	.797	.625	.903	.722	.950	.744	.833	.775	.830

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Bob Hope Drive
E/W: Rancho Las Palmas Drive
Weather: Clear

File Name : 07_RNM_Bob_RLP Tue
Site Code : 05720178
Start Date : 3/17/2020
Page No : 1

Groups Printed- Total Volume

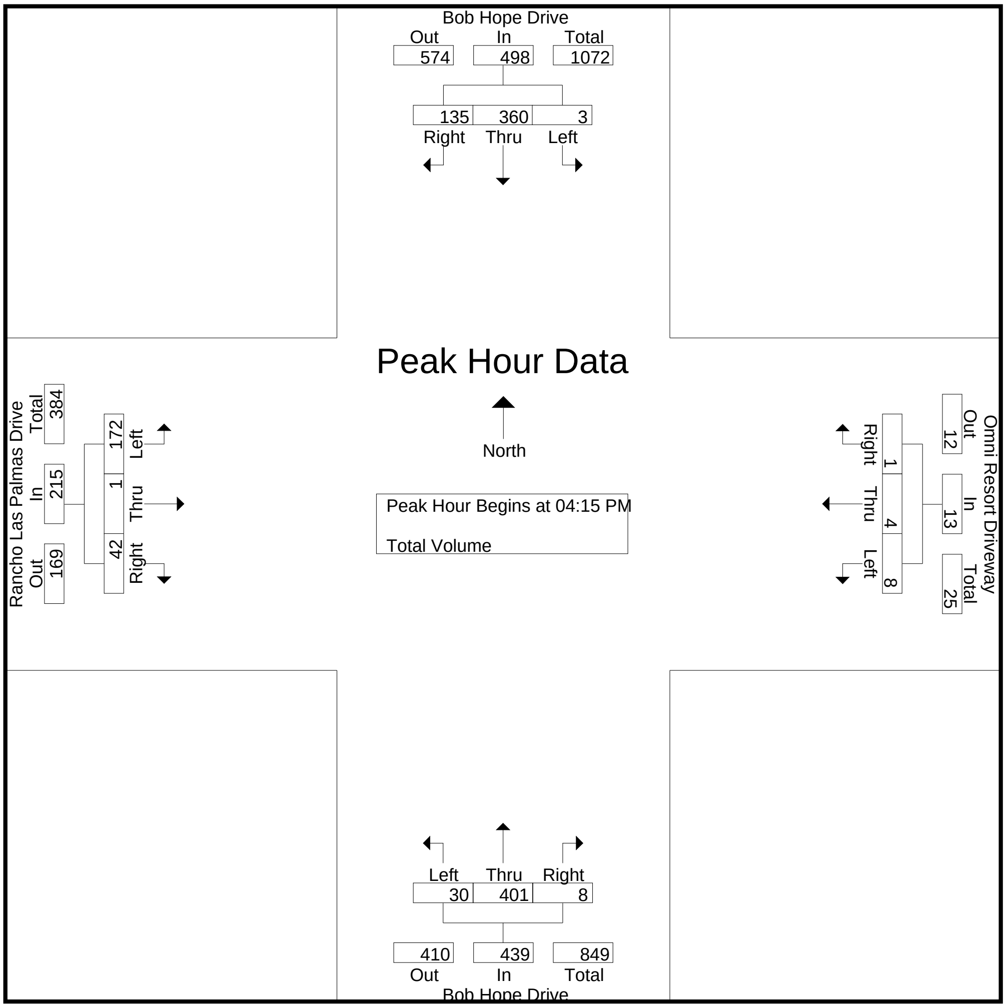
	Bob Hope Drive Southbound				Omni Resort Driveway Westbound				Bob Hope Drive Northbound				Rancho Las Palmas Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	112	22	134	6	1	0	7	8	91	2	101	45	0	3	48	290
04:15 PM	0	102	36	138	1	0	0	1	7	82	3	92	34	0	8	42	273
04:30 PM	1	79	33	113	4	1	0	5	7	106	2	115	49	0	9	58	291
04:45 PM	1	90	30	121	2	2	1	5	10	97	2	109	40	0	12	52	287
Total	2	383	121	506	13	4	1	18	32	376	9	417	168	0	32	200	1141
05:00 PM	1	89	36	126	1	1	0	2	6	116	1	123	49	1	13	63	314
05:15 PM	1	88	18	107	2	0	0	2	6	101	2	109	31	1	17	49	267
05:30 PM	1	73	22	96	3	0	0	3	3	73	2	78	27	1	4	32	209
05:45 PM	3	61	21	85	1	0	0	1	4	78	1	83	27	0	2	29	198
Total	6	311	97	414	7	1	0	8	19	368	6	393	134	3	36	173	988
Grand Total	8	694	218	920	20	5	1	26	51	744	15	810	302	3	68	373	2129
Apprch %	0.9	75.4	23.7		76.9	19.2	3.8		6.3	91.9	1.9		81	0.8	18.2		
Total %	0.4	32.6	10.2	43.2	0.9	0.2	0	1.2	2.4	34.9	0.7	38	14.2	0.1	3.2	17.5	

	Bob Hope Drive Southbound				Omni Resort Driveway Westbound				Bob Hope Drive Northbound				Rancho Las Palmas Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	**102**	**36**	**138**	1	0	0	1	7	82	**3**	92	34	0	8	42	273
04:30 PM	**1**	79	33	113	**4**	1	0	**5**	7	106	2	115	**49**	0	9	58	291
04:45 PM	1	90	30	121	2	**2**	**1**	5	**10**	97	2	109	40	0	12	52	287
05:00 PM	1	89	36	126	1	1	0	2	6	**116**	1	**123**	49	**1**	**13**	**63**	**314**
Total Volume	3	360	135	498	8	4	1	13	30	401	8	439	172	1	42	215	1165
% App. Total	0.6	72.3	27.1		61.5	30.8	7.7		6.8	91.3	1.8		80	0.5	19.5		
PHF	.750	.882	.938	.902	.500	.500	.250	.650	.750	.864	.667	.892	.878	.250	.808	.853	.928

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Bob Hope Drive
E/W: Rancho Las Palmas Drive
Weather: Clear

File Name : 07_RNM_Bob_RLP Tue
Site Code : 05720178
Start Date : 3/17/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:30 PM				04:30 PM			
+0 mins.	0	**112**	22	134	**6**	1	0	**7**	7	106	**2**	115	**49**	0	9	58
+15 mins.	0	102	**36**	**138**	1	0	0	1	**10**	97	2	109	40	0	12	52
+30 mins.	**1**	79	33	113	4	1	0	5	6	**116**	1	**123**	49	**1**	13	**63**
+45 mins.	1	90	30	121	2	**2**	**1**	5	6	101	2	109	31	1	**17**	49
Total Volume	2	383	121	506	13	4	1	18	29	420	7	456	169	2	51	222
% App. Total	0.4	75.7	23.9		72.2	22.2	5.6		6.4	92.1	1.5		76.1	0.9	23	
PHF	.500	.855	.840	.917	.542	.500	.250	.643	.725	.905	.875	.927	.862	.500	.750	.881

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Bob Hope Drive
E/W: Rancho Las Palmas Center Driveway 2
Weather: Clear

File Name : 08_RNM_Bob_DW2 SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 1

Groups Printed- Total Volume

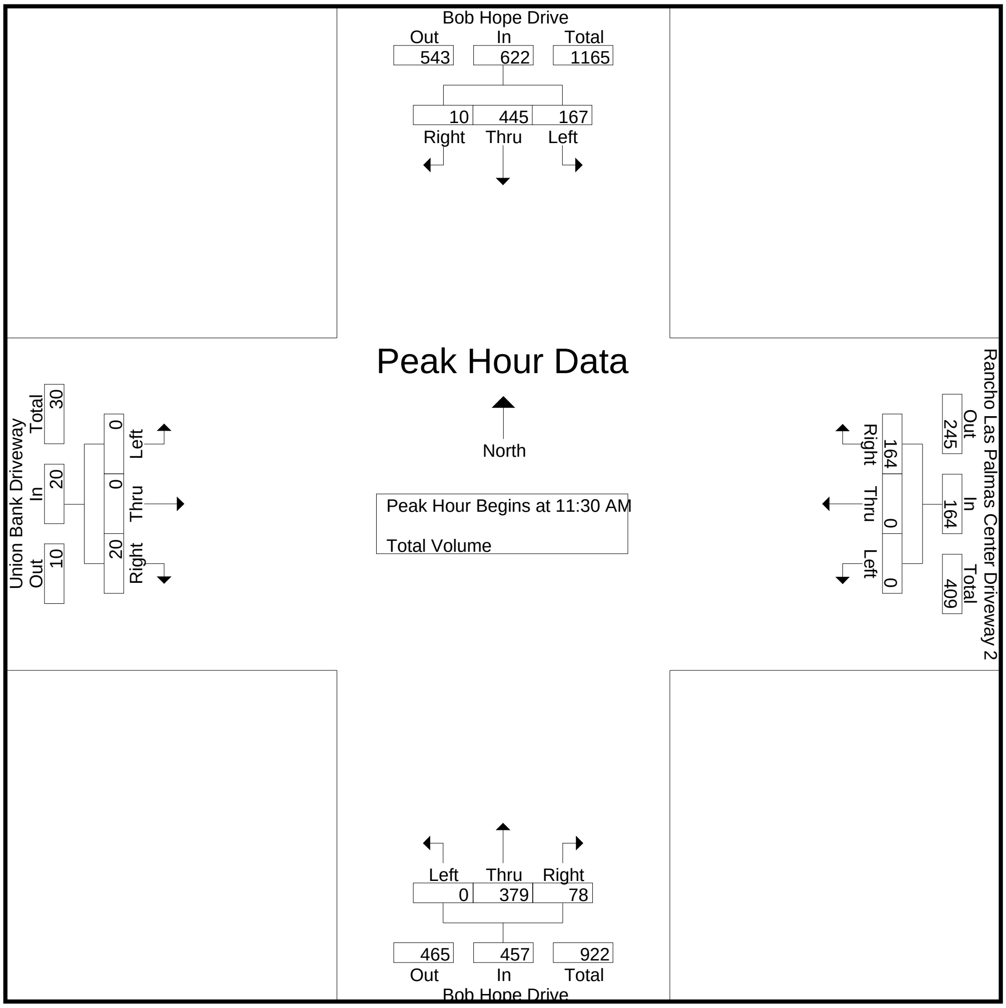
	Bob Hope Drive Southbound				Rancho Las Palmas Center Driveway 2 Westbound				Bob Hope Drive Northbound				Union Bank Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	40	124	4	168	0	0	37	37	0	101	21	122	0	0	4	4	331
11:45 AM	49	110	0	159	0	0	44	44	0	75	19	94	0	0	5	5	302
Total	89	234	4	327	0	0	81	81	0	176	40	216	0	0	9	9	633
12:00 PM	44	111	3	158	0	0	51	51	0	113	14	127	0	0	6	6	342
12:15 PM	34	100	3	137	0	0	32	32	0	90	24	114	0	0	5	5	288
12:30 PM	33	112	2	147	0	0	46	46	0	85	23	108	0	0	3	3	304
12:45 PM	38	109	3	150	0	0	39	39	0	94	20	114	0	0	4	4	307
Total	149	432	11	592	0	0	168	168	0	382	81	463	0	0	18	18	1241
01:00 PM	31	117	1	149	0	0	42	42	0	100	25	125	0	0	5	5	321
01:15 PM	29	109	1	139	0	0	24	24	0	102	17	119	0	0	3	3	285
01:30 PM	28	122	2	152	0	0	43	43	0	93	25	118	0	0	7	7	320
01:45 PM	28	112	1	141	0	0	37	37	0	95	18	113	0	0	3	3	294
Total	116	460	5	581	0	0	146	146	0	390	85	475	0	0	18	18	1220
02:00 PM	37	107	0	144	0	0	34	34	0	110	14	124	0	0	1	1	303
02:15 PM	29	113	4	146	0	0	45	45	0	88	26	114	0	0	3	3	308
Grand Total	420	1346	24	1790	0	0	474	474	0	1146	246	1392	0	0	49	49	3705
Apprch %	23.5	75.2	1.3		0	0	100		0	82.3	17.7		0	0	100		
Total %	11.3	36.3	0.6	48.3	0	0	12.8	12.8	0	30.9	6.6	37.6	0	0	1.3	1.3	

	Bob Hope Drive Southbound				Rancho Las Palmas Center Driveway 2 Westbound				Bob Hope Drive Northbound				Union Bank Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:30 AM																	
11:30 AM	40	**124**	**4**	**168**	0	0	37	37	0	101	21	122	0	0	4	4	331
11:45 AM	**49**	110	0	159	0	0	44	44	0	75	19	94	0	0	5	5	302
12:00 PM	44	111	3	158	0	0	**51**	**51**	0	**113**	14	**127**	0	0	**6**	**6**	**342**
12:15 PM	34	100	3	137	0	0	32	32	0	90	**24**	114	0	0	5	5	288
Total Volume	167	445	10	622	0	0	164	164	0	379	78	457	0	0	20	20	1263
% App. Total	26.8	71.5	1.6		0	0	100		0	82.9	17.1		0	0	100		
PHF	.852	.897	.625	.926	.000	.000	.804	.804	.000	.838	.813	.900	.000	.000	.833	.833	.923

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Bob Hope Drive
E/W: Rancho Las Palmas Center Driveway 2
Weather: Clear

File Name : 08_RNM_Bob_DW2 SAT
Site Code : 05720178
Start Date : 3/14/2020



Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:30 AM				11:45 AM				12:45 PM				11:30 AM			
+0 mins.	40	**124**	**4**	**168**	0	0	44	44	0	94	20	114	0	0	4	4
+15 mins.	**49**	110	0	159	0	0	**51**	**51**	0	100	**25**	**125**	0	0	5	5
+30 mins.	44	111	3	158	0	0	32	32	0	**102**	17	119	0	0	**6**	**6**
+45 mins.	34	100	3	137	0	0	46	46	0	93	25	118	0	0	5	5
Total Volume	167	445	10	622	0	0	173	173	0	389	87	476	0	0	20	20
% App. Total	26.8	71.5	1.6		0	0	100		0	81.7	18.3		0	0	100	
PHF	.852	.897	.625	.926	.000	.000	.848	.848	.000	.953	.870	.952	.000	.000	.833	.833

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Bob Hope Drive
E/W: Rancho Las Palmas Center Driveway 2
Weather: Clear

File Name : 08_RNM_Bob_DW2 Tue
Site Code : 05720178
Start Date : 3/17/2020
Page No : 1

Groups Printed- Total Volume

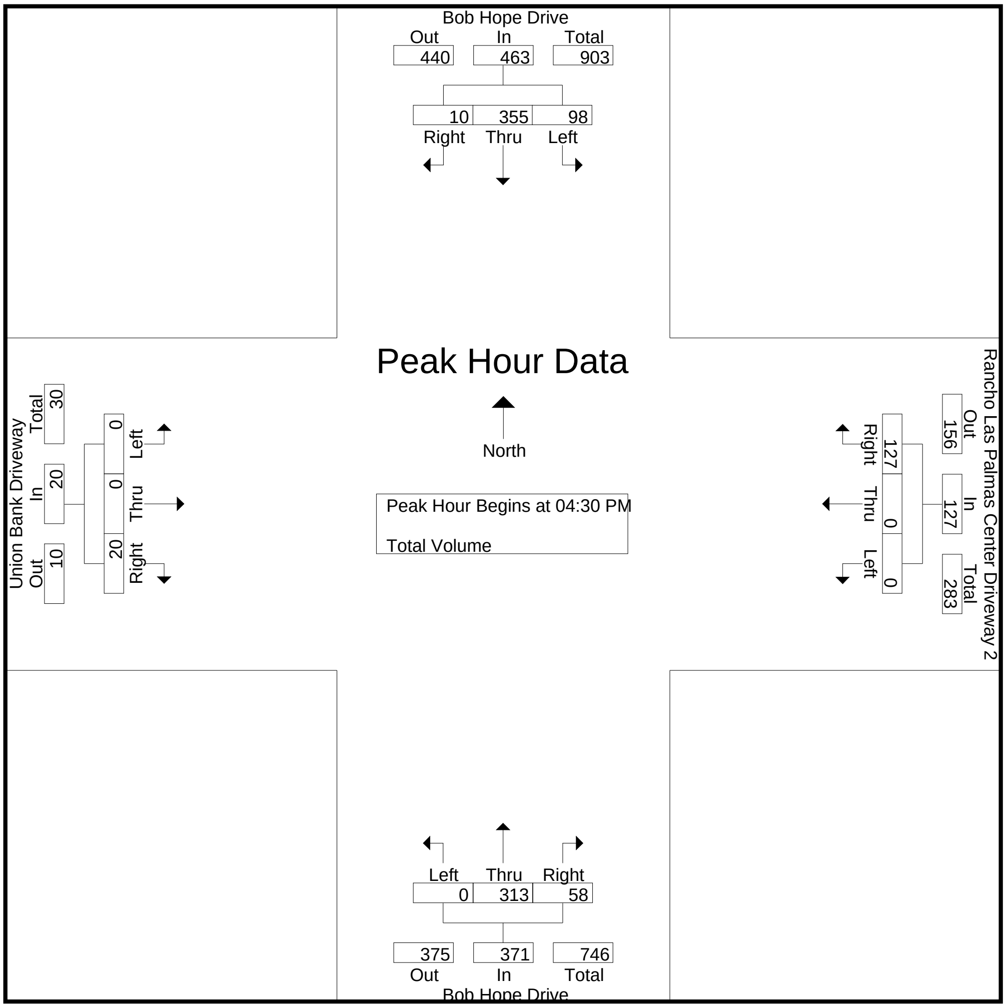
	Bob Hope Drive Southbound				Rancho Las Palmas Center Driveway 2 Westbound				Bob Hope Drive Northbound				Union Bank Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	27	113	3	143	0	0	25	25	0	76	9	85	0	0	7	7	260
04:15 PM	30	92	2	124	0	0	23	23	0	68	9	77	0	0	2	2	226
04:30 PM	23	85	1	109	0	0	30	30	0	94	12	106	0	0	5	5	250
04:45 PM	20	94	4	118	0	0	35	35	0	62	16	78	0	0	5	5	236
Total	100	384	10	494	0	0	113	113	0	300	46	346	0	0	19	19	972
05:00 PM	27	88	4	119	0	0	30	30	0	94	15	109	0	0	6	6	264
05:15 PM	28	88	1	117	0	0	32	32	0	63	15	78	0	0	4	4	231
05:30 PM	16	77	3	96	0	0	28	28	0	64	13	77	0	0	1	1	202
05:45 PM	21	51	2	74	0	0	25	25	0	54	12	66	0	0	1	1	166
Total	92	304	10	406	0	0	115	115	0	275	55	330	0	0	12	12	863
Grand Total	192	688	20	900	0	0	228	228	0	575	101	676	0	0	31	31	1835
Apprch %	21.3	76.4	2.2		0	0	100		0	85.1	14.9		0	0	100		
Total %	10.5	37.5	1.1	49	0	0	12.4	12.4	0	31.3	5.5	36.8	0	0	1.7	1.7	

	Bob Hope Drive Southbound				Rancho Las Palmas Center Driveway 2 Westbound				Bob Hope Drive Northbound				Union Bank Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	23	85	1	109	0	0	30	30	0	**94**	12	106	0	0	5	5	250
04:45 PM	20	**94**	**4**	118	0	0	**35**	**35**	0	62	**16**	78	0	0	5	5	236
05:00 PM	27	88	4	**119**	0	0	30	30	0	94	15	**109**	0	0	**6**	**6**	**264**
05:15 PM	**28**	88	1	117	0	0	32	32	0	63	15	78	0	0	4	4	231
Total Volume	98	355	10	463	0	0	127	127	0	313	58	371	0	0	20	20	981
% App. Total	21.2	76.7	2.2		0	0	100		0	84.4	15.6		0	0	100		
PHF	.875	.944	.625	.973	.000	.000	.907	.907	.000	.832	.906	.851	.000	.000	.833	.833	.929

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Bob Hope Drive
E/W: Rancho Las Palmas Center Driveway 2
Weather: Clear

File Name : 08_RNM_Bob_DW2 Tue
Site Code : 05720178
Start Date : 3/17/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	27	**113**	3	**143**	0	0	30	30	0	**94**	12	106	0	0	5	5
+15 mins.	**30**	92	2	124	0	0	**35**	**35**	0	62	**16**	78	0	0	5	5
+30 mins.	23	85	1	109	0	0	30	30	0	94	15	**109**	0	0	**6**	**6**
+45 mins.	20	94	**4**	118	0	0	32	32	0	63	15	78	0	0	4	4
Total Volume	100	384	10	494	0	0	127	127	0	313	58	371	0	0	20	20
% App. Total	20.2	77.7	2		0	0	100		0	84.4	15.6		0	0	100	
PHF	.833	.850	.625	.864	.000	.000	.907	.907	.000	.832	.906	.851	.000	.000	.833	.833

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Rancho Las Palmas Center Driveway 3
Weather: Clear

File Name : 09_RNM_Hwy 111_DW3 SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 1

Groups Printed- Total Volume

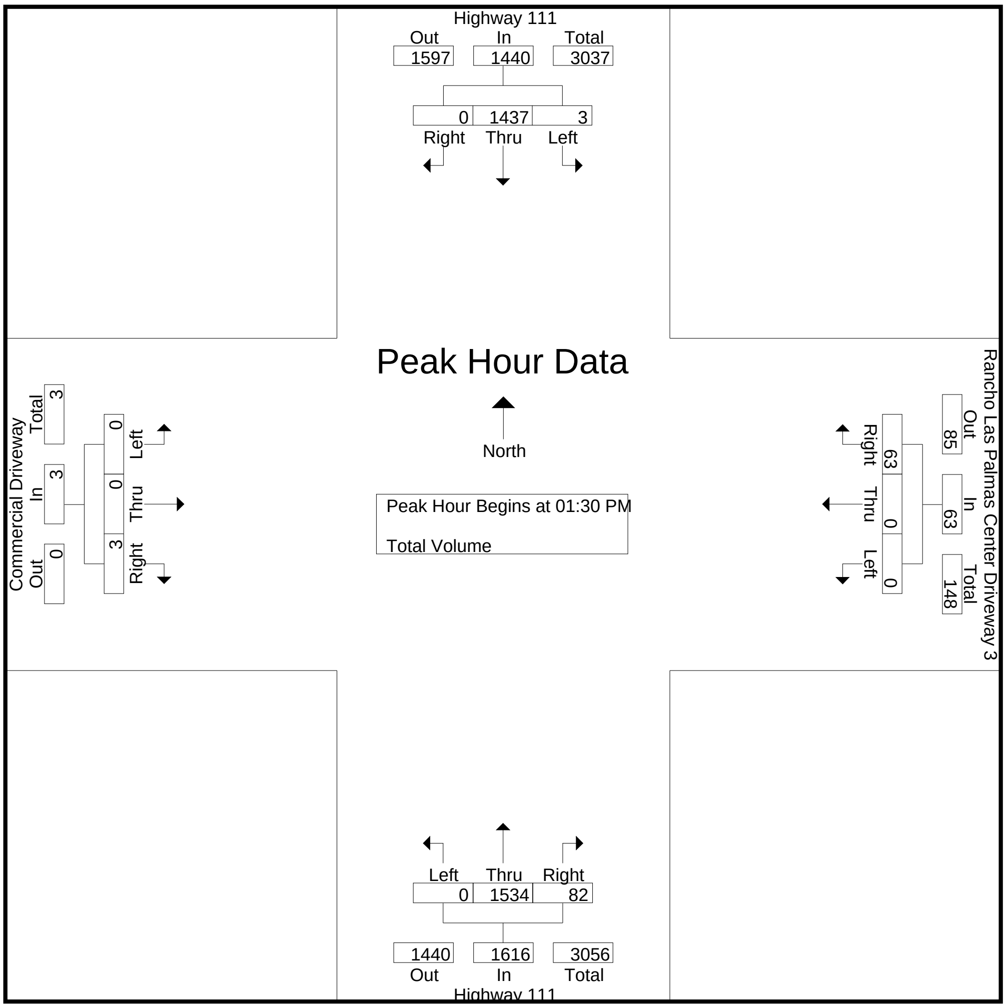
	Highway 111 Southbound				Rancho Las Palmas Center Driveway 3 Westbound				Highway 111 Northbound				Commercial Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:30 AM	5	354	0	359	0	0	23	23	0	381	19	400	0	0	1	1	783
11:45 AM	0	369	0	369	0	0	17	17	0	318	19	337	0	0	2	2	725
Total	5	723	0	728	0	0	40	40	0	699	38	737	0	0	3	3	1508
12:00 PM	2	320	0	322	0	0	15	15	0	397	20	417	0	0	1	1	755
12:15 PM	1	337	0	338	0	0	14	14	0	344	18	362	0	0	0	0	714
12:30 PM	0	370	0	370	0	0	13	13	0	370	15	385	0	0	0	0	768
12:45 PM	1	357	0	358	0	0	15	15	0	373	12	385	0	0	2	2	760
Total	4	1384	0	1388	0	0	57	57	0	1484	65	1549	0	0	3	3	2997
01:00 PM	0	389	0	389	0	0	14	14	0	370	7	377	0	0	0	0	780
01:15 PM	0	345	0	345	0	0	13	13	0	376	11	387	0	0	0	0	745
01:30 PM	2	365	0	367	0	0	16	16	0	397	24	421	0	0	0	0	804
01:45 PM	0	355	0	355	0	0	26	26	0	358	10	368	0	0	0	0	749
Total	2	1454	0	1456	0	0	69	69	0	1501	52	1553	0	0	0	0	3078
02:00 PM	0	366	0	366	0	0	11	11	0	392	25	417	0	0	1	1	795
02:15 PM	1	351	0	352	0	0	10	10	0	387	23	410	0	0	2	2	774
Grand Total	12	4278	0	4290	0	0	187	187	0	4463	203	4666	0	0	9	9	9152
Apprch %	0.3	99.7	0		0	0	100		0	95.6	4.4		0	0	100		
Total %	0.1	46.7	0	46.9	0	0	2	2	0	48.8	2.2	51	0	0	0.1	0.1	

	Highway 111 Southbound				Rancho Las Palmas Center Driveway 3 Westbound				Highway 111 Northbound				Commercial Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:30 PM																	
01:30 PM	**2**	365	0	**367**	0	0	16	16	0	**397**	24	**421**	0	0	0	0	**804**
01:45 PM	0	355	0	355	0	0	**26**	**26**	0	358	10	368	0	0	0	0	749
02:00 PM	0	**366**	0	366	0	0	11	11	0	392	**25**	417	0	0	1	1	795
02:15 PM	1	351	0	352	0	0	10	10	0	387	23	410	0	0	**2**	**2**	774
Total Volume	3	1437	0	1440	0	0	63	63	0	1534	82	1616	0	0	3	3	3122
% App. Total	0.2	99.8	0		0	0	100		0	94.9	5.1		0	0	100		
PHF	.375	.982	.000	.981	.000	.000	.606	.606	.000	.966	.820	.960	.000	.000	.375	.375	.971

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Highway 111
E/W: Rancho Las Palmas Center Driveway 3
Weather: Clear

File Name : 09_RNM_Hwy 111_DW3 SAT
Site Code : 05720178
Start Date : 3/14/2020
Page No : 2



Peak Hour Analysis From 11:30 AM to 02:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:30 PM				11:30 AM				01:30 PM				11:30 AM			
+0 mins.	0	370	0	370	0	0	**23**	**23**	0	**397**	24	**421**	0	0	1	1
+15 mins.	**1**	357	0	358	0	0	17	17	0	358	10	368	0	0	**2**	**2**
+30 mins.	0	**389**	0	**389**	0	0	15	15	0	392	**25**	417	0	0	1	1
+45 mins.	0	345	0	345	0	0	14	14	0	387	23	410	0	0	0	0
Total Volume	1	1461	0	1462	0	0	69	69	0	1534	82	1616	0	0	4	4
% App. Total	0.1	99.9	0		0	0	100		0	94.9	5.1		0	0	100	
PHF	.250	.939	.000	.940	.000	.000	.750	.750	.000	.966	.820	.960	.000	.000	.500	.500

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rnacho Mirage
N/S: Highway 111
E/W: Rancho Las Palmas Center Driveway 3
Weather: Clear

File Name : 09_RNM_Hwy 111_DW3 Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 1

Groups Printed- Total Volume

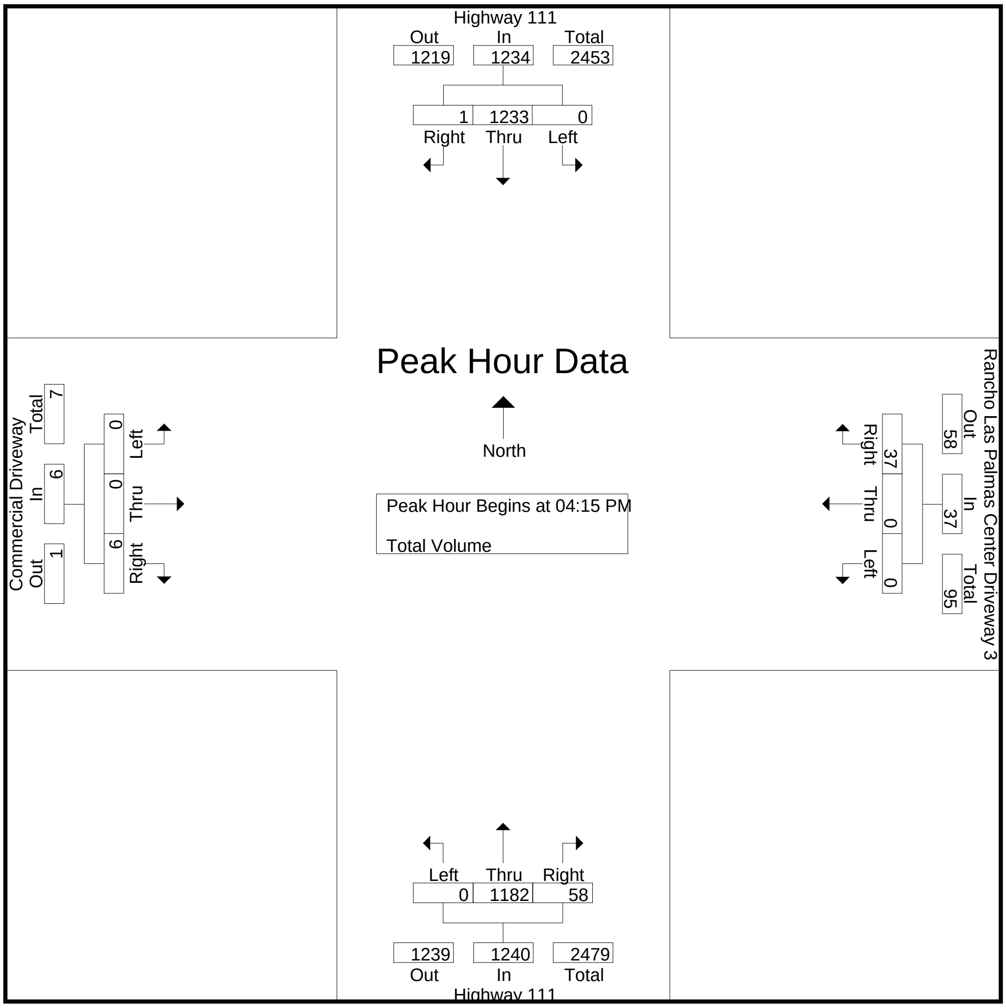
	Highway 111 Southbound				Rancho Las Palmas Center Driveway 3 Westbound				Highway 111 Northbound				Commercial Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	314	0	314	0	0	8	8	0	304	2	306	0	0	0	0	628
04:15 PM	0	327	0	327	0	0	7	7	0	282	14	296	0	0	3	3	633
04:30 PM	0	301	0	301	0	0	8	8	0	308	9	317	0	0	0	0	626
04:45 PM	0	290	0	290	0	0	12	12	0	295	22	317	0	0	1	1	620
Total	0	1232	0	1232	0	0	35	35	0	1189	47	1236	0	0	4	4	2507
05:00 PM	0	315	1	316	0	0	10	10	0	297	13	310	0	0	2	2	638
05:15 PM	0	323	0	323	0	0	8	8	0	293	9	302	0	0	0	0	633
05:30 PM	0	237	0	237	0	0	9	9	0	232	11	243	0	0	1	1	490
05:45 PM	0	220	0	220	0	0	13	13	0	258	4	262	0	0	0	0	495
Total	0	1095	1	1096	0	0	40	40	0	1080	37	1117	0	0	3	3	2256
Grand Total	0	2327	1	2328	0	0	75	75	0	2269	84	2353	0	0	7	7	4763
Apprch %	0	100	0		0	0	100		0	96.4	3.6		0	0	100		
Total %	0	48.9	0	48.9	0	0	1.6	1.6	0	47.6	1.8	49.4	0	0	0.1	0.1	

	Highway 111 Southbound				Rancho Las Palmas Center Driveway 3 Westbound				Highway 111 Northbound				Commercial Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	**327**	0	**327**	0	0	7	7	0	282	14	296	0	0	**3**	**3**	633
04:30 PM	0	301	0	301	0	0	8	8	0	**308**	9	**317**	0	0	0	0	626
04:45 PM	0	290	0	290	0	0	**12**	**12**	0	295	**22**	317	0	0	1	1	620
05:00 PM	0	315	**1**	316	0	0	10	10	0	297	13	310	0	0	2	2	**638**
Total Volume	0	1233	1	1234	0	0	37	37	0	1182	58	1240	0	0	6	6	2517
% App. Total	0	99.9	0.1		0	0	100		0	95.3	4.7		0	0	100		
PHF	.000	.943	.250	.943	.000	.000	.771	.771	.000	.959	.659	.978	.000	.000	.500	.500	.986

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rnacho Mirage
N/S: Highway 111
E/W: Rancho Las Palmas Center Driveway 3
Weather: Clear

File Name : 09_RNM_Hwy 111_DW3 Tues
Site Code : 05720178
Start Date : 3/17/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				05:00 PM				04:30 PM				04:15 PM			
+0 mins.	0	**327**	0	**327**	0	0	10	10	0	**308**	9	**317**	0	0	**3**	**3**
+15 mins.	0	301	0	301	0	0	8	8	0	295	**22**	317	0	0	0	0
+30 mins.	0	290	0	290	0	0	9	9	0	297	13	310	0	0	1	1
+45 mins.	0	315	**1**	316	0	0	**13**	**13**	0	293	9	302	0	0	2	2
Total Volume	0	1233	1	1234	0	0	40	40	0	1193	53	1246	0	0	6	6
% App. Total	0	99.9	0.1		0	0	100		0	95.7	4.3		0	0	100	
PHF	.000	.943	.250	.943	.000	.000	.769	.769	.000	.968	.602	.983	.000	.000	.500	.500

APPENDIX C

EXISTING TRAFFIC CONDITIONS INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX C-I

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report

Intersection 1: Highway 111 at Rancho Las Palmas Drive

Control Type:	Signalized	Delay (sec / veh):	12.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.487

Intersection Setup

Name	Highway 111			Highway 111			Ra La			Ra La		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Ra La			Ra La		
Base Volume Input [veh/h]	11	1335	48	87	1244	23	35	48	26	89	30	75
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	1335	48	87	1244	23	35	48	26	89	30	75
Peak Hour Factor	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	344	12	22	321	6	9	12	7	23	8	19
Total Analysis Volume [veh/h]	11	1378	50	90	1284	24	36	50	27	92	31	77
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	32	0	24	46	0	0	39	0	0	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	19	0	0	28	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	62	62	7	67	67	14	14	14	14	14	14
g / C, Green / Cycle	0.02	0.65	0.65	0.07	0.70	0.70	0.15	0.15	0.15	0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.01	0.29	0.29	0.06	0.27	0.27	0.03	0.03	0.02	0.08	0.02	0.05
s, saturation flow rate [veh/h]	1603	3204	1653	1603	3204	1667	1240	1683	1431	1219	1683	1431
c, Capacity [veh/h]	31	2096	1081	113	2261	1176	209	251	213	194	251	213
d1, Uniform Delay [s]	46.02	8.05	8.05	43.46	5.63	5.63	39.01	35.46	35.07	41.91	35.06	36.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.90	0.70	1.35	11.72	0.49	0.94	0.39	0.39	0.26	1.80	0.22	1.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.45	0.45	0.79	0.38	0.38	0.17	0.20	0.13	0.47	0.12	0.36
d, Delay for Lane Group [s/veh]	52.92	8.75	9.41	55.19	6.12	6.57	39.40	35.85	35.34	43.71	35.27	37.40
Lane Group LOS	D	A	A	E	A	A	D	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.31	4.39	4.72	2.43	3.04	3.31	0.79	1.03	0.55	2.18	0.63	1.65
50th-Percentile Queue Length [ft/ln]	7.84	109.6	118.0	60.83	75.95	82.69	19.71	25.86	13.84	54.47	15.82	41.29
95th-Percentile Queue Length [veh/ln]	0.56	7.82	8.28	4.38	5.47	5.95	1.42	1.86	1.00	3.92	1.14	2.97
95th-Percentile Queue Length [ft/ln]	14.12	195.5	207.1	109.4	136.7	148.8	35.47	46.54	24.91	98.04	28.47	74.33

Movement, Approach, & Intersection Results

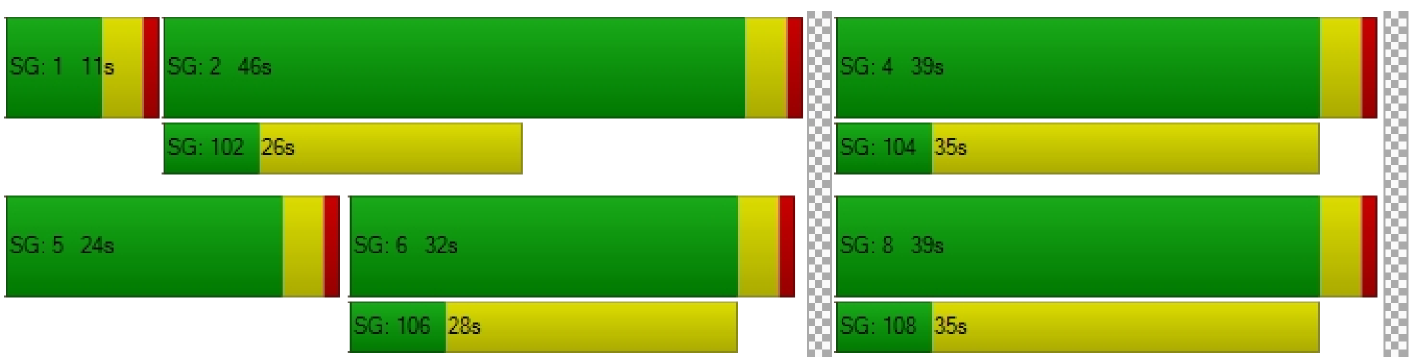
d_M, Delay for Movement [s/veh]	52.92	8.96	9.41	55.19	6.26	6.57	39.40	35.85	35.34	43.71	35.27	37.40
Movement LOS	D	A	A	E	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	9.31			9.42			36.86			39.97		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	12.29											
Intersection LOS	B											
Intersection V/C	0.487											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	37.14	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	3.123	3.050	2.177	2.228
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	589	884	737	737
d_b, Bicycle Delay [s]	23.63	14.78	18.95	18.95
I_b,int, Bicycle LOS Score for Intersection	2.351	2.329	1.746	1.890
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Highway 111 at Bob Hope Drive

Control Type:	Signalized	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.558

Intersection Setup

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
Base Volume Input [veh/h]	22	1496	493	87	1326	7	8	14	12	527	7	44
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	1496	493	87	1326	7	8	14	12	527	7	44
Peak Hour Factor	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	382	126	22	338	2	2	4	3	134	2	11
Total Analysis Volume [veh/h]	22	1527	503	89	1353	7	8	14	12	538	7	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	6	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups			4,6									
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	30	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	14	28	28	11	25	0	0	11	0	0	40	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	17	0	12	0	0	0	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No	No	No	No			No			No	
Maximum Recall	No	No	No	No	No			No			No	
Pedestrian Recall	No	No	No	No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	48	68	6	51	51	4	16	16
g / C, Green / Cycle	0.03	0.53	0.75	0.07	0.57	0.57	0.04	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.01	0.30	0.32	0.03	0.25	0.25	0.02	0.11	0.11
s, saturation flow rate [veh/h]	1781	5094	1589	3459	3560	1865	1741	3459	1736
c, Capacity [veh/h]	59	2715	1196	240	2027	1062	78	606	304
d1, Uniform Delay [s]	42.61	14.02	4.04	40.00	11.14	11.14	41.89	34.55	34.56
k, delay calibration	0.11	0.50	0.30	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.87	0.85	0.66	0.95	0.70	1.33	3.81	1.18	2.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.56	0.42	0.37	0.44	0.44	0.44	0.65	0.65
d, Delay for Lane Group [s/veh]	46.48	14.87	4.70	40.95	11.84	12.47	45.70	35.73	36.89
Lane Group LOS	D	B	A	D	B	B	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.54	6.59	2.65	0.96	4.88	5.30	0.81	4.03	4.15
50th-Percentile Queue Length [ft/ln]	13.44	164.7	66.24	24.07	121.9	132.4	20.27	100.80	103.76
95th-Percentile Queue Length [veh/ln]	0.97	10.80	4.77	1.73	8.50	9.07	1.46	7.26	7.47
95th-Percentile Queue Length [ft/ln]	24.20	270.0	119.2	43.32	212.5	226.7	36.49	181.43	186.77

Movement, Approach, & Intersection Results

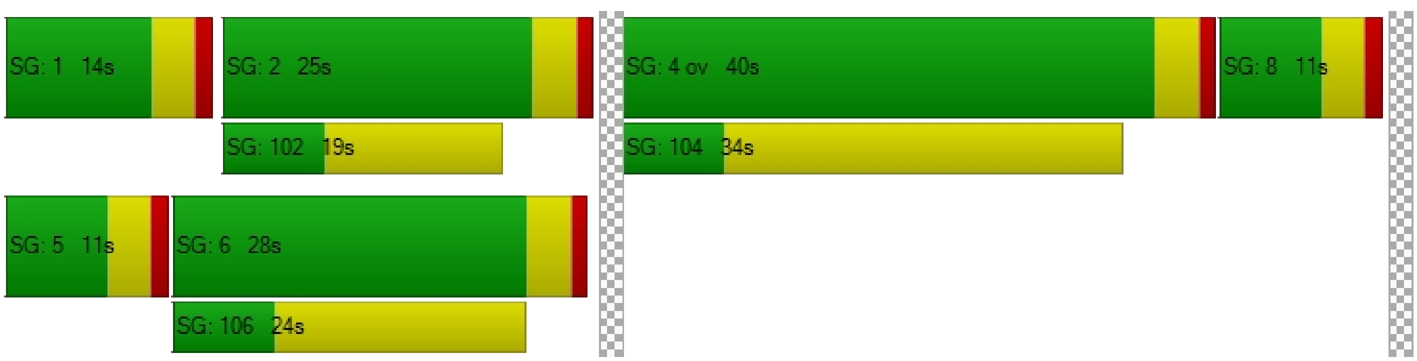
d_M, Delay for Movement [s/veh]	46.48	14.87	4.70	40.95	12.05	12.47	45.70	45.70	45.70	36.04	36.89	36.89
Movement LOS	D	B	A	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	12.72			13.83			45.70			36.12		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	16.73											
Intersection LOS	B											
Intersection V/C	0.558											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.094	1.748	2.647
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	467	156	800
d_b, Bicycle Delay [s]	24.20	26.45	38.27	16.20
I_b,int, Bicycle LOS Score for Intersection	2.688	2.357	1.616	2.533
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Highway 111 at Magnesia Falls Drive

Control Type:	Signalized	Delay (sec / veh):	13.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.570

Intersection Setup

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	42	1991	48	23	1781	14	20	11	39	128	9	21
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	1991	48	23	1781	14	20	11	39	128	9	21
Peak Hour Factor	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	11	514	12	6	460	4	5	3	10	33	2	5
Total Analysis Volume [veh/h]	43	2057	50	24	1840	14	21	11	40	132	9	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	30	0	10	30	0	0	10	0	0	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	58	58	3	57	57	6	6	7	7	7
g / C, Green / Cycle	0.05	0.64	0.64	0.04	0.63	0.63	0.07	0.07	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.02	0.39	0.39	0.01	0.34	0.34	0.02	0.03	0.04	0.04	0.01
s, saturation flow rate [veh/h]	1781	3560	1847	1781	3560	1863	1811	1589	1781	1792	1589
c, Capacity [veh/h]	94	2288	1187	65	2230	1167	120	105	138	139	123
d1, Uniform Delay [s]	41.47	9.43	9.45	42.43	9.56	9.56	40.03	40.34	39.96	39.96	38.92
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.47	1.20	2.32	3.45	0.96	1.84	1.18	2.25	2.91	2.88	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.46	0.61	0.61	0.37	0.55	0.55	0.27	0.38	0.51	0.51	0.18
d, Delay for Lane Group [s/veh]	44.94	10.64	11.77	45.88	10.52	11.40	41.21	42.59	42.87	42.83	39.61
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.01	7.22	7.89	0.58	6.24	6.82	0.71	0.91	1.59	1.60	0.47
50th-Percentile Queue Length [ft/ln]	25.22	180.3	197.1	14.48	156.0	170.3	17.68	22.67	39.81	39.92	11.86
95th-Percentile Queue Length [veh/ln]	1.82	11.62	12.49	1.04	10.34	11.10	1.27	1.63	2.87	2.87	0.85
95th-Percentile Queue Length [ft/ln]	45.39	290.5	312.3	26.06	258.4	277.4	31.82	40.81	71.67	71.86	21.35

Movement, Approach, & Intersection Results

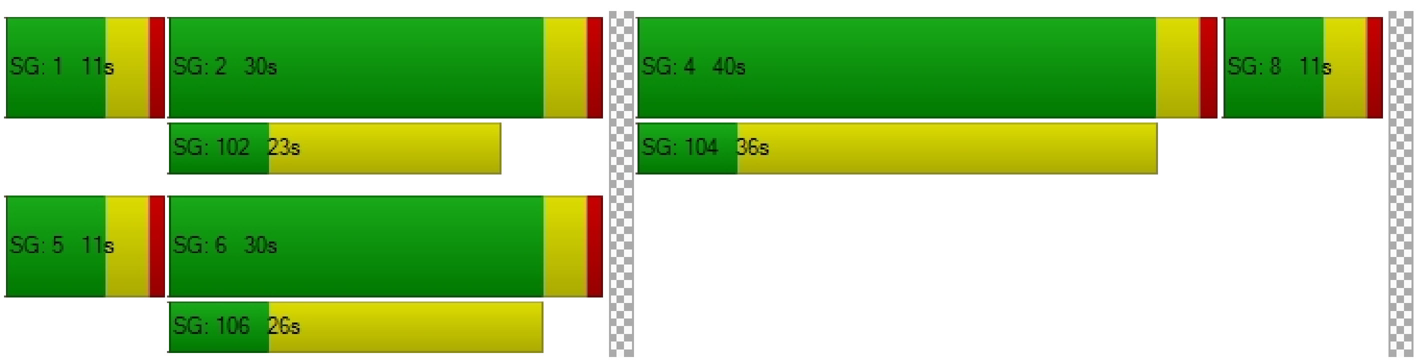
d_M, Delay for Movement [s/veh]	44.94	11.00	11.77	45.88	10.82	11.40	41.21	41.21	42.59	42.85	42.83	39.61
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	11.70			11.27			41.98			42.41		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	13.20											
Intersection LOS	B											
Intersection V/C	0.570											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.147	1.985	2.191
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	156	800
d_b, Bicycle Delay [s]	22.76	22.76	38.27	16.20
I_b,int, Bicycle LOS Score for Intersection	2.742	2.593	1.678	1.829
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Highway 111 at Painters Path/Park View Drive

Control Type:	Signalized	Delay (sec / veh):	10.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.595

Intersection Setup

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
Base Volume Input [veh/h]	5	1782	90	137	1791	63	42	24	6	39	33	129
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1782	90	137	1791	63	42	24	6	39	33	129
Peak Hour Factor	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	456	23	35	458	16	11	6	2	10	8	33
Total Analysis Volume [veh/h]	5	1824	92	140	1833	64	43	25	6	40	34	132
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	34	0	19	34	0	0	42	0	0	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	23	0	0	15	0	0	31	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	64	64	9	72	72	10	10	10
g / C, Green / Cycle	0.01	0.67	0.67	0.10	0.76	0.76	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.00	0.36	0.06	0.08	0.35	0.35	0.08	0.05	0.08
s, saturation flow rate [veh/h]	1781	5094	1589	1781	3560	1838	956	1577	1589
c, Capacity [veh/h]	18	3409	1064	174	2693	1390	162	227	170
d1, Uniform Delay [s]	46.67	8.10	5.52	42.00	4.34	4.35	42.00	39.56	41.33
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.73	0.61	0.16	8.48	0.58	1.12	2.00	0.83	7.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.54	0.09	0.81	0.46	0.47	0.46	0.33	0.78
d, Delay for Lane Group [s/veh]	54.39	8.70	5.68	50.48	4.92	5.47	44.00	40.39	48.73
Lane Group LOS	D	A	A	D	A	A	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.16	5.71	0.62	3.59	3.61	3.95	1.78	1.65	3.33
50th-Percentile Queue Length [ft/ln]	3.90	142.8	15.42	89.78	90.20	98.75	44.53	41.34	83.21
95th-Percentile Queue Length [veh/ln]	0.28	9.64	1.11	6.46	6.49	7.11	3.21	2.98	5.99
95th-Percentile Queue Length [ft/ln]	7.02	240.8	27.76	161.6	162.3	177.7	80.16	74.41	149.78

Movement, Approach, & Intersection Results

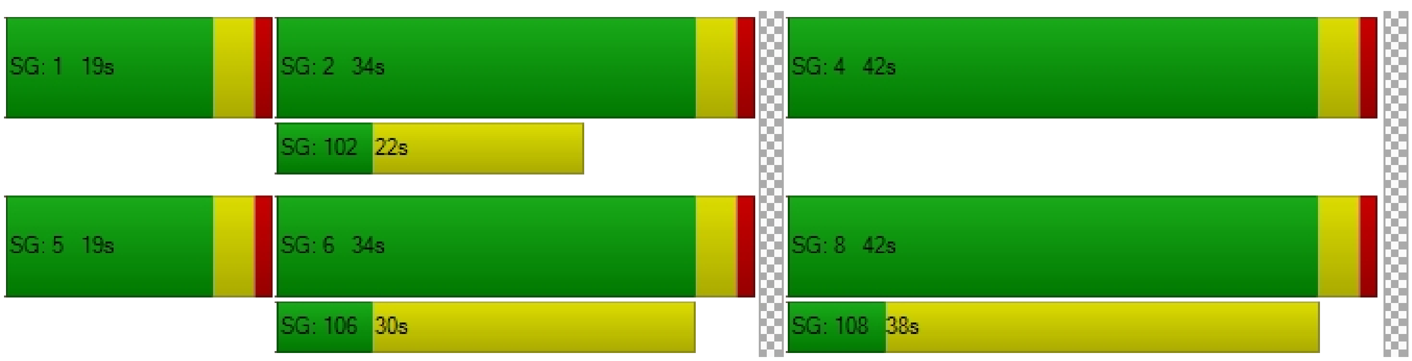
d_M, Delay for Movement [s/veh]	54.39	8.70	5.68	50.48	5.10	5.47	44.00	44.00	44.00	40.39	40.39	48.73
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	8.68			8.23			44.00			45.74		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.88											
Intersection LOS	B											
Intersection V/C	0.595											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	0.00	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	3.248	0.000	1.803	2.093
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	632	632	800	800
d_b, Bicycle Delay [s]	22.24	22.24	17.10	17.10
I_b,int, Bicycle LOS Score for Intersection	2.616	2.680	1.682	1.900
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Highway 111 at Fred Waring Drive

Control Type:	Signalized	Delay (sec / veh):	39.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.632

Intersection Setup

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
Base Volume Input [veh/h]	69	1329	153	486	1325	123	138	170	78	182	164	426
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	1329	153	486	1325	123	138	170	78	182	164	426
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	350	40	128	349	32	36	45	21	48	43	112
Total Analysis Volume [veh/h]	73	1399	161	512	1395	129	145	179	82	192	173	448
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Unsig
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	41	0	18	49	0	10	49	0	12	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	30	0	0	35	0	0	36	0	0	40	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	72	72	14	80	80	22	9	9	9	11
g / C, Green / Cycle	0.05	0.60	0.60	0.12	0.67	0.67	0.18	0.08	0.08	0.07	0.09
(v / s)_i Volume / Saturation Flow Rate	0.02	0.29	0.29	0.15	0.27	0.08	0.05	0.05	0.05	0.06	0.05
s, saturation flow rate [veh/h]	3459	3560	1773	3459	5094	1589	2813	3560	1589	3459	3560
c, Capacity [veh/h]	187	2143	1067	405	3388	1057	522	269	120	249	317
d1, Uniform Delay [s]	54.88	13.44	13.44	53.00	9.27	7.33	42.16	54.00	54.08	54.74	52.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.33	0.79	1.58	123.1	0.37	0.24	0.29	2.80	6.62	5.04	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.49	0.49	1.26	0.41	0.12	0.28	0.66	0.68	0.77	0.55
d, Delay for Lane Group [s/veh]	56.21	14.23	15.03	176.1	9.64	7.56	42.45	56.81	60.69	59.78	53.83
Lane Group LOS	E	B	B	F	A	A	D	E	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.10	7.86	8.07	13.02	5.40	1.23	1.87	2.74	2.64	3.03	2.56
50th-Percentile Queue Length [ft/ln]	27.59	196.4	201.7	325.6	135.0	30.69	46.76	68.46	65.93	75.68	64.11
95th-Percentile Queue Length [veh/ln]	1.99	12.46	12.73	20.72	9.21	2.21	3.37	4.93	4.75	5.45	4.62
95th-Percentile Queue Length [ft/ln]	49.66	311.3	318.1	518.0	230.2	55.25	84.17	123.2	118.6	136.22	115.40

Movement, Approach, & Intersection Results

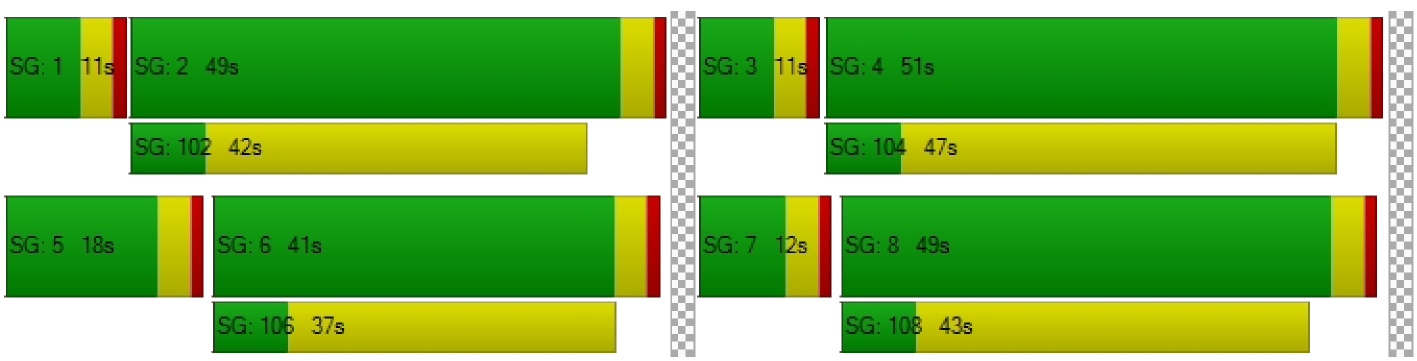
d_M, Delay for Movement [s/veh]	56.21	14.43	15.03	176.1	9.64	7.56	42.45	56.81	60.69	59.78	53.83	0.00
Movement LOS	E	B	B	F	A	A	D	E	E	E	D	
d_A, Approach Delay [s/veh]	16.36			51.39			52.46			56.96		
Approach LOS	B			D			D			E		
d_I, Intersection Delay [s/veh]	39.06											
Intersection LOS	D											
Intersection V/C	0.632											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	3.142	3.273	2.716	2.777
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	750	750	783
d_b, Bicycle Delay [s]	28.70	23.44	23.44	22.20
I_b,int, Bicycle LOS Score for Intersection	2.458	2.679	1.895	1.861
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Bob Hope Drive at Rancho Las Palmas

Control Type:	Signalized	Delay (sec / veh):	11.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.417

Intersection Setup

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
Base Volume Input [veh/h]	45	602	12	5	540	203	258	2	63	12	6	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	602	12	5	540	203	258	2	63	12	6	2
Peak Hour Factor	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	12	162	3	1	145	55	70	1	17	3	2	1
Total Analysis Volume [veh/h]	48	649	13	5	582	219	278	2	68	13	6	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	52	0	0	52	0	0	38	0	0	38	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	22	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	62	62	62	62	62	62	20	20	20	20
g / C, Green / Cycle	0.69	0.69	0.69	0.69	0.69	0.69	0.22	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.06	0.18	0.01	0.01	0.16	0.14	0.20	0.00	0.04	0.01
s, saturation flow rate [veh/h]	832	3560	1589	782	3560	1589	1407	1870	1589	1486
c, Capacity [veh/h]	580	2452	1094	543	2452	1094	333	416	353	395
d1, Uniform Delay [s]	7.60	5.33	4.39	7.52	5.21	5.05	34.00	27.19	28.37	27.48
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.28	0.26	0.02	0.03	0.23	0.41	5.52	0.00	0.26	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.26	0.01	0.01	0.24	0.20	0.84	0.00	0.19	0.05
d, Delay for Lane Group [s/veh]	7.88	5.59	4.41	7.55	5.44	5.46	39.52	27.19	28.63	27.53
Lane Group LOS	A	A	A	A	A	A	D	C	C	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.41	2.04	0.07	0.04	1.79	1.37	6.25	0.03	1.20	0.36
50th-Percentile Queue Length [ft/ln]	10.17	50.97	1.76	1.04	44.65	34.30	156.2	0.84	29.98	8.92
95th-Percentile Queue Length [veh/ln]	0.73	3.67	0.13	0.07	3.21	2.47	10.35	0.06	2.16	0.64
95th-Percentile Queue Length [ft/ln]	18.31	91.74	3.17	1.87	80.37	61.75	258.7	1.51	53.97	16.06

Movement, Approach, & Intersection Results

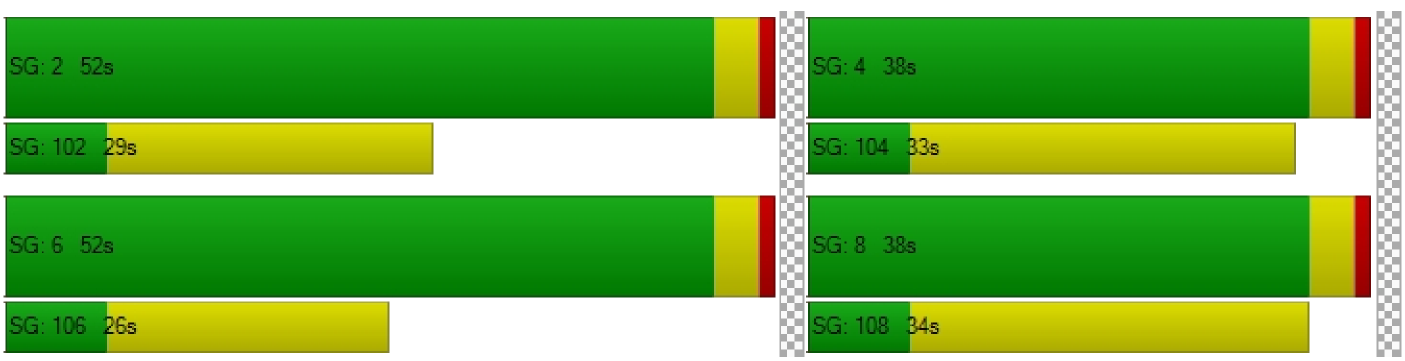
d_M, Delay for Movement [s/veh]	7.88	5.59	4.41	7.55	5.44	5.46	39.52	27.19	28.63	27.53	27.53	27.53
Movement LOS	A	A	A	A	A	A	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.73			5.46			37.32			27.53		
Approach LOS	A			A			D			C		
d_I, Intersection Delay [s/veh]	11.69											
Intersection LOS	B											
Intersection V/C	0.417											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.694	3.130	2.350	1.741
Crosswalk LOS	B	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	1067	756	756
d_b, Bicycle Delay [s]	9.80	9.80	17.42	17.42
I_b,int, Bicycle LOS Score for Intersection	2.145	2.225	2.134	1.594
Bicycle LOS	B	B	B	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 1: Highway 111 at Rancho Las Palmas Drive

Control Type:	Signalized	Delay (sec / veh):	9.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.466

Intersection Setup

Name	Highway 111			Highway 111			Ra La			Ra La		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Ra La			Ra La		
Base Volume Input [veh/h]	10	1384	54	71	1351	23	19	21	13	55	20	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	1384	54	71	1351	23	19	21	13	55	20	68
Peak Hour Factor	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	368	14	19	359	6	5	6	3	15	5	18
Total Analysis Volume [veh/h]	11	1472	57	76	1437	24	20	22	14	59	21	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	35	32	0	34	31	0	0	39	0	0	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	19	0	0	28	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	76	76	6	81	81	11	11	11	11	11	11
g / C, Green / Cycle	0.02	0.73	0.73	0.06	0.77	0.77	0.10	0.10	0.10	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.01	0.31	0.31	0.05	0.30	0.30	0.02	0.01	0.01	0.05	0.01	0.05
s, saturation flow rate [veh/h]	1603	3204	1651	1603	3204	1669	1252	1683	1431	1250	1683	1431
c, Capacity [veh/h]	30	2326	1198	96	2458	1280	152	168	143	151	168	143
d1, Uniform Delay [s]	50.92	5.76	5.76	48.70	4.07	4.07	46.46	43.08	42.94	48.03	43.06	44.77
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.48	0.59	1.15	13.43	0.47	0.90	0.39	0.35	0.29	1.63	0.33	2.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.43	0.43	0.79	0.39	0.39	0.13	0.13	0.10	0.39	0.12	0.50
d, Delay for Lane Group [s/veh]	58.40	6.36	6.91	62.13	4.54	4.97	46.84	43.43	43.23	49.66	43.39	47.49
Lane Group LOS	E	A	A	E	A	A	D	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.35	3.97	4.27	2.32	2.85	3.12	0.51	0.54	0.34	1.58	0.51	1.88
50th-Percentile Queue Length [ft/ln]	8.67	99.20	106.8	57.90	71.25	78.04	12.76	13.42	8.55	39.38	12.80	46.95
95th-Percentile Queue Length [veh/ln]	0.62	7.14	7.66	4.17	5.13	5.62	0.92	0.97	0.62	2.84	0.92	3.38
95th-Percentile Queue Length [ft/ln]	15.61	178.5	191.6	104.2	128.2	140.4	22.97	24.15	15.38	70.88	23.03	84.52

Movement, Approach, & Intersection Results

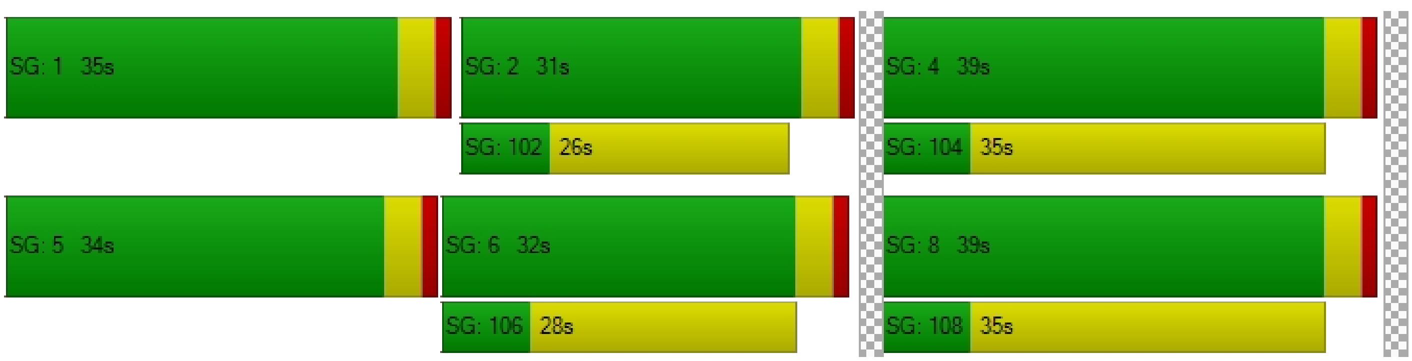
d_M, Delay for Movement [s/veh]	58.40	6.53	6.91	62.13	4.68	4.97	46.84	43.43	43.23	49.66	43.39	47.49
Movement LOS	E	A	A	E	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]		6.91			7.52			44.60			47.77	
Approach LOS		A			A			D			D	
d_I, Intersection Delay [s/veh]	9.73											
Intersection LOS	A											
Intersection V/C	0.466											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	42.08	42.08	42.08	42.08
I_p,int, Pedestrian LOS Score for Intersection	3.110	3.062	2.166	2.213
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	514	667	667
d_b, Bicycle Delay [s]	28.23	28.97	23.33	23.33
I_b,int, Bicycle LOS Score for Intersection	2.407	2.405	1.652	1.810
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Highway 111 at Bob Hope Drive

Control Type:	Signalized	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.583

Intersection Setup

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
Base Volume Input [veh/h]	33	1511	494	101	1304	11	12	20	18	541	11	51
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	1511	494	101	1304	11	12	20	18	541	11	51
Peak Hour Factor	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	385	126	26	332	3	3	5	5	138	3	13
Total Analysis Volume [veh/h]	34	1539	503	103	1328	11	12	20	18	551	11	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	6	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups			4,6									
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	30	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	15	28	28	11	24	0	0	11	0	0	40	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	17	0	12	0	0	0	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No	No	No	No			No			No	
Maximum Recall	No	No	No	No	No			No			No	
Pedestrian Recall	No	No	No	No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	46	67	6	49	49	5	16	16
g / C, Green / Cycle	0.04	0.51	0.74	0.07	0.54	0.54	0.06	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.02	0.30	0.32	0.03	0.25	0.25	0.03	0.12	0.12
s, saturation flow rate [veh/h]	1781	5094	1589	3459	3560	1862	1739	3459	1732
c, Capacity [veh/h]	80	2611	1175	249	1922	1005	97	630	315
d1, Uniform Delay [s]	41.87	15.33	4.49	39.95	12.66	12.66	41.33	34.15	34.16
k, delay calibration	0.11	0.50	0.30	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.58	0.99	0.70	1.10	0.79	1.50	4.21	1.13	2.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.59	0.43	0.41	0.46	0.46	0.52	0.65	0.65
d, Delay for Lane Group [s/veh]	45.46	16.31	5.18	41.05	13.45	14.16	45.54	35.28	36.42
Lane Group LOS	D	B	A	D	B	B	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.81	7.06	2.90	1.12	5.23	5.67	1.18	4.18	4.29
50th-Percentile Queue Length [ft/ln]	20.18	176.6	72.59	27.91	130.8	141.8	29.51	104.38	107.25
95th-Percentile Queue Length [veh/ln]	1.45	11.42	5.23	2.01	8.98	9.58	2.12	7.52	7.69
95th-Percentile Queue Length [ft/ln]	36.33	285.5	130.6	50.25	224.5	239.4	53.11	187.88	192.16

Movement, Approach, & Intersection Results

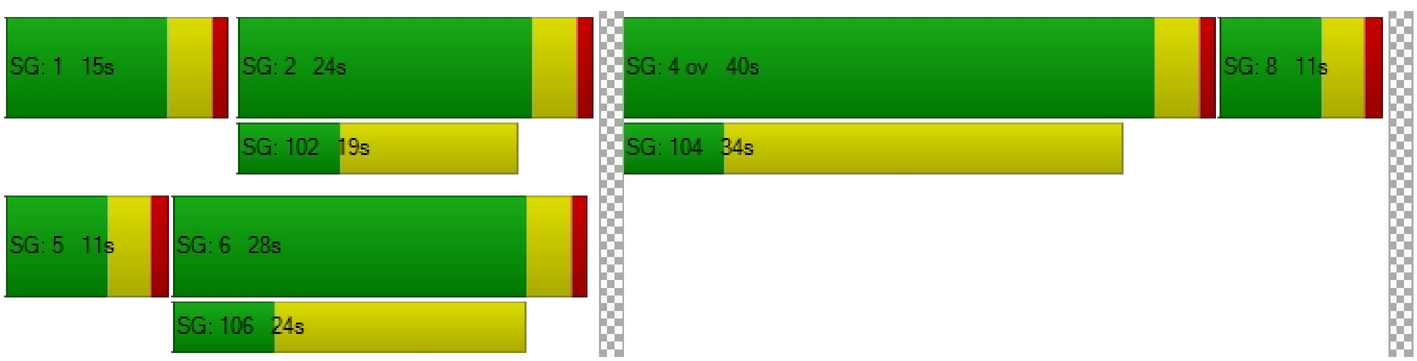
d_M, Delay for Movement [s/veh]	45.46	16.31	5.18	41.05	13.69	14.16	45.54	45.54	45.54	35.58	36.42	36.42
Movement LOS	D	B	A	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	14.09			15.65			45.54			35.66		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.17											
Intersection LOS	B											
Intersection V/C	0.583											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.096	1.766	2.654
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	444	156	800
d_b, Bicycle Delay [s]	24.20	27.22	38.27	16.20
I_b,int, Bicycle LOS Score for Intersection	2.701	2.353	1.642	2.573
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Highway 111 at Magnesia Falls Drive

Control Type:	Signalized	Delay (sec / veh):	13.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.575

Intersection Setup

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	44	1975	71	31	1817	15	11	8	35	158	8	26
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	1975	71	31	1817	15	11	8	35	158	8	26
Peak Hour Factor	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	11	501	18	8	461	4	3	2	9	40	2	7
Total Analysis Volume [veh/h]	45	2005	72	31	1845	15	11	8	36	160	8	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	30	0	10	28	0	0	10	0	0	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	58	58	4	57	57	5	5	7	7	7
g / C, Green / Cycle	0.05	0.64	0.64	0.04	0.63	0.63	0.06	0.06	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.03	0.38	0.39	0.02	0.34	0.34	0.01	0.02	0.05	0.05	0.02
s, saturation flow rate [veh/h]	1781	3560	1837	1781	3560	1862	1817	1589	1781	1789	1589
c, Capacity [veh/h]	96	2285	1179	77	2247	1175	108	94	139	140	124
d1, Uniform Delay [s]	41.41	9.40	9.42	41.99	9.33	9.34	40.31	40.81	40.22	40.22	38.96
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.52	1.17	2.27	3.33	0.95	1.81	0.77	2.51	4.16	4.12	0.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.47	0.60	0.60	0.40	0.54	0.54	0.18	0.38	0.60	0.60	0.21
d, Delay for Lane Group [s/veh]	44.93	10.57	11.70	45.33	10.28	11.14	41.08	43.33	44.38	44.34	39.79
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.05	7.09	7.71	0.74	6.16	6.72	0.42	0.83	1.94	1.94	0.56
50th-Percentile Queue Length [ft/ln]	26.36	177.1	192.8	18.41	153.9	168.1	10.50	20.68	48.46	48.57	14.06
95th-Percentile Queue Length [veh/ln]	1.90	11.45	12.27	1.33	10.23	10.98	0.76	1.49	3.49	3.50	1.01
95th-Percentile Queue Length [ft/ln]	47.46	286.2	306.7	33.14	255.6	274.4	18.89	37.23	87.23	87.43	25.31

Movement, Approach, & Intersection Results

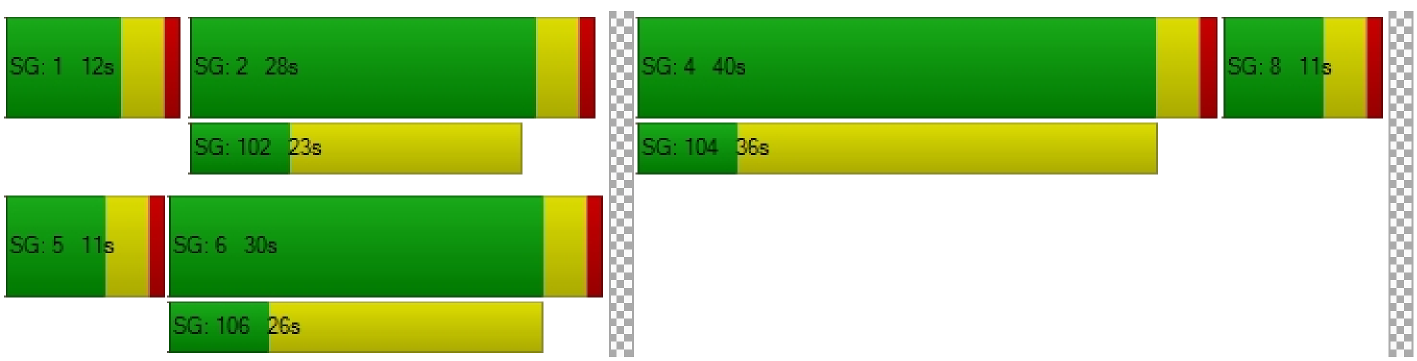
d_M, Delay for Movement [s/veh]	44.93	10.93	11.70	45.33	10.57	11.14	41.08	41.08	43.33	44.36	44.34	39.79
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]		11.67			11.15			42.55			43.75	
Approach LOS		B			B			D			D	
d_I, Intersection Delay [s/veh]	13.30											
Intersection LOS	B											
Intersection V/C	0.575											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.141	1.980	2.205
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	533	156	800
d_b, Bicycle Delay [s]	22.76	24.20	38.27	16.20
I_b,int, Bicycle LOS Score for Intersection	2.727	2.600	1.650	1.880
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Highway 111 at Painters Path/Park View Drive

Control Type:	Signalized	Delay (sec / veh):	9.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
Base Volume Input [veh/h]	6	1915	80	91	1838	88	46	13	8	48	24	120
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	1915	80	91	1838	88	46	13	8	48	24	120
Peak Hour Factor	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	495	21	24	475	23	12	3	2	12	6	31
Total Analysis Volume [veh/h]	6	1980	83	94	1901	91	48	13	8	50	25	124
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	34	0	19	33	0	0	42	0	0	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	23	0	0	15	0	0	31	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	67	67	6	72	72	10	10	10
g / C, Green / Cycle	0.01	0.70	0.70	0.07	0.76	0.76	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.00	0.39	0.05	0.05	0.37	0.37	0.09	0.05	0.08
s, saturation flow rate [veh/h]	1781	5094	1589	1781	3560	1827	761	1559	1589
c, Capacity [veh/h]	21	3582	1118	122	2706	1388	142	222	162
d1, Uniform Delay [s]	46.54	6.84	4.41	43.51	4.34	4.35	43.59	40.13	41.57
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.96	0.62	0.13	9.70	0.63	1.23	2.58	0.89	7.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.55	0.07	0.77	0.49	0.49	0.49	0.34	0.77
d, Delay for Lane Group [s/veh]	53.49	7.46	4.54	53.21	4.97	5.58	46.16	41.02	48.94
Lane Group LOS	D	A	A	D	A	A	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.18	5.53	0.47	2.48	3.81	4.17	1.70	1.69	3.13
50th-Percentile Queue Length [ft/ln]	4.53	138.1	11.79	62.09	95.26	104.1	42.58	42.32	78.30
95th-Percentile Queue Length [veh/ln]	0.33	9.38	0.85	4.47	6.86	7.50	3.07	3.05	5.64
95th-Percentile Queue Length [ft/ln]	8.15	234.5	21.23	111.7	171.4	187.5	76.65	76.18	140.95

Movement, Approach, & Intersection Results

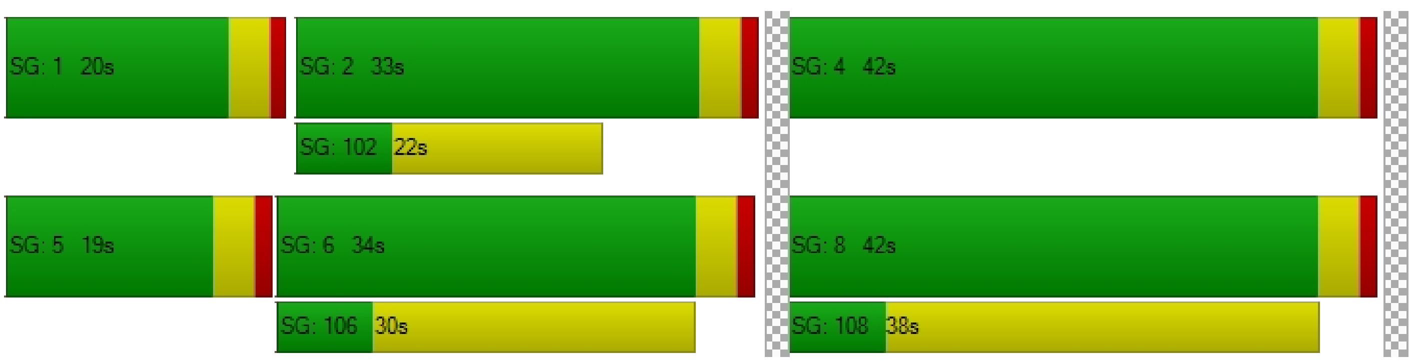
d_M, Delay for Movement [s/veh]	53.49	7.46	4.54	53.21	5.16	5.58	46.16	46.16	46.16	41.02	41.02	48.94
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	7.48			7.34			46.16			45.95		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	9.75											
Intersection LOS	A											
Intersection V/C	0.609											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	0.00	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	3.290	0.000	1.810	2.069
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	632	611	800	800
d_b, Bicycle Delay [s]	22.24	22.93	17.10	17.10
I_b,int, Bicycle LOS Score for Intersection	2.698	2.707	1.673	1.888
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Highway 111 at Fred Waring Drive

Control Type:	Signalized	Delay (sec / veh):	30.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.678

Intersection Setup

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
Base Volume Input [veh/h]	108	1425	198	409	1328	144	183	214	109	239	244	358
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	1425	198	409	1328	144	183	214	109	239	244	358
Peak Hour Factor	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	372	52	107	347	38	48	56	28	62	64	94
Total Analysis Volume [veh/h]	113	1489	207	427	1388	150	191	224	114	250	255	374
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Unsig
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	41	0	18	49	0	10	47	0	14	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	30	0	0	35	0	0	36	0	0	40	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	68	68	14	75	75	26	12	12	11	15
g / C, Green / Cycle	0.06	0.56	0.56	0.12	0.62	0.62	0.22	0.10	0.10	0.09	0.13
(v / s)_i Volume / Saturation Flow Rate	0.03	0.32	0.32	0.12	0.27	0.09	0.07	0.06	0.07	0.07	0.07
s, saturation flow rate [veh/h]	3459	3560	1756	3459	5094	1589	2623	3560	1589	3459	3560
c, Capacity [veh/h]	200	2006	989	405	3172	990	551	348	155	306	453
d1, Uniform Delay [s]	55.10	16.80	16.83	53.00	11.75	9.44	38.98	52.15	52.64	53.75	49.25
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.51	1.16	2.36	36.74	0.44	0.32	0.37	1.99	6.54	5.30	1.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.57	0.57	1.05	0.44	0.15	0.35	0.64	0.73	0.82	0.56
d, Delay for Lane Group [s/veh]	57.61	17.97	19.19	89.74	12.19	9.76	39.35	54.14	59.18	59.05	50.35
Lane Group LOS	E	B	B	F	B	A	D	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.74	10.03	10.27	8.16	6.28	1.69	2.37	3.35	3.62	3.93	3.67
50th-Percentile Queue Length [ft/ln]	43.42	250.6	256.6	204.0	156.9	42.26	59.22	83.70	90.58	98.32	91.75
95th-Percentile Queue Length [veh/ln]	3.13	15.22	15.52	13.12	10.39	3.04	4.26	6.03	6.52	7.08	6.61
95th-Percentile Queue Length [ft/ln]	78.16	380.4	388.0	328.0	259.6	76.07	106.6	150.6	163.0	176.97	165.15

Movement, Approach, & Intersection Results

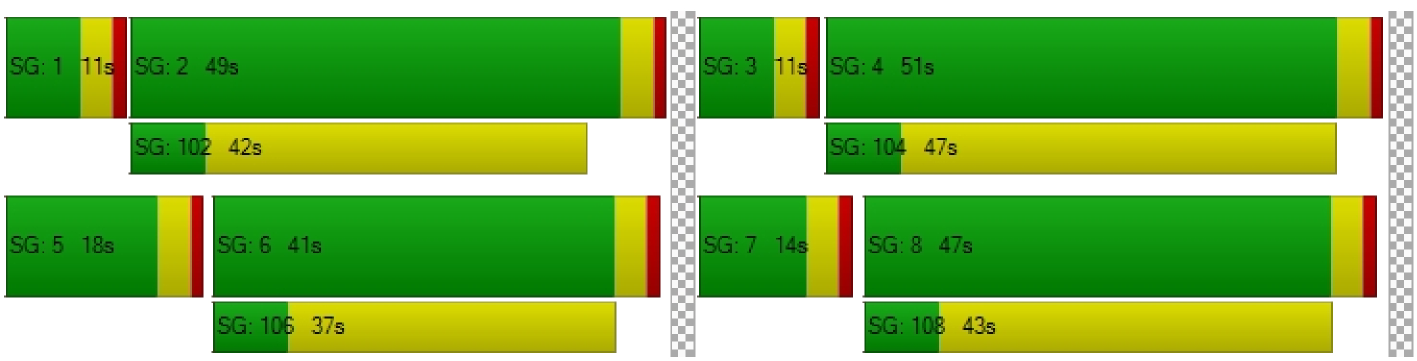
d_M, Delay for Movement [s/veh]	57.61	18.26	19.19	89.74	12.19	9.76	39.35	54.14	59.18	59.05	50.35	0.00
Movement LOS	E	B	B	F	B	A	D	D	E	E	D	
d_A, Approach Delay [s/veh]	20.82			28.85			49.89			54.66		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	30.86											
Intersection LOS	C											
Intersection V/C	0.678											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	3.173	3.297	2.754	2.798
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	750	717	783
d_b, Bicycle Delay [s]	28.70	23.44	24.70	22.20
I_b,int, Bicycle LOS Score for Intersection	2.555	2.640	1.996	1.976
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Bob Hope Drive at Rancho Las Palmas

Control Type:	Signalized	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.320

Intersection Setup

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
Base Volume Input [veh/h]	35	591	44	29	664	153	128	9	60	34	9	19
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	591	44	29	664	153	128	9	60	34	9	19
Peak Hour Factor	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	154	11	8	173	40	33	2	16	9	2	5
Total Analysis Volume [veh/h]	37	617	46	30	693	160	134	9	63	35	9	20
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	33	0	0	33	0	0	57	0	0	57	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	22	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	69	69	69	69	69	69	13	13	13	13
g / C, Green / Cycle	0.77	0.77	0.77	0.77	0.77	0.77	0.14	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.05	0.17	0.03	0.04	0.19	0.10	0.10	0.00	0.04	0.04
s, saturation flow rate [veh/h]	751	3560	1589	806	3560	1589	1381	1870	1589	1440
c, Capacity [veh/h]	603	2748	1227	647	2748	1227	176	260	221	262
d1, Uniform Delay [s]	4.36	2.83	2.41	4.10	2.91	2.61	38.10	33.50	34.71	34.98
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.20	0.19	0.06	0.14	0.22	0.22	6.58	0.05	0.70	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.22	0.04	0.05	0.25	0.13	0.76	0.03	0.28	0.24
d, Delay for Lane Group [s/veh]	4.55	3.02	2.47	4.23	3.13	2.83	44.68	33.55	35.41	35.45
Lane Group LOS	A	A	A	A	A	A	D	C	D	D
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.22	1.13	0.15	0.17	1.30	0.58	3.16	0.17	1.26	1.29
50th-Percentile Queue Length [ft/ln]	5.40	28.21	3.84	4.14	32.55	14.46	78.89	4.31	31.61	32.26
95th-Percentile Queue Length [veh/ln]	0.39	2.03	0.28	0.30	2.34	1.04	5.68	0.31	2.28	2.32
95th-Percentile Queue Length [ft/ln]	9.72	50.78	6.91	7.44	58.58	26.03	142.0	7.75	56.90	58.08

Movement, Approach, & Intersection Results

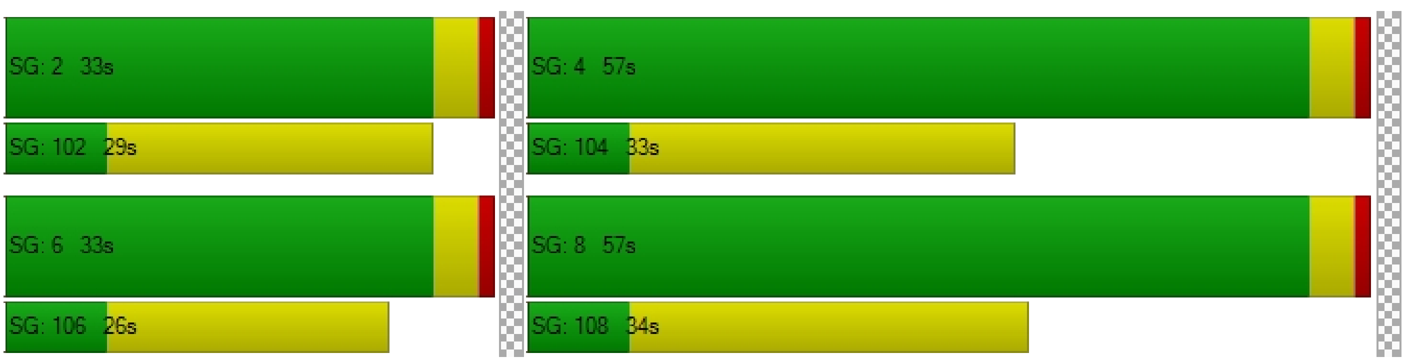
d_M, Delay for Movement [s/veh]	4.55	3.02	2.47	4.23	3.13	2.83	44.68	33.55	35.41	35.45	35.45	35.45
Movement LOS	A	A	A	A	A	A	D	C	D	D	D	D
d_A, Approach Delay [s/veh]	3.07			3.11			41.36			35.45		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	8.46											
Intersection LOS	A											
Intersection V/C	0.320											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.744	2.912	2.284	1.830
Crosswalk LOS	B	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	644	1178	1178
d_b, Bicycle Delay [s]	20.67	20.67	7.61	7.61
I_b,int, Bicycle LOS Score for Intersection	2.137	2.288	1.900	1.665
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX C-II

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Highway 111 at Rancho Las Palmas Drive

Control Type:	Signalized	Delay (sec / veh):	12.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.490

Intersection Setup

Name	Highway 111			Highway 111			Ra La			Ra La		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Ra La			Ra La		
Base Volume Input [veh/h]	12	1347	48	87	1258	23	35	48	27	89	30	75
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	1347	48	87	1258	23	35	48	27	89	30	75
Peak Hour Factor	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	348	12	22	325	6	9	12	7	23	8	19
Total Analysis Volume [veh/h]	12	1390	50	90	1298	24	36	50	28	92	31	77
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	32	0	24	46	0	0	39	0	0	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	19	0	0	28	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	62	62	7	67	67	14	14	14	14	14	14
g / C, Green / Cycle	0.02	0.65	0.65	0.07	0.70	0.70	0.15	0.15	0.15	0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.01	0.30	0.30	0.06	0.27	0.27	0.03	0.03	0.02	0.08	0.02	0.05
s, saturation flow rate [veh/h]	1603	3204	1653	1603	3204	1667	1240	1683	1431	1219	1683	1431
c, Capacity [veh/h]	33	2096	1081	113	2256	1174	209	251	213	194	251	213
d1, Uniform Delay [s]	45.91	8.08	8.08	43.46	5.71	5.71	39.01	35.46	35.10	41.91	35.06	36.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.58	0.71	1.37	11.72	0.50	0.96	0.39	0.39	0.28	1.80	0.22	1.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.45	0.45	0.79	0.39	0.39	0.17	0.20	0.13	0.47	0.12	0.36
d, Delay for Lane Group [s/veh]	52.49	8.79	9.45	55.19	6.20	6.66	39.40	35.85	35.37	43.71	35.27	37.40
Lane Group LOS	D	A	A	E	A	A	D	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.34	4.44	4.78	2.43	3.11	3.38	0.79	1.03	0.57	2.18	0.63	1.65
50th-Percentile Queue Length [ft/ln]	8.45	110.9	119.4	60.83	77.65	84.55	19.71	25.86	14.37	54.47	15.82	41.29
95th-Percentile Queue Length [veh/ln]	0.61	7.89	8.36	4.38	5.59	6.09	1.42	1.86	1.03	3.92	1.14	2.97
95th-Percentile Queue Length [ft/ln]	15.21	197.3	209.1	109.4	139.7	152.1	35.47	46.54	25.86	98.04	28.47	74.33

Movement, Approach, & Intersection Results

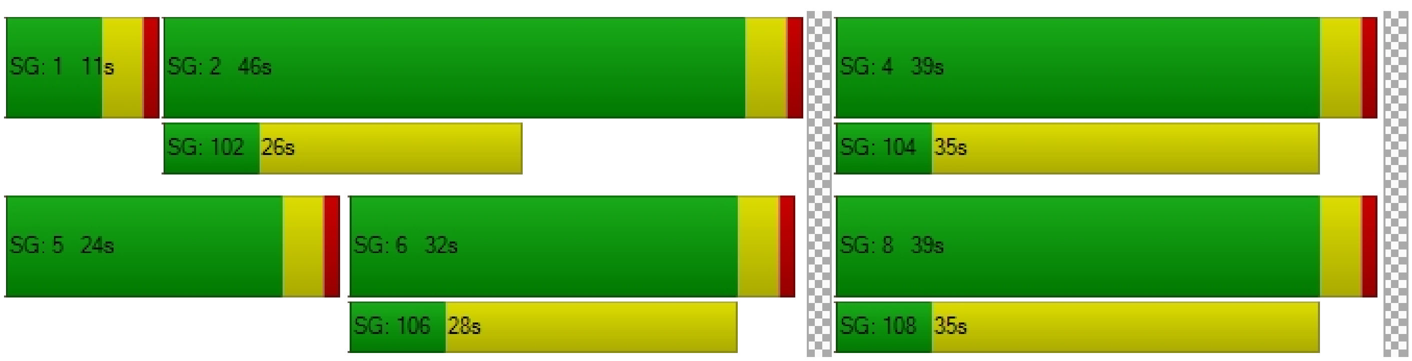
d_M, Delay for Movement [s/veh]	52.49	9.00	9.45	55.19	6.36	6.66	39.40	35.85	35.37	43.71	35.27	37.40
Movement LOS	D	A	A	E	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	9.38			9.47			36.85			39.97		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	12.33											
Intersection LOS	B											
Intersection V/C	0.490											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	37.14	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	3.127	3.053	2.177	2.228
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	589	884	737	737
d_b, Bicycle Delay [s]	23.63	14.78	18.95	18.95
I_b,int, Bicycle LOS Score for Intersection	2.358	2.336	1.748	1.890
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Highway 111 at Bob Hope Drive

Control Type:	Signalized	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.553

Intersection Setup

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
Base Volume Input [veh/h]	22	1509	487	87	1341	7	8	14	12	519	7	44
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	1509	487	87	1341	7	8	14	12	519	7	44
Peak Hour Factor	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	385	124	22	342	2	2	4	3	132	2	11
Total Analysis Volume [veh/h]	22	1540	497	89	1368	7	8	14	12	530	7	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	6	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups			4,6									
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	30	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	14	28	28	11	25	0	0	11	0	0	45	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	17	0	12	0	0	0	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No	No	No	No			No			No	
Maximum Recall	No	No	No	No	No			No			No	
Pedestrian Recall	No	No	No	No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	L	C
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	53	73	6	56	56	4	16	16
g / C, Green / Cycle	0.03	0.56	0.76	0.07	0.59	0.59	0.04	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.01	0.30	0.31	0.03	0.25	0.25	0.02	0.11	0.11
s, saturation flow rate [veh/h]	1781	5094	1589	3459	3560	1865	1741	3459	1736
c, Capacity [veh/h]	58	2832	1213	231	2101	1101	76	571	287
d1, Uniform Delay [s]	45.02	13.43	3.88	42.47	10.69	10.69	44.30	37.30	37.30
k, delay calibration	0.11	0.50	0.26	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.02	0.76	0.53	1.05	0.64	1.23	4.03	1.42	2.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.54	0.41	0.39	0.43	0.43	0.45	0.68	0.68
d, Delay for Lane Group [s/veh]	49.03	14.19	4.41	43.52	11.34	11.92	48.33	38.72	40.12
Lane Group LOS	D	B	A	D	B	B	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.57	6.68	2.61	1.03	4.97	5.39	0.86	4.29	4.42
50th-Percentile Queue Length [ft/ln]	14.23	167.1	65.28	25.68	124.2	134.6	21.52	107.35	110.62
95th-Percentile Queue Length [veh/ln]	1.02	10.93	4.70	1.85	8.63	9.19	1.55	7.69	7.87
95th-Percentile Queue Length [ft/ln]	25.62	273.1	117.5	46.22	215.6	229.7	38.73	192.30	196.86

Movement, Approach, & Intersection Results

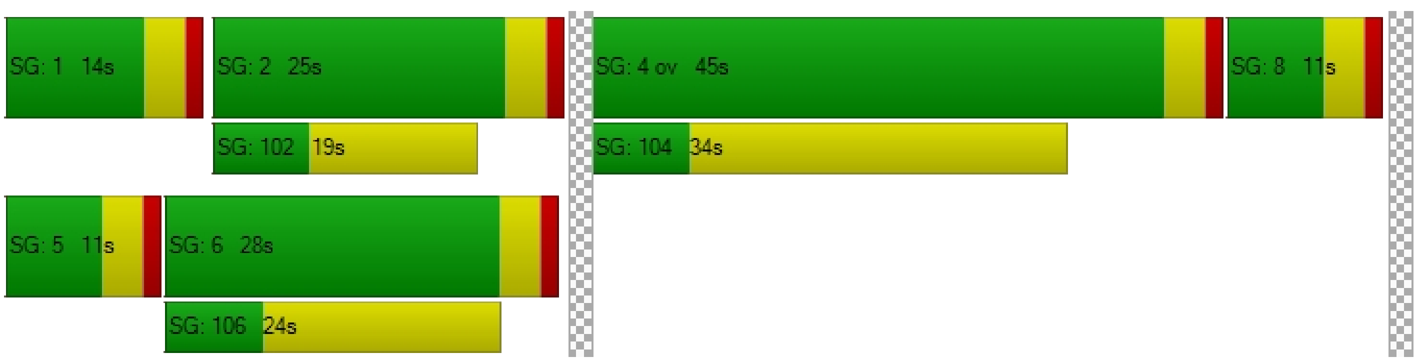
d_M, Delay for Movement [s/veh]	49.03	14.19	4.41	43.52	11.54	11.92	48.33	48.33	48.33	39.09	40.12	40.12
Movement LOS	D	B	A	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	12.20			13.48			48.33			39.19		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	16.74											
Intersection LOS	B											
Intersection V/C	0.553											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	37.14	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.100	1.751	2.647
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	505	442	147	863
d_b, Bicycle Delay [s]	26.53	28.82	40.76	15.35
I_b,int, Bicycle LOS Score for Intersection	2.692	2.365	1.616	2.520
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Highway 111 at Magnesia Falls Drive

Control Type:	Signalized	Delay (sec / veh):	14.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	42	2001	55	54	1757	14	20	11	39	165	10	21
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	2001	55	54	1757	14	20	11	39	165	10	21
Peak Hour Factor	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	11	517	14	14	454	4	5	3	10	43	3	5
Total Analysis Volume [veh/h]	43	2067	57	56	1815	14	21	11	40	170	10	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	30	0	10	30	0	0	10	0	0	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	56	56	5	56	56	6	6	7	7	7
g / C, Green / Cycle	0.05	0.62	0.62	0.06	0.63	0.63	0.07	0.07	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.02	0.39	0.39	0.03	0.34	0.34	0.02	0.03	0.05	0.05	0.01
s, saturation flow rate [veh/h]	1781	3560	1844	1781	3560	1863	1811	1589	1781	1790	1589
c, Capacity [veh/h]	94	2201	1140	107	2227	1165	120	105	139	140	124
d1, Uniform Delay [s]	41.47	10.81	10.84	41.14	9.54	9.54	40.03	40.34	40.35	40.34	38.85
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.47	1.41	2.72	3.95	0.94	1.79	1.18	2.25	4.92	4.87	0.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.46	0.63	0.64	0.52	0.54	0.54	0.27	0.38	0.64	0.64	0.18
d, Delay for Lane Group [s/veh]	44.94	12.22	13.56	45.10	10.48	11.33	41.21	42.59	45.27	45.21	39.52
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.01	8.06	8.81	1.31	6.13	6.69	0.71	0.91	2.10	2.11	0.47
50th-Percentile Queue Length [ft/ln]	25.22	201.4	220.1	32.79	153.2	167.3	17.68	22.67	52.53	52.67	11.84
95th-Percentile Queue Length [veh/ln]	1.82	12.71	13.67	2.36	10.19	10.94	1.27	1.63	3.78	3.79	0.85
95th-Percentile Queue Length [ft/ln]	45.39	317.8	341.8	59.02	254.7	273.3	31.82	40.81	94.55	94.81	21.32

Movement, Approach, & Intersection Results

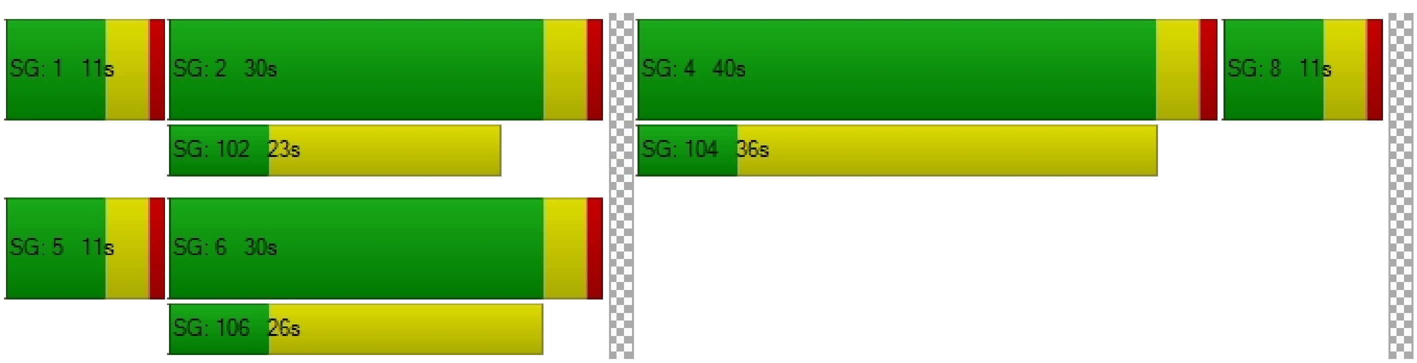
d_M, Delay for Movement [s/veh]	44.94	12.66	13.56	45.10	10.77	11.33	41.21	41.21	42.59	45.24	45.21	39.52
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	13.32			11.79			41.98			44.62		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	14.59											
Intersection LOS	B											
Intersection V/C	0.609											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.150	1.985	2.210
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	156	800
d_b, Bicycle Delay [s]	22.76	22.76	38.27	16.20
I_b,int, Bicycle LOS Score for Intersection	2.751	2.596	1.678	1.893
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Highway 111 at Painters Path/Park View Drive

Control Type:	Signalized	Delay (sec / veh):	11.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.602

Intersection Setup

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
Base Volume Input [veh/h]	5	1797	90	140	1804	63	42	24	6	39	33	131
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1797	90	140	1804	63	42	24	6	39	33	131
Peak Hour Factor	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	460	23	36	462	16	11	6	2	10	8	34
Total Analysis Volume [veh/h]	5	1839	92	143	1846	64	43	25	6	40	34	134
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	34	0	19	34	0	0	42	0	0	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	23	0	0	15	0	0	31	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	63	63	9	72	72	10	10	10
g / C, Green / Cycle	0.01	0.67	0.67	0.10	0.76	0.76	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.00	0.36	0.06	0.08	0.35	0.35	0.08	0.05	0.08
s, saturation flow rate [veh/h]	1781	5094	1589	1781	3560	1838	963	1577	1589
c, Capacity [veh/h]	18	3393	1059	177	2689	1388	164	229	172
d1, Uniform Delay [s]	46.67	8.29	5.62	41.91	4.40	4.41	41.88	39.45	41.26
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.73	0.63	0.16	8.45	0.59	1.14	1.93	0.81	7.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.54	0.09	0.81	0.47	0.47	0.45	0.32	0.78
d, Delay for Lane Group [s/veh]	54.39	8.91	5.78	50.36	4.99	5.55	43.81	40.26	48.68
Lane Group LOS	D	A	A	D	A	A	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.16	5.87	0.62	3.66	3.68	4.03	1.78	1.65	3.38
50th-Percentile Queue Length [ft/ln]	3.90	146.7	15.62	91.60	92.01	100.7	44.42	41.26	84.43
95th-Percentile Queue Length [veh/ln]	0.28	9.84	1.12	6.60	6.62	7.25	3.20	2.97	6.08
95th-Percentile Queue Length [ft/ln]	7.02	246.0	28.12	164.8	165.6	181.3	79.95	74.26	151.98

Movement, Approach, & Intersection Results

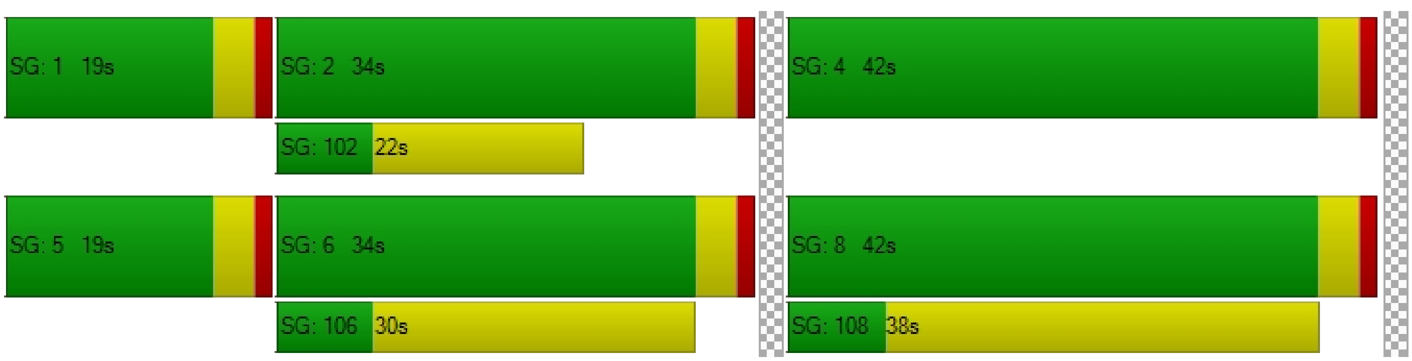
d_M, Delay for Movement [s/veh]	54.39	8.91	5.78	50.36	5.17	5.55	43.81	43.81	43.81	40.26	40.26	48.68
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	8.88			8.33			43.81			45.68		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	11.01											
Intersection LOS	B											
Intersection V/C	0.602											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	0.00	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	3.251	0.000	1.803	2.095
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	632	632	800	800
d_b, Bicycle Delay [s]	22.24	22.24	17.10	17.10
I_b,int, Bicycle LOS Score for Intersection	2.624	2.689	1.682	1.903
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Highway 111 at Fred Waring Drive

Control Type:	Signalized	Delay (sec / veh):	39.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.636

Intersection Setup

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
Base Volume Input [veh/h]	69	1339	153	490	1334	123	138	170	78	182	164	431
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	1339	153	490	1334	123	138	170	78	182	164	431
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	18	352	40	129	351	32	36	45	21	48	43	113
Total Analysis Volume [veh/h]	73	1409	161	516	1404	129	145	179	82	192	173	454
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Unsig
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	41	0	18	49	0	10	49	0	12	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	30	0	0	35	0	0	36	0	0	40	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	72	72	14	80	80	22	9	9	9	11
g / C, Green / Cycle	0.05	0.60	0.60	0.12	0.67	0.67	0.18	0.08	0.08	0.07	0.09
(v / s)_i Volume / Saturation Flow Rate	0.02	0.29	0.29	0.15	0.28	0.08	0.05	0.05	0.05	0.06	0.05
s, saturation flow rate [veh/h]	3459	3560	1774	3459	5094	1589	2813	3560	1589	3459	3560
c, Capacity [veh/h]	187	2143	1068	405	3388	1057	522	269	120	249	317
d1, Uniform Delay [s]	54.88	13.48	13.48	53.00	9.29	7.33	42.16	54.00	54.08	54.74	52.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.33	0.80	1.60	127.5	0.38	0.24	0.29	2.80	6.62	5.04	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.49	0.49	1.27	0.41	0.12	0.28	0.66	0.68	0.77	0.55
d, Delay for Lane Group [s/veh]	56.21	14.28	15.08	180.5	9.67	7.56	42.45	56.81	60.69	59.78	53.83
Lane Group LOS	E	B	B	F	A	A	D	E	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.10	7.93	8.15	13.27	5.45	1.23	1.87	2.74	2.64	3.03	2.56
50th-Percentile Queue Length [ft/ln]	27.59	198.2	203.6	331.7	136.2	30.69	46.76	68.46	65.93	75.68	64.11
95th-Percentile Queue Length [veh/ln]	1.99	12.55	12.83	21.10	9.28	2.21	3.37	4.93	4.75	5.45	4.62
95th-Percentile Queue Length [ft/ln]	49.66	313.6	320.6	527.5	231.9	55.25	84.17	123.2	118.6	136.22	115.40

Movement, Approach, & Intersection Results

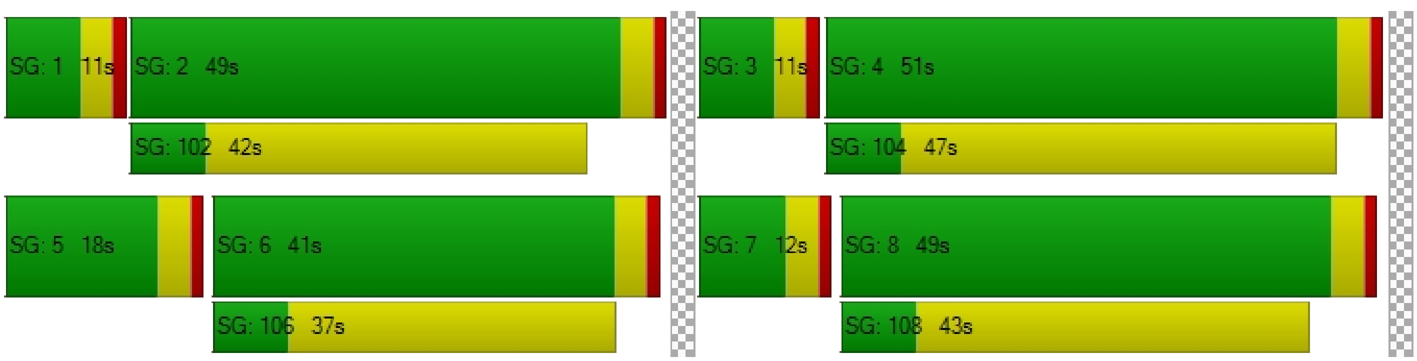
d_M, Delay for Movement [s/veh]	56.21	14.48	15.08	180.5	9.67	7.56	42.45	56.81	60.69	59.78	53.83	0.00
Movement LOS	E	B	B	F	A	A	D	E	E	E	D	
d_A, Approach Delay [s/veh]		16.40			52.56			52.46			56.96	
Approach LOS		B			D			D			E	
d_I, Intersection Delay [s/veh]						39.60						
Intersection LOS						D						
Intersection V/C						0.636						

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	3.144	3.275	2.716	2.778
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	750	750	783
d_b, Bicycle Delay [s]	28.70	23.44	23.44	22.20
I_b,int, Bicycle LOS Score for Intersection	2.463	2.687	1.895	1.861
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Bob Hope Drive at Rancho Las Palmas

Control Type:	Signalized	Delay (sec / veh):	11.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.418

Intersection Setup

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
Base Volume Input [veh/h]	45	607	12	5	546	203	258	2	63	12	6	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	607	12	5	546	203	258	2	63	12	6	2
Peak Hour Factor	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	12	164	3	1	147	55	70	1	17	3	2	1
Total Analysis Volume [veh/h]	48	654	13	5	588	219	278	2	68	13	6	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	52	0	0	52	0	0	38	0	0	38	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	22	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	62	62	62	62	62	62	20	20	20	20
g / C, Green / Cycle	0.69	0.69	0.69	0.69	0.69	0.69	0.22	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.06	0.18	0.01	0.01	0.17	0.14	0.20	0.00	0.04	0.01
s, saturation flow rate [veh/h]	828	3560	1589	779	3560	1589	1407	1870	1589	1486
c, Capacity [veh/h]	577	2452	1094	541	2452	1094	333	416	353	395
d1, Uniform Delay [s]	7.63	5.34	4.39	7.55	5.22	5.05	34.00	27.19	28.37	27.48
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.28	0.27	0.02	0.03	0.23	0.41	5.52	0.00	0.26	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.27	0.01	0.01	0.24	0.20	0.84	0.00	0.19	0.05
d, Delay for Lane Group [s/veh]	7.92	5.60	4.41	7.58	5.45	5.46	39.52	27.19	28.63	27.53
Lane Group LOS	A	A	A	A	A	A	D	C	C	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.41	2.06	0.07	0.04	1.81	1.37	6.25	0.03	1.20	0.36
50th-Percentile Queue Length [ft/ln]	10.21	51.45	1.76	1.04	45.20	34.30	156.2	0.84	29.98	8.92
95th-Percentile Queue Length [veh/ln]	0.73	3.70	0.13	0.07	3.25	2.47	10.35	0.06	2.16	0.64
95th-Percentile Queue Length [ft/ln]	18.37	92.61	3.17	1.87	81.37	61.75	258.7	1.51	53.97	16.06

Movement, Approach, & Intersection Results

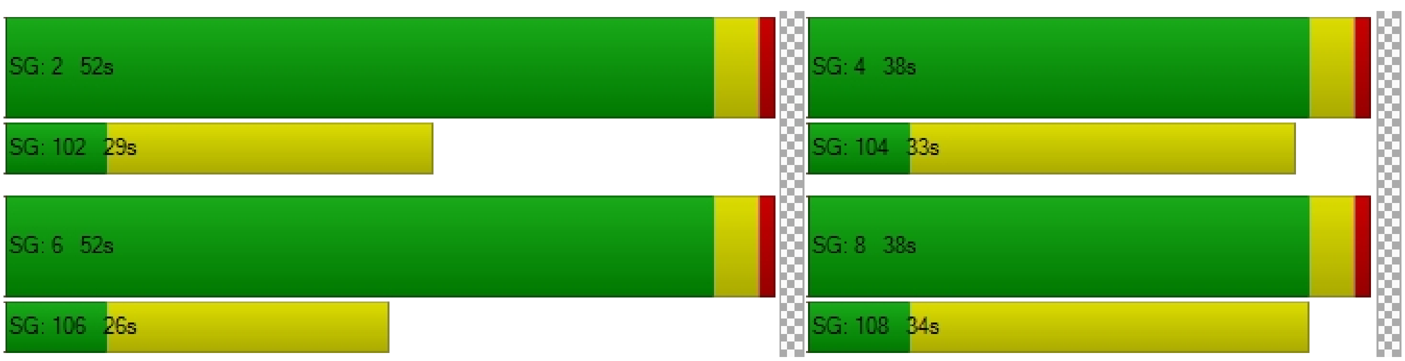
d_M, Delay for Movement [s/veh]	7.92	5.60	4.41	7.58	5.45	5.46	39.52	27.19	28.63	27.53	27.53	27.53
Movement LOS	A	A	A	A	A	A	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.74			5.47			37.32			27.53		
Approach LOS	A			A			D			C		
d_I, Intersection Delay [s/veh]	11.66											
Intersection LOS	B											
Intersection V/C	0.418											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.696	3.132	2.350	1.741
Crosswalk LOS	B	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	1067	756	756
d_b, Bicycle Delay [s]	9.80	9.80	17.42	17.42
I_b,int, Bicycle LOS Score for Intersection	2.149	2.230	2.134	1.594
Bicycle LOS	B	B	B	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 1: Highway 111 at Rancho Las Palmas Drive

Control Type:	Signalized	Delay (sec / veh):	9.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.474

Intersection Setup

Name	Highway 111			Highway 111			Ra La			Ra La		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Ra La			Ra La		
Base Volume Input [veh/h]	12	1416	54	71	1384	23	19	21	15	55	20	68
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	1416	54	71	1384	23	19	21	15	55	20	68
Peak Hour Factor	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	377	14	19	368	6	5	6	4	15	5	18
Total Analysis Volume [veh/h]	13	1506	57	76	1472	24	20	22	16	59	21	72
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	35	32	0	34	31	0	0	39	0	0	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	19	0	0	28	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	76	76	6	80	80	11	11	11	11	11	11
g / C, Green / Cycle	0.02	0.73	0.73	0.06	0.76	0.76	0.10	0.10	0.10	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.01	0.32	0.32	0.05	0.31	0.31	0.02	0.01	0.01	0.05	0.01	0.05
s, saturation flow rate [veh/h]	1603	3204	1652	1603	3204	1669	1252	1683	1431	1250	1683	1431
c, Capacity [veh/h]	34	2326	1199	96	2449	1276	152	168	143	151	168	143
d1, Uniform Delay [s]	50.70	5.82	5.82	48.70	4.21	4.21	46.46	43.08	43.00	48.03	43.06	44.77
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.84	0.62	1.19	13.43	0.49	0.94	0.39	0.35	0.34	1.63	0.33	2.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.44	0.44	0.79	0.40	0.40	0.13	0.13	0.11	0.39	0.12	0.50
d, Delay for Lane Group [s/veh]	57.54	6.44	7.01	62.13	4.70	5.15	46.84	43.43	43.34	49.66	43.39	47.49
Lane Group LOS	E	A	A	E	A	A	D	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.40	4.10	4.42	2.32	3.01	3.29	0.51	0.54	0.39	1.58	0.51	1.88
50th-Percentile Queue Length [ft/ln]	10.03	102.4	110.4	57.90	75.16	82.31	12.76	13.42	9.78	39.38	12.80	46.95
95th-Percentile Queue Length [veh/ln]	0.72	7.38	7.86	4.17	5.41	5.93	0.92	0.97	0.70	2.84	0.92	3.38
95th-Percentile Queue Length [ft/ln]	18.06	184.4	196.6	104.2	135.2	148.1	22.97	24.15	17.61	70.88	23.03	84.52

Movement, Approach, & Intersection Results

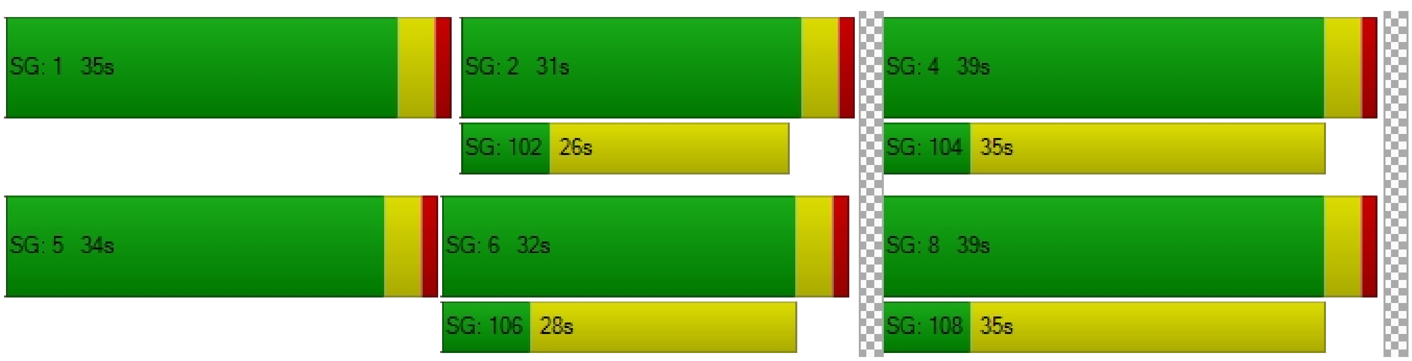
d_M, Delay for Movement [s/veh]	57.54	6.62	7.01	62.13	4.85	5.15	46.84	43.43	43.34	49.66	43.39	47.49
Movement LOS	E	A	A	E	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]		7.05			7.62			44.58			47.77	
Approach LOS		A			A			D			D	
d_I, Intersection Delay [s/veh]	9.81											
Intersection LOS	A											
Intersection V/C	0.474											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	42.08	42.08	42.08	42.08
I_p,int, Pedestrian LOS Score for Intersection	3.120	3.071	2.167	2.213
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	514	667	667
d_b, Bicycle Delay [s]	28.23	28.97	23.33	23.33
I_b,int, Bicycle LOS Score for Intersection	2.426	2.424	1.655	1.810
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Highway 111 at Bob Hope Drive

Control Type:	Signalized	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.574

Intersection Setup

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
Base Volume Input [veh/h]	33	1545	480	101	1339	11	12	20	18	522	11	51
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	1545	480	101	1339	11	12	20	18	522	11	51
Peak Hour Factor	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	8	393	122	26	341	3	3	5	5	133	3	13
Total Analysis Volume [veh/h]	34	1573	489	103	1364	11	12	20	18	532	11	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	6	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups			4,6									
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	30	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	14	28	28	11	25	0	0	11	0	0	50	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	17	0	12	0	0	0	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No	No	No	No			No			No	
Maximum Recall	No	No	No	No	No			No			No	
Pedestrian Recall	No	No	No	No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	L	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	56	76	7	58	58	5	16	16
g / C, Green / Cycle	0.04	0.56	0.76	0.07	0.58	0.58	0.05	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.02	0.31	0.31	0.03	0.25	0.25	0.03	0.11	0.11
s, saturation flow rate [veh/h]	1781	5094	1589	3459	3560	1862	1739	3459	1731
c, Capacity [veh/h]	77	2842	1210	229	2069	1082	92	564	282
d1, Uniform Delay [s]	46.69	14.15	4.13	44.95	11.76	11.76	46.20	39.57	39.57
k, delay calibration	0.11	0.50	0.22	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.97	0.78	0.44	1.38	0.67	1.28	4.94	1.61	3.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.55	0.40	0.45	0.44	0.44	0.54	0.70	0.70
d, Delay for Lane Group [s/veh]	50.66	14.93	4.57	46.33	12.44	13.05	51.14	41.18	42.77
Lane Group LOS	D	B	A	D	B	B	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.91	7.32	2.80	1.27	5.48	5.91	1.33	4.69	4.82
50th-Percentile Queue Length [ft/ln]	22.66	183.0	69.92	31.70	136.9	147.8	33.31	117.19	120.58
95th-Percentile Queue Length [veh/ln]	1.63	11.76	5.03	2.28	9.31	9.90	2.40	8.24	8.42
95th-Percentile Queue Length [ft/ln]	40.78	293.9	125.8	57.06	232.8	247.4	59.96	205.96	210.62

Movement, Approach, & Intersection Results

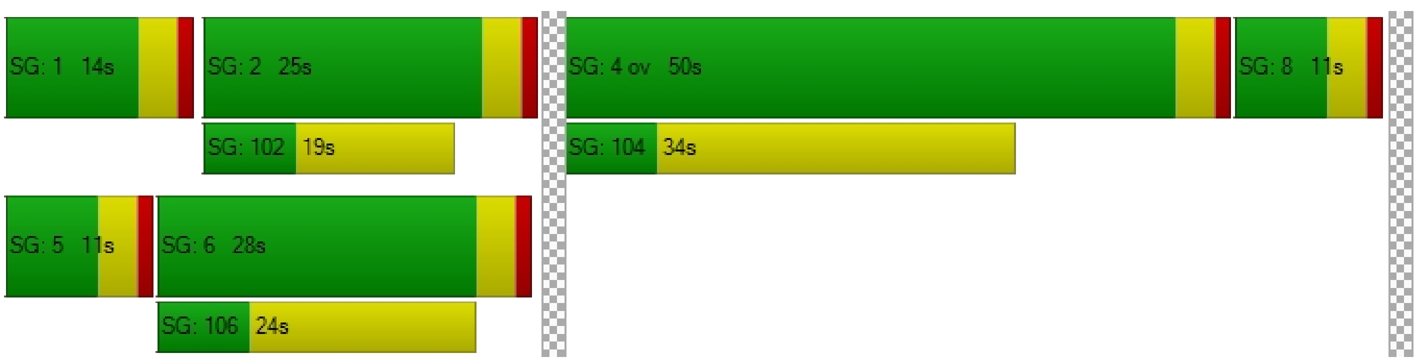
d_M, Delay for Movement [s/veh]	50.66	14.93	4.57	46.33	12.64	13.05	51.14	51.14	51.14	41.58	42.77	42.77
Movement LOS	D	B	A	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	13.09			14.99			51.14			41.71		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.24											
Intersection LOS	B											
Intersection V/C	0.574											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	39.61	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.110	1.771	2.654
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	480	420	140	920
d_b, Bicycle Delay [s]	28.88	31.21	43.25	14.58
I_b,int, Bicycle LOS Score for Intersection	2.712	2.373	1.642	2.541
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Highway 111 at Magnesia Falls Drive

Control Type:	Signalized	Delay (sec / veh):	17.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.671

Intersection Setup

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	44	1999	88	104	1760	15	12	9	35	255	10	26
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	1999	88	104	1760	15	12	9	35	255	10	26
Peak Hour Factor	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	11	507	22	26	447	4	3	2	9	65	3	7
Total Analysis Volume [veh/h]	45	2029	89	106	1787	15	12	9	36	259	10	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	30	0	10	28	0	0	10	0	0	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	53	53	7	55	55	5	5	9	9	9
g / C, Green / Cycle	0.05	0.58	0.58	0.08	0.61	0.61	0.06	0.06	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.03	0.39	0.39	0.06	0.33	0.33	0.01	0.02	0.08	0.08	0.02
s, saturation flow rate [veh/h]	1781	3560	1830	1781	3560	1862	1818	1589	1781	1787	1589
c, Capacity [veh/h]	96	2072	1065	136	2152	1125	110	96	185	186	165
d1, Uniform Delay [s]	41.41	12.97	13.01	40.90	10.57	10.57	40.27	40.73	39.16	39.16	36.81
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.52	1.77	3.47	9.25	1.02	1.94	0.84	2.41	5.33	5.30	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.47	0.67	0.68	0.78	0.55	0.55	0.19	0.38	0.73	0.73	0.16
d, Delay for Lane Group [s/veh]	44.93	14.74	16.47	50.15	11.58	12.51	41.11	43.14	44.49	44.46	37.25
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.05	9.17	10.00	2.63	6.48	7.07	0.46	0.82	3.11	3.12	0.54
50th-Percentile Queue Length [ft/ln]	26.36	229.2	250.0	65.78	162.0	176.7	11.60	20.62	77.86	78.06	13.43
95th-Percentile Queue Length [veh/ln]	1.90	14.14	15.19	4.74	10.66	11.43	0.84	1.48	5.61	5.62	0.97
95th-Percentile Queue Length [ft/ln]	47.46	353.4	379.7	118.4	266.4	285.8	20.89	37.11	140.1	140.5	24.17

Movement, Approach, & Intersection Results

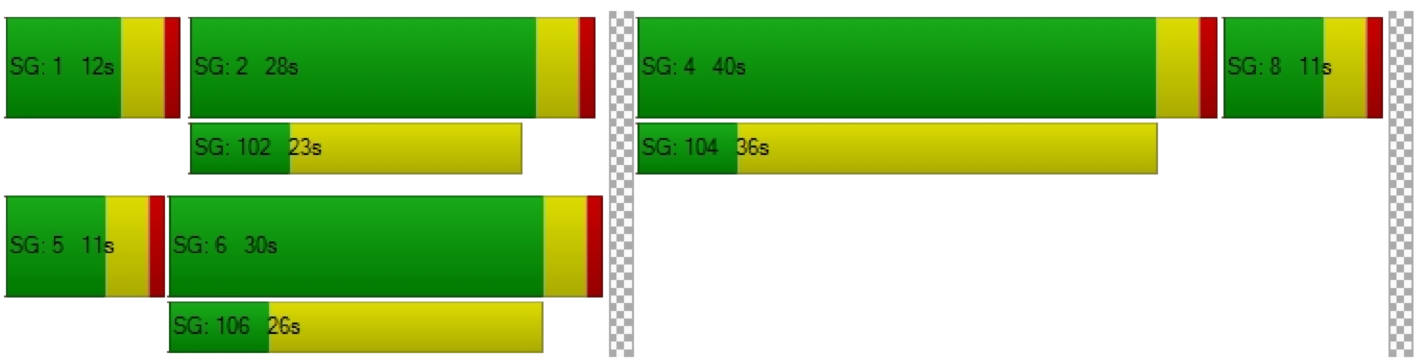
d_M, Delay for Movement [s/veh]	44.93	15.28	16.47	50.15	11.90	12.51	41.11	41.11	43.14	44.48	44.46	37.25
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	15.95			14.03			42.39			43.84		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	17.32											
Intersection LOS	B											
Intersection V/C	0.671											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.147	1.981	2.252
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	533	156	800
d_b, Bicycle Delay [s]	22.76	24.20	38.27	16.20
I_b,int, Bicycle LOS Score for Intersection	2.749	2.609	1.654	2.046
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Highway 111 at Painters Path/Park View Drive

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.619

Intersection Setup

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
Base Volume Input [veh/h]	6	1950	80	99	1872	88	46	13	8	48	24	126
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	1950	80	99	1872	88	46	13	8	48	24	126
Peak Hour Factor	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	504	21	26	484	23	12	3	2	12	6	33
Total Analysis Volume [veh/h]	6	2017	83	102	1936	91	48	13	8	50	25	130
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	34	0	19	33	0	0	42	0	0	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	23	0	0	15	0	0	31	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	66	66	7	72	72	10	10	10
g / C, Green / Cycle	0.01	0.69	0.69	0.07	0.76	0.76	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.00	0.40	0.05	0.06	0.38	0.38	0.09	0.05	0.08
s, saturation flow rate [veh/h]	1781	5094	1589	1781	3560	1827	788	1552	1589
c, Capacity [veh/h]	21	3536	1103	131	2692	1382	147	227	168
d1, Uniform Delay [s]	46.54	7.35	4.69	43.23	4.53	4.54	43.22	39.79	41.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.96	0.67	0.13	9.37	0.66	1.29	2.30	0.84	7.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.57	0.08	0.78	0.50	0.50	0.47	0.33	0.77
d, Delay for Lane Group [s/veh]	53.49	8.03	4.82	52.61	5.19	5.83	45.51	40.63	48.77
Lane Group LOS	D	A	A	D	A	A	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.18	5.98	0.49	2.68	4.03	4.41	1.69	1.68	3.28
50th-Percentile Queue Length [ft/ln]	4.53	149.4	12.34	66.90	100.7	110.2	42.21	42.08	81.97
95th-Percentile Queue Length [veh/ln]	0.33	9.98	0.89	4.82	7.25	7.85	3.04	3.03	5.90
95th-Percentile Queue Length [ft/ln]	8.15	249.6	22.21	120.4	181.3	196.3	75.98	75.75	147.55

Movement, Approach, & Intersection Results

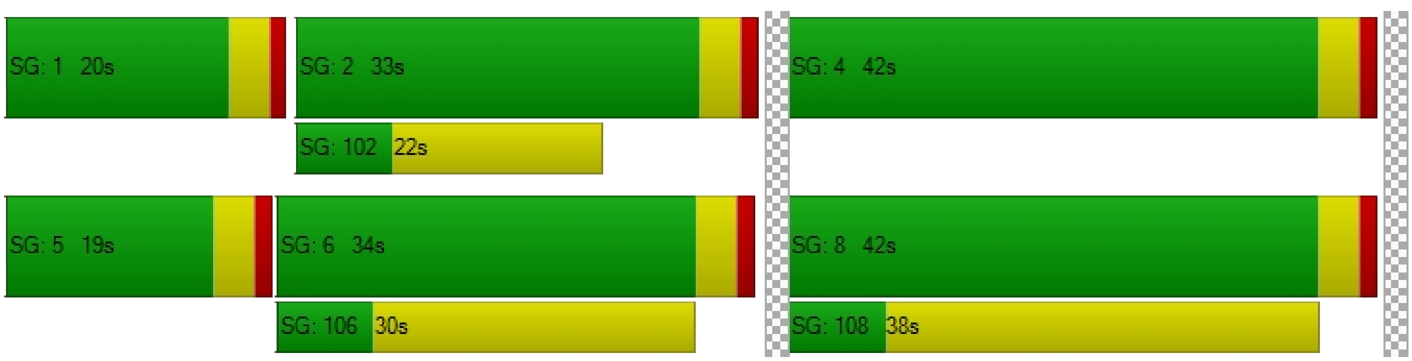
d_M, Delay for Movement [s/veh]	53.49	8.03	4.82	52.61	5.39	5.83	45.51	45.51	45.51	40.63	40.63	48.77
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	8.03			7.67			45.51			45.79		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.15											
Intersection LOS	B											
Intersection V/C	0.619											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	0.00	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	3.299	0.000	1.810	2.073
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	632	611	800	800
d_b, Bicycle Delay [s]	22.24	22.93	17.10	17.10
I_b,int, Bicycle LOS Score for Intersection	2.718	2.731	1.673	1.898
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Highway 111 at Fred Waring Drive

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.687

Intersection Setup

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
Base Volume Input [veh/h]	108	1449	198	420	1351	144	183	214	109	239	244	369
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	1449	198	420	1351	144	183	214	109	239	244	369
Peak Hour Factor	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	28	379	52	110	353	38	48	56	28	62	64	96
Total Analysis Volume [veh/h]	113	1514	207	439	1412	150	191	224	114	250	255	386
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Unsig
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	41	0	18	49	0	10	47	0	14	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	30	0	0	35	0	0	36	0	0	40	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	68	68	14	75	75	26	12	12	11	15
g / C, Green / Cycle	0.06	0.56	0.56	0.12	0.62	0.62	0.22	0.10	0.10	0.09	0.13
(v / s)_i Volume / Saturation Flow Rate	0.03	0.32	0.32	0.13	0.28	0.09	0.07	0.06	0.07	0.07	0.07
s, saturation flow rate [veh/h]	3459	3560	1757	3459	5094	1589	2623	3560	1589	3459	3560
c, Capacity [veh/h]	200	2006	990	405	3172	990	551	348	155	306	453
d1, Uniform Delay [s]	55.10	16.92	16.95	53.00	11.82	9.44	38.98	52.15	52.64	53.75	49.25
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.51	1.20	2.44	47.52	0.45	0.32	0.37	1.99	6.54	5.30	1.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.57	0.58	1.08	0.45	0.15	0.35	0.64	0.73	0.82	0.56
d, Delay for Lane Group [s/veh]	57.61	18.12	19.39	100.5	12.28	9.76	39.35	54.14	59.18	59.05	50.35
Lane Group LOS	E	B	B	F	B	A	D	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.74	10.24	10.51	8.77	6.43	1.69	2.37	3.35	3.62	3.93	3.67
50th-Percentile Queue Length [ft/ln]	43.42	256.0	262.7	219.1	160.7	42.26	59.22	83.70	90.58	98.32	91.75
95th-Percentile Queue Length [veh/ln]	3.13	15.49	15.82	14.07	10.59	3.04	4.26	6.03	6.52	7.08	6.61
95th-Percentile Queue Length [ft/ln]	78.16	387.2	395.6	351.8	264.6	76.07	106.6	150.6	163.0	176.97	165.15

Movement, Approach, & Intersection Results

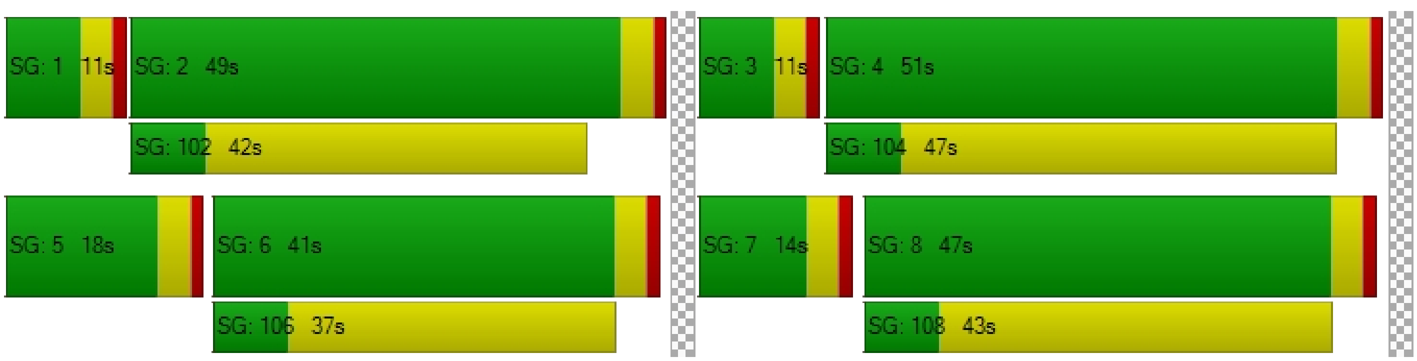
d_M, Delay for Movement [s/veh]	57.61	18.42	19.39	100.5	12.28	9.76	39.35	54.14	59.18	59.05	50.35	0.00
Movement LOS	E	B	B	F	B	A	D	D	E	E	D	
d_A, Approach Delay [s/veh]	20.95			31.45			49.89			54.66		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	31.90											
Intersection LOS	C											
Intersection V/C	0.687											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	3.179	3.304	2.754	2.799
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	750	717	783
d_b, Bicycle Delay [s]	28.70	23.44	24.70	22.20
I_b,int, Bicycle LOS Score for Intersection	2.568	2.660	1.996	1.976
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Bob Hope Drive at Rancho Las Palmas

Control Type:	Signalized	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.323

Intersection Setup

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
Base Volume Input [veh/h]	35	605	44	29	678	153	128	9	60	34	9	19
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	605	44	29	678	153	128	9	60	34	9	19
Peak Hour Factor	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	158	11	8	177	40	33	2	16	9	2	5
Total Analysis Volume [veh/h]	37	632	46	30	708	160	134	9	63	35	9	20
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	57	0	0	57	0	0	38	0	0	38	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	22	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	C
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	74	74	74	74	74	74	13	13	13	13
g / C, Green / Cycle	0.78	0.78	0.78	0.78	0.78	0.78	0.14	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.05	0.18	0.03	0.04	0.20	0.10	0.10	0.00	0.04	0.04
s, saturation flow rate [veh/h]	740	3560	1589	795	3560	1589	1381	1870	1589	1441
c, Capacity [veh/h]	597	2768	1236	640	2768	1236	172	259	220	258
d1, Uniform Delay [s]	4.40	2.86	2.42	4.14	2.94	2.62	40.35	35.43	36.72	37.02
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.20	0.19	0.06	0.14	0.22	0.22	7.32	0.05	0.71	0.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.23	0.04	0.05	0.26	0.13	0.78	0.03	0.29	0.25
d, Delay for Lane Group [s/veh]	4.60	3.05	2.48	4.28	3.16	2.83	47.67	35.48	37.42	37.51
Lane Group LOS	A	A	A	A	A	A	D	D	D	D
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.23	1.23	0.16	0.17	1.41	0.61	3.37	0.18	1.35	1.37
50th-Percentile Queue Length [ft/ln]	5.65	30.64	4.03	4.33	35.26	15.19	84.27	4.58	33.63	34.34
95th-Percentile Queue Length [veh/ln]	0.41	2.21	0.29	0.31	2.54	1.09	6.07	0.33	2.42	2.47
95th-Percentile Queue Length [ft/ln]	10.17	55.16	7.26	7.79	63.48	27.35	151.6	8.25	60.53	61.80

Movement, Approach, & Intersection Results

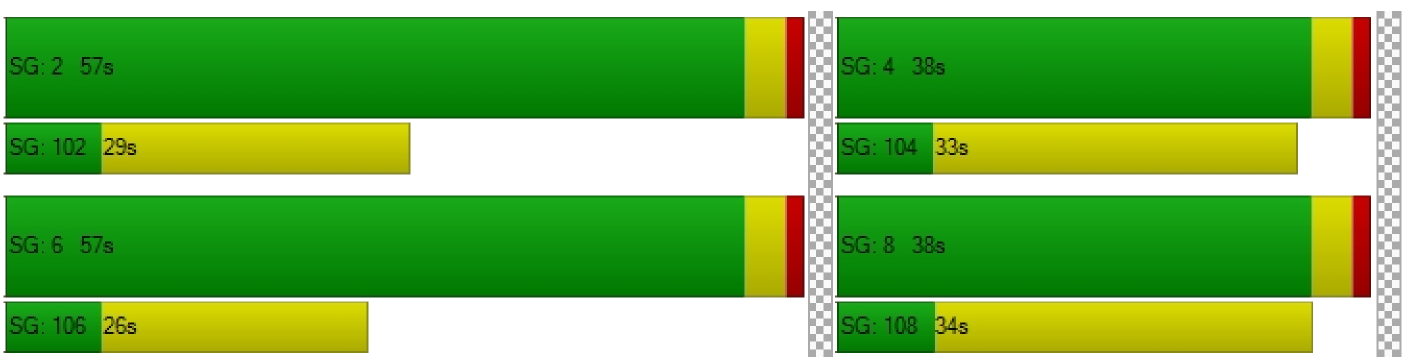
d_M, Delay for Movement [s/veh]	4.60	3.05	2.48	4.28	3.16	2.83	47.67	35.48	37.42	37.51	37.51	37.51
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	3.10			3.14			44.00			37.51		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	8.76											
Intersection LOS	A											
Intersection V/C	0.323											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	37.14	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	2.752	2.919	2.286	1.832
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1116	1116	716	716
d_b, Bicycle Delay [s]	9.28	9.28	19.58	19.58
I_b,int, Bicycle LOS Score for Intersection	2.149	2.300	1.900	1.665
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D

YEAR 2022 TRAFFIC CONDITIONS INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX D-I

YEAR 2022 CUMULATIVE TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Highway 111 at Rancho Las Palmas Drive

Control Type:	Signalized	Delay (sec / veh):	12.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.511

Intersection Setup

Name	Highway 111			Highway 111			Ra La			Ra La		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Ra La			Ra La		
Base Volume Input [veh/h]	11	1408	50	90	1316	24	36	50	27	93	31	78
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	1408	50	90	1316	24	36	50	27	93	31	78
Peak Hour Factor	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	363	13	23	340	6	9	13	7	24	8	20
Total Analysis Volume [veh/h]	11	1453	52	93	1358	25	37	52	28	96	32	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	11	32	0	24	45	0	0	39	0	0	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	19	0	0	28	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	61	61	7	67	67	15	15	15	15	15	15
g / C, Green / Cycle	0.02	0.65	0.65	0.07	0.70	0.70	0.15	0.15	0.15	0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.01	0.31	0.31	0.06	0.28	0.28	0.03	0.03	0.02	0.08	0.02	0.06
s, saturation flow rate [veh/h]	1603	3204	1653	1603	3204	1667	1239	1683	1431	1217	1683	1431
c, Capacity [veh/h]	31	2073	1070	117	2245	1168	214	259	220	198	259	220
d1, Uniform Delay [s]	46.02	8.58	8.58	43.34	5.94	5.94	38.66	35.10	34.70	41.70	34.68	36.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.90	0.80	1.54	11.47	0.54	1.04	0.38	0.38	0.26	1.82	0.21	1.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.48	0.48	0.80	0.41	0.41	0.17	0.20	0.13	0.48	0.12	0.36
d, Delay for Lane Group [s/veh]	52.92	9.38	10.12	54.81	6.49	6.99	39.04	35.48	34.95	43.52	34.89	37.04
Lane Group LOS	D	A	B	D	A	A	D	D	C	D	C	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.31	4.87	5.25	2.50	3.36	3.66	0.81	1.07	0.57	2.27	0.65	1.71
50th-Percentile Queue Length [ft/ln]	7.84	121.7	131.1	62.60	84.11	91.60	20.15	26.73	14.26	56.76	16.22	42.69
95th-Percentile Queue Length [veh/ln]	0.56	8.49	9.00	4.51	6.06	6.60	1.45	1.92	1.03	4.09	1.17	3.07
95th-Percentile Queue Length [ft/ln]	14.12	212.2	225.0	112.6	151.4	164.8	36.27	48.12	25.67	102.1	29.20	76.83

Movement, Approach, & Intersection Results

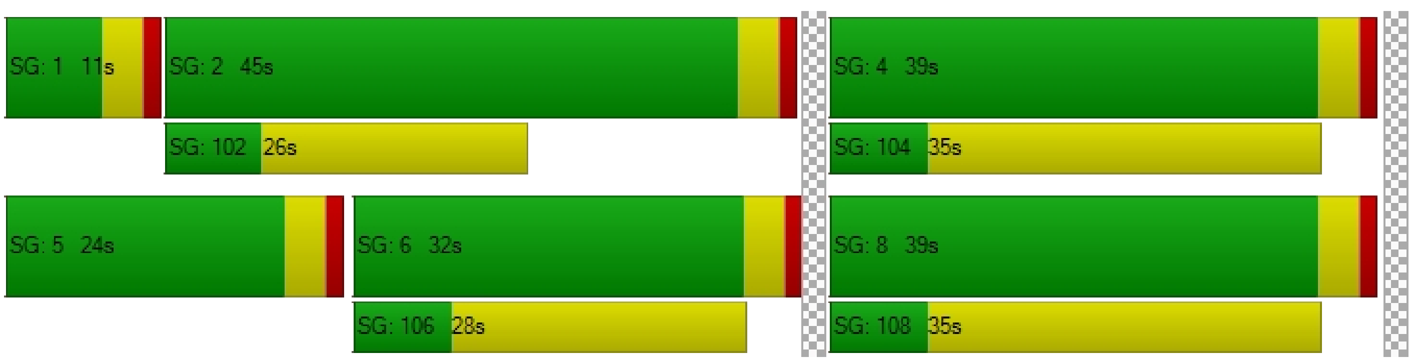
d_M, Delay for Movement [s/veh]	52.92	9.61	10.12	54.81	6.65	6.99	39.04	35.48	34.95	43.52	34.89	37.04
Movement LOS	D	A	B	D	A	A	D	D	C	D	C	D
d_A, Approach Delay [s/veh]	9.94			9.69			36.48			39.70		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	12.63											
Intersection LOS	B											
Intersection V/C	0.511											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	37.14	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	3.150	3.073	2.178	2.232
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	589	863	737	737
d_b, Bicycle Delay [s]	23.63	15.35	18.95	18.95
I_b,int, Bicycle LOS Score for Intersection	2.393	2.371	1.753	1.903
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Highway 111 at Bob Hope Drive

Control Type:	Signalized	Delay (sec / veh):	19.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.603

Intersection Setup

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
Base Volume Input [veh/h]	35	1568	521	90	1393	15	16	18	24	563	10	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	1568	521	90	1393	15	16	18	24	563	10	46
Peak Hour Factor	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	400	133	23	355	4	4	5	6	144	3	12
Total Analysis Volume [veh/h]	36	1600	532	92	1421	15	16	18	24	574	10	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	6	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups			4,6									
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	30	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	14	30	30	11	27	0	0	11	0	0	38	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	17	0	12	0	0	0	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No	No	No	No			No			No	
Maximum Recall	No	No	No	No	No			No			No	
Pedestrian Recall	No	No	No	No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	45	66	6	47	47	5	17	17
g / C, Green / Cycle	0.05	0.50	0.74	0.07	0.52	0.52	0.06	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.02	0.31	0.33	0.03	0.26	0.26	0.03	0.12	0.12
s, saturation flow rate [veh/h]	1781	5094	1589	3459	3560	1860	1721	3459	1738
c, Capacity [veh/h]	83	2534	1171	243	1856	970	103	674	339
d1, Uniform Delay [s]	41.78	16.57	4.68	39.98	14.03	14.03	41.18	33.21	33.22
k, delay calibration	0.11	0.50	0.37	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.59	1.21	0.95	0.98	1.00	1.90	4.79	0.95	1.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.63	0.45	0.38	0.51	0.51	0.56	0.62	0.62
d, Delay for Lane Group [s/veh]	45.37	17.77	5.63	40.96	15.03	15.93	45.97	34.15	35.10
Lane Group LOS	D	B	A	D	B	B	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.85	7.79	3.26	1.00	6.07	6.59	1.37	4.21	4.33
50th-Percentile Queue Length [ft/ln]	21.31	194.8	81.52	24.88	151.8	164.7	34.37	105.28	108.27
95th-Percentile Queue Length [veh/ln]	1.53	12.37	5.87	1.79	10.11	10.80	2.47	7.58	7.74
95th-Percentile Queue Length [ft/ln]	38.37	309.2	146.7	44.79	252.8	269.9	61.87	189.42	193.59

Movement, Approach, & Intersection Results

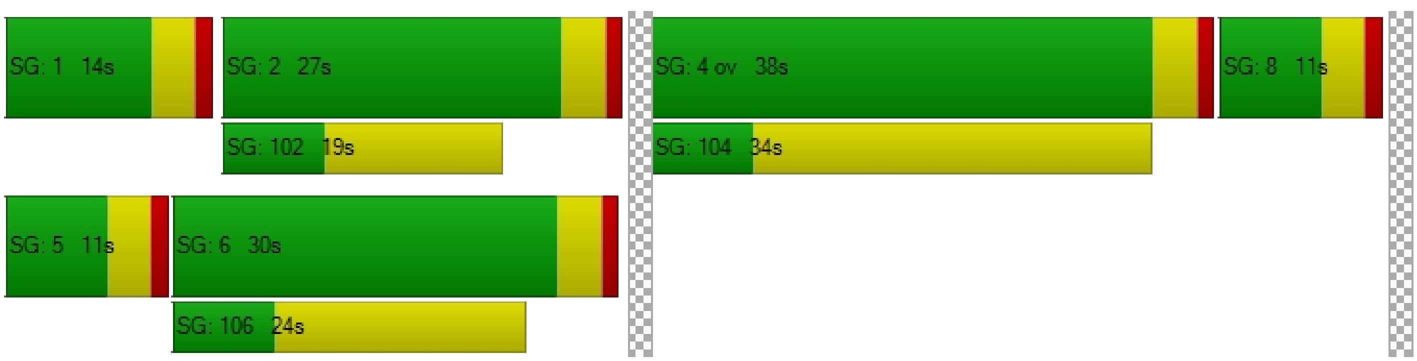
d_M, Delay for Movement [s/veh]	45.37	17.77	5.63	40.96	15.33	15.93	45.97	45.97	45.97	34.41	35.10	35.10
Movement LOS	D	B	A	D	B	B	D	D	D	C	D	D
d_A, Approach Delay [s/veh]	15.25			16.88			45.97			34.47		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	18.99											
Intersection LOS	B											
Intersection V/C	0.603											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.114	1.772	2.659
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	511	156	756
d_b, Bicycle Delay [s]	22.76	24.94	38.27	17.42
I_b,int, Bicycle LOS Score for Intersection	2.752	2.400	1.655	2.601
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Highway 111 at Magnesia Falls Drive

Control Type:	Signalized	Delay (sec / veh):	13.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.583

Intersection Setup

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	44	2102	50	25	1891	15	21	11	41	133	9	23
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	2102	50	25	1891	15	21	11	41	133	9	23
Peak Hour Factor	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	11	543	13	6	488	4	5	3	11	34	2	6
Total Analysis Volume [veh/h]	45	2171	52	26	1954	15	22	11	42	137	9	24
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	15	43	0	11	39	0	0	11	0	0	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	72	72	4	71	71	6	6	7	7	7
g / C, Green / Cycle	0.05	0.69	0.69	0.04	0.67	0.67	0.06	0.06	0.07	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.03	0.41	0.41	0.01	0.36	0.36	0.02	0.03	0.04	0.04	0.02
s, saturation flow rate [veh/h]	1781	3560	1848	1781	3560	1863	1810	1589	1781	1791	1589
c, Capacity [veh/h]	89	2436	1264	65	2389	1250	109	96	119	120	106
d1, Uniform Delay [s]	48.69	8.90	8.92	49.51	8.94	8.94	47.29	47.69	47.71	47.70	46.46
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.43	1.10	2.13	3.91	0.88	1.69	1.55	3.15	4.97	4.92	1.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.60	0.60	0.40	0.54	0.54	0.30	0.44	0.61	0.61	0.23
d, Delay for Lane Group [s/veh]	53.12	10.00	11.05	53.42	9.82	10.63	48.84	50.84	52.68	52.62	47.51
Lane Group LOS	D	A	B	D	A	B	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.26	8.18	8.90	0.74	7.07	7.69	0.87	1.14	2.02	2.02	0.62
50th-Percentile Queue Length [ft/ln]	31.42	204.4	222.5	18.42	176.8	192.1	21.81	28.58	50.39	50.52	15.62
95th-Percentile Queue Length [veh/ln]	2.26	12.87	13.79	1.33	11.44	12.23	1.57	2.06	3.63	3.64	1.12
95th-Percentile Queue Length [ft/ln]	56.56	321.7	344.8	33.16	285.8	305.7	39.25	51.44	90.70	90.93	28.12

Movement, Approach, & Intersection Results

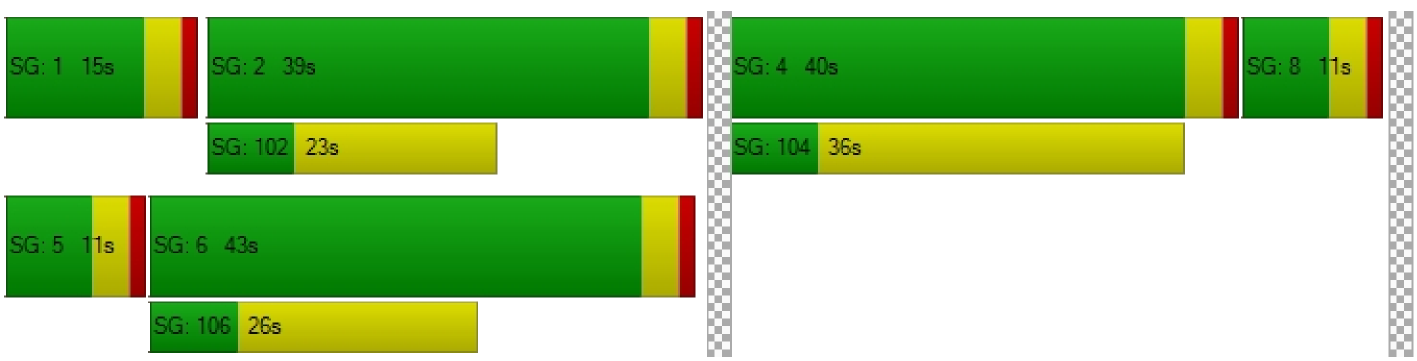
d_M, Delay for Movement [s/veh]	53.12	10.34	11.05	53.42	10.09	10.63	48.84	48.84	50.84	52.65	52.62	47.51
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	11.21			10.66			49.96			51.92		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	13.15											
Intersection LOS	B											
Intersection V/C	0.583											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	42.08	42.08	42.08
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.188	1.994	2.201
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	743	667	133	686
d_b, Bicycle Delay [s]	20.74	23.33	45.73	22.67
I_b,int, Bicycle LOS Score for Intersection	2.807	2.657	1.683	1.840
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Highway 111 at Painters Path/Park View Drive

Control Type:	Signalized	Delay (sec / veh):	11.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.626

Intersection Setup

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
Base Volume Input [veh/h]	5	1883	94	143	1901	66	44	25	6	41	34	135
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1883	94	143	1901	66	44	25	6	41	34	135
Peak Hour Factor	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	482	24	37	486	17	11	6	2	10	9	35
Total Analysis Volume [veh/h]	5	1927	96	146	1946	68	45	26	6	42	35	138
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	34	0	19	34	0	0	42	0	0	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	23	0	0	15	0	0	31	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	63	63	10	72	72	11	11	11
g / C, Green / Cycle	0.01	0.66	0.66	0.10	0.75	0.75	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.00	0.38	0.06	0.08	0.37	0.37	0.08	0.05	0.09
s, saturation flow rate [veh/h]	1781	5094	1589	1781	3560	1838	943	1560	1589
c, Capacity [veh/h]	18	3371	1052	180	2679	1383	165	232	176
d1, Uniform Delay [s]	46.67	8.75	5.79	41.82	4.64	4.65	41.93	39.30	41.13
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.73	0.71	0.17	8.43	0.66	1.28	2.06	0.83	7.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.57	0.09	0.81	0.50	0.50	0.47	0.33	0.78
d, Delay for Lane Group [s/veh]	54.39	9.46	5.96	50.25	5.30	5.93	43.99	40.14	48.53
Lane Group LOS	D	A	A	D	A	A	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.16	6.45	0.67	3.74	4.08	4.47	1.85	1.72	3.47
50th-Percentile Queue Length [ft/ln]	3.90	161.3	16.66	93.43	101.9	111.8	46.35	42.89	86.83
95th-Percentile Queue Length [veh/ln]	0.28	10.62	1.20	6.73	7.34	7.94	3.34	3.09	6.25
95th-Percentile Queue Length [ft/ln]	7.02	265.4	29.99	168.1	183.5	198.6	83.44	77.21	156.30

Movement, Approach, & Intersection Results

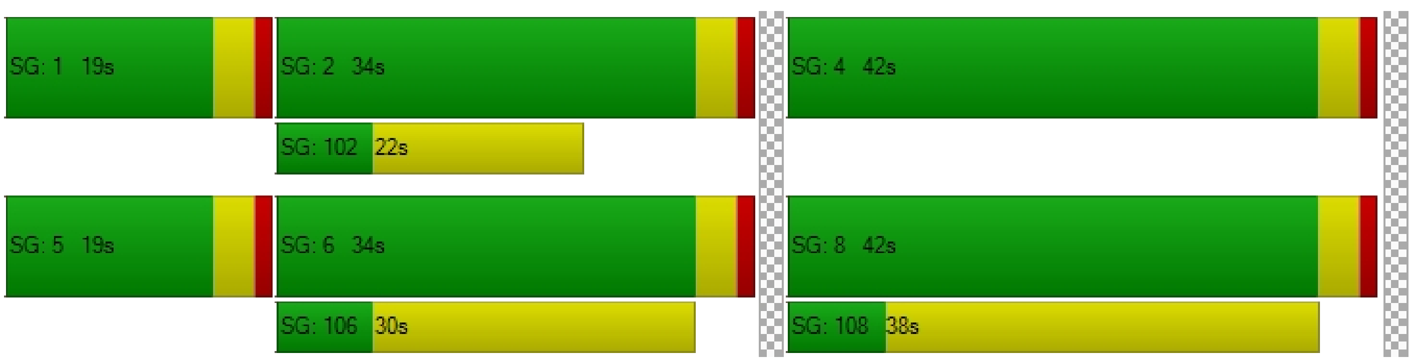
d_M, Delay for Movement [s/veh]	54.39	9.46	5.96	50.25	5.50	5.93	43.99	43.99	43.99	40.14	40.14	48.53
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	9.40			8.54			43.99			45.52		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	11.31											
Intersection LOS	B											
Intersection V/C	0.626											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	0.00	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	3.278	0.000	1.807	2.099
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	632	632	800	800
d_b, Bicycle Delay [s]	22.24	22.24	17.10	17.10
I_b,int, Bicycle LOS Score for Intersection	2.675	2.748	1.687	1.914
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Highway 111 at Fred Waring Drive

Control Type:	Signalized	Delay (sec / veh):	46.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.664

Intersection Setup

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
Base Volume Input [veh/h]	72	1409	159	508	1413	128	144	177	81	189	171	446
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	1409	159	508	1413	128	144	177	81	189	171	446
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	371	42	134	372	34	38	47	21	50	45	117
Total Analysis Volume [veh/h]	76	1483	167	535	1487	135	152	186	85	199	180	469
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Unsig
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	41	0	17	47	0	11	50	0	12	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	30	0	0	35	0	0	36	0	0	40	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	74	74	13	80	80	21	9	9	8	10
g / C, Green / Cycle	0.05	0.61	0.61	0.11	0.67	0.67	0.18	0.08	0.08	0.07	0.09
(v / s)_i Volume / Saturation Flow Rate	0.02	0.31	0.31	0.15	0.29	0.08	0.05	0.05	0.05	0.06	0.05
s, saturation flow rate [veh/h]	3459	3560	1775	3459	5094	1589	2811	3560	1589	3459	3560
c, Capacity [veh/h]	188	2181	1087	376	3398	1060	511	277	124	233	308
d1, Uniform Delay [s]	54.87	13.03	13.04	53.50	9.40	7.27	42.51	53.86	53.93	55.41	52.76
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.39	0.84	1.68	193.0	0.41	0.25	0.32	2.81	6.58	8.65	1.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.50	0.51	1.42	0.44	0.13	0.30	0.67	0.69	0.85	0.58
d, Delay for Lane Group [s/veh]	56.26	13.87	14.72	246.5	9.81	7.52	42.83	56.67	60.51	64.06	54.52
Lane Group LOS	E	B	B	F	A	A	D	E	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.15	8.22	8.47	15.76	5.86	1.28	1.97	2.84	2.73	3.26	2.69
50th-Percentile Queue Length [ft/ln]	28.74	205.4	211.7	393.9	146.4	32.01	49.31	71.07	68.23	81.49	67.24
95th-Percentile Queue Length [veh/ln]	2.07	12.92	13.24	25.18	9.83	2.30	3.55	5.12	4.91	5.87	4.84
95th-Percentile Queue Length [ft/ln]	51.73	323.0	331.0	629.6	245.7	57.62	88.76	127.9	122.8	146.68	121.04

Movement, Approach, & Intersection Results

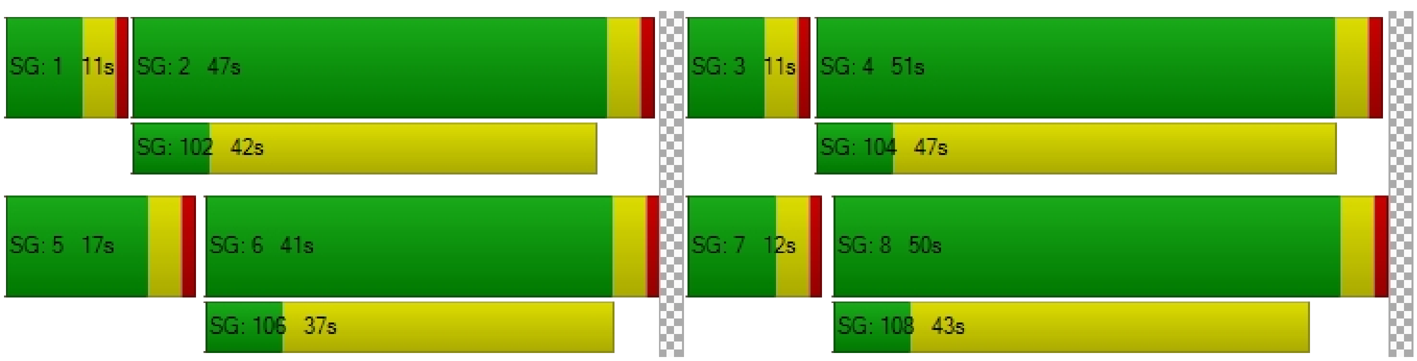
d_M, Delay for Movement [s/veh]	56.26	14.09	14.72	246.5	9.81	7.52	42.83	56.67	60.51	64.06	54.52	0.00
Movement LOS	E	B	B	F	A	A	D	E	E	E	D	
d_A, Approach Delay [s/veh]	16.01			68.38			52.47			59.53		
Approach LOS	B			E			D			E		
d_I, Intersection Delay [s/veh]	46.93											
Intersection LOS	D											
Intersection V/C	0.664											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	3.165	3.296	2.721	2.784
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	717	767	783
d_b, Bicycle Delay [s]	28.70	24.70	22.82	22.20
I_b,int, Bicycle LOS Score for Intersection	2.509	2.746	1.909	1.872
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Bob Hope Drive at Rancho Las Palmas

Control Type:	Signalized	Delay (sec / veh):	11.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.437

Intersection Setup

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
Base Volume Input [veh/h]	47	637	12	5	580	211	268	2	66	12	6	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	637	12	5	580	211	268	2	66	12	6	2
Peak Hour Factor	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	172	3	1	156	57	72	1	18	3	2	1
Total Analysis Volume [veh/h]	51	686	13	5	625	227	289	2	71	13	6	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	37	0	0	37	0	0	53	0	0	53	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	22	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	61	61	61	61	61	61	21	21	21	21
g / C, Green / Cycle	0.68	0.68	0.68	0.68	0.68	0.68	0.23	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.01	0.01	0.18	0.14	0.21	0.00	0.04	0.01
s, saturation flow rate [veh/h]	800	3560	1589	756	3560	1589	1407	1870	1589	1485
c, Capacity [veh/h]	549	2412	1077	517	2412	1077	342	437	372	412
d1, Uniform Delay [s]	8.23	5.80	4.72	8.07	5.68	5.46	33.58	26.44	27.64	26.72
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.34	0.30	0.02	0.03	0.26	0.45	5.72	0.00	0.25	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.09	0.28	0.01	0.01	0.26	0.21	0.84	0.00	0.19	0.05
d, Delay for Lane Group [s/veh]	8.57	6.10	4.74	8.11	5.94	5.91	39.30	26.44	27.89	26.77
Lane Group LOS	A	A	A	A	A	A	D	C	C	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.46	2.31	0.07	0.04	2.06	1.51	6.49	0.03	1.23	0.35
50th-Percentile Queue Length [ft/ln]	11.47	57.70	1.86	1.09	51.45	37.75	162.3	0.83	30.83	8.77
95th-Percentile Queue Length [veh/ln]	0.83	4.15	0.13	0.08	3.70	2.72	10.67	0.06	2.22	0.63
95th-Percentile Queue Length [ft/ln]	20.64	103.8	3.34	1.96	92.60	67.95	266.8	1.49	55.49	15.79

Movement, Approach, & Intersection Results

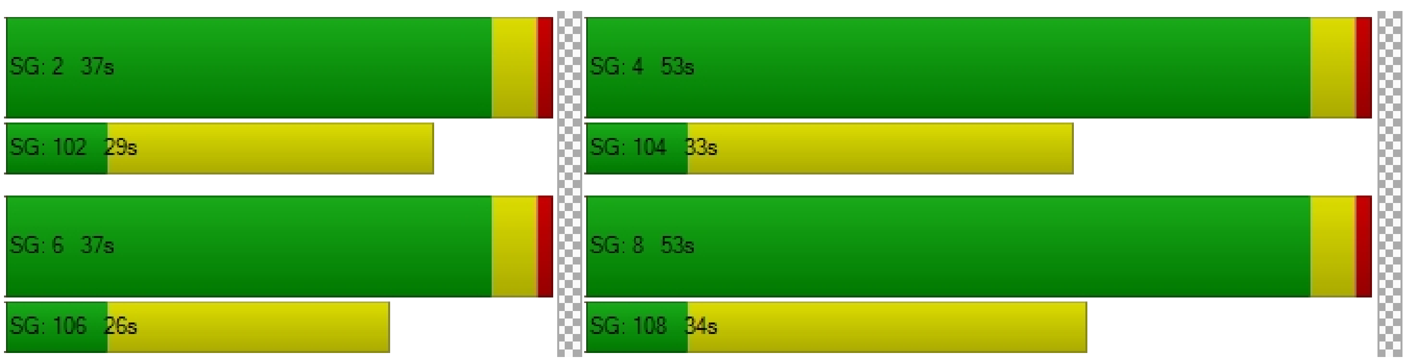
d_M, Delay for Movement [s/veh]	8.57	6.10	4.74	8.11	5.94	5.91	39.30	26.44	27.89	26.77	26.77	26.77
Movement LOS	A	A	A	A	A	A	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	6.24			5.94			36.99			26.77		
Approach LOS	A			A			D			C		
d_I, Intersection Delay [s/veh]	11.92											
Intersection LOS	B											
Intersection V/C	0.437											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.708	3.161	2.361	1.741
Crosswalk LOS	B	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	733	1089	1089
d_b, Bicycle Delay [s]	18.05	18.05	9.34	9.34
I_b,int, Bicycle LOS Score for Intersection	2.178	2.267	2.157	1.594
Bicycle LOS	B	B	B	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Highway 111 at Rancho Las Palmas Drive

Control Type:	Signalized	Delay (sec / veh):	9.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.498

Intersection Setup

Name	Highway 111			Highway 111			Ra La			Ra La		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Ra La			Ra La		
Base Volume Input [veh/h]	10	1462	56	74	1430	24	20	22	14	57	21	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	1462	56	74	1430	24	20	22	14	57	21	71
Peak Hour Factor	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	389	15	20	380	6	5	6	4	15	6	19
Total Analysis Volume [veh/h]	11	1555	60	79	1521	26	21	23	15	61	22	76
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	45	0	11	44	0	0	39	0	0	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	19	0	0	28	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	67	67	6	71	71	10	10	10	10	10	10
g / C, Green / Cycle	0.02	0.70	0.70	0.06	0.75	0.75	0.11	0.11	0.11	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.01	0.33	0.33	0.05	0.32	0.32	0.02	0.01	0.01	0.05	0.01	0.05
s, saturation flow rate [veh/h]	1603	3204	1651	1603	3204	1669	1250	1683	1431	1249	1683	1431
c, Capacity [veh/h]	30	2252	1161	104	2399	1249	164	178	152	163	178	152
d1, Uniform Delay [s]	46.04	6.28	6.28	43.70	4.39	4.39	41.77	38.49	38.36	43.23	38.46	40.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.18	0.72	1.39	10.83	0.55	1.06	0.35	0.32	0.28	1.42	0.31	2.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.47	0.47	0.76	0.42	0.42	0.13	0.13	0.10	0.37	0.12	0.50
d, Delay for Lane Group [s/veh]	53.22	7.00	7.67	54.53	4.94	5.45	42.12	38.81	38.65	44.65	38.77	42.64
Lane Group LOS	D	A	A	D	A	A	D	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.32	4.19	4.54	2.12	2.99	3.29	0.48	0.50	0.33	1.45	0.48	1.77
50th-Percentile Queue Length [ft/ln]	7.88	104.8	113.5	53.09	74.66	82.14	11.95	12.46	8.14	36.32	11.91	44.19
95th-Percentile Queue Length [veh/ln]	0.57	7.55	8.03	3.82	5.38	5.91	0.86	0.90	0.59	2.61	0.86	3.18
95th-Percentile Queue Length [ft/ln]	14.18	188.7	200.8	95.57	134.3	147.8	21.51	22.43	14.65	65.37	21.44	79.55

Movement, Approach, & Intersection Results

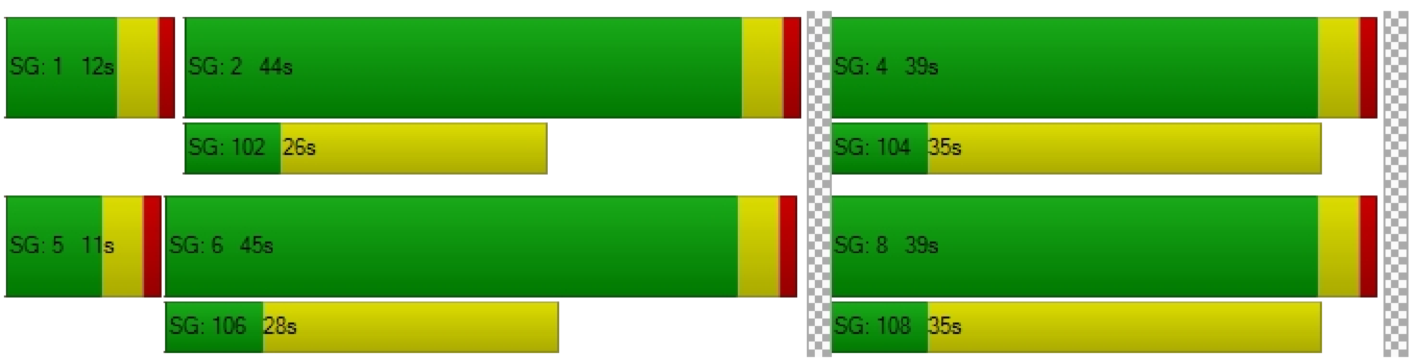
d_M, Delay for Movement [s/veh]	53.22	7.21	7.67	54.53	5.11	5.45	42.12	38.81	38.65	44.65	38.77	42.64
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	7.54			7.52			39.95			42.88		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	9.70											
Intersection LOS	A											
Intersection V/C	0.498											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	37.14	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	3.132	3.083	2.162	2.212
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	863	842	737	737
d_b, Bicycle Delay [s]	15.35	15.92	18.95	18.95
I_b,int, Bicycle LOS Score for Intersection	2.454	2.454	1.657	1.822
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Highway 111 at Bob Hope Drive

Control Type:	Signalized	Delay (sec / veh):	20.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.634

Intersection Setup

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
Base Volume Input [veh/h]	49	1585	524	105	1371	21	21	25	33	578	15	53
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	1585	524	105	1371	21	21	25	33	578	15	53
Peak Hour Factor	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	12	404	133	27	349	5	5	6	8	147	4	13
Total Analysis Volume [veh/h]	50	1614	534	107	1396	21	21	25	34	589	15	54
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	6	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups			4,6									
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	30	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	15	29	29	11	25	0	0	12	0	0	38	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	17	0	12	0	0	0	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No	No	No	No			No			No	
Maximum Recall	No	No	No	No	No			No			No	
Pedestrian Recall	No	No	No	No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	43	65	7	45	45	6	18	18
g / C, Green / Cycle	0.06	0.48	0.73	0.07	0.50	0.50	0.07	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.03	0.32	0.34	0.03	0.26	0.26	0.05	0.13	0.13
s, saturation flow rate [veh/h]	1781	5094	1589	3459	3560	1856	1719	3459	1735
c, Capacity [veh/h]	99	2448	1155	251	1772	923	116	697	350
d1, Uniform Delay [s]	41.30	17.77	5.06	39.95	15.39	15.39	41.06	32.85	32.86
k, delay calibration	0.11	0.50	0.37	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.92	1.41	1.00	1.15	1.12	2.14	7.13	0.94	1.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.66	0.46	0.43	0.53	0.53	0.69	0.63	0.63
d, Delay for Lane Group [s/veh]	45.22	19.18	6.06	41.10	16.51	17.53	48.18	33.78	34.73
Lane Group LOS	D	B	A	D	B	B	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	1.17	8.26	3.49	1.16	6.37	6.90	1.94	4.37	4.49
50th-Percentile Queue Length [ft/ln]	29.36	206.4	87.34	29.03	159.2	172.5	48.60	109.34	112.37
95th-Percentile Queue Length [veh/ln]	2.11	12.97	6.29	2.09	10.51	11.21	3.50	7.80	7.97
95th-Percentile Queue Length [ft/ln]	52.85	324.3	157.2	52.25	262.6	280.2	87.48	195.09	199.29

Movement, Approach, & Intersection Results

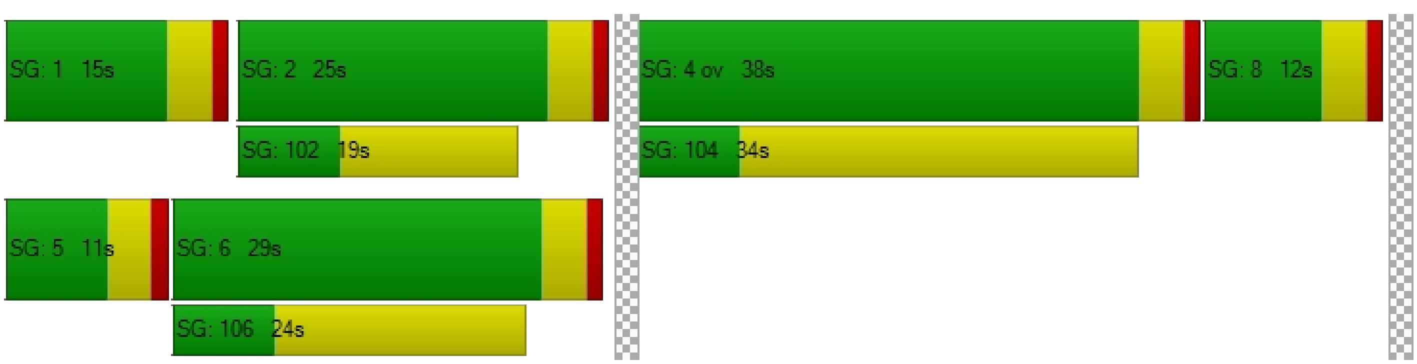
d_M, Delay for Movement [s/veh]	45.22	19.18	6.06	41.10	16.85	17.53	48.18	48.18	48.18	34.03	34.73	34.73
Movement LOS	D	B	A	D	B	B	D	D	D	C	C	C
d_A, Approach Delay [s/veh]	16.58			18.56			48.18			34.10		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	20.41											
Intersection LOS	C											
Intersection V/C	0.634											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.117	1.795	2.668
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	467	178	756
d_b, Bicycle Delay [s]	23.47	26.45	37.36	17.42
I_b,int, Bicycle LOS Score for Intersection	2.769	2.398	1.692	2.645
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Highway 111 at Magnesia Falls Drive

Control Type:	Signalized	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.601

Intersection Setup

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	46	2090	74	33	1932	16	11	8	36	164	8	28
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	2090	74	33	1932	16	11	8	36	164	8	28
Peak Hour Factor	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	12	530	19	8	490	4	3	2	9	42	2	7
Total Analysis Volume [veh/h]	47	2122	75	34	1961	16	11	8	37	166	8	28
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	13	30	0	11	28	0	0	11	0	0	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	62	62	4	62	62	5	5	7	7	7
g / C, Green / Cycle	0.05	0.66	0.66	0.04	0.65	0.65	0.06	0.06	0.07	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.03	0.41	0.41	0.02	0.36	0.36	0.01	0.02	0.05	0.05	0.02
s, saturation flow rate [veh/h]	1781	3560	1838	1781	3560	1862	1817	1589	1781	1789	1589
c, Capacity [veh/h]	95	2331	1203	80	2300	1203	106	92	132	133	118
d1, Uniform Delay [s]	43.77	9.56	9.59	44.24	9.39	9.39	42.66	43.22	42.87	42.86	41.51
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.88	1.25	2.45	3.54	1.01	1.92	0.81	2.79	5.44	5.39	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.62	0.62	0.42	0.56	0.56	0.18	0.40	0.66	0.66	0.24
d, Delay for Lane Group [s/veh]	47.65	10.82	12.04	47.78	10.40	11.31	43.47	46.01	48.30	48.25	42.53
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.17	7.96	8.68	0.85	6.89	7.51	0.45	0.91	2.17	2.18	0.65
50th-Percentile Queue Length [ft/ln]	29.28	198.9	216.9	21.34	172.1	187.8	11.16	22.63	54.26	54.38	16.21
95th-Percentile Queue Length [veh/ln]	2.11	12.58	13.51	1.54	11.19	12.01	0.80	1.63	3.91	3.92	1.17
95th-Percentile Queue Length [ft/ln]	52.70	314.6	337.7	38.41	279.7	300.2	20.08	40.74	97.67	97.88	29.18

Movement, Approach, & Intersection Results

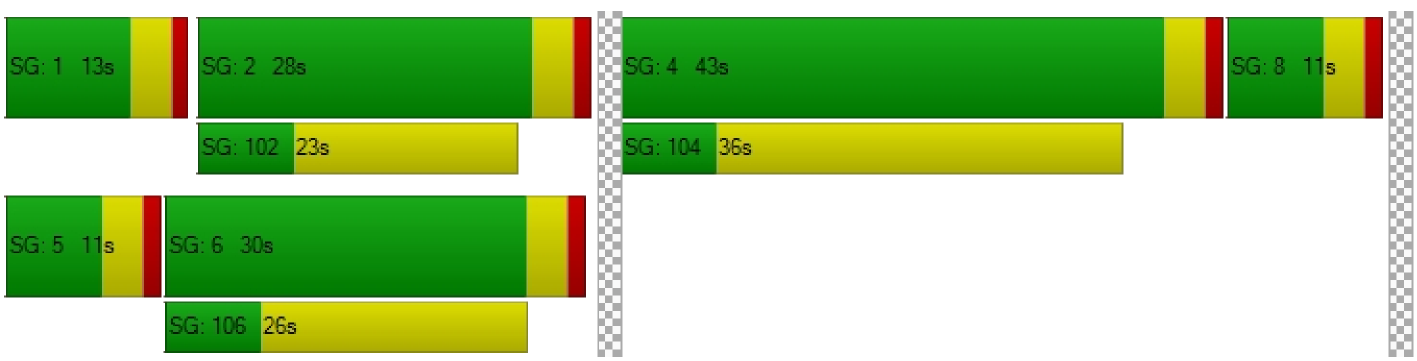
d_M, Delay for Movement [s/veh]	47.65	11.21	12.04	47.78	10.71	11.31	43.47	43.47	46.01	48.28	48.25	42.53
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	12.00			11.34			45.15			47.48		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	13.70											
Intersection LOS	B											
Intersection V/C	0.601											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	37.14	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.177	1.984	2.211
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	547	505	147	821
d_b, Bicycle Delay [s]	25.06	26.53	40.76	16.51
I_b,int, Bicycle LOS Score for Intersection	2.794	2.666	1.652	1.893
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Highway 111 at Painters Path/Park View Drive

Control Type:	Signalized	Delay (sec / veh):	10.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.646

Intersection Setup

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
Base Volume Input [veh/h]	6	2027	83	96	1953	92	48	14	8	50	25	126
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	2027	83	96	1953	92	48	14	8	50	25	126
Peak Hour Factor	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	524	21	25	505	24	12	4	2	13	6	33
Total Analysis Volume [veh/h]	6	2096	86	99	2020	95	50	14	8	52	26	130
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	37	0	11	36	0	0	42	0	0	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	23	0	0	15	0	0	31	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	62	62	6	67	67	10	10	10
g / C, Green / Cycle	0.01	0.69	0.69	0.07	0.75	0.75	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.00	0.41	0.05	0.06	0.39	0.39	0.09	0.05	0.08
s, saturation flow rate [veh/h]	1781	5094	1589	1781	3560	1827	773	1560	1589
c, Capacity [veh/h]	22	3501	1093	129	2662	1366	150	234	170
d1, Uniform Delay [s]	44.09	7.48	4.65	41.03	4.72	4.74	41.01	37.65	39.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.79	0.76	0.14	9.24	0.74	1.46	2.35	0.83	6.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.60	0.08	0.77	0.52	0.53	0.48	0.33	0.76
d, Delay for Lane Group [s/veh]	50.88	8.24	4.79	50.27	5.46	6.20	43.36	38.48	46.03
Lane Group LOS	D	A	A	D	A	A	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.17	6.08	0.49	2.46	4.18	4.60	1.67	1.65	3.08
50th-Percentile Queue Length [ft/ln]	4.30	152.0	12.24	61.53	104.5	115.1	41.68	41.20	77.04
95th-Percentile Queue Length [veh/ln]	0.31	10.13	0.88	4.43	7.52	8.12	3.00	2.97	5.55
95th-Percentile Queue Length [ft/ln]	7.75	253.1	22.03	110.7	188.1	203.0	75.02	74.16	138.68

Movement, Approach, & Intersection Results

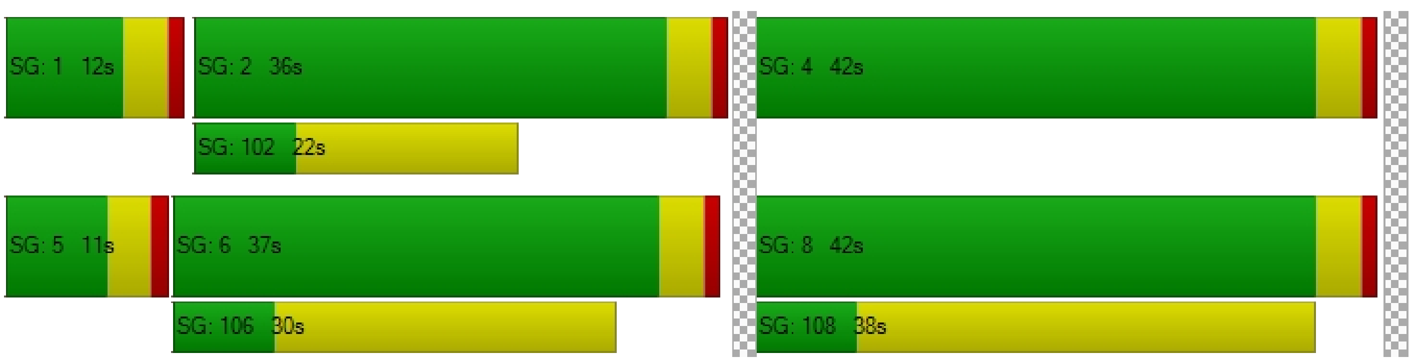
d_M, Delay for Movement [s/veh]	50.88	8.24	4.79	50.27	5.69	6.20	43.36	43.36	43.36	38.48	38.48	46.03
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	8.22			7.70			43.36			43.20		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.07											
Intersection LOS	B											
Intersection V/C	0.646											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	0.00	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	3.319	0.000	1.811	2.072
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	711	844	844
d_b, Bicycle Delay [s]	18.05	18.69	15.02	15.02
I_b,int, Bicycle LOS Score for Intersection	2.763	2.777	1.678	1.903
Bicycle LOS	C	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Highway 111 at Fred Waring Drive

Control Type:	Signalized	Delay (sec / veh):	35.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.713

Intersection Setup

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
Base Volume Input [veh/h]	112	1512	206	429	1418	150	190	223	113	249	254	376
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	1512	206	429	1418	150	190	223	113	249	254	376
Peak Hour Factor	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	395	54	112	370	39	50	58	30	65	66	98
Total Analysis Volume [veh/h]	117	1580	215	448	1482	157	199	233	118	260	265	393
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Unsig
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	41	0	17	47	0	11	48	0	14	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	30	0	0	35	0	0	36	0	0	40	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	69	69	13	75	75	26	12	12	10	15
g / C, Green / Cycle	0.06	0.57	0.57	0.11	0.63	0.63	0.22	0.10	0.10	0.08	0.13
(v / s)_i Volume / Saturation Flow Rate	0.03	0.34	0.34	0.13	0.29	0.10	0.08	0.07	0.07	0.08	0.07
s, saturation flow rate [veh/h]	3459	3560	1758	3459	5094	1589	2614	3560	1589	3459	3560
c, Capacity [veh/h]	200	2041	1008	376	3180	992	539	358	160	290	447
d1, Uniform Delay [s]	55.15	16.48	16.53	53.50	11.95	9.40	39.27	51.96	52.45	54.47	49.60
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.69	1.25	2.54	91.64	0.49	0.34	0.42	1.99	6.48	9.55	1.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.59	0.59	1.19	0.47	0.16	0.37	0.65	0.74	0.90	0.59
d, Delay for Lane Group [s/veh]	57.84	17.73	19.07	145.1	12.44	9.74	39.69	53.95	58.94	64.02	50.86
Lane Group LOS	E	B	B	F	B	A	D	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.80	10.59	10.91	10.46	6.84	1.77	2.48	3.48	3.74	4.27	3.84
50th-Percentile Queue Length [ft/ln]	45.07	264.6	272.6	261.4	171.0	44.22	62.05	86.97	93.59	106.86	96.00
95th-Percentile Queue Length [veh/ln]	3.25	15.92	16.32	16.84	11.13	3.18	4.47	6.26	6.74	7.67	6.91
95th-Percentile Queue Length [ft/ln]	81.13	398.1	408.0	420.9	278.3	79.60	111.6	156.5	168.4	191.63	172.80

Movement, Approach, & Intersection Results

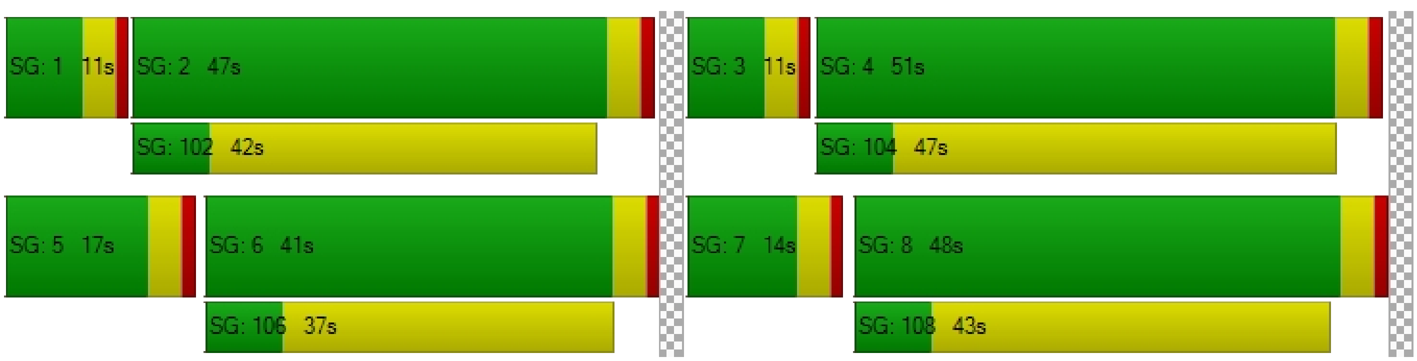
d_M, Delay for Movement [s/veh]	57.84	18.05	19.07	145.1	12.44	9.74	39.69	53.95	58.94	64.02	50.86	0.00
Movement LOS	E	B	B	F	B	A	D	D	E	E	D	
d_A, Approach Delay [s/veh]	20.60			40.73			49.86			57.38		
Approach LOS	C			D			D			E		
d_I, Intersection Delay [s/veh]	35.86											
Intersection LOS	D											
Intersection V/C	0.713											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	3.199	3.322	2.759	2.806
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	717	733	783
d_b, Bicycle Delay [s]	28.70	24.70	24.07	22.20
I_b,int, Bicycle LOS Score for Intersection	2.611	2.707	2.013	1.993
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Bob Hope Drive at Rancho Las Palmas

Control Type:	Signalized	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.339

Intersection Setup

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
Base Volume Input [veh/h]	36	629	46	30	710	159	133	9	62	35	9	20
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	629	46	30	710	159	133	9	62	35	9	20
Peak Hour Factor	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	164	12	8	185	41	35	2	16	9	2	5
Total Analysis Volume [veh/h]	38	657	48	31	741	166	139	9	65	37	9	21
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	49	0	0	49	0	0	41	0	0	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	22	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	69	69	69	69	69	69	13	13	13	13
g / C, Green / Cycle	0.77	0.77	0.77	0.77	0.77	0.77	0.14	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.05	0.18	0.03	0.04	0.21	0.10	0.10	0.00	0.04	0.05
s, saturation flow rate [veh/h]	718	3560	1589	776	3560	1589	1379	1870	1589	1436
c, Capacity [veh/h]	572	2731	1219	619	2731	1219	180	270	229	269
d1, Uniform Delay [s]	4.69	3.00	2.52	4.38	3.09	2.73	37.91	33.12	34.36	34.70
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.22	0.21	0.06	0.15	0.25	0.23	6.90	0.05	0.67	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.07	0.24	0.04	0.05	0.27	0.14	0.77	0.03	0.28	0.25
d, Delay for Lane Group [s/veh]	4.91	3.21	2.58	4.54	3.33	2.96	44.81	33.17	35.03	35.17
Lane Group LOS	A	A	A	A	A	A	D	C	D	D
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.24	1.27	0.17	0.18	1.47	0.63	3.28	0.17	1.30	1.35
50th-Percentile Queue Length [ft/ln]	5.88	31.70	4.16	4.51	36.84	15.64	82.04	4.28	32.42	33.64
95th-Percentile Queue Length [veh/ln]	0.42	2.28	0.30	0.32	2.65	1.13	5.91	0.31	2.33	2.42
95th-Percentile Queue Length [ft/ln]	10.59	57.05	7.49	8.11	66.31	28.16	147.6	7.70	58.35	60.55

Movement, Approach, & Intersection Results

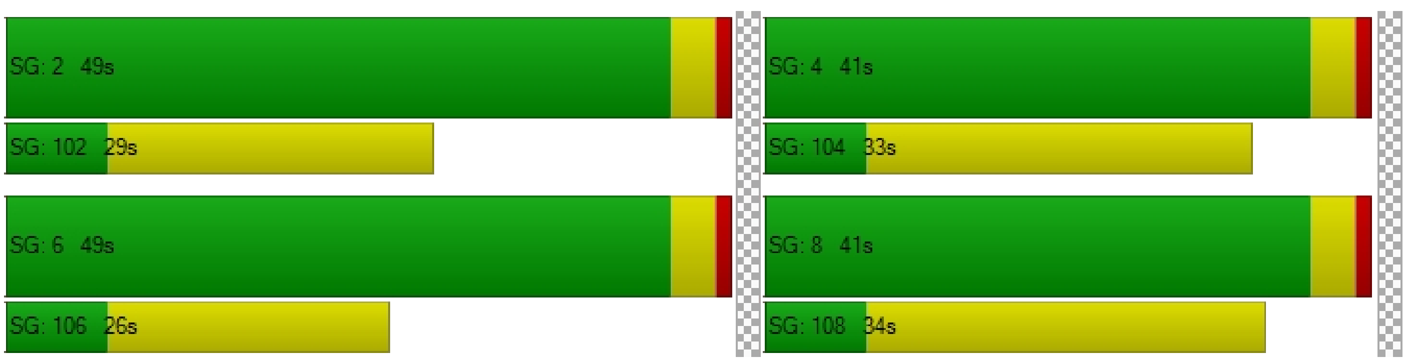
d_M, Delay for Movement [s/veh]	4.91	3.21	2.58	4.54	3.33	2.96	44.81	33.17	35.03	35.17	35.17	35.17
Movement LOS	A	A	A	A	A	A	D	C	D	D	D	D
d_A, Approach Delay [s/veh]		3.25			3.31			41.33			35.17	
Approach LOS		A			A			D			D	
d_I, Intersection Delay [s/veh]	8.51											
Intersection LOS	A											
Intersection V/C	0.339											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.763	2.935	2.288	1.834
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	1000	822	822
d_b, Bicycle Delay [s]	11.25	11.25	15.61	15.61
I_b,int, Bicycle LOS Score for Intersection	2.173	2.333	1.911	1.670
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-II

YEAR 2022 CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Highway 111 at Rancho Las Palmas Drive

Control Type:	Signalized	Delay (sec / veh):	12.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.514

Intersection Setup

Name	Highway 111			Highway 111			Ra La			Ra La		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Ra La			Ra La		
Base Volume Input [veh/h]	12	1420	50	90	1330	24	36	50	28	93	31	78
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	1420	50	90	1330	24	36	50	28	93	31	78
Peak Hour Factor	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	366	13	23	343	6	9	13	7	24	8	20
Total Analysis Volume [veh/h]	12	1465	52	93	1373	25	37	52	29	96	32	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	11	32	0	24	45	0	0	39	0	0	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	19	0	0	28	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	61	61	7	66	66	15	15	15	15	15	15
g / C, Green / Cycle	0.02	0.65	0.65	0.07	0.70	0.70	0.15	0.15	0.15	0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.01	0.31	0.31	0.06	0.29	0.29	0.03	0.03	0.02	0.08	0.02	0.06
s, saturation flow rate [veh/h]	1603	3204	1654	1603	3204	1668	1239	1683	1431	1217	1683	1431
c, Capacity [veh/h]	33	2073	1070	117	2241	1166	214	259	220	198	259	220
d1, Uniform Delay [s]	45.91	8.61	8.61	43.34	6.02	6.02	38.66	35.10	34.72	41.70	34.68	36.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.58	0.81	1.56	11.47	0.56	1.07	0.38	0.38	0.27	1.82	0.21	1.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.48	0.48	0.80	0.41	0.41	0.17	0.20	0.13	0.48	0.12	0.36
d, Delay for Lane Group [s/veh]	52.49	9.42	10.17	54.81	6.58	7.09	39.04	35.48	34.99	43.52	34.89	37.04
Lane Group LOS	D	A	B	D	A	A	D	D	C	D	C	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.34	4.93	5.31	2.50	3.44	3.75	0.81	1.07	0.59	2.27	0.65	1.71
50th-Percentile Queue Length [ft/ln]	8.45	123.1	132.7	62.60	86.03	93.69	20.15	26.73	14.78	56.76	16.22	42.69
95th-Percentile Queue Length [veh/ln]	0.61	8.57	9.09	4.51	6.19	6.75	1.45	1.92	1.06	4.09	1.17	3.07
95th-Percentile Queue Length [ft/ln]	15.21	214.1	227.2	112.6	154.8	168.6	36.27	48.12	26.61	102.1	29.20	76.83

Movement, Approach, & Intersection Results

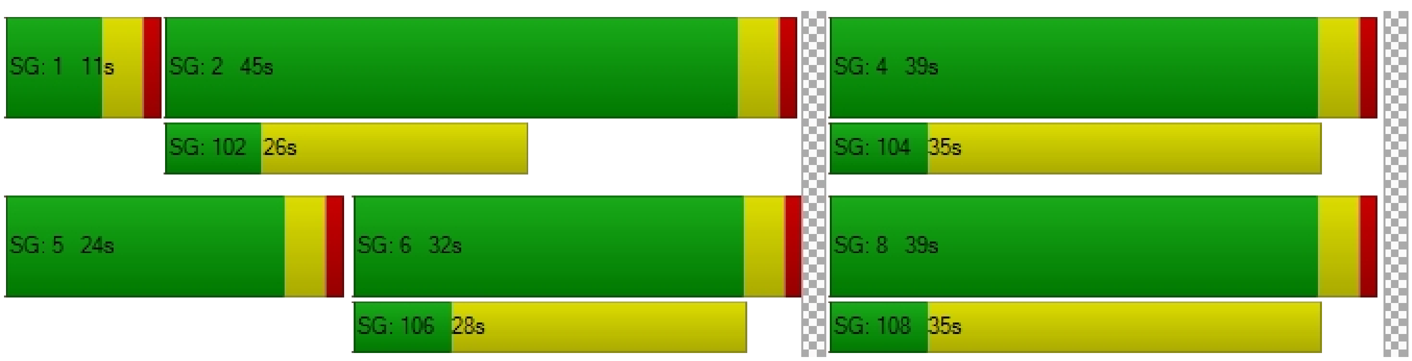
d_M, Delay for Movement [s/veh]	52.49	9.66	10.17	54.81	6.75	7.09	39.04	35.48	34.99	43.52	34.89	37.04
Movement LOS	D	A	B	D	A	A	D	D	C	D	C	D
d_A, Approach Delay [s/veh]	10.01			9.75			36.48			39.70		
Approach LOS	B			A			D			D		
d_I, Intersection Delay [s/veh]	12.68											
Intersection LOS	B											
Intersection V/C	0.514											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	37.14	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	3.154	3.077	2.179	2.232
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	589	863	737	737
d_b, Bicycle Delay [s]	23.63	15.35	18.95	18.95
I_b,int, Bicycle LOS Score for Intersection	2.401	2.380	1.754	1.903
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Highway 111 at Bob Hope Drive

Control Type:	Signalized	Delay (sec / veh):	19.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.592

Intersection Setup

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
Base Volume Input [veh/h]	35	1581	515	90	1408	15	16	18	24	555	10	46
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	1581	515	90	1408	15	16	18	24	555	10	46
Peak Hour Factor	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	403	131	23	359	4	4	5	6	142	3	12
Total Analysis Volume [veh/h]	36	1613	526	92	1437	15	16	18	24	566	10	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	6	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups			4,6									
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	30	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	14	28	28	11	25	0	0	11	0	0	50	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	17	0	12	0	0	0	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No	No	No	No			No			No	
Maximum Recall	No	No	No	No	No			No			No	
Pedestrian Recall	No	No	No	No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	L	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	54	76	6	56	56	6	18	18
g / C, Green / Cycle	0.04	0.54	0.76	0.06	0.56	0.56	0.06	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.02	0.32	0.33	0.03	0.27	0.27	0.03	0.12	0.12
s, saturation flow rate [veh/h]	1781	5094	1589	3459	3560	1860	1721	3459	1738
c, Capacity [veh/h]	79	2764	1207	224	2004	1047	97	611	307
d1, Uniform Delay [s]	46.61	15.31	4.34	44.94	13.05	13.05	46.10	38.52	38.53
k, delay calibration	0.11	0.50	0.26	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.04	0.91	0.59	1.21	0.81	1.55	5.85	1.33	2.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.46	0.58	0.44	0.41	0.48	0.48	0.60	0.68	0.68
d, Delay for Lane Group [s/veh]	50.65	16.22	4.93	46.15	13.87	14.60	51.95	39.85	41.17
Lane Group LOS	D	B	A	D	B	B	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.96	7.95	3.19	1.13	6.24	6.74	1.56	4.82	4.97
50th-Percentile Queue Length [ft/ln]	23.96	198.6	79.69	28.23	156.1	168.4	38.95	120.57	124.20
95th-Percentile Queue Length [veh/ln]	1.72	12.57	5.74	2.03	10.34	11.00	2.80	8.42	8.62
95th-Percentile Queue Length [ft/ln]	43.12	314.2	143.4	50.81	258.5	274.9	70.10	210.61	215.58

Movement, Approach, & Intersection Results

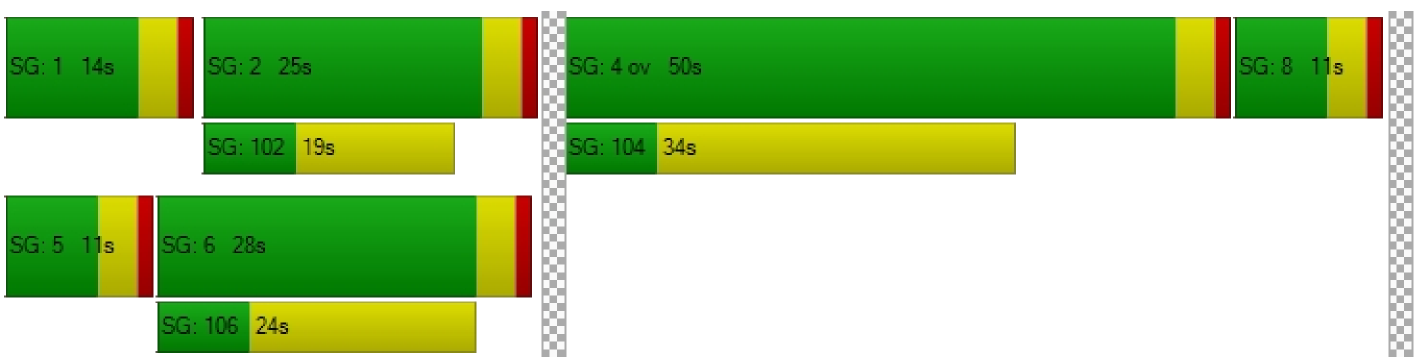
d_M, Delay for Movement [s/veh]	50.65	16.22	4.93	46.15	14.11	14.60	51.95	51.95	51.95	40.21	41.17	41.17
Movement LOS	D	B	A	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	14.06			16.03			51.95			40.30		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.96											
Intersection LOS	B											
Intersection V/C	0.592											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	39.61	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.123	1.778	2.662
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	480	420	140	920
d_b, Bicycle Delay [s]	28.88	31.21	43.25	14.58
I_b,int, Bicycle LOS Score for Intersection	2.756	2.409	1.655	2.588
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Highway 111 at Magnesia Falls Drive

Control Type:	Signalized	Delay (sec / veh):	14.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.622

Intersection Setup

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	44	2112	57	56	1867	15	21	11	41	170	10	23
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	2112	57	56	1867	15	21	11	41	170	10	23
Peak Hour Factor	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	11	545	15	14	482	4	5	3	11	44	3	6
Total Analysis Volume [veh/h]	45	2182	59	58	1929	15	22	11	42	176	10	24
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street [ped/h]		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	15	43	0	11	39	0	0	11	0	0	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	69	69	6	70	70	6	6	8	8	8
g / C, Green / Cycle	0.05	0.66	0.66	0.05	0.66	0.66	0.06	0.06	0.07	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.03	0.41	0.42	0.03	0.36	0.36	0.02	0.03	0.05	0.05	0.02
s, saturation flow rate [veh/h]	1781	3560	1845	1781	3560	1863	1810	1589	1781	1790	1589
c, Capacity [veh/h]	89	2340	1213	99	2360	1235	109	96	134	134	119
d1, Uniform Delay [s]	48.69	10.54	10.57	48.48	9.31	9.32	47.29	47.69	47.44	47.44	45.66
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.43	1.30	2.52	5.47	0.89	1.70	1.55	3.15	6.33	6.27	0.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.63	0.63	0.59	0.54	0.54	0.30	0.44	0.69	0.69	0.20
d, Delay for Lane Group [s/veh]	53.12	11.84	13.09	53.94	10.21	11.02	48.84	50.84	53.77	53.70	46.48
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.26	9.33	10.15	1.63	7.17	7.79	0.87	1.14	2.60	2.60	0.61
50th-Percentile Queue Length [ft/ln]	31.42	233.2	253.6	40.76	179.3	194.7	21.81	28.58	64.94	65.11	15.37
95th-Percentile Queue Length [veh/ln]	2.26	14.34	15.37	2.93	11.56	12.36	1.57	2.06	4.68	4.69	1.11
95th-Percentile Queue Length [ft/ln]	56.56	358.4	384.2	73.37	289.1	309.1	39.25	51.44	116.8	117.2	27.67

Movement, Approach, & Intersection Results

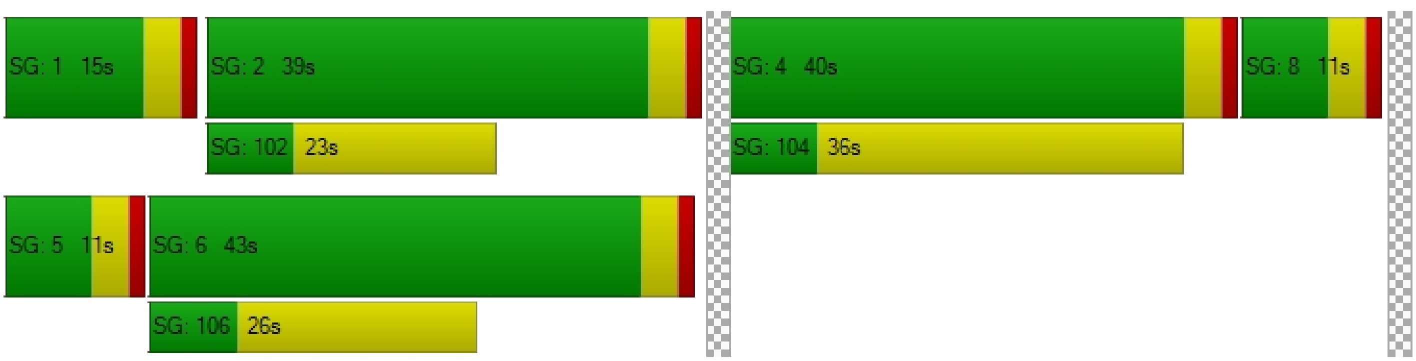
d_M, Delay for Movement [s/veh]	53.12	12.24	13.09	53.94	10.48	11.02	48.84	48.84	50.84	53.74	53.70	46.48
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	13.07			11.74			49.96			52.91		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	14.92											
Intersection LOS	B											
Intersection V/C	0.622											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	42.08	42.08	42.08
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.190	1.995	2.221
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	743	667	133	686
d_b, Bicycle Delay [s]	20.74	23.33	45.73	22.67
I_b,int, Bicycle LOS Score for Intersection	2.817	2.661	1.683	1.906
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Highway 111 at Painters Path/Park View Drive

Control Type:	Signalized	Delay (sec / veh):	11.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.633

Intersection Setup

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
Base Volume Input [veh/h]	5	1898	94	146	1914	66	44	25	6	41	34	137
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1898	94	146	1914	66	44	25	6	41	34	137
Peak Hour Factor	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977	0.977
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	1	486	24	37	490	17	11	6	2	10	9	35
Total Analysis Volume [veh/h]	5	1943	96	149	1959	68	45	26	6	42	35	140
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	34	0	19	34	0	0	42	0	0	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	23	0	0	15	0	0	31	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	63	63	10	71	71	11	11	11
g / C, Green / Cycle	0.01	0.66	0.66	0.10	0.75	0.75	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.00	0.38	0.06	0.08	0.37	0.38	0.08	0.05	0.09
s, saturation flow rate [veh/h]	1781	5094	1589	1781	3560	1838	951	1560	1589
c, Capacity [veh/h]	18	3355	1047	183	2675	1381	167	234	178
d1, Uniform Delay [s]	46.67	8.95	5.89	41.73	4.70	4.72	41.81	39.19	41.07
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.73	0.74	0.17	8.40	0.67	1.30	1.99	0.82	7.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.58	0.09	0.81	0.50	0.50	0.46	0.33	0.79
d, Delay for Lane Group [s/veh]	54.39	9.69	6.07	50.14	5.37	6.02	43.80	40.00	48.47
Lane Group LOS	D	A	A	D	A	A	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.16	6.63	0.67	3.81	4.16	4.56	1.85	1.71	3.52
50th-Percentile Queue Length [ft/ln]	3.90	165.7	16.87	95.25	103.9	114.0	46.23	42.81	88.05
95th-Percentile Queue Length [veh/ln]	0.28	10.85	1.21	6.86	7.48	8.07	3.33	3.08	6.34
95th-Percentile Queue Length [ft/ln]	7.02	271.2	30.37	171.4	187.1	201.6	83.21	77.05	158.49

Movement, Approach, & Intersection Results

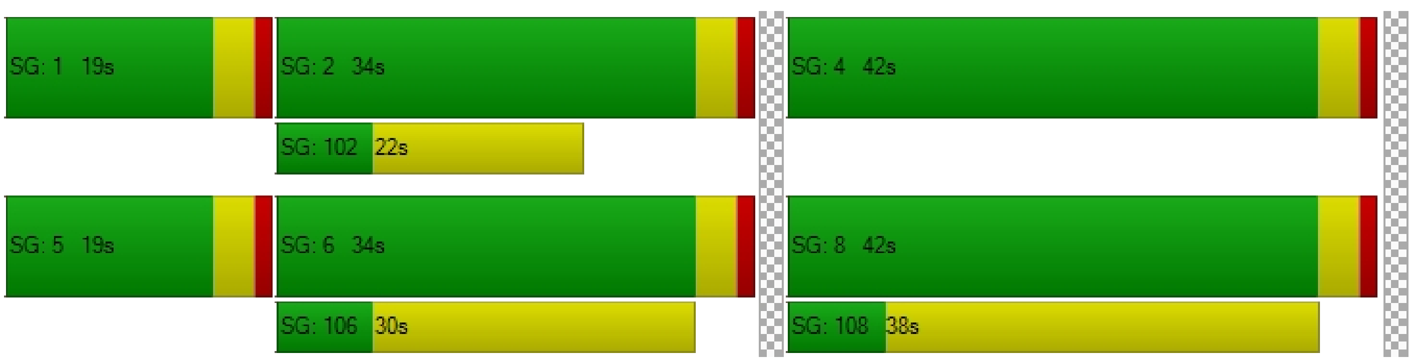
d_M, Delay for Movement [s/veh]	54.39	9.69	6.07	50.14	5.58	6.02	43.80	43.80	43.80	40.00	40.00	48.47
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	9.62			8.64			43.80			45.47		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	11.46											
Intersection LOS	B											
Intersection V/C	0.633											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	0.00	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	3.281	0.000	1.807	2.101
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	632	632	800	800
d_b, Bicycle Delay [s]	22.24	22.24	17.10	17.10
I_b,int, Bicycle LOS Score for Intersection	2.684	2.756	1.687	1.918
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Highway 111 at Fred Waring Drive

Control Type:	Signalized	Delay (sec / veh):	47.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.668

Intersection Setup

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
Base Volume Input [veh/h]	72	1419	159	512	1422	128	144	177	81	189	171	451
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	1419	159	512	1422	128	144	177	81	189	171	451
Peak Hour Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	19	373	42	135	374	34	38	47	21	50	45	119
Total Analysis Volume [veh/h]	76	1494	167	539	1497	135	152	186	85	199	180	475
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Unsig
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	41	0	17	47	0	11	50	0	12	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	30	0	0	35	0	0	36	0	0	40	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	74	74	13	80	80	21	9	9	8	10
g / C, Green / Cycle	0.05	0.61	0.61	0.11	0.67	0.67	0.18	0.08	0.08	0.07	0.09
(v / s)_i Volume / Saturation Flow Rate	0.02	0.31	0.31	0.16	0.29	0.08	0.05	0.05	0.05	0.06	0.05
s, saturation flow rate [veh/h]	3459	3560	1775	3459	5094	1589	2811	3560	1589	3459	3560
c, Capacity [veh/h]	188	2181	1088	376	3398	1060	511	277	124	233	308
d1, Uniform Delay [s]	54.87	13.07	13.08	53.50	9.43	7.27	42.51	53.86	53.93	55.41	52.76
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.39	0.85	1.70	197.7	0.42	0.25	0.32	2.81	6.58	8.65	1.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.51	0.51	1.43	0.44	0.13	0.30	0.67	0.69	0.85	0.58
d, Delay for Lane Group [s/veh]	56.26	13.92	14.78	251.2	9.84	7.52	42.83	56.67	60.51	64.06	54.52
Lane Group LOS	E	B	B	F	A	A	D	E	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.15	8.30	8.55	16.01	5.92	1.28	1.97	2.84	2.73	3.26	2.69
50th-Percentile Queue Length [ft/ln]	28.74	207.4	213.8	400.1	147.8	32.01	49.31	71.07	68.23	81.49	67.24
95th-Percentile Queue Length [veh/ln]	2.07	13.02	13.35	25.57	9.90	2.30	3.55	5.12	4.91	5.87	4.84
95th-Percentile Queue Length [ft/ln]	51.73	325.5	333.7	639.3	247.6	57.62	88.76	127.9	122.8	146.68	121.04

Movement, Approach, & Intersection Results

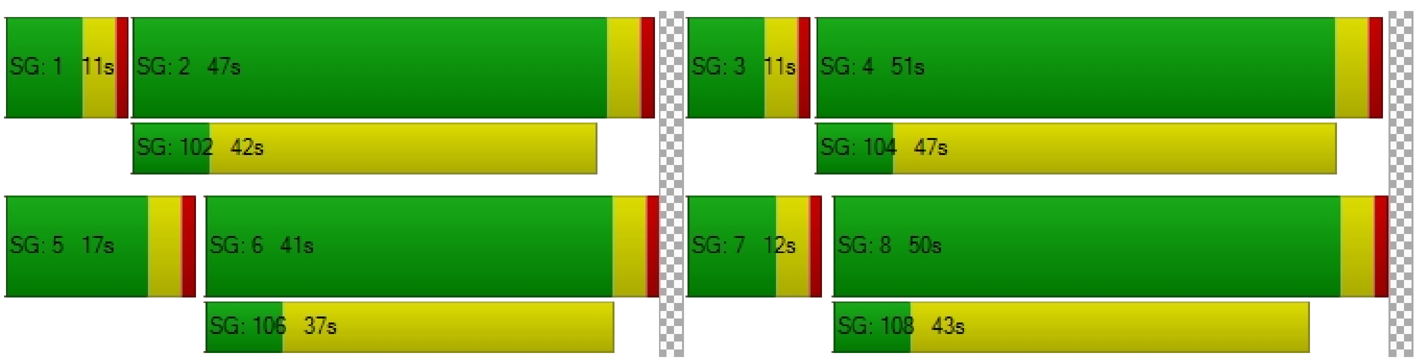
d_M, Delay for Movement [s/veh]	56.26	14.14	14.78	251.2	9.84	7.52	42.83	56.67	60.51	64.06	54.52	0.00
Movement LOS	E	B	B	F	A	A	D	E	E	E	D	
d_A, Approach Delay [s/veh]	16.05			69.64			52.47			59.53		
Approach LOS	B			E			D			E		
d_I, Intersection Delay [s/veh]	47.52											
Intersection LOS	D											
Intersection V/C	0.668											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	3.168	3.299	2.721	2.785
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	717	767	783
d_b, Bicycle Delay [s]	28.70	24.70	22.82	22.20
I_b,int, Bicycle LOS Score for Intersection	2.515	2.754	1.909	1.872
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Bob Hope Drive at Rancho Las Palmas

Control Type:	Signalized	Delay (sec / veh):	11.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.439

Intersection Setup

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
Base Volume Input [veh/h]	47	642	12	5	586	211	268	2	66	12	6	2
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	642	12	5	586	211	268	2	66	12	6	2
Peak Hour Factor	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	13	173	3	1	158	57	72	1	18	3	2	1
Total Analysis Volume [veh/h]	51	692	13	5	631	227	289	2	71	13	6	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	37	0	0	37	0	0	53	0	0	53	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	22	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	61	61	61	61	61	61	21	21	21	21
g / C, Green / Cycle	0.68	0.68	0.68	0.68	0.68	0.68	0.23	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.01	0.01	0.18	0.14	0.21	0.00	0.04	0.01
s, saturation flow rate [veh/h]	795	3560	1589	752	3560	1589	1407	1870	1589	1485
c, Capacity [veh/h]	546	2412	1077	514	2412	1077	342	437	372	412
d1, Uniform Delay [s]	8.27	5.81	4.72	8.10	5.69	5.46	33.58	26.44	27.64	26.72
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.34	0.30	0.02	0.03	0.26	0.45	5.72	0.00	0.25	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.09	0.29	0.01	0.01	0.26	0.21	0.84	0.00	0.19	0.05
d, Delay for Lane Group [s/veh]	8.61	6.11	4.74	8.14	5.96	5.91	39.30	26.44	27.89	26.77
Lane Group LOS	A	A	A	A	A	A	D	C	C	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.46	2.33	0.07	0.04	2.08	1.51	6.49	0.03	1.23	0.35
50th-Percentile Queue Length [ft/ln]	11.51	58.33	1.86	1.09	52.05	37.75	162.3	0.83	30.83	8.77
95th-Percentile Queue Length [veh/ln]	0.83	4.20	0.13	0.08	3.75	2.72	10.67	0.06	2.22	0.63
95th-Percentile Queue Length [ft/ln]	20.71	104.9	3.34	1.97	93.69	67.95	266.8	1.49	55.49	15.79

Movement, Approach, & Intersection Results

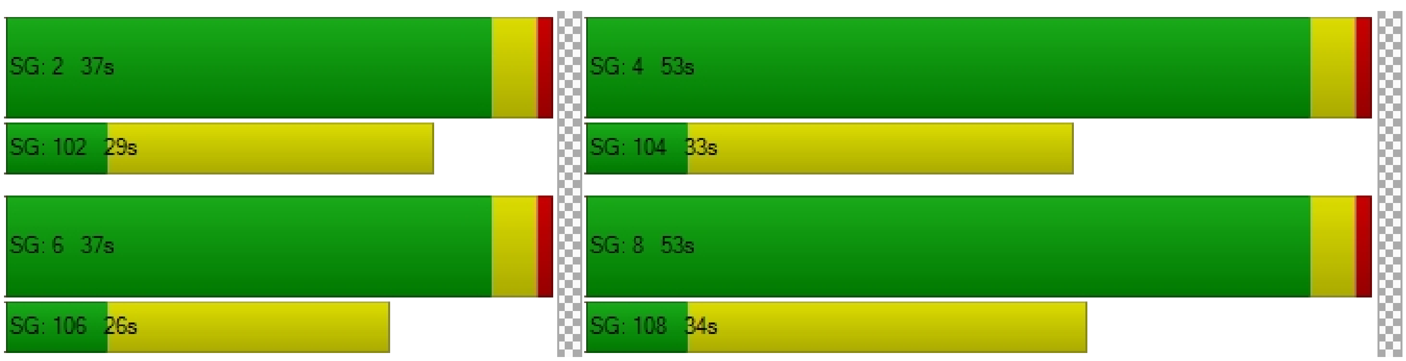
d_M, Delay for Movement [s/veh]	8.61	6.11	4.74	8.14	5.96	5.91	39.30	26.44	27.89	26.77	26.77	26.77
Movement LOS	A	A	A	A	A	A	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	6.26			5.96			36.99			26.77		
Approach LOS	A			A			D			C		
d_I, Intersection Delay [s/veh]	11.90											
Intersection LOS	B											
Intersection V/C	0.439											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.710	3.163	2.361	1.741
Crosswalk LOS	B	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	733	1089	1089
d_b, Bicycle Delay [s]	18.05	18.05	9.34	9.34
I_b,int, Bicycle LOS Score for Intersection	2.183	2.272	2.157	1.594
Bicycle LOS	B	B	B	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Highway 111 at Rancho Las Palmas Drive

Control Type:	Signalized	Delay (sec / veh):	9.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.510

Intersection Setup

Name	Highway 111			Highway 111			Ra La			Ra La		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Ra La			Ra La		
Base Volume Input [veh/h]	12	1494	56	74	1463	24	20	22	16	57	21	71
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	1494	56	74	1463	24	20	22	16	57	21	71
Peak Hour Factor	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940	0.940
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	3	397	15	20	389	6	5	6	4	15	6	19
Total Analysis Volume [veh/h]	13	1589	60	79	1556	26	21	23	17	61	22	76
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	40	0	11	39	0	0	39	0	0	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	19	0	0	28	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	62	62	6	66	66	10	10	10	10	10	10
g / C, Green / Cycle	0.02	0.69	0.69	0.07	0.74	0.74	0.11	0.11	0.11	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.01	0.34	0.34	0.05	0.32	0.32	0.02	0.01	0.01	0.05	0.01	0.05
s, saturation flow rate [veh/h]	1603	3204	1652	1603	3204	1669	1250	1683	1431	1249	1683	1431
c, Capacity [veh/h]	35	2216	1142	108	2361	1230	169	182	154	168	182	154
d1, Uniform Delay [s]	43.41	6.49	6.49	41.19	4.61	4.61	39.52	36.31	36.25	40.90	36.29	37.83
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.37	0.78	1.51	9.19	0.60	1.15	0.33	0.31	0.31	1.32	0.29	2.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.49	0.49	0.73	0.44	0.44	0.12	0.13	0.11	0.36	0.12	0.49
d, Delay for Lane Group [s/veh]	49.78	7.27	8.00	50.37	5.21	5.76	39.85	36.62	36.56	42.22	36.58	40.24
Lane Group LOS	D	A	A	D	A	A	D	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.34	4.23	4.60	1.97	3.06	3.37	0.45	0.47	0.35	1.37	0.45	1.66
50th-Percentile Queue Length [ft/ln]	8.62	105.8	114.9	49.34	76.39	84.28	11.24	11.70	8.68	34.15	11.18	41.51
95th-Percentile Queue Length [veh/ln]	0.62	7.61	8.11	3.55	5.50	6.07	0.81	0.84	0.62	2.46	0.81	2.99
95th-Percentile Queue Length [ft/ln]	15.52	190.1	202.8	88.81	137.5	151.7	20.23	21.06	15.62	61.46	20.13	74.72

Movement, Approach, & Intersection Results

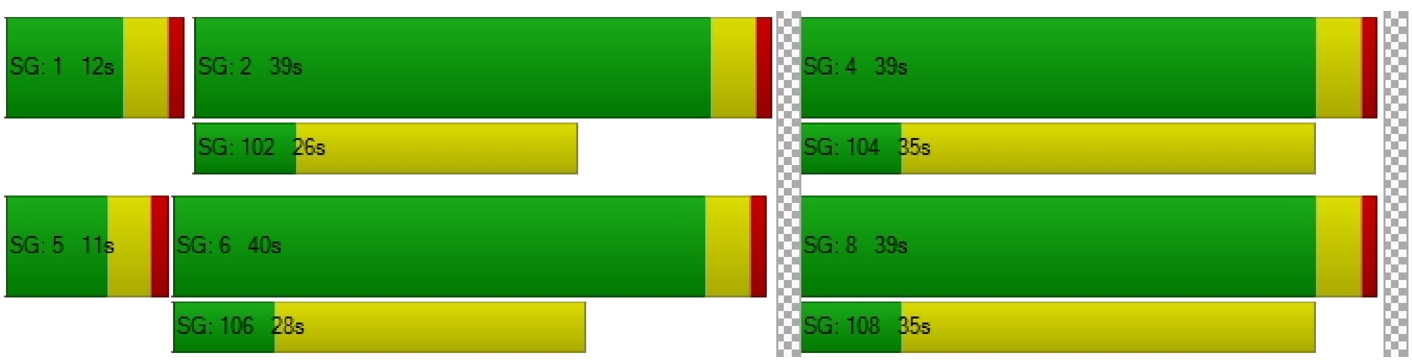
d_M, Delay for Movement [s/veh]	49.78	7.50	8.00	50.37	5.40	5.76	39.85	36.62	36.56	42.22	36.58	40.24
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	7.85			7.54			37.72			40.49		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	9.68											
Intersection LOS	A											
Intersection V/C	0.510											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	3.139	3.089	2.160	2.209
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	778	778	778
d_b, Bicycle Delay [s]	16.20	16.81	16.81	16.81
I_b,int, Bicycle LOS Score for Intersection	2.474	2.473	1.660	1.822
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Highway 111 at Bob Hope Drive

Control Type:	Signalized	Delay (sec / veh):	20.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.619

Intersection Setup

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Bob Hope Drive			Bob Hope Drive		
Base Volume Input [veh/h]	49	1619	510	105	1406	21	21	25	33	559	15	53
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	1619	510	105	1406	21	21	25	33	559	15	53
Peak Hour Factor	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	12	412	130	27	358	5	5	6	8	142	4	13
Total Analysis Volume [veh/h]	50	1649	519	107	1432	21	21	25	34	569	15	54
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Overla	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	6	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups			4,6									
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	30	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	14	28	28	11	25	0	0	28	0	0	38	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	17	0	12	0	0	0	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No	No	No	No			No			No	
Maximum Recall	No	No	No	No	No			No			No	
Pedestrian Recall	No	No	No	No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	L	C
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	58	80	7	60	60	6	18	18
g / C, Green / Cycle	0.05	0.55	0.76	0.06	0.57	0.57	0.06	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.03	0.32	0.33	0.03	0.27	0.27	0.05	0.12	0.12
s, saturation flow rate [veh/h]	1781	5094	1589	3459	3560	1856	1719	3459	1734
c, Capacity [veh/h]	92	2819	1210	221	2015	1051	104	587	294
d1, Uniform Delay [s]	48.62	15.49	4.44	47.48	13.52	13.52	48.62	41.26	41.27
k, delay calibration	0.11	0.50	0.46	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.98	0.90	1.03	1.64	0.80	1.53	11.31	1.70	3.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.58	0.43	0.48	0.47	0.47	0.77	0.72	0.72
d, Delay for Lane Group [s/veh]	53.60	16.38	5.47	49.12	14.32	15.05	59.93	42.96	44.66
Lane Group LOS	D	B	A	D	B	B	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	1.40	8.46	3.48	1.40	6.59	7.08	2.38	5.31	5.47
50th-Percentile Queue Length [ft/ln]	35.05	211.4	87.09	34.97	164.7	177.0	59.61	132.66	136.81
95th-Percentile Queue Length [veh/ln]	2.52	13.23	6.27	2.52	10.80	11.45	4.29	9.08	9.31
95th-Percentile Queue Length [ft/ln]	63.09	330.6	156.7	62.94	269.9	286.2	107.29	227.10	232.72

Movement, Approach, & Intersection Results

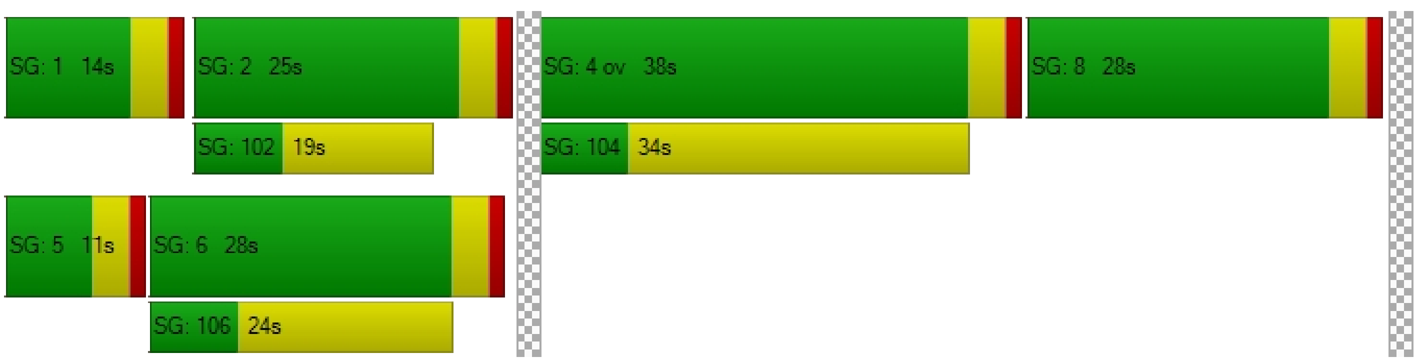
d_M, Delay for Movement [s/veh]	53.60	16.38	5.47	49.12	14.57	15.05	59.93	59.93	59.93	43.39	44.66	44.66
Movement LOS	D	B	A	D	B	B	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	14.67			16.94			59.93			43.53		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	20.36											
Intersection LOS	C											
Intersection V/C	0.619											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	42.08	42.08	42.08
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.133	1.803	2.670
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	457	400	457	648
d_b, Bicycle Delay [s]	31.24	33.60	31.24	24.00
I_b,int, Bicycle LOS Score for Intersection	2.780	2.418	1.692	2.612
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Highway 111 at Magnesia Falls Drive

Control Type:	Signalized	Delay (sec / veh):	18.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.695

Intersection Setup

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	46	2114	91	106	1875	16	12	9	36	261	10	28
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	2114	91	106	1875	16	12	9	36	261	10	28
Peak Hour Factor	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	12	537	23	27	476	4	3	2	9	66	3	7
Total Analysis Volume [veh/h]	47	2146	92	108	1904	16	12	9	37	265	10	28
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	13	30	0	11	28	0	0	11	0	0	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	29	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	57	57	7	59	59	6	6	10	10	10
g / C, Green / Cycle	0.05	0.60	0.60	0.07	0.62	0.62	0.06	0.06	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.03	0.41	0.42	0.06	0.35	0.35	0.01	0.02	0.08	0.08	0.02
s, saturation flow rate [veh/h]	1781	3560	1831	1781	3560	1862	1818	1589	1781	1787	1589
c, Capacity [veh/h]	95	2116	1088	133	2190	1145	107	94	186	186	166
d1, Uniform Delay [s]	43.77	13.37	13.44	43.39	10.91	10.91	42.63	43.14	41.37	41.37	38.87
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.88	1.93	3.78	11.30	1.11	2.11	0.88	2.69	5.68	5.66	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.70	0.70	0.81	0.58	0.58	0.20	0.40	0.74	0.74	0.17
d, Delay for Lane Group [s/veh]	47.65	15.30	17.22	54.68	12.02	13.02	43.51	45.83	47.05	47.02	39.34
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.17	10.38	11.35	2.90	7.40	8.07	0.49	0.90	3.39	3.39	0.61
50th-Percentile Queue Length [ft/ln]	29.28	259.5	283.8	72.41	185.0	201.6	12.33	22.57	84.63	84.85	15.36
95th-Percentile Queue Length [veh/ln]	2.11	15.66	16.88	5.21	11.86	12.73	0.89	1.62	6.09	6.11	1.11
95th-Percentile Queue Length [ft/ln]	52.70	391.6	421.9	130.3	296.5	318.1	22.20	40.62	152.3	152.7	27.65

Movement, Approach, & Intersection Results

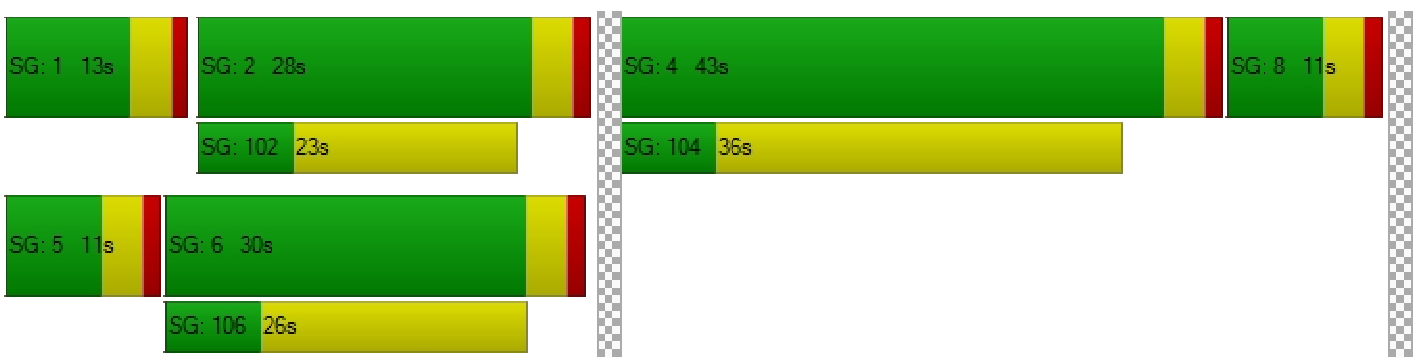
d_M, Delay for Movement [s/veh]	47.65	15.90	17.22	54.68	12.36	13.02	43.51	43.51	45.83	47.04	47.02	39.34
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	16.61			14.62			44.99			46.33		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.02											
Intersection LOS	B											
Intersection V/C	0.695											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	37.14	37.14	37.14
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.183	1.985	2.258
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	547	505	147	821
d_b, Bicycle Delay [s]	25.06	26.53	40.76	16.51
I_b,int, Bicycle LOS Score for Intersection	2.816	2.675	1.655	2.060
Bicycle LOS	C	B	A	B

Sequence

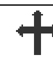
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Highway 111 at Painters Path/Park View Drive

Control Type:	Signalized	Delay (sec / veh):	10.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.656

Intersection Setup

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Painters Path			Park View Drive		
Base Volume Input [veh/h]	6	2062	83	104	1987	92	48	14	8	50	25	132
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	2062	83	104	1987	92	48	14	8	50	25	132
Peak Hour Factor	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	2	533	21	27	514	24	12	4	2	13	6	34
Total Analysis Volume [veh/h]	6	2132	86	108	2055	95	50	14	8	52	26	137
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	37	0	11	36	0	0	42	0	0	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	23	0	0	15	0	0	31	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	61	61	7	67	67	10	10	10
g / C, Green / Cycle	0.01	0.68	0.68	0.08	0.74	0.74	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.00	0.42	0.05	0.06	0.40	0.40	0.09	0.05	0.09
s, saturation flow rate [veh/h]	1781	5094	1589	1781	3560	1828	802	1551	1589
c, Capacity [veh/h]	22	3453	1078	137	2645	1358	157	240	177
d1, Uniform Delay [s]	44.09	8.03	4.94	40.82	4.94	4.96	40.60	37.27	38.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.79	0.84	0.14	9.45	0.78	1.54	2.07	0.78	6.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.62	0.08	0.79	0.54	0.54	0.46	0.33	0.77
d, Delay for Lane Group [s/veh]	50.88	8.87	5.08	50.26	5.72	6.50	42.67	38.05	45.84
Lane Group LOS	D	A	A	D	A	A	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.17	6.57	0.51	2.68	4.43	4.89	1.65	1.64	3.24
50th-Percentile Queue Length [ft/ln]	4.30	164.1	12.80	67.09	110.8	122.1	41.27	40.92	81.05
95th-Percentile Queue Length [veh/ln]	0.31	10.77	0.92	4.83	7.89	8.51	2.97	2.95	5.84
95th-Percentile Queue Length [ft/ln]	7.75	269.2	23.03	120.7	197.1	212.7	74.28	73.66	145.89

Movement, Approach, & Intersection Results

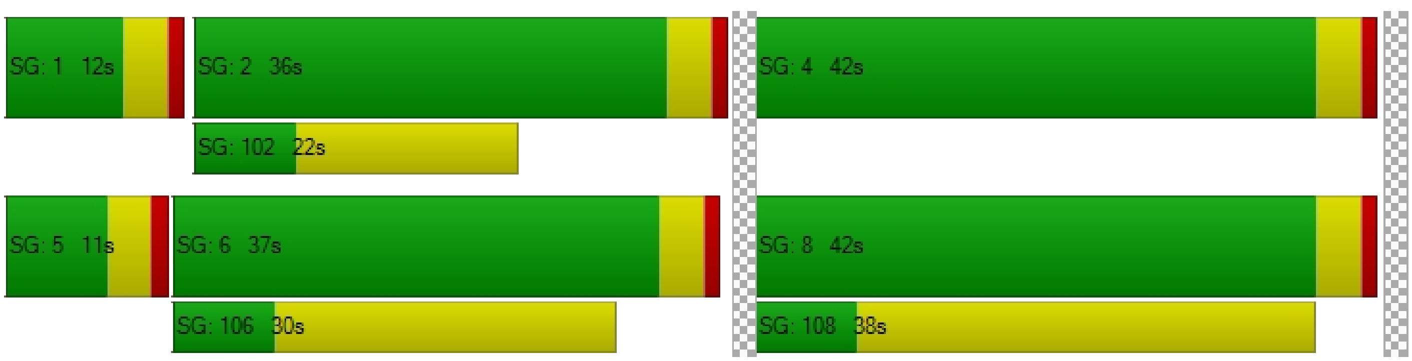
d_M, Delay for Movement [s/veh]	50.88	8.87	5.08	50.26	5.97	6.50	42.67	42.67	42.67	38.05	38.05	45.84
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	8.84			8.11			42.67			43.02		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.54											
Intersection LOS	B											
Intersection V/C	0.656											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	0.00	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	3.328	0.000	1.811	2.077
Crosswalk LOS	C	F	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	711	844	844
d_b, Bicycle Delay [s]	18.05	18.69	15.02	15.02
I_b,int, Bicycle LOS Score for Intersection	2.783	2.802	1.678	1.914
Bicycle LOS	C	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Highway 111 at Fred Waring Drive

Control Type:	Signalized	Delay (sec / veh):	37.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.722

Intersection Setup

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Highway 111			Highway 111			Fred Waring Drive			Fred Waring Drive		
Base Volume Input [veh/h]	112	1536	206	440	1441	150	190	223	113	249	254	387
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	1536	206	440	1441	150	190	223	113	249	254	387
Peak Hour Factor	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957	0.957
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	29	401	54	115	376	39	50	58	30	65	66	101
Total Analysis Volume [veh/h]	117	1605	215	460	1506	157	199	233	118	260	265	404
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protec	Permi	Permi	Protec	Permi	Permi	ProtP	Permi	Permi	Protec	Permi	Unsig
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	41	0	17	47	0	11	48	0	14	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	30	0	0	35	0	0	36	0	0	40	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	69	69	13	75	75	26	12	12	10	15
g / C, Green / Cycle	0.06	0.57	0.57	0.11	0.63	0.63	0.22	0.10	0.10	0.08	0.13
(v / s)_i Volume / Saturation Flow Rate	0.03	0.34	0.34	0.13	0.30	0.10	0.08	0.07	0.07	0.08	0.07
s, saturation flow rate [veh/h]	3459	3560	1760	3459	5094	1589	2614	3560	1589	3459	3560
c, Capacity [veh/h]	200	2041	1009	376	3180	992	539	358	160	290	447
d1, Uniform Delay [s]	55.15	16.59	16.65	53.50	12.03	9.40	39.27	51.96	52.45	54.47	49.60
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.69	1.29	2.63	105.3	0.51	0.34	0.42	1.99	6.48	9.55	1.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.60	0.60	1.22	0.47	0.16	0.37	0.65	0.74	0.90	0.59
d, Delay for Lane Group [s/veh]	57.84	17.88	19.28	158.8	12.54	9.74	39.69	53.95	58.94	64.02	50.86
Lane Group LOS	E	B	B	F	B	A	D	D	E	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.80	10.81	11.16	11.17	7.00	1.77	2.48	3.48	3.74	4.27	3.84
50th-Percentile Queue Length [ft/ln]	45.07	270.2	278.9	279.3	175.0	44.22	62.05	86.97	93.59	106.86	96.00
95th-Percentile Queue Length [veh/ln]	3.25	16.20	16.64	17.96	11.34	3.18	4.47	6.26	6.74	7.67	6.91
95th-Percentile Queue Length [ft/ln]	81.13	405.0	415.9	448.9	283.5	79.60	111.6	156.5	168.4	191.63	172.80

Movement, Approach, & Intersection Results

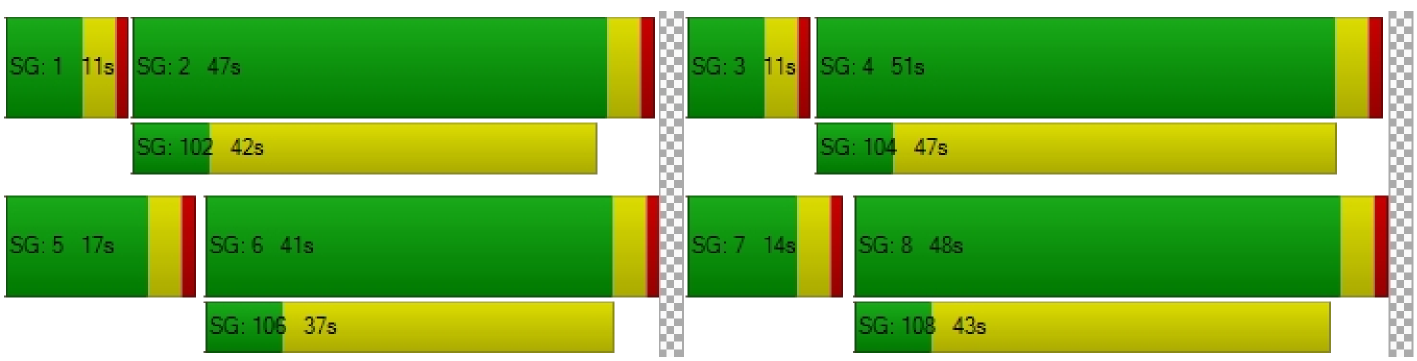
d_M, Delay for Movement [s/veh]	57.84	18.22	19.28	158.8	12.54	9.74	39.69	53.95	58.94	64.02	50.86	0.00
Movement LOS	E	B	B	F	B	A	D	D	E	E	D	
d_A, Approach Delay [s/veh]	20.73			44.03			49.86			57.38		
Approach LOS	C			D			D			E		
d_I, Intersection Delay [s/veh]	37.23											
Intersection LOS	D											
Intersection V/C	0.722											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	3.205	3.329	2.759	2.807
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	717	733	783
d_b, Bicycle Delay [s]	28.70	24.70	24.07	22.20
I_b,int, Bicycle LOS Score for Intersection	2.625	2.727	2.013	1.993
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Bob Hope Drive at Rancho Las Palmas

Control Type:	Signalized	Delay (sec / veh):	8.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.344

Intersection Setup

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Bob Hope Drive			Bob Hope Drive			Rancho Las Palmas			Rancho Las Palmas		
Base Volume Input [veh/h]	36	643	46	30	724	159	133	9	62	35	9	20
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	643	46	30	724	159	133	9	62	35	9	20
Peak Hour Factor	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	9	168	12	8	189	41	35	2	16	9	2	5
Total Analysis Volume [veh/h]	38	671	48	31	756	166	139	9	65	37	9	21
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [ped/h]	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [ped/h]	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi	Permi
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	49	0	0	49	0	0	41	0	0	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	22	0	0	27	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	69	69	69	69	69	69	13	13	13	13
g / C, Green / Cycle	0.77	0.77	0.77	0.77	0.77	0.77	0.14	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.05	0.19	0.03	0.04	0.21	0.10	0.10	0.00	0.04	0.05
s, saturation flow rate [veh/h]	708	3560	1589	766	3560	1589	1379	1870	1589	1436
c, Capacity [veh/h]	565	2731	1219	611	2731	1219	180	270	229	269
d1, Uniform Delay [s]	4.74	3.01	2.52	4.42	3.10	2.73	37.91	33.12	34.36	34.70
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.23	0.21	0.06	0.16	0.25	0.23	6.90	0.05	0.67	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.07	0.25	0.04	0.05	0.28	0.14	0.77	0.03	0.28	0.25
d, Delay for Lane Group [s/veh]	4.97	3.23	2.58	4.58	3.36	2.96	44.81	33.17	35.03	35.17
Lane Group LOS	A	A	A	A	A	A	D	C	D	D
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.24	1.30	0.17	0.18	1.51	0.63	3.28	0.17	1.30	1.35
50th-Percentile Queue Length [ft/ln]	5.94	32.53	4.16	4.55	37.79	15.64	82.04	4.28	32.42	33.64
95th-Percentile Queue Length [veh/ln]	0.43	2.34	0.30	0.33	2.72	1.13	5.91	0.31	2.33	2.42
95th-Percentile Queue Length [ft/ln]	10.69	58.56	7.49	8.18	68.03	28.16	147.6	7.70	58.35	60.55

Movement, Approach, & Intersection Results

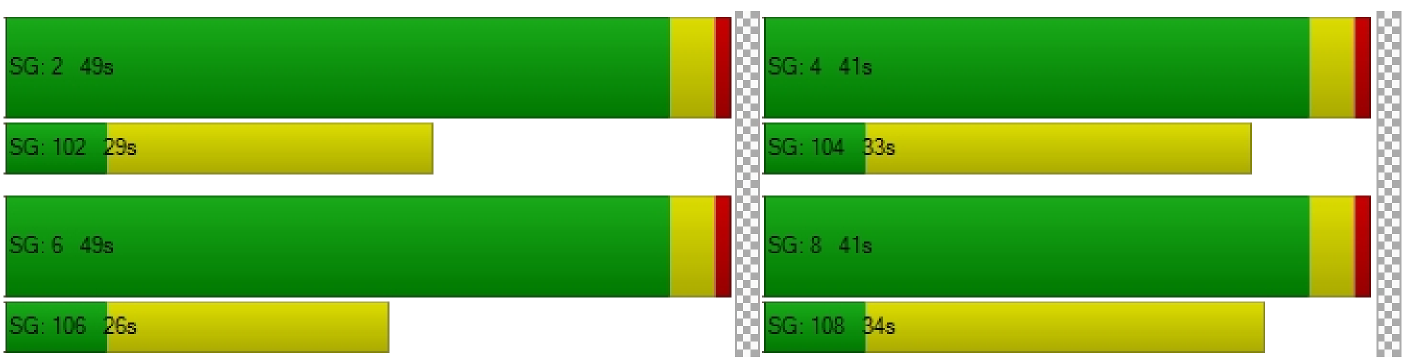
d_M, Delay for Movement [s/veh]	4.97	3.23	2.58	4.58	3.36	2.96	44.81	33.17	35.03	35.17	35.17	35.17
Movement LOS	A	A	A	A	A	A	D	C	D	D	D	D
d_A, Approach Delay [s/veh]	3.27			3.33			41.33			35.17		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	8.45											
Intersection LOS	A											
Intersection V/C	0.344											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.767	2.940	2.288	1.834
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	1000	822	822
d_b, Bicycle Delay [s]	11.25	11.25	15.61	15.61
I_b,int, Bicycle LOS Score for Intersection	2.184	2.346	1.911	1.670
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX E

PROJECT DRIVEWAY INTERSECTION
LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX E-I

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report

Intersection 4: Rancho Las Palmas Center Driveway No. 1 at Magnesia Falls Drive

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name	Existing Dwy			Ra La			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	Existing Dwy			Ra La			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	20	6	9	0	0	89	32	24	14	2	9	4
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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]	20	6	9	0	0	89	32	24	14	2	9	4
Peak Hour Factor	0.827	0.827	0.827	1.000	1.000	0.827	0.827	0.827	0.827	0.827	0.827	0.827
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	2	3	0	0	27	10	7	4	1	3	1
Total Analysis Volume [veh/h]	24	7	11	0	0	108	39	29	17	2	11	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.00	0.00	0.10	0.02	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.12	10.14	8.73	0.00	0.00	8.76	7.30	0.00	0.00	7.31	0.00	0.00
Movement LOS	B	B	A			A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.17	0.17	0.17	0.00	0.00	0.34	0.07	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.16	4.16	4.16	0.00	0.00	8.43	1.87	0.00	0.00	0.10	0.10	0.10
d_A, Approach Delay [s/veh]	9.76			8.76			3.35			0.81		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.54											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 8: Bob Hope Drive at Rancho Las Palmas Center Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.184

Intersection Setup

Name	Bob Hope Drive		Bob Hope Drive		Ra La	
Approach	Northbound		Southbound		Westbound	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Bob Hope Drive		Bob Hope Drive		Ra La	
Base Volume Input [veh/h]	470	58	98	548	0	127
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]	470	58	98	548	0	127
Peak Hour Factor	0.9290	0.9290	0.9290	0.9290	1.0000	0.9290
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	16	26	147	0	34
Total Analysis Volume [veh/h]	506	62	105	590	0	137
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.10	0.01	0.00	0.18
d_M, Delay for Movement [s/veh]	0.00	0.00	9.02	0.00	0.00	10.90
Movement LOS	A	A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.35	0.00	0.00	0.67
95th-Percentile Queue Length [ft/ln]	0.00	0.00	8.77	0.00	0.00	16.71
d_A, Approach Delay [s/veh]	0.00		1.36		10.90	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.74					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 9: Highway 111 at Rancho Las Palmas Center Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	26.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.183

Intersection Setup

Name	Highway 111		Highway 111		Ra La	
Approach	Northbound		Southbound		Westbound	
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 Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Highway 111		Highway 111		Ra La	
Base Volume Input [veh/h]	1974	58	0	1860	0	37
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]	1974	58	0	1860	0	37
Peak Hour Factor	0.9860	0.9860	1.0000	0.9860	1.0000	0.9860
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	501	15	0	472	0	9
Total Analysis Volume [veh/h]	2002	59	0	1886	0	38
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.02	0.00	0.18
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	26.25
Movement LOS	A	A		A		D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.65
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	16.35
d_A, Approach Delay [s/veh]	0.00		0.00		26.25	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.25					
Intersection LOS	D					

Intersection Level Of Service Report

Intersection 4: Rancho Las Palmas Center Driveway No. 1 at Magnesia Falls Drive

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.039

Intersection Setup

Name	Existing Dwy			Ra La			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	Existing Dwy			Ra La			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	23	8	1	0	0	127	67	15	21	1	9	11
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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]	23	8	1	0	0	127	67	15	21	1	9	11
Peak Hour Factor	0.934	0.934	0.934	1.000	1.000	0.934	0.934	0.934	0.934	0.934	0.934	0.934
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	2	0	0	0	34	18	4	6	0	2	3
Total Analysis Volume [veh/h]	25	9	1	0	0	136	72	16	22	1	10	12
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.00	0.00	0.00	0.13	0.05	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.85	10.69	8.74	0.00	0.00	8.88	7.37	0.00	0.00	7.29	0.00	0.00
Movement LOS	B	B	A			A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.17	0.17	0.17	0.00	0.00	0.44	0.14	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.18	4.18	4.18	0.00	0.00	10.96	3.55	0.00	0.00	0.05	0.05	0.05
d_A, Approach Delay [s/veh]	10.75			8.88			4.82			0.32		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	6.98											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 8: Bob Hope Drive at Rancho Las Palmas Center Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.240

Intersection Setup

Name	Bob Hope Drive		Bob Hope Drive		Ra La	
Approach	Northbound		Southbound		Westbound	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Bob Hope Drive		Bob Hope Drive		Ra La	
Base Volume Input [veh/h]	474	78	167	569	0	164
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]	474	78	167	569	0	164
Peak Hour Factor	0.9230	0.9230	0.9230	0.9230	1.0000	0.9230
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	128	21	45	154	0	44
Total Analysis Volume [veh/h]	514	85	181	616	0	178
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.19	0.01	0.00	0.24
d_M, Delay for Movement [s/veh]	0.00	0.00	9.54	0.00	0.00	11.38
Movement LOS	A	A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.68	0.00	0.00	0.93
95th-Percentile Queue Length [ft/ln]	0.00	0.00	17.00	0.00	0.00	23.36
d_A, Approach Delay [s/veh]	0.00		2.17		11.38	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.38					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 9: Highway 111 at Rancho Las Palmas Center Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	29.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.307

Intersection Setup

Name	Highway 111		Highway 111		Ra La	
Approach	Northbound		Southbound		Westbound	
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 Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Highway 111		Highway 111		Ra La	
Base Volume Input [veh/h]	1918	82	0	1863	0	63
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]	1918	82	0	1863	0	63
Peak Hour Factor	0.9710	0.9710	1.0000	0.9710	1.0000	0.9710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	494	21	0	480	0	16
Total Analysis Volume [veh/h]	1975	84	0	1919	0	65
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.02	0.00	0.31
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	29.41
Movement LOS	A	A		A		D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	1.25
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	31.17
d_A, Approach Delay [s/veh]	0.00		0.00		29.41	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.47					
Intersection LOS	D					

APPENDIX E-II

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report

Intersection 4: Rancho Las Palmas Center Driveway No. 1 at Magnesia Falls Drive

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	Existing Dwy			Ra La			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	Existing Dwy			Ra La			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	20	6	9	0	0	127	70	24	14	2	9	5
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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]	20	6	9	0	0	127	70	24	14	2	9	5
Peak Hour Factor	0.827	0.827	0.827	1.000	1.000	0.827	0.827	0.827	0.827	0.827	0.827	0.827
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	2	3	0	0	38	21	7	4	1	3	2
Total Analysis Volume [veh/h]	24	7	11	0	0	154	85	29	17	2	11	6
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.01	0.00	0.00	0.14	0.05	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.36	11.02	8.83	0.00	0.00	8.95	7.38	0.00	0.00	7.31	0.00	0.00
Movement LOS	B	B	A			A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.20	0.20	0.20	0.00	0.00	0.50	0.17	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.92	4.92	4.92	0.00	0.00	12.61	4.20	0.00	0.00	0.10	0.10	0.10
d_A, Approach Delay [s/veh]	10.64			8.95			4.79			0.77		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	7.13											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 8: Bob Hope Drive at Rancho Las Palmas Center Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.196

Intersection Setup

Name	Bob Hope Drive		Bob Hope Drive		Ra La	
Approach	Northbound		Southbound		Westbound	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Bob Hope Drive		Bob Hope Drive		Ra La	
Base Volume Input [veh/h]	464	58	112	540	0	137
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]	464	58	112	540	0	137
Peak Hour Factor	0.9290	0.9290	0.9290	0.9290	1.0000	0.9290
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	125	16	30	145	0	37
Total Analysis Volume [veh/h]	499	62	121	581	0	147
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.12	0.01	0.00	0.20
d_M, Delay for Movement [s/veh]	0.00	0.00	9.07	0.00	0.00	10.96
Movement LOS	A	A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.41	0.00	0.00	0.72
95th-Percentile Queue Length [ft/ln]	0.00	0.00	10.21	0.00	0.00	18.10
d_A, Approach Delay [s/veh]	0.00		1.56		10.96	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.92					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 9: Highway 111 at Rancho Las Palmas Center Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	29.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.291

Intersection Setup

Name	Highway 111		Highway 111		Ra La	
Approach	Northbound		Southbound		Westbound	
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 Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Highway 111		Highway 111		Ra La	
Base Volume Input [veh/h]	1958	85	0	1867	0	60
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]	1958	85	0	1867	0	60
Peak Hour Factor	0.9860	0.9860	1.0000	0.9860	1.0000	0.9860
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	496	22	0	473	0	15
Total Analysis Volume [veh/h]	1986	86	0	1894	0	61
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.02	0.00	0.29
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	29.07
Movement LOS	A	A		A		D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	1.16
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	28.97
d_A, Approach Delay [s/veh]	0.00		0.00		29.07	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.44					
Intersection LOS	D					

Intersection Level Of Service Report

Intersection 4: Rancho Las Palmas Center Driveway No. 1 at Magnesia Falls Drive

Control Type:	Two-way stop	Delay (sec / veh):	14.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.061

Intersection Setup

Name	Existing Dwy			Ra La			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	Existing Dwy			Ra La			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	23	8	1	0	0	226	158	15	21	1	9	14
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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]	23	8	1	0	0	226	158	15	21	1	9	14
Peak Hour Factor	0.934	0.934	0.934	1.000	1.000	0.934	0.934	0.934	0.934	0.934	0.934	0.934
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	2	0	0	0	60	42	4	6	0	2	4
Total Analysis Volume [veh/h]	25	9	1	0	0	242	169	16	22	1	10	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.02	0.00	0.00	0.00	0.23	0.11	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.58	13.14	9.17	0.00	0.00	9.39	7.53	0.00	0.00	7.29	0.00	0.00
Movement LOS	B	B	A			A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.26	0.26	0.26	0.00	0.00	0.88	0.36	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	6.57	6.57	6.57	0.00	0.00	21.97	8.91	0.00	0.00	0.05	0.05	0.05
d_A, Approach Delay [s/veh]	14.06			9.39			6.15			0.28		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	7.93											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 8: Bob Hope Drive at Rancho Las Palmas Center Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	11.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.277

Intersection Setup

Name	Bob Hope Drive		Bob Hope Drive		Ra La	
Approach	Northbound		Southbound		Westbound	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Bob Hope Drive		Bob Hope Drive		Ra La	
Base Volume Input [veh/h]	460	78	200	550	0	192
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]	460	78	200	550	0	192
Peak Hour Factor	0.9230	0.9230	0.9230	0.9230	1.0000	0.9230
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	125	21	54	149	0	52
Total Analysis Volume [veh/h]	498	85	217	596	0	208
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.22	0.01	0.00	0.28
d_M, Delay for Movement [s/veh]	0.00	0.00	9.67	0.00	0.00	11.62
Movement LOS	A	A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.84	0.00	0.00	1.13
95th-Percentile Queue Length [ft/ln]	0.00	0.00	20.94	0.00	0.00	28.26
d_A, Approach Delay [s/veh]	0.00		2.58		11.62	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.82					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 9: Highway 111 at Rancho Las Palmas Center Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	41.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.565

Intersection Setup

Name	Highway 111		Highway 111		Ra La	
Approach	Northbound		Southbound		Westbound	
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 Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Highway 111		Highway 111		Ra La	
Base Volume Input [veh/h]	1880	145	0	1879	0	119
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]	1880	145	0	1879	0	119
Peak Hour Factor	0.9710	0.9710	1.0000	0.9710	1.0000	0.9710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	484	37	0	484	0	31
Total Analysis Volume [veh/h]	1936	149	0	1935	0	123
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.02	0.00	0.56
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	41.01
Movement LOS	A	A		A		E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	3.09
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	77.16
d_A, Approach Delay [s/veh]	0.00		0.00		41.01	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	1.22					
Intersection LOS	E					

APPENDIX E-III

YEAR 2022 CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report

Intersection 4: Rancho Las Palmas Center Driveway No. 1 at Magnesia Falls Drive

Control Type:	Two-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name	Existing Dwy			Ra La			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	Existing Dwy			Ra La			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	21	6	9	0	0	131	71	26	15	2	10	5
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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]	21	6	9	0	0	131	71	26	15	2	10	5
Peak Hour Factor	0.827	0.827	0.827	1.000	1.000	0.827	0.827	0.827	0.827	0.827	0.827	0.827
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	2	3	0	0	40	21	8	5	1	3	2
Total Analysis Volume [veh/h]	25	7	11	0	0	158	86	31	18	2	12	6
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.01	0.00	0.00	0.15	0.05	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.46	11.08	8.86	0.00	0.00	8.97	7.38	0.00	0.00	7.31	0.00	0.00
Movement LOS	B	B	A			A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.20	0.20	0.20	0.00	0.00	0.52	0.17	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	5.12	5.12	5.12	0.00	0.00	13.01	4.26	0.00	0.00	0.10	0.10	0.10
d_A, Approach Delay [s/veh]	10.74			8.97			4.70			0.73		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	7.10											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 8: Bob Hope Drive at Rancho Las Palmas Center Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.209

Intersection Setup

Name	Bob Hope Drive		Bob Hope Drive		Ra La	
Approach	Northbound		Southbound		Westbound	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Bob Hope Drive		Bob Hope Drive		Ra La	
Base Volume Input [veh/h]	494	60	116	580	0	142
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]	494	60	116	580	0	142
Peak Hour Factor	0.9290	0.9290	0.9290	0.9290	1.0000	0.9290
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	133	16	31	156	0	38
Total Analysis Volume [veh/h]	532	65	125	624	0	153
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.13	0.01	0.00	0.21
d_M, Delay for Movement [s/veh]	0.00	0.00	9.23	0.00	0.00	11.21
Movement LOS	A	A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.44	0.00	0.00	0.78
95th-Percentile Queue Length [ft/ln]	0.00	0.00	10.98	0.00	0.00	19.60
d_A, Approach Delay [s/veh]	0.00		1.54		11.21	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.91					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: Highway 111 at Rancho Las Palmas Center Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	32.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.323

Intersection Setup

Name	Highway 111		Highway 111		Ra La	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	ǁǀ┏		ǀǀǀ		┏	
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 Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Highway 111		Highway 111		Ra La	
Base Volume Input [veh/h]	2070	87	0	1982	0	61
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]	2070	87	0	1982	0	61
Peak Hour Factor	0.9860	0.9860	1.0000	0.9860	1.0000	0.9860
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	525	22	0	503	0	15
Total Analysis Volume [veh/h]	2099	88	0	2010	0	62
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.02	0.00	0.32
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	32.40
Movement LOS	A	A		A		D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	1.32
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	33.03
d_A, Approach Delay [s/veh]	0.00		0.00		32.40	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.47					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 4: Rancho Las Palmas Center Driveway No. 1 at Magnesia Falls Drive

Control Type:	Two-way stop	Delay (sec / veh):	14.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.065

Intersection Setup

Name	Existing Dwy			Ra La			Magnesia Falls Drive			Magnesia Falls Drive		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	Existing Dwy			Ra La			Magnesia Falls Drive			Magnesia Falls Drive		
Base Volume Input [veh/h]	24	8	1	0	0	231	161	17	22	1	10	14
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
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]	24	8	1	0	0	231	161	17	22	1	10	14
Peak Hour Factor	0.934	0.934	0.934	1.000	1.000	0.934	0.934	0.934	0.934	0.934	0.934	0.934
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	6	2	0	0	0	62	43	5	6	0	3	4
Total Analysis Volume [veh/h]	26	9	1	0	0	247	172	18	24	1	11	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.02	0.00	0.00	0.00	0.23	0.11	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.85	13.32	9.24	0.00	0.00	9.43	7.54	0.00	0.00	7.30	0.00	0.00
Movement LOS	B	B	A			A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.28	0.28	0.28	0.00	0.00	0.90	0.36	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	6.95	6.95	6.95	0.00	0.00	22.59	9.09	0.00	0.00	0.05	0.05	0.05
d_A, Approach Delay [s/veh]	14.31			9.43			6.06			0.27		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	7.92											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 8: Bob Hope Drive at Rancho Las Palmas Center Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.295

Intersection Setup

Name	Bob Hope Drive		Bob Hope Drive		Ra La	
Approach	Northbound		Southbound		Westbound	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Bob Hope Drive		Bob Hope Drive		Ra La	
Base Volume Input [veh/h]	493	81	207	592	0	199
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]	493	81	207	592	0	199
Peak Hour Factor	0.9230	0.9230	0.9230	0.9230	1.0000	0.9230
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	134	22	56	160	0	54
Total Analysis Volume [veh/h]	534	88	224	641	0	216
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.23	0.01	0.00	0.30
d_M, Delay for Movement [s/veh]	0.00	0.00	9.92	0.00	0.00	11.98
Movement LOS	A	A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.91	0.00	0.00	1.23
95th-Percentile Queue Length [ft/ln]	0.00	0.00	22.76	0.00	0.00	30.86
d_A, Approach Delay [s/veh]	0.00		2.57		11.98	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.82					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 9: Highway 111 at Rancho Las Palmas Center Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	50.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.634

Intersection Setup

Name	Highway 111		Highway 111		Ra La	
Approach	Northbound		Southbound		Westbound	
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 Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Highway 111		Highway 111		Ra La	
Base Volume Input [veh/h]	1995	148	0	1998	0	122
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]	1995	148	0	1998	0	122
Peak Hour Factor	0.9710	0.9710	1.0000	0.9710	1.0000	0.9710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	514	38	0	514	0	31
Total Analysis Volume [veh/h]	2055	152	0	2058	0	126
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.02	0.00	0.63
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	50.03
Movement LOS	A	A		A		F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	3.69
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	92.30
d_A, Approach Delay [s/veh]	0.00		0.00		50.03	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	1.44					
Intersection LOS	F					

APPENDIX F

DRIVE-THROUGH QUEUING STUDY DATA

n:\4100\2194116 – in-n-out burger rancho las palmas, rancho mirage\dwg\4116 fa-1.dwg LDP 09:26:18 07-15-2019 tucker

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

= SITE #1: 72265 VARNER RD, THOUSAND PALMS

FIGURE E-1

SITE #1
72265 VARNER ROAD, THOUSAND PALMS
IN-N-OUT BURGER RANCHO LAS PALMAS, RANCHO MIRAGE

MAX Queue Study
In-N-Out, Rancho Mirage

Location: 72265 Varner Road
City: Thousand Palms

Day: Thursday
Date: 6/27/2019

Time	Queue	Time	Queue
11:00	12	**16:00**	7
11:05	14	**16:05**	6
11:10	15	**16:10**	4
11:15	15	**16:15**	9
11:20	16	**16:20**	8
11:25	14	**16:25**	10
11:30	18	**16:30**	9
11:35	17	**16:35**	7
11:40	17	**16:40**	5
11:45	13	**16:45**	10
11:50	12	**16:50**	11
11:55	14	**16:55**	10
12:00	17	**17:00**	10
12:05	15	**17:05**	9
12:10	14	**17:10**	10
12:15	13	**17:15**	14
12:20	16	**17:20**	11
12:25	15	**17:25**	12
12:30	14	**17:30**	11
12:35	14	**17:35**	13
12:40	16	**17:40**	12
12:45	18	**17:45**	9
12:50	20	**17:50**	6
12:55	15	**17:55**	7
13:00	10	**18:00**	11
13:05	9	**18:05**	12
13:10	9	**18:10**	11
13:15	12	**18:15**	12
13:20	9	**18:20**	16
13:25	8	**18:25**	12
13:30	11	**18:30**	17
13:35	12	**18:35**	18
13:40	13	**18:40**	16
13:45	10	**18:45**	15
13:50	7	**18:50**	18
13:55	10	**18:55**	15
14:00	14	**19:00**	16
14:05	13	**19:05**	18
14:10	19	**19:10**	19
14:15	21	**19:15**	20
14:20	18	**19:20**	17
14:25	17	**19:25**	17
14:30	14	**19:30**	17
14:35	14	**19:35**	14
14:40	6	**19:40**	15
14:45	7	**19:45**	16
14:50	9	**19:50**	16
14:55	12	**19:55**	12
15:00	12	**20:00**	10
15:05	13	**20:05**	6
15:10	7	**20:10**	6
15:15	8	**20:15**	12
15:20	10	**20:20**	13
15:25	9	**20:25**	17
15:30	11	**20:30**	15
15:35	13	**20:35**	13
15:40	14	**20:40**	15
15:45	13	**20:45**	11
15:50	11	**20:50**	8
15:55	9	**20:55**	9

Time	Queue		
21:00	10		
21:05	12		
21:10	14		
21:15	12		
21:20	15		
21:25	18		
21:30	18		
21:35	17		
21:40	16		
21:45	16		
21:50	19		
21:55	18		
22:00	19		
22:05	18		
22:10	19		
22:15	17		
22:20	20		
22:25	17		
22:30	19		
22:35	18		
22:40	19		
22:45	17		
22:50	14		
22:55	10		

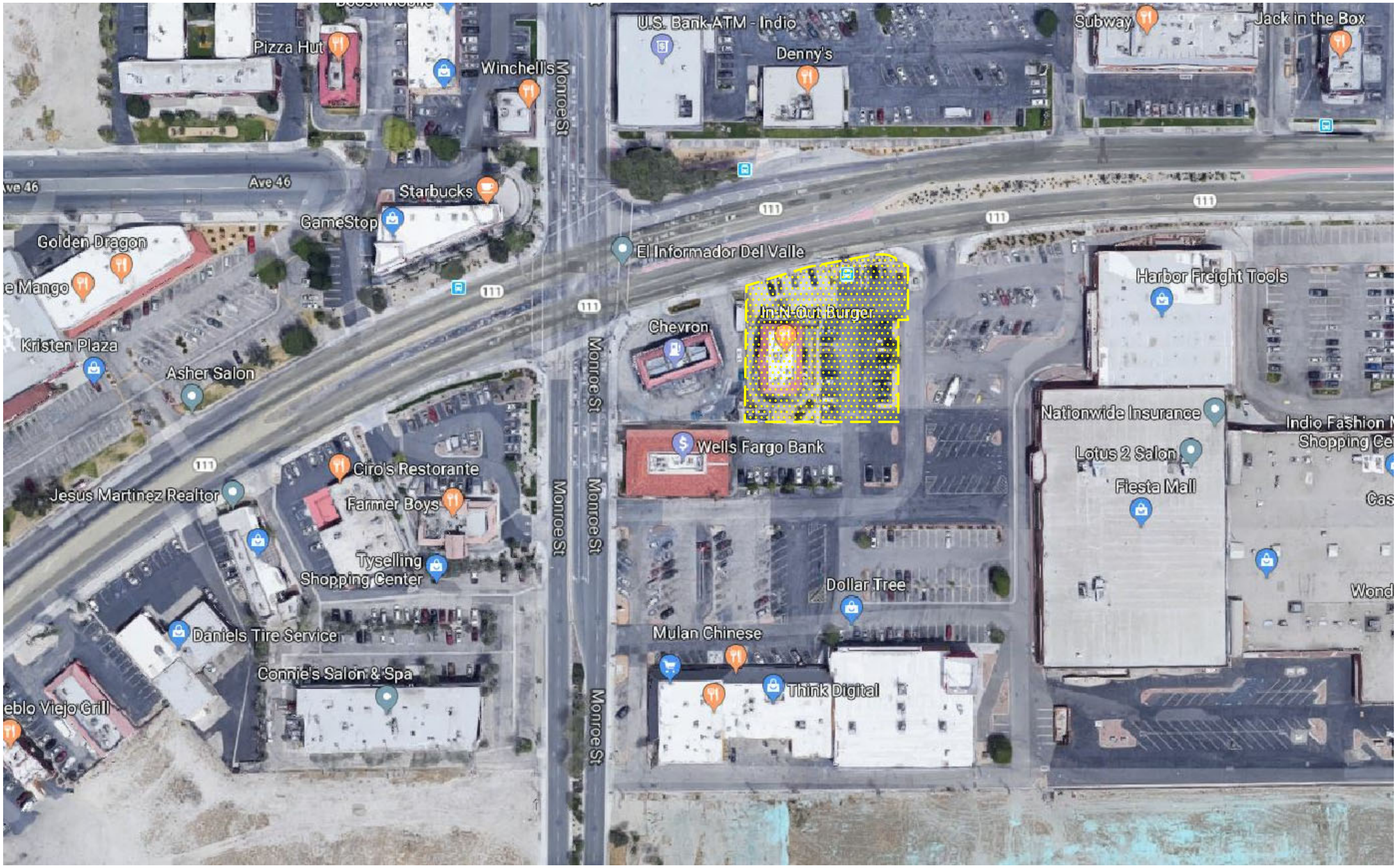
MAX Queue Study
In-N-Out, Rancho Mirage

Location: 72265 Varner Road
City: Thousand Palms

Day: Saturday
Date: 6/22/2019

Time	Queue	Time	Queue
11:00	6	**16:00**	12
11:05	6	**16:05**	7
11:10	8	**16:10**	7
11:15	7	**16:15**	6
11:20	8	**16:20**	7
11:25	7	**16:25**	11
11:30	10	**16:30**	12
11:35	9	**16:35**	9
11:40	12	**16:40**	12
11:45	12	**16:45**	11
11:50	11	**16:50**	10
11:55	14	**16:55**	11
12:00	9	**17:00**	12
12:05	9	**17:05**	12
12:10	11	**17:10**	11
12:15	9	**17:15**	11
12:20	11	**17:20**	8
12:25	12	**17:25**	5
12:30	12	**17:30**	2
12:35	12	**17:35**	3
12:40	18	**17:40**	6
12:45	14	**17:45**	10
12:50	15	**17:50**	16
12:55	16	**17:55**	16
13:00	15	**18:00**	19
13:05	13	**18:05**	16
13:10	15	**18:10**	12
13:15	15	**18:15**	11
13:20	13	**18:20**	13
13:25	14	**18:25**	17
13:30	17	**18:30**	14
13:35	18	**18:35**	15
13:40	17	**18:40**	15
13:45	15	**18:45**	15
13:50	17	**18:50**	18
13:55	18	**18:55**	20
14:00	14	**19:00**	19
14:05	14	**19:05**	15
14:10	14	**19:10**	16
14:15	10	**19:15**	13
14:20	14	**19:20**	12
14:25	16	**19:25**	11
14:30	18	**19:30**	12
14:35	16	**19:35**	12
14:40	17	**19:40**	12
14:45	15	**19:45**	12
14:50	14	**19:50**	14
14:55	15	**19:55**	10
15:00	15	**20:00**	10
15:05	15	**20:05**	10
15:10	11	**20:10**	13
15:15	16	**20:15**	13
15:20	17	**20:20**	17
15:25	16	**20:25**	15
15:30	15	**20:30**	12
15:35	13	**20:35**	16
15:40	15	**20:40**	17
15:45	11	**20:45**	19
15:50	14	**20:50**	17
15:55	14	**20:55**	16

Time	Queue		
21:00	12		
21:05	11		
21:10	9		
21:15	13		
21:20	14		
21:25	15		
21:30	13		
21:35	16		
21:40	18		
21:45	15		
21:50	16		
21:55	14		
22:00	8		
22:05	12		
22:10	16		
22:15	19		
22:20	20		
22:25	14		
22:30	16		
22:35	14		
22:40	11		
22:45	9		
22:50	6		
22:55	10		



n:\4100\2194116 – in-n-out burger rancho las palmas, rancho mirage\dwg\4116 fa-2.dwg LDP 09:27:08 07-15-2019 tucker

LINSCOTT LAW & GREENSPAN engineers

N

NO SCALE

SOURCE: GOOGLE

KEY

= SITE #2: 82043 CA-111, INDIO

FIGURE E-2

SITE #2
82043 CA-111, INDIO
IN-N-OUT BURGER RANCHO LAS PALMAS, RANCHO MIRAGE

MAX Queue Study
In-N-Out, Rancho Mirage

Location: 82043 CA-111
City: Indio

Day: Thursday
Date: 6/27/2019

Time	Queue	Time	Queue
11:00	4	**16:00**	7
11:05	5	**16:05**	7
11:10	5	**16:10**	6
11:15	7	**16:15**	4
11:20	4	**16:20**	3
11:25	6	**16:25**	3
11:30	6	**16:30**	1
11:35	11	**16:35**	5
11:40	12	**16:40**	7
11:45	11	**16:45**	4
11:50	12	**16:50**	6
11:55	9	**16:55**	7
12:00	11	**17:00**	5
12:05	10	**17:05**	5
12:10	12	**17:10**	6
12:15	10	**17:15**	7
12:20	9	**17:20**	12
12:25	8	**17:25**	12
12:30	9	**17:30**	10
12:35	7	**17:35**	10
12:40	7	**17:40**	10
12:45	7	**17:45**	5
12:50	9	**17:50**	6
12:55	12	**17:55**	9
13:00	14	**18:00**	9
13:05	16	**18:05**	10
13:10	14	**18:10**	9
13:15	12	**18:15**	6
13:20	11	**18:20**	3
13:25	7	**18:25**	8
13:30	6	**18:30**	7
13:35	9	**18:35**	10
13:40	10	**18:40**	11
13:45	8	**18:45**	9
13:50	8	**18:50**	10
13:55	8	**18:55**	8
14:00	7	**19:00**	7
14:05	5	**19:05**	6
14:10	7	**19:10**	6
14:15	7	**19:15**	9
14:20	8	**19:20**	8
14:25	7	**19:25**	10
14:30	5	**19:30**	12
14:35	9	**19:35**	11
14:40	5	**19:40**	8
14:45	4	**19:45**	7
14:50	4	**19:50**	7
14:55	4	**19:55**	6
15:00	6	**20:00**	9
15:05	9	**20:05**	15
15:10	10	**20:10**	13
15:15	8	**20:15**	12
15:20	8	**20:20**	12
15:25	8	**20:25**	10
15:30	7	**20:30**	9
15:35	4	**20:35**	8
15:40	5	**20:40**	10
15:45	6	**20:45**	8
15:50	8	**20:50**	9
15:55	10	**20:55**	8

Time	Queue		
21:00	7		
21:05	6		
21:10	8		
21:15	9		
21:20	8		
21:25	8		
21:30	11		
21:35	9		
21:40	12		
21:45	10		
21:50	10		
21:55	12		
22:00	11		
22:05	9		
22:10	8		
22:15	8		
22:20	7		
22:25	8		
22:30	6		
22:35	10		
22:40	7		
22:45	8		
22:50	9		
22:55	8		

MAX Queue Study
In-N-Out, Rancho Mirage

Location: 82043 CA-111
City: Indio

Day: Saturday
Date: 6/22/2019

Time	Queue	Time	Queue	Time	Queue
11:00	3	**16:00**	10	**21:00**	15
11:05	6	**16:05**	8	**21:05**	13
11:10	4	**16:10**	10	**21:10**	13
11:15	4	**16:15**	11	**21:15**	10
11:20	3	**16:20**	15	**21:20**	12
11:25	3	**16:25**	12	**21:25**	10
11:30	4	**16:30**	14	**21:30**	14
11:35	4	**16:35**	14	**21:35**	14
11:40	7	**16:40**	15	**21:40**	15
11:45	8	**16:45**	16	**21:45**	13
11:50	7	**16:50**	16	**21:50**	11
11:55	8	**16:55**	13	**21:55**	14
12:00	9	**17:00**	19	**22:00**	13
12:05	11	**17:05**	18	**22:05**	10
12:10	7	**17:10**	20	**22:10**	12
12:15	7	**17:15**	18	**22:15**	6
12:20	8	**17:20**	22	**22:20**	11
12:25	7	**17:25**	20	**22:25**	7
12:30	6	**17:30**	22	**22:30**	3
12:35	9	**17:35**	20	**22:35**	5
12:40	6	**17:40**	21	**22:40**	6
12:45	10	**17:45**	24	**22:45**	8
12:50	9	**17:50**	20	**22:50**	9
12:55	11	**17:55**	18	**22:55**	9
13:00	16	**18:00**	21		
13:05	14	**18:05**	18		
13:10	11	**18:10**	20		
13:15	4	**18:15**	16		
13:20	7	**18:20**	14		
13:25	7	**18:25**	15		
13:30	5	**18:30**	9		
13:35	4	**18:35**	10		
13:40	6	**18:40**	10		
13:45	8	**18:45**	11		
13:50	8	**18:50**	9		
13:55	8	**18:55**	10		
14:00	10	**19:00**	8		
14:05	12	**19:05**	7		
14:10	12	**19:10**	8		
14:15	12	**19:15**	7		
14:20	13	**19:20**	7		
14:25	12	**19:25**	5		
14:30	9	**19:30**	6		
14:35	11	**19:35**	5		
14:40	11	**19:40**	6		
14:45	12	**19:45**	6		
14:50	13	**19:50**	9		
14:55	15	**19:55**	8		
15:00	19	**20:00**	8		
15:05	18	**20:05**	9		
15:10	13	**20:10**	12		
15:15	13	**20:15**	8		
15:20	15	**20:20**	9		
15:25	14	**20:25**	5		
15:30	8	**20:30**	8		
15:35	9	**20:35**	6		
15:40	9	**20:40**	4		
15:45	7	**20:45**	9		
15:50	9	**20:50**	12		
15:55	11	**20:55**	14		

n:\4100\2194116 – in-n-out burger rancho las palmas, rancho mirage\dwg\4116 fa-3.dwg LDP 09:35:01 07-15-2019 tucker

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

= SITE #3: 78611 CA-111, LA QUINTA

FIGURE E-3

SITE #3
78611 CA-111, LA QUINTA
IN-N-OUT BURGER RANCHO LAS PALMAS, RANCHO MIRAGE

MAX Queue Study
In-N-Out, Rancho Mirage

Location: 78611 CA-111
City: La Quinta

Day: Thursday
Date: 6/27/2019

Time	Queue	Time	Queue
11:00	7	16:00	13
11:05	7	16:05	15
11:10	8	16:10	13
11:15	7	16:15	18
11:20	7	16:20	18
11:25	6	16:25	21
11:30	4	16:30	20
11:35	7	16:35	19
11:40	12	16:40	18
11:45	11	16:45	19
11:50	13	16:50	20
11:55	12	16:55	19
12:00	14	17:00	22
12:05	18	17:05	18
12:10	21	17:10	18
12:15	22	17:15	15
12:20	19	17:20	17
12:25	17	17:25	18
12:30	19	17:30	19
12:35	15	17:35	18
12:40	18	17:40	21
12:45	18	17:45	19
12:50	17	17:50	15
12:55	17	17:55	8
13:00	16	18:00	13
13:05	15	18:05	13
13:10	18	18:10	16
13:15	18	18:15	22
13:20	17	18:20	17
13:25	20	18:25	20
13:30	18	18:30	22
13:35	18	18:35	23
13:40	15	18:40	20
13:45	16	18:45	21
13:50	16	18:50	19
13:55	14	18:55	17
14:00	12	19:00	18
14:05	14	19:05	21
14:10	12	19:10	15
14:15	14	19:15	16
14:20	14	19:20	12
14:25	13	19:25	5
14:30	15	19:30	7
14:35	15	19:35	6
14:40	12	19:40	6
14:45	12	19:45	17
14:50	13	19:50	15
14:55	13	19:55	16
15:00	13	20:00	16
15:05	15	20:05	16
15:10	14	20:10	15
15:15	17	20:15	17
15:20	13	20:20	16
15:25	13	20:25	13
15:30	11	20:30	15
15:35	7	20:35	11
15:40	3	20:40	11
15:45	2	20:45	16
15:50	13	20:50	14
15:55	14	20:55	19

Time	Queue		
21:00	17		
21:05	17		
21:10	19		
21:15	18		
21:20	14		
21:25	15		
21:30	15		
21:35	7		
21:40	9		
21:45	7		
21:50	16		
21:55	16		
22:00	13		
22:05	15		
22:10	17		
22:15	17		
22:20	13		
22:25	12		
22:30	12		
22:35	12		
22:40	7		
22:45	3		
22:50	5		
22:55	2		

MAX Queue Study
In-N-Out, Rancho Mirage

Location: 78611 CA-111
City: La Quinta

Day: Saturday
Date: 6/22/2019

Time	Queue	Time	Queue
11:00	6	**16:00**	13
11:05	8	**16:05**	12
11:10	4	**16:10**	14
11:15	3	**16:15**	17
11:20	7	**16:20**	15
11:25	11	**16:25**	14
11:30	16	**16:30**	16
11:35	15	**16:35**	17
11:40	12	**16:40**	12
11:45	11	**16:45**	11
11:50	11	**16:50**	14
11:55	9	**16:55**	20
12:00	6	**17:00**	18
12:05	9	**17:05**	21
12:10	10	**17:10**	18
12:15	12	**17:15**	18
12:20	14	**17:20**	16
12:25	14	**17:25**	15
12:30	17	**17:30**	19
12:35	18	**17:35**	15
12:40	14	**17:40**	12
12:45	15	**17:45**	12
12:50	14	**17:50**	11
12:55	16	**17:55**	10
13:00	15	**18:00**	8
13:05	14	**18:05**	11
13:10	12	**18:10**	8
13:15	14	**18:15**	9
13:20	13	**18:20**	10
13:25	11	**18:25**	10
13:30	16	**18:30**	9
13:35	16	**18:35**	17
13:40	18	**18:40**	16
13:45	14	**18:45**	18
13:50	14	**18:50**	18
13:55	15	**18:55**	16
14:00	16	**19:00**	8
14:05	13	**19:05**	10
14:10	10	**19:10**	7
14:15	11	**19:15**	8
14:20	8	**19:20**	9
14:25	13	**19:25**	12
14:30	19	**19:30**	11
14:35	18	**19:35**	10
14:40	17	**19:40**	9
14:45	15	**19:45**	8
14:50	12	**19:50**	7
14:55	9	**19:55**	6
15:00	10	**20:00**	5
15:05	15	**20:05**	11
15:10	15	**20:10**	15
15:15	11	**20:15**	10
15:20	8	**20:20**	15
15:25	7	**20:25**	16
15:30	4	**20:30**	16
15:35	2	**20:35**	15
15:40	8	**20:40**	8
15:45	10	**20:45**	9
15:50	8	**20:50**	15
15:55	8	**20:55**	12

Time	Queue
21:00	12
21:05	5
21:10	5
21:15	7
21:20	20
21:25	20
21:30	16
21:35	17
21:40	14
21:45	11
21:50	10
21:55	12
22:00	14
22:05	14
22:10	13
22:15	14
22:20	15
22:25	16
22:30	12
22:35	9
22:40	7
22:45	7
22:50	8
22:55	11

APPENDIX I

Landscape Irrigation Demand Calculation

Landscape Irrigation Demand

The Project landscape demand was calculated using the MAWA equation in CVWD's Model Landscape Ordinance No. 1302.3. This formula ensures that an adequate budget is provided to have a sustainable landscape that meets the criteria established in CVWD's landscape ordinance. **Table 5.10.1-6: Landscape Water Demand** estimates the water use for the Project's landscaped areas.

Table 5.10.1-6
Landscape Water Demand

Land Use	Gross Acres	Landscaped Area (SF)	ETo (In.)	ETAF	MAWA (CCF)	Water Demand (AFY)
Commercial Retail	1.5	18,332	83	0.45	567.5	1.3
Total	**1.5**	**18,332**	**--**	**--**	567.5	1.3

Notes:
Source: CCF = hundred cubic feet, AFY = acre-feet per year, SF = square feet, In. = inches

Adherence to the MAWA requirements as outlined in CVWD's Model Landscape Ordinance No. 1302.3 ensures compliance with CVWD's water conservation goals and requirements.

APPENDIX J

Burtec Will Serve Letter

BURRTEC
WASTE & RECYCLING SERVICES
"We'll Take Care Of It"

Kenn Stevens
Rancho Mirage Recycling Coordinator
41-575 Eclectic Street
Palm Desert, CA 92260
Office (760) 674-1040
Cell (760) 578-5215
Fax (760) 340-2732
kstevens@burrtecdesert.com

WILL SERVE LETTER / LETTER OF COORDINATION

June 21, 2019

Mr. Jim Lockington
In-N-Out Burger
Rancho Mirage, CA

RE: Trash enclosure access

Dear Mr. Lockington,

Thank you for contacting us about your project referenced above.

Burrtec Waste & Recycling Services, LLC is the franchise waste hauler for this area. It appears the design and location of the trash enclosure will allow access for us to properly provide service to the trash and commingled recycling containers. Keep in mind that with mandatory organics diversion in place now (AB 1826), you will want to create a location for placement of your food waste collection carts.

If you have any questions or need additional information, please contact me through any of the means above.

Sincerely,

Kenn Stevens

Kenn Stevens

Burrtec Waste & Recycling

APPENDIX K

AB 52 Tribal Consultation

APPENDIX K.1

AB 52 Responses

From: Lisa Cumper <lcumper@jiv-nsn.gov>
Sent: Tuesday, May 12, 2020 1:18 PM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>; Patricia Garcia <pagarcia@aguacaliente.net>
Subject: Fwd: AB-52 In-N-Out Burger

Dear Jeremy,

The Jamul Indian Village Tribal Historic Preservation Office has received your notification of the project referenced above. This letter constitutes our response on behalf of Erica M. Pinto, Tribal Chairwoman.

We have consulted our maps and determined that the project as described is not within the boundaries of the recognized JIV Indian Reservation. The project is also beyond the boundaries of the territory that the tribe considers its Traditional Use Area (TUA). Therefore, we defer to the wishes of Tribes in closer proximity to the project area.

We appreciate involvement with your initiative and look forward to working with you on future efforts. If you have questions or need additional information, please do not hesitate to contact me by telephone at 619.928.8689 or by e-mail at lcumper@jiv-nsn.gov

Thanks!
Lisa

Kindest Regards,

Lisa K. Cumper - THPO
Tribal Historic Preservation Officer
Cultural Resources Manager
The Jamul Indian Village of California

P.O. Box 612, Jamul CA 91935
desk: 619.669.4855
cell: 619.928.8689
fax: 619.669.4817
email: lcumper@jiv-nsn.gov
web: www.jamulindianvillage.com

The ground on which we stand is sacred ground, it is the blood of our ancestors. Chief Plenty Coups, Crow.

From: Quechan Historic Preservation Officer <historicpreservation@quechantribe.com>
Sent: Monday, June 01, 2020 11:34 AM
To: Jeremy Gleim, AICP <jeremyg@RanchoMirageCA.gov>
Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

This email is to inform you that we do not wish to comment on this project. We defer to the more local Tribes and support their decisions on this project.

Thank you,
H. Jill McCormick, M.A.
Quechan Indian Tribe
Historic Preservation Officer
P.O. Box 1899
Yuma, AZ 85366-1899
Office: 760-572-2423
Cell: 928-261-0254
E-mail: historicpreservation@quechantribe.com

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

03-008-2020-002

September 08, 2020

[VIA EMAIL TO:majnaD@ranchomirageca.gov]
City of Rancho Mirage
Ms. Majna Dukic
69-825 Highway 111
Rancho Mirage, CA 92270

Re: EA2000003- In-N-Out Burgers- Rancho Mirage

Dear Ms. Majna Dukic,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the In-N-Out Burger project. The project area is not located within the boundaries of the ACBCI Reservation. However, it is within the Tribe's Traditional Use Area. For this reason, the ACBCI THPO requests the following:

*The presence of an approved Agua Caliente Native American Cultural Resource Monitor(s) during any ground disturbing activities (including archaeological testing and surveys). Should buried cultural deposits be encountered, the Monitor may request that destructive construction halt and the Monitor shall notify a Qualified Archaeologist (Secretary of the Interior's Standards and Guidelines) to investigate and, if necessary, prepare a mitigation plan for submission to the State Historic Preservation Officer and the Agua Caliente Tribal Historic Preservation Office.

*At this time the concerns of the ACBCI THPO have been addressed and proper mitigation measures have been proposed to ensure the protection of tribal cultural resources. This letter shall conclude our AB52 consultation efforts.

* Please provide our office with a copy of the required mitigation measures.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)699-6907. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Pattie Garcia-Plotkin

Pattie Garcia-Plotkin
Director
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264

T 760/699/6800 F 760/699/6924 WWW.AGUACALIENTE-NSN.GOV

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

03-008-2020-002

July 16, 2020

[VIA EMAIL TO:jeremyG@ranchomirageca.gov]
City of Rancho Mirage
Mr. Jeremy Gleim
69-825 Highway 111
Rancho Mirage, CA 92270

Re: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Jeremy Gleim,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the In-N-Out Burger project. The project area is not located within the boundaries of the ACBCI Reservation. However, it is within the Tribe's Traditional Use Area. For this reason, the ACBCI THPO requests the following:

*A copy of the records search with associated survey reports and site records from the information center.

*The presence of an approved Agua Caliente Native American Cultural Resource Monitor(s) during any ground disturbing activities (including archaeological testing and surveys). Should buried cultural deposits be encountered, the Monitor may request that destructive construction halt and the Monitor shall notify a Qualified Archaeologist (Secretary of the Interior's Standards and Guidelines) to investigate and, if necessary, prepare a mitigation plan for submission to the State Historic Preservation Officer and the Agua Caliente Tribal Historic Preservation Office.

* Although the project area has been previously developed, there is a potential for subsurface cultural resources, and our recommendation is to have a monitor present for earth disturbance.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)699-6907. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Pattie Garcia-Plotkin

Pattie Garcia-Plotkin
Director
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264
T 760/699/6800 F 760/699/6924 WWW.AGUACALIENTE-NSN.GOV

APPENDIX K.2

AB 52 Letters

AB 52 – EIR, Neg Decs – 2015 list

Darrell Mike, Tribal Chairman
Twenty-Nine Palms
Band of Mission Indians
46-200 Harrison Place
Coachella, CA 92236

Mr. Joseph Ontiveros
Cultural Resource Dirctor
Soboba Band of Luiseno Indians
PO Box 487
San Jacinto, CA 92581

Agua Caliente Band
of Cahuilla Indians
Ms. Patricia Garcia
5401 Dinah Shore Drive
Palm Springs, CA 92264

Anthony Madrigal, Jr., Tribal Grants
Twenty-Nine Palms
Band of Mission Indians
46-200 Harrison Place
Coachella, CA 92236

Travis Armstrong
Tribal Historic Preservation Officer
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

Robert Martin, Tribal chairman
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

Torres Martinez Desert Cahuilla Indians
Michael Mirelez
Cultural Resource Coordinator
Box 1160
Thermal, CA 92274

Doug Todd Welmas, Tribal Chairman
Cabazon Band of Mission Indians
Tribal Administration
84-245 Indio Springs Parkway
Indio, CA 92203

Cabazon Band of Mission Indians
Jacquelyn Barnum
Environmental Director
84-245 Indio Springs Parkway
Indio, CA 92203

Agua Caliente Cahuilla Indians
Attn: Jeff Grubbe, Chairperson
5401 Dinah Shore Drive
Palm Springs, CA 92264

Ramona Band of Cahuilla Mission
Joseph Hamilton, Chairperson
PO Box 391670
Anza, CA 92539

Santa Rosa Band of Mission Ind.
Steven Estrada, Chairperson
PO Box 391820 Cahuilla
Anza, CA 92539

Los Coyotes Band of Mission Ind.
Shane Chapparosa, Chairperson
PO Box 189
Warner Springs, CA 92086

Augustine Band of Cahuilla
Mission Indians
Amanda Vance, Chairperson
P.O. Box 846
Coachella, CA 92236

Cahuilla Band of Indians
Luther Salgado, Chairperson
PO Box 391760 Cahuilla
Anza, CA 92539

CITY OF RANCHO MIRAGE

May 5, 2020

Amanda Vance, Chairperson
Augustine Band of Cahuilla Mission Indians
P.O. Box 846
Coachella, CA 92236

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Ms. Vance:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map.**

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

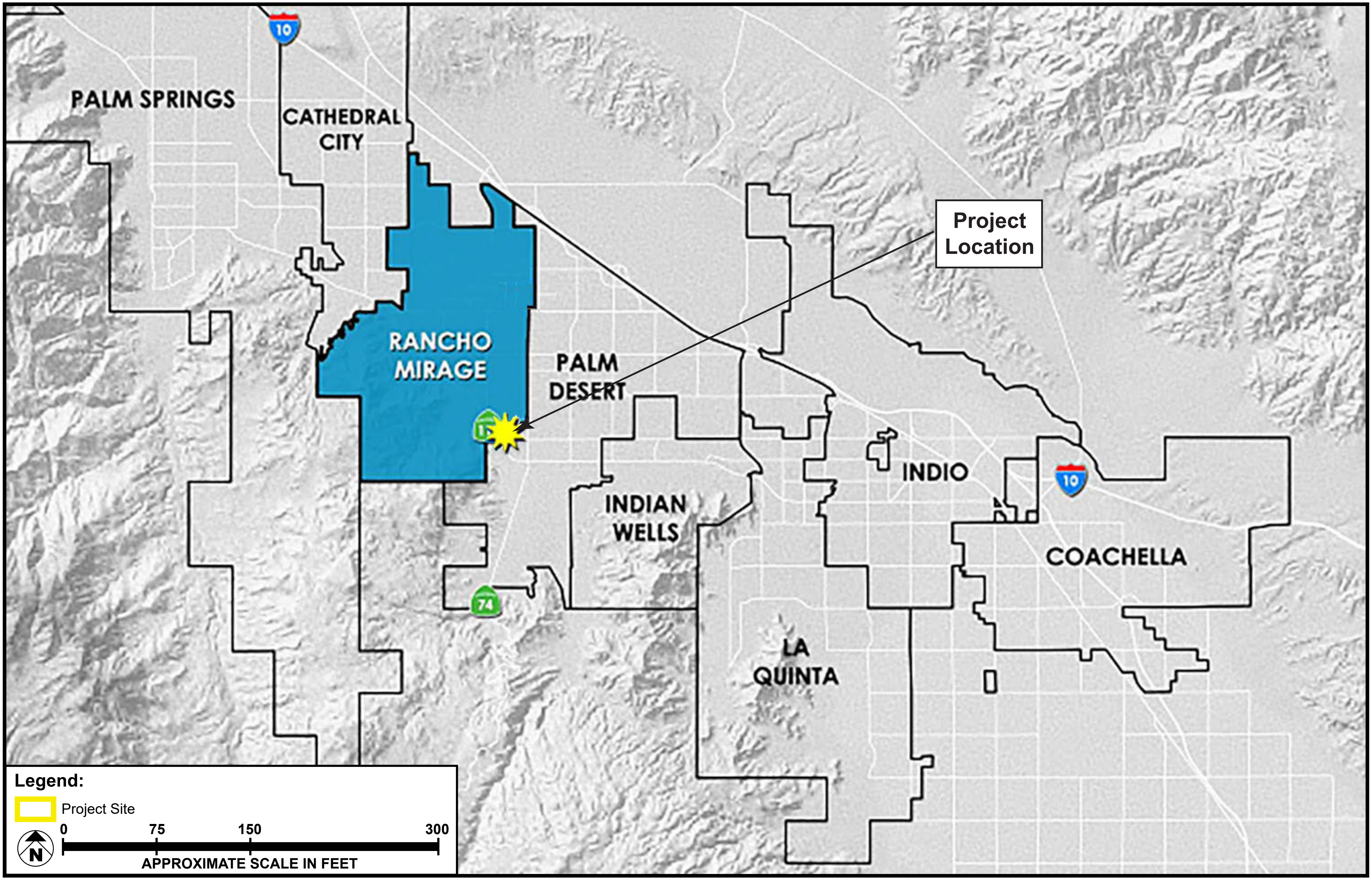
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302
Boulevard, CA, 91905

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Ms. Santos:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

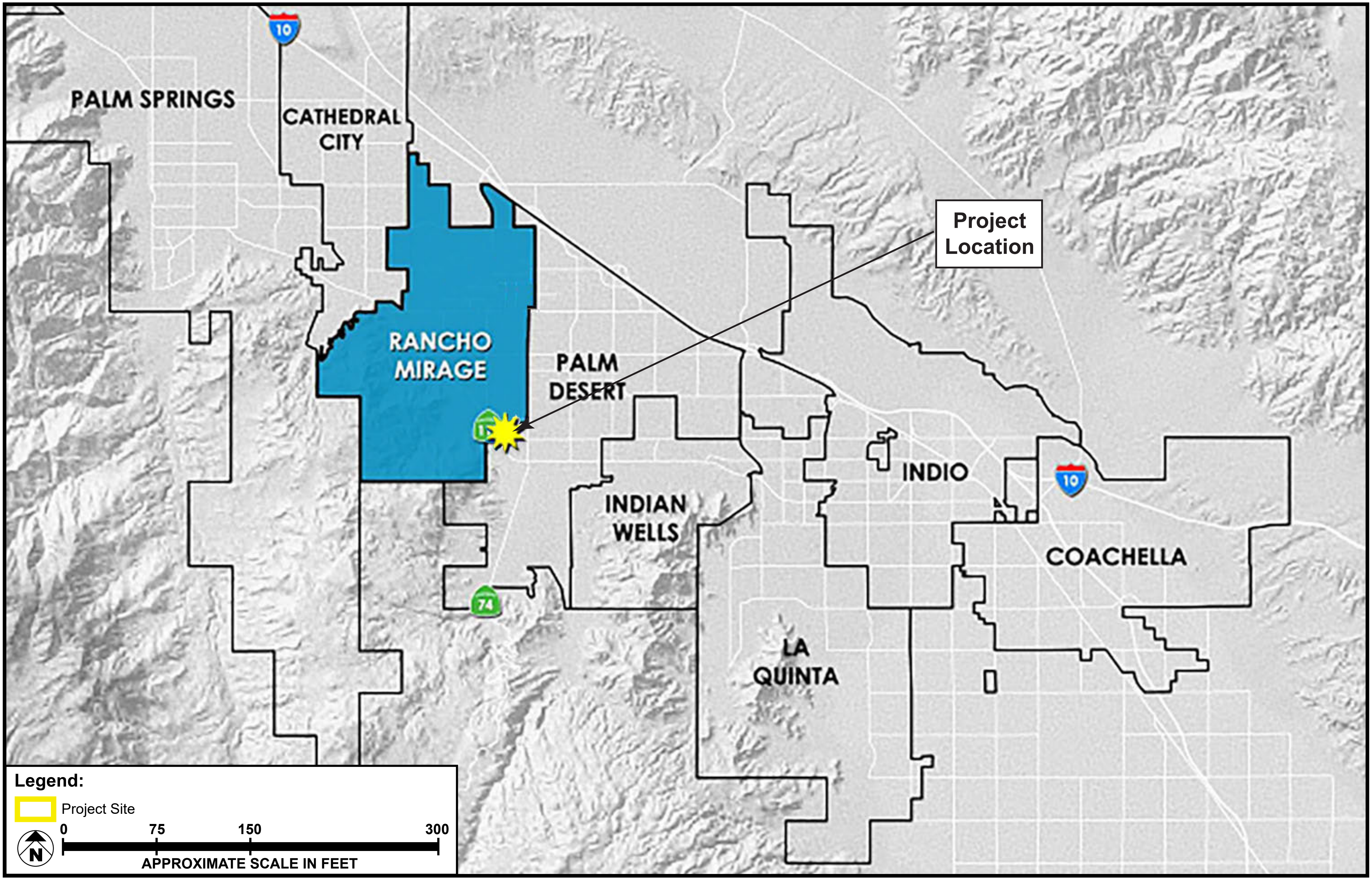
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Anthony Madrigal, Jr., Tribal Grants
Twenty-Nine Palms Band of Mission Indians
46-200 Harrison Place Coachella, CA 92236

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Madrigal:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

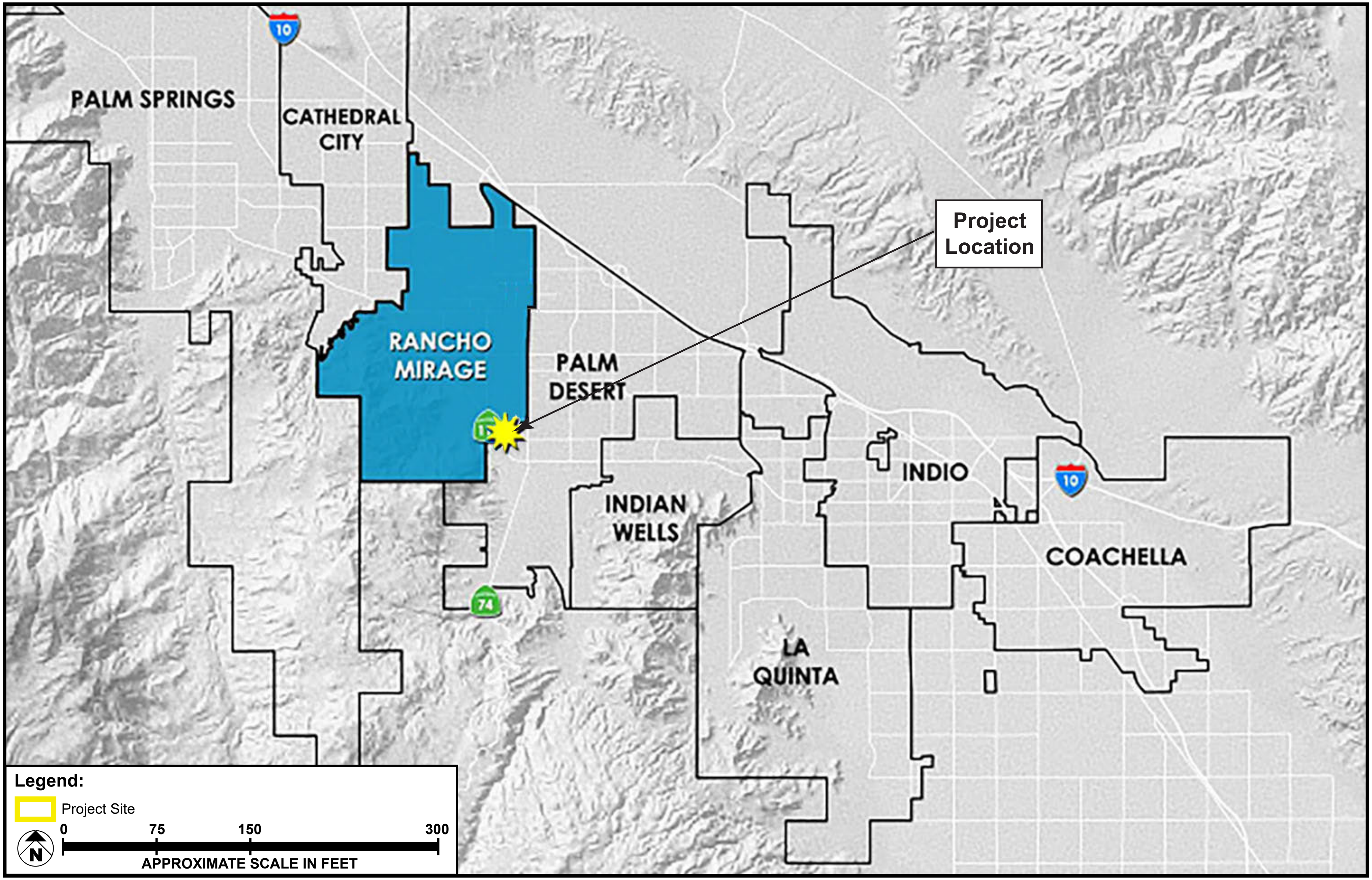
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE 1

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Cody Martinez, Chairperson
Sycuan Band of the Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, CA, 92019

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Martinez:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

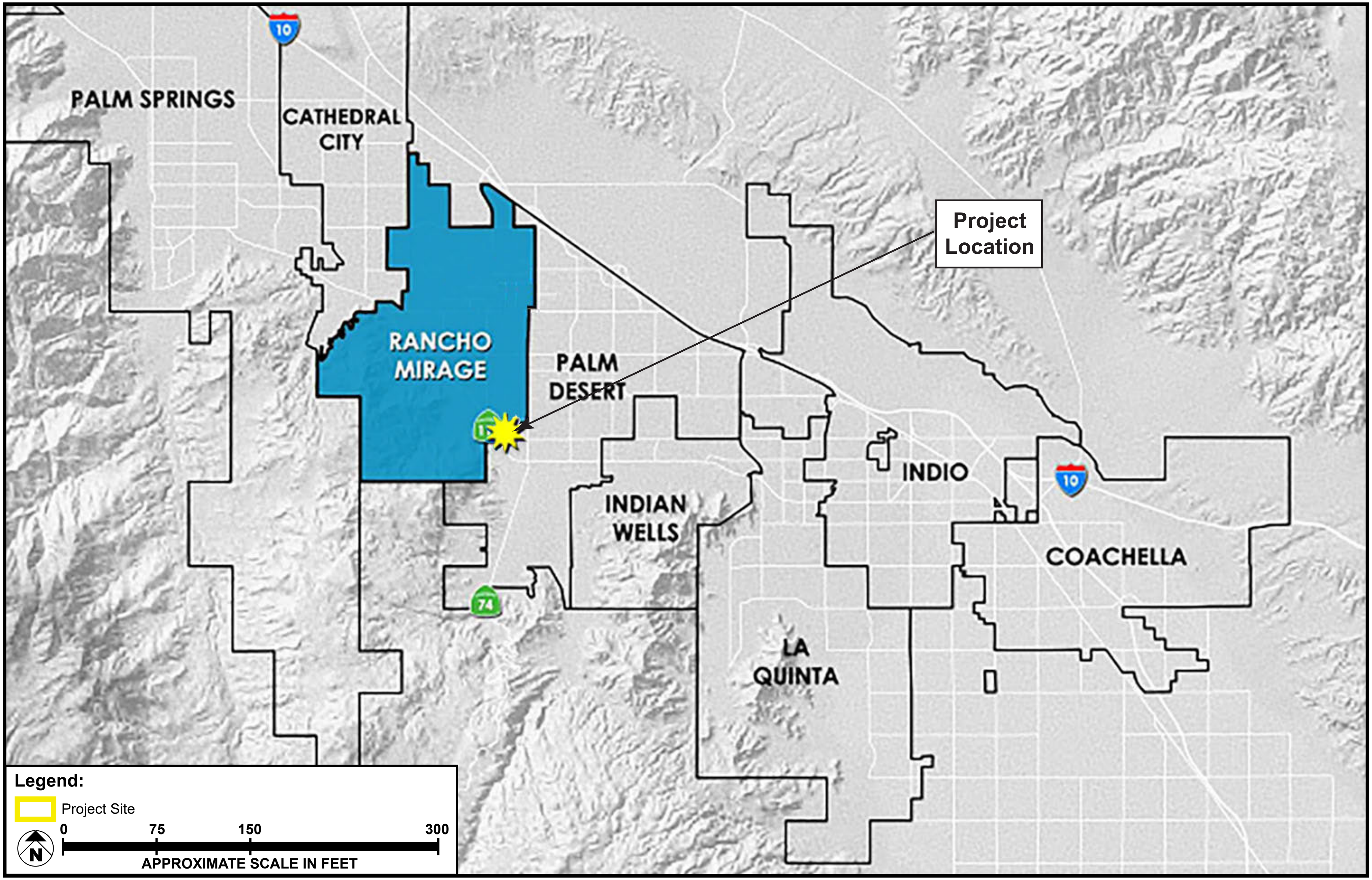
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE 1

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE 2

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

May 5, 2020

Daniel Salgado, Chairperson
Cahuilla Band of Indians
52701 U.S. Highway 371
Anza, CA, 92539

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Salgado:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

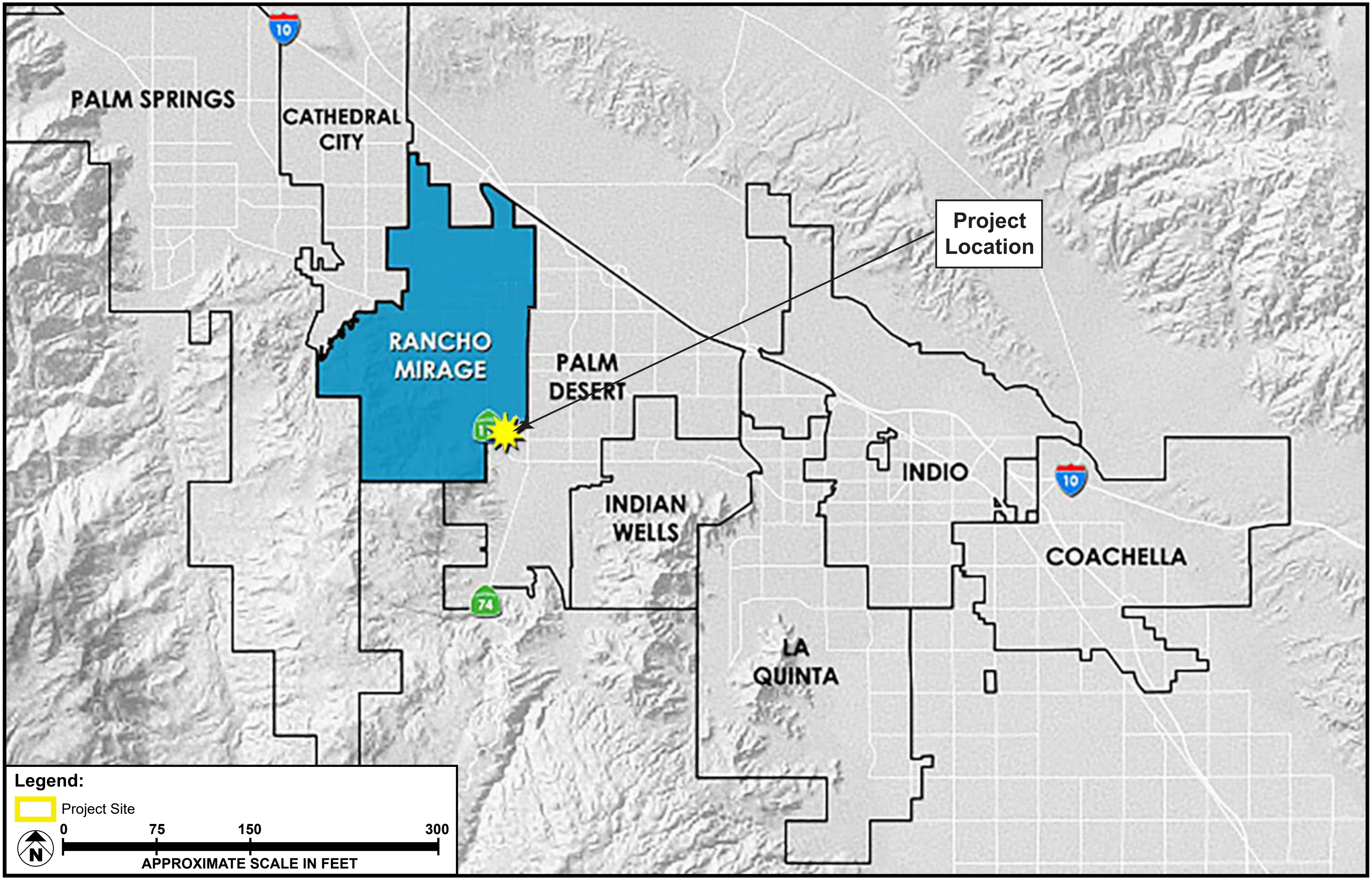
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE ©

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Doug Todd Welmas, Tribal Chairman Cabazon
Band of Mission Indians Tribal Administration
84-245 Indio Springs Parkway
Indio, CA 92203

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Doug Todd Welmas:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

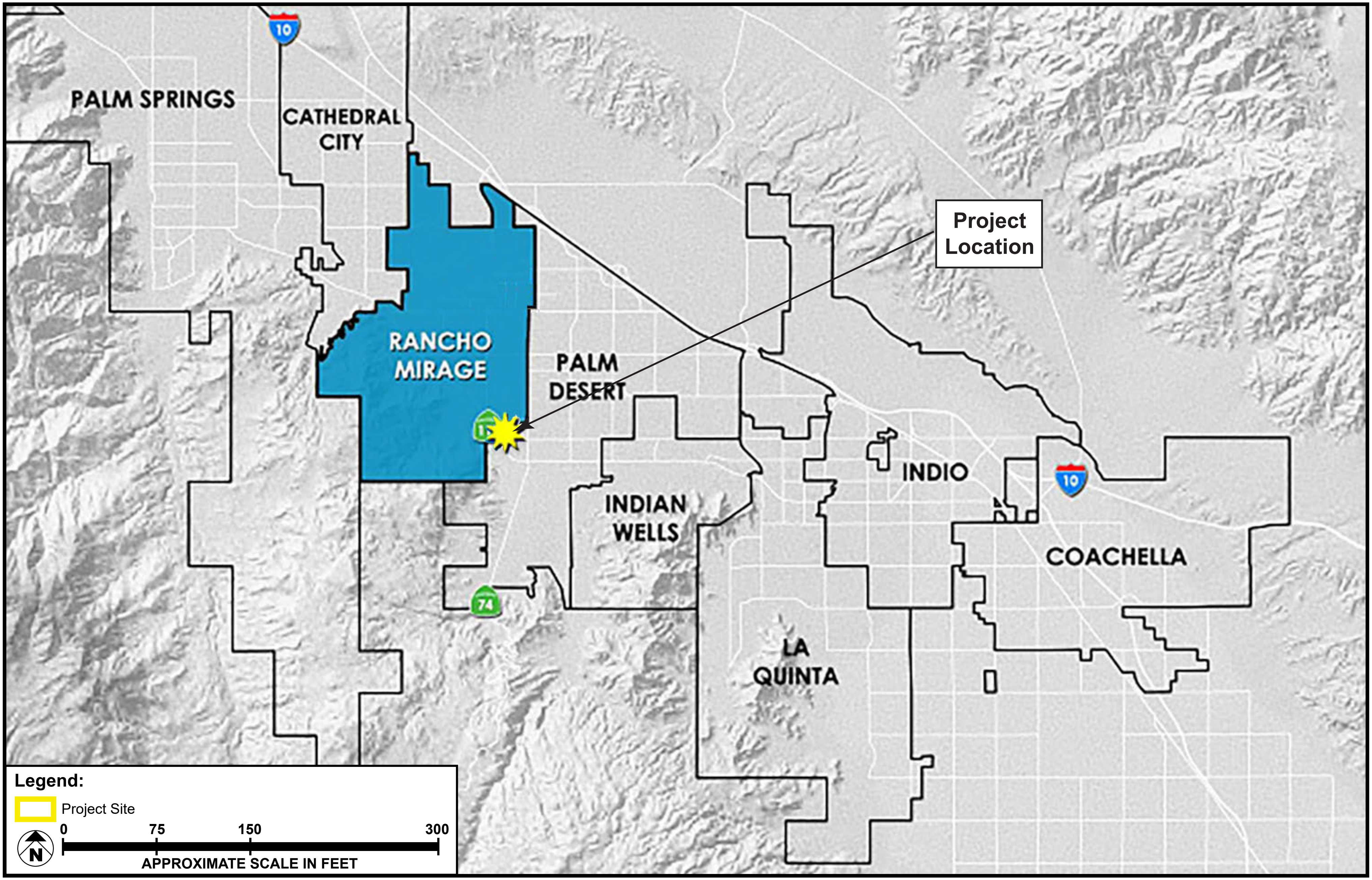
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Erica Pinto, Chairperson
Jamul Indian Village
P.O. Box 612
Jamul, CA, 91935

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Ms. Pinto:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

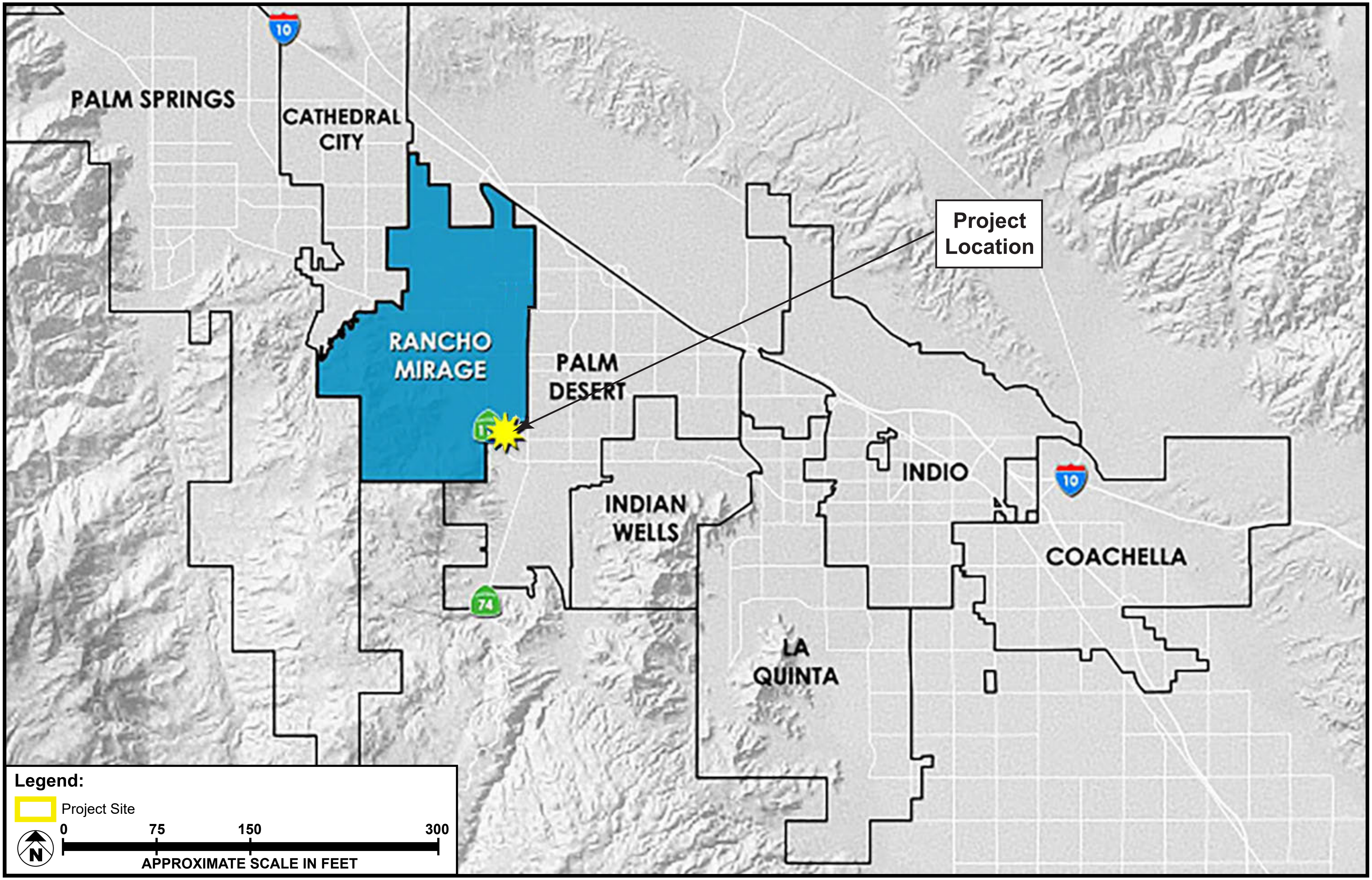
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Gwendolyn Parada, Chairperson
La Posta Band of Diegueno Mission Indians
8 Crestwood Road
Boulevard, CA, 91905

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Ms. Parada:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

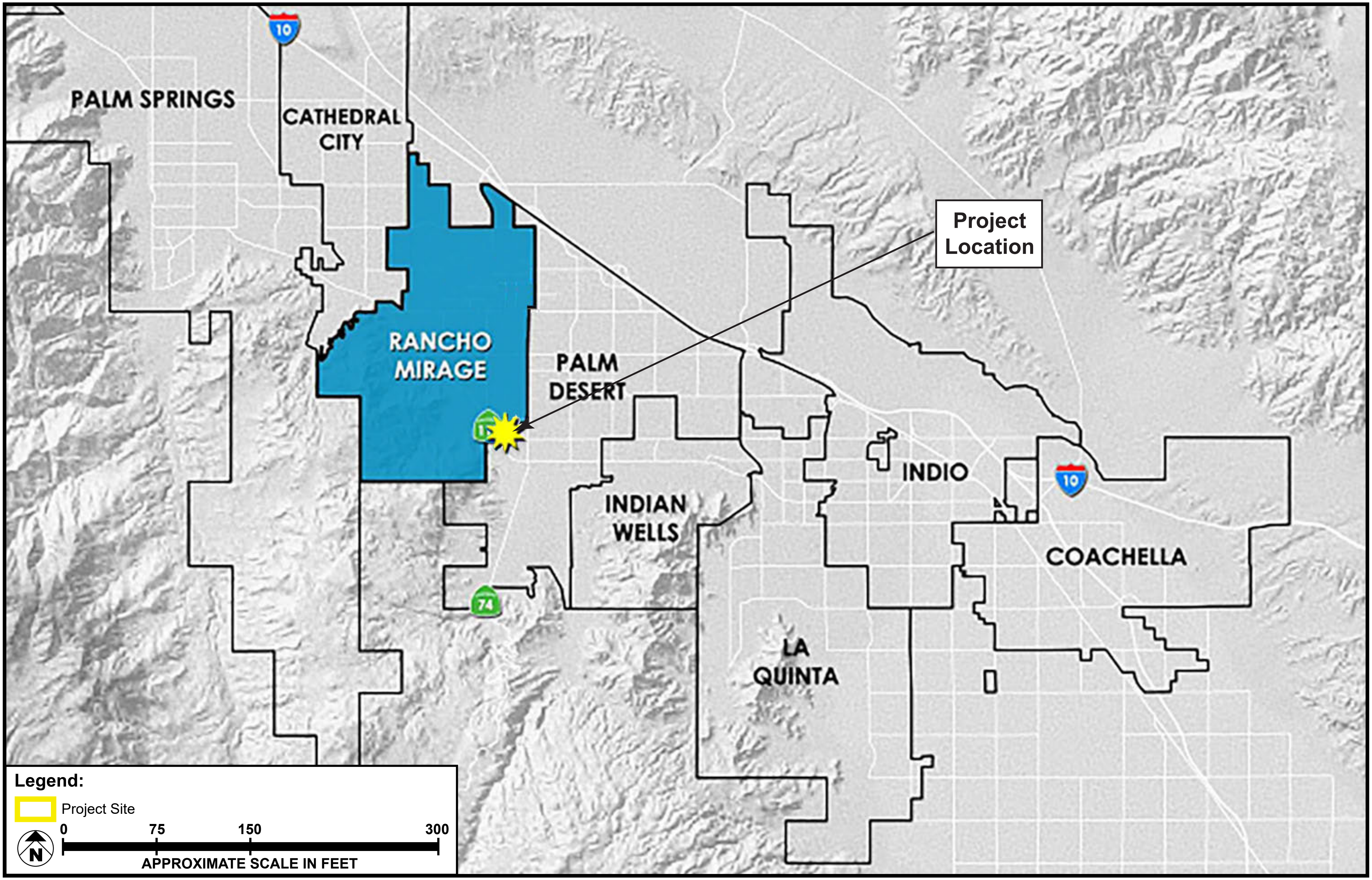
> City of Rancho Mirage
> Planning Department
> 69-825 Highway 111
> Rancho Mirage, California 92270
> Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Jacquelyn Barnum, Environmental Director
Cabazon Band of Mission Indians
84-245 Indio Springs Parkway
Indio, CA 92203

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Ms. Barnum:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

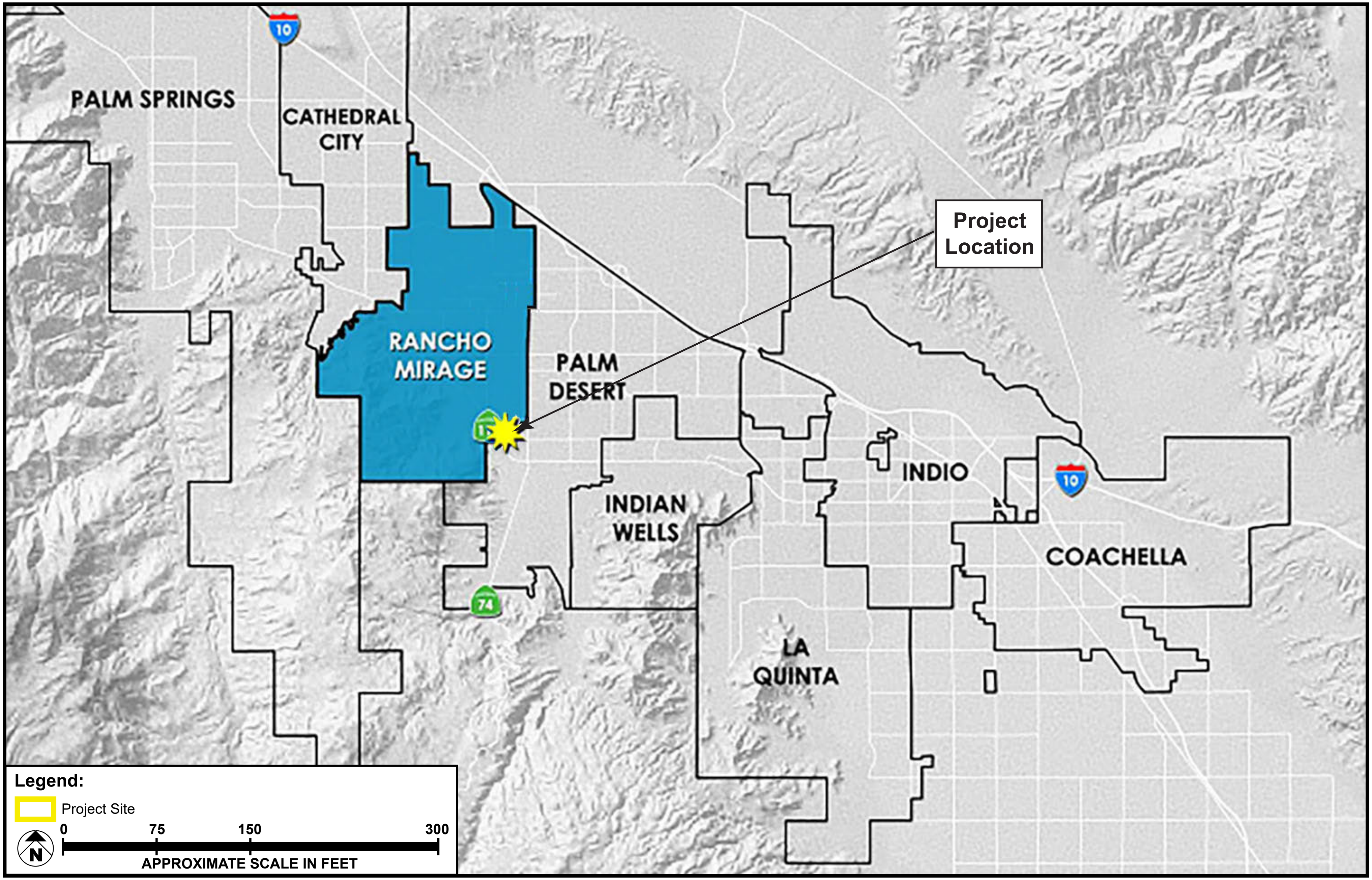
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE ©

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Javaughn Miller, Tribal Administrator
La Posta Band of Dieguenо Mission Indians
8 Crestwood Road
Boulevard, CA, 91905

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Miller:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager

Figure 1: Regional Location Map

Figure 2: Project Site Location Map

CITY OF RANCHO MIRAGE

May 5, 2020

Jeff Grubbe, Chairperson
Agua Caliente Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA 92264

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Grubbe:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

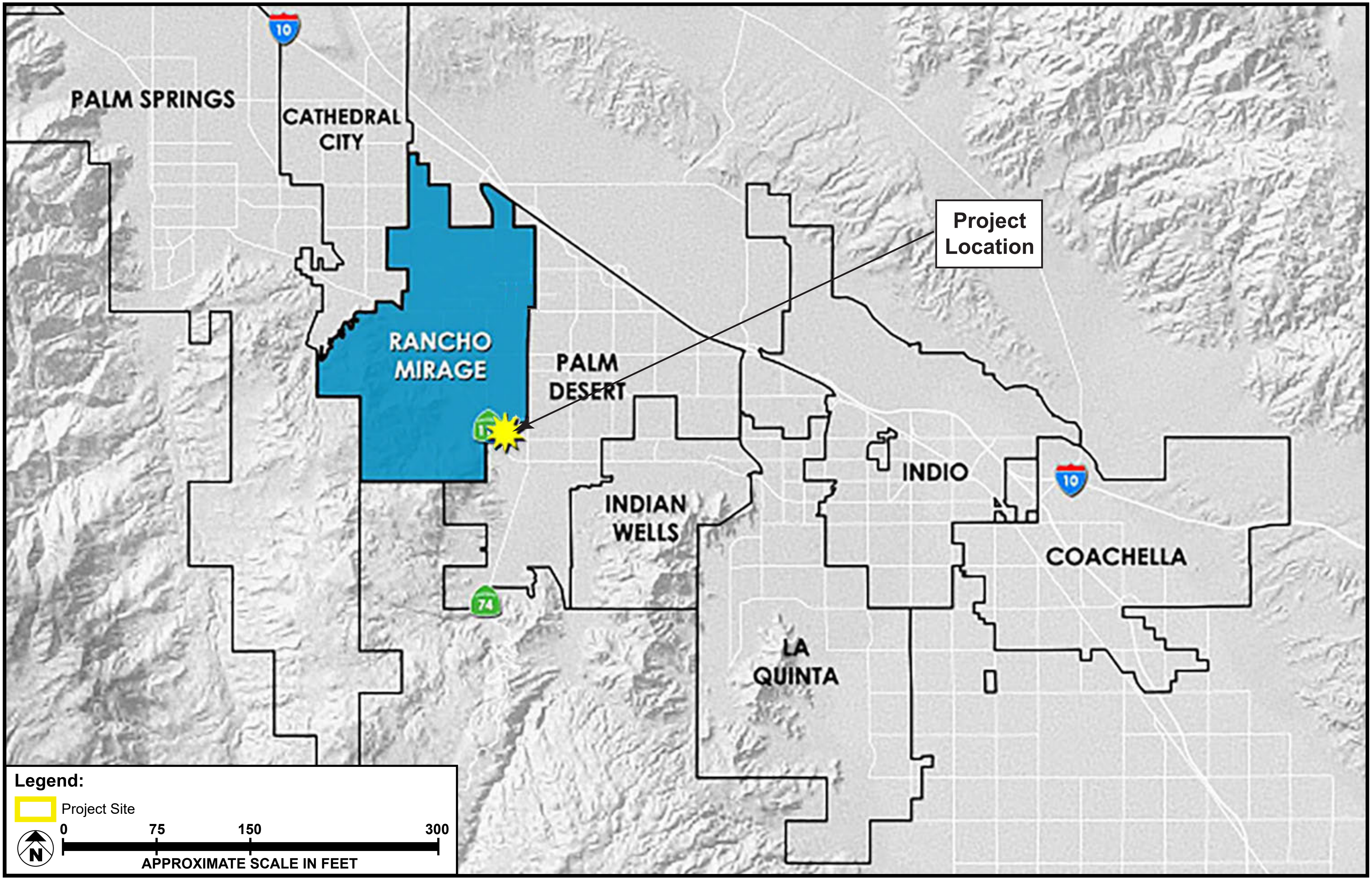
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Jill McCormick, Historic Preservation Officer
Quechan Tribe of the Fort Yuma Reservation
P.O. Box 1899
Yuma, AZ, 85366

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Ms. McCormick:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

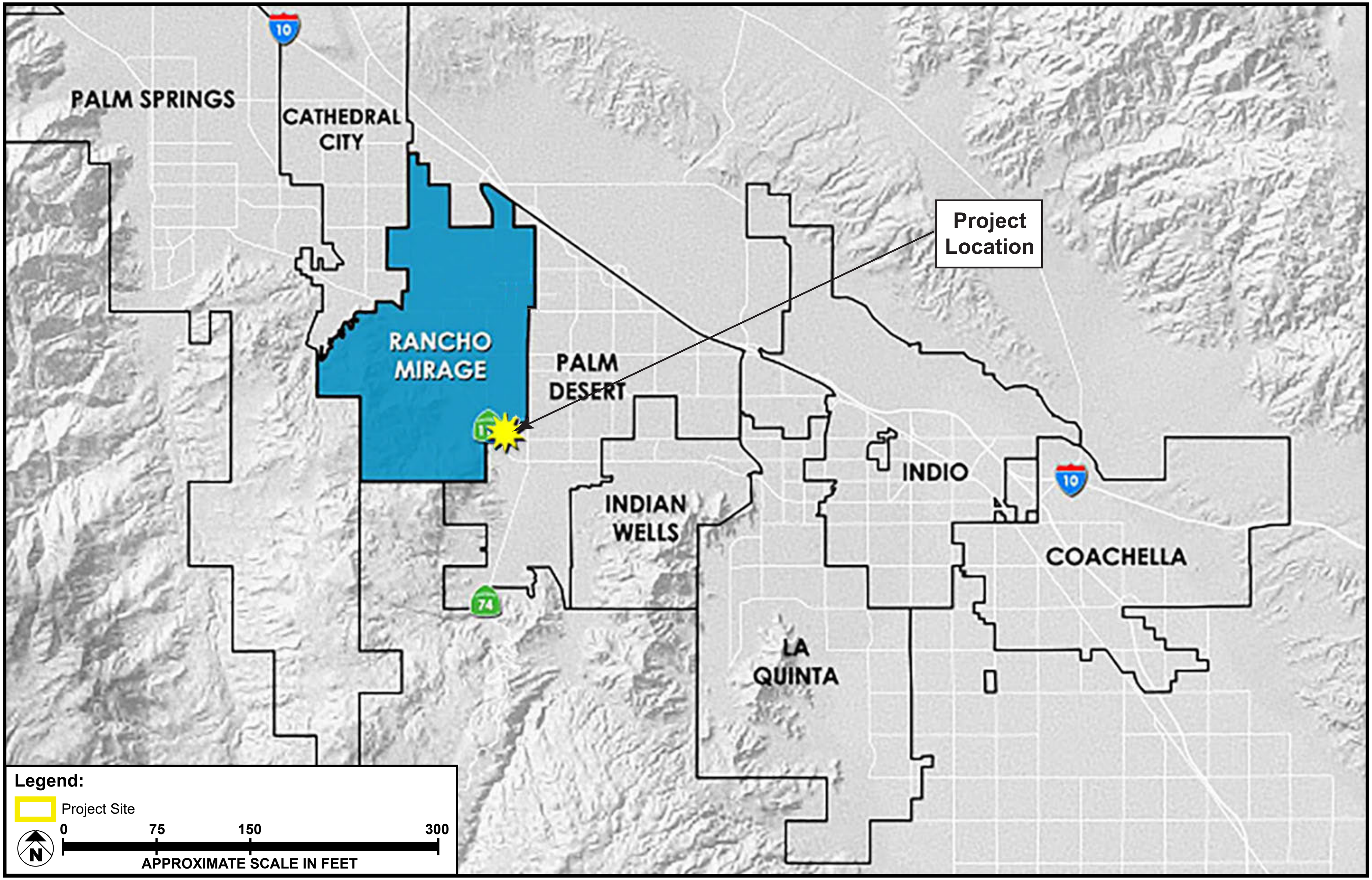
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

May 5, 2020

John Christman, Chairperson
Viejas Band of Kumeyaay Indians
1 Viejas Grade Road
Alpine, CA, 91901

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Christman:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

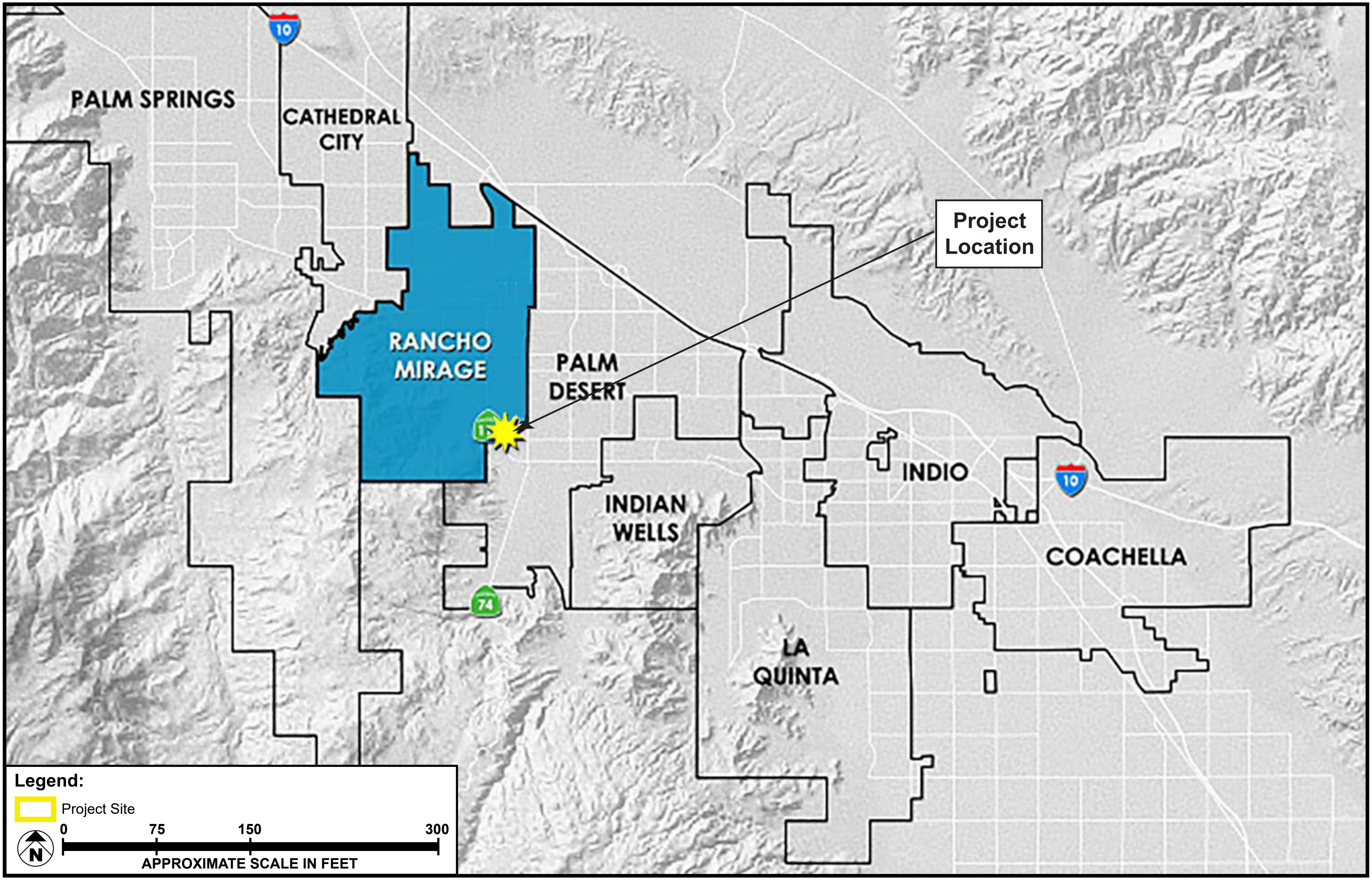
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE 1

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Joseph Hamilton, Chairperson
Ramona Band of Cahuilla Mission
PO Box 391670
Anza, CA 92539

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Hamilton:

IIn accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

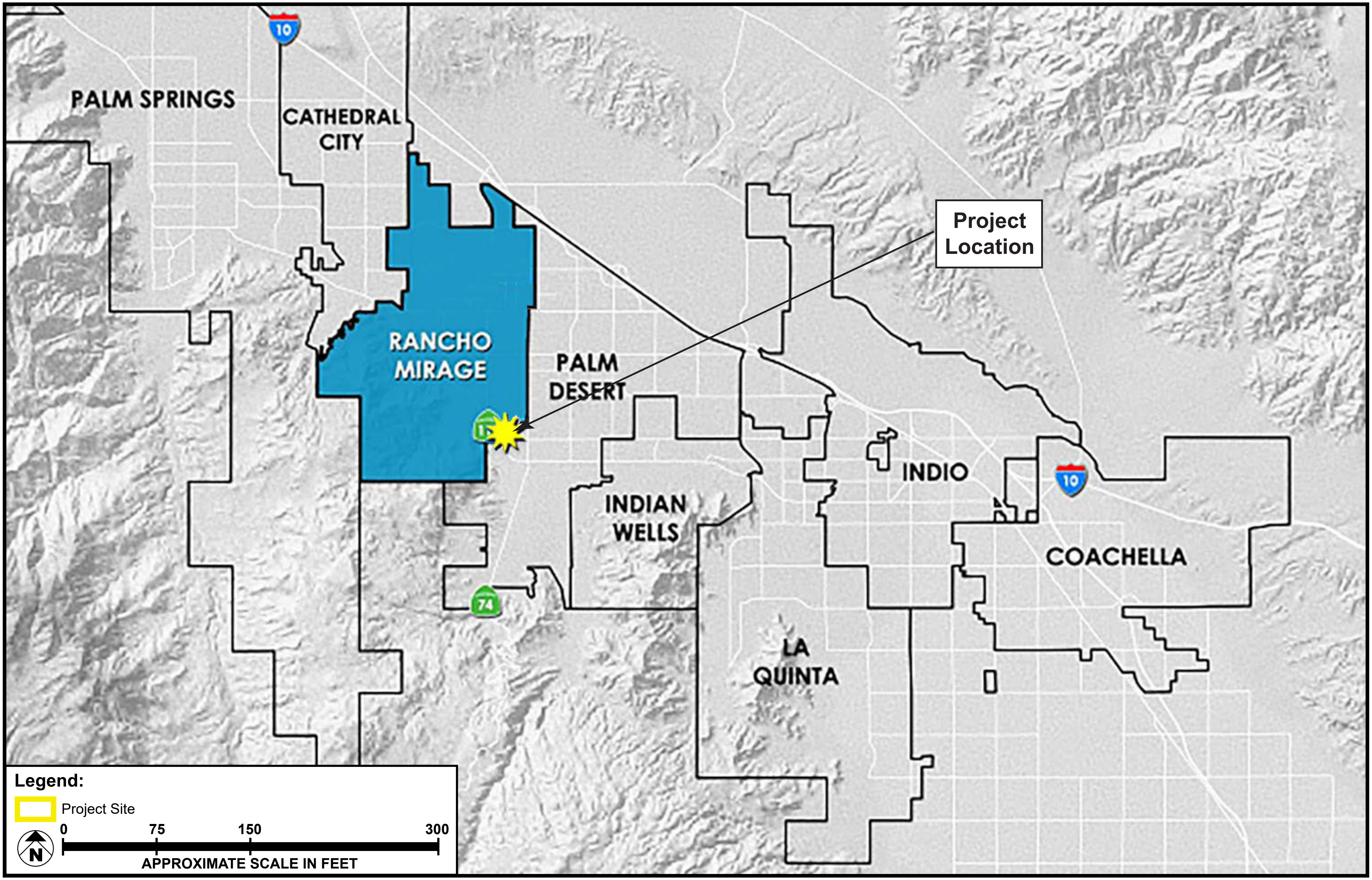
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE 1

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Mr. Joseph Ontiveros, Cultural Resource Director
Soboba Band of Luiseno Indians
PO Box 487 San Jacinto, CA 92581

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Ontiveros:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

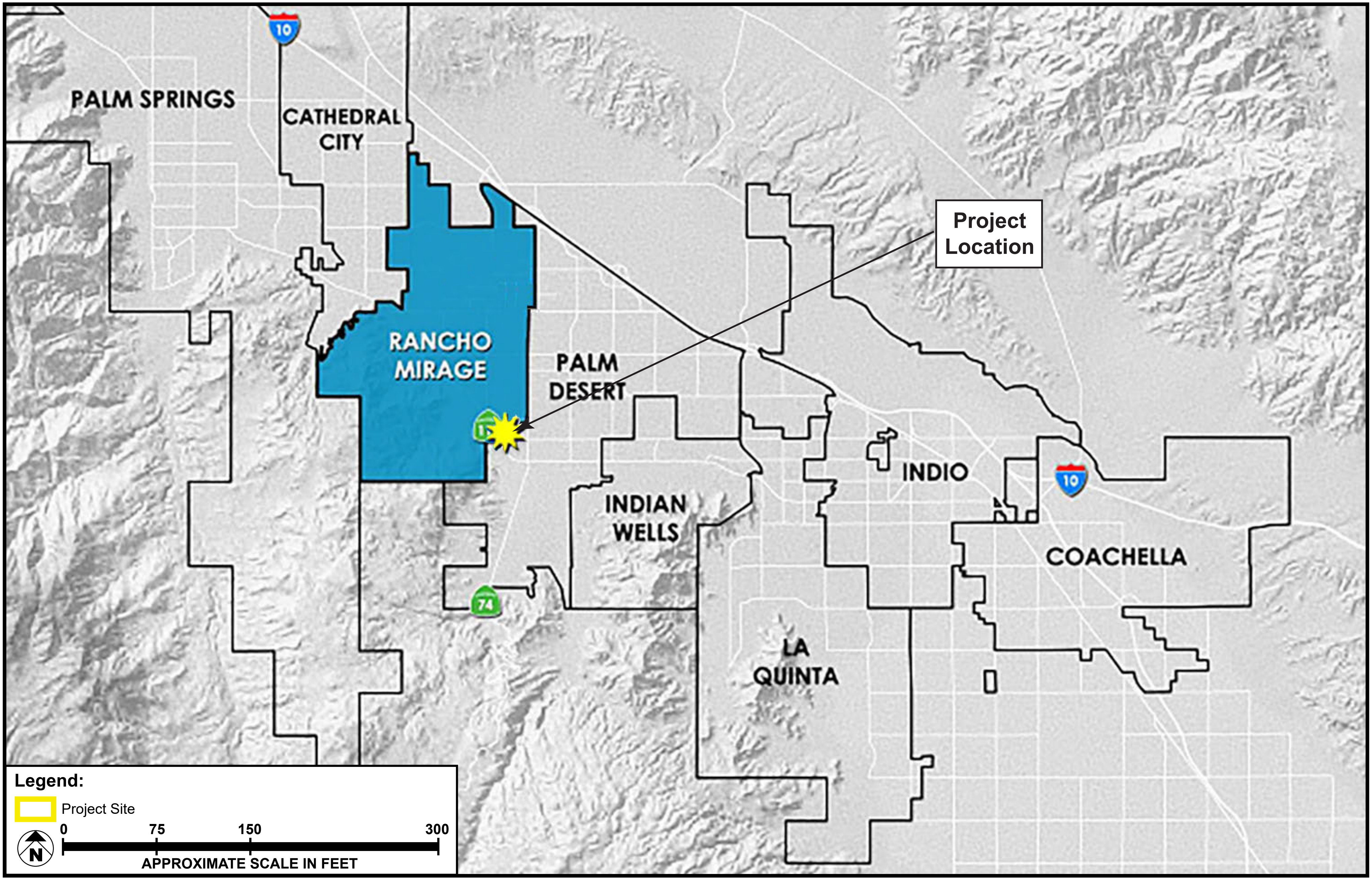
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE 1

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Lisa Cumper, Tribal Historic Preservation Officer
Jamul Indian Village
P.O. Box 612
Jamul, CA, 91935

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Ms. Cumper:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

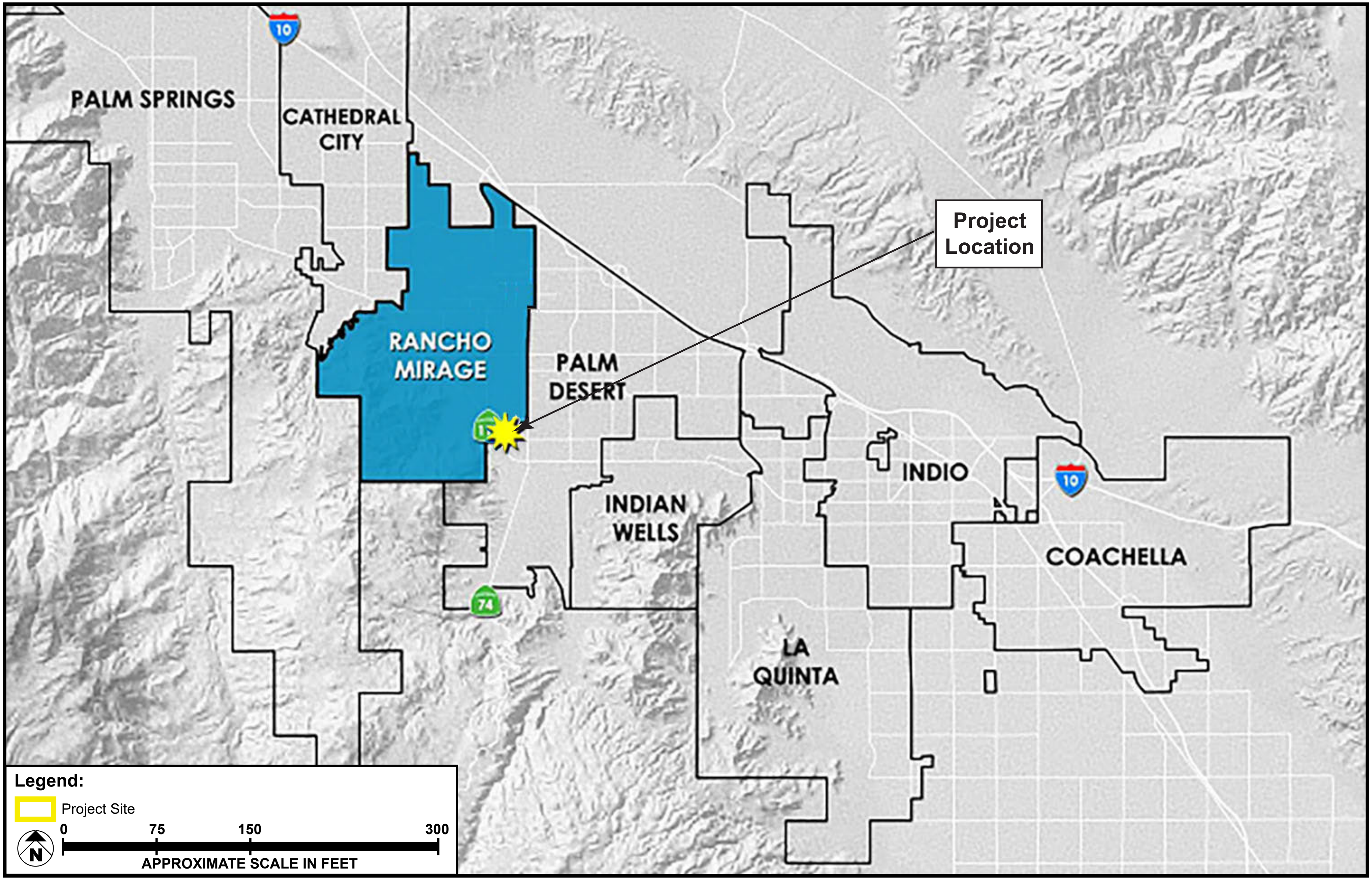
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE 1

CITY OF RANCHO MIRAGE ©

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Luther Salgado, Chairperson
Cahuilla Band of Indians
PO Box 391760 Cahuilla
Anza, CA 92539

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Salgado:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

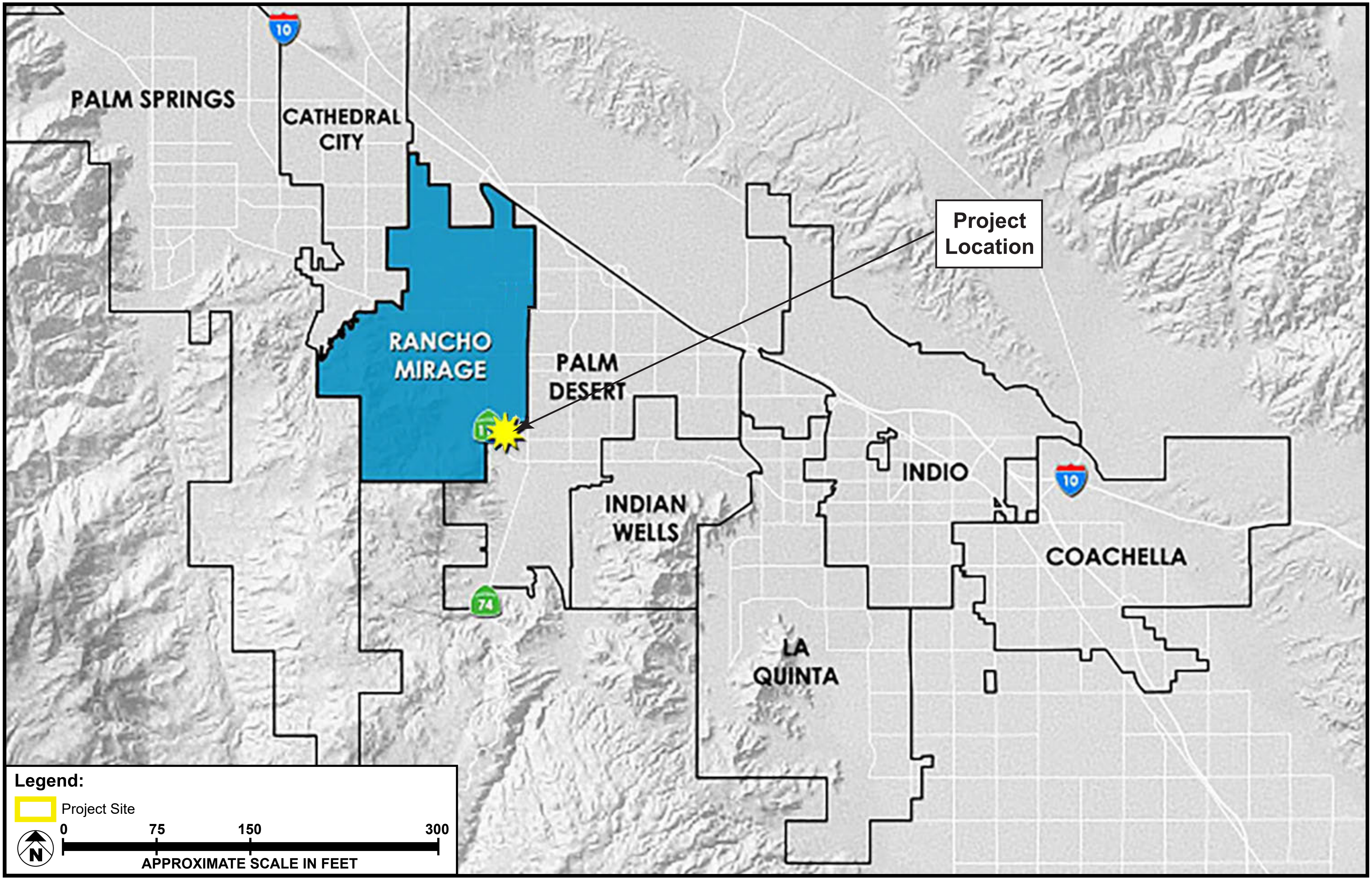
> City of Rancho Mirage
> Planning Department
> 69-825 Highway 111
> Rancho Mirage, California 92270
> Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE 1

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Michael Garcia, Vice Chairperson
Ewiiaapaayp Band of Kumeyaay Indians
4054 Willows Road
Alpine, CA, 91901

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Garcia:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

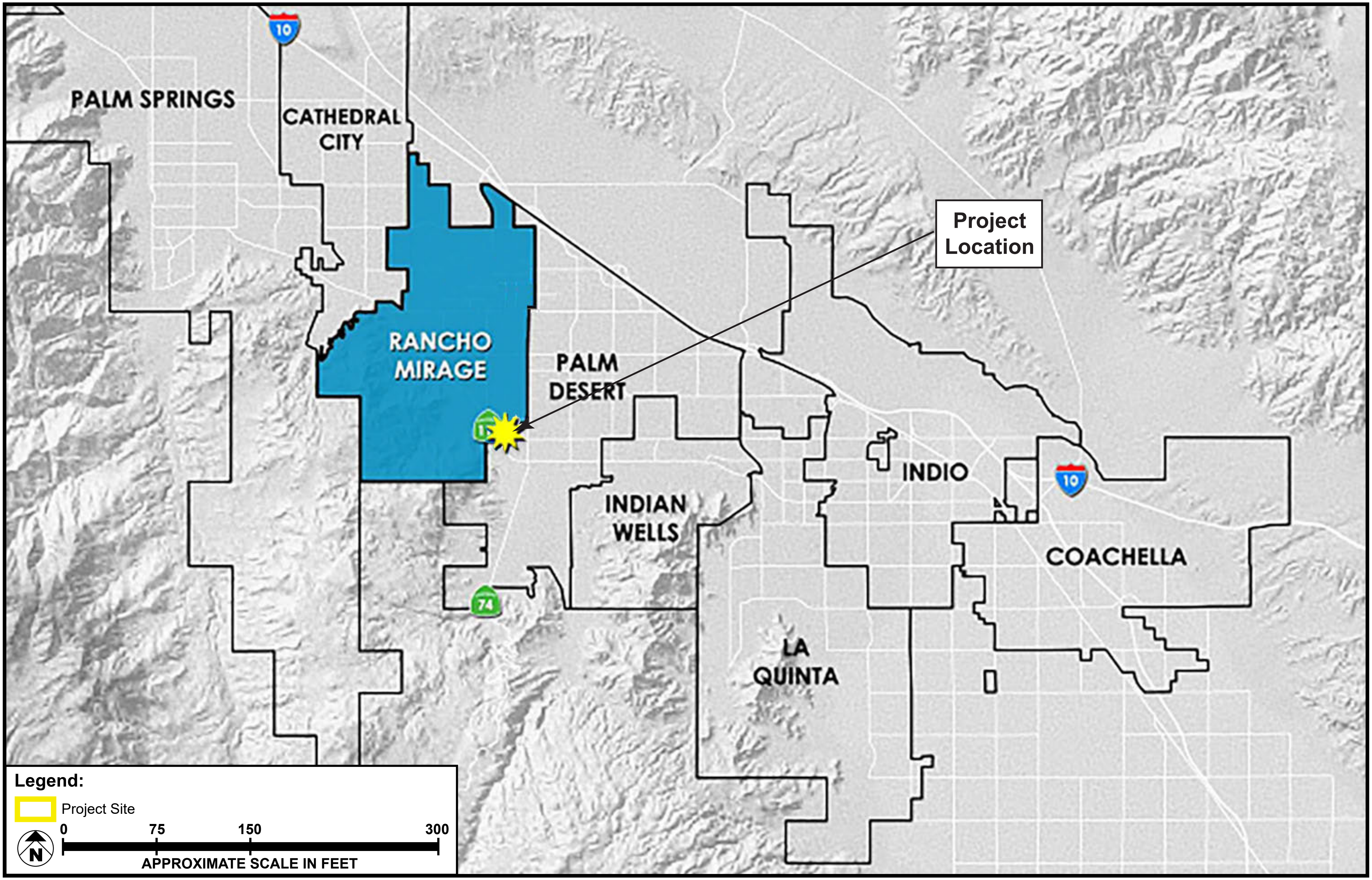
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Michael Linton, Chairperson
Mesa Grande Band of Diegueno Mission Indians
P.O Box 270
Santa Ysabel, CA, 92070

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Linton:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

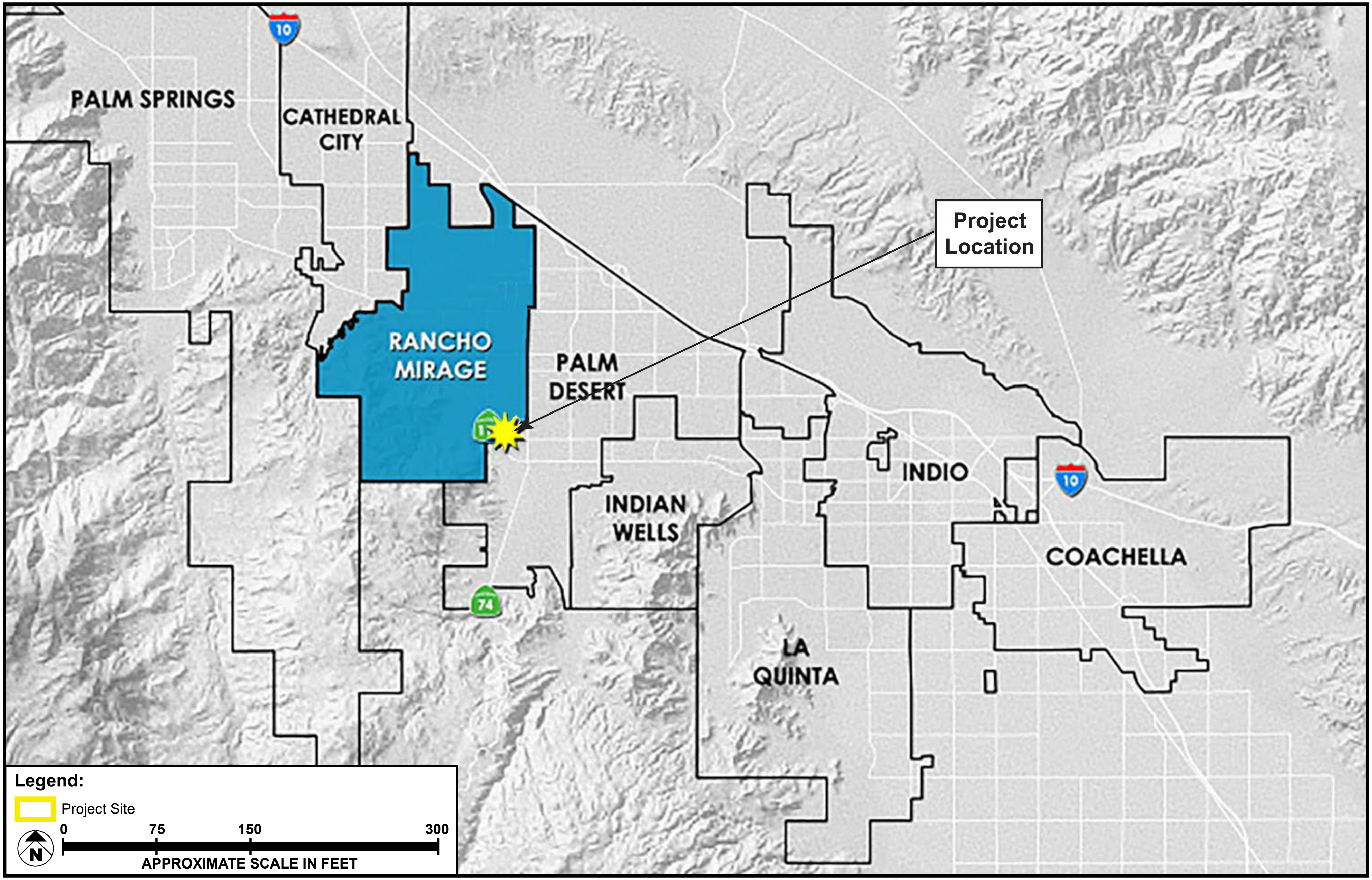
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE ©

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Michael Mirelez, Cultural Resource Coordinator
Torres Martinez Desert Cahuilla Indians
Box 1160 Thermal, CA 92274

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Mirelez:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

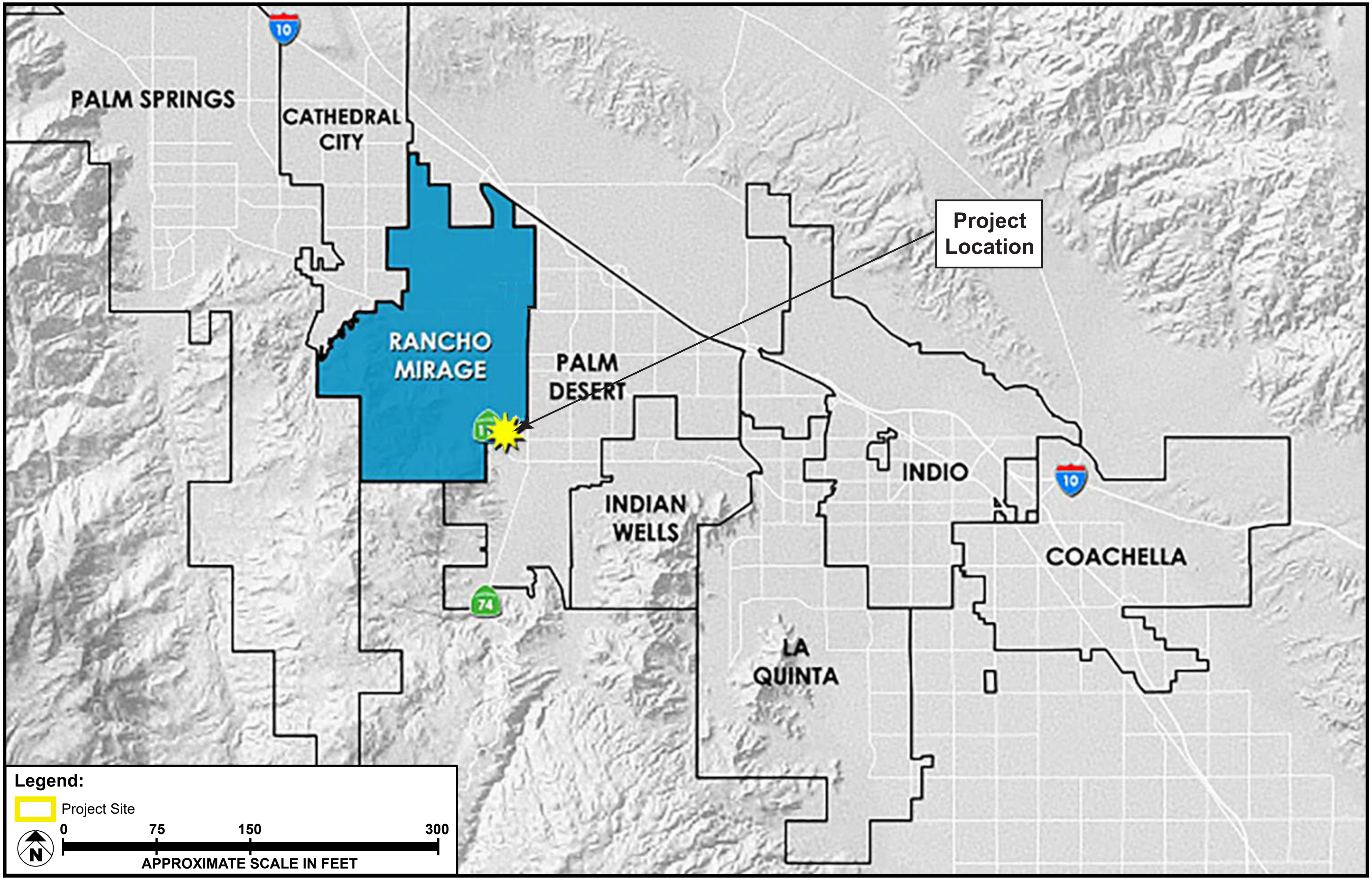
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Mike Darrell, Tribal Chairman
Twenty-Nine Palms Band of Mission Indians
46-200 Harrison Place
Coachella, CA 92236

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Darrell:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

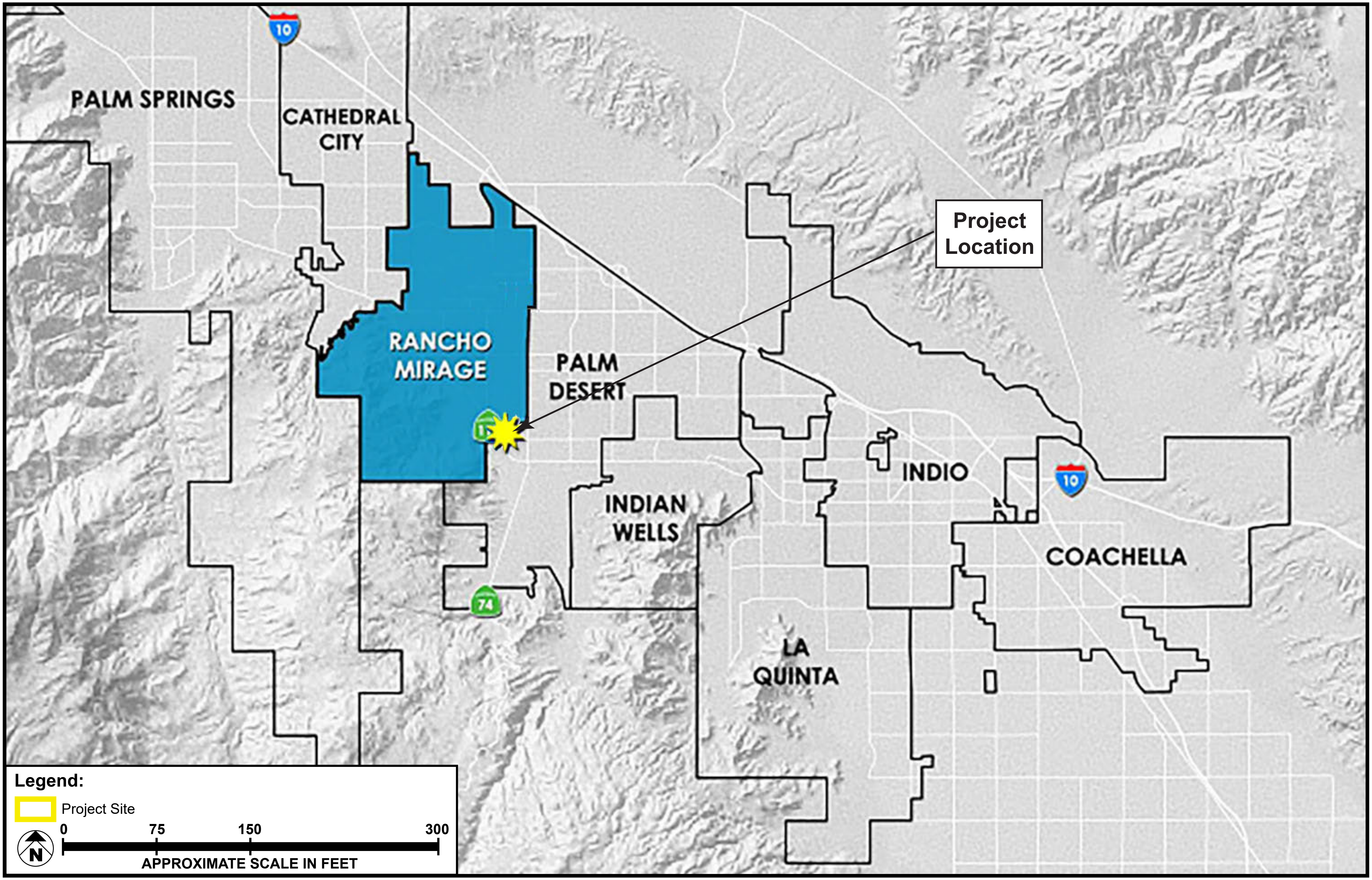
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Patricia Garcia
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA 92264

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Ms. Garcia:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

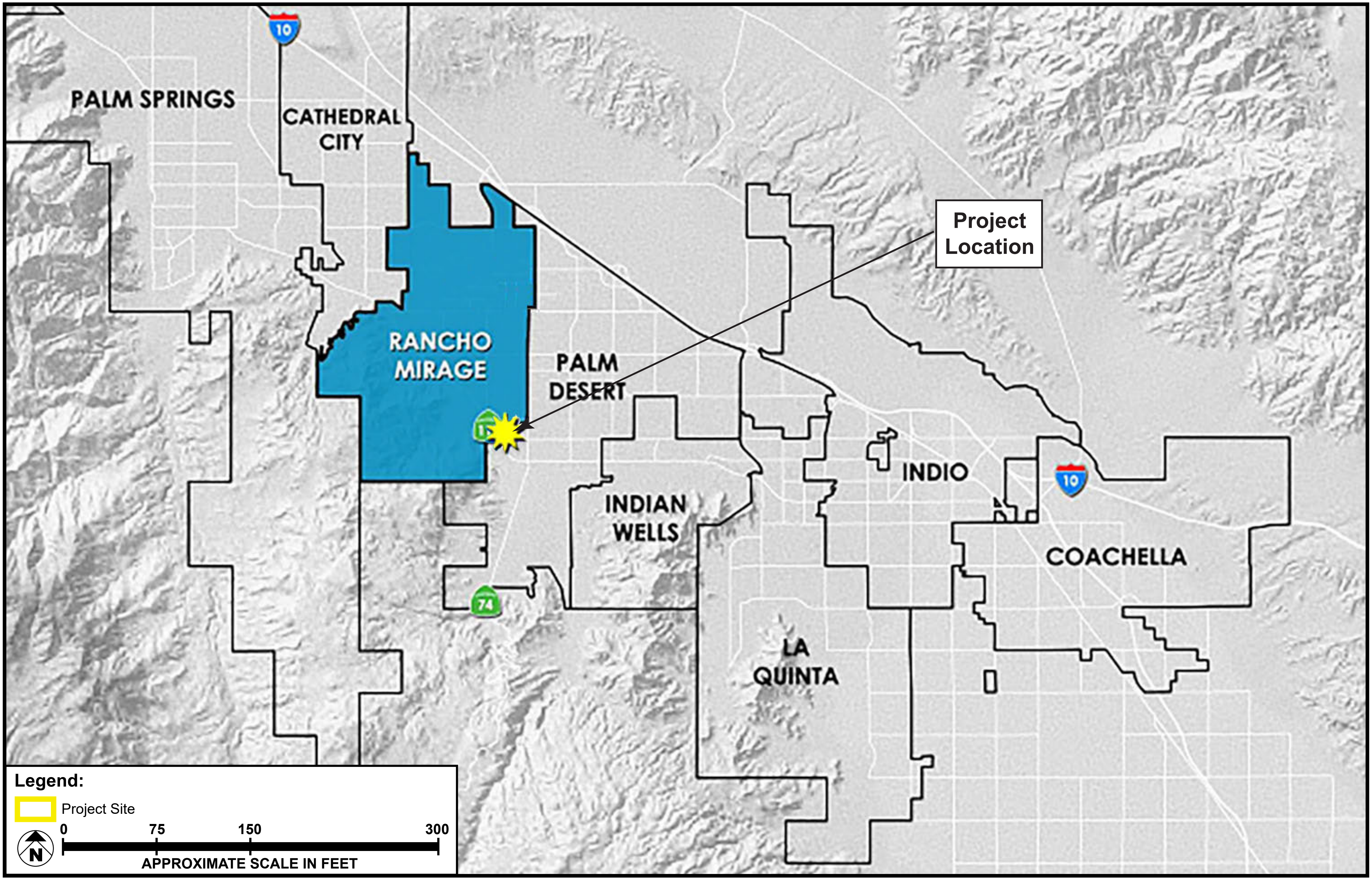
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE ©

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Ralph Goff, Chairperson
Campo Band of Diegueno Mission Indians
36190 Church Road, Suite 1
Campo, CA, 91906

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Goff:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

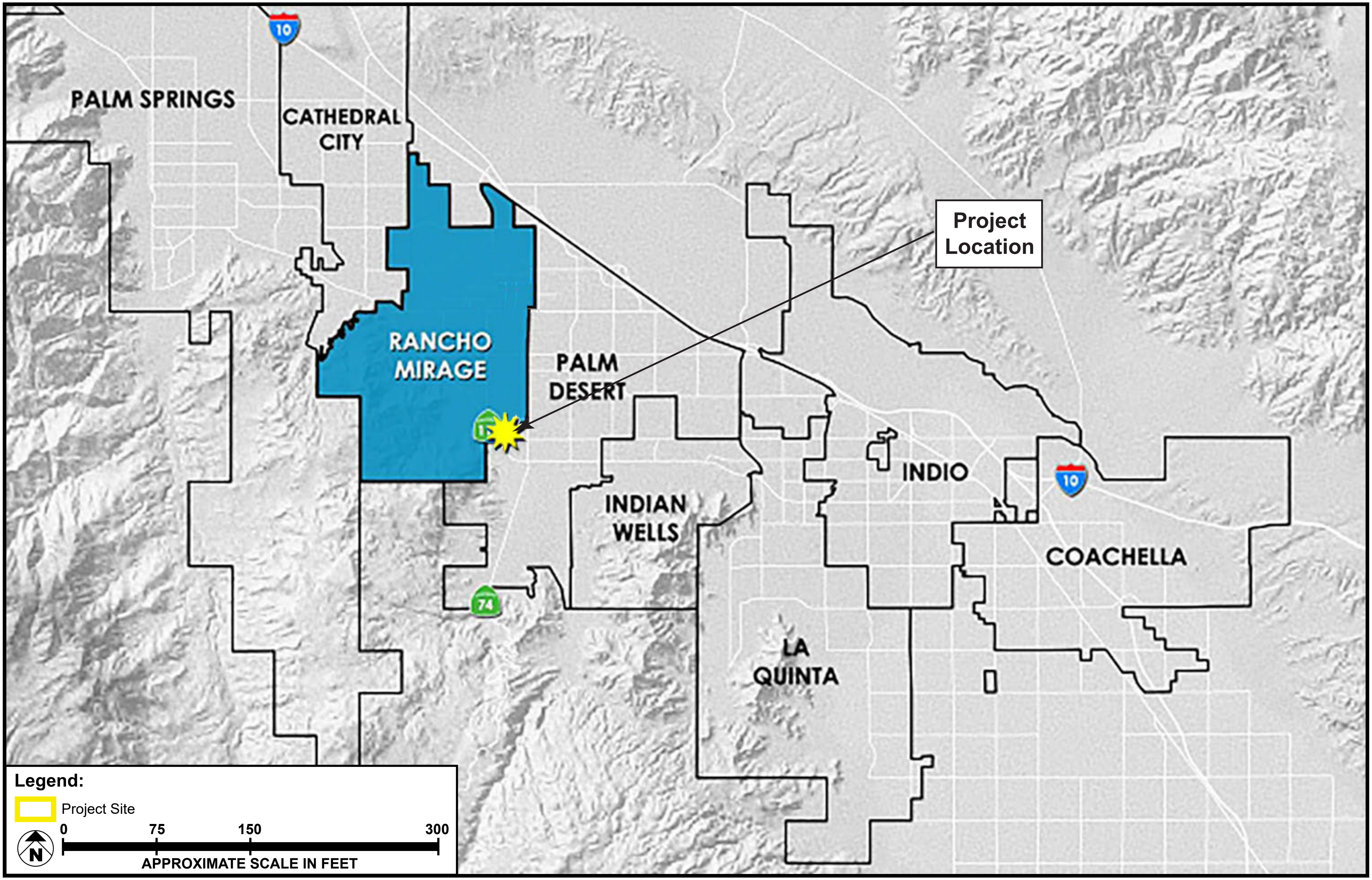
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE

Project Site Location Map

279-001-20

May 5, 2020

Robert Martin, Tribal Chairman
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Martin:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

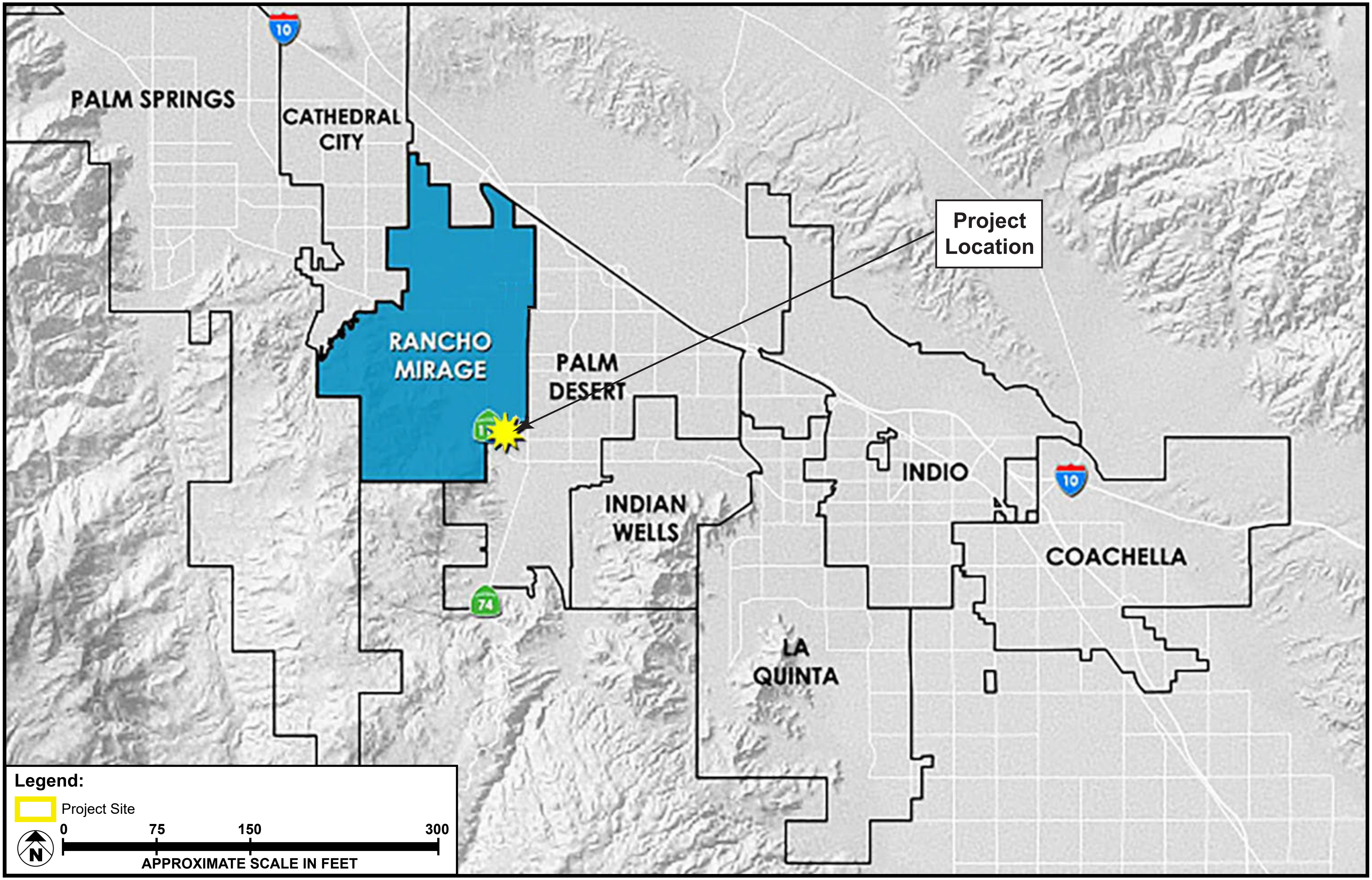
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE ©

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Robert Pinto, Chairperson
Ewiiaapaayp Band of Kumeyaay Indians
4054 Willows Road
Alpine, CA 91901

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Pinto:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

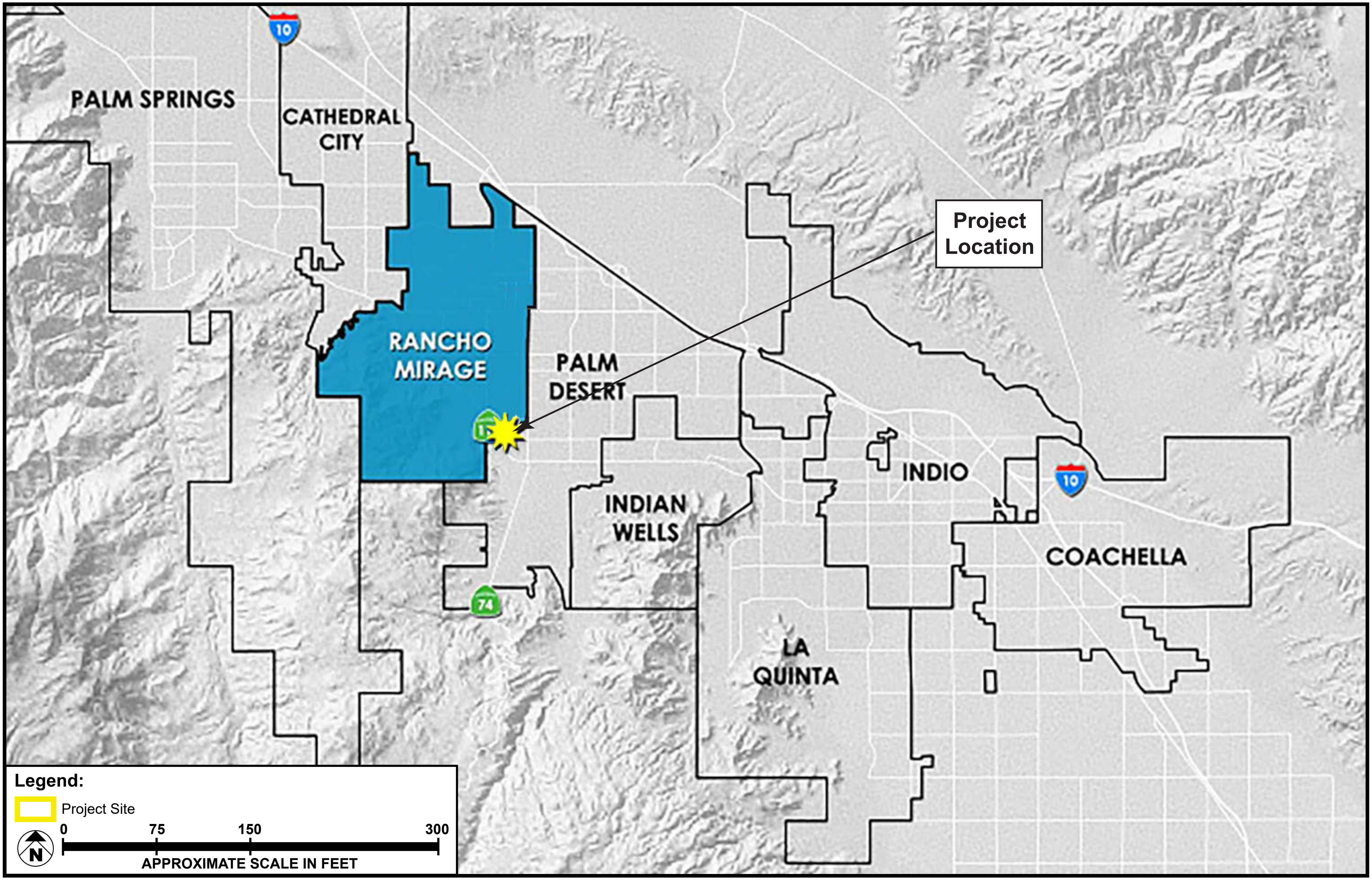
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE ©

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE

Project Site Location Map

279-001-20

May 5, 2020

Scott Cozart, Chairperson
Soboba Band of Luiseno Indians
P. O. Box 487
San Jacinto, CA, 92583

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Cozart:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

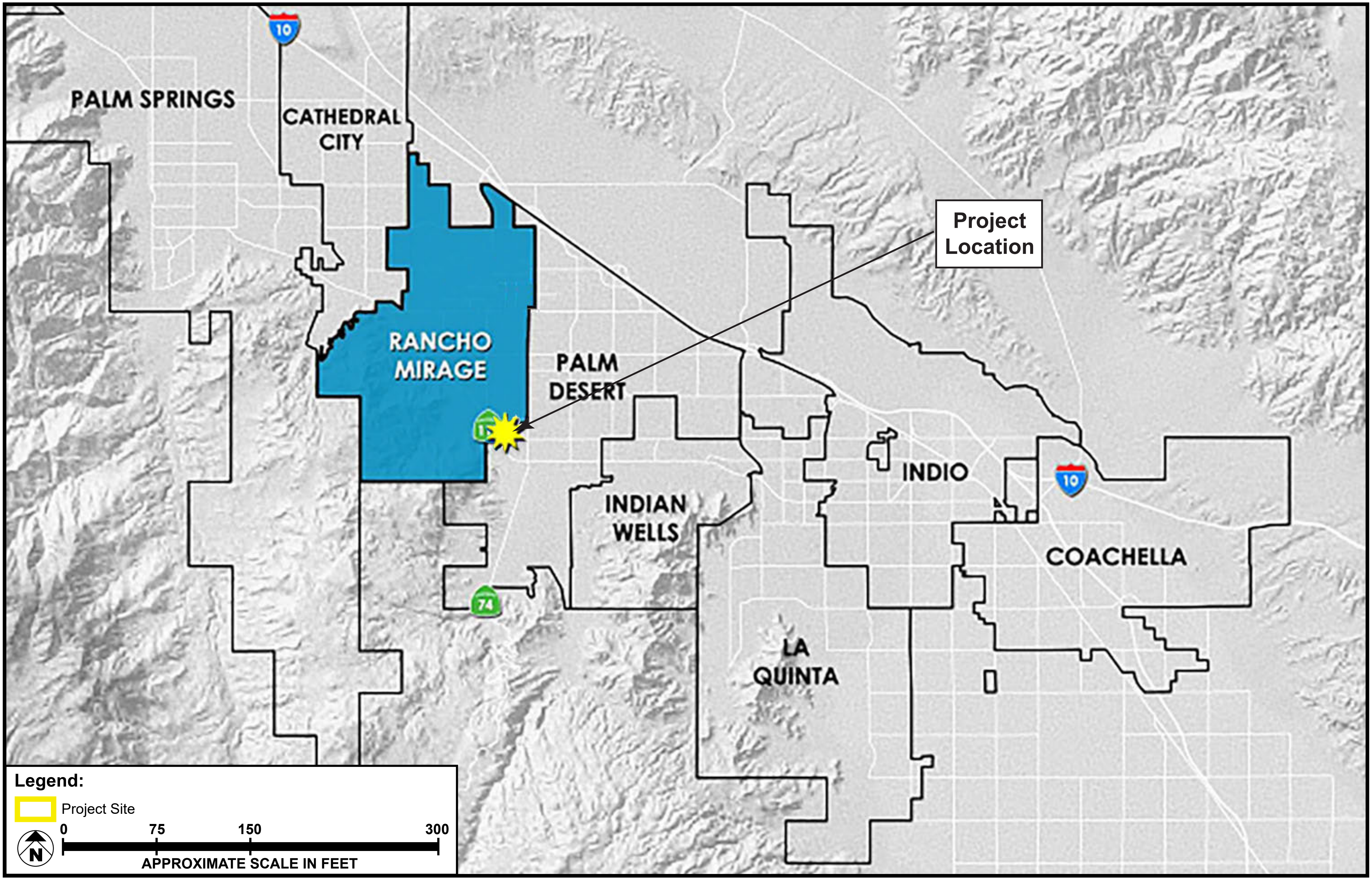
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE ©

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Shane Chapparosa, Chairperson
Los Coyotes Band of Mission Indians
PO Box 189 Warner Springs, CA 92086

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Chapparosa:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

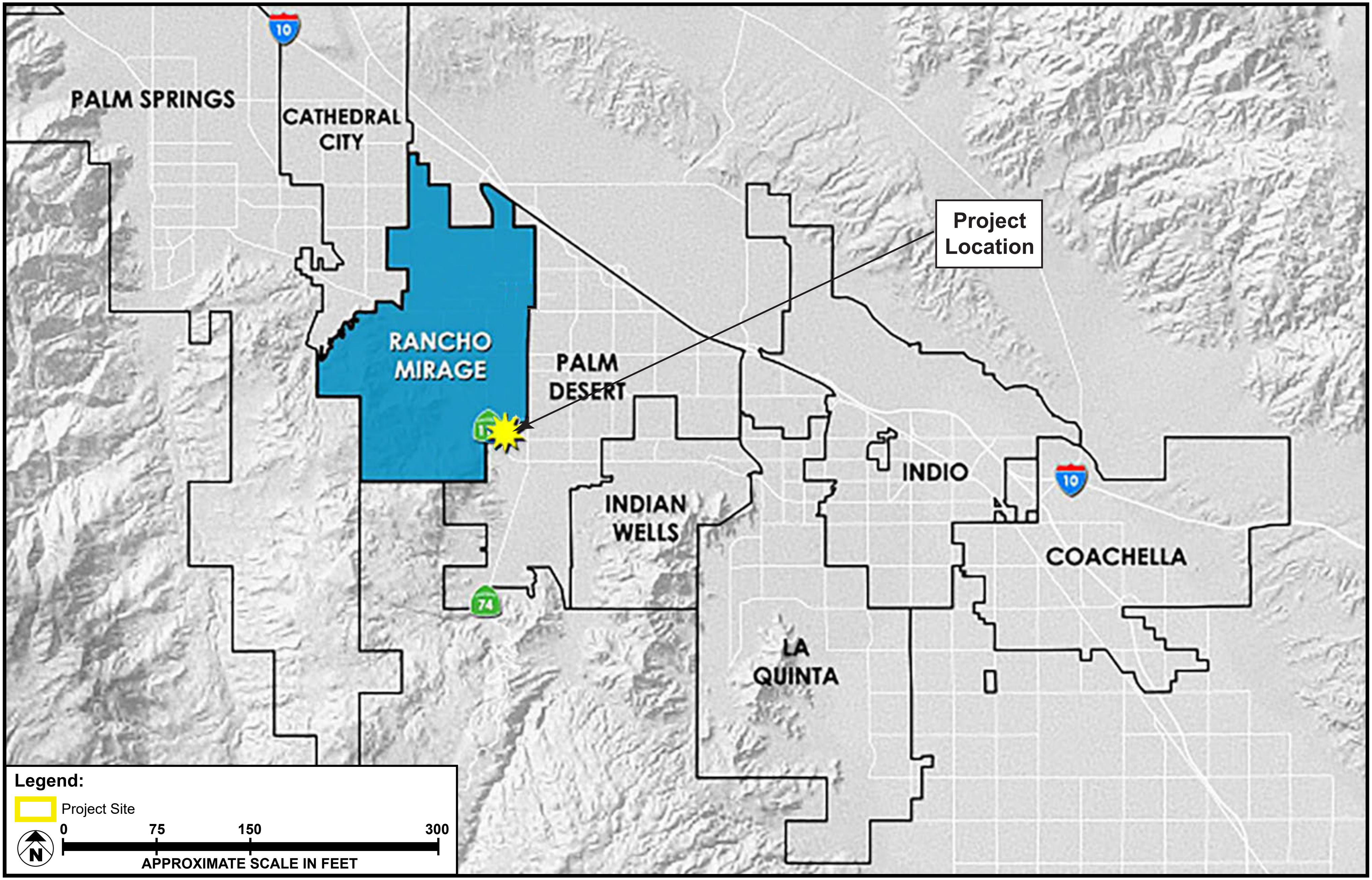
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE ©

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE

Project Site Location Map

279-001-20

CITY OF RANCHO MIRAGE

May 5, 2020

Steven Estrada, Chairperson
Santa Rosa Band of Mission Indians
PO Box 391820 Cahuilla
Anza, CA 92539

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Estrada:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

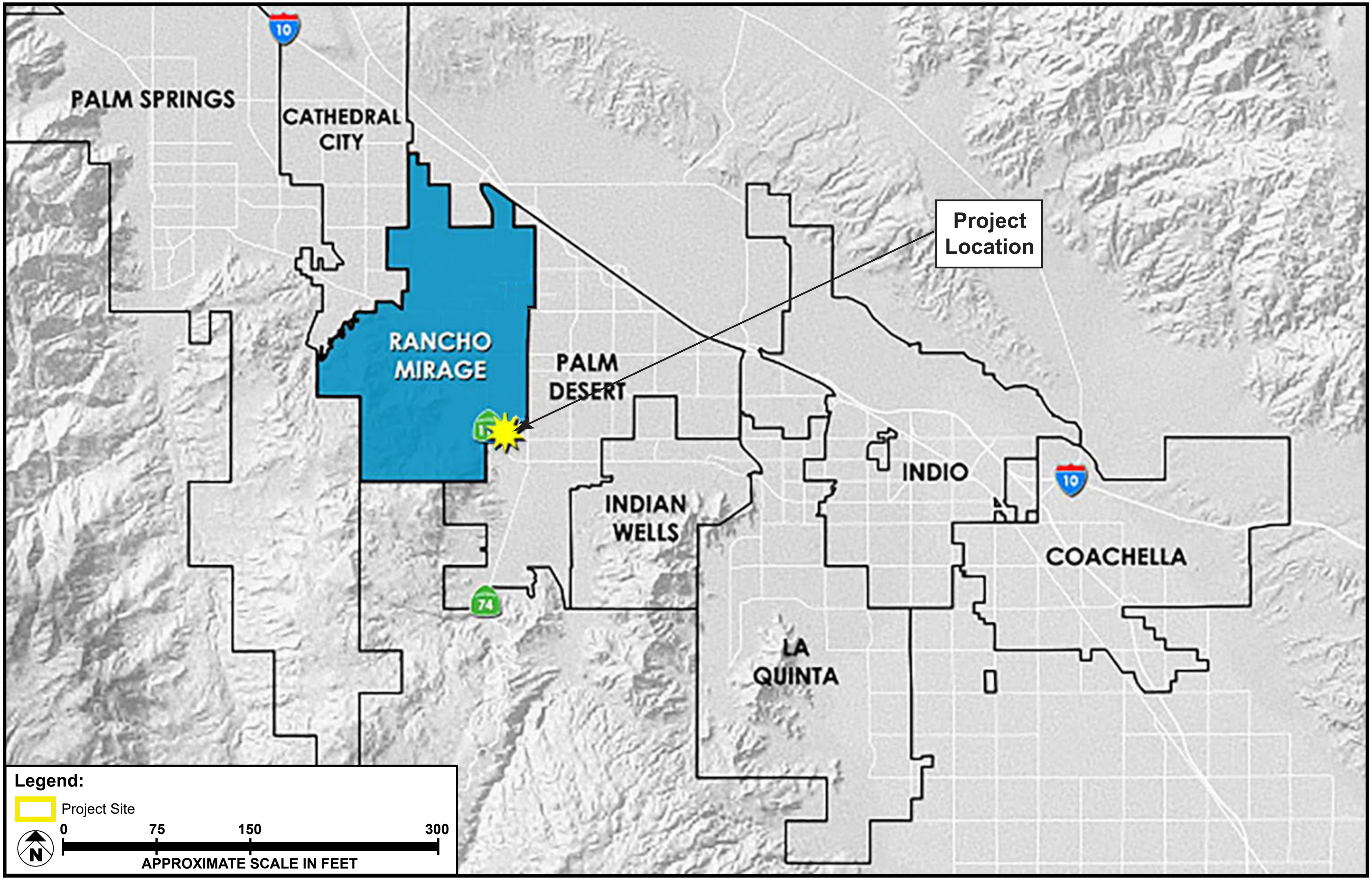
Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

JGleim

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

May 5, 2020

Thomas Tortez, Chairperson
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA, 92274

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Tortez:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

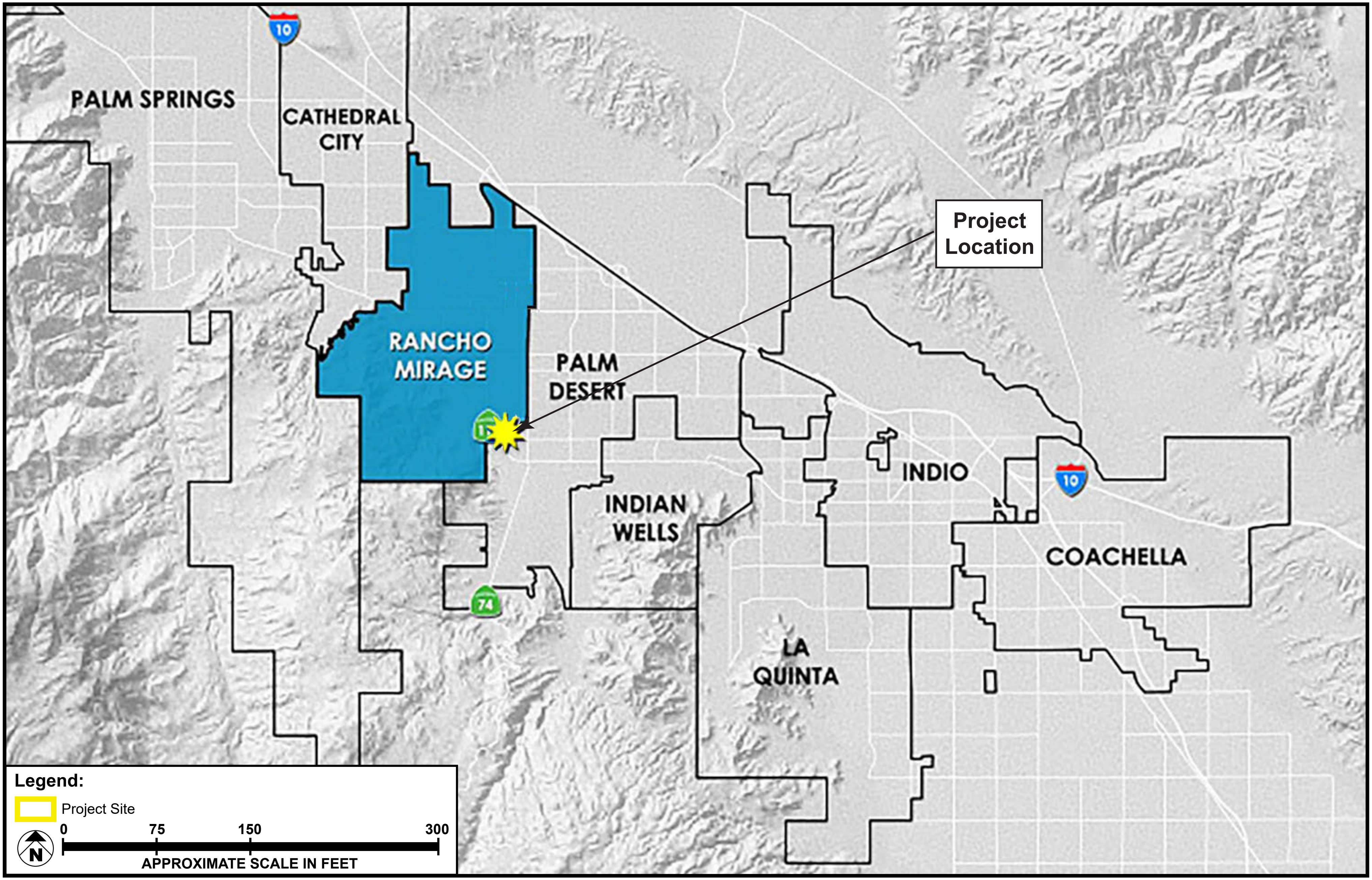
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE **2**

CITY OF RANCHO MIRAGE ©

Project Site Location Map

279-001-20

May 5, 2020

Travis Armstrong, Tribal Historic Preservation Officer
Morongo Band of Mission Indians
12700 Pumarra Road Banning, CA 92220

Subject: AB 52 Consultation, In-N-Out Burger Restaurant Project

Dear Mr. Armstrong:

In accordance with requirements set forth in Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1[d]), the City of Rancho Mirage (City) is providing written notice in response to your request for notification regarding any proposed projects within the City.

The City proposes to develop an In-N-Out Burger Restaurant (proposed Project) on approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center.

As part of the City's approval process, the proposed Project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). In accordance with CEQA, the City, as Lead Agency, is currently preparing an Environmental Impact Report (EIR) to evaluate the proposed Project's potential environmental impacts.

PROJECT LOCATION: The Project Site consists of approximately 1.52 acres of vacant land within the existing Rancho Las Palmas Shopping Center located on the northeast corner of Highway 111 and Magnesia Falls Drive at 42560 Bob Hope Drive, Ranch Mirage, CA as shown in **Figure 1: Regional Location Map**.

PROJECT DESCRIPTION: The proposed Project would be approximately 3,885 square feet (sq. ft.) with indoor seating for 74 guests, and outdoor seating for 82 guests, as shown in **Figure 2: Project Site Location Map**. A 1,762 sq. ft. patio cover would be connected to the restaurant building at its southwest corner to provide shade for outdoor dining. The proposed building would include: a preparation and kitchen area, a cooler area, an office, two dressing rooms, two restrooms, a dining room, a self-serving bar area, a serving area, and a storage/miscellaneous room.

Other outdoor uses would include car parking, bicycle parking, a drive-through, and an approximately 442 square foot roof-covered trash and recycling enclosure.

Construction of the proposed Project is expected to begin in the 3rd or 4th Quarter of 2020 and would be completed within approximately 5 to 6 months. These activities, some of which would run concurrently, include limited site preparation and grading of about 4 weeks; building construction of about 4 months; curbing, paving and striping of about 2 weeks; and landscaping of about 2 weeks. Heavy construction activities would be relatively limited as most of the utilities are already in place and the existing retaining

wall and accessible wheelchair ramp from Highway 111 to the site, would remain and be incorporated into the new site plan.

Pursuant to PRC Section 21080.3.1, please notify the City within 30 days of receiving this letter to request consultation should you so desire. The City will schedule a meeting within 30 days of receiving the Tribe's request. The consultation may include a discussion concerning the type of environmental review necessary for the proposed Project, the significance of Tribal Cultural Resources (TCRs), the significance of the proposed Project's impacts on TCRs, and, if necessary, Project alternatives or appropriate measures for preservation or mitigation to avoid impacts to TCRs that the Tribe may recommend.

Please note that consultation, or the lack thereof, does not limit the ability of the Tribe to submit information to the City regarding the significance of the TCRs, or any appropriate measures to mitigate the potential impacts as part of the CEQA process.

If you wish to consult on the proposed Project, written comments may be sent to the City at the following address:

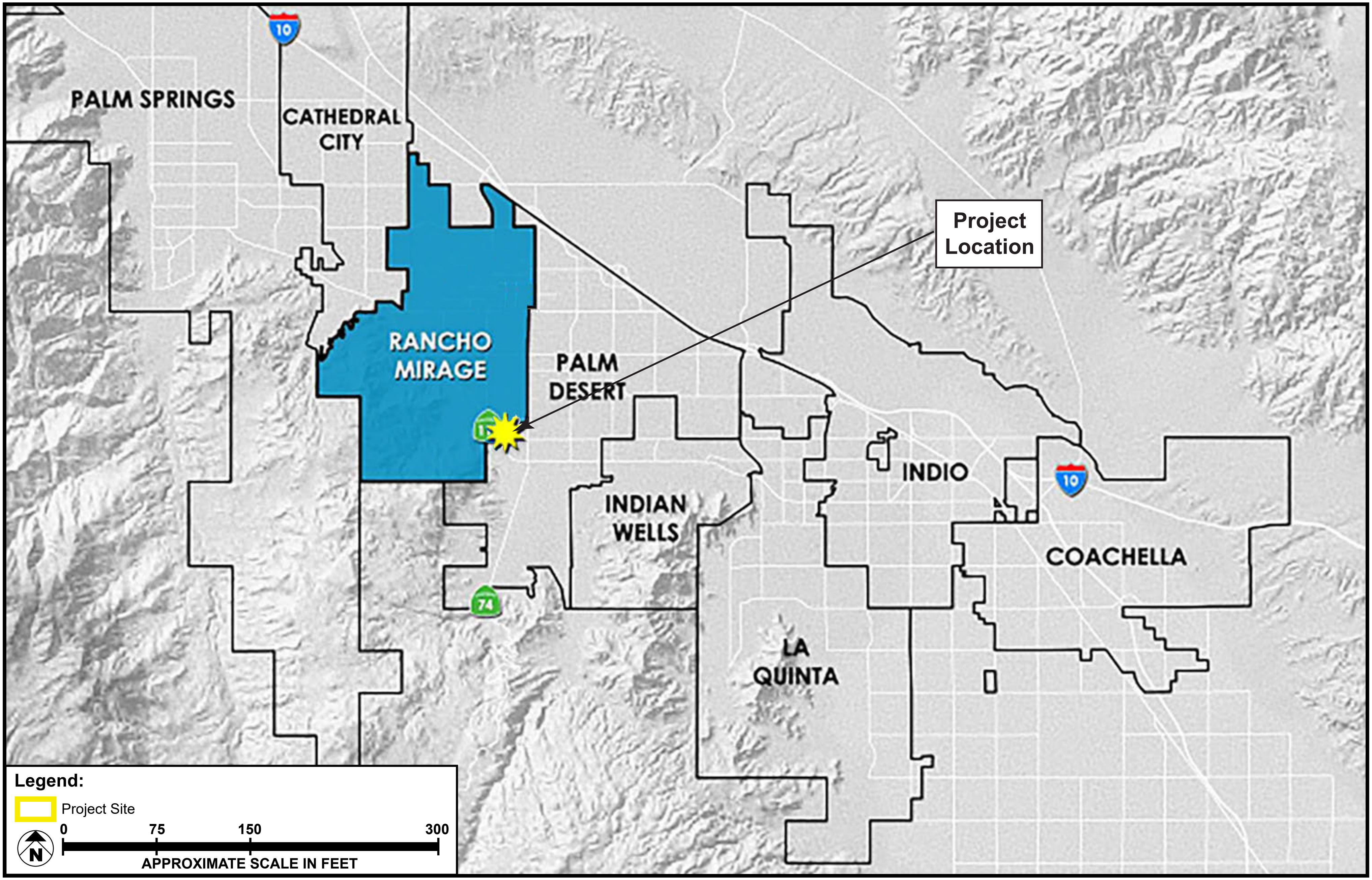
City of Rancho Mirage
Planning Department
69-825 Highway 111
Rancho Mirage, California 92270
Attn.: Jeremy Gleim, Development Services Director

Should you have any questions, you can contact me at (760) 328-2266 or via email at jeremyg@ranchomirageca.gov.

Sincerely,

Jeremy Gleim, AICP
Development Services Director

cc: Majna Dukic, Planning Manager



SOURCE: Meridian Consultants - 2020

FIGURE **1**

CITY OF RANCHO MIRAGE ©

Regional Location Map

279-001-20

SOURCE: Google Earth - 2020

FIGURE 2

CITY OF RANCHO MIRAGE

Project Site Location Map

279-001-20