ENVIRONMENTAL INITIAL STUDY

Project Title:	Ritz-Carlton Rancho Mirage
City Project No:	EA21-0002, GPZMA21-0001, MOD21-0004 DA21-0002, and TPM23-0002
Lead Agency Name and Address:	City of Rancho Mirage 69-825 Highway 111 Rancho Mirage, California 92270 Phone: (760) 328-2266 Fax: (760) 324-9851
Applicant:	Kam Sang Company, Inc. 411 E. Huntington Drive, Suite 305 Arcadia, California 91006
Contact Person:	Ben Torres Planning Manager
Phone Number:	Phone: (760) 328-2266 X253
Project Location:	The project site occurs along Frank Sinatra Drive approximately 0.85 miles southwest of the intersection with Highway 111 within the City of Rancho Mirage.
Accessor Parcel Numbers:	689-330-026, -28, -31, -32, -34; 689-020-012, -14 ; 689-331-001,-18
General Plan Designation:	Resort Hotel (Rs-H) and Mountain Reserve (MR)
Zoning Designation:	Resort Hotel (Rs-H) and Mountain Reserve (MR)

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CHAPTER 1: PROJECT DESCRIPTION

Background

In 2006, an environmental impact report (EIR) was prepared for the Lodge at Rancho Mirage Hotel Expansion Project, which encompassed a total of 39.01 acres that included the existing Lodge Hotel site, and other developed and entitled lands within the lower foothills of the Santa Rosa Mountains. The 2006 Lodge at Rancho Mirage Hotel Expansion Project EIR (2006 EIR) included expansion, renovation and upgrading of the existing Lodge at Rancho Mirage Hotel (the "Hotel"), construction of new structures, parking and interior roadways, accessory buildings, support facilities and infrastructure, landscaping, and demolition of the existing tennis complex. The 2006 EIR also included an amendment to the existing Development Agreement for the subject property. The 2006 EIR analyzed portions of the Ritz-Carlton Residences site of the Ritz-Carlton Rancho Mirage Project (the proposed project) analyzed in this Initial Study but did not analyze the Sky Mesa Recreational Area (Figures 1-1 and 1-2).

The 2006 Lodge at Rancho Mirage Hotel Project site is located to the southwest of the Sky Mesa Recreation Area (Figure 1-2). The proposed project as analyzed in this Initial Study is not a tiered document of the 2006 The Lodge at Rancho Mirage Hotel Expansion Project EIR because the project analyzed in this Initial Study contains an area (the Sky Mesa Recreation Area) not analyzed in the 2006 EIR. Additionally, the 2006 EIR included development of the Tennis Villas within the approximately 7.96-acre area (APN: 689-330-011) across Frank Sinatra Drive from the project site. The Tennis Villas include the development of 80,248 square feet of new development including 25 villas (with a total of 49 keys), outdoor patios/ gardens, plunge pool, hot tub, water features, pool bar, a wine cave, a covered golf cart pickup area, equipment, and a 26,330-sf underground parking structure onsite. The 25 Villas would be comprised of (1) one-bedroom suite (1 key); (11) two-bedroom villas (2 keys); (11) two-bedroom suites (2 keys); and (2) three-bedroom suites (2 keys). The currently proposed project as addressed in this Initial Study does not alter any portion of the Tennis Villas as analyzed in the 2006 EIR.

California Environmental Quality Act Compliance

The City of Rancho Mirage (City) is the California Environmental Quality Act (CEQA) lead agency responsible for the review and approval of the proposed project. The City has prepared this Initial Study pursuant to the requirements of Section 15063 of the State CEQA Guidelines to determine if the proposed project may have a significant effect on the environment. The purpose of an Initial Study is to provide the Lead Agency (in this case, the City of Rancho Mirage) with information to use as the basis for deciding whether a project may have a significant effect on the environment. The City will utilize the Initial Study to determine if an EIR or a Negative Declaration is the appropriate environmental review document for the proposed project. The Initial Study also enables the applicant or City to modify a project to mitigated adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a Negative Declaration.

In accordance with Section 15063(d) of the State CEQA Guidelines, this Initial Study contains: a description of the project; an identification of the environmental setting; an identification of environmental effects by use of a checklist and explanation; a discussion of ways to mitigate the significant effects identified, if any; an examination of the project's consistency with existing zoning and plans; and the persons who prepared the Initial Study.

Purpose and Need

The purpose of the proposed project is to construct 48 residential suites (Building A-1) and 58 villas (Buildings B-1 to B-15) within the Ritz-Carlton Residences section of the project site (encompassing approximately 200,474 square feet), to construct 23,840 square feet of venue space, 5,510 square feet of amenity space, and 6,273 square feet of commercial space within the Sky Mesa Recreational Area portion of the project site for a total project size of approximately 236,750 square feet (Figure 1-2).

Project Location

The project site is located at 68900 Frank Sinatra Drive approximately 0.85 miles southwest of the intersection with State Route 111 in the City of Rancho Mirage, Riverside County (Assessor's Parcel Numbers 689-330-026, -028, -031 -032, -034; 689-020-012, -014 and 689-331-001, -18) (Figure 1-2). The majority of the 16.13-acre project site is currently vacant and lies south and east of the existing Ritz-Carlton Rancho Mirage Hotel. Figures 1-1 and 1-2 show the regional location and local vicinity, respectively. The Residences portion accounts for approximately 11.62 acres and the Sky Mesa Recreation Area accounts for approximately 4.51 acres.

Environmental Setting and Surrounding Land Uses

The project site is vacant with dirt covering the majority of the site. The majority of the site that includes The Residences is mass graded. The portion of the site for the Sky Mesa Recreational Area is partially graded. An asphalt dead-end road has been constructed on the property as a temporary construction access point for the hotel to the north. A shipping container and construction equipment remain on the project site from construction staging activities during previous development on the hotel property. As mentioned above, the existing Ritz-Carlton Rancho Mirage Hotel is to the north and west of the project site with a hotel service access road immediately bordering the property. Another hotel service access road borders the project site to the northeast which leads to the proposed Sky Mesa Recreation Area. To the south is Mirada Circle and the Mirada single-family residential development. Confronting the project site across Frank Sinatra Drive to the northwest is a rough graded but undeveloped parcel that contains the site where the Tennis Villas of the Lodge at Rancho Mirage Hotel Project would be developed.

Land Use

The project site is situated on all or portions of Assessor parcel numbers 689-330-026, -028, -031 -032, -034; 689-020-012, -014 and 689-331-001, -18 which have a General Plan Land Use designation of Commercial: Resort Hotel (Rs-H) and on parcels 689-020-012, -14 carrying an Open Space: Mountain Reserve (MR) designation.

The stated goal of the Resort Hotel (Rs-H) zone is for "the development of hotels and destination resorts with limited, ancillary commercial uses, such as spas, recreational facilities, restaurants, lounges, and small retail shops that directly support the primary use."

The stated goal of the Mountain Reserve (MR) zone is "for public lands or property subject to conservation easements in the Santa Rosa Mountains. Uses are limited to recreational activities, such as hiking or equestrian and non-motorized bike trails and facilities consistent with the need to protect sensitive biological resources. Vehicular access is not permitted in this designation."

Project Description

Proposed Land Uses

The applicant, Kam Sang Company, proposes to construct 106 residential suites and hotel villas encompassing approximately 200,474-square feet, approximately 23,840-square feet of event space, approximately 6,273-square feet of commercial, and approximately 5,510-square feet of amenity space at 68900 Frank Sinatra Drive. The proposed project would be approximately 236,748 square feet in total. Figure 1-3 and 1-4 shows the proposed site plans for the Ritz Carlton Residences and the Sky Mesa Recreational Area, respectively.

Ritz Carlton Residences and Hotel Villas

Residential Suites (Building A-1): The residential suites, event space, and commercial area would be located within Building A-1. This new building would provide an approximately 23,840-square feet indoor event space and 3,960-square feet exterior entertaining and garden spaces. The building would also house 48 residential suites over underground parking for both the suites and the event space along with additional parking for the existing hotel. Building A-1 would be 3 stories with a maximum height of 30-feet, 3-inches, with the exception of the entrance of the event space, which will be 39- feet 3- inches in height. Building elevations are shown on Figure 1-5.

Hotel Villas (Buildings B-1 to B-15): The proposed project also includes 58 proposed hotel villas with private garages across 15 buildings (Buildings B-1 to B-15) to the south and east of Building A-1. The hotel villas would be 2 stories with a maximum height of approximately 32-feet, 4-inches and building elevations are shown on Figures 1-6a and 1-6b. These residential suites and hotel villas would be comprised of a mix of one, two, and three-bedroom units; refer to Table 1-1, Proposed Residential Suite and Hotel Villa Unit Types, for a breakdown of unit types between the residential suites and hotel villas.

Table 1-1. Proposed Residential Suite and Hotel Villa Unit Types

Location	Unit Type	Count
Residential Suites	1 bedroom/1 bath	26
	2 bedroom/2 bath	12
	3 bedroom/3 bath	10
	Residential Suite Subtotal	*48*
Hotel Villas	2 bedroom/2 bath	29
	3 bedroom/3 bath	29
	Hotel Villas Subtotal	*58*
	Total Units	**106**

An approximately 5,510-square-foot, 33 feet and 6 inches tall, community clubroom/lounge with access to a central pool terrace as well as smaller amenity areas would also be located with the same area as the hotel villas. Refer to Figure 1-3 for the proposed location of the community lounge and Figure 1-5 for building elevations.

Sky Mesa Recreation Area

To the northeast, the proposed 6,273-square-foot Sky Mesa Recreation Area would provide additional event space, restaurant, and amenities such as a pool terrace and view opportunities of the

surrounding areas. The Sky Mesa Recreation Area includes a restaurant built into the natural hillside with a pool and large lawn event space below the restaurant. A proposed 693 square foot restroom facility would be constructed into the hillside adjacent the restaurant and pool. Figure 1-7 shows the proposed building elevations for the Sky Mesa Recreation Area. A General Plan Zoning Map Amendment from Mountain Reserve (MR) to Resort Hotel (Rs-H) is concurrently proposed for the Sky Mesa Recreation Area.

Access and Parking

Proposed access and circulation to and within the project site is shown on Figure 1-8. Primary site access would be from Frank Sinatra Drive, with associated monument signage. Access to the hotel villas would be located at the existing traffic circle on Frank Sinatra Drive just south of the existing hotel access driveway. Access to Building A-1 (residential suites, event spaces, and underground parking) would be from the existing hotel access driveway. The existing hotel motor court would be modified to serve as the drop-off and entry point for the new event space and residential suites. An additional vehicular connection would be located to the east of Building A-1, which would provide additional hotel villa residential and service access. An internal road network and sidewalks provide connections throughout the site, to the existing hotel, and to the Sky Mesa Recreation Area.

The proposed project would include 499 parking spaces total, with 381 subterranean parking and 116 residential parking. As mentioned above, parking for Building A-1 is provided in a parking structure where 381 spaces serve the residential suites, event space, commercial uses, and additional spaces for the existing hotel. The hotel villas would have either 1 or 2-car private garages, plus a driveway space for the one car garage hotel villas totaling 116 spaces.

Landscaping and Open Space

The proposed project will provide approximately 35% open space made up of landscape areas, pools, water features, and paths. Figures 1-9a and 1-9b shows the proposed landscape plan for the Residences at Ritz Carlton and the Sky Mesa Recreational Area, respectively. A desert landscape design is proposed throughout the project site including water cascades, multiple pools, rock escarpments, and fountains. Landscaping would be located throughout the project site and between proposed buildings with pedestrian access provided by the on-site pedestrian network. The proposed plant palette would comprise of native, drought-tolerant plantings, consistent with the existing hotel landscaping and surrounding areas.

A pedestrian walkway network would be located throughout the hotel villas and Sky Mesa Recreation Area. The pedestrian network would provide access to pools, ponds, and open space areas within the project site. Within the Sky Mesa Recreation Area, north of the proposed restaurant and pool, the pedestrian network would include viewpoints towards the north/east.

Utilities

Coachella Valley Water District (CVWD) provides domestic water service to the existing Ritz-Carlton Hotel via 18-inch diameter water mains located in Frank Sinatra Drive and 8-inch mains located in previous Tennis Complex entry drive. 12-inch water mains are also located in roadways within the adjacent Mirada Estates subdivision.

CVWD provides wastewater collection and treatment services to the proposed project vicinity. Wastewater is collected via 8-inch sewer mains located within the Frank Sinatra Drive right-of-way.

These mains extend north along Frank Sinatra Drive, cross Highway 111 and connect with a sewer line located about one block northeast of Highway 111.

The proposed project would require sewer, water, and fire-serve water line lateral connections to the existing facilities in Frank Sinatra Drive. New irrigation improvements would follow the CVWD Model Water Efficient Landscape Ordinance.

Construction

For the purposes of air quality analysis, it is anticipated that construction of the proposed project would begin in 2023[1]. The anticipated sequence of construction is as follows:

- Demolition (none necessary)
- Site Preparation (previously performed)
- Grading (5 months)
- Building Construction (17 months)
- Paving (1 month)
- Architectural Coating (3 months)

Refer to the air quality analysis in Section 3 of this Initial Study for additional details. During the grading phase of construction, it is anticipated that approximately 6,920 cubic yards of material would be exported and no material would be imported. No-VOC paint, defined as paint with a VOC content of 5 grams/liter or less is proposed for the project.

Operation

The proposed project entails operation of residential suites and hotel villas, event space, commercial, and amenity space. The proposed 23,840 square foot event space and exterior entertaining and garden space would provide a space for residents, visitors and hotel guests. The proposed project would involve the construction of 106 residential units. These residential units would operate similar to time-share properties and therefore future residents would not be in the proposed residential units year-round.

During operation of the proposed project, special events would be held, similar to special events held at the existing hotel. Prior to any special event, the proposed project would obtain necessary and required approvals from the City with respect to special event permits and traffic management.

Discretionary Approvals

The two primary components of the proposed project, the Ritz Carlton Residences and the Sky Mesa Recreation Area, require a separate set of discretionary approvals. While these two components are considered a single project under CEQA, one portion may be developed separately from the other The approvals required of each are outlined below. The project requires approval of a Tentative Parcel Map (TPM38768) (see Figure 1-10, Tentative Parcel Map) which proposes to establish three parcels with Parcel 3 of the map containing 106 condo units.

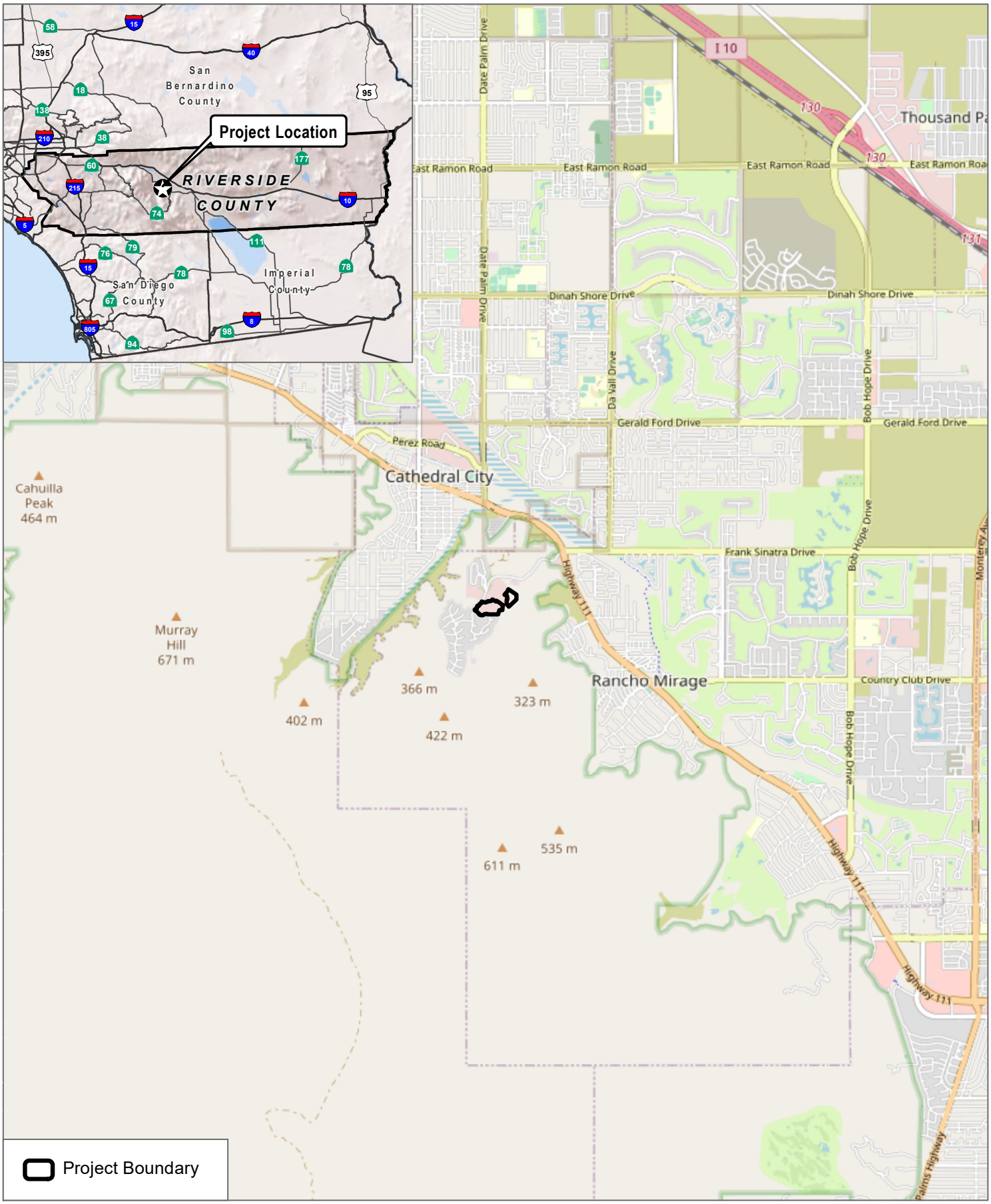
Ritz Carlton Residences Discretionary Approvals

[1] The analysis assumes a construction start date of February 2023 and conclude in November 2024 , which represents the earliest date construction would initiate. While February 2023 has already passed, assuming the earliest start date and duration for construction represents the worst-case scenario for criteria air pollutant and GHG emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years. Additionally, a shorter modeled duration results in slightly higher daily and annual emissions. Therefore, despite the fact that the construction schedule used for modeling has previously passes, given it represents the worst-case scenario, the analysis is still valid.

- Environmental Assessment
- Development Agreement Amendment
- Major Modification
- Tentative Parcel Map

Sky Mesa Recreation Area Discretionary Approvals

- Environmental Assessment
- Development Agreement Amendment
- General Plan Zoning Map Amendment from Mountain Reserve to Resort Hotel
- Tentative Parcel Map
- Major Modification



SOURCE: ESRI OpenStreetMap 2019

DUDEK

0 0.5 1 Miles

FIGURE 1-1

Regional Map

Ritz-Carlton Rancho Mirage Initial Study

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SOURCE: ESRI Clarity Imagery 2019

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0 150 300 Feet

FIGURE 1-2

Project Location

Ritz-Carlton Rancho Mirage Initial Study

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SOURCE: LCRA 2018

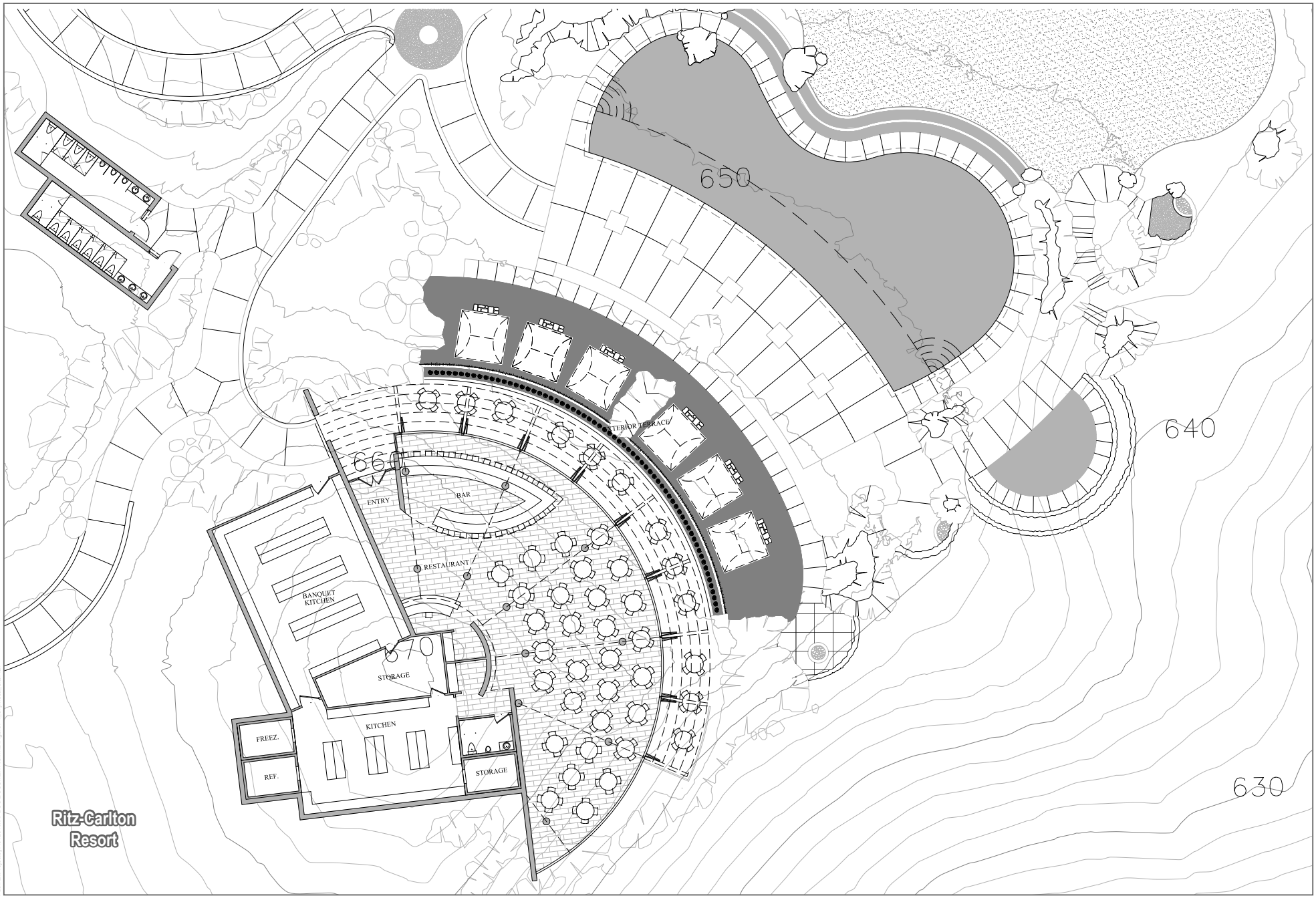
FIGURE 1-3

Ritz-Carlton Residences Site Plan

Ritz-Carlton Rancho Mirage IS/MND

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SOURCE: LCRA 2018

FIGURE 1-4

Sky Mesa Recreational Site Plan

Ritz-Carlton Rancho Mirage Initial Study

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THE VENUE: FRONT ELEVATION



THE VENUE: WEST ELEVATION



THE VENUE: EAST ELEVATION

SOURCE: LCRA 2018

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FIGURE 1-5

Event Venue Elevations

Ritz-Carlton Rancho Mirage Initial Study

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RESIDENTIAL SUITES: NORTH ELEVATION



RESIDENTIAL SUITES: NORTH ELEVATION

SOURCE: LCRA 2018

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FIGURE 1-6a

Residences Elevations

Ritz-Carlton Rancho Mirage Initial Study

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SOURCE: LCRA 2018

FIGURE 1-6b

Residences Elevations

Ritz-Carlton Rancho Mirage Initial Study

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ELEVATION - NORTH



ELEVATION - EAST

SOURCE: LCRA 2018

FIGURE 1-7

Sky Mesa Recreation Area Elevations

Ritz-Carlton Rancho Mirage Initial Study

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SOURCE: Urban Crossroads 2020

FIGURE 1-8

Proposed Access and Circulation

Ritz-Carlton Rancho Mirage IS/MND

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SOURCE: Michael McKay 2018

FIGURE 1-9a

Landscape Plan for Residences at Ritz Carlton

Ritz-Carlton Rancho Mirage Initial Study

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SOURCE: LCRA, 2022

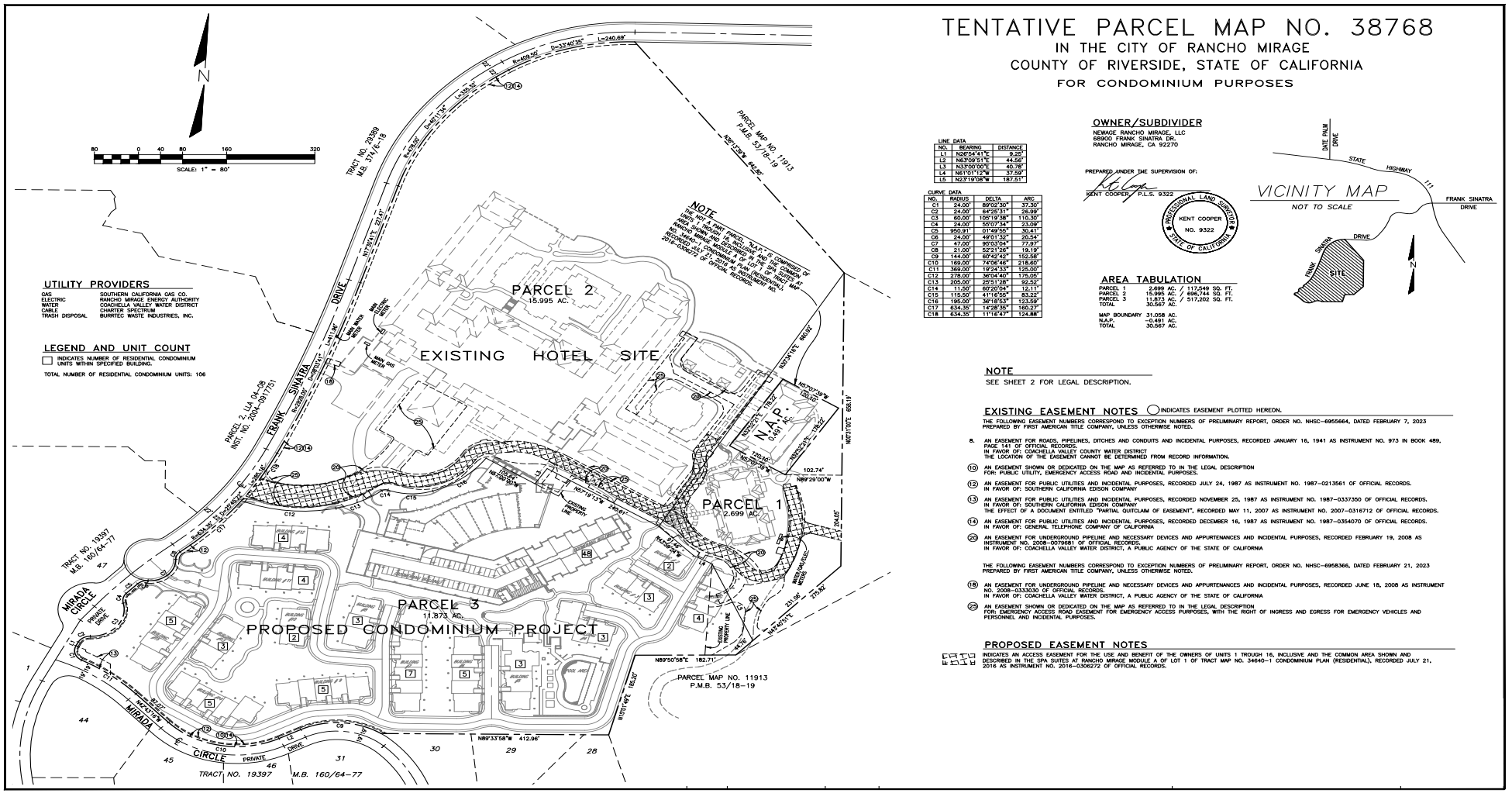
FIGURE 1-9b

Landscape Plan for Sky Mesa Recreational Area

Ritz-Carlton Rancho Mirage Initial Study

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SOURCE: raSmith, 2024

FIGURE 1-10

Tentative Parcel Map

Ritz-Carlton Rancho Mirage Initial Study

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FIGURE 1-11a

Visual Simulation 1 – Rancho Mirage Entrance

Ritz-Carlton Rancho Mirage Initial Study

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FIGURE 1-11b

Visual Simulation 2 – Villas of Mirada (Southern Entrance)

Ritz-Carlton Rancho Mirage Initial Study

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FIGURE 1-11c

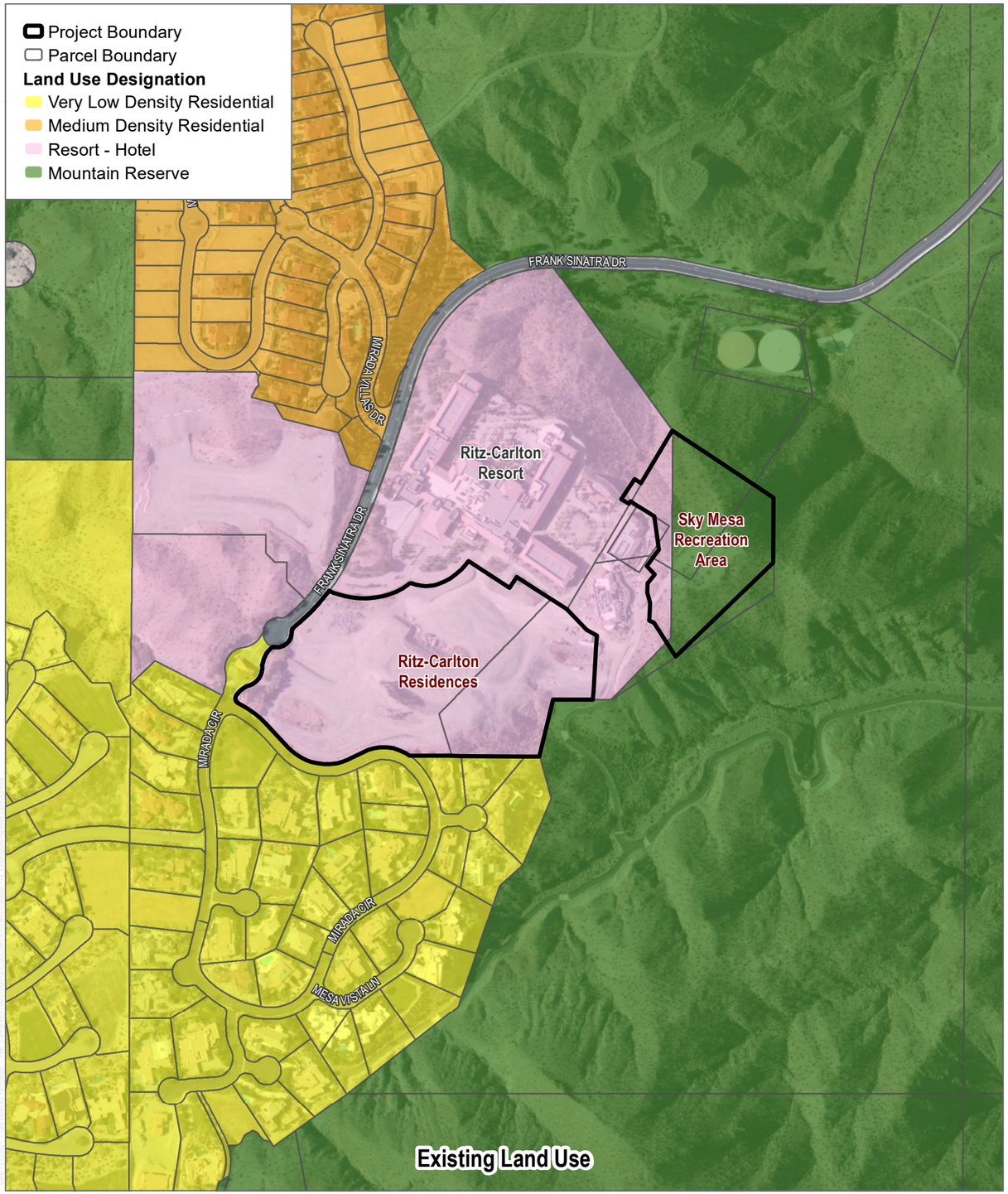
Visual Simulation 3 – Villas of Mirada (Northern Entrance)

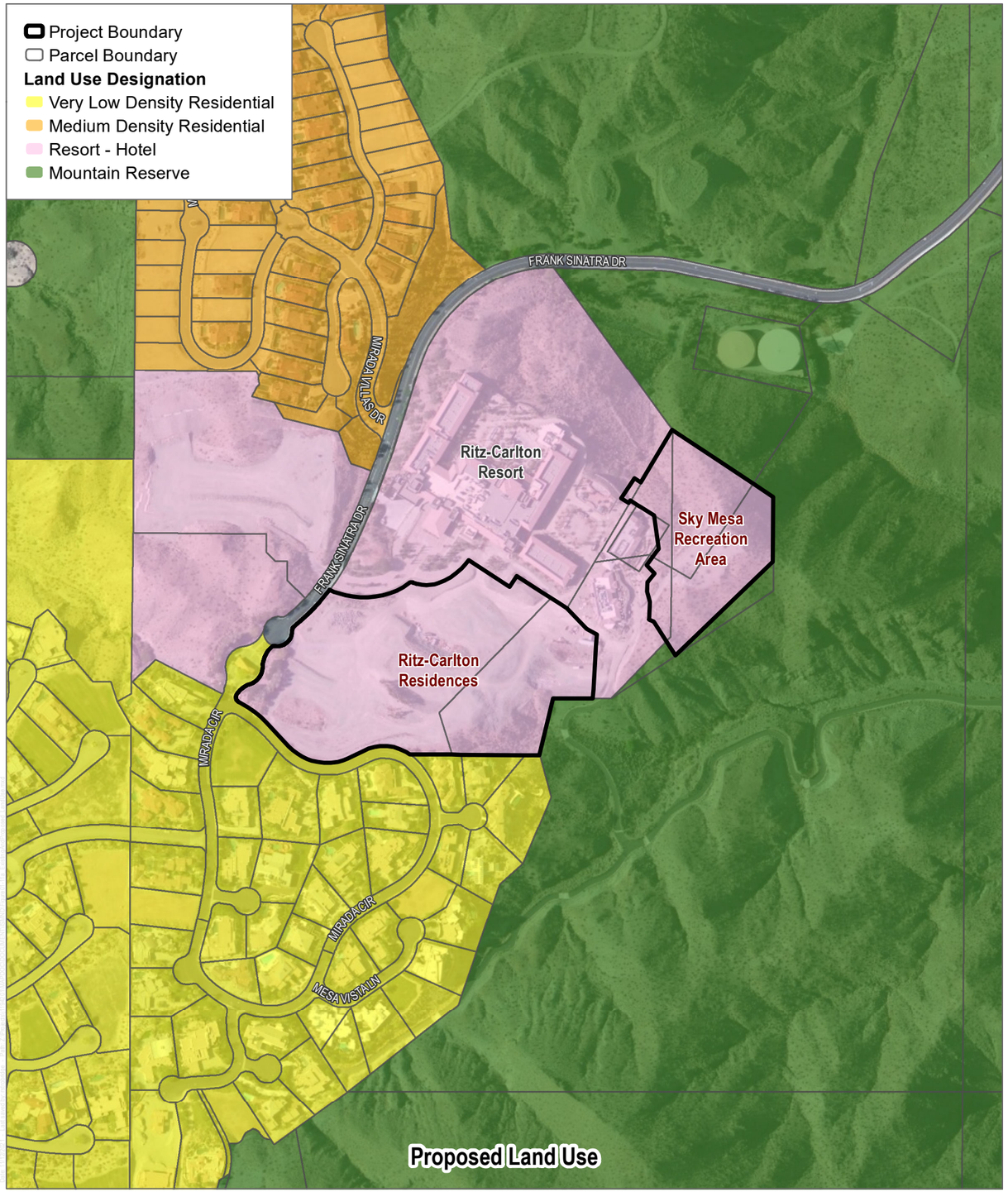
Ritz-Carlton Rancho Mirage Initial Study

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SOURCE: ESRI Clarity Imagery 2019

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0 200 400 Feet

FIGURE 1-12

Existing and Proposed Land Use Designations

Ritz-Carlton Rancho Mirage Initial Study

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CHAPTER 2: ENVIRONMENTAL ANALYSIS AND DETERMINATION
ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☐ Geology and Soils	☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials
☐ Hydrology and Water Quality	☐ Land Use and Planning	☐ Mineral Resources
☒ Noise	☐ Population and Housing	☐ Public Services
☐ Recreation	☒ Transportation	☒ Tribal Cultural Resources
☐ Utilities and Service Systems	☐ Wildfire	☒ Mandatory Findings of Significance

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and

   b) the mitigation measure identified, if any, to reduce the impact to less than significance

DETERMINATION: (To be completed by the Lead Agency) On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Ben Torres, Planning Manager
City of Rancho Mirage

3-01-2024
Date:

Environmental Checklist and Discussion:

The following checklist evaluates the proposed project's potential adverse impacts. For those environmental topics for which a potential adverse impact may exist, a discussion of the existing site environment related to the topic is presented followed by an analysis of the proposed project's potential adverse impacts. When the project does not have any potential for adverse impacts for an environmental topic, the reasons why there are no potential adverse impacts are described.

1. AESTHETICS

AESTHETICS -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

1.1 Setting

For the purposes of this analysis, a scenic vista is defined as a long, expansive view of a highly valued landscape from a publicly accessible vantage point. "Highly valued landscapes" can include natural open spaces, topographic formations including mountains or hills, or more generally, areas that

contribute to a high level of visual quality. The City of Rancho Mirage's General Plan has identified view corridors along State Route (SR-) 111.

The proposed project consists of developing 48 residential suites and 58 hotel villas encompassing approximately 200,474-square feet, approximately 23,840-square feet of event space, approximately 6,273-square feet of commercial, and approximately 5,510-square feet of amenity space at 68900 Frank Sinatra Drive. As discussed in the Project Description, the proposed project also includes 58 proposed hotel villas with private garages across 15 buildings (Buildings B-1 to B-15) to the south and east of Building A-1. The hotel villas would be 2 stories with a maximum height of 32-feet, 4-inches and building elevations are shown on Figures 1-6a and 1-6b. The proposed Sky Mesa Recreational Area would construct an event space, a restaurant and bathroom facility built into the natural hillside, a pool and a large lawn event space. The heights of the structures would not substantially differ as the existing buildings are of similar heights.

The proposed Ritz-Carlton Residences site is located south of the existing hotel, north of a gated residential community, and southeast of another gated residential community (Figure 1-2). Additionally, there is a trail adjacent to the gated residential community to the northwest of the project site (Road Runner Trail). The proposed Ritz-Carlton Residences site is graded and is sparsely occupied by small vegetation and storage containers. The proposed Sky Mesa Recreational Area is located east of the existing hotel (Figure 1-2). The proposed Sky Mesa Recreational Area is largely graded atop a hillside and dotted with chaparral vegetation.

1.2 Discussion of Impacts

a) ***Less-than-Significant Impact:*** The City of Rancho Mirage General Plan (City of Rancho Mirage 2017) Land Use Element policy states that "the City shall ensure adequate visibility and accessibility for commercial development while preserving the scenic viewsheds from adjoining properties and public rights-of-way" (Policy LU 2.5).

The proposed project is located off of Frank Sinatra Drive, a public right-of-way, which includes views of the Santa Rosa Mountains to the north and southeast. The proposed project occurs to the east/southeast of Frank Sinatra Drive and therefore there is no impact to views to the north. The views of the mountains to the southeast include the existing Mirada single-family residential development which is situated at an elevation approximately 30-feet higher than the proposed project entrance. The proposed buildings are designed to meet the building height and setback regulations as required by the City of Rancho Mirage Zoning Ordinance, as discussed in Threshold 2(c).

Three renderings of the proposed project are presented in Figures 1-11a–c. Locations of the proposed project renderings are also presented in Figures 1-11a-c. The three renderings include renderings of two entrances to the Villas of Mirada (one on the North side of the site and one to the South; Figure 1-11b and 1-11c, respectively) and a rendering from the perspective from the entrance to the proposed development (Figure 1-11a). These three perspectives are generally the only locations along Frank Sinatra Drive in which a motorist could see the proposed project from a public vantage point. The terrain is such that it blocks the project up until the proposed project entrance. Figure 1-11c of the north end of Frank Sinatra Drive is the first location in which the project site can be seen by motorist.

A rendering at the entrance to the project site along Frank Sinatra Drive is presented in Figure 1-11a. Views of the rendering includes multiple palm trees and desert landscaping along the entrance.

Beyond the entrance are multiple buildings that are color blocked with neutral cream or tan color exterior. The buildings are two stories tall and would be surrounded by landscaping. A rendering from the perspective of the southern entrance to the Villas of Mirada (a gated residential neighborhood) shows the proposed buildings of similar designs as previously described (Figure 1-11b). Landscaping along the streets would not change, and low dense landscaping can be seen along the proposed development. A rendering from the perspective of the northern entrance of the Villas of Mirada shows the proposed development just beyond the view of the existing hotel. The proposed Sky Mesa Recreational Area cannot be seen from any of the three perspective locations as specified in Figures 1-11a through 1-11c.

There would be minimal visibility of the proposed development from Highway 111. A brief view of existing hotel buildings can be seen peaking over the hillside, although the majority of the proposed buildings would not be seen from Highway 111 due to mountains and elevation. Visibility of the existing hotel can be seen from the parking lot of a car wash directly adjacent to Highway 111 and Frank Sinatra Drive. Even from the parking lot of the aforementioned car wash, the proposed development cannot be seen. The proposed development cannot be seen until motorists arrive at the northern entrance of Villas of Mirada (Figure 1-11c).

As the existing topography increases to the southeast the views will not be obstructed by the proposed project and the impact to scenic vistas from the public right-of-way will be less than significant.

The City's General Plan Community Design Element (City of Rancho Mirage 2017) includes the goal of preservation and promotion of the special identity of Rancho Mirage as an "Oasis in the Desert," combining quality development with scenic, natural, and open space amenities. Exhibit 32 in the Community Design Element shows designated view corridors. The view corridors potentially within the potential project vicinity are looking northwest/southeasterly along both Highway 111 and the Whitewater River. The Community Design Element also addresses scenic arterial roadways which include Bob Hope Drive, Highway 111, Monterey Avenue, and Da Vall Drive.

The proposed project is not visible from the designated view corridors as it is located to the west over the Santa Rosa Mountains. Additionally, the proposed project is located off of Frank Sinatra Drive which is not considered a scenic roadway (City of Rancho Mirage 2017). Therefore, impacts to scenic vistas regarding view corridors would be **less than significant**.

b) ***No Impact:*** The project site is located off of Frank Sinatra Drive, which is not considered a scenic highway (City of Rancho Mirage 2017). Additionally, the project site has been previously graded and contains no scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings. Therefore, there would be **no impact**.

c) ***Less-than-Significant Impact:*** Per CEQA Statute 21071(a)(2), and urbanized area is defined as "an incorporated city that has a population of less than 100,000 persons …and not more than two contiguous incorporated cities combined equals at least 100,000 persons." The combined populations of Rancho Mirage, Cathedral City, and Palm Springs exceed 100,000 persons, and therefore Rancho Mirage is considered an urbanized area under CEQA (SCAG 2019a, b, c).

In accordance with the City's Zoning Ordinance, the proposed project would comply with all applicable city design standards to protect scenic viewsheds. The project proposes buildings of varying heights with a maximum building height of 33-feet, 6-inches, with the exception of

the entrance to the venue space in Building A-1 (with a height of 39 -feet and 3 inches) and the entrance to the underground parking structure (with a height of 47- feet). Table 2-5 in Section 17.10.20 of the City's Municipal Code identifies the development standards for setbacks and building height in the Rs-H zone, with additional height requirements outlined in Section 17.20.100. As part of the development plan application and project mapping progresses, the applicant would comply with the City's Municipal Code building height requirements with respect to the finished grade and setback requirements along the property line. The proposed event space would be located closest to the existing hotel, with the residential villas proposed between the hotel/event space and neighboring residential to the south. The proposed residential villas would be located at varying finished grades which would provide a variation in rooflines. The residential villas would be set back from surrounding properties by an internal landscaping buffer and internal driveways. Project design would provide a transition between the existing hotel use/proposed event space and the existing residential to the south in compliance with the development standards of the City's Municipal Code.

Additionally, the project site is currently zoned Resort Hotel (Rs-H) and Open Space: Mountain Reserve (MR) in the General Plan (City of Rancho Mirage 2017). The proposed hotel suites and villas are located on the Rs-H zoned property; with the concurrently proposed zoning amendment for the Sky Mesa Recreation Area, the proposed uses would also be located on an Rs-H zoned parcel. Therefore, the project would be consistent with the General Plan designation. Furthermore, the project site is not located within a scenic overlay zone. As described in Response 1(a) above, the proposed buildings will comply with building height and setback regulations and there would be **less than significant impact** regarding existing views and scenic quality from the public right-of-way will not be impacted.

d) ***Less-than-Significant Impact:*** The residential suites, hotel villas, and sky mesa uses would include outdoor lighting. While this is a new source of light, existing hotel and the surrounding Mirada residential development already contains night-lighting. All lighting would comply with City of Rancho Mirage Municipal Code Section 17.18.050 (City of Rancho Mirage 2002) for shielding to control glare and prevent light spillover onto adjacent areas. The proposed project would have a **less-than-significant impact** on day or nighttime views related to light or glare.

1.3 Mitigation Measures

No mitigation measures required.

2. AGRICULTURE AND FORESTRY RESOURCES

AGRICULTURE AND FORESTRY RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of forest land, timberland, or timberland zoned Timberland Production?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

2.1 Setting

The project site is situated on all or portions of Assessor parcel numbers 689-330-026, -28, -32 which have a General Plan Land Use designation of Commercial: Resort Hotel (Rs-H) and on parcels 689-020-012, -14 carrying an Open Space: Mountain Reserve (MR) designation.

According to the City of Rancho Mirage's 2005 General Plan Update EIR (City of Rancho Mirage 2005), there is no farming activity in the City and no agricultural land uses in the General Plan. Furthermore, the 2017 Rancho Mirage General Plan Update Addendum (2017 Addendum) states that agricultural lands are still not present in the City.

2.2 Discussion of Impacts

a) ***No Impact:*** According to the California Department of Conservation's Important Farmland Finder, the project site is located in Urban and Built-Up Land and Other Land. Urban and Build-Up Land is described as areas occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to 10-acre parcels (DOC 2016). Other Land is described as land not included in any other mapping category, with common examples including low density rural developments, brush, timber, etc. (DOC 2016).

As previously discussed, there is no farming activity in the City and no agricultural land uses in the General Plan. Additionally, the 2005 General Plan EIR, which analyzed the entirely of the City, determined that agricultural resource impacts would be considered less than significant. Furthermore, the 2017 Addendum to the General Plan EIR would not facilitate any conversion of agriculturally zoned lane. Therefore, this threshold is not addressed.

As such, the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use, and **no impact** would occur.

b) ***No Impact***: The Residences at Ritz Carlton portion of the project site is designated as Resort Hotel (Rs-H), and the Sky Mesa Recreational Area of the project site is designated as an Open Space: Mountain Reserve (MR) zone according to the City's Land Use Map (City of Rancho Mirage 2017). The Rs-H designation is zoned for commercial uses and the MR designation is zoned for open space preserve space (City of Rancho Mirage 2013). Neither of the designations support agricultural uses. As such, development of the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract. **No impacts** would occur.

c) ***No Impact:*** The Residences at Ritz Carlton portion of the project site is designated as Resort Hotel (Rs-H), and the Sky Mesa Recreational Area of the project site is designated as an Open Space: Mountain Reserve (MR) zone according to the City's Land Use Map (City of Rancho Mirage 2017). The project site is not currently designated as or used for forestry resources. Therefore, the proposed project would not conflict with existing zoning for forest land or timberland, and **no impact** would occur.

d) ***No Impact:*** See response to Threshold 2(c). The proposed project would not result in the loss of forest land or conversion of forest land to non-forest use, and therefore **no impacts** would occur.

e) ***No Impact:*** See response to Threshold 2(c). The proposed project would not result in the direct or indirect conversion of agricultural uses or forest land, and **no impact** would occur.

2.3 Mitigation Measures

No mitigation measures required.

Intentionally left blank

3. AIR QUALITY

AIR QUALITY – Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

3.1 Setting

This section is based upon the Air Quality and Greenhouse Gas Technical Report prepared by Dudek (Appendix A). Background and methodologies regarding the air quality analysis can be found in Appendix A.

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. A detailed discussion of each pollutant of concern are presented in Appendix A.

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the National Ambient Air Quality Standards (NAAQS) to the states. In California, the task of air quality management and regulation has been legislatively granted to the California Air Resources Board (CARB), with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 3-1, Ambient Air Quality Standards.

Table 3-1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[s]	***Primary[c,d]***	***Secondary[c,e]***
O_3	1 hour	0.09 ppm (180 µg/m³)	—	Same as primary standard[f]
	8 hours	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	Same as primary standard
	Annual arithmetic mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 µg/m³)
	24 hours	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 µg/m³	150 µg/m³	Same as primary standard
	Annual arithmetic mean	20 µg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 µg/m³	Same as primary standard

Table 3-1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[s]	***Primary[c,d]***	***Secondary[c,e]***
	Annual arithmetic mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
Lead[j,k]	30-day average	1.5 µg/m³	—	—
	Calendar quarter	—	1.5 µg/m³ (for certain areas)[k]	Same as primary standard
	Rolling 3-month average	—	0.15 µg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 µg/m³)	—	—
Sulfates	24- hours	25 µg/m³	—	—
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: Appendix A.
Notes: O_3 = ozone; ppm = parts per million by volume; µg/m³ = micrograms per cubic meter; NO_2 = nitrogen dioxide; CO = carbon monoxide; mg/m³= milligrams per cubic meter; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; PST = Pacific Standard Time.

[a] California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National primary standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[g] To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare

the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

h On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

i On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

j CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

k The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses). The South Coast Air Quality Management District (SCAQMD) identifies sensitive receptors as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993). Residential land uses are located to the south of the project site. The closest off-site sensitive receptors to the project site include residences located approximately 25 meters (82 feet) south of the proposed project's limits of construction.

Toxic Air Contaminants (TACs)

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. In 1987, the Legislature enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) to address public concern over the release of TACs into the atmosphere. AB 2588 law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment (HRA), and if specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive diesel risk reduction plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. There are several Airborne Toxic Control Measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

Regional and Local Air Quality Conditions

Coachella Valley Portion of the Salton Sea Air Basin Attainment Designation

Pursuant to the 1990 federal Clean Air Act amendments, the U.S. Environmental Protection Agency (EPA) classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. Table 3-2, Coachella Valley Portions of the Salton Sea Air Basin Attainment Classification, depicts the current attainment status of the project site with respect to the NAAQS and CAAQS.

Table 3-2. Coachella Valley Portion of the Salton Sea Air Basin Attainment Classification

Pollutant	Designation/Classification	
	Federal Standards	***State Standards***
Ozone (O_3) – 1 hour	No federal standard	**Nonattainment**
Ozone (O_3) – 8 hour	**Severe nonattainment**	**Nonattainment**
Nitrogen dioxide (NO_2)	Unclassifiable/attainment	Attainment
Carbon monoxide (CO)	Unclassifiable/attainment	Attainment
Sulfur dioxide (SO_2)	Unclassifiable/attainment	Attainment
Coarse particulate matter (PM_{10})	**Serious nonattainment**	**Nonattainment**
Fine particulate matter ($PM_{2.5}$)	Unclassifiable/attainment	Attainment
Lead (Pb)	Unclassifiable/attainment	Attainment
Hydrogen sulfide	No federal standard	Unclassified
Sulfates	No federal standard	Attainment

Table 3-2. Coachella Valley Portion of the Salton Sea Air Basin Attainment Classification

Pollutant	Designation/Classification	
	Federal Standards	***State Standards***
Visibility-reducing particles	No federal standard	Unclassified
Vinyl chloride	No federal standard	No designation

Source: Appendix A
Notes: Bold text = not in attainment; attainment = meets the standards; attainment/maintenance = achieve the standards after a nonattainment designation; nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify; unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

In summary, the Salton Sea Air Basin (SSAB), which is where the project site is located, is designated as a nonattainment area for federal and state O_3 standards and federal and state PM_{10} standards. The SSAB is designated as an attainment area for federal and state CO, $PM_{2.5}$, NO_2, and SO_2 standards.

Despite the current nonattainment status, air quality within the SSAB has generally improved since the inception of air pollutant monitoring in 1976. This improvement is mainly due to lower-polluting on-road motor vehicles, more stringent regulation of industrial sources, and the implementation of emission reduction strategies by SCAQMD. This trend toward cleaner air has occurred in spite of continued population growth. Despite this growth, air quality has improved significantly over the years, primarily due to the impacts of the region's air quality control program. PM_{10} levels have declined almost 50% since 1990, and $PM_{2.5}$ levels have also declined 50% since measurements began in 1999 (SCAQMD 2013). Similar improvements are observed with O_3, although the rate of O_3 decline has slowed in recent years.

Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. SCAQMD monitors local ambient air quality in the region of the project site. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2017 to 2019 are presented in Table 3-3, Local Ambient Air Quality Data. The Palm Springs monitoring station, located at 590 Racquet Club Road, Palm Springs, California, is the nearest air quality monitoring station to the project site, located approximately 12.6 miles northwest of the project site. The data collected at this station are considered representative of the air quality experienced in the proposed project vicinity. Air quality data for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$ from the Palm Springs monitoring station are provided in Table 3-3, Local Ambient Air Quality Data. Because SO_2 measurements are not monitored at the Palm Springs monitoring station, the measurements were taken from the Rubidoux monitoring station (1588 Mission Boulevard, Rubidoux, California, approximately 69 miles northwest of the project site). The number of days exceeding the ambient air quality standards is also shown in Table 3-3, Local Ambient Air Quality Data.

Table 3-3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2017	*2018*	*2019*	*2017*	*2018*	*2019*
Ozone (O_3)										
Palm Springs	ppm	Maximum 1-hour concentration	State	0.09	0.113	0.111	0.100	18	11	5
	ppm	Maximum 8-hour concentration	State	0.070	0.097	0.099	0.084	63	58	34
			Federal	0.070	0.097	0.099	0.085	57	56	39
Nitrogen Dioxide (NO_2)										
Palm Springs	ppm	Maximum 1-hour concentration	State	0.18	0.043	0.043	0.041	0	0	0
			Federal	0.100	0.043	0.043	0.041	0	0	0
	ppm	Annual concentration	State	0.030	0.007	0.007	0.00726	0	0	0
			Federal	0.053	0.0065	0.0068	0.00726	0	0	0
Carbon Monoxide (CO)										
Palm Springs	ppm	Maximum 1-hour concentration	State	20	1	1.1	1.3	0	0	0
			Federal	35	1	1.1	1.3	0	0	0
	ppm	Maximum 8-hour concentration	State	9.0	0.4	0.8	0.7	0	0	0
			Federal	9	0.4	0.8	0.7	0	0	0
Sulfur Dioxide (SO_2)										
Rubidoux	ppm	Maximum 1-hour concentration	Federal	0.075	0.0025	0.0017	0.0018	0	0	0
	ppm	Maximum 24-hour concentration	Federal	0.14	0.0012	0.0009	0.0009	0	0	0

Table 3-3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2017	*2018*	*2019*	*2017*	*2018*	*2019*
	ppm	Annual concentration	Federal	0.030	0.00029	0.00045	0.00042	0	0	0
Coarse Particulate Matter (PM_{10})[b]										
Palm Springs	µg/m³	Maximum 24-hour concentration	State	50	60.5	37.4	51.8	--	0	6
			Federal	150	105.6	422.3	75.6	0	2	0
	µg/m³	Annual concentration	State	20	ND	20.1	19.9	--	--	--
Fine Particulate Matter ($PM_{2.5}$)[b]										
Palm Springs	µg/m³	Maximum 24-hour concentration	Federal	35	14.5	30.2	15.5	0	0	0
	µg/m³	Annual concentration	State	12	6.0	6.0	6.0	--	--	--
			Federal	12.0	6.0	6.0	6.0	--	--	--

Sources: Appendix A.
Notes: ppm = parts per million by volume; ND = insufficient data available to determine the value; -- = not available; µg/m³ = micrograms per cubic meter. Data taken from CARB iADAM (CARB 2020) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.
Exceedances of federal and state standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour ozone, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

[a] Mean does not satisfy minimum data completeness criteria.

[b] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

Air Quality Significance Criteria

The SCAQMD has established Air Quality Significance Thresholds, as revised in March 2023, that set forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality under existing and cumulative conditions. The quantitative air quality analysis provided herein applies the SCAQMD thresholds identified in Table 3-4, SCAQMD Air Quality Significance Thresholds to determine the potential for the proposed project to result in a significant impact under CEQA.

Table 3-4. SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	***Construction (Pounds per Day)***	***Operation (Pounds per Day)***
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3
TACs and Odor Thresholds		
TACs[b]	Maximum incremental cancer risk ≥ 10 in 1 million Chronic and acute hazard index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO_{2eq} for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants[c]		
NO_2 1-hour average NO_2 annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.030 ppm (state) and 0.0534 ppm (federal)	
CO 1-hour average CO 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
PM_{10} 24-hour average PM_{10} annual average	10.4 µg/m^3 (construction)[d] 2.5 µg/m^3 (operation) 1.0 µg/m^3	
$PM_{2.5}$ 24-hour average	10.4 µg/m^3 (construction)[d] 2.5 µg/m^3 (operation)	
SO_2 1-hour average SO_2 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m3 (state)	

Table 3-4. SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	***Construction (Pounds per Day)***	***Operation (Pounds per Day)***
Lead 30-day average Lead Rolling 3-month average	1.5 µg/m3 (state) 0.15 µg/m3 (federal)	

Source: Appendix A. (SCAQMD 2023).
Notes: SCAQMD = South Coast Air Quality Management District; VOC = volatile organic compounds; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; TAC = toxic air contaminant; NO_2 = nitrogen dioxide; ppm = parts per million by volume; $\mu g/m^3$ = micrograms per cubic meter.
GHG emissions thresholds for industrial projects, as added in the March 2015 revision to the SCAQMD Air Quality Significance Thresholds, were not include included in Table 4 as they are addressed within the GHG emissions analysis and not the air quality study.
For Coachella Valley, the mass daily thresholds for operations are the same as the construction thresholds.
[a] The phaseout of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.
[b] TACs include carcinogens and noncarcinogens.
[c] Ambient air quality standards for criteria pollutants are based on SCAQMD Rule 1303, Table A-2, unless otherwise stated.
[d] Ambient air quality threshold are based on SCAQMD Rule 403.

3.2 Discussion of Impacts

a) ***Less-than-Significant Impact:*** The project site is located in the City of Rancho Mirage within the South Coast Air Basin (SCAB), which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County, and is within the jurisdictional boundaries of the South Coast Air Quality Management District (SCAQMD).

The SCAQMD administers the SCAB's Air Quality Management Plan (AQMP), which is a comprehensive document outlining an air pollution control program for attaining the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS).

The 2022 AQMP was adopted on December 2, 2022, and was developed to address the 2015 national ozone standard. The 2022 AQMP provides the regional path towards improving air quality and meeting federal standards for air pollutants. The 2022 AQMP builds upon measures already in place from previous AQMPs. It also includes a variety of additional strategies such as regulation, accelerated deployment of available cleaner technologies (e.g., zero emissions technologies, when cost-effective and feasible, and low NO_x technologies in other applications), best management practices, co-benefits from existing programs (e.g., climate and energy efficiency), incentives, and other Clean Air Act measures to achieve the 2015 federal ozone standard. The 2022 AQMP provides actions, strategies and steps needed to reduce air pollution emissions and meet ozone standards by 2037 (SCAQMD 2022).

The purpose of a consistency finding with regard to the AQMP is to determine if a project is consistent with the assumptions and objectives of the regional air quality plans, and if it would interfere with the region's ability to comply with federal and state air quality standards. The SCAQMD has established criteria for determining consistency with the currently applicable AQMP in Chapter 12, Sections 12.2 and 12.3 of the SCAQMD CEQA Air Quality Handbook. These criteria are as follows (SCAQMD 1993):

To address the first criterion, project-generated criteria air pollutant emissions have been estimated and analyzed for significance and are addressed under Section 3.3(b). Detailed results of this analysis are included in Appendix A. As presented in Section 3(b), construction and operation of the proposed project would not generate criteria air pollutant emissions that exceed the SCAQMD's thresholds, and it would therefore be consistent with Criterion No. 1.

The second criterion regarding the potential of the proposed project to exceed the assumptions in the AQMP or increments based on the year of project buildout and phase is primarily assessed by determining consistency between the proposed project's land use designations and its potential to generate population growth. In general, projects are considered consistent with, and not in conflict with or obstruct implementation of, the Air Quality Management Plan (AQMP) if the growth they produce in socioeconomic factors is consistent with the underlying regional plans used to develop the AQMP (SCAQMD 1993). The SCAQMD primarily uses demographic growth forecasts for various socioeconomic categories (e.g., population, housing, and employment by industry) developed by the Southern California Association of Governments (SCAG) for its 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (2020 RTP/SCS, also known as Connect SoCal) (SCAG 2020). SCAQMD uses this document, which is based on general plans for cities and counties in the SCAB, to develop the AQMP emissions inventory.[2] The SCAG RTP/SCS, and associated Regional Growth Forecast, are generally consistent with the local plans; therefore, the 2022 AQMP is generally consistent with local government plans. SCAG has developed Connect SoCal, the 2020-2045 RTP/SCS, which is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. Connect SoCal charts a path toward a more mobile, sustainable and prosperous region by making connections between transportation networks, between planning strategies and between the people whose collaboration can improve the quality of life for Southern Californians. Connect SoCal embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura. Connect SoCal was adopted by the regional council on September 3, 2020.

[2] Information necessary to produce the emissions inventory for the SCAB is obtained from the SCAQMD and other governmental agencies, including the California Air Resources Board, Caltrans, and SCAG. Each of these agencies is responsible for collecting data (e.g., industry growth factors, socioeconomic projections, travel activity levels, emission factors, emission speciation profile, and emissions) and developing methodologies (e.g., model and demographic forecast improvements) required to generate a comprehensive emissions inventory. SCAG incorporates these data into its Travel Demand Model for estimating/projecting vehicle miles traveled and driving speeds. SCAG's socioeconomic and transportation activities projections in their *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* are integrated in the 2022 AQMP (SCAQMD 2022).

As discussed in Section 11, Land Use and Planning, of this Initial Study, the project site is currently zoned Resort Hotel (Rs-H) and Open Space: Mountain Reserve (MR) in the General Plan (City of Rancho Mirage 2017). The proposed hotel suites and villas are located on the Rs-H zoned property and therefore consistent with the General Plan designation. This designation allows for the development of hotels and destination resorts with limited, ancillary commercial uses, such as spas, recreational facilities, restaurants, lounges, and small retail shops that directly support the primary use. The Sky Mesa is located on the MR zoned portion of the project site which is assigned to public lands or property subject to conservation easements in the Santa Rosa Mountains. Uses are limited to recreational activities, such as hiking or equestrian and non-motorized bike trails and facilities consistent with the need to protect sensitive biological resources. Vehicular access is not permitted in this designation. Under existing conditions, the Sky Mesa portion of the project would conflict with the underlying land use designations. However, as part of the proposed project, the applicant is proposing an amendment to the City's General Plan that would expand the Resort Hotel (Rs-H) designation and zoning to encompass the Sky Mesa portion of the site, which is a privately owned property and not public land.

Per the description of allowable uses for Rs-H outlined above, the Sky Mesa Recreation Area would be consistent with Rs-H zone. With future approval and adoption of the zone change by City Council, the proposed project would not conflict with the City's General Plan with regard to allowable land uses.

As discussed in Section 14, Population and Housing, of this Initial Study, SCAG reported the City's population to be 18,739 persons as of 2018 (SCAG 2019a). In 2018 the City had a total of 14,492 housing units, and in 2017 the City had a total of 16,902 jobs (SCAG 2019a). By 2040, SCAG projected the City to have a population of 25,000 persons and 20,500 jobs (SCAG 2016). According to the City of Rancho Mirage's General Plan – Housing Element (City of Rancho Mirage 2017), the 2014 - 2021 Regional Housing Needs Allocation (RHNA) determined that the City needed a total of 95 housing units. The proposed project would construct 106 residential units. However, these residential units would operate similar to time-share properties and therefore future residents would not be in the proposed residential units year-round. Because the proposed residential units are not typical residential units that residents cannot occupy year-round, theses housing units do not count towards the RHNA housing unit determination. SCAG's Local Profile Report for the City of Rancho Mirage indicated that the City's average household size was two persons per dwelling unit as of 2018 (SCAG 2019a). Using these assumptions, implementation of the proposed project would have the potential to increase the City's population by 216 persons. This population increase would comply with SCAG's projected population increase for the City. Accordingly, the proposed project is consistent with the SCAG RTP/SCS forecasts used in the SCAQMD AQMP development.

In summary, based on the considerations presented for the two criteria, impacts relating to the proposed project's potential to conflict with or obstruct implementation of the applicable AQMP would be **less than significant**.

b) ***Less-than-Significant Impact:*** Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SCAQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are used

in the determination of whether a project's individual emissions would have a cumulatively considerable contribution on air quality. If a project's emissions would exceed the SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.

A quantitative analysis was conducted to determine whether proposed construction activities would result in a cumulatively considerable net increase in emissions of criteria air pollutants for which the South Coast Air Basin (SCAB) is designated as nonattainment under the NAAQS or CAAQS. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated herein include volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), which are important because they are precursors to O_3, as well as CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$.

Regarding NAAQS and CAAQS attainment status,[3] the SCAB is designated as a nonattainment area for national and California O_3 and $PM_{2.5}$ standards. The SCAB is designated as a nonattainment area for California PM_{10} standards; however, it is designated as an attainment area for national PM_{10} standards. The SCAB nonattainment status of O_3, PM_{10}, and $PM_{2.5}$ standards is the result of cumulative emissions from various sources of air pollutants and their precursors within the SCAB, including motor vehicles, off-road equipment, and commercial and industrial facilities. The SCAB is designated as an attainment area for national and California NO_2, CO, and SO_2 standards. Although the SCAB has been designated as partial nonattainment (Los Angeles County) for the federal rolling 3-month average lead standard, it is designated attainment for the state lead standard.[4]

The proposed project would result in emissions of criteria air pollutants for which CARB and U.S. Environmental Protection Agency (EPA) have adopted ambient air quality standards (i.e., the NAAQS and CAAQS). Projects that emit these pollutants have the potential to cause, or contribute to, violations of these standards. The SCAQMD CEQA Air Quality Significance Thresholds (refer to Table 3-4), as revised in April 2019, set forth quantitative emission significance thresholds for criteria air pollutants, which, if exceeded, would indicate the potential for a project to contribute to violations of the NAAQS or CAAQS.

A proposed project would result in a substantial contribution to an existing air quality violation of the NAAQS or CAAQS for O_3, which is a nonattainment pollutant, if the proposed project's construction or operational emissions would exceed the SCAQMD VOC or NO_x thresholds

[3] An area is designated as in attainment when it is in compliance with the NAAQS and/or the CAAQS. The NAAQS and CAAQS are set by the Environmental Protection Agency (EPA) and California Air Resources Board (CARB), respectively, for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare. Attainment = meets the standards; attainment/maintenance = achieve the standards after a nonattainment designation; nonattainment = does not meet the standards.

[4] Re-designation of the lead NAAQS designation to attainment for the Los Angeles County portion of the SCAB is expected based on current monitoring data. The phase out of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

shown in Table 3-4. These emission-based thresholds for O_3 precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur) because O_3 itself is not emitted directly, and the effects of an individual project's emissions of O_3 precursors (VOCs and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

The following discussion quantitatively evaluates project-generated emissions and impacts that would result from implementation of the proposed project.

Construction Emissions

Construction of the proposed project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance, VOC off-gassing from architectural coatings and asphalt pavement application) and off-site sources (e.g., vendor trucks, haul trucks, and worker vehicle trips). Specifically, entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Internal combustion engines used by construction equipment, haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$. Construction emissions can vary substantially from day to day depending on the level of activity; the specific type of operation; and, for dust, the prevailing weather conditions.

Application of architectural coatings, such as exterior paint and other finishes, and application of asphalt pavement would also produce VOC emissions. VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers used during construction of the facility. CalEEMod calculates the VOC evaporative emissions from application of surface coatings based on the VOC emissions factor, the building square footage, and the assumed fraction of surface area. No-VOC paint, defined as paint with a VOC content of 5 grams/liter or less is proposed for the project.

The proposed project would be required to comply with SCAQMD Rule 403 to control dust emissions generated during any dust-generating activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active dust areas up to two times per day, depending on weather conditions. Rule 403.1 is a supplemental rule to Rule 403 and is applicable to man-made sources of fugitive dust in Coachella Valley. Rule 403.1 requires a Fugitive Dust Control Plan approved by South Coast AQMD or an authorized local government agency prior to initiating any construction/ earth-moving activity. These requirements are only applicable to construction projects with 5,000 or more square feet of surface area disturbance and therefore applicable to the proposed project.

Emissions from the construction phase of the proposed project were estimated using the California Emissions Estimator Model (CalEEMod) version 2020.04.0. For a conservative emission estimation, construction is assumed to begin in February 2023 and conclude in November 2024. In the event actual construction proceeds longer than this assumption, this analysis provides a conservative approach resulting in slightly higher daily emissions and annual emissions. While February 2023 has already passed, assuming the earliest start date and duration for construction represents the worst-case scenario for criteria air pollutant and GHG emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-

duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years. Therefore, despite the fact that the construction schedule used for modeling has previously passed, given it represents the worst-case scenario, the analysis is still valid. Construction is expected to last 22 months. A detailed depiction of expected construction schedules—including information regarding phasing, equipment used during each phase, trucks, and worker vehicles—is provided in Appendix A. General construction equipment modeling assumptions are provided in Table 3-5, Construction Scenario Assumptions. The applicant provided project specific values for equipment mix for all construction phase. Equipment horsepower, and load factors were based on CalEEMod defaults. The project site is currently vacant and site preparation included clearing and grubbing has previously been performed and as such is not part of this analysis.

During the grading phase of construction, it is anticipated that approximately 6,920 cubic yards of material would be exported, and no material would be imported. For the analysis, it was generally assumed that heavy-duty construction equipment would be operating at the site 5 days per week. Detailed construction equipment modeling assumptions are provided in Appendix A.

Table 3-5. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment			Modeled Schedule	
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Types*	*Quantity*	*Usage Hours*	*Start Date*	*Finish Date*
Grading	10	8	692	Graders	1	8	2/1/2023	3/21/2023
				Rubber-Tired Dozers	1	8		
				Tractors/Loaders/ Backhoes	2	8		
				Scrapers	2	8		
				Excavator	2	8		
Building Construction	50	46	60	Cranes	1	7	3/22/2023	8/20/2024
				Forklifts	3	8		
				Generator Sets	1	8		
				Tractors/Loaders/ Backhoes	3	7		
				Welders	1	8		
Paving	20	20	197	Pavers	2	8	8/21/2024	9/17/2024
				Paving Equipment	2	8		
				Rollers	2	8		
Architectural Coating / Finish Phase	70	60	380	Air Compressors	1	6	9/18/2024	10/15/2024

Notes: See Appendix A for details. Two one-way trips will be assumed per worker, per haul truck, and per vendor truck.

Table 3-6, Estimated Maximum Daily Construction Criteria Air Pollutant Emissions – Unmitigated, shows the estimated maximum daily construction emissions associated with the construction phase of the proposed project.

Table 3-6. Estimated Maximum Daily Construction Emissions – Unmitigated

Year	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	pounds per day					
2023	3.39	35.53	28.73	0.07	4.10	2.05
2024	6.15	30.88	40.98	0.10	4.50	2.03
Maximum Daily Emissions	**6.15**	**35.53**	**40.98**	**0.10**	**4.50**	**2.05**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Noted Threshold exceeded?	No	No	No	No	No	No

Source: SCAQMD 2019.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
See Appendix A for detailed results.
[a] These estimates reflect control of fugitive dust required by SCAQMD Rule 403, specifically, watering of active site areas two times per day.

As shown in Table 3-6, Estimated Maximum Daily Construction Emissions – Unmitigated, daily construction emissions would not exceed the SCAQMD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during project construction. Therefore, construction impacts of the proposed project would be **less than significant**, and no mitigation measures are required.

Operational Emissions

Operation of the proposed project would produce VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions associated with vehicular traffic, area sources (consumer products, architectural coatings, landscaping equipment), energy sources (natural gas, appliances, and space and water heating), and stationary sources (emergency generator). CalEEMod was used to estimate daily emissions from these operational sources including modelling the emissions of a 1,200-horsepower (hp) diesel-fired emergency generator based on 1-hour per day and 50-hours per year of operation per SCAQMD Rule 1470, which limits emergency generators to 50-hours of use per year for maintenance and testing. CalEEMod default emission factors were used for the proposed generator, corresponding with the install dates.

On-road vehicular emissions associated with the proposed project operation were modeled using trip generation rates for the Ritz-Carlton residences, Sky Mesa Restaurant, and weekend special events at the proposed project venue space estimated by Urban Crossroads. The venue space was modeled in CalEEMod as an arena. Additional modeled land uses include the parking garage with elevator, swimming pools, driveway parking and paved roads. Emissions from energy sources also include natural gas combustion for appliances and space and water heating. CalEEMod defaults were also used for area sources (landscape maintenance equipment, consumer products, and architectural coatings for maintenance of buildings).

Table 3-7, Estimated Maximum Daily Operational Emissions, summarizes the maximum daily area, energy, mobile, and stationary (emergency generator) emissions of criteria pollutants that would be generated by the development of the proposed project and how emissions compare to the SCAQMD thresholds of significance. As shown, the increase in all criteria pollutants is below SCAQMD thresholds. The values shown are the maximum summer or winter daily emissions (i.e., foreseeable worst case) results from CalEEMod. Details of the emission calculations are provided in Appendix A.

Table 3-7. Estimated Maximum Daily Operational Emissions

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	(pounds per day)					
Proposed Project						
Area	3.23	0.10	8.80	<0.01	0.05	0.05
Energy	0.13	1.12	0.77	0.01	0.09	0.09
Mobile	5.29	7.37	52.23	0.12	12.46	3.39
Stationary	1.97	8.81	5.02	0.01	0.29	0.30
Total	**10.62**	**17.40**	**66.82**	**0.14**	**12.89**	**3.83**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Source: Appendix A.
Notes: VOC = volatile organic compound; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; PM10 = coarse particulate matter; PM2.5 = fine particulate matter.
Area sources = consumer product use, architectural coatings, and landscape maintenance equipment. Energy sources = natural gas. Mobile sources = motor vehicles. Stationary sources = emergency generator. See Appendix A for detailed results. The values shown are the maximum summer or winter daily emissions results from CalEEMod.

As shown in Table 3-7, Estimated Maximum Daily Operational Emissions, the increase in emissions associated with the operation of the proposed project would not exceed the SCAQMD thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$.

As previously discussed, the SCAB has been designated as a federal nonattainment area for O_3 and $PM_{2.5}$, and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. Construction and operational activities of the proposed project would generate VOC and NO_x emissions (precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. However, as indicated in Tables 3-6 and 3-7, project-generated emissions would not exceed the SCAQMD emission-based significance thresholds for VOCs, NOx, PM_{10}, or $PM_{2.5}$, and therefore the proposed project would not cause a cumulatively significant impact.

Cumulative localized impacts would potentially occur if a project were to occur concurrently with another off-site project. Schedules for potential future projects near the proposed project area are currently unknown; therefore, potential impacts associated with two or more simultaneous projects would be considered speculative.[5] However, future projects would be subject to CEQA and would require an air quality analysis and, where necessary, mitigation.

[5] The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145).

Criteria air pollutant emissions associated with construction activity of future projects would also be reduced through implementation of control measures required by the SCAQMD. Cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced because all future projects would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all sites in the SCAQMD. In addition, cumulative VOC emissions would be subject to SCAQMD Rule 1113 (Architectural Coatings).

Therefore, the proposed project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants, and impacts would be **less than significant** during construction and operation. No mitigation is required.

c) ***Less-than-Significant Impact:*** Localized project impacts associated with construction criteria air pollutants emissions are assessed below and were determined to be less than significant. Sensitive receptors are discussed in detail in Section 3.1.2, Sensitive Receptors.

Localized Significance Thresholds

A localized significance threshold (LST) analysis was performed to evaluate localized air quality impacts to sensitive receptors in the immediate vicinity of the project site as a result of project activities. The impacts were analyzed using methods consistent with those in the SCAQMD's Final Localized Significance Threshold Methodology (2008). The project site is located within Source-Receptor Area 30 (Coachella Valley).

The greatest on-site daily emissions of NOx, CO, PM_{10}, and $PM_{2.5}$ generated during construction occurred during the grading period of the project construction. Based on the construction schedule, it was assumed that one grader, one rubber tired dozer, two scrappers and two crawler tractors (CalEEMod category: tractor/loader/backhoes) would be used based on the applicant provided construction equipment schedule. CalEEMod default values assume that during an 8-hour day, graders, rubber tired dozers and crawler tractors can each disturb a maximum of 0.5 acres and scrapers each disturb one acre. This results in a total of four acres disturbed per day from the equipment. The SCAQMD LST values for 2 acres and 5 acres within Source–Receptor Area 30, with a nearby receptor distance of 25 meters (82 feet), were used to interpolate values for the proposed project's 4-acre disturbance per day.

Project construction activities would result in temporary sources of on-site criteria air pollutant emissions associated with construction equipment exhaust and dust-generating activities. According to the Final Localized Significance Threshold Methodology, "off-site mobile emissions from the proposed project should not be included in the emissions compared to the LSTs" (SCAQMD 2008). Trucks and worker trips associated with the proposed project are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways since emissions would be relatively brief in nature and would cease once the vehicles pass through the main streets. Therefore, off-site emissions from trucks and worker vehicle trips are not included in the LST analysis. For the on-site portions of operation of trucks and worker vehicles, trips were limited to 1,000 feet (assumed on-site distance). The maximum daily on-site construction emissions generated during construction of the proposed project is presented in Table 3-8, Construction Localized Significance Thresholds Analysis, and compared to the SCAQMD localized significance criteria for Source–Receptor Area 30 to determine whether project-generated on-site construction emissions would result in potential LST impacts.

Table 3-8. Construction Localized Significance Thresholds Analysis

Year	NO_2	CO	PM_{10}	$PM_{2.5}$
	pounds per day (on site)			
2023	34.76	28.30	3.77	1.95
2024	26.29	34.86	1.20	1.09
Maximum Daily On Site Emissions	**34.76**	**34.86**	**3.77**	**1.95**
SCAQMD LST Criteria	*266.33*	*1,961.00*	*11.67*	*7.00*
Threshold Exceeded?	No	No	No	No

Source: Appendix A.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
See Appendix A for detailed results.
Localized significance thresholds are shown for a 4-acre project site and a distance of 25 meters (82 feet) to the nearest sensitive receptor.

As shown in Table 3-8, proposed construction activities would not generate emissions in excess of site-specific LSTs. Furthermore, in compliance with Program AQ 1.1C, described in the City's General Plan, the City will coordinate with developers and encourage the phasing and staging of development to assure the lowest construction related pollutant emission levels practical and impose mitigation measures, including the use of water trucks and temporary irrigation systems, as well as other measures that will effectively limit fugitive dust emissions resulting from construction or other site disturbance. Therefore, localized project construction impacts would be **less than significant**. No mitigation is required.

CO Hotspots

Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed federal and/or state standards for CO are termed CO "hotspots." CO transport is extremely limited and disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting sensitive receptors. Typically, high CO concentrations are associated with severely congested intersections operating at an unacceptable level of service (LOS) (LOS E or worse is unacceptable). Projects contributing to adverse traffic impacts may result in the formation of a CO hotspot. Additional analysis of CO hotspot impacts would be conducted if a project would result in a significant impact or contribute to an adverse traffic impact at a signalized intersection that would potentially subject sensitive receptors to CO hotspots.

The Code of Federal Regulations (CFR) Procedures for Determining Localized CO, PM_{10}, and $PM_{2.5}$ Concentrations (hot-spot analysis), states that "CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities, which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established 'Guideline' methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site" (40 CFR 93.123(c)(5)). While project construction would involve on-road vehicle trips from trucks and workers during construction, construction activities are considered temporary. As a result, the proposed construction activities would not require a project-level construction hotspot analysis.

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. To verify that the project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted. The traffic impact study for the proposed project, which is included in this Initial Study as Appendix F, and Section 17 of this Initial Study evaluated whether there would be a decrease in the level of service (LOS) (i.e., increased congestion) at the intersections affected by the proposed project. The potential for CO hotspots was evaluated based on the results of the traffic impact study. The California Department of Transportation Institute of Transportation Studies Transportation Project-Level Carbon Monoxide Protocol (CO Protocol; Caltrans 2010) was followed for this analysis. CO hotspots are typically evaluated when (1) the LOS of an intersection decreases to LOS E or worse; (2) signalization and/or channelization is added to an intersection; and (3) sensitive receptors such as residences, schools, and hospitals are located in the vicinity of the affected intersection or roadway segment.

The proposed project's traffic impact study evaluated 3 intersections including Frank Sinatra Drive and Dwy, 1, Frank Sinatra Drive and Dwy, 2, and Hwy 111 and Frank Sinatra Drive. As determined by the traffic impact study, the addition of the proposed project traffic to study area intersections did not result in deficient intersection LOS operations. Therefore, further analysis is not required. Accordingly, the proposed project would not generate traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots. In addition, due to continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SCAB is steadily decreasing. Based on these considerations, the proposed project would result in a **less-than-significant impact** to air quality with regard to potential CO hotspots. No mitigation is required.

Toxic Air Contaminants

Toxic air contaminants (TACs) are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. As discussed under the LST analysis, the nearest sensitive receptors are single family residential dwellings adjacent and south of the project site.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SCAQMD recommends an incremental cancer risk threshold of 10 in 1 million. "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period will contract cancer based on the use of standard Office of Environmental Health Hazard Assessment (OEHHA) risk-assessment methodology (OEHHA 2015). In addition, some TACs have non-carcinogenic effects. The SCAQMD recommends a Hazard Index of 1 or more for acute (short-term) and chronic (long-term) non-carcinogenic effects.[6] TACs that would potentially be emitted during construction activities associated with development of the proposed project would be diesel particulate matter.

Diesel particulate matter emissions would be emitted from heavy equipment operations and heavy-duty trucks. Heavy-duty construction equipment is subject to a California Air Resources Board (CARB) Airborne Toxics Control Measure for in-use diesel construction equipment to reduce

[6] Non-cancer adverse health risks are measured against a hazard index, which is defined as the ratio of the predicted incremental exposure concentrations of the various non-carcinogens from the project to published reference exposure levels that can cause adverse health effects.

diesel particulate emissions. As described for the LST analysis, PM_{10} (representative of diesel particulate matter) exposure would be minimal. According to the OEHHA, health risk assessments (which determine the exposure of sensitive receptors to toxic emissions) should be based on a 30-year exposure period for the maximally exposed individual resident. However, such assessments should also be limited to the period/duration of activities associated with the proposed project. The duration of the proposed construction activities would constitute a small percentage of the total 30-year exposure period. The construction period for the proposed project would be approximately 22 months, after which construction-related TAC emissions would cease. Due to this relatively short period of exposure and minimal particulate emissions on site, TACs generated during construction would not be expected to result in concentrations causing significant health risks.

Following completion of on-site construction activities, the proposed project would not involve routine operational activities that would generate TAC emissions other than intermittent maintenance and testing of the natural diesel-fired emergency generator, which would be limited to 50 hours per year. SCAQMD Rule 1470 limits operation of emergency generators to 50 hours per year for maintenance and testing). Due to this relatively short period of exposure, small engine size of the emergency generator (1,200 hp), and minimal on-site particulate emissions from other sources, TACs generated during operation would not result in concentrations causing significant health risks as demonstrated through SCAQMD' Risk Assessment Tool for Rule 1401 and 212, (Version 8.1). The Risk Assessment Tool, a spreadsheet program, was used to perform a screening level evaluation of the cancer and non-cancer health effects of the emergency generator emissions pursuant to Rule 1401, see Appendix A for program results. As shown in Appendix A, the emergency generator passes Tier II Maximum Individual Cancer Risk (MICR).

For the reasons described above, the proposed project would not result in substantial TAC exposure to sensitive receptors in the vicinity of the proposed project, and impacts would be **less than significant**. No mitigation is required.

Health Effects of Criteria Air Pollutants

Construction of the proposed project would generate criteria air pollutant emissions; however, the project would not exceed the SCAQMD mass-emission thresholds.

Health effects associated with O_3 include respiratory symptoms, worsening of lung disease leading to premature death, and damage to lung tissue. VOCs and NO_x are precursors to O_3, for which the SCAB is designated as nonattainment with respect to the NAAQS and CAAQS. Thus, existing O_3 levels in the SCAB are at unhealthy levels during certain periods. Because the project would not involve construction or operational activities that would result project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

Exposure to NO_2 and NO_x can irritate the lungs, cause bronchitis and pneumonia, lower resistance to respiratory infections, and enhance allergic responses. Project construction and operation would not exceed the SCAQMD NO_x threshold, and existing ambient NO_2 concentrations are below the NAAQS and CAAQS. Thus, implementation of the project is not expected to exceed the NO_2 standards or contribute to associated health effects.

Health effects associated with CO include chest pain in patients with heart disease, headache, light-headedness, and reduced mental alertness. CO tends to be a localized impact associated with congested intersections. CO hotspots were discussed previously as a less than significant impact. Thus, the proposed project's CO emissions would not contribute to the health effects associated with this pollutant.

Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing (EPA 2016). The SCAB is designated as nonattainment for PM_{10} under the CAAQS and nonattainment for $PM_{2.5}$ under the NAAQS and CAAQS. Implementation of the proposed project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the SCAQMD's thresholds. Accordingly, the proposed project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for these pollutants. Impacts would be less than significant. No mitigation is required.

In summary, the proposed project would not result in a potentially significant contribution to regional concentrations of non-attainment pollutants and would not result in a significant contribution to the adverse health effects associated with those pollutants. Impacts would be **less than significant**. No mitigation is required.

d) ***Less-than-Significant Impact:*** The occurrence and severity of potential odor impacts depend on numerous factors. The nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying, cause distress among the public, and generate citizen complaints.

During construction of the proposed project, exhaust from equipment may produce discernible odors typical of most construction sites. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. However, such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Accordingly, impacts associated with odors during construction would be less than significant.

SCAQMD provides a list of land uses associated with odor concerns, which include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The proposed project includes operation of hotel facilities, and restaurant spaces, which are not anticipated to generate odors and does not result in operation of the types of land uses listed in SCAQMD's screening criteria. For the reasons described above, proposed project construction and operation would result in an odor impact that would be **less than significant**. No mitigation is required.

3.3 Mitigation Measures

No mitigation is required.

4. BIOLOGICAL RESOURCES

BIOLOGICAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐

BIOLOGICAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☐

4.1 Setting

This section is partially based upon the Biological Resources Report prepared by Dudek for the Sky Mesa Recreation portion of the project (Appendix B). As the Residences portion of the project site has been analyzed for potential impacts to biological resources as part of the 2006 EIR and subsequently cleared and graded, it is only briefly discussed in this section.

The Residences Area of the project site is vacant and has been extensively graded. The surrounding areas to the east and north are also disturbed, developed urban areas. Surveys conducted in 2006 for the Residences portion indicated that sensitive species known to occur in the area include the Coachella desert snail, chuckwalla, and the Peninsular bighorn sheep (City of Rancho Mirage 2006). The project site is located within the Coachella Valley's Multiple Species Habitat Conservation Plan (CVMSHCP) area of interest, and the Santa Rosa and San Jacinto Mountains Conservation Area is located just south of the project's proposed Sky Mesa Recreational Area (CVMSHCP 2016).

The Sky Mesa Recreation Area is vacant, with a portion that has been partially graded and the remaining areas containing native desert vegetation along steep slopes. A total of six vegetation communities and land cover types occur within the study area based on general physiognomy and species composition. Four vegetation communities were mapped and include brittle bush scrub, creosote bush – brittle bush scrub, fountain grass swards, and tamarisk thickets, and two land covers (disturbed habitat and urban/developed) occur within the Sky Mesa Recreation Area.

4.2 Discussion of Impacts

a) ***Less-than-Significant Impact with Mitigation Incorporated***. The proposed Residence Area of the project site has been extensively graded and is not likely support any candidate, sensitive, or special status species (City of Rancho Mirage 2006).

No federally or state-listed plant species have a potential to occur within the proposed Sky Mesa Recreation Area of the project site. There are no special-status plant species with a moderate or high potential to occur. No listed or non-listed special-status wildlife species were incidentally observed during the June 2021 biological survey. One federally and state-listed species has a moderate potential to occur within the study area: Peninsular bighorn sheep. Peninsular bighorn sheep is covered under the CVMSHCP. One non-listed species has a moderate potential to occur within the project site: red diamondback rattlesnake. Red diamondback rattlesnake is not covered under the CVMSHCP.

Birds

One non-listed special-status species, burrowing owl, has a low potential to occur within the flatter portions of the proposed Sky Mesa Recreation Area site. This species is covered by the CVMSHCP; therefore, the project would implement **MM-BIO-1,** which would ensure consistency with the CVMSHCP, by including payment of the CVMSHCP development mitigation fee. Additionally, **MM-BIO-2** would be implemented and would require adherence to the Land Use Adjacency Guidelines to ensure there would be no significant impacts to this special-status wildlife species. This species is also protected under the Migratory Bird Treaty Act and California Fish and Game Code Section 3516, which protect nesting birds. Additionally, project construction could result in direct and indirect impacts to nesting birds, including the loss of nests, eggs, and fledglings if ground-disturbing activities occur during the nesting season (generally February 15 through August 31). Construction activities during this time may result in reduced reproductive success and may violate the federal Migratory Bird Treaty Act and California Fish and Game Code. If construction (including any ground-disturbing activities) occurs during the nesting season, a nesting bird survey must be conducted by a qualified biologist prior to grading activities and impacts to nests must be avoided. As such, implementation of **MM-BIO-3**, which requires a pre-construction nesting bird survey, and **MM-BIO-4**, which requires a pre-construction survey for burrowing owls, would be required to reduce potential impacts to less than significant.

Reptiles

One special-status reptile has a moderate potential to occur within the Sky Mesa Recreation Area of the project site: red diamondback rattlesnake. This species is not covered by the CVMSHCP, and impacts could be potentially significant. Due to the amount of adjacent and nearby habitat, loss of fragmented habitat is considered less than significant. However, direct impacts could occur through crushing of individuals during grading, entombment of burrowing species, and removal of habitat.

Most reptile species exhibit a "flight" response to disturbance, resulting in temporary displacement, or if disturbance is constant, permanent displacement. The project contains suitable habitat (i.e., desert scrub and rocky conditions) that may be impacted as a result of project implementation; however, suitable habitat will be available adjacent to the affected region, and individuals would be expected to move away from construction activities. Entombment of individuals would be avoided through implementation of **MM-BIO-5**, which would include covering open trenches. With implementation of **MM-BIO-5,** direct impacts to the few individuals that may be harmed by construction activities would be less than significant.

Potential indirect impacts to red diamondback rattlesnake would be limited to short-term impacts from construction activities and could result from fugitive dust that can degrade habitat and result in health implications for wildlife species; noise and vibration that can stress wildlife species or cause them to leave an area of otherwise suitable habitat; increased human presence, which can also disrupt daily activities of wildlife and cause them to leave an area; and release of chemical pollutants, such as from oil leaks from construction vehicles and machinery. Therefore, indirect impacts to red diamondback rattlesnake could be significant. However, although red diamondback rattlesnake is not covered under the CVMSHCP, the project would be required to implement **MM-BIO-2**, which includes construction best management practices and compliance; therefore, with implementation of **MM-BIO-2,** impacts would be less than significant.

One federally and state-listed threatened species, desert tortoise, has additional requirements under the CVMSHCP. This species is covered by the CVMSHCP; however, according to the USWFS CVMSHCP amended permit (TE-104601-1), permit term and condition no. 45 states for projects located outside of the proposed conservation areas within the 50,272 acres of naturally occurring desert tortoise habitat anticipated to be impacted, the Permittee shall either (1) notify the USFWS 45 days prior to the issuance of a grading permit to allow for the potential salvage of adult tortoises within this notification time period or (2) condition such projects to conduct desert tortoise clearance surveys per the USFWS's protocol. The project site overlaps modeled desert tortoise habitat; however, since it was determined to not support suitable habitat for desert tortoise as discussed in Appendix B, it is recommended that the Permittee notify the USFWS 45 days prior to issuance of a grading permit. Therefore, with implementation of **MM-BIO-1**, **MM-BIO-2,** and **MM-BIO-6**, which requires adherence to the USFWS CVMSHCP amended permit term and condition no. 45, potential impacts to desert tortoise would be reduced to less than significant.

Mammals

One federally and state-listed species has a moderate potential to occur within the project area: Peninsular bighorn sheep; however, this species is covered under the CVMSHCP. However, with implementation of **MM-BIO-1** and **MM-BIO-2**, impacts would be reduced to a less than significant level.

As such, impacts to candidate, sensitive, or special status species would be **less than significant with mitigation incorporated**.

b) ***Less-than-Significant Impact with Mitigation Incorporated.*** The Residences Area of the project site is vacant and heavily graded. There are no riparian habitat or other sensitive natural communities identified in local or regional plans. The Sky Mesa Recreation Area portion of the project site does not contain any riparian habitat or other sensitive natural community identified by CDFW or USFWS. However, the Sky Mesa Recreation Area portion of the project site includes Sonoran creosote bush scrub, which is a naturally occurring community covered under the CVMSHCP. To comply with the CVMSHCP, development fees will be required to mitigate habitat loss. Therefore, **MM-BIO-1** and **MM-BIO-2** would be implemented to ensure that there would be no significant impacts to special-status vegetation communities. Therefore, impacts would be **less than significant with mitigation incorporated.**

c) ***No Impact.*** The Residences Area portion of the project site has been mass graded and contains no watercourses or natural drainage features. Additionally, the Sky Mesa Recreation Area portion of the project site does not contain any jurisdictional waters. Therefore, **no impacts** associated with federally protected wetlands would occur.

d) ***Less-than-Significant Impact with Mitigation Incorporated.*** According to the City's General Plan – Conservation and Open Space element, the City offers limited opportunities for the preservation of wildlife migration corridors due to the pattern of Santa Rosa Mountains and the Whitewater River (City of Rancho Mirage 2017). The project site does not function as a wildlife corridor and does not support any wildlife nursery sites. Therefore, no impacts associated with wildlife corridors would occur.

Additionally, the project would comply with the federal Migratory Bird Treaty Act with implementation mitigation measure **MM-BIO-3**, which requires pre-construction nesting bird surveys and would reduce potentially significant impacts. Therefore, impacts would be **less than significant with mitigation incorporated**.

e) ***Less-than-Significant Impact with Mitigation Incorporated.*** The City of Rancho Mirage General Plan contains several elements that were established to address potential impacts to biological resources. Specifically, the Conservation and Open Space Element establishes biological resources goals, policies, and programs that address potential impacts to candidate, sensitive, or special-status species and their habitats. The City is a Permittee of the CVMSHCP; therefore, compliance with the CVMSHCP provides Permittees with take authorization for covered species for all covered activities, which includes development outside of CVMSHCP conservation areas. Therefore, the project is a covered activity, and compliance with the CVMSHCP would provide take authorization for covered species. Therefore, with implementation of **MM-BIO-1** through **MM-BIO-6**, the project would not conflict with the City of Rancho Mirage General Plan.

In addition, a General Plan Zoning Map Amendment from Mountain Reserve (MR) to Resort Hotel (Rs-H) is concurrently proposed for the proposed Sky Mesa Recreation Area. Under existing conditions, the proposed Sky Mesa project would conflict with the underlying land use designations. However, as part of the proposed project, the applicant is proposing an amendment to the City's General Plan that would expand the Resort Hotel (Rs-H) designation and zoning of the existing Ritz Carlton to encompass the Sky Mesa site. As noted, the MR zone was adopted for the purposed of avoiding or mitigating possible impacts on sensitive biological resources and with implementation and adherence of the above mitigation measures, the project would not conflict with the City of Rancho Mirage General Plan. Therefore, impacts would be **less than significant with mitigation incorporated**.

f) ***Less-than-Significant Impact with Mitigation Incorporated.*** The City of Rancho Mirage is a participant of the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) (CVMSHCP n.d.a.). The CVMSHCP aims to conserve over 240,000 acres of open space and protect 27 plant and animal species, and the City of Rancho Mirage represents approximately 15,760 acres of the area covered by the plan (CVMSHCP n.d.a.; City of Rancho Mirage 2017). As stated in Appendix B, the project site is within the CVMSHCP area. The project site is not located within any CVMSHCP conservation areas; however, it is adjacent to the Santa Rosa and San Jacinto Mountains Conservation Area. A fee is required for all projects located within the CVMSHCP plan area. As such, the proposed project would adhere to **MM-BIO-1** and would pay applicable fees as described in Threshold 4(e). Therefore, impacts to the CVMSHCP are expected to be **less than significant with Mitigation Incorporated**.

4.3 Mitigation Measures

MM-BIO-1 **Coachella Valley Multiple Species Habitat Conservation Plan Fee Payment.** As a signatory to the Coachella Valley Multiple Species Habitat Conservation Plan, the City of Rancho Mirage shall require a local development mitigation fee prior to the issuance of building permits for the proposed use on the project site at the rates applicable at the time of payment of the fee as set forth in the most recent fee schedule. The project

applicant shall be required to provide documentation to the City of Rancho Mirage confirming the payment of the local development mitigation fee.

MM-BIO-2 **Coachella Valley Multiple Species Habitat Conservation Plan Land Use Adjacency Guidelines.** The project applicant shall implement the following Land Use Adjacency Guidelines (Coachella Valley Multiple Species Habitat Conservation Plan [CVMSHCP], Section 4.5) to minimize and avoid indirect effects from development adjacent to conservation areas (i.e., Santa Rosa and San Jacinto Mountains Conservation Area), where applicable:

- **Drainage**: Proposed Development adjacent to or within a Conservation Area shall incorporate plans to ensure that the quantity and quality of runoff discharged to the adjacent Conservation Area is not altered in an adverse way when compared with existing conditions. Stormwater systems shall be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials, or other elements that might degrade or harm biological resources or ecosystem processes within the adjacent Conservation Area.
- **Toxics**: Land uses proposed adjacent to or within a Conservation Area that use chemicals or generate bioproducts such as manure that are potentially toxic or may adversely affect wildlife and plant species, habitat, or water quality shall incorporate measures to ensure that application of such chemicals does not result in any discharge to the adjacent Conservation Area.
- **Lighting**: For proposed development adjacent to or within a Conservation Area, lighting shall be shielded and directed toward the developed area. Landscape shielding or other appropriate methods shall be incorporated in project designs to minimize the effects of lighting adjacent to or within the adjacent Conservation Area in accordance with the guidelines to be included in the Implementation Manual.
- **Noise**: Proposed development adjacent to or within a Conservation Area that generates noise in excess of 75 A-weighted decibels sound equivalent level hourly shall incorporate setbacks, berms, or walls, as appropriate, to minimize the effects of noise on the adjacent Conservation Area in accordance with the guidelines to be included in the Implementation Manual.
- **Invasives**: Invasive, non-native plant species shall not be incorporated in the landscape for land uses adjacent to or within a Conservation Area. Landscape treatments within or adjacent to a Conservation Area shall incorporate native plant materials to the maximum extent feasible; recommended native species are listed in Table 4-112 [CVMSHCP, Section 4.5.5]. The plants listed in Table 4-113 shall not be used within or adjacent to a Conservation Area. This list may be amended from time to time through a Minor Amendment with Wildlife Agency Concurrence.
- **Barriers**: Land uses adjacent to or within a Conservation Area shall incorporate barriers in individual project designs to minimize unauthorized public access, domestic animal predation, illegal trespass, or dumping in a Conservation Area. Such barriers may include native landscaping, rocks/boulders, fencing, walls and/or signage.

- **Grading/Land Development**: Manufactured slopes associated with site development shall not extend into adjacent land in a Conservation Area.

MM-BIO-3 **Nesting Birds**. To maintain compliance with the Migratory Bird Treaty Act and California Fish and Game Code, if ground-disturbing and/or vegetation clearance activities are scheduled to occur during the avian nesting season (typically February 15 through August 31), a qualified biologist shall conduct a pre-construction nesting bird survey within the project impact footprint and a 500-foot buffer where legal access is granted around the disturbance footprint. Surveys shall be conducted within 3 days prior to initiation of ground-disturbing activities.

If an active nest is detected during the nesting bird survey, avoidance buffers shall be implemented as determined by a qualified biologist (typically 300 feet for passerines and 500 feet for raptors and special-status species). The buffer shall be of a distance to ensure avoidance of adverse effects to the nesting bird by accounting for topography, ambient conditions, species, nest location, and activity type. All nests shall be monitored as determined by the qualified biologist until nestlings have fledged and dispersed or it is confirmed that the nest has been unsuccessful or abandoned. The qualified biologist shall halt all construction activities within proximity to an active nest if it is determined that the activities are harassing the nest and may result in nest abandonment or take. The qualified biologist shall also have the authority to require implementation of avoidance measures related to noise, vibration, or light pollution if indirect impacts are resulting in harassment of the nest.

MM-BIO-4 **Burrowing Owl**. Pre-construction surveys for burrowing owls shall be completed within areas of suitable habitat (i.e., flatter portions of the site) in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012), with the first survey no less than 14 days prior to initiation of project-related activities, and the second within 24 hours of project-related activities. If an active burrowing owl burrow is detected within 500 feet of the impact footprint, avoidance and minimization measures shall be implemented in accordance with the *Staff Report on Burrowing Owl Mitigation* guidelines or agreed upon by the California Department of Fish and Wildlife, including implementation of a non-disturbance buffer and monitoring of the nest to ensure activities are not adversely affecting the nest. If the project will occur within this zone, then work must occur outside the nesting season, or until it can be shown that the birds have finished nesting, at which point passive relocation may occur.

MM-BIO-5 **General Avoidance and Minimization Measures**. The following avoidance and minimization measures shall be implemented during project construction activities:

- To prevent inadvertent entrapment of special-status wildlife during construction, all excavated steep-walled holes or trenches more than 2 feet deep shall be covered with plywood or similar materials at the close of each working day, or be provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped wildlife. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape.

MM-BIO-6 **Desert Tortoise.** Because the project is located outside of a Conservation Area but within the 50,272 acres of naturally occurring desert tortoise habitat anticipated to be impacted under the Coachella Valley Multiple Species Habitat Conservation Plan, the project applicant shall notify the U.S. Fish and Wildlife Service 45 days prior to the issuance of a grading permit to allow for the potential salvage of adult tortoises within this notification time period.

5. CULTURAL RESOURCES

CULTURAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

5.1 Setting

The Residences at Ritz Carlton portion of the project site was previously included in a cultural resources survey completed by CRM TECH in 2006. The 2006 study consisted of a historical/archaeological resources records search, historical background research, Native American consultation, and a systematic field survey. The records search determined that a segment of a prehistoric trail has been recorded in 1979 as extending into the 39-acre area covered in the 2006 study, however a field survey revealed that the segment of the original trail was no longer extant. The 2006 study concluded that there were no cultural resources in the area surveyed, and no evidence of archaeological deposits were found during the monitoring program.

An updated historical/archaeological resources survey was prepared by CRM TECH on September of 2019. The 2019 study includes a survey and analysis on both the proposed Residences at Ritz Carlton and Sky Mesa Recreational Area, updates to the 2006 records search and the historical background research, further consultation with Native American representatives, and a systematic field survey at intensive and reconnaissance levels as appropriate. This section is based upon the 2019 Historical/Archaeological Resources Survey (cultural report) prepared by CRM TECH in September 2019. The cultural report is included as Appendix C to this Initial Study. Background and methodologies regarding the cultural resources analysis are found in Appendix C.

5.2 Discussion of Impacts

a) ***Less-than-Significant Impact***: CRM TECH historian Terri Jacquemain, M.A., conducted historical background research for the project site. Historic maps indicated that there were no man-made features present in or near the project site. The earliest man-made features known to be present within the proposed project boundaries were a leveled pad on a hilltop in the eastern portion of the proposed project area and part of a winding dirt road leading to it, both of which were first

noted in 1972.

The western portion of the project site received limited disturbance until 2006 – 2007, when the ground surface in the entire area was cleared and graded. As a result, all preexisting features in that portion of the project site, including a segment of dirt road, where obliterated. To date, however, the property has remained undeveloped and was used only for materials stockpiling, construction staging, and occasional parking. In the eastern portion, the dirt road and the leveled pad observed in 1972 have been the only notable man-made features known to exist.

CRM TECH archaeologist Nina Gallardo, B.A., conducted a records search update on June of 2019 at the Eastern Information Center (EIC), University of California – Riverside. No historic resources were found within the project site. The records search results indicated that 69 historic-period sites have been recorded within a 1-mile radius of the project site. However, the proposed project is not anticipated to impact these resources because of their distance from the site.

CRM TECH archaeologist Daniel Ballester, M.S., conducted a field survey on June and September of 2019. The field survey encountered no potential "historical resources" within or adjacent to the proposed project boundaries.

No historical resources exist within or adjacent to the proposed project area. Therefore, the proposed project will not cause a substantial adverse change to any known historical resources and impacts would be **less than significant**.

b) ***Less-than-Significant Impact with Mitigation Incorporated:*** CRM TECH archaeologist Nina Gallardo, B.A., conducted a records search update on June of 2019 at the Eastern Information Center (EIC), University of California – Riverside. The results indicated that no further studies have occurred in the current proposed project area since 2007, and no cultural resources have been identified on the property. A total of 38 cultural resources studies were found within a 1-mile radius of the project site.

CRM TECH archaeologist Daniel Ballester, M.S., conducted a field survey at the western and eastern portions of the proposed project area. In the western portion of the site, grading activities leveled the majority of the land and removed bedrock outcrops. In the eastern portion, the slopes beyond the leveled hilltops retain the area's native landscape with some bedrock boulders. The badly exfoliating boulders suggest that it would be poor material for use as milling surfaces by the Native people or for preservation of any evidence of such use.

On June 21 and September 6, 2019, CRM TECH archaeologist Daniel Ballester, M.S., carried out the field survey of the western and eastern portions of the proposed project area, respectively. In light of the extensive past ground disturbance, the western portion was surveyed at a reconnaissance level by walking a series of parallel north-south transects at 25-meter (approximately 75-foot) intervals. The less disturbed eastern portion, including the area not covered by the 2006-2007 studies, was surveyed at an intensive level by walking along parallel north-south transects at five-meter (approximately 15-foot) intervals in the relatively level areas and along the contours on the slopes.

Using these methods, the ground surface of the entire proposed project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic period (i.e., 50 years or older). Ground visibility was excellent (90%-100%)

due to the lack of any substantial vegetation growth in either portion of the proposed project area (Appendix C). In addition, bedrock outcrops on the slopes in the eastern portion of the property were closely inspected for any evidence of prehistoric milling features.

The field survey encountered no potential archaeological resources within or adjacent to the proposed project boundaries. In the western portion, past grading of the ground surface has leveled most of the land and removed bedrock outcrops, resulting in a sizable rock pile near the center of the property. In the eastern portion, the slopes beyond the leveled hilltop and the dirt access road retain more of the area's native landscape, with some bedrock boulders exposed naturally on the surface. The badly exfoliating boulders, however, presents a poor material for use as milling surfaces by the Native people or for preservation of any evidence of such use.

Although no archaeological resources were identified as a result of the literature review and field survey, there is a possibility of encountering previously undiscovered archaeological resources at subsurface levels during ground-disturbing activities associated with the proposed project. Implementation of **MM-CUL-1** would ensure that potential impacts to archaeological resources during construction activities to a less than significant level. Therefore, the proposed project would not result in a substantial adverse change in the significance of an archaeological resource and impacts would be **less than significant.**

c) ***Less-than-Significant Impact with Mitigation Incorporated.*** As stated previously, there are no previously recorded cultural resources on the project site. Given the fact that the site has been previously developed, ground-disturbing activities associated with construction of the proposed project are unlikely to uncover previously unknown archaeological resources. In the unlikely event human remains are discovered on-site during construction ground-disturbing activities, implementation of **MM-CUL-2** would set forth proper procedure. Therefore, impacts would be **less than significant.**

5.3 Mitigation Measures

MM-CUL-1 A Qualified Archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, and a Native American monitor shall be present for initial ground-disturbing activities associated with the current proposed project in the event unanticipated discoveries are made. The monitors may stop ground-disturbing activities in order to assess any discoveries in the field.

In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 50 feet of the find shall immediately stop until a Qualified Archaeologist can evaluate the significance of the find and determine whether additional study is warranted. Depending on the significance of the find under the California Environmental Quality Act (CEQA) and the CEQA Guidelines (California Public Resources Code, Section 21082; 14 CCR 15064.5(f)), the Qualified Archaeologist may exhaust the data potential of the find through the process of field level recordation and then allow work to continue. If the discovery proves significant under CEQA, additional work such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.

If Native American cultural resources (i.e., prehistoric or ethnohistoric-period artifacts, food remains, or features associated with Native Americans) are exposed during proposed project-related ground disturbance, the Agua Caliente Band of Cahuilla Indians shall be contacted. This group shall be asked to provide the services of a trained Native American consultant to monitor ground-disturbing work in the area containing the Native American cultural resources. This monitoring would occur on an as-needed basis and would be intended to ensure that Native American concerns are taken into account during the construction process.

MM-CUL-2 If human remains are discovered during construction of the proposed project, California Health and Safety Code, Section 7050.5, states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner shall be contacted. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within two working days of notification of discovery, the appropriate treatment and disposition of the human remains.

Pursuant to California Public Resources Code, Section 5097.98, if the remains are thought to be Native American, the County Coroner will notify the Native American Heritage Commission, which will then notify the most likely descendent. At this time, the person who discovered the remains will contact the City of Rancho Mirage (City) so that they may work with the most likely descendent on the respectful treatment and disposition of the remains. Further provisions of the California Public Resources Code, Section 5097.98, are to be followed as applicable.

6. ENERGY

ENERGY -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

6.1 Setting

This section is based upon the Air Quality and Greenhouse Gas Technical Report prepared by Dudek (Appendix A). Background and methodologies regarding the air quality analysis can be found in Appendix A. The short-term construction and long-term operation of the proposed project will require the consumption of energy resources in several forms at the site and within the proposed project area. An overview of the forms of energy consumption for construction and operation is provided as follows:

Construction Energy Consumption

1. Temporary Direct Electrical Service: Energy Provided by Southern California Edison (SCE).
   - Construction site lighting;
   - Computer equipment; and
   - Temporary construction trailer operation
2. Fossil Fuels (Diesel and Gasoline)
   - Off-road construction equipment
   - Diesel-fired electric generators
   - Worker vehicles, vender trucks, and haul trucks

Operational Energy Consumption

1. Direct electrical Service: Energy Provided by SCE
   - Building heating, ventilation, and air-conditioning (HVAC)
   - Lighting: interior and exterior facilities
   - Swimming pool and water feature operation

- Computer, audio and video equipment; and
- Appliances
- Supply, distribution, and treatment of water, wastewater; and solid waste

2. Fossil Fuels (Diesel, Gasoline, and Natural Gas)
   - Residential vehicles and hotel guests and visitors;
   - Employees, delivery, and customers; and
   - Restaurant and venue employees, delivery, and customers
   - Emergency Generator Maintenance

6.2 Discussion of Impacts

a) ***Less-than-Significant Impact***.

Construction

Electricity

Temporary electric power for as-necessary lightning and electronic equipment (such as computers inside temporary construction trailers) would be provided by SCE. The electricity used for such activities would be temporary and would be substantially less than that required for proposed project operation and would have a negligible contribution to the proposed project's overall energy consumption.

Natural Gas

Natural gas is not anticipated to be required during construction of the proposed project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the "petroleum" subsection. Any minor amounts of natural gas that may be consumed as a result of proposed project construction would be substantially less than required for operation and would have a negligible contribution to the proposed project's overall energy consumption.

Petroleum

Heavy-duty construction equipment associated with construction activities would rely on diesel fuel, as would vendor trucks involved in delivery of materials to the project site. Construction workers would travel to and from the project site throughout the duration of construction. It is assumed in this analysis that construction workers would travel in gasoline-powered light-duty vehicles.

Heavy-duty construction equipment of various types would be used during each phase of proposed project construction. Appendix A lists the assumed equipment usage for each phase of construction. The proposed project's construction equipment is estimated to operate a total combined 35,520 hours.

Fuel consumption from construction equipment was estimated by converting the total carbon dioxide (CO_2) emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel.

The conversion factor for gasoline is 8.78 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton CO_2 per gallon (The Climate Registry 2018). The estimated diesel fuel usage from construction equipment is shown in Table 6-1, Construction Equipment Diesel Demand (Off-Road Equipment).

Table 6-1. Construction Equipment Diesel Demand (Off-Road Equipment)

Phase	Pieces of Equipment	Equipment CO_2 (MT)	kg/CO_2/ Gallon	Gallons
Grading	8	296.87	10.21	29,076.51
Building Construction	9	431.43	10.21	42,255.92
Paving	6	22.21	10.21	2,175.05
Architectural Coating / Finish Phase	1	8.57	10.21	838.92
			Total	**74,346.41**

Sources: Appendix A
Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.

Fuel consumption from worker, vendor, and haul truck trips are estimated by converting the total CO_2 emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Worker vehicles are assumed to be gasoline and vendor/hauling vehicles are assumed to be diesel. Calculations for total worker, vendor, and haul truck fuel consumption are provided in Tables 6-2 (Construction worker Gasoline Demand), 6-3 (Construction Vendor Diesel Demand), and 6-4 (Construction Haul Truck Diesel Demand).

Table 6-2. Construction Worker Gasoline Demand

Phase	Trips	Vehicle MT CO_2	kg/CO_2/ Gallon	Gallons
Grading	1,100	6.10	8.78	694.27
Building Construction	18,550	102.25	8.78	11,645.77
Paving	440	2.40	8.78	273.80
Architectural Coating	4,690	25.62	8.78	2,918.46
			Total	**15,532.31**

Source: Appendix A.
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram.

Table 6-3. Construction Vendor Diesel Demand

Phase	Trips	Vehicle MT CO_2	kg/CO_2/Gallon	Gallons
Trenching	854	8.58	10.21	840.44
Building Construction	17,020	167.34	10.21	16,390.01
Paving	440	4.30	10.21	421.39
Architectural Coating	4,020	39.31	10.21	3,849.97
			Total	**21,501.81**

Source: Appendix A.
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram.

Table 6-4. Construction Haul Truck Diesel Demand

Phase	Trips	Vehicle MT CO_2	kg/CO_2/Gallon	Gallons
Trenching	692	19.30	10.21	1,890.58
Building Construction	60	1.66	10.21	162.18
Paving	197	5.41	10.21	529.44
Architectural Coating	380	10.43	10.21	1,021.25
			Total	**3,603.46**

Source: Appendix A.
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram.

In summary, construction of the proposed project is conservatively anticipated to consume 15,532 gallons of gasoline and 99,452 gallons of diesel over the construction period. By comparison, California's consumption of petroleum is approximately 78.6 million gallons per day. Based on these assumptions, approximately 44.62 billion gallons of petroleum would be consumed in California over the course of the construction period. Therefore, impacts associated during construction would be **less than significant**.

Operation

Electricity

Operation of the proposed project upon buildout would require electricity for multiple purposes, including cooling, lighting, appliances, and various equipment. Additionally, the supply, conveyance, treatment, and distribution of water and wastewater would indirectly result in electricity usage. Electricity consumption associated with proposed project operation is based on CalEEMod outputs presented in Appendix A.

CalEEMod default values for energy consumption for each land use were applied for the proposed project analysis. The proposed project involves residential and non-residential uses. The energy use from non-residential land uses is calculated in CalEEMod based on the

California Commercial End-Use Survey database. For parking lots, CalEEMod includes calculation of energy use from lighting, ventilation and elevators in parking lots and structures and is based on the type of parking lot selected by the user, see CalEEMod outputs presented in Appendix A for all land uses and energy calculations. Energy use in buildings (both natural gas and electricity) is divided by the program into end use categories subject to California Building Standards Code (Title 24) requirements (end uses associated with the building envelope, such as the HVAC system, water heating system, and integrated lighting) and those not subject to California Building Standards Code requirements (such as appliances, electronics, and miscellaneous "plug-in" uses).

Title 24 of the California Code of Regulations serves to enhance and regulate California's building standards. The most recent amendments to Title 24, Part 6, referred to as the 2022 Title 24 updated became effective on January 1, 2023. Although not accounted for in the modeling, energy consumption of the proposed project would also be reduced through installation of high-efficiency lighting. According to these estimations, the proposed project would consume approximately 1,847,175 kilowatt-hours (kWh) per year during operation. For comparison, in 2017 the total residential and non-residential electricity demand in Riverside County was 16,256,705,411 kWh (CEC 2018). Additionally, the Ritz Carlton Rancho Mirage is enrolled in the Rancho Mirage Energy Authority (RMEA). The RMEA supplies power to homes and businesses with an opportunity to opt up to 100% renewable energy. For these reasons, the electricity consumption of the proposed project would not be considered inefficient or wasteful, and impacts would be **less than significant**.

Natural Gas

Project operation would require natural gas for various purposes, including water heating, natural gas appliances and emergency generator routing testing. Natural gas consumption associated with operation is based on the CalEEMod outputs (see Appendix A). According to these estimations, the proposed project would consume approximately 4,273447 kilo-British Thermal Units (kBtu) per year. For comparison, in 2017 the non-residential natural gas use within Riverside County was 39,844,317,732 kBtu (CEC 2018). Since the proposed project would comply with applicable Title 24 requirements the proposed project would not be considered inefficient or wasteful, and impacts would be **less than significant**.

Petroleum

During operations, the majority of fuel consumption resulting from the proposed project would involve the use of motor vehicles traveling to and from the project site including hotel guests, retail and restaurant customers, deliveries, and employees. In addition, fuel would be consumed for the maintenance operations of the emergency.

Petroleum fuel consumption associated with motor vehicles traveling to and from the project site is a function of the vehicle miles traveled (VMT) as a result of proposed project operation. The annual VMT attributable to the proposed project is expected to be 4,593,965 (Appendix A). Similar to the construction worker and vendor trips, fuel consumption from operational trips is estimated by converting the total CO_2 emissions from operation of the proposed project to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Based on the annual fleet mix provided in CalEEMod, 89% of the fleet range from light-duty to medium-duty vehicles

and motorcycles are assumed to run on gasoline. The remaining 11% of vehicles represent medium-heavy duty to heavy-duty vehicles and buses and are assumed to run on diesel.

Calculations for annual mobile source fuel consumption are provided in Tables 6-5, Annual Mobile Source Gasoline Demand, and 6-6, Annual Diesel Demand.

Table 6-5. Annual Mobile Source Gasoline Demand

	Vehicle MT CO_2	kg/CO_2/Gallon	Gallons
Operation	1362.85	8.78	155,222.11

Source: Appendix A.
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram.

Table 6-6. Annual Diesel Demand

Operation	Vehicle MT CO_2	kg/CO_2/Gallon	Gallons
Vehicle	168.96	10.21	16,548.67
Emergency Generator	3,895.00	—	3,895.00
		Total	**20,443.67**

Source: Appendix A.
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram.

Over the lifetime of the proposed project, the fuel efficiency of on-road vehicles of hotel guests, retail and restaurant customers, deliveries, and employees, commuting to the site is expected to increase. As such, the amount of petroleum consumed as a result of vehicular trips to and from the project site during operation would decrease over time. There are numerous regulations in place that require and encourage increased fuel efficiency. For example, the California Air Resources Board (CARB) has adopted an approach to passenger vehicles by combining the control of smog-causing pollutants and greenhouse gas (GHG) emissions into a single, coordinated package of standards. The approach also includes efforts to support and accelerate the number of plug-in hybrids and zero-emissions vehicles in California (CARB 2013). Additionally, in response to Senate Bill 375, CARB adopted the goal of reducing per-capita GHG emissions from 2005 levels by 8% by 2020, and 18% by 2035 for light-duty passenger vehicles in the planning area for the Southern California Association of Governments (SCAG). As such, operation of the proposed project is expected to use decreasing amounts of petroleum over time due to advances in fuel economy.

In summary, although the proposed project would increase petroleum use during operation as a result of residences, restaurant customers, venue attendees, deliveries, and employees commuting to the site, the use would be a fraction of the state- and County-wide use and, due to efficiency increases, would diminish over time. Given these considerations, petroleum consumption associated with the proposed project would not be considered inefficient or wasteful and would result in a **less-than-significant impact**.

b) ***Less-than-Significant Impact.*** Part 6 of Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Part 6 establishes energy efficiency standards for residential and non-residential buildings constructed

in California to reduce energy demand and consumption. Part 6 is updated periodically (every 3 years) to incorporate and consider new energy efficiency technologies and methodologies. Title 24 also includes Part 11, the California Green Building Standards Code (CALGreen). CALGreen institutes mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings, as well as schools and hospitals. The 2022 CALGreen standards became effective on January 1, 2023. The proposed project would meet Title 24 and CALGreen standards to reduce energy demand and increase energy efficiency.

City of Rancho Mirage Energy Action Plan

The City's 2013 Energy Action Plan (ePlan) provides a roadmap of actions within the City's Municipal operations, to help reduce energy consumption, to reduce operation costs and increase energy awareness. The ePlan's goals focuses on three areas: retrofit and expansion of municipal facilities, upgrading the municipal fleet and consideration of municipal programs and actions that will help reduce municipal and community-wide energy use and GHG emissions. The proposed project will not obstruct the City from achieving energy efficiency ePlan goals.

The proposed project would follow applicable energy standards and regulations during construction. In addition, the proposed project would be built and operated in accordance with all existing, applicable regulations at the time of construction. As such, the proposed project would not conflict with existing energy standards and regulations; therefore, impacts during construction and operation of the proposed project would be **less than significant**. No mitigation is required.

6.3 Mitigation Measures

No mitigation measures required.

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7. GEOLOGY AND SOILS

GEOLOGY AND SOILS -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
v) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

GEOLOGY AND SOILS -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

7.1 Setting

This section is based upon the Geotechnical Report prepared by Earth Systems Southwest. The geotechnical report is included as Appendix H to this Initial Study. Background and methodologies regarding the geotechnical analysis are found in Appendix H.

The project site is situated in an area of rugged foothills and canyons near the base of the Santa Rosa Mountains. The area's site topography is generally dominated by northeast to southwest trending ridges and canyons. Total relief at the project site is on the order of approximately 60 feet. The field exploration conducted in 2006 covered portions of the Residences at Ritz Carlton project site but does not cover the Sky Mesa Recreational Site.

The site from the 2006 geotechnical report is located at the northern edge of the Santa Rosa Mountains, which border the southwest part of the Coachella Valley. The site is located within the Peninsular Ranges geomorphic province, at the boundary of the Colorado Desert geomorphic province. The Peninsular Ranges are characterized by fault-controlled, elongated northwest-trending valleys and ranges. These ranges and valleys extend from the southern end of Baja California to the Los Angeles basin. The rocks underlying this province consist of ancient sedimentary and metasedimentary (partially metamorphosed sedimentary rocks) that mantle a core of granitic rocks that comprise the Southern California Batholith.

The on-site geology reflects a typical contact metamorphic zone along an igneous/sedimentary contact. The metamorphic contact zone contains pegmatitic marble and various calc-silicates. These rocks were formed by the modification of previously existing sediments by the intense heat associated with the intrusion of the igneous rocks. Several baked zones and feldspar and quartz rich gneiss mark the contact zone. Minor quartzite and schist were found; however, marble and marbleized limestone dominate the area. In the vicinity of the project site, the predominant rocks were strongly folded metasediments. Towards the east, the metamorphism grades into foliated migmatites. The faults near the site are pre-Holocene and inactive.

The field exploration indicates that site materials consist generally of outcropping pre-Cretaceous metasedimentary rocks overlain by an approximately 1- to 5-foot layer of gravelly sand with silt to silty sand with gravel. The soil matrix is visually classified to be in the very low expansion (EI < 20) category.

The depth of groundwater in the vicinity of the project site is believed to be greater than 200 feet. Groundwater levels may fluctuate with precipitation, irrigation, drainage, regional pumping from wells, and site grading. The absence of shallow groundwater levels may not represent an accurate or permanent condition; minor localized and seasonal perched groundwater conditions may occur within the adjacent to well defined drainages on the site. The bedrock that underlies the site is considered to be essentially non-water bearing and does not form a continuous aquifer. However, some groundwater is likely to be contained at depth within intermittent joints and fractures of the bedrock. No seeps or springs were observed at the site during the field reconnaissance.

7.2 Discussion of Impacts

a)(i) ***No Impact***. According to the City's General Plan Safety Element, the project site is not located on an Alquist-Priolo Earthquake Fault Zoning Map. Exhibit 21, Faults in the Rancho Mirage General Plan Area, in the City's General Plan Safety Element, indicates that closest faults in the broad project region include Santa Ana Thrust Fault and Deep Canyon Fault (City of Rancho Mirage 2017). None of these faults underlie the project site (City of Rancho Mirage 2017). Although the proposed project could experience strong seismic ground shaking, the proposed project is not susceptible to surface rupture. Therefore, **no impacts** associated with fault rupture would occur.

a)(ii) ***Less-than-Significant Impact.*** Similar to other areas located in seismically active Southern California regions, the City is susceptible to ground shaking during an earthquake. However, as addressed in Threshold 7(a(i)), the project site is locate located on an active fault zone and the site would not be affected by ground shaking more than any other area in the seismically active region. Conformance with the most recent California Building Code, which includes building design standards intended to minimize risk to people and structures from potential seismic ground shaking, would ensure that impacts would be **less than significant**.

a)(iii) ***Less-than-Significant Impact.*** According to the Geotechnical Report, the potential for liquefaction to occur on the project site is very low because the site is underlain by non-water crystalline bedrock, and the site does not lie within a County or State liquefaction hazard zone. Additionally, the City's General Plan Safety Element's Exhibit 22 shows that the project site's liquefaction susceptibility is "none" (City of Rancho Mirage 2017). Therefore, impacts would be **less than significant**.

a)(iv) ***Less-than-Significant Impact***. According to Exhibit 24 of the City's General Plan Safety Element, the project site is located in an area where "numerous rock falls and landslides expected to occur during an earthquake" (City of Rancho Mirage 2017). In compliance with the City's General Plan, Safety Element, and the California Building Code (CBC), prior to the issuance of a grading permit the Applicant shall prepare an updated geotechnical analysis for areas subject to rockfall or landslide hazards. With compliance to all relevant policies, the proposed project would have a **less than significant** impact.

b) ***Less-than-Significant Impact.*** According to Exhibit 25 in the City's General Plan Safety Element, the project site is located in a site with only "slight wind erosion hazard". The project site is undeveloped and has been previously graded. Project construction would involve site preparation, some additional grading, and trenching, which may temporarily expose soils to increased erosion potential. The proposed project would be required to comply with the

National Pollutant Discharge Elimination System Construction General Permit, which requires the implementation of a stormwater pollution prevention plan. The stormwater pollution prevention plan would employ various BMPs intended to minimize soil erosion during construction. BMPs may include measures such as watering the exposed areas to reduce erosion potential. Upon completion of construction, the project site would be fully developed with structures, parking, and landscaped areas, which would minimize any long-term erosions potential. Therefore, impacts would be **less than significant**.

The proposed project would expand the existing hotel area and because the expansion would mainly be paved or landscaped, the potential for soil erosion and topsoil loss is reduced during operation. The structural and paved improvements would be impervious areas lacking any exposed soils. The landscape areas, although pervious, would contain various trees, shrubs, and groundcover that would help stabilize any surface soils and contain these soils on the project site. Therefore, impacts associated with soil erosion and topsoil loss would be **less than significant**.

c) ***Less-than-Significant Impact.*** As addressed in Threshold 7(a)(iii), the potential for liquefaction is very low. Prior to the issuance of the grading permit, the applicant shall verify that the applicable recommendations of the of the City engineer. Recommendations shall be held to performance standards Geotechnical Evaluation have been incorporated into the proposed project design and construction documents to the satisfaction within the applicable ordinances (including grading, construction, and landscaping regulations) of the City and the standards provided in the most recent California Building Code that are intended to reduce risk related to geologic hazards. Therefore, with implementation of these recommendations, impacts would be **less than significant**.

d) ***Less-than-Significant Impact.*** Expansive soils are characterized by their potential "shrink/swell" behavior. Shrink/swell is the cyclic change in volume (expansion and contraction) that occurs in certain fine-grained clay sediments from the process of wetting and drying. Clay minerals such as smectite, bentonite, montmorillonite, beidellite, vermiculite, and others are known to expand with changes in moisture content. The higher the percentage of expansive minerals present in near-surface soils, the higher the potential for substantial expansion.

According to the Geotechnical Report, the field exploration indicated that the soil matrix would be classified within the very low expansion index. Therefore, impacts would **be less than significant**.

e) ***No Impact.*** The proposed project would connect to the existing municipal sewer system and would not require a septic or alternative wastewater disposal system. Therefore, **no impacts** associated with the ability of soils to support septic tanks would occur.

f) ***No Impact.*** The project site has been highly disturbed by previous grading activities. There are no unique paleontological resources or sites or unique geologic features on the project site. Therefore, there would be **no impact**.

7.3 Mitigation Measures

No mitigation measures required.

8. GREENHOUSE GAS EMISSIONS

GREENHOUSE GAS EMISSIONS -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

8.1 Setting

This section is based on the Air Quality and Greenhouse Gas Technical Report prepared by Dudek, incorporated in this Initial Study as Appendix A.

Global Inventories

Anthropogenic GHG emissions worldwide in 2017 (the most recent year for which data is available) totaled approximately 50,860 MMT of CO2e, excluding land use change and forestry (PBL 2018). Six countries—China, the United States, the Russian Federation, India, Japan, and Brazil—and the European community accounted for approximately 65% of the total global emissions, or approximately 33,290 MMT CO_2e (PBL 2018).

National and State Inventories

Per the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2021, total U.S. GHG emissions were approximately 6,340.2 MMT CO_2e in 2021 (EPA 2023). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 92.2% of CO_2 emissions in 2021 (4,639 MMT CO_2e). From 1990 to 2021, total emissions of CO_2 decreased by 88.7 MMT CO_2 Eq. (1.7 percent), total emissions of CH_4 decreased by 141.2 MMT CO2 Eq. (16.3 percent), and emissions of N_2O decreased by 13.0 MMT CO2 Eq. (3.2 percent). (EPA 2023).

According to California Greenhouse Gas Emissions for 2000–2020, Trends of Emissions and Other Indicators (CARB 2022a), California emitted 369.2 MMT CO_2e in 2020, including emissions resulting from out-of-state electrical generation (CARB 2018). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high-GWP substances, and recycling and waste. The California GHG emission source categories (as defined in CARB's 2008 Scoping Plan) and their relative contributions in 2020 are presented in Table 8-1, Greenhouse Gas Emissions Sources in California.

Table 8-1. Greenhouse Gas Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total[a]
Transportation	136.60	37%
Industrial uses	73.84	20%
Electricity generation[b]	59.07	16%
Residential and commercial uses	36.92	10%
Agriculture and Forestry	33.22	9%
High GWP substances	22.15	6%
Recycling and waste	7.38	2%
Totals	**369.2**	**100%**

Source: Appendix A.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent; GWP = global warming potential.
Emissions reflect 2020 California GHG inventory.
[a] Percentage of total has been rounded and total may not sum due to rounding.

[b] Includes emissions associated with imported electricity, which account for 18.46 MMT CO_2e.

The City developed a GHG emission inventory in March 2013 as part of the Rancho Mirage Sustainability Plan. The inventory provides a detailed analysis of the City's carbon footprint showing the sources and sectors of emissions. In 2010, the City emitted 277,698 metric tons of CO_2e. The largest portion of the emission, over 43%, came from the electricity used to power the City's homes, businesses, resorts, fountains and streetlights. The transportation sector made up approximately 33% of the emissions.

8.2 Discussion of Impacts

a) ***Less-than-Significant Impact:*** Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system, and many factors (natural and human) can cause changes in Earth's energy balance. The greenhouse effect is the trapping and build-up of heat in the atmosphere near the Earth's surface (the troposphere). The greenhouse effect is a natural process that contributes to regulating the Earth's temperature, and it creates a livable environment on Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise. Global climate change is a cumulative impact; a project contributes to this impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. Thus, GHG impacts are recognized exclusively as cumulative impacts.

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code Section 38505(g) for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride (see also

CEQA Guidelines Section 15364.5).[7] The three GHGs evaluated herein are CO_2, CH_4, and N_2O because these are the only GHG gases would be emitted during project construction and/or operations.

The Intergovernmental Panel on Climate Change developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of CO_2 equivalent (CO_2e). Consistent with CalEEMod Version 2020.04.0, this GHG emissions analysis assumed the GWP for CH_4 is 25 (i.e., emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change Assessment Report (IPCC 2007).

As discussed in Section 3 of this Initial Study, the proposed project is located within the jurisdictional boundaries of the SCAQMD. In October 2008, the SCAQMD proposed recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects as presented in its *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* (SCAQMD 2008). This document, which builds on the previous guidance prepared by the California Air Pollution Control Officers Association, explored various approaches for establishing a significance threshold for GHG emissions. The draft interim CEQA thresholds guidance document was not adopted or approved by the Governing Board.

The SCAQMD formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. From December 2008 to September 2010, the SCAQMD hosted working group meetings and revised the draft threshold proposal several times, although it did not officially provide these proposals in a subsequent document. The SCAQMD has continued to consider adoption of significance thresholds for residential and general land use development projects. The most recent proposal issued by SCAQMD, issued in September 2010, uses the following tiered approach to evaluate potential GHG impacts from various uses (SCAQMD 2010):

Tier 1: Determine if CEQA categorical exemptions are applicable. If not, move to Tier 2.

Tier 2: Consider whether or not the project is consistent with a locally adopted GHG reduction plan that has gone through public hearing and CEQA review, that has an approved inventory, includes monitoring, etc. If not, move to Tier 3.

Tier 3: Consider whether the project generates GHG emissions in excess of screening thresholds for individual land uses. The 10,000 MT CO_2e per-year threshold for industrial uses would be recommended for use by all lead agencies. Under option 1, separate screening thresholds are proposed for residential projects (3,500 MT CO_2e per year), commercial projects (1,400 MT CO_2e

[7] Climate-forcing substances include GHGs and other substances such as black carbon and aerosols. This discussion focuses on the GHGs identified in the California Health and Safety Code Section 38505 applicable to the project including CO_2, CH_4, and N_2O; impacts associated with other climate-forcing substances are not evaluated herein.

per year), and mixed-use projects (3,000 MT CO_2e per year). Under option 2, a single numerical screening threshold of 3,000 MT CO_2e per year would be used for all non-industrial projects. If the project generates emissions in excess of the applicable screening threshold, move to Tier 4.

Tier 4: Consider whether the project generates GHG emissions in excess of applicable performance standards for the project service population (population plus employment). The efficiency targets were established based on the goal of Assembly Bill (AB) 32 to reduce statewide GHG emissions to 1990 levels by 2020. The 2020 efficiency targets are 4.8 MT CO_2e per-service population for project-level analyses and 6.6 MT CO_2e per-service population for plan-level analyses. If the project generates emissions in excess of the applicable efficiency targets, move to Tier 5.

Tier 5: Consider the implementation of CEQA mitigation (including the purchase of GHG offsets) to reduce the project efficiency target to Tier 4 levels.

However, neither SCAQMD or Rancho Mirage adopted these thresholds and therefor the quantitative analysis provided herein is provided for informational purposes only. In the absence of an adopted quantitative thresholds, GHGs are evaluated in the context of policy consistency.

Construction Emissions

Construction of the proposed project would result in GHG emissions primarily associated with the use of off-road construction equipment, on-road trucks, and worker vehicles. A depiction of expected construction schedules (including information regarding phasing, equipment used during each phase, truck trips, and worker vehicle trips) assumed for the purposes of emissions estimation is provided in Table 3-6 and in Appendix A. On-site sources of GHG emissions include off-road equipment; off-site sources include trucks and worker vehicles. Table 8-2, Estimated Annual Construction GHG Emissions, presents construction GHG emissions for the proposed project from on-site and off-site emissions sources.

Table 8-2. Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2023	571.69	0.13	0.01	579.09
2024	562.96	0.08	0.03	572.69
Total				**1151.78**
Amortized Over 30 Years				**38.39**

Source: Appendix A.
Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.

As shown in Table 8-2, Estimated Annual Construction GHG Emissions, the estimated total GHG emissions in 2023 through 2024 would be approximately 1,152 MT CO_2e. Amortized over 30 years, construction GHG emissions would be approximately 38 MT CO_2e per year. In addition, as with proposed project-generated construction criteria air pollutant emissions, GHG emissions generated during proposed construction activities would be short

term, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

Operational Emissions

Operation of the proposed project would generate GHG emissions through motor vehicle trips to and from the project site; landscape maintenance equipment operation; energy use (natural gas and generation of electricity consumed by the proposed project); solid waste disposal; and generation of electricity associated with water supply, treatment, and distribution; wastewater treatment; and natural gas consumed by the emergency generator. GHG emissions would also be generated through intermittent maintenance and testing of the diesel emergency generator, limited to 50 hours per year. CalEEMod was used to calculate the annual GHG emissions. GHG emission estimates were based on the mobile source, area source, and energy (natural gas) operational assumptions described in Section 3(b), within the air quality analysis. CalEEMod default values were used to estimate GHG emissions associated with energy (electricity) consumption, solid waste, and water and wastewater.

The estimated operational (2023) project-generated GHG emissions from area sources, energy usage, motor vehicles, solid waste generation, water usage and wastewater generation, and stationary sources are shown in Table 8-3, Estimated Annual Operational GHG Emissions.

Table 8-3. Estimated Annual Operational GHG Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	metric tons per year			
Proposed Project				
Area	1.80	0.00	0.00	1.85
Energy	555.64	0.03	0.01	558.68
Mobile	1,507.92	0.08	0.07	1,531.81
Stationary	22.85	0.00	0.00	22.93
Solid waste	38.80	2.29	0.00	96.13
Water supply and wastewater	66.95	0.03	0.02	72.63
			Total	**2,284.03**
			Amortized Construction Emissions	*38*
			Operation + Amortized Construction Total	**2,322.42**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent
See Appendix A for detailed results.
These emissions reflect operational year 2023.

As shown in Table 8-3, Estimated Annual Operational GHG Emissions, and provided for informational purposes, the estimated annual net proposed project-generated GHG emissions would be approximately 2,284 MT CO_2e per year as a result of proposed project operations only. Estimated annual proposed project-generated operational emissions in 2024 (2,284 MT CO_2e per year) plus amortized proposed project construction emissions (38 MT CO_2e per year) would be approximately 2,332 MT CO_2e per year. Because no quantitative threshold has been adopted, impacts related to GHGs are discussed in the context of policy consistency below. Therefore, as discussed below, in relation to the generation of GHGs, the proposed project's impact would be **less than significant**. No mitigation is required.

b) ***Less-than-Significant Impact:*** The City has not adopted a comprehensive climate action plan, and there is currently no local guidance that would be applicable to the proposed project. The City addresses GHG-reducing goals in the March 2013, Sustainability Plan and Energy Action Plan. However, while the Sustainability Plan provides GHG reduction goals, they do not extend beyond year 2020. At this time, no mandatory GHG plans, policies, regulations, or finalized agency guidelines would apply to the proposed project. Nonetheless, the proposed project consistency with the SCAG 2020 RTP/SCS, CARB's Scoping Plan, and statewide GHG reduction goals for 2030 or 2045 identified in identified in Senate Bill 32 and Assembly Bill 1279, respectively.

City of Rancho Mirage Energy Action Plan

The City's Energy Action Plan (ePlan) provides a roadmap of actions within the City's Municipal operations, to help reduce energy consumption, to reduce operation costs and increase energy awareness. The ePlan's goals focuses on three areas: retrofit and expansion of municipal facilities, upgrading the municipal fleet and consideration of municipal programs and actions that will help reduce municipal and community-wide energy use and GHG emissions.

City of Rancho Mirage Sustainability Plan

In March 2013, the City adopted the 2013 Sustainability Action Plan: Leadership in Energy Efficiency (Sustainability Plan) in order to set GHG reduction goals and measures. The Sustainability Plan is a framework for the documenting and implementation of policies and programs that will reduce the City's GHG emissions, working towards the Statewide target of 1990 levels by 2020, set by AB 32.

The City addresses GHG-reducing goals in the March 2013, Sustainability Plan and Energy Action Plan. However, while the Sustainability Plan provides GHG reduction goals, they do not extend beyond year 2020. In addition, the proposed project does not prevent the City from promoting sustainability and energy efficiency goals to reduce the City's carbon footprint.

Southern California Association of Governments RTP/SCS

SCAG has developed Connect SoCal, the 2020-2045 RTP/SCS, which is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. Connect SoCal charts a path toward a more mobile, sustainable and prosperous region by making connections between transportation networks, between planning strategies and between the people whose collaboration can improve the quality of life for Southern Californians. Connect SoCal embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura.

On September 3, 2020, Connect SoCal was adopted by SCAG's Regional Council. Connect SoCal is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. The major goals of the Connect SoCal are outlined in Table 8-4, Project Consistency with the SCAG Connect SoCal RTP/SCS, along with the proposed project's consistency with them.

Table 8-4

Project Consistency with the SCAG Connect SoCal RTP/SCS

RTP/SCS Measure	Proposed Project Potential to Conflict
Encourage regional economic prosperity and global competitiveness.	*Not applicable.* The proposed project would not inhibit SCAG from encouraging regional economic prosperity and global competitiveness.
Improve mobility, accessibility, reliability, and travel safety for people and goods.	*Not applicable.* The proposed project would not inhibit SCAG from strengthening the regional transportation network for goods movement.
Enhance the preservation, security, and resilience of the regional transportation system.	*Not applicable.* The proposed project would not inhibit SCAG from enhancing the resilience of the regional transportation system.
Increase person and goods movement and travel choices within the transportation system.	*Not applicable.* The proposed project would not inhibit SCAG from increasing person and goods movement and travel choices within the transportation system.
Reduce greenhouse gas emissions and improve air quality.	*No conflict.* The proposed project would result in criteria air pollutant and GHG emissions during construction and operation. However, as presented in Section 3.2, the proposed project would not exceed the SCAQMD mass daily significance thresholds during construction or operation. GHG emissions would be reduced through compliance with applicable CALGreen standards.
Support healthy and equitable communities.	*No conflict*. A desert landscape design is proposed throughout the project site including water cascades, multiple pools, rock escarpments, and fountains. Landscaping would be located throughout the project site and between proposed buildings with pedestrian access provided by the on-site pedestrian network.
Adapt to a changing climate and support an integrated regional development pattern and transportation network.	*Not applicable.* The proposed project would not inhibit SCAG from supporting an integrated regional development pattern and transportation network.
Leverage new transportation technologies and data-driven solutions that result in more efficient travel.	*Not applicable.* The proposed project would not inhibit SCAG from leveraging technology for the transportation system.
Encourage development of diverse housing types in areas that are supported by multiple transportation options.	*Not applicable.* The proposed project does not include traditional housing, but rather would operate as time-share properties, and would not inhibit SCAG from encouraging development of diverse housing types.
Promote conservation of natural and agricultural lands and restoration of habitats.	*No conflict.* The project site is vacant with dirt covering the majority of the site. The proposed project will provide approximately 35% open space made up of landscape areas, pools, water features, and paths. A desert landscape design is proposed throughout the

Table 8-4
Project Consistency with the SCAG Connect SoCal RTP/SCS

RTP/SCS Measure	Proposed Project Potential to Conflict
	project site including water cascades, multiple pools, rock escarpments, and fountains. Landscaping would be located throughout the project site and between proposed buildings with pedestrian access provided by the on-site pedestrian network. The proposed plant palette would comprise of native, drought-tolerant plantings, consistent with the existing hotel landscaping and surrounding areas.

Source: SCAG 2020.

As shown in Table 8-4, the proposed project would be consistent with all applicable measures within the SCAG Connect SoCal RTP/SCS.

California Air Resources Board Scoping Plan and Reduction Goals

The Climate Change Scoping Plan, approved by CARB in 2008 and updated in 2014 2017, and 2022, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs.

The 2022 Scoping Plan outlines the state's plan to reach carbon neutrality by 2045 or earlier, while also assessing the progress the state is making toward achieving GHG reduction goals by 2030. Per the Legislative Analyst's Office, the 2022 Scoping Plan identifies a more aggressive 2030 GHG goal. As it relates to the 2030 goal, perhaps the most significant change in the 2022 plan (as compared to previous Scoping Plans) is that it identifies a new GHG target of 48% below the 1990 level, compared to the current statutory goal of 40% below. Current law requires the state to reduce GHG emissions by at least 40% below the 1990 level by 2030 but does not specify an alternative goal. According to CARB, a focus on the lower target is needed to put the state on a path to meeting the newly established 2045 goal, consistent with the overall path to 2045 carbon neutrality. The carbon neutrality goal requires CARB to expand proposed actions from only the reduction of anthropogenic sources of GHG emissions to also include those that capture and store carbon (e.g., through natural and working lands, or mechanical technologies). The carbon reduction programs build on and accelerate those currently in place, including moving to zero-emission transportation; phasing out use of fossil gas use for heating homes and buildings; reducing chemical and refrigerants with high GWP; providing communities with sustainable options for walking, biking, and public transit; displacement of fossil-fuel fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines); and scaling up new options such as green hydrogen (CARB 2022ib.

The 2022 Scoping Plan details "Local Actions" in Appendix D. The Local Actions includes recommendations intended to build momentum for local government actions that align with the State's climate goals, with a focus on local GHG reduction strategies (commonly referred to as climate action planning) and approval of new land use development projects, including through environmental review under CEQA. The recommendations provided in Appendix D are

non-binding and should not be interpreted as a directive to local governments, but rather as evidence-based analytical tools to assist local governments with their role as essential partners in achieving California's climate goals. Appendix D recognizes consistency with a CEQA-qualified GHG reduction plan such as a Climate Action Plan as a preferred option for evaluating potential GHG emission impacts under CEQA. Absent a qualified GHG reduction plan, Appendix D provides recommendations for key attributes that residential and mixed-use projects should achieve that would align with the State's climate goals including EV charging infrastructure, infill location, no loss or conversion of natural and working lands, transit-supportive densities or proximity to transit stops, reducing parking requirements, provision of affordable housing (20% of units), and all-electric appliances with no natural gas connection (CARB 2022i). Projects that achieve all key attributes are considered clearly consistent with the State's climate and housing goals and would have a less-than-significant GHG impact under CEQA. However, projects that do not achieve all attributes are not considered to result in a potentially significant GHG emission impact (CARB 2022i). A net-zero threshold and use of air district recommended thresholds of significance were two other CEQA thresholds Appendix D recommends.

The 2022 Scoping Plan reflects the 2030 target of a 40% reduction below 1990 levels codified by SB 32, and the 2045 target of carbon neutrality established by EO B-55-18 (AB 1279), as detailed in Section 4.6.2, Regulatory Requirements, above. Per the 2022 Scoping Plan, empirical evidence shows that residential development projects that are consistent with these project attributes to reduce GHG emissions will accommodate growth in a manner that aligns with the GHG and equity goals of SB 32. As detailed above, absent a qualified GHG reduction plan, Appendix D of the CARB Scoping Plan provides recommendations for key attributes that residential and mixed-use projects should achieve that would align with the State's climate goals. (CARB 2022b. The proposed project would involve the construction of 106 residential suites, hotel villas, event spaces, commercial spaces, and an amenity space totaling 236,748 square feet. However, the 106 residential suites are anticipated to be treated as a time-share home in which residents are allowed to live at the residence only during a specified time frame. Therefore, the project's operation is more in line with a commercial hotel use than a traditional residential project. As such the Scoping Plan Appendix D recommendations for residential and mixed-use projects are not appropriate for the project.

Nevertheless, many of the measures and programs included in the Scoping Plan would result in the reduction of project-related GHG emissions with no action required at the project-level, including GHG emission reductions through increased energy efficiency and renewable energy production (SB 350), reduction in carbon intensity of transportation fuels (LCFS), and the accelerated efficiency and electrification of the statewide vehicle fleet (Mobile Source Strategy).

The Project would provide EV charging infrastructure that, meets the California Green Building Standards Code. The Project site is surrounded by the existing Ritz Carlton facilities to the north and existing residential single-family homes to the south. The site has nearby access through Frank Santra Drive and access to existing utilities and essential public services. As discussed in the Utilities and Service Systems section of the Initial Study, the proposed project would connect to existing electric, natural gas, and telecommunication lines and facilities within and adjacent to the project site. The proposed project does not propose uses that would be expected to

generate an excessive need for these facilities such that construction or relocation would be required.

Overall, the Project would comply will all regulations adopted in furtherance of the Scoping Plan to the extent applicable and required by law. As demonstrated above, the proposed Project would not conflict with CARB's 2022 Scoping Plan updates and with the state's ability to achieve the GHG reduction and carbon neutrality goals. Further, the Project's consistency with the applicable measures and programs would assist in meeting the City's contribution to GHG emission reduction targets in California. Based on the considerations previously outlined, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

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The proposed project would not interfere with implementation of GHG reduction goals for 2030 or 2045 because it would not conflict with the SCAG RTP/SCS or with the state's trajectory toward future GHG reductions. Therefore, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs; therefore, impact would be **less than significant**.

8.3 Mitigation Measures

No mitigation measures required.

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9. HAZARDS AND HAZARDOUS MATERIALS

HAZARDS AND HAZARDOUS MATERIALS -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒

HAZARDS AND HAZARDOUS MATERIALS -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

9.1 Setting

The analysis in this section of the Initial Study is based on a Phase I Environmental Site Assessment for the project site, included as Appendix I of this Initial Study.

Current Operational Activities

The proposed project is currently a vacant full service hospitality facility and is undergoing renovation and new construction activities. No noteworthy tenants occupy the proposed project and no environmentally significant operations are conducted at the proposed project. Considering the current operations assessed at the proposed project, no environmental permits, registrations, or notifications appear to be required.

An inactive dry-cleaning machine is located in the commercial laundry at the project site. The dry-cleaning machine is identified as an Aero-Tech Green Jet Dry-Wetcleaning Machine, Model #DWC-45. The dry-cleaning machine uses DWX-44 Dry-Cleaning Solution, a water-based, non-toxic solution, instead of perchloroethylene (PCE). Currently available information indicates the use of DWX-44 Dry-Cleaning Solution is highly unlikely to impact the proposed project when properly used. DWX-44 Dry-Cleaning Solution does not contain chlorinated hydrocarbons (such as PCE) and wastes generated in the process would not be classified as hazardous. Material Safety Data Sheet (MSDS) information for DWX-44 confirms that this substance contains no ingredients identified as Hazardous Substances according to SARA Hazard Title III, Section 313 - CFR-355. The existing dry-cleaning machine is associated with the ongoing renovation, is new equipment which has never been used, and appeared to be empty at the time of EMG's site visit. Copies of a specification sheet and brochure for the Green jet Dry-Wetcleaning Machine, as well as the MSDS sheet for DWX-44 and a Laundry Plan showing the location of the dry cleaning machine, have been appended as supporting documents (Appendix I).

No information was identified to confirm whether dry cleaning was previously conducted on-site between 1988 and the time of closure in 2006. Based on the historical use as a full-service Ritz Carlton, it is somewhat likely that a dry cleaning plant, which possibly operated an older PCE machine, was formerly located on-site. By its chemical nature, PCE has the potential to penetrate through concrete

and impact subsurface conditions. However, any such dry cleaning facility would have operated since the promulgation of RCRA in 1986, the legislation that regulates the handling and disposal of hazardous materials and wastes. As such, waste handling and disposal practices would have been regulated since the facility's inception. Furthermore, because the laundry is underlain by two levels of parking garage and not the earth, it is unlikely that subsurface conditions would have been impacted as a result of any historical dry cleaning plant operations in this area.

Hazardous Materials/Petroleum Products Storage and Handling

Visual observation for the use and/or storage of hazardous materials and petroleum products was performed. The following hazardous materials and petroleum products were identified:

- Routine construction and maintenance supplies (i.e. adhesives, sealants, paints, etc. were observed at the proposed project in retail-sized containers.
- Diesel fuel is stored in an integral belly tank associated with the backup generator.
- Cooling system water treatment chemicals are maintained in poly drums located in the central plant and cooling tower areas in association with routine operation and upkeep of the cooling equipment.

The identified chemicals, materials, and products were observed in their sealed, original containers and in designated storage areas. Materials appeared to be properly stored. No evidence of spills or staining was observed. In addition, the concrete surfaces appeared intact, and no cracks were observed in the areas of product storage/usage.

Waste Generation, Treatment, Storage, and Disposal

Visual observation for the generation, treatment, storage, and disposal of wastes was performed. The following wastes were identified:

- Municipal trash is stored in the compactor or roll-off debris boxes (when appropriate) and disposed of by contracted waste haulers.
- Domestic sewage is disposed of to the municipal sanitary sewer system.

No evidence of spills or staining was observed in the area of waste generation or pre-disposal storage. In addition, the concrete surfaces appeared intact, and no cracks were observed in the areas of waste generation or pre-disposal storage. No excessive odors or overflowing/excessive ground trash were noted in the vicinity of the compactor or debris boxes. No hazardous, regulated, or medical wastes were noted in the compactor or debris boxes. No wastewater discharge that would require permitting through local or state regulator agencies was identified at the proposed project. No current or former septic systems or drywells were identified at the proposed project.

9.2 Discussion of Impacts

a) ***Less-than-Significant Impact.*** Construction of the proposed project would require the transport of potentially hazardous materials including but not limited to fuels, lubricants, and various other liquids needed for operation of construction equipment. Proper BMPs and hazardous materials handling protocols would be prepared and implemented to ensure safe storage, handling,

transport, use, and disposal of all hazard materials during the construction phase of the proposed project. Construction would also adhere to any local standards set forth by the City, as well as state and federal health and safety requirements that are intended to minimize hazardous materials risk to the public, such as the California Occupational Safety and Health requirements, Hazardous Waste Control Act, California Accidental Release Prevention Program, and the California Health and Safety Code. Furthermore, all construction waste, including trash, litter, garbage, solid waste, petroleum products, and any other potentially hazardous materials would be removed and transported to a permitted waste facility for treatment, storage, or disposal. Use of these materials during construction for their intended purpose would not pose a significant risk to the public or the environment. Therefore, impacts related to routine transport, use, or disposal of hazardous materials during construction would be **less than significant**.

The proposed project would involve development of residential land uses, event space, restaurant, and associated landscaping and facilities. During operation of the proposed project, use of hazardous materials would primarily involve the private use of commercially available cleaning products, landscaping chemicals and fertilizers, and various other commercially available substances. According to the 2006 DEIR for the Lodge Expansion Project, the existing hotel site operates an approximately 825 square foot dry cleaning facility on-site, and stores approximately 20 to 30 gallons on average of dry-cleaning chemicals on-site. Wastes generated from this facility are also limited to an average of approximately 20 to 30 gallons and are stored on-site for approximately three months until hauled off-site by a licensed waste management hauler.

These substances are required to comply with relevant federal, state, and local health and safety laws, which are intended to minimize health risk to the public associated with hazardous materials. Therefore, impacts related to routine transport, use, or disposal of hazardous materials during operation would be **less than significant**.

b) ***Less-than-Significant Impact:*** As discussed in Threshold 9 (a), a variety of hazardous substances and wastes typical to standard construction projects would be stored and used on the project site during construction of the proposed project. Accidental spills, leaks, fires, explosions, or pressure releases involving hazardous materials represent a potential threat to human health and the environment. During both construction and operation of the proposed project, there is potential for release of hazardous materials related to storage, transport, use, and disposal from construction debris, landscaping, and commercial products. However, the proposed project would be required to adhere to federal, state, and local laws, such as the California Occupational Safety and Health requirements, Hazardous Waste Control Act, California Accidental Release Prevention Program, and the California Health and Safety Code, which are intended to minimize risk to public health associated with hazardous materials. Therefore, impacts would be **less than significant**.

c) ***No Impact.*** No schools are located within 0.25 miles of the project site. The nearest school, Cathedral City Elementary, is located approximately 2.5 mile north of the project site. **No impact** would occur.

d) ***Less-than-Significant Impact.*** The 2012 Phase I ESA of the project site discusses the regulatory database report from Environmental Data Resources, Inc. (EDR), which determines if the

proposed project is a listed regulatory site and whether there are any mappable regulatory database sites. The following databases were reviewed for this assessment; NPL, Proposed NPL, NPL LIENS, Delisted NPL, CERCLIS, CERCLIS-NFRAP, CORRACTS, RCRA-TSDF, RCRA-LQG, RCRA-SQG, RCRA-CESQG, US ENG CONTROLS, US INST CONTROL, ERNS, FINDS, SWF, LUST, INDIAN LUST, UST, AST, US BROWNFIELDS, ENVIROSTOR, SLIC, RESPONSE, VCP, HIST CAL-SITES, TOXIC PITS, Notify 65, and Indian Reserve. Details on each of these databases can be found in Appendix I.

According to the database report, the project site is listed on the CHMIRS and RCRA-SQG databases. The CHMIRS listing does not constitute a Recognized Environmental Condition (REC) because of the small-scale nature of the incident. The Riverside County Fire Department responded to a solo vehicle accident on the road in front of the project site that resulted in the release of approximately one gallon of diesel fuel from a truck's saddle tank.

Information on the RCRA-Generators database indicates that the proposed project was identified as a Small Quantity Generator of hazardous wastes in 1992, likely related to wastes generated during construction or renovation activities. The type of hazardous waste generated was not identified in the database listing. The database indicates that there are no violations associated with the RCRA-Generator listing. The RCRA-Generator database is a listing of facilities that are required to register for tracking purposes due to the amount of hazardous waste generated and are not necessarily sites with reported contamination incidents.

There are no EnviroStor facilities listed within a 0.5-mile distance of the project site. Based on the databased report discussed above, the proposed project would not create a significant to the public or the environment, and impacts would be **less than significant**.

e) ***No Impact.*** The proposed project is not located within 2 miles of a public airport, nor is it located within an airport land use plan. The nearest airport is Palm Springs International Airport, located approximately 6 miles away. Therefore, because the site is not located within an airport land use plan or within 2 miles of a public/public use airport, there would be **no impacts**.

f) ***Less-than-Significant Impact.*** The City participates in the Riverside County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). The proposed project would not interfere with the City's emergency plans. The City's main evacuation routes are the Interstate 10 (I-10) and Highway 111 (City of Rancho Mirage 2017). Access to these evacuation routes and all local roads would be maintained during construction and operation of the proposed project. Emergency procedures or design features required by federal, state, or City regulations would be implemented as appropriate during construction and/or operation. Maintaining access along all local roads during construction would minimize the potential for traffic conflicts with designated evacuation routes, and implementation of emergency procedures would minimize the potential for interference with an adopted emergency response plan. The proposed project would be constructed over the course of three years and would not impede access to local roadways or evacuation routes. The operation of the hotel would not induce a substantial increase in traffic, as none of the newly constructed residences will have permanent year-round residents and special events at the event spaces would abide by the special events traffic and parking plan to be prepared by the applicant. Therefore, impacts resulting from the proposed project would be **less than significant**.

g) ***Less-than-Significant Impact.*** According to Exhibit 27 of the City's General Plan Safety Element, the project site is located within a moderate fire threat zone and is adjacent to a high fire threat zone (City of Rancho Mirage 2017). However, the City's General Plan Safety Element also notes that "the historical record indicates that the wildland fire hazard in Rancho Mirage is relatively low" (City of Rancho Mirage 2017).

The types of potential ignition sources that currently exist in the area include vehicle and roadway, electrical transmission line, and machinery associated with various land uses in the vicinity, as well as off-site residential neighborhoods. The proposed project would introduce potential ignition sources but would also include conversion of fuels to lower flammability landscape and include better access throughout the site, managed and maintained landscapes, higher site awareness/monitoring, and generally a reduction in the receptiveness of the areas landscape to ignition. Fires from off-site would not have continuous fuels across this site, and therefore, would be expected to burn around and/or over the site through spotting. Burning vegetation embers may land on project structures but are not likely to result in ignition based on ember decay rates and the types of non-combustible and ignition resistant materials that will be used on site.

The proposed project would comply with ignition resistant fire and building codes and would include a layered fire protection system designed to current codes and inclusive of site-specific measures that will result in a project that is less susceptible to wildfire than surrounding landscapes and that would facilitate fire fighter and medical aid response. Further, modern infrastructure will be provided along with implementation for the latest ignition resistant construction methods and materials. All structures are required to include interior sprinklers consistent with City of Rancho Mirage and County of Riverside Fire and Building Codes. Fuel modification areas receive fuel reduction treatments initially, and then maintenance over time includes removing all dead and dying materials and maintaining appropriate horizontal and vertical spacing.

By complying with all fire-related codes, the proposed project would not expose people or structures to a significant risk, injury, or death involving wildland fires. As such, impacts would be **less than significant**.

9.3 Mitigation Measures

No mitigation measures required.

10. HYDROLOGY AND WATER QUALITY

HYDROLOGY AND WATER QUALITY - - Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
i) result in substantial erosion or siltation on or off site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐

HYDROLOGY AND WATER QUALITY - - Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

10.1 Setting

Part of the following analysis is based on the information provided in the Preliminary Drainage Study for Ritz Carlton Rancho Mirage report, prepared by Tory R. Walker Engineering. The report is included as Appendix D to the Initial Study.

Summary of Existing Conditions

The Residences

The majority of the existing site is mass graded and there is little to no vegetative cover. The total drainage area of the project site is approximately 14 acres with Hydrologic Soil Group Type B soils. The soil type was assumed based on the proposed project's geotechnical study (the proposed project is not mapped by the Riverside County hydrology manual or the NRCS Web Soil Survey). Hydrologic Soil Group Type B soils have moderately low runoff potential when thoroughly wet. They also have between 10% and 20% clay and 50% to 90% sand and have loamy sand or sandy loam textures (USDA 2007).

On-site runoff is conveyed via sheet flow and shallow drainage courses to the proposed project's discharge points along the western and eastern property boundary (Figure 10-1a). The existing site is divided into three basins, Basin 100 (denoted by 100 series nodes), Basin 200 (denoted by 200 series nodes), and Basin 300 (denoted by 300 series nodes). Basin 100 drains generally west to the gutter on Frank Sinatra Drive (Discharge Point 1) (Figure 10-1a). From Discharge Point 1, flow is conveyed north in the Frank Sinatra Drive gutter to an existing inlet and storm drain system, which eventually discharges to a natural drainage channel. Basin 200 drains generally east to Discharge Point 2 in the natural drainage channel located east of the site. Basin 300 drains west to Discharge Point 3 at the Mirada Circle gutter, which flows west and eventually discharges to a natural drainage channel.

Sky Mesa Recreational Area

The existing site is partially graded with generally poor desert vegetative cover. The total drainage area of the project site is approximately 2.6 acres with Hydrologic Soil Group Type B soils. The soil type was

assumed based on the proposed project's geotechnical study (the proposed project is not mapped by the Riverside County hydrology manual or the NRCS Web Soil Survey).

On-site runoff is conveyed via sheet flow and shallow drainage courses to the proposed project's discharge points along the western property boundary (Figure 10-1b). The existing site is divided into two basins, Basin 400 (denoted by 400 series nodes), and Basin 500 (denoted by 500 series nodes). Basin 400 drains generally west to the existing Ritz Carlton development (Discharge Point 4). Basin 500 drains northwest to Discharge Point 5 in the existing natural drainage channel west of the site.

10.2 Discussion of Impacts:

a) ***Less-than-Significant Impact:*** Construction activities associated with the proposed project could result in wind and water erosion of the disturbed area leading to sediment discharges. Similarly, as described in Section 9, Hazards and Hazardous Materials, fuels, oils, lubricants, and other hazardous substances used during construction could be released and impact water quality. The proposed project is required to comply with the NPDES State Water Resources Control Board Construction General Permit Order No. 2009-0009-DWQ for stormwater discharges and general construction activities and incorporate standard BMPs such as regular cleaning or sweeping of construction areas and impervious areas, and various stormwater BMPs such as filtration media screens. In compliance with the Construction General Permit, a SWPPP would be prepared that specifies BMPS that would be implemented during construction to minimize impacts to water quality. Therefore, impacts would be **less than significant**.

b) ***Less-than-Significant Impact:*** The proposed project would not utilize groundwater during construction or operation. According to the 2006 Geotechnical Report, the depth of groundwater in the vicinity of the project site is believed to be greater than 200 feet. As such, impacts to groundwater supplies would be **less than significant**.

c) i. ***Less-than-Significant Impact:*** The majority of the existing site is mass graded and there is little to no vegetative cover. The total drainage area of the project site is approximately 14 acres with Hydrologic Soil Group Type B soils. The soil type was assumed based on the proposed project's geotechnical study (the proposed project is not mapped by the Riverside County hydrology manual or the NRCS Web Soil Survey). On-site runoff is conveyed via sheet flow and shallow drainage courses to the proposed project's discharge points along the western and eastern property boundary (see Existing Condition Hydrology Map in Appendix D). As shown on the Existing Condition Hydrology Map, the site is divided into three drainage basins, one draining west to the gutter and storm drain system on Frank Sinatra Drive, one draining east to the natural drainage channel located east of the site, and one draining west to the Mirada Circle gutter, which flows west and eventually discharges to a natural drainage channel.

The proposed project includes residential condo and townhome type buildings, road, driveway, parking, patio, and landscaped areas. The project site will be divided into three major drainage basins such that the overall site drainage patterns will remain similar to the existing condition (Proposed Condition Hydrology Map in Appendix D). The development will increase the impervious area and the drainage area; therefore, underground detention vaults are proposed to manage the increase in peak flow to below existing levels.

The Sky Mesa Recreation Area includes a restaurant with roof top garden (built into the natural hillside), driveway, patio, pool, sidewalk, lawn, and desert landscape areas. The project site will be divided into two major drainage basins such that the overall site drainage patterns will remain similar to the existing condition. The proposed project reduces the average on-site slope, maximizes pervious area by incorporating roof top garden areas for the restaurant, and provides extensive landscape areas throughout the site. Therefore, no increase in peak flow rates is anticipated in the proposed condition.

As such, the proposed project would not substantially alter the existing drainage pattern such that substantial erosion would occur on or off site. Therefore, impacts would be **less than significant**.

c) ii. ***Less-than-Significant Impact:*** With implementation of the proposed project, the flow patterns of the site will largely stay the same. The proposed project would implement underground detention vaults. Detention basin analysis was conducted for each of the detention vaults. The Drainage study found that the outflows for 100-year storm events at the discharge points will be reduced by 0.13 cubic feet per second, offsetting the 1.52 cubic feet per second increase that would have occurred without detention. As such, the proposed project would not substantially alter the existing drainage patterns such that it would increase flooding on or off site. Impacts would be **less than significant**.

c) iii. ***Less-than-Significant Impact:*** Refer to responses in Threshold 10(c)(ii) and 10(c)(iii). The Drainage Study (Appendix D) that was prepared for the proposed project concluded that, during operation, the flow patterns of the site will largely stay the same with implementation of the proposed project. Although the proposed project would increase the amount of impervious surface at the site compared to existing conditions, this increase would not be significant. Further, underground detention vaults would be implemented as part of the proposed project to ensure runoff from large storm events would not exceed the capacity of the stormwater drainage system. As such, impacts would be **less than significant**.

c) iv. ***Less-than-Significant Impact:*** According to Exhibit 26 of the City's General Plan Safety Element (City of Rancho Mirage 2017), the project site is not located in any type of flood zone as defined by the Flood Emergency Management Agency (FEMA). According to FEMA, the project site is located within Zone X, or an area of minimal flood hazard (FEMA n.d.). Refer to the responses above regarding proposed stormwater facilities per the Drainage Study. Impacts would be **less than significant**.

d) ***No Impact:*** Refer to response to Threshold 10(c)(iv). The proposed project would not be located within a 100-year flood hazard area (City of Rancho Mirage 2017). The project site is located approximately 100 miles inland from the Pacific Ocean and therefore would not be subject to tsunami inundation. Further, the project site is not located near a large standing body of water. The closest body of water is the Whitewater River, located approximately 0.66 miles to the northwest. Thus, inundation by seiche (or standing wave) is considered negligible. As such, **no impact** would occur.

e) ***Less-than-Significant Impact:*** A drainage study has been prepared for the proposed project and incorporated into project design, as discussed previously. The drainage study and project designs has been prepared consistent with the requirements of the City's BMP Design Manual, consistent with the requirements of the Santa Ana Regional Water Quality Control Board

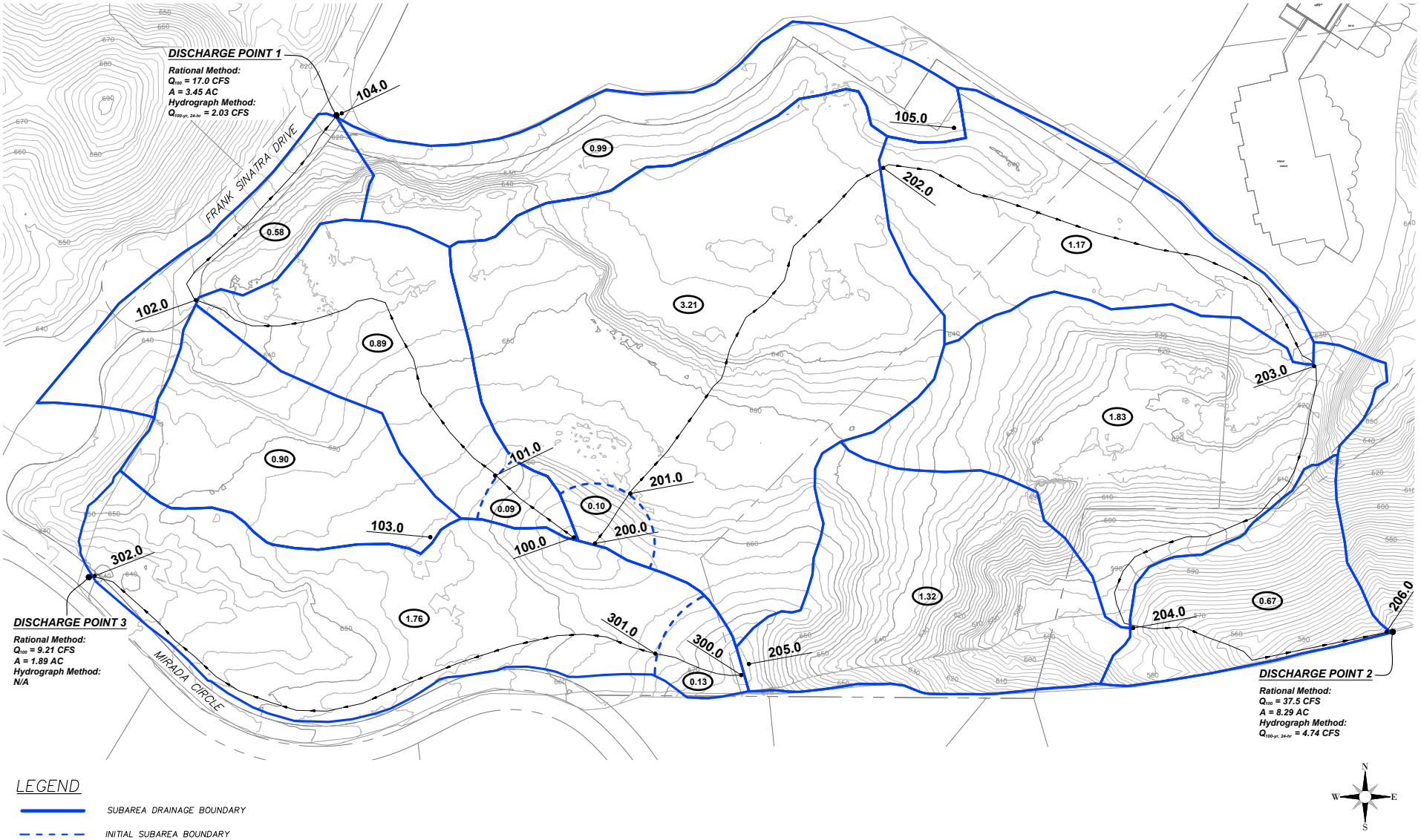
(RWQCB) Order No. RB8-2010-003 (Regional MS4 Permit). The City of Rancho Mirage, along with other Riverside County cities within the Santa Ana RWQCB and Riverside County, voluntarily applied for and received a permit to discharge stormwater to the Santa Ana River (Order No. R8-2002-0011, NPDES No. CAS 618033). This MS4, originally approved in 1990, is currently under review for its fourth term re-issuance by the Santa Ana RWQCB. The City's MS4 permit regulates activities related to the quality of discharge through the stormwater management program.

The proposed project would be required to comply with all applicate plans, including policies and programs referred in the City's General Plan Safety element, such as establishing and enforcing regulations and guidelines for the development and maintenance of project-specific on-site retention/detention basin that implement the NPDES program, enhance groundwater recharge, complement regional flood control facilities, and address applicable community design policies. The proposed project would not conflict of obstruct with the applicable water quality plans. Additionally, as described above, the proposed project would not interfere with groundwater recharge or use. Therefore, impacts would be **less than significant**.

10.3 Mitigation Measures

No mitigation measures required.

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SOURCE: Tory R. Walker Engineering 2019

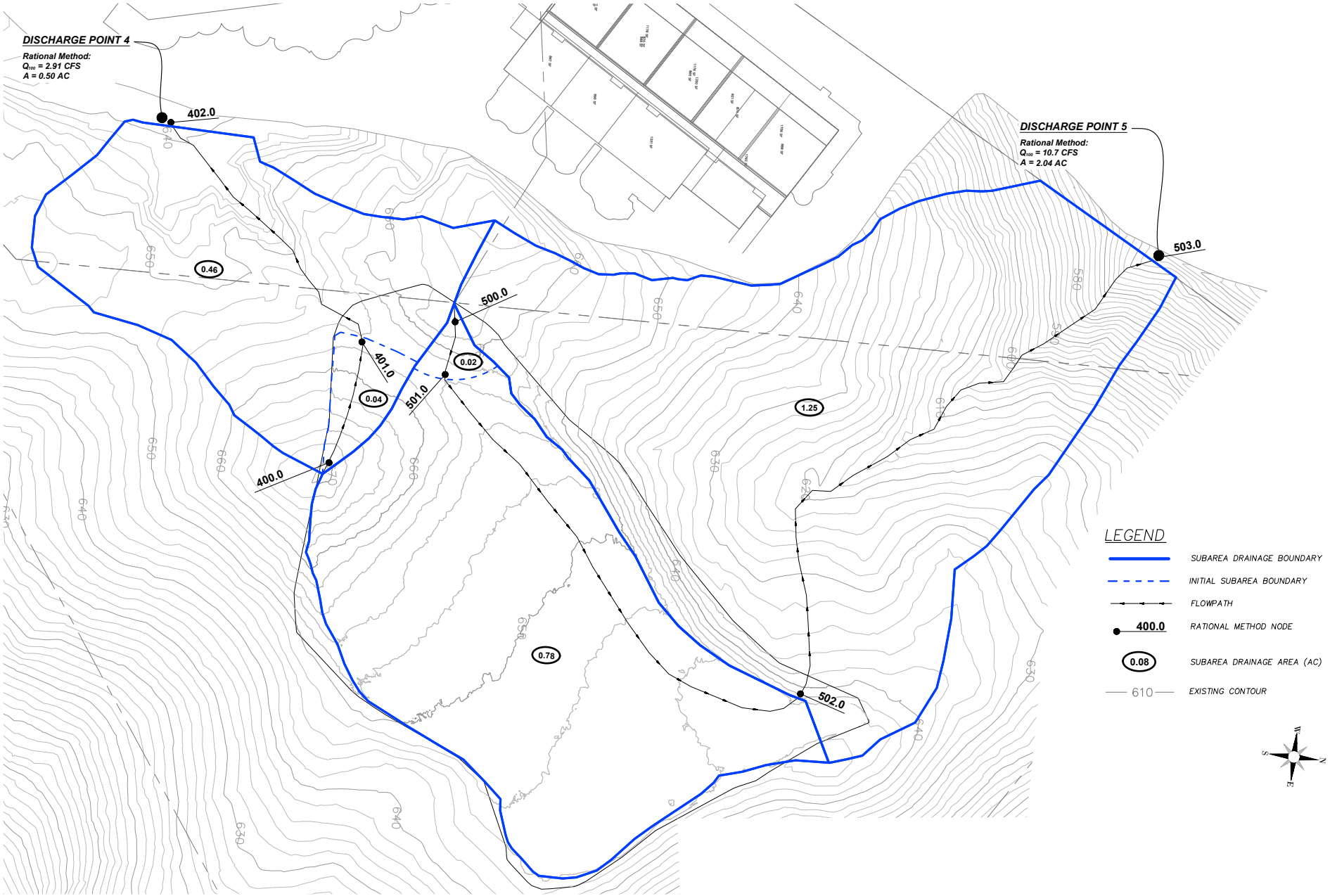
FIGURE 10-1a

Existing Conditions Hydrology Map for Residences at Ritz Carlton

Ritz-Carlton Rancho Mirage Initial Study

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SOURCE: Tory R. Walker Engineering 2019

FIGURE 10-1b

Existing Conditions Hydrology Map for Sky Mesa Recreational Area

Ritz-Carlton Rancho Mirage Initial Study

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11. LAND USE AND PLANNING

LAND USE AND PLANNING - Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

11.1 Setting

The project site is situated on all or portions of Assessor parcel numbers 689-330-026, -28, -32 which have a General Plan Land Use designation of Commercial: Resort Hotel (Rs-H) and also on parcels 689-020-012, -14 carrying an Open Space: Mountain Reserve (MR) designation.

The project site is surrounded open space to the north, northeast, east, and west and residential to the south and northwest.

11.2 Discussion of Impacts

a) ***No Impact:*** The proposed project would be located entirely within the 16.13-acre project site, which is currently vacant. None of the proposed project components would potentially block or impede movements between surrounding established communities. **No impact** would occur.

b) ***Less-than-Significant Impact:*** The project site is currently zoned Resort Hotel (Rs-H) and Open Space: Mountain Reserve (MR) in the General Plan (City of Rancho Mirage 2017). The proposed hotel suites and villas are located on the Rs-H zoned property and therefore consistent with the General Plan designation. This designation allows for the development of hotels and destination resorts with limited, ancillary commercial uses, such as spas, recreational facilities, restaurants, lounges, and small retail shops that directly support the primary use. The

Sky Mesa is located on the MR zoned portion of the project site which is assigned to public lands or property subject to conservation easements in the Santa Rosa Mountains. Uses are limited to recreational activities, such as hiking or equestrian and non-motorized bike trails and facilities consistent with the need to protect sensitive biological resources. Vehicular access is not permitted in this designation. Under existing conditions, the Sky Mesa portion of the project would conflict with the underlying land use designations. However, as part of the proposed project, the applicant is proposing an amendment to the City's General Plan that would expand the Resort Hotel (Rs-H) designation and zoning to encompass the Sky Mesa portion of

the site, which is a privately owned property and not public land. As noted above, the MR zone was adopted for the purposed of avoiding or mitigating possible impacts on sensitive biological resources. As discussed In Section 4, Biological Resources, the proposed project could result in significant impacts sensitive biological resources related to the Sky Mesa Recreation Area; implementation of mitigation measures **MM-BIO-1** through **MM-BIO-6** would reduce potentially significant impacts related to burrowing owl, sensitive reptiles and other wildlife, and compliance with the CVMSHCP, to a level below significance. As such, rezoning the Sky Mesa site from MR to Rs-H would not conflict with the City's land use policy of protecting sensitive biological resources.

Per the description of allowable uses for Rs-H outlined above, the Sky Mesa Recreation Area would be consistent with Rs-H zone. With future approval and adoption of the zone change by City Council, the proposed project would not conflict with the City's General Plan with regard to allowable land uses.

The project site is surrounded open space to the north, northeast, east, and west and residential to the south and northwest. Additionally, the existing Ritz Carlton Resort is located directly north of the site proposed for the Ritz Carlton residences and directly west of the site proposed for the Sky Mesa Recreation Area. As such, the project's proposed uses would be compatible with nearby land uses. The proposed project would be required to comply with the goals and policies of the General Plan and the City's zoning codes.

The General Plan, Land Use Element contains several goals applicable to the proposed project, including providing a resort residential community of desirable neighborhoods, a variety of community facilities, and high-quality development, meeting the City's future needs by providing high-quality commercial land uses distributed throughout Rancho Mirage, preserving the scenic viewsheds from adjoining properties and public rights-of-ways, and utilizing flexible development policies to provide quality amenities within open space. The proposed project would place residential suites, hotel villas, event space, commercial, and amenity space on a previously disturbed site with similar surrounding land uses. The proposed project would include high quality design for resort living, quality commercial uses, and open space amenities while preserving existing viewsheds and scenic resources. Thus, the proposed project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Project implementation would not result in significant physical environmental impacts related to land use plan or zoning inconsistencies. Impacts would be **less than significant**.

11.3 Mitigation Measures

No mitigation measures required.

12. MINERAL RESOURCES

MINERAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

12.1 Setting

The City is located in the Palm Springs Production-Consumption (P-C) Zone according to the Department of Conservation (DOC 2007). The project site is located on Mineral Resource Zone (MRZ)-3.

12.2 Discussion of Impacts

a, b) ***No Impact:*** The project site is located on MRZ-3, which is defined as areas containing known or inferred mineral occurrences of undetermined mineral resource significance. Additionally, no mineral resource recovery site is delineated in the City's General Plan. Therefore, **no impact** to locally important mineral resources would occur.

12.3 Mitigation Measures

No mitigation measures required.

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13. NOISE

NOISE -- Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

13.1 Setting

This section is based upon the Ritz-Carlton Residences Noise Impact Analysis (noise report) prepared by Urban Crossroads. The noise report is included as Appendix E to this Initial Study. Background and methodologies regarding the noise analysis are found in Appendix E.

To assess the existing noise level environment, 24-hour noise level measurements were taken at five locations in the project site (Figure 13-1). The noise level measurements were collected by Urban Crossroads, Inc. on Thursday, December 5, 2019.

Significance Criteria Summary

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. While the City of Rancho Mirage General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at

which increases are considered substantial for use under Guideline A. CEQA Appendix G Guideline C applies to nearby public and private airports, if any, and the proposed project's land use compatibility.

Noise Impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 13.1, Significance Criteria Summary, shows the significance criteria summary matrix.

Table 13-1. Significance Criteria Summary

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	***Nighttime***
Off-Site Traffic[1]	Noise-Sensitive	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise Sensitive	If ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Residential	Exterior Noise Level Standards	See Table 3-1	
		If ambient is < 60 dBA L_{eq}	≥ 5 dBA L_{eq} Project increase	
		If ambient is 60 - 65 dBA L_{eq}	≥ 3 dBA L_{eq} Project increase	
		If ambient is > 65 dBA L_{eq}	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise Sensitive	Permitted between 7:00 a.m. to 6:00 p.m. Monday to Saturdays; with no activity allowed on Sundays or holidays.		
		Noise Level Threshold	85 dBA L_{eq}	n/a
		Vibration Level Threshold	80 VdB	n/a

Source: Appendix E

Existing Noise Level Measurements

To assess the existing noise level environment, 24-hour noise level measurements were taken at three locations in the project site (L1, L2, and L3) (Figure 13-1). The receiver locations were selected to describe and document the existing noise environment within the project site. Figure 13-1 provides the boundaries of the proposed project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Thursday, December 5th, 2019. Appendix E includes study area photos.

Measurement Procedure and Criteria

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013.

Noise Measurement Locations

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources. Further, FTA guidance states, that it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the proposed project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community.

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after proposed project noise levels and is necessary to assess potential noise impacts due to the proposed project's contribution to the ambient noise levels.

Noise Measurement Results

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 13-1, Significance Criteria Summary, identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix E provides a summary of the existing hourly ambient noise levels described below:

- Location L1 represents the noise levels north of the project site near existing Villas of Mirada single-family homes and dirt parking lot. The noise levels at this location consist primarily of parking lot vehicle movements from dirt lot to the south. The energy (logarithmic) average

daytime noise level was calculated at 49.7 dBA L_{eq} with an average evening noise level of 46.7 dBA L_{eq} and an average nighttime noise level of 44.1 dBA L_{eq}.

- Location L2 represents the noise levels near the eastern boundary of the project site near the existing Ritz-Carlton hotel and vacant land. The energy (logarithmic) average daytime noise level was calculated at 53.4 dBA L_{eq} with an average evening noise level of 48.0 dBA L_{eq} and an average nighttime noise level of 48.1 dBA L_{eq}. The noise levels at this location consist primarily of walkway activity around the Ritz-Carlton Rancho Mirage.
- Location L3 represents the noise levels by the western boundary of the project site near to the gated entrance of the Mirada Estates. The energy (logarithmic) average daytime noise level was calculated at 50.4 dBA L_{eq} with an average evening noise level of 46.6 dBA L_{eq} and an average nighttime noise level of 41.7 dBA L_{eq}. Traffic on Frank Sinatra Drive represents the primary source of noise at this location.

Table 13-1, Significance Criteria Summary, provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix E provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

The background ambient noise levels in the project site are dominated by surface street and parking lot activity. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations. The 24-hour existing noise level measurement results are shown on Table 13-2, 24-Hour ambient Noise Level Measurements.

Table 13-2. 24-Hour Ambient Noise Level Measurements

Location[1]	Description	Energy Average Noise Level dBA L_{eq})[2]		
		Daytime	*Evening*	*Nighttime*
L1	Located north of the project site near the existing Villas of Mirada single-family homes and an open dirt parking lot.	49.7	46.7	44.1
L2	Located near the eastern boundary of the project site near the existing Ritz-Carlton hotel and vacant land.	53.4	48.0	48.1
L3	Located by the western boundary of the project site near to the gated entrance of the Mirada Estates.	50.4	46.6	41.7

Source: Appendix E.
Notes:
1 See Figure 13-1 for the noise level measurement locations.
2 Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix E. "Day" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Night" = 10:00 p.m. to 7:00 a.m.

Sensitive Receiver Locations

To assess the potential for long-term short-term construction noise impacts, the following sensitive receiver locations, as shown on Figure 13-2, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Receiver locations are located in outdoor living areas (e.g., backyards) at 10 feet from any existing or proposed barriers or at the building façade, whichever is closer to the project site, based on FHWA guidance, and consistent with additional guidance provided by Caltrans and the FTA. Sensitive receiver locations in the proposed project study area include the nearby residential uses, as described below. Other sensitive land uses in the project site that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

R1: Located approximately 591 feet north of the project site, R1 represents existing residential homes (1 Santa Rosa Mountain Lane) west of Frank Sinatra Drive. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the Ritz-Carlton Rancho Mirage located northeast of the project site at roughly 66 feet. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing residential homes (29 Grande View Court) on the south side of Mirada Circle at approximately 21 feet from the project site.

R4: Location R4 represents the existing residential home located at 30 Grande View Court approximately 33 feet from the project site boundary.

R5: Location R5 represents the existing residential home located at 31 Mirada Circle approximately 69 feet from the project site boundary.

R6: Location R6 represents the existing residential home located at 46 Mirada Circle approximately 108 feet from the project site boundary.

R7: Location R7 represents the existing residential home located 45 Mirada Circle approximately 125 feet from the project site boundary.

R8: Location R8 represents the existing residential home located at 1 Mirada Circle approximately 160 feet from the project site boundary.

13.2 Discussion of Impacts

a) ***Less-than-Significant Impact.*** Per Chapter 8.45 of the City's Municipal Code, the exterior noise limits for Resort commercial space is 65 CNEL from 7:00am to 6:00pm, 60 CNEL from 6:00pm to 10:0pm. And 55 CNEL from 10:00pm to 7:00am (City of Rancho Mirage 2021). The noise limits for Recreation space is 70 CNEL from 7:00am to 6:00pm, 65 CNEL from 6:00pm to 10:00pm, and 60 CNEL from 10:00pm to 7:00am (City of Rancho Mirage 2021). The noise limits for Residential land uses is 55 CNEL from 7:00am to 6:00pm, 50 CNEL from 6:00pm to 10:00pm, and 45 CNEL from 10:00pm to 7:00am (City of Rancho Mirage 2021).

Construction Noise Impact

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the proposed project. Noise generated by the proposed project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction equipment are expected to occur in the following stages:

- Demolition
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of proposed project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. Hard site conditions are used in the construction noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source (i.e. construction equipment). For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver and would be further reduced to 68 dBA at 200 feet from the source to the receiver.

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the proposed project construction noise level impacts at the nearby sensitive receiver locations were completed. To assess the worst-case construction noise levels, the proposed project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of construction activity area for each stage of construction to the nearest receiver location. Appendix E includes the detailed CadnaA construction noise model inputs.

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the closest point from the edge of the construction activity areas to each of the nearby receiver locations. As detailed in Appendix E, the unmitigated construction noise levels are expected to range from 42.1 to 70.6 dBA L_{eq} at the nearby receiver locations. Proposed project construction noise levels are considered exempt if activities occur within the hours specified in the City of Rancho Mirage Municipal Code Section 15.04.030 of 7:00 a.m. to 7:00 p.m. on weekdays.

As stated in Appendix E, to evaluate whether the proposed project will generate potentially significant short-term noise levels at nearby receiver locations, a construction-related noise level threshold is adopted from the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH). The threshold of 85 dBA L_{eq} is used as acceptable thresholds for construction noise at the nearby sensitive receiver locations. The construction noise analysis presented in Appendix E, shows that the noise sensitive residential receiver locations will satisfy the 85 dBA L_{eq} significance threshold during proposed project construction activities as shown on Table 13-3, Construction Noise Level Compliance. Therefore, the noise impacts due to proposed project construction noise is considered **less than significant** at all noise sensitive receiver locations.

Table 13-3. Construction Noise Level Compliance

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	***Threshold[3]***	***Threshold Exceeded?[4]***
R1	52.2	85	No
R2	69.6	85	No
R3	70.3	85	No
R4	70.6	85	No
R5	70.2	85	No
R6	65.2	85	No
R7	66.5	85	No
R8	56.1	85	No

Source: Appendix E.
Notes:
1 Noise Receiver locations are shown on Figure 13-2.
2 Highest construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations as shown in Appendix E.
3 Construction noise level thresholds as shown in Table 13-1, Significance Criteria Summary.
4 Do the estimated project construction noise levels exceed the construction noise level threshold?

Operational Noise Impacts

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Figure 13-2 and defined in Section 13.1.3, Sensitive Receiver Locations, resulting from the operation of the proposed project.

It is expected the on-site project-related noise sources will include: air conditioning units, pool activity and outdoor courtyard activity. This noise analysis is intended to describe noise level impacts associated with the typical operational activities at the project site.

Using the reference noise levels to represent the proposed project operations that include, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the project site and the proposed project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 13-4, Project Operational Noise Levels, shows the calculated proposed project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m., evening hours of 7:00 p.m. to 10:00 p.m. and the nighttime hours of 10:00 p.m. to 7:00 a.m. Table 13-4, Project Operational Noise Levels, shows that the proposed project operational noise levels will range from 26.7 to 47.2 dBA L_{eq}.

Table 13-4. Project Operational Noise Levels

Receiver Location[1]	Project Operational Noise Levels (dBA L_{eq})[2]			Noise Level Standards (dBA Leq)[3]			Threshold Exceeded?[4]		
	Day	*Eve.*	*Night*	*Day*	*Eve.*	*Night*	*Day*	*Eve.*	*Night*
R1	29.6	30.3	26.7	55	50	45	No	No	No
R2	41.9	42.9	37.3	55	50	45	No	No	No
R3	46.8	47.2	44.6	55	50	45	No	No	No
R4	43.7	43.7	42.2	55	50	45	No	No	No
R5	43.5	43.6	42.0	55	50	45	No	No	No
R6	43.1	43.5	40.8	55	50	45	No	No	No
R7	42.3	42.3	40.7	55	50	45	No	No	No
R8	35.3	35.4	33.7	55	50	45	No	No	No

Source: Appendix E.
Notes:
1 See Figure 13-2 for the noise source and receiver locations.
2 Project operational noise level calculations included in Appendix E.
3 City of Rancho Mirage exterior noise level standards for residential land use, as shown in Table 13-1, Significance Criteria Summary.
4 Do the estimated Project operational noise source activities exceed the noise level standards?
"Day" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Night" = 10:00 p.m. to 7:00 a.m.

To demonstrate compliance with local noise regulations, the project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Rancho Mirage exterior noise level standards at nearby noise-sensitive receiver locations. Table 13-4, Project Operational Noise Levels, shows that the operational noise levels associated with project will satisfy the City of Rancho Mirage 55 dBA L_{eq} daytime, 50 dBA L_{eq} evening and 45 dBA L_{eq} nighttime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered less than significant at the nearby noise-sensitive receiver locations.

To describe the proposed project operational noise level contributions, the proposed project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by proposed project operational noise sources.

Tables (9-3 through 9-5) and calculations in Appendix E show that the proposed project operational noise level increase ranging from 0.0 to 4.7 dBA L_{eq}; as such, project operational noise level contributions satisfy the operational noise level increase significance criteria presented in Table 13-1, Significance Criteria Summary. Therefore, the proposed project related operational noise level increases at all sensitive receiver locations will be **less than significant**.

Off-Site Transportation Noise Impact

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed project, noise contours were developed based on Ritz-Carlton Residences Traffic Impact Analysis (Appendix E). Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise contours were developed for the following traffic scenarios:

- Existing Without / With Project: This scenario refers to the existing present-day 2019 noise conditions, without and with the development of the full Project. The existing with Project scenario will not actually occur since the Project would not be fully constructed and operational until 2023 conditions.
- Existing plus Ambient (EA) 2023 Without / With Project: This scenario refers to the existing noise conditions plus the estimated 4 years of background growth in ambient traffic conditions without and with the development of the full Project.
- Existing plus Ambient plus Cumulative (EAC) 2023 Without / With Project: This scenario refers to the existing plus ambient plus cumulative noise conditions at 2023 without and with the proposed Project.
- Horizon Year 2040 Without / With Project: This scenario refers to the future Horizon Year conditions at Year 2040 without and with the proposed Project. This scenario represents buildout of the General Plan land use and includes all cumulative projects identified in the Traffic Impact Analysis.

Noise contours were used to assess the proposed project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying proposed project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the project site. Appendix E present a summary of the exterior traffic noise levels for each traffic condition, and also includes the traffic noise level contours worksheets for each traffic condition.

An analysis of existing traffic noise levels plus traffic noise generated by the proposed project has been included in this report for informational purposes and to fully analyze all the existing traffic scenarios identified in the Ritz-Carlton Residences Traffic Impact Analysis prepared by Urban Crossroads, Inc (Appendix F). However, the analysis of existing off-site traffic noise levels plus traffic noise generated by the project scenario will not actually occur since the proposed project would not be fully constructed and operational until future year 2023 plus cumulative

conditions. Therefore, no mitigation measures are considered to reduce the Existing Plus Project traffic noise level increases. The EAC 2023 and Horizon Year 2040 traffic noise conditions that include all cumulative projects are used to determine the significance of the proposed project off-site traffic noise level increases on the study area roadway segments.

The Existing 2019 without Project exterior noise levels are expected to range from 62.0 to 76.9 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. The Existing 2019 with Project conditions range from 63.6 to 76.9 dBA CNEL. The Project off-site traffic noise level increases range from 0.0 to 1.6 dBA CNEL on the study area roadway segments.

The EA 2023 without Project exterior noise levels are expected to range from 62.4 to 77.2 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. The EA 2023 with Project conditions range from 63.8 to 77.2 dBA CNEL. The Project off-site traffic noise level increases range from 0.0 to 1.4 dBA CNEL.

The EAC 2023 without Project exterior noise levels are expected to range from 62.7 to 77.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. The EAC 2023 with Project conditions range from 64.0 to 77.4 dBA CNEL. The Project off-site traffic noise level increases range from 0.0 to 1.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 13-1, Significance Criteria Summary, land uses adjacent to the project site roadway segments would experience **less-than-significant** noise level impacts due to proposed project-related traffic noise levels.

The Horizon Year 2040 without Project exterior noise levels are expected to range from 63.1 to 77.8 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. The Horizon Year 2040 with Project conditions range from 64.3 to 77.8 dBA CNEL. The Project off-site traffic noise level increases range from 0.0 to 1.2 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 13-1, Significance Criteria Summary, land uses adjacent to the study area roadway segments would experience **less-than-significant** noise level impacts due to unmitigated proposed project-related traffic noise levels.

Summary

The proposed project would not generate substantial temporary or permanent increase in ambient noise levels in the vicinity of the proposed project in excess of standards established in local plans or by other agencies. The proposed project would comply with all State of California noise requirements, the California Building Code, and policies and programs outlined in the City's General Plan Noise Element. Therefore, impacts would be **less than significant**.

b) Less-than-Significant Impact with Mitigation Incorporated. Construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized in Table 13-5, Vibration Source Levels for Construction Equipment. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) using the following vibration assessment methods defined by the FTA.

Table 13-5. Vibration Source Levels for Construction Equipment

Equipment	Vibration Decibels (VdB) at 25 feet
Small bulldozer	58
Jackhammer	79
Loaded Trucks	86
Large Bulldozer	87

Source: Appendix E.

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from proposed project construction activities would cause only intermittent, localized intrusion. The proposed project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration, the vibration is usually short-term and is not of sufficient magnitude to cause building damage.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the project site were estimated by data published by the Federal Transit Administration (FTA). Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site during various stages of construction. Using the vibration source level of construction equipment provided on Table 13-5, Vibration Source Levels for Construction Equipment, and the construction vibration assessment methodology published by the FTA, it is possible to estimate the project vibration impacts. Table 13-6, Unmitigated Construction Equipment Vibration Levels, presents the expected project related vibration levels at the nearby receiver locations.

Table 13-6. Unmitigated Construction Equipment Vibration Levels

Receiver[1]	Distance to Const. Activity (Feet)[2]	Receiver Vibration Levels (VdB)[3]					Threshold (VdB)[4]	Threshold Exceeded?[5]
		Small Bulldozer	*Jack-hammer*	*Loaded Trucks*	*Large Bulldozer*	*Highest Vibration Levels*		
R1	591	16.8	37.8	44.8	45.8	45.8	80	No
R2	66	45.4	6.4	73.4	74.4	74.4	80	No
R3	**21**	**60.3**	**81.3**	**88.3**	**89.3**	**89.3**	**80**	**Yes**
R4	**33**	**54.4**	**75.4**	**82.4**	**83.4**	**83.4**	**80**	**Yes**
R5	69	44.8	65.8	72.8	73.8	73.8	80	No
R6	108	38.9	59.9	66.9	67.9	67.9	80	No

Table 13-6. Unmitigated Construction Equipment Vibration Levels

Receiver[1]	Distance to Const. Activity (Feet)[2]	Receiver Vibration Levels (VdB)[3]					Threshold (VdB)[4]	Threshold Exceeded?[5]
		Small Bulldozer	*Jack-hammer*	*Loaded Trucks*	*Large Bulldozer*	*Highest Vibration Levels*		
R7	125	37.0	58.0	65.0	66.0	66.0	80	No
R8	160	33.8	54.8	61.8	62.8	62.8	80	No

Source: Appendix E.
Notes:
1 Receiver locations are shown on Figure 13-2.
2 Distance from receiver locations to the source of the nearest construction activity.
3 Based on the Vibration Source Levels of Construction Equipment in Appendix E.
4 Does the peak vibration exceed the vibration thresholds?
5 Does the vibration level exceed the FTA acceptable vibration level?

At distances ranging from 21 to 591 feet from the project construction activity, construction vibration velocity levels are expected to range from 45.8 to 89.3 VdB and will exceed the FTA 80 VdB threshold for human annoyance at receiver locations R3 and R4 (Figure 13-2). These impacts would be potentially significant, however implementation of a 50-foot vibration buffer zone from sensitive receiver locations R3 and R4 (**MM-NOI-1**) would reduce vibration levels to R3 and R4 to 78.0 VdB and would not exceed the FTA 80 VdB threshold.

Vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating simultaneously adjacent to the project site perimeter. Additionally, construction of the project site would be restricted the daytime hours between 7:00 a.m. and 6:00 p.m. Monday to Saturday with City of Rancho Mirage requirements thereby eliminating potential vibration impacts during the sensitive evening and nighttime hours. With this in consideration in addition to the implementation of **MM-NOI-1**, impacts would be **less than significant**.

c). ***No Impact.*** The project site is not located within the vicinity of a private airstrip or an airport land use plan, nor is it located within 2 miles of a public airport or public use airport. The closest airport to the project site is Palm Springs Airport, which is located approximately 4 miles north of the project site. The people residing or working in the project area would not be subject to excessive airport- or plane-related noise levels. Therefore, there would be **no impact**.

13.3 Mitigation Measures

MM-NOI-1 During proposed project construction, the applicant shall require that large-loaded trucks and dozers (greater than 80,000 pounds) shall not be used within 50 feet along the entire southern property line. Instead, small rubber-tired or alternative equipment shall be used within this area during proposed project construction to reduce vibration effects. If all mobile equipment used during proposed project construction are less than 80,000 pounds, then the 50-foot buffer mitigation is not required.



SOURCE: Urban Crossroads 2020

FIGURE 13-1

Noise Measurement Locations

Ritz-Carlton Rancho Mirage Initial Study

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SOURCE: Urban Crossroads 2020

FIGURE 13-2

Noise Measurement Locations

Ritz-Carlton Rancho Mirage Initial Study

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14. POPULATION AND HOUSING

POPULATION AND HOUSING – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

14.1 Setting

This section evaluates the proposed project's consistency with applicable plans, policies, and regulations as they relate to population and housing. Data sources for this section include Southern California Association of Governments (SCAG) and the City of Rancho Mirage General Plan – Housing Element.

14.2 Discussion of Impacts

a) ***Less-than-Significant Impact:*** The proposed project would involve the construction of 106 residential suites, hotel villas, event spaces, commercial spaces, and an amenity space totaling 236,748 square feet. Although the 106 residential suites are anticipated to be treated as a condo hotel unit in which residents are allowed to live at the residence only during a specified time frame, the residential units will be analyzed as typical dwelling units would for the purpose of this analysis.

The Southern California Association of Governments (SCAG) is a metropolitan planning organization that represents the Counties of Ventura, Los Angeles, San Bernardino, Orange, Riverside, and Imperial. SCAG reported the City's population to be 18,739 persons as of 2018 (SCAG 2019a). In 2018 the City had a total of 14,492 housing units, and in 2017 the City had a total of 16,902 jobs (SCAG 2019a). By 2045, SCAG projected the City to have a population of 25,200 persons and 21,200 jobs (SCAG 2020). These numbers are reflected in Table 14-1, Existing and Projected Population, Household, and Employment Growth in the City of Rancho Mirage. According to the City of Rancho Mirage's General Plan – Housing Element (City of Rancho Mirage 2022), the 2021 - 2029 Regional Housing Needs Allocation (RHNA) determined that the City has been assigned a total of 1,746 housing units.

The proposed project would construct 106 residential units. As stated earlier, these residential units would operate similar to time-share properties and therefore future residents would not be in the proposed residential units year-round. Because the proposed residential units are not typical residential units and residents cannot occupy them year-round, theses housing units do not count towards the RHNA housing unit determination.

SCAG's Local Profile Report for the City of Rancho Mirage indicated that the City's average household size was two persons per dwelling unit as of 2018 (SCAG 2019a). Using these assumptions, implementation of the proposed project would have the potential to increase the City's population by 216 persons. This population increase would comply with SCAG's projected population increase for the City (Table 14-1, Existing and Projected Population, Household, and Employment Growth in the City of Rancho Mirage).

The proposed project involves the construction of residential suites, hotel villas, event space, a commercial area, restaurant, and amenities such as a pool terrace. Additionally, the proposed project is not a large employment center that would encourage people to move to the area for work.

Table 14-1. Existing and Projected Population, Household, and Employment Growth in the City of Rancho Mirage

	2016	2045
Population	18,200	25,200
Households	9,000	13,000
Employment	16,600	21,200

Source: SCAG 2020,

The anticipated population growth and employment growth as a result of the proposed project are aligned with the City's growth projects. Further, the proposed project would generally connect to existing utilities and infrastructure located adjacent to the project site. The proposed project would not construct new or extend existing utilities or infrastructure into areas not currently served by such improvements (see Section 19, Utilities and Service Systems, for a detailed analysis of potential utilities or infrastructure related to the project). Thus, the proposed project would not indirectly induce substantial unplanned population growth and impacts would be **less than significant**.

c) No Impact: The project site is a vacant, graded plot of land with no existing structures present. The proposed project would neither displace existing housing nor necessitate the construction of replacement housing. Therefore, **no impacts** would occur.

14.3 Mitigation Measures

No mitigation measures required.

15. PUBLIC SERVICES

PUBLIC SERVICES –	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

15.1 Setting

Fire Protection

Fire services for the City of Rancho Mirage are provided through a cooperative agreement with the State of California (Cal-Fire) and the County of Riverside Fire Department (RCFD) (City of Rancho Mirage n.d.a.). Cal-Fire/Riverside County Fire Department is an all risk, full-service fire department and has two fire stations located in City of Rancho Mirage (City of Rancho Mirage 2017).

Police Protection

Twenty-four hour police protection is provided to the City of Rancho Mirage on a contractual basis by the Riverside County Sheriff's Department (RCSD) (City of Rancho Mirage 2017). As of 2017, the City had one officer per 786 resident, which exceeds the commonly accepted ratio of one officer per 1,000 residents (City of Rancho Mirage 2017).

Schools

The City is located in the Palm Springs Unified School District (PSUSD) and the Desert Sands Unified School District (DSUSD) (City of Rancho Mirage 2006). There is one public school and three private schools in the City (City of Rancho Mirage 2006). The public school is Rancho Mirage Elementary School. The three private schools are Palm Valley school (pre-kindergarten through 12th grade), Marywood Country Day School (pre-kindergarten to 6th grade), and Rancho Mirage Children's School (pre-kindergarten to 4th grade).

Parks

Guided by the Parks Master Plan, the City has expanded its parks and trail system throughout Rancho Mirage to adapt to the growing population. Currently, there are six parks, including a mix of mini and local parks (City of Rancho Mirage 2017). There are no existing recreational opportunities on site.

15.2 Discussion of Impacts

a) ***Fire protection?***

Less-than-Significant Impact: The closest fire station to the project site is Fire Station No. 50 (70801 Highway 111), located approximately 2.7 miles southeast of the site. In addition to the two fire stations, five other County operated fire stations are located close to the City (City of Rancho Mirage 2017).

Once operational, Cal-Fire/RCFD would continue to serve the project site. Additionally, as discussed in Threshold 14(a), the proposed project would not result in substantial unplanned population growth in the City. Although the proposed project would potentially result in a slight increase in calls for service to the project site in comparison to the existing conditions, this increase is expected to be nominal and not to result in the need for new facilities. Additionally, the proposed project would pay the City's fire tax to help fund fire protection services and development impact fees per Section 3.29.120 of the City's Municipal Code (City of Rancho Mirage 2017). Overall, it is anticipated that the proposed project would be adequately served by existing Cal-Fire/RCFD facilities, equipment, and personnel. Therefore, the proposed project would require the construction nor expansion of fire protection service facilities and impacts would be **less than significant**.

Police protection?

Less-than-Significant Impact: Although the proposed project would potentially result in a slight increase in calls for service to the project site in comparison to existing conditions, this increase is expected to be nominal and not result in the need for new police facilities. Overall, it is anticipated that the proposed project would be adequately served by existing police facilities, equipment, and personnel. Therefore, the proposed project would not require the construction nor expansion of police protection facilities and impacts would be **less than significant**.

Schools?

Less-than-Significant Impact: The project site is located within the boundaries of the PSUSD. Buildout of the proposed project would result in expanded hotel facilities, commercial space,

event space, and amenity space. The proposed Residences at Ritz Carlton only allows a limited and non-permanent (not year-round) stay for potential residences, and the proposed residence units are expected to serve as vacation and second homes. Because the residences do not function as typical dwelling units, the proposed project is not expected to result in student generation.

The proposed project would pay all applicable statutory school developer fees, which would be used for the potential construction and reconstruction of school facilities to accommodate students from new developments (PSUSD 2022). However, because the proposed project would not generate students the project would result in the need for expanded or new school facilities. Therefore, impacts would be **less than significant**.

Parks?

No Impact: As further discussed in Section 16, Recreation, the proposed project would not result in substantial population growth in the City. The number of employees hired to construct and operate the proposed hotel would be minimal. As such, an increase in patronage at park facilities is not expected. In addition, the number of hotel guests visiting existing parks would be minimal, as the proposed project would provide open space and recreation facilities. Future hotel patrons would be more inclined to use hotel facilities rather than community parks. **No impacts** associated with the construction or expansion of park facilities would occur.

Other public facilities?

No Impact: The proposed project would not result in substantial population growth in the City. The number of employees hired to construct and operate the proposed hotel would be minimal. As such, a substantial increase in patronage at libraries, community centers, and other public facilities is not expected. Therefore, **no impacts** associated with the construction or expansion of public facilities would occur.

15.3 Mitigation Measures

No mitigation measures required.

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16. RECREATION

RECREATION –	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☒	☐

16.1 Setting

The majority of the 16.13-acre project site is currently vacant and lies south and east of the existing Ritz-Carlton Rancho Mirage Hotel. Guided by the Parks Master Plan, the City has expanded its parks and trail system throughout Rancho Mirage to adapt to the growing population. There are no existing recreational opportunities on site.

16.2 Discussion of Impacts

a) ***Less-than-Significant Impact:*** As discussed earlier, the proposed project will provide approximately 35% open space made up of landscape areas, pools, water features, and paths. Figure 1-9a and 1-9b shows the proposed landscape plan for the Residences at Ritz Carlton and the Sky Mesa Recreational Area, respectively. A desert landscape design is proposed throughout the project site including water cascades, multiple pools, rock escarpments, and fountains. Visitors and residents would be using the proposed and existing hotel facilities provided on site.

As discussed in Section 14, Population and Housing, the proposed project would not result in substantial population growth in the City that would increase the use of existing parks and recreational facilities such that substantial physical deterioration of recreational facilities would occur or be accelerated. Therefore, substantial physical deterioration of these facilities would not occur or be accelerated with implementation of the proposed project; impacts would be **less than significant**.

b) ***Less-than-Significant Impact***: The proposed project would not result in substantial population growth in the City. Further, the proposed project would not promote or indirectly induce new development that would require the construction or expansion of recreational facilities. Because

the proposed project would not result in substantial population growth in the City, it would not increase the demand for recreational facilities. As such, impacts would be **less than significant**.

16.3 Mitigation Measures

No mitigation measures required.

17. TRANSPORTATION

TRANSPORTATION – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☒	☐	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐

17.1 Setting

This section is based upon the Ritz-Carlton Residences Traffic Impact Analysis (traffic report) and Vehicle Miles Travelled (VMT) Analysis (VMT analysis) prepared by Urban Crossroads. The traffic report is included as Appendix F1 and F2 to this Initial Study, respectively. Additionally, a parking assessment was prepared by Urban Crossroads. The parking assessment is included as Appendix G of this Initial Study. Background and methodologies regarding the traffic analysis and the parking assessment are found in Appendix F and G, respectively.

As discussed in the Traffic Report prepared for this Initial Study (Appendix F), consistent with County of Riverside traffic study guidelines, the study area includes any intersection of "Collector" or higher classification street, with "Collector" or higher classification streets, at which the project will add 50 or more peak hours trips. There are three main intersections analyzed in the Traffic Report. A map of the three intersections is presented in Figure 17-1.

1. Frank Sinatra Dr. and Dwy. 1
2. Frank Sinatra Dr. and Dwy. 2
3. Highway 111 and Frank Sinatra Dr.

Frank Sinatra Drive is an east-west major collector running through the City. Most of the Frank Sinatra Drive is constructed to its ultimate design standards with a 100-foot right-of-way. However, Frank Sinatra Drive, west of Highway 111, is designated as a two-lane roadway in the General Plan. Highway 111 is the major

arterial connecting most of the commercial centers of the Coachella Valley. As a major arterial, the route runs north-west to south-east diagonally within the study area. Highway 111 provides three through travel lines in each direction. Highway 111 is designated as a Riverside County CMP roadway.

The Traffic Report analyzed six different scenarios: Existing (2019) Conditions, E + P (Existing plus Project) Conditions, Existing plus Ambient Growth plus Project (EAP) (2023) Conditions, Existing plus Ambient Growth plus Project Plus Cumulative (EAPC) (2023) Conditions, Horizon Year (2040) Without Project, Horizon Year (2040) With Project. Each scenario are described further below:

- Existing Conditions: Existing physical conditions have been disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Existing conditions are discussed in Section 17.1.2.
- E+P Conditions: The E+P analysis determines circulation system deficiencies that would occur on the existing roadway system in the scenario of the project being placed upon Existing conditions. The E+P scenario is analyzed in Section 17.2.2.
- EAP Conditions: The EAP (2023) traffic conditions analyses determine potential traffic impacts based on a comparison of the EAP traffic conditions to Existing conditions. To account for background traffic growth, an ambient growth factor from Existing conditions of 6.12% (2 percent per year over 3 years, compounded annually) for 2023 conditions is included for EAP traffic conditions. Consistent with County of Riverside traffic study guidelines, the EAP analysis is intended to identify "Opening Year" deficiencies associated with the development of the project based on the expected background growth within the study area. The EAP (2023) traffic conditions are analyzed in Section 17.2.3.
- EAPC Conditions: The EAPC (2023) traffic conditions analyses determine the potential near-term cumulative circulation system deficiencies. Background traffic for these analysis scenarios follow the same ambient growth methodology described above for EAP traffic conditions. However, EAPC traffic conditions also include the addition of cumulative development traffic. The comprehensive list of cumulative development projects was compiled from information provided by the City of Rancho Mirage and Cathedral City. The EAPC (2023) traffic conditions are analyzed in Section 17.2.4.
- Horizon Year (2040) Conditions: Traffic projections for Horizon Year (2040) with project conditions were derived from the Riverside Transportation Analysis Model (RivTAM) modified to represent buildout of the City of Rancho Mirage. The Horizon Year (2040) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the City's Development Impact Fee (DIF) program, or other approved funding mechanisms can accommodate the long-range cumulative traffic at the target level of service (LOS) identified by the City of Rancho Mirage. The Horizon Year (2040) traffic conditions are analyzed in Section 17.2.5.

  The Horizon Year (2040) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the Transportation Uniform Mitigation Fee (TUMF), or other approved funding mechanism (e.g., Community Facilities District, etc.) can accommodate the long-range cumulative traffic at the target Level of Service (LOS) identified in the City of Rancho Mirage General Plan. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-TUMF) are identified as such. Each of these regional transportation fee programs are discussed in more detail in Appendix F.

Methodologies

Level of Service

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

Intersection Capacity Analysis

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control.

Signalized Intersections

The City of Rancho Mirage require signalized intersection operations analysis based on the methodology described in the HCM 6th Edition. Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 17-1, Signalized Intersection Description of LOS.

Table 17-1. Signalized Intersection Description of LOS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F

Table 17-1. Signalized Intersection Description of LOS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up	F	F

Source: Appendix F.

Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network. All signalized study area intersections have also utilized the Synchro software.

Unsignalized Intersections

The City of Rancho Mirage require the operations of unsignalized intersections be evaluated using the methodology described in the HCM 6th Edition. The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 17-2, Unsignalized Intersection Description of LOS).

Table 17-2. Unsignalized Intersection Description of LOS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: Appendix F.

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

Traffic Signal Warrant Analysis Methodology

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD), for all study area intersections.

The signal warrant criteria for existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CAMUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing study area intersections for all analysis scenarios. Warrant 3 is appropriate to use for this TIA because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Future intersections that do not currently exist have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets.

Traffic signal warrant analyses were performed for all of the following unsignalized study area intersections: Frank Sinatra Drive and Driveway 1, and Frank Sinatra Drive and Driveway 2 (see Figure 17-1).

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

Queuing Analysis

A queuing analysis has been conducted for all intersections and project driveways. The 95th percentile queuing of vehicles has been assessed along these roadways to determine potential queuing issues at the intersections.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential impacts/needs of the intersections with traffic added from the proposed project. The 50th percentile maximum queue is the maximum back of queue on a typical cycle during the peak hour, while the 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes during the peak hour. In other words, if traffic were observed for 100 cycles, the 95th percentile queue would be the queue experienced with the 95th busiest cycle (or 5% of the time). The 50th percentile or average queue represents the typical queue length for peak hour traffic conditions, while the 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed; it is simply based on statistical calculations.

Minimum Level of Service (LOS)

Per Goal 1, Policy 1 of the City of Rancho Mirage General Plan (City of Rancho Mirage 2017g), the following LOS will be utilized for study area intersections located within the City: Require development to achieve a peak hour LOS D or better at intersections and roadway segments.

Deficiency Criteria

To determine whether the addition of project traffic at a study intersection would result in a deficiency, the following will be utilized:

- A deficiency occurs at study area intersections if the pre-project condition is at or better than LOS D (i.e., acceptable LOS), and the addition of project trips causes the peak hour LOS of the study area intersection to operate at unacceptable LOS (i.e., LOS E or F). Per the County of Riverside traffic study guidelines, for intersections currently operating at unacceptable LOS (LOS E or F), a deficiency would occur if the project contributes 50 or more peak hour trips to pre-project traffic conditions.

Existing Conditions

This section provides a summary of the existing circulation network, the City of Rancho Mirage General Plan Circulation Network, and a review of existing peak hour intersection operations, traffic signal warrant, and queuing analyses.

Existing Circulation Network

The study area analyzed in Appendix F includes a total of three intersections as shown in Figure 17-1. Exhibit 3-1 in Appendix F illustrates the study area intersections and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

City of Rancho Mirage General Plan Circulation Element

A brief description of each roadway including existing and planned roadway width is provided below:

- Frank Sinatra Drive is an east-west major collector running through the City of Rancho Mirage. Most of Frank Sinatra Drive is constructed to its ultimate design standards with a 100-foot right-of-way. However, Frank Sinatra Drive, west of Highway 111, is designated as a two-lane roadway in the General Plan (City of Rancho Mirage 2017g).
- Highway 111 is the major arterial connecting most of the commercial centers of the Coachella Valley. As a major arterial, the route runs north-west to south-east diagonally within the study area. Highway 111 provides three through travel lanes in each direction. Highway 111 is designated as a Riverside County CMP roadway.

Truck Routes

The City of Rancho Mirage designated truck route map is shown on Exhibit 3-4 in Appendix F. Highway 111 is identified as designated truck route.

Transit Service

The City of Rancho Mirage and is currently served by the SunLine Transit Agency (STA), a public transit agency serving various jurisdictions throughout Coachella Valley. Transit service is reviewed and updated by STA periodically to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate. It should also be noted that SunDial service provides special services for the disabled and seniors (60+).

Bicycle and Pedestrian Facilities

Existing bicycle and pedestrian facilities within City are shown on Exhibit 3-6 in Appendix F. The General Plan identifies that Pedestrian and other non-motor circulation is encouraged in the City wherever possible (City of Rancho Mirage 2017g).

Existing (2019) Traffic Counts

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in December 2019. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)
- Saturday Mid-day Peak Hour (peak hour between 10:00 AM and 2:00 PM)

The weekday AM, weekday PM, and Saturday mid-day peak hour count data is representative of typical peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. The raw manual peak hour turning movement traffic count data sheets are included in Appendix F. These raw turning volumes have been flow conserved between intersections with limited access, no access and where there are currently no uses generating traffic.

Existing weekday average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-7 in Appendix F. Existing ADT volumes are based upon factored intersection peak hour counts collected by Urban Crossroads, Inc.

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 16.06 percent. As such, the above equation utilizing a factor of 6.23 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 16.06 percent (i.e.,

1/0.01606 = 6.23) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses.

Existing Conditions Intersection Operations Analysis

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented above. The intersection operations analysis results are summarized in Table 17-3, Intersection Analysis for Existing (2019) Conditions, which indicates that all existing study area intersections are currently operating at an acceptable LOS (i.e., LOS D or better) during one or more of the peak hours. The intersection operations analysis worksheets are included in Appendix F.

Existing Conditions Traffic Signal Warrants Analysis

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. For Existing (2019) traffic conditions, no existing study area intersections appear to currently warrant a traffic signal based on peak hour traffic flows (see Appendix F).

Queuing Analysis

A queuing analysis was performed for study area intersection to assess vehicle queues along the roadways. Existing (2019) queuing analysis findings are presented in Table 17-4, Peak Hour Queuing Summary for Existing (2019) Conditions.

As shown on Table 17-4, Peak Hour Queuing Summary for Existing (2019) Conditions, no intersection turning movements are anticipated to experience periodic queuing issues during one or both peak hours based on the 95th percentile peak hour traffic flows. Worksheets for Existing (2019) conditions queuing analysis are provided in Appendix F.

Table 17-3. Intersection Analysis for Existing (2019) Conditions

#	Intersection	Traffic Control	Intersection approach Lanes[1]												Delay[2] (secs.)			Level of Service		
			NB			SB			EB			WB			Weekday			Weekday		
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	SAT	AM	PM	SAT
1	Frank Sinatra Dr. and Dwy. 1	—	Future Intersection												—	—	—	—	—	—
2	Frank Sinatra Dr. and Dwy. 2	CSS	1	1	0	1	1	0	0	1	0	0	1	0	9.0	9.4	9.7	A	A	A
3	Hwy. 111 and Frank Sinatra Dr.	TS	1	3	1	2	3	1	1	1	0	2	1	1	19.9	19.2	18.1	B	B	B

Source: Appendix F.
Notes:
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; CSS = Cross-street Stop; TS = Traffic Signal.
L = Left; T = Through; R = Right

1 When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

2 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

Table 17-4. Peak Hour Queuing Summary for Existing (2019) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	90th Percentile Queue (Feet)[1]			Acceptable?[2]		
			AM	*PM*	*SAT*	*AM*	*PM*	*SAT*
Frank Sinatra Dr. and Dwy. 1	—	—	***Future Intersection***					
Frank Sinatra Dr. and Dwy. 2	SBL	220	0	10	10	Yes	Yes	Yes
	WBL/R	200	34	28	45	Yes	Yes	Yes
Hwy. 111 and Frank Sinatra Dr.	NBL	260	66	59	82	Yes	Yes	Yes
	SBR	300	0	0	0	Yes	Yes	Yes
	EBL	170	35	60	43	Yes	Yes	Yes
	EBT/R	270	41	74	51	Yes	Yes	Yes

Source: Appendix F.
Notes:
[1] Minimum queue length for the approach reported.
[2] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

17.2 Discussion of Impacts

a) ***Less-than-Significant Impact with Mitigation.*** As discussed above in Section 17.1.1, Methodologies, roadways in Rancho Mirage must operate at an LOS of D or higher. The TIA (Appendix F) analyzed six traffic conditions, described in detail under 17.1, Setting.

Analysis of Existing (2019) Traffic Conditions, E+P Traffic Conditions, EAP (2023) Traffic Conditions, EAPC (2023) Traffic Conditions, and Horizon Year (2040) With and Without Project Traffic Conditions indicate that the study area intersections are currently operating at an acceptable LOS during one or more of the peak hours.

For E+P Traffic Conditions, EAP (2023) Traffic Conditions, EAPC (2023) Traffic Conditions, and Horizon Year (2040) With and Without Project Traffic Conditions, there are no deficient intersections that require improvement because there are no weekday peak hour queuing issues.

However, for E+P Traffic Conditions, EAP (2023) Traffic Conditions, and Horizon Year (2040) With Project Traffic Conditions, the Highway 111 and Frank Sinatra Drive study intersection would operate at unacceptable weekend special event 95th percentile traffic flows and therefore would require improvements to northbound lane movements and eastbound lane movements at the Highway 111 and Frank Sinatra Drive intersection (**MM-TRA-1**; **MM-TRA-2**). The proposed project would have a **less-than-significant impact with mitigation incorporated.** The analysis for these conclusions are presented below.

Project Trip Generation

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific proposed project is therefore based

upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

Weekday trip generation rates used to estimate project traffic and a summary of the proposed project's weekday trip generation are shown in Table 17-5, Project Trip Generation Summary – Typical Operations. The weekend special event trip generation summary is shown in Table 17-6, Project Trip Generation Summary – Weekend Special Event. The trip generation rates are based upon data collected by the Institute of Transportation Engineers (ITE) for Multifamily Housing (Low-Rise) (ITE Land Use Code 220) and Quality Restaurant (ITE Land Use Code 931) land uses in their published Trip Generation Manual, 10th Edition, 2017. The ITE Trip Generation Manual does not provide trip generation rates for a venue since the use is very specific. As such, vehicle trips are calculated based on a maximum allowable occupancy of 0.8 per parking space.

Table 17-5. Project Trip Generation Summary – Typical Operations

Land Use	ITE LU Code	Units[1]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	*Out*	*Total*	*In*	*Out*	*Total*	
Project Trip Generation Rates:[2]									
Multifamily House (Low-Rise)	220	DU	0.11	0.35	0.46	0.35	0.21	0.56	7.32
Quality Restaurant	931	TSF	0.49	0.24	0.73	5.23	2.57	7.80	83.84

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	*Out*	*Total*	*In*	*Out*	*Total*	
Project Trip Generation Summary:									
Ritz-Carlton Residences	106	DU	11	38	49	37	22	59	776
Sky Mesa Restaurant	6.966	TSF	3	2	5	36	18	54	586
Internal Capture (50%)[3]			-2	-1	-3	-18	-9	-27	-294
		Total	**12**	**39**	**51**	**55**	**31**	**86**	**1,068**

Source: Appendix F.
Notes:
1 DU = Dwelling Units; TSF = Thousand Square Feet.
2 Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).
3 Internal capture reduction of 50% has been applied as a significant portion of the patrons would be internal to the existing hotel.

Table 17-6. Project Trip Generation Summary – Weekend Special Event

Land Use	ITE LU Code	Units[2]	Arrival Peak Hour			Departure Peak Hour		
			In	*Out*	*Total*	*In*	*Out*	*Total*
Project Trip Generation Rates:[1]								
Multifamily Housing (Low-Rise)	220	DU	0.35	0.35	0.70	0.35	0.35	0.70
Quality Restaurant	931	TSF	6.30	4.38	10.68	6.30	4.38	10.68
Venue	Not Available							

Land Use	Quantity	Units[2]	Arrival Peak Hour			Departure Peak Hour		
			In	*Out*	*Total*	*In*	*Out*	*Total*
Project Trip Generation Summary:								
Ritz-Carlton Residences	106	DU	37	37	74	37	37	74
Sky Mesa Restaurant	6.966	TSF	44	31	75	44	31	75
Internal Capture (50%)[3]			-22	-16	-38	-22	-16	-38
Venue[4]	381	Spaces	295	10	305	10	295	305
		Total	**354**	**62**	**416**	**69**	**347**	**416**

Source: Appendix F.
Notes:
1 Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).
2 DU = Dwelling Units; TSF = thousand Square Feet
3 Internal capture reduction of 50% has been applied as a significant portion of the patrons would be internal to the existing hotel.
4 Vehicle trips are calculated based on a maximum allowable occupancy of 0.8 per parking space.

As shown on Table 17-5, Project Trip Generation Summary – Typical Operations, the project is anticipated to generate a net total of 1,068 trip-ends per day, 51 AM peak hour trips and 86 PM peak hour trips.

It should be noted that the venue will generate trips outside the weekday AM and PM peak hours. As shown on Table 17-6, Project Trip Generation Summary – Weekend Special Event, the proposed project (special event) is anticipated to generate a net total of 416 weekend peak hour trips.

Project Trip Distribution

The trip distributions have been developed based on past work experience in the vicinity of the project site and refined to reflect the roadway network and the surrounding uses in the vicinity of the project as they exist today. Trip distribution patterns for the proposed project are shown in Appendix F.

Modal Split

Although the use of public transit, walking, and/or bicycling have the potential to reduce project-related traffic, such reductions have not been taken into considerations in this traffic study in order to provide a conservative analysis of the proposed project's potential to contribute to circulation system deficiencies.

Trip Assignment

The assignment of traffic from the proposed project area to the adjoining roadway system is based upon the proposed project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the proposed project. Based on the identified project traffic generation and trip distribution patterns, proposed project weekday ADT, weekday AM peak hour, and weekday PM peak hour peak hour intersection turning movement volumes are shown in Appendix F. Proposed

project (Special Event) weekend arrival and departure peak hour intersection turning movement volumes are also shown in Appendix F.

Cumulative Growth Traffic

Ambient Growth Rate

Future year traffic forecasts have been based upon background (ambient) growth at 8.24 percent (2 percent per year over 4 years) for EAP and EAPC traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies, for EAPC traffic conditions.

Cumulative Development Traffic

California Environmental Quality Act (CEQA) guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Rancho Mirage.

Appendix F contains the cumulative development location map, and a summary of cumulative development projects and their proposed land uses are shown. If applicable, the traffic generated by individual cumulative projects was manually added to the Opening Year Cumulative forecasts to ensure that traffic generated by the listed cumulative development projects in Appendix F are reflected as part of the background traffic. Trip generation rates used to estimate cumulative development project traffic and a summary of the cumulative development project's weekday trip generation are shown in Table 17-7, Cumulative Development Project Trip Generation Summary.

Table 17-7. Cumulative Development Project Trip Generation Summary

Land Use	ITE LU Code	Units[1]	AM Peak Hour			PM Peak Hour			Weekday Daily	SAT Peak Hour		
			In	*Out*	*Total*	*In*	*Out*	*Total*		*In*	*Out*	*Total*
Project Trip Generation Rates:[2]												
Single-Family Detached Housing	210	DU	0.19	0.56	0.74	0.62	0.37	0.99	9.44	0.50	0.43	0.93
Hotel	310	Rooms	0.28	0.19	0.47	0.31	0.29	0.60	8.36	0.40	0.32	0.72
Shopping Center	820	TSF	0.58	0.36	0.94	1.83	1.98	3.81	37.75	2.34	2.16	4.50
Land Use	**Quantity**	**Units[1]**	**AM Peak Hour**			**PM Peak Hour**			**Weekday Daily**	**SAT Peak Hour**		
			In	***Out***	***Total***	***In***	***Out***	***Total***		***In***	***Out***	***Total***
Project Trip Generation Summary:												
Mirada Villas – SFDU (75% Built)	9	DU	2	5	7	6	3	9	86	5	4	9
Horizon Pacific Rancho Cove MSA Consulting												
Commercial	20,000	TSF	12	7	19	37	40	77	756	47	43	90
Hotel	100	Rooms	28	19	47	31	29	60	836	40	32	72
SFDU	35	DU	6	19	25	22	13	35	332	18	15	33
		Total	**46**	**45**	**91**	**90**	**82**	**172**	**1,924**	**105**	**90**	**195**
Ken Catanzarite – SFDU	20	DU	4	11	15	12	7	19	190	10	9	19
		Total	**52**	**61**	**113**	**108**	**92**	**200**	**2,200**	**120**	**103**	**223**

Source: Appendix F.
Notes:
[1] DU = Dwelling Units; TSF = Thousand Square Feet.
[2] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

Near-Term Traffic Forecasts

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast EAP (2023) and EAPC (2023) traffic conditions. An ambient growth factor of 2% per year accounts for background (area-wide) traffic increases that occur over time up to the year 2023 from the year 2019 (compounded 2% per year growth over a 4-year period). Proposed project traffic is added to assess both forecast EAP (2023) and EAPC (2023) traffic conditions. Traffic volumes generated by cumulative development projects are not included in the EAP (2023) traffic conditions.

The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- EAP (2023)
  - Existing 2019 volumes
  - Ambient growth traffic (8.24%)
- EAPC (2023)
  - Existing 2019 volumes
  - Ambient growth traffic (8.24%)
  - Cumulative Development Traffic
  - Typical Weekday or Saturday Special Event Project Traffic

The average growth rate is estimated at approximately 3.44%, compounded annually between Existing (2019) and EAPC (2023) traffic conditions. The annual growth rate at each individual intersection is not lower than 3.24% compounded annually to as high as 3.63% compounded annually over the same time period. Therefore, the annual growth rate utilized for the purposes of this analysis would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Rancho Mirage for EAPC (2023) traffic conditions, especially when considered along with the addition of project-related traffic.

Horizon Year (2040) Volume Development

Traffic projections for Horizon Year (2040) without proposed project conditions were derived from the Riverside Transportation Analysis Model (RivTAM) using accepted procedures for model forecast refinement and smoothing for study area intersections located within the County of Riverside. The version of the RivTAM used for traffic reflects the local input in the adopted 2016 SCAG RTP within the County of Riverside.

The traffic forecasts reflect the area-wide growth anticipated between Existing (2019) conditions and Horizon Year (2040) traffic conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year (2040) peak hour forecasts were refined using the model derived long range forecasts, base (validation) year model forecasts, along with existing peak hour traffic count data collected at each analysis location in December 2019. The RivTAM has a base (validation) year of 2012 and

a horizon (future forecast) year of 2040. The difference in model volumes (2040-2012) defines the growth in traffic over the 28-year period.

The refined future peak hour approach and departure volumes obtained from the model output data are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

Typically, the model growth is prorated and is subsequently added to the existing (base validation) traffic volumes to represent Horizon Year traffic conditions. In an effort to conduct a conservative analysis, reductions to traffic forecasts from either Existing or Opening Year Cumulative traffic conditions were not assumed as part of this analysis. As such, in conjunction with the addition of cumulative projects that are not consistent with the General Plan, additional growth has also been applied on a movement-by-movement basis, where applicable, to estimate reasonable Horizon Year (2040) forecasts. Horizon Year (2040) turning volumes were compared to EAPC (2023) volumes in order to ensure a minimum growth as a part of the refinement process. The minimum growth includes any additional growth between EAPC (2023) and Horizon Year (2040) traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2019) and EAPC (2023) conditions. Adjustments have not been made to study area intersections that may be affected by new future roadway connections, where travel patterns would likely get affected and forecasts may potentially decrease from the EAPC conditions. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Horizon Year (2040) peak hour forecasts.

The future Horizon Year (2040) Without Project peak hour turning movements were then reviewed by Urban Crossroads, Inc. for reasonableness, and in some cases, were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. Flow conservation checks ensure that traffic flow between two closely spaced intersections, such as two adjacent driveway locations, is verified in order to make certain that vehicles leaving one intersection are entering the adjacent intersection and that there is no unexplained loss of vehicles. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis. Post-processing worksheets for Horizon Year (2040) without Project traffic conditions are provided in Appendix F.

E+P Traffic Conditions

This section discusses the traffic forecasts for Existing Plus Project (E+P) traffic conditions and the resulting peak hour intersection operations, traffic signal warrant, and queuing analyses.

Roadway Improvements

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1 in Appendix F, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the proposed project to provide site access are also assumed to be in place for E+P conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

E+P Traffic Volume Forecasts

This scenario includes Existing traffic volumes plus project traffic. E+P weekday ADT, weekday AM and weekday PM peak hour intersection turning movement volumes are shown on Appendix F. Weekend special event peak hour intersection turning movement volumes are shown in Appendix F, as well.

E+P Intersection Operations Analysis

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 17.1.1 Methodologies of this Initial Study. The intersection analysis results are summarized in Table 17-8, Intersection Analysis for E+P Conditions, which indicate that there are no intersections operating at an unacceptable LOS with the addition of Project traffic. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix F.

Table 17-8. Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[1]	Existing (2019)						E+P							
			Delay[2] (secs.)			Level of Service			Delay[2] (secs.)				Level of Service			
			Weekday			Weekday			Weekday		Saturday		Weekday		Saturday	
			AM	PM	SAT	AM	PM	SAT	AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
1	Frank Sinatra Dr. and Dwy. 1	--/CSS	*Future Intersection*						8.5	8.5	8.6	10.3	A	A	A	B
2	Frank Sinatra Dr. and Dwy. 2	CSS	9.0	9.4	9.7	A	A	A	9.2	10.2	15.5	15.8	A	B	C	C
3	Hwy. 111 and Frank Sinatra Dr.	TS	19.9	19.2	18.1	B	B	B	20.6	20.0	23.0	26.1	C	C	C	C

Source: Appendix F.
Notes:
1 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.
2 CSS = Cross-street Stop; TS = Traffic Signal.
3 Arr = Arrival Peak Hour; Dep = Departure Peak Hour.

E+P Traffic Signal Warrants Analysis

Traffic signal warrants for E+P traffic conditions are based on planning level (ADT) and peak hour intersection volumes. For E+P traffic conditions, no study area intersections are anticipated to warrant a traffic signal (Appendix F).

E+P Queuing Analysis

A queuing analysis was performed for study area intersections to assess vehicle queues that may potentially impact peak hour operations. Queuing analysis findings are presented in Table 17-9, Peak Hour Queuing Summary for E+P Conditions. It is important to note that lengths are consistent with the measured distance between the intersection and the end of the storage area.

Table 17-9. Peak Hour Queuing Summary for E+P Conditions

#	Intersection	Traffic Control[1]	Existing (2019)						E+P							
			Delay[2] (secs.)			Level of Service			Delay[2] (secs.)				Level of Service			
			Weekday		SAT	Weekday		SAT	Weekday		Saturday		Weekday		Saturday	
			AM	PM		AM	PM		AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
1	Frank Sinatra Dr. and Dwy. 1	—/CSS	Future Intersection						8.5	8.5	8.6	10.3	A	A	A	B
2	Frank Sinatra Dr. and Dwy. 2	CSS	9.0	9.4	9.7	A	A	A	9.2	10.2	15.5	15.8	A	B	C	C
3	Hwy. 111 and Frank Sinatra Dr.	TS	19.9	19.2	18.1	B	B	B	20.6	20.0	23.0	26.1	C	C	C	C

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2019)						E+P							
			95th Percentile Queue (Feet)[4]			Acceptable?[5]			95th Percentile Queue (Feet)[4]				Acceptable?[5]			
			Weekday		SAT	Weekday		SAT	Weekday		Saturday		Weekday		Saturday	
			AM	PM		AM	PM		AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
Frank Sinatra Dr. and Dwy. 1	SBL/T	200	Future Intersection						0	0	36	0	Yes	Yes	Yes	Yes
	WBL/R	100							46	46	44	89	Yes	Yes	Yes	Yes
Frank Sinatra Dr. and Dwy. 2	SBL	220	0	10	10	Yes	Yes	Yes	0	14	9	39	Yes	Yes	Yes	Yes
	WBL/R	200	34	28	45	Yes	Yes	Yes	37	34	45	37	Yes	Yes	Yes	Yes
Hwy. 111 and Frank Sinatra Dr.	NBL	260	66	59	82	Yes	Yes	Yes	72	1012	**368[2]**	118	Yes	Yes	**No**	Yes
	SBR	300	0	0	0	Yes	Yes	Yes	0	0	0	0	Yes	Yes	Yes	Yes
	EBL	170	35	60	43	Yes	Yes	Yes	51	70	67	**233[2]**	Yes	Yes	Yes	**No**
	EBT/R	270	41	74	51	Yes	Yes	Yes	151	92	101	**325**	Yes	Yes	Yes	**No**

Source: Appendix F.
Notes:
[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

2 CSS = Cross-street Stop; TS = Traffic Signal.
3 Arr = Arrival Peak Jour; Dep = Departure Peak Hour.
4 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

As shown on Table 17-9, Peak Hour Queuing Summary for E+P Conditions, and consistent with Existing (2019) conditions, there are no potential queuing issues anticipated during the weekday peak 95th percentile traffic flows for E+P traffic conditions. However, the following movements are anticipated to exceed the available storage lengths based on the weekend special event 95th percentile peak hour traffic flow:

- Hwy. 111 and Frank Sinatra Dr. (#3) – NBL movement
- Hwy. 111 and Frank Sinatra Dr. (#3) – EBL movement

Worksheets for E+P conditions queuing analysis are provided in Appendix F. No improvement strategies have been recommended for study area intersections as there no deficient intersections for E+P traffic conditions. As shown previously on Table 17-9, there are no weekday peak hour queuing issues anticipated at the study area intersections for E+P traffic conditions. However, it is recommended that the following improvements be implemented to accommodate E+P weekend special event 95th percentile traffic flows (**MM-TRA-1**, **MM-TRA-2**). Therefore, impacts would be **less than significant with mitigation incorporated**.

EAP (2023) Traffic Conditions

This section discusses the methods used to develop Existing plus Ambient Growth plus Project (EAP) (2023) traffic conditions and the resulting peak hour intersection operations, traffic signal warrant, and queuing analyses.

Roadway Improvements

The lane configurations and traffic controls assumed to be in place for EAP conditions are consistent with those shown in Appendix F, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the proposed project to provide site access are also assumed to be in place for EAP conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

EAP (2023) Traffic Volume Forecasts

To account for background traffic growth, an ambient growth from Existing conditions of 8.24% (2 percent per year over 4 years, compounded annually) is included for EAP traffic conditions. Cumulative development projects are not included as part of the EAP analysis. EAP weekday ADT, weekday AM, and weekday PM peak hour intersection turning movement volumes are shown in Appendix F. Weekend special event peak hour intersection turning movement volumes are also shown in Appendix F.

EAP (2023) Intersection Operations Analysis

EAP peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 17.1.1, Methodologies, of this Initial Study. The intersection analysis results are summarized in Table 17-10, Intersection Analysis for EAP (2023) Conditions, which indicate that there are no intersections operating at an unacceptable LOS with the addition of ambient growth and proposed project traffic. The intersection operations analysis worksheets for EAP traffic conditions are included in Appendix F

EAP (2023) Traffic Signal Warrants Analysis

Traffic signal warrants for EAP traffic conditions are based on planning level (ADT) and peak hour intersection volumes. For EAP traffic conditions, no study area intersections are anticipated to warrant a traffic signal (Appendix F).

EAP (2023) Queuing Analysis

A queuing analysis was performed for study area intersections that may potentially impact peak hour operations. Queuing analysis findings are presented in Table 17-11. It is important to note that lengths are consistent with the measured distance between the intersection and the end of the storage area. As shown on Table 17-11 and consistent with Existing (2019) conditions, there are no potential queuing issues anticipated during the peak 95th percentile traffic flows for EAP (2023) traffic conditions. However, the following movements are anticipated to exceed the available storage lengths based on the weekend special event 95th percentile peak hour traffic flow:

- Hwy. 111 and Frank Sinatra Dr. (#3) – NBL movement
- Hwy. 111 and Frank Sinatra Dr. (#3) – EBL movement

Worksheets for EAP (2023) conditions queuing analysis are provided in Appendix F.

Table 17-10. Intersection Analysis for EAP (2023) Conditions

#	Intersection	Traffic Control[1]	Existing (2019)						EAP (2023)							
			Delay[2] (secs.)			Level of Service			Delay[2] (secs.)				Level of Service			
			Weekday			Weekday			Weekday		Saturday		Weekday		Saturday	
			AM	PM	SAT	AM	PM	SAT	AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
1	Frank Sinatra Dr. and Dwy. 1	--/CSS	*Future Intersection*						8.6	8.5	8.7	10.3	A	A	A	B
2	Frank Sinatra Dr. and Dwy. 2	CSS	9.0	9.4	9.7	A	A	A	9.2	10.3	15.8	16.1	A	B	C	C
3	Hwy. 111 and Frank Sinatra Dr.	TS	19.9	19.2	18.1	B	B	B	21.5	20.8	24.1	28.3	C	C	C	C

Source: Appendix F.
Notes:
[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.
[2] CSS = Cross-street Stop; TS = Traffic Signal.
[3] Arr = Arrival Peak Hour; Dep = Departure Peak Hour.

Table 17-11. Peak Hour Queuing Summary for EAP (2023) Conditions

Intersection	Movement	Available Stacking Dist. (Feet)	Existing (2019)						EAP (2023)							
			95th Percentile Queue (Feet)[1]			Acceptable?[1]			95th Percentile Queue (Feet)[1]				Acceptable?[2]			
			Weekday			Weekday			Weekday		Saturday		Weekday		Saturday	
			AM	PM	SAT	AM	PM	SAT	AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
Frank Sinatra Dr. and Dwy. 1	SBL / R	200	*Future Intersection*						0	18	27	9	Yes	Yes	Yes	Yes
	WBL / R	100							44	44	48	96	Yes	Yes	Yes	Yes
Frank Sinatra Dr. and Dwy. 2	SBL	220	0	10	10	Yes	Yes	Yes	10	22	0	33	Yes	Yes	Yes	Yes
	WBL / R	200	34	28	45	Yes	Yes	Yes	24	32	54	42	Yes	Yes	Yes	Yes
Hwy. 111 and Frank Sinatra Dr.	NBL	260	66	59	82	Yes	Yes	Yes	75	108[2]	376[2]	125[2]	Yes	Yes	**No**	Yes
	SBR	300	0	0	0	Yes	Yes	Yes	0	0	39	0	Yes	Yes	Yes	Yes
	EBL	170	35	60	43	Yes	Yes	Yes	53	74	70	238[2]	Yes	Yes	Yes	**No**
	EBT / R	270	41	74	51	Yes	Yes	Yes	62	96	106	330	Yes	Yes	Yes	**No**

Source: Appendix F.

Notes:

1 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

2 Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

3 Arr = Arrival Peak Hour; Dep = Departure Peak Hour.

No improvement strategies have been recommended for study area intersections as there no deficient intersections for EAP (2023) traffic conditions. As shown previously on Table 17-11, there are no weekday peak hour queuing issues anticipated at the study area intersections for EAP (2023) traffic conditions. However, it is recommended that the following improvements be implemented to accommodate EAP (2023) weekend special event 95th percentile traffic flows (**MM-TRA-1; MM-TRA-2**). Therefore, impacts would be **less than significant** with **mitigation incorporated**.

EAPC (2023) Traffic Conditions

This section discusses the methods used to develop Existing Plus Ambient Growth Plus Cumulative Projects Plus Project (EAPC) (2023) traffic conditions and the resulting peak hour intersection operations, traffic signal warrant, and queuing analyses.

Roadway Improvements

The lane configurations and traffic controls assumed to be in place for EAPC conditions are consistent with those shown previously on Exhibit 3-1 in Appendix F, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the proposed project to provide site access are also assumed to be in place for EAPC conditions only (e.g., intersection and roadway improvements at the proposed project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for EAPC conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).

EAPC (2023) Traffic Volume Forecasts

To account for background traffic growth, other known cumulative development projects in the study area were included in addition to an ambient growth from Existing conditions of 8.24% (2 percent per year over 4 years, compounded annually) for EAPC traffic conditions. EAPC weekday ADT, weekday AM, and weekday PM peak hour intersection turning movement volumes, as well as weekend peak hour intersection turning movement volumes are shown in Appendix F.

EAPC (2023) Intersection Operations Analysis

EAPC peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 17.1.1, Methodologies, of this Initial Study. The intersection analysis results are summarized in Table 17-12, Intersection Analysis for EACP (2023) Conditions, which indicate that there are no intersections operating at an unacceptable LOS with the addition of ambient growth, cumulative projects, and proposed project traffic. The intersection operations analysis worksheets for EAPC traffic conditions is included in Appendix F.

Table 17-12. Intersection Analysis for EACP (2023) Conditions

#	Intersection	Traffic Controls[1]	Existing (2019)						EAPC (2023)							
			Delay[2] (secs.)			*Level of Service*			*Delay[2] (secs.)*				*Level of Service*			
			Weekday			*Weekday*			*Weekday*		*Saturday*		*Weekday*		*Saturday*	
			AM	*PM*	*SAT*	*AM*	*PM*	*SAT*	*AM*	*PM*	*Arr[3]*	*Dep[3]*	*AM*	*PM*	*Arr[3]*	*Dep[3]*
1	Frank Sinatra Dr. and Dwy. 1	-- / CSS	***Future Intersection***						8.6	8.6	8.7	10.4	A	A	A	B
2	Frank Sinatra Dr. Dwy. 2	CSS	9.0	9.4	9.7	A	A	A	9.3	10.4	16.0	16.3	A	B	C	C
3	Hwy. 111 and Frank Sinatra Dr.	TS	19.9	19.2	18.1	B	B	B	21.7	21.3	24.9	30.5	C	C	C	C

Source: Appendix F.
Notes:
[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.
[2] CSS = Cross-street Stop; TS = Traffic Signal.
[3] Arr = Arrival Peak Hour; Dep = Departure Peak Hour.

EAPC (2023) Traffic Signal Warrants Analysis

Traffic signal warrants for EAPC traffic conditions are based on planning level (ADT) and peak hour intersection volumes. For EAPC traffic conditions, no study area intersections are anticipated to warrant a traffic signal (Appendix F).

EAPC (2023) Queuing Analysis

A queuing analysis was performed for study area intersections that may potentially impact peak hour operations. Queuing analysis findings are presented in Table17-13, Peak Hour Queuing Summary for EAPC (2023) Conditions. It is important to note that lengths are consistent with the measured distance between the intersection and the end of the storage area. As shown on Table 17-13, Peak Hour Queuing Summary for EAPC (2023) Conditions, and consistent with Existing (2019) conditions, there are no potential queuing issues anticipated during the peak weekday 95th percentile traffic flows for EAPC (2023) traffic conditions. However, the following movements are anticipated to exceed the available storage lengths based on the weekend special event 95th percentile peak hour traffic flow:

- Hwy. 111 and Frank Sinatra Dr. (#3) – NBL movement
- Hwy. 111 and Frank Sinatra Dr. (#3) – EBL movement

Worksheets for EAPC (2023) conditions queuing analysis are provided in Appendix F.

Table 17-13. Peak Hour Queuing Summary for EAPC (2023) Conditions

Intersection	Movement	Available Stacking Dist. (Feet)	Existing (2019)						EAPC (2023)							
			95th Percentile Queue (Feet)[1]			Acceptable?[1]			95th Percentile Queue (Feet)[1]				Acceptable?[2]			
			Weekday			Weekday			Weekday		Saturday		Weekday		Saturday	
			AM	PM	SAT	AM	PM	SAT	AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
Frank Sinatra Dr. and Dwy. 1	SBL / R	200	Future Intersection						9	0	30	0	Yes	Yes	Yes	Yes
	WBL / R	100							44	45	43	79	Yes	Yes	Yes	Yes
Frank Sinatra Dr. and Dwy. 2	SBL	220	0	10	10	Yes	Yes	Yes	0	0	21	34	Yes	Yes	Yes	Yes
	WBL / R	200	34	28	45	Yes	Yes	Yes	28	29	40	48	Yes	Yes	Yes	Yes
Hwy. 111 and Frank Sinatra Dr.	NBL	260	66	59	82	Yes	Yes	Yes	77	113[2]	3379[2]	131[2]	Yes	Yes	**No**	Yes
	SBR	300	0	0	0	Yes	Yes	Yes	0	0	0	0	Yes	Yes	Yes	Yes
	EBL	170	35	60	43	Yes	Yes	Yes	57	86[2]	82[2]	251[2]	Yes	Yes	Yes	**No**
	EBT / R	270	41	74	51	Yes	Yes	Yes	64	99	109	336	Yes	Yes	Yes	**No**

Source: Appendix F.
Notes:
1 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
2 Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.
3 Arr = Arrival Peak Hour; Dep = Departure Peak Hour.

No improvement strategies have been recommended for study area intersections as there no deficient intersections for EAPC (2023) traffic conditions. As shown previously on Table 17-13, Peak Hour Queuing Summary for EAPC (2023) Conditions, there are no weekday peak hour queuing issues anticipated at the study area intersections for EAPC (2023) traffic conditions. However, it is recommended that the following improvements be implemented to accommodate EAPC (2023) weekend special event 95th percentile traffic flows (**MM-TRA-1; MM-TRA-2**). Therefore, impacts would be **less than significant with mitigation incorporated**.

Horizon Year (With and Without Project) (2040) Traffic Analysis

This section discusses the methods used to develop Horizon Year Without and With Project and the resulting intersection operations, traffic signal warrants, and queuing analysis.

Roadway Improvements

The lane configurations and traffic controls assumed to be in place for Horizon Year conditions are consistent with those shown previously on Exhibit 3-1 in Appendix F, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the proposed project to provide site access are also assumed to be in place for Horizon Year With Project conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Horizon Year conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).

Horizon Year Without Project Traffic Volume Forecasts

This scenario includes the refined post-process volumes obtained from the RivTAM (see Appendix F for a detailed discussion on the post-processing methodology). The weekday ADT, weekday AM, and weekday PM peak hour volumes which can be expected for Horizon Year (2040) Without Project traffic conditions, as well as the weekend peak hour intersection turning movement volumes are shown in Appendix F.

Intersection Operation Analysis

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year (2040) Without Project conditions with roadway and intersection geometrics consistent with Existing conditions. As shown in Table 17-14, Intersection Analysis for Horizon Year (2020) Conditions, no study area intersections are anticipated to operate at unacceptable levels of service under Horizon Year (2040) Without and With Project conditions. With the addition of proposed project traffic, no additional study area intersections are anticipated to operate at unacceptable levels of service.

Table 17-14. Intersection Analysis for Horizon Year (2040) With and Without Project Conditions

#	Intersection	Traffic Controls[1]	2040 Without Project						2040 With Project							
			Delay[2] (secs.)			*Level of Service*			*Delay[2] (secs.)*				*Level of Service*			
			Weekday			*Weekday*			*Weekday*		*Saturday*		*Weekday*		*Saturday*	
			AM	*PM*	*SAT*	*AM*	*PM*	*SAT*	*AM*	*PM*	*Arr[3]*	*Dep[3]*	*AM*	*PM*	*Arr[3]*	*Dep[3]*
1	Frank Sinatra Dr. and Dwy. 1	— / CSS	***Future Intersection***						8.6	8.6	8.7	10.4	A	A	A	B
2	Frank Sinatra Dr. Dwy. 2	CSS	9.1	9.7	10.0	A	A	B	9.3	10.5	16.3	16.7	A	B	C	C
3	Hwy. 111 and Frank Sinatra Dr.	TS	22.7	22.6	20.3	C	C	C	23.2	23.2	27.1	34.1	C	C	C	C

Source: Appendix F.
Notes:
[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.
[2] CSS = Cross-street Stop; TS = Traffic Signal.
[3] Arr = Arrival Peak Hour; Dep = Departure Peak Hour.

The intersection operations analysis worksheets for Horizon Year (2040) Without Project conditions are included in Appendix F of this Initial Study. The intersection operations analysis worksheets for Horizon Year (2040) With Project conditions are included in Appendix F of this Initial Study.

Traffic Signal Warrants Analysis

A traffic signal warrant analysis was performed at the unsignalized driveways for Horizon Year (2040) Without and With Project traffic conditions. No study area intersections are anticipated to warrant a traffic signal under Horizon Year (2040) Without and With Project traffic conditions. Traffic signal warrants worksheets for Horizon Year (2040) Without and With Project conditions are provided in Appendix F.

Queuing Analysis

A queuing analysis was performed for the study area intersections to assess vehicle queues along the roadways. Horizon Year (2040) Without and With Project queuing analysis findings are presented in Table 17-15, Peak Hour Queuing Summary for Horizon Year (2040) Conditions.

As shown on Table 17-15, Peak Hour Queuing Summary for Horizon Year (2040) Conditions, no intersection turning movements are anticipated to experience periodic queuing issues during one or both peak hours based on the weekday and weekend 95th percentile peak hour traffic flows for Horizon Year (2040) Without Project.

With the addition of proposed project traffic, no intersection turning movements are anticipated to experience periodic queuing issues during one or both peak hours based on the weekday 95th percentile peak hour traffic flows. However, the following movements are anticipated to exceed the available storage lengths based on the weekend special event 95th percentile peak hour traffic flow:

- Hwy. 111 and Frank Sinatra Dr. (#3) – NBL movement
- Hwy. 111 and Frank Sinatra Dr. (#3) – EBL movement

Worksheets for Horizon Year (2040) Without and With Project conditions queuing analysis are provided in Appendix F. The study area intersections are anticipated to operate at an acceptable LOS for Horizon Year (2040) Without Project conditions. The study area intersections are anticipated to continue to operate at an acceptable LOS with the addition of proposed project traffic. As such, no improvements have been recommended for Horizon Year (2040) traffic conditions.

Table 17-15. Peak Hour Queuing Summary for Horizon Year (2040) Conditions

Intersection	Movement	Available Stacking Dist. (Feet)	2040 Without Project						2040 With Project							
			95th Percentile Queue (Feet)[1]			Acceptable?[1]			95th Percentile Queue (Feet)[1]				Acceptable?[2]			
			Weekday			Weekday			Weekday		Saturday		Weekday		Saturday	
			AM	PM	SAT	AM	PM	SAT	AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
Frank Sinatra Dr. and Dwy. 1	SBL / R	200	Future Intersection						10	24	37	15	Yes	Yes	Yes	Yes
	WBL / R	100							47	49	46	89	Yes	Yes	Yes	Yes
Frank Sinatra Dr. and Dwy. 2	SBL	220	0	0	14	Yes	Yes	Yes	0	10	14	51	Yes	Yes	Yes	Yes
	WBL / R	200	31	36	40	Yes	Yes	Yes	37	31	44	46	Yes	Yes	Yes	Yes
Hwy. 111 and Frank Sinatra Dr.	NBL	260	75	68	97	Yes	Yes	Yes	83	121[2]	392[2]	146[2]	Yes	Yes	**No**	Yes
	SBR	300	0	0	0	Yes	Yes	Yes	0	0	43	0	Yes	Yes	Yes	Yes
	EBL	170	46	75	51	Yes	Yes	Yes	61	97[2]	74	246[2]	Yes	Yes	Yes	**No**
	EBT / R	270	48	89	75	Yes	Yes	Yes	68	107	115	343	Yes	Yes	Yes	**No**

Source: Appendix F.
Notes:
1 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
2 Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.
3 Arr = Arrival Peak Hour; Dep = Departure Peak Hour.

As shown previously on Table 17-15, there are no weekday peak hour queuing issues anticipated at the study area intersections for Horizon Year (2040) traffic conditions. However, it is recommended that the following improvements be implemented to accommodate Horizon Year (2040) With Project Traffic Conditions weekend special event 95th percentile traffic flows (**MM-TRA-1; MM-TRA-2**). Therefore, impacts would be **less than significant with mitigation incorporated**.

b) ***Less-than-Significant Impact.*** On June 18, 2020, the City adopted its own set of VMT thresholds and guidelines titled *Transportation Analysis Policy for the City of Rancho Mirage* (City VMT Guidelines). The guidelines were updated on February 18, 2021 by the City to remain consistent with County and State policies regarding criteria for determining the significance of transportation impacts of projects. The City VMT Guidelines Section I.A, Project Screening, provides details on appropriate screening thresholds that can be used to identify when a proposed land use project is anticipated to result in a less than significant impact without conducting a more detailed VMT analysis. Screening thresholds are broken into three types:

- Project Type Screening
- Low VMT Area Screening
- Transit Priority Area (TPA) Screening

A land use project need only meet one of the above screening thresholds to result in a less-than-significant impact. Refer to Appendix F2 for additional details regarding VMT screening thresholds.

The proposed 6,273 square foot restaurant within the Sky Mesa Recreation Area component of the proposed project is well within the 50,000 square foot threshold for local serving retail and anticipated to provide an additional dining option to hotel guests and the local community. The swimming pool and adjacent open space within the Sky Mesa Recreation Area are also expected to be complementary components to hotel guests and would therefore also meet the intent of the local serving screening criteria. Therefore, the Sky Mesa Recreation Area meets the Project Type Screening criteria and impacts would be **less than significant**.

The Ritz Carlton Residences component of the proposed project would not be deemed as a local serving use, and would generate daily vehicle trips in excess of the 110 trips per day threshold for project type screening as described in the City VMT Guidelines. It also does not meet the Low VMT Area or Transit Priority Area Screening criteria. Therefore, further analysis of potential VMT impacts is provided.

Project Generated VMT

The Riverside Transportation Analysis Model (RIVTAM) is a useful tool to estimate VMT as it considers interaction between different land uses based on socio-economic data such as population, households, and employment. The City Guidelines state that both proposed project generated VMT and proposed project effect on VMT should be calculated for the traffic analysis zone (TAZ) in which the proposed project is located.

Proposed project generated VMT was calculated using the City of Rancho Mirage General Plan Update version of RIVTAM, with adjustments to socio-economic data. As detailed in

Appendix F2, the proposed project generated VMT per resident is calculated to be 8.60 for baseline conditions.

The thresholds of significance used to measure a potential VMT impact are described by project type in Section I.B., Thresholds of Significance, of the City VMT Guidelines. Thresholds for determination of significant transportation impact for residential uses are described as VMT per resident which is:

- 15 percent below the Citywide per resident VMT, OR
- 15 percent below the regional VMT per resident.

As the City is currently still in development of their Citywide per resident VMT value for purposes of determining a proposed project generated VMT impact, the regional VMT per resident value (15.2) was utilized instead. At 8.60 VMT per resident, the proposed project generated VMT per resident would not exceed the City's threshold of 15 percent below the regional VMT per resident. Proposed project generated VMT is **less than significant**.

Project Effect on VMT

Consistent with City VMT Guidelines Section I.B., VMT Analysis for Non-Screened Projects, in addition to project generated VMT, there is also a requirement to evaluate a project's effect on VMT. A project's effect on VMT is calculated using the "boundary method", which includes all vehicle trips with one or both trip-ends within the designated boundary of interest (e.g., the City of Rancho Mirage). As detailed in Appendix F2 and shown on Table 17-16, the proposed project is not forecast to cause an increase in citywide VMT per service population as compared to without the proposed project. Therefore, impacts would be **less than significant.**

Table 17-16. Rancho Mirage Citywide Vehicle Miles Travelled per Service Population

	Cumulative Year 2040 Without Project	Cumulative Year 2040 With Project
Population	26,821	27,049
Employment	21,694	21,694
Service Population	48,515	48,733
Vehicle Miles Travelled	838,759	840,179
Vehicle Miles Travelled per Service Population	17.29	17.22

Source: Appendix F2.

c) ***Less-than-Significant Impact.*** All proposed project circulation improvements would be designed and constructed to City standards, and therefore, would not result in design hazards. Site access improvements are shown on Figure 17-2. Therefore, it would not increase hazards due to an incompatible use, and impacts would be **less than significant**.

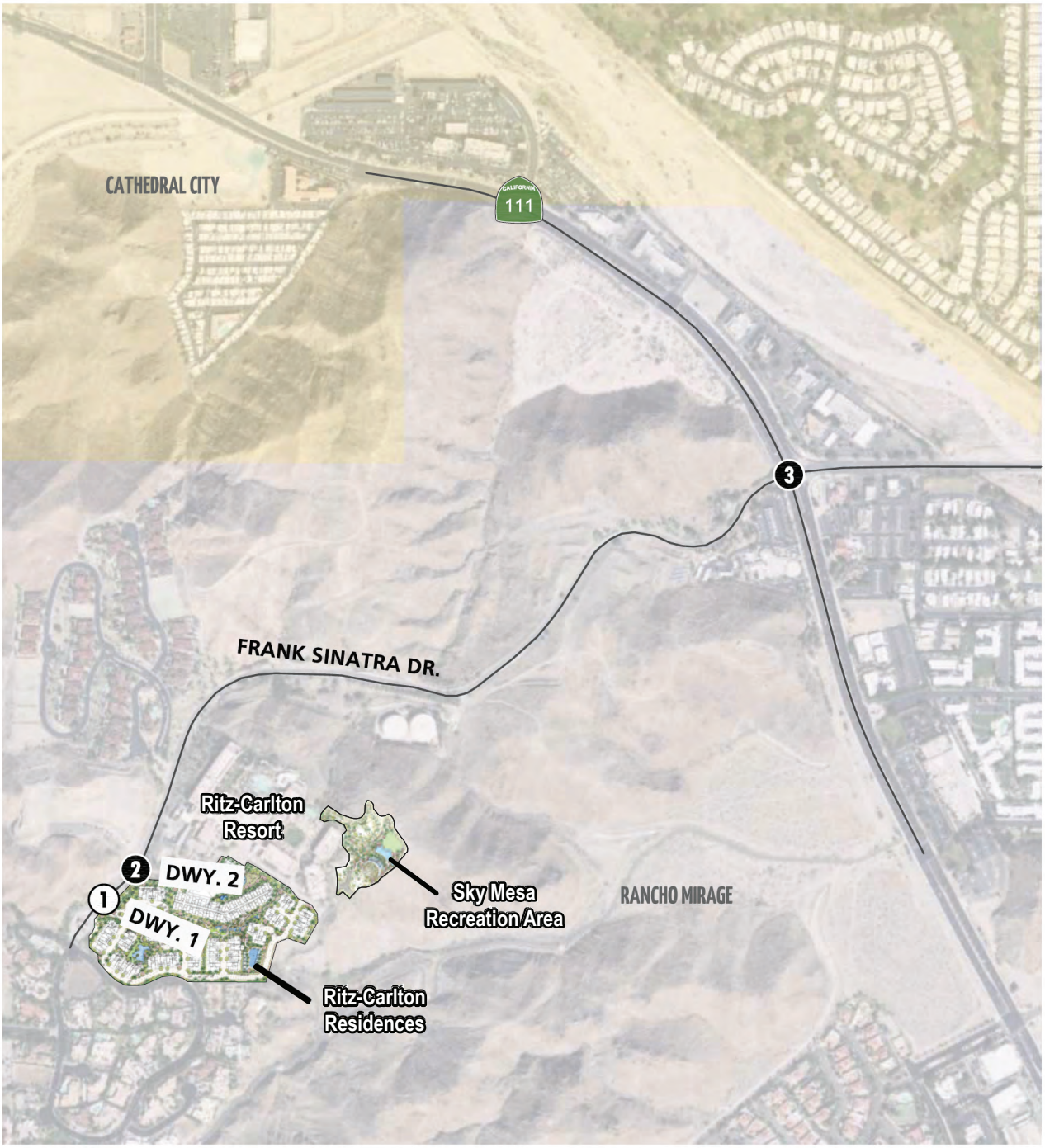
d) ***Less-than-Significant Impact.*** Fire apparatus access throughout the development would include roads that meet the Fire Code requirements for width, grade, clearance, dead-end length, and turnarounds. Therefore, the proposed project's access is considered consistent with City Fire Code requirements. Impacts to emergency access would be **less than significant**.

17.3 Mitigation Measures:

MM-TRA-1 **Hwy. 111 and Frank Sinatra Dr. (#3) –** Prior to operation of the proposed project, the Applicant shall increase the turn lane capacity from 260' to 400' for the North Bound Lane movement.

MM-TRA-2 **Hwy. 111 and Frank Sinatra Dr. (#3) –** Prior to operation of the proposed project, the Applicant shall increase turn lane capacity from 170' to 250' for the East Bound Lane movement.

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SOURCE: Urban Crossroads 2020

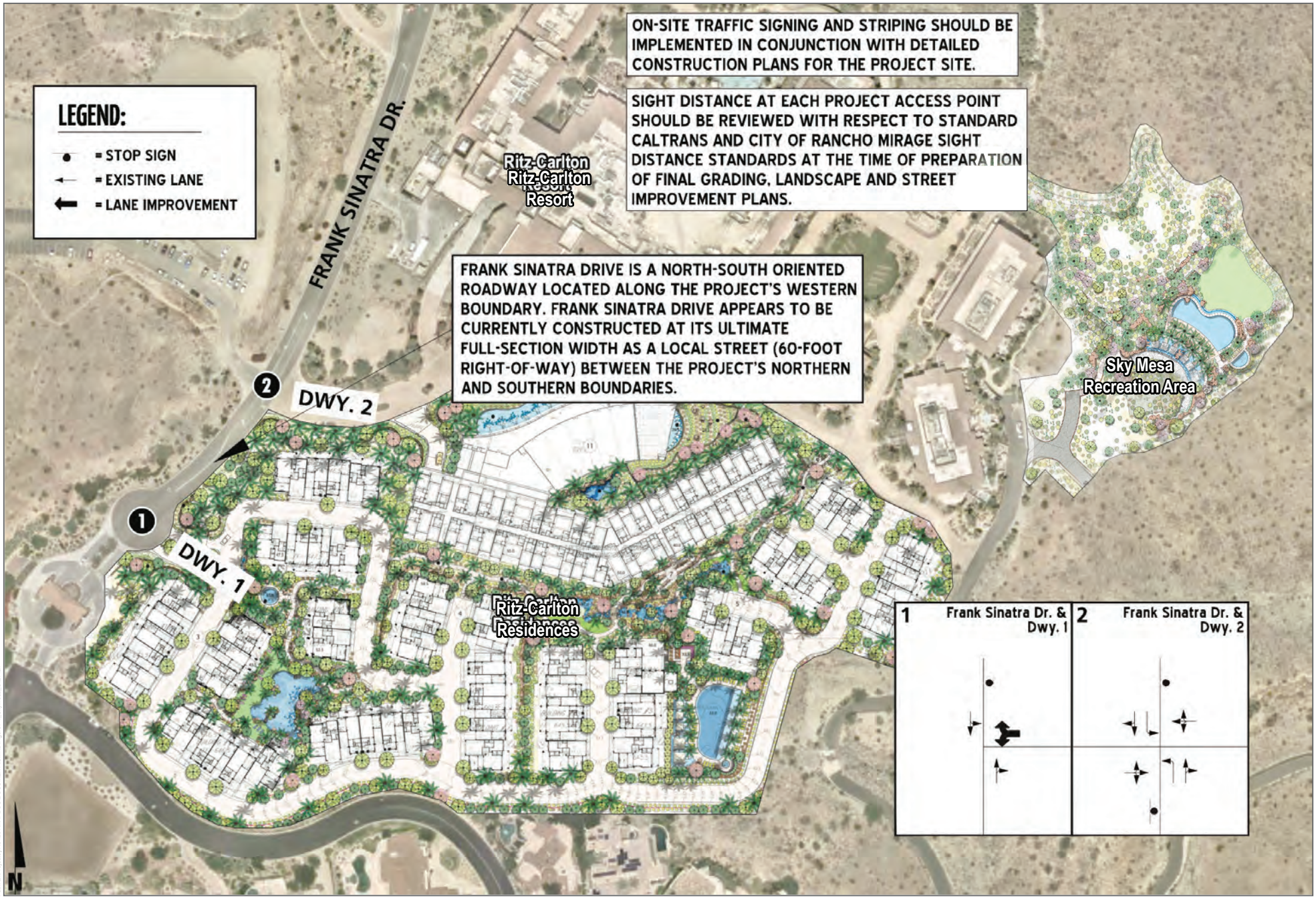
FIGURE 17-1

Traffic Impact Analysis (TIA) Study Intersections

Ritz-Carlton Rancho Mirage IS/MND

DUDEK

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SOURCE: Urban Crossroads 2020

FIGURE 17-2

Site Adjacent Roadway and Site Access Recommendations

Ritz-Carlton Rancho Mirage IS/MND

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18. TRIBAL CULTURAL RESOURCES

TRIBAL CULTURAL RESOURCES – Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☒	☐	☐

18.1 Setting

The Residences at Ritz Carlton portion of the project site was previously included in a cultural resources survey completed by CRM TECH in 2006. The 2006 study consisted of a historical/archaeological resources records search, historical background research, Native American consultation, and a systematic field survey. The records search determined that a segment of a prehistoric trail has been recorded in 1979 as extending into the 39-acre area covered in the 2006 study, however a field survey revealed that the segment of the original trail was no longer extant. The 2006 study concluded that there were no cultural resources in the area surveyed, and no evidence of archaeological deposits were found during the monitoring program.

An updated historical/archaeological resources survey was prepared by CRM TECH in September of 2019. The 2019 study includes a survey and analysis on both the proposed Residences at Ritz Carlton and Sky Mesa Recreational Area, updates to the 2006 records search and the historical background research, further consultation with Native American representatives, and a systematic field survey at intensive and reconnaissance levels as appropriate. This section is based upon the 2019 Historical/Archaeological Resources Survey (cultural report) prepared by CRM TECH in September 2019. The cultural report is included as Appendix C to this Initial Study. Background and methodologies regarding the cultural resources analysis are found in Appendix C.

18.2 Discussion of Impacts

a) ***Less-than-Significant Impact with Mitigation Incorporated.*** Refer to Section 5, Cultural Resources, for a discussion on historical resources. Impacts would be less than significant with the incorporation of mitigation measure **MM-CUL-1** and **MM-CUL-2**.

b) ***Insert Impact Statement.*** On November 21, 2021, pursuant to Senate Bill (SB (18) and Assembly Bill (AB) 52, the City sent letters initiating consultation processes to tribal groups identified by the NAHC as having or potentially having traditional lands or cultural places located within the boundaries of the City and/or have formally requested notification under AB 52. To date, the City has received the following responses:

- The Quechan Indian Tribe responded on December 1, 2021, deferring to other tribes.
- The Morongo Band of Mission Indians responded on January 26, 2022, indicating that the proposed project is not located within their traditionally affiliated boundaries and encouraged consultation with other tribes.
- The Agua Caliente Band of Cahuilla Indians (ACBCI) responded on January 24, 2022, requested formal consultation under AB 52. The City engaged in government to government consultation with ACBCI concerning tribal cultural resources. On March 1, 2022, ACBCI sent a letter to the City stating that their concerns have been addressed and formally concluded AB 52 consultation.

As a result of consultation, the City has determined that potentially significant impacts to tribal cultural resources would be reduced to a level below significance with the incorporation of mitigation measures **MM-CUL-1** and **MM-CUL-2.**

18.3 Mitigation Measures

MM-CUL-1 A Qualified Archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, and a Native American monitor shall be present for initial ground-disturbing activities associated with the current proposed project in the event unanticipated discoveries are made. The monitors may stop ground-disturbing activities in order to assess any discoveries in the field.

In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 50 feet of the find shall immediately stop until a Qualified Archaeologist can evaluate the significance of the find and determine whether additional study is

warranted. Depending on the significance of the find under the California Environmental Quality Act (CEQA) and the CEQA Guidelines (California Public Resources Code, Section 21082; 14 CCR 15064.5(f)), the Qualified Archaeologist may exhaust the data potential of the find through the process of field level recordation and then allow work to continue. If the discovery proves significant under CEQA, additional work such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.

If Native American cultural resources (i.e., prehistoric or ethnohistoric-period artifacts, food remains, or features associated with Native Americans) are exposed during proposed project-related ground disturbance, the Agua Caliente Band of Cahuilla Indians shall be contacted. This group shall be asked to provide the services of a trained Native American consultant to monitor ground-disturbing work in the area containing the Native American cultural resources. This monitoring would occur on an as-needed basis and would be intended to ensure that Native American concerns are taken into account during the construction process.

MM-CUL-2 If human remains are discovered during construction of the proposed project, California Health and Safety Code, Section 7050.5, states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner shall be contacted. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within two working days of notification of discovery, the appropriate treatment and disposition of the human remains.

Pursuant to California Public Resources Code, Section 5097.98, if the remains are thought to be Native American, the County Coroner will notify the Native American Heritage Commission, which will then notify the most likely descendent. At this time, the person who discovered the remains will contact the City of Rancho Mirage (City) so that they may work with the most likely descendent on the respectful treatment and disposition of the remains. Further provisions of the California Public Resources Code, Section 5097.98, are to be followed as applicable.

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19. UTILITIES AND SERVICE SYSTEMS

UTILITIES AND SERVICE SYSTEMS – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

19.1 Setting

According to The Lodge at Rancho Mirage Hotel Expansion Project 2006 DEIR, the project site is located the boundaries of the following providers: Coachella Valley Water District (CVWD), Southern California Edison (SCE), the Southern California Gas Company (SCG). The City contracts with Burrtec for waste and recycling services. Additionally, telephone service is provided to the proposed project by Verizon, and cable television service is provided by Spectrum. Both Verizon and Spectrum have facilities located in the proposed project vicinity and on the existing hotel property that can be extended to serve the proposed project.

The facilities, infrastructure, and capacity of each of these service providers to provide services to the proposed project are discussed below.

A portion of this section is based upon the Drainage Study prepared by Tory R. Walker Engineering in September 2019. The Drainage Study is included as Appendix D to his Initial Study. Background and methodologies regarding the drainage analysis are found be Appendix D.

19.2 Discussion of Impacts

a, b, c) ***Less-than-Significant Impact.***

Water

The CVWD would provide domestic water services to the proposed project (City of Rancho Mirage 2017). The CVWD's service area encompasses approximately 640,000 acres within Riverside County and in portions of northern Imperial and northeastern San Diego counties (CVWD 2016). As of 2015, the CVWD's domestic water system provided approximately 93,000 acre-feet of water per year to 212,871 residents through 107,358 active meters (CVWD 2016).

According to the City's General Plan – Public Services and Facilities Element, all drinking or domestic water comes from the Whitewater River Subbasin, which is shared by the CVWD, the Desert Water Agency (DWA), Myoma Dunes Mutual Water Company, the cities of Indio and Coachella, and multiple private groundwater producers (CVWD 2016). The CVWD domestic water system serving Rancho Mirage includes 57 wells and nine reservoir tanks (City of Rancho Mirage 2017). The average urban water use in Coachella Valley by CVWD was 800 gallons per day (gpd) per connection (City of Rancho Mirage 2017). In 1964, the DWA estimated that approximately 28.8 million acre-feet (AF) of water was stored in Whitewater River subbasin.

The proposed project totals 236,748 square feet, or approximately 5.5 acres. According to CalEEMod calculations provided in Appendix A, the proposed project is anticipated to use approximately 21 Mgal/year, equivalent to 64.5 AF per year (1 Mgal = 3.07 AF). The proposed project's projected water demand would not exceed the 28.8 million AF capacity of the Whitewater River Subbasin (CVWD 2016) and the proposed project would be aligned with the projected water demands for Coachella Valley (Table 19-1, Water Demand Projections).

The proposed project would be adequately served by the CVWD and the proposed project would not require or result in the relocation or construction of new or expanded water facilities. Therefore, impacts would be **less than significant**.

Table 19-1. Water Demand Projections

	2015	2025	2035	2045
Total Urban Water Demand (AFY)	263,200	348,900	440,800	539,300

Source: CVWMP 2012.

Wastewater

The CVWD would provide sewer services to the proposed project (City of Rancho Mirage 2017). Existing sewer lines 6- to 10-inches in diameter would serve the project site (City of Rancho Mirage 2017). The CVWD wastewater reclamation system collects and treats approximately 18.3 million gallons per day (MGD). There are five water reclamation plants (WRP) that are owned and operated by the CVWD (CVWD 2019). Rancho Mirage is served by the closest WRP, located on 43-000 Cook Street, Palm Desert, Riverside County, California 92211 (CVWD 2019). This WRP treatment facility provides a secondary level of wastewater treatment and has a design capacity of 150,000 gallons per day (gpd), and the existing average influent flow is 20,000 gpd (CVWD 2019).

According to the City's General Plan Public Services and Utility Element, approximately 6.3 billion gallons of wastewater are treated yearly and the CVWD would be able to increase its wastewater treatment capacity as the Coachella Valley's population grows. As discussed in Section 14, Population and Housing, the proposed project is not anticipated to substantially increase population in Coachella Valley because it would expand existing hotel facilities and would not construct permanent homes. The proposed project is not anticipated to require or result in the relocation of construction of new or expanded wastewater facilities. The influent flows as reported in the 2019 Sanitary Sewer Management Plan are approximately 20,000 gpd, which is well below the treatment capacity of 150,000 gpd. Additionally, there are current expansion and improvement plants to the wastewater collection system and reclamation plants, which would increase the system's capacity to treat wastewater (City of Rancho Mirage 2017). Therefore, wastewater generation from the proposed project would be adequately served by existing treatment facilities and infrastructure and impacts would be **less than significant.**

Stormwater

The proposed project would develop a site with existing hardscape and engineered drainage facilities. While the proposed project would alter the amount of impervious surfaces on the project site compared to the existing condition, the increase would not be substantial. The proposed project would include landscaped areas that would allow for infiltration. The site would be designed to mimic existing drainage patterns and would not substantially alter the existing drainage pattern such that it would necessitate the construction of new stormwater drainage facilities. Therefore, impacts would be **less than significant**.

Electric, Natural Gas, and Telecommunication Facilities

Southern California Edison (SCE) provides electric power services to the City (City of Rancho Mirage 2017). Southern California Gas (SCG) provides natural gas services to the City (City of Rancho Mirage 2017). Multiple companies, such as AT&T and Spectrum, provide telecommunication services to the City (City of Rancho Mirage 2017).

Construction

As discussed in Section 6, Energy, temporary electric power would be used during construction for as-necessary lighting and electric equipment. A substantial amount of natural gas would not be required during the construction phase of the proposed project. Petroleum usage via diesel usage from generated trips during construction would consume 15,773 gallons of gasoline and 108,282 gallons of diesel over the construction period, which is negligible when compared to the 44.62 billion gallons of petroleum that would be consumed in California over the course of the construction period.

Operation

Energy consumption for proposed project operation are presented in the CalEEMod outputs in Appendix A. According to these estimations, the proposed project would consume approximately 1,999,034 kilowatt-hours (kWh) per year during operation. For comparison, in 2017 the total residential and non-residential electricity demand in Riverside County was 16,256,705,411 kWh (CEC 2018). Although not accounted for in the modeling, energy consumption of the proposed project would also be reduced through installation of high-efficiency lighting. For these reasons, electricity consumption during operation would not be considered substantial enough to warrant new or expanded electrical facilities.

Proposed project operation would require natural gas for various purposes, including water heating, natural gas appliances and energy generator routing testing. Natural gas consumption associated with operation is based on the CalEEMod outputs (see Appendix A). According to these estimations, the proposed project would consume approximately 4,330,242 kilo-British Thermal Units (kBtu) per year. For comparison, in 2017 the non-residential natural gas use within Riverside County was 39,844,317,732 kBtu (CEC 2018). Since the proposed project would comply with applicable Title 24 requirements the proposed project would not require a substantial amount of natural gas that would require new or expanded facilities.

Petroleum use would increase during proposed project operation as a result of residences, restaurant customers, venue attendees, deliveries, and employees commuting to the site, although the use would not be substantial and would diminish over time due to efficiency increases.

Summary

The proposed project would connect to existing electric, natural gas, and telecommunication lines and facilities within and adjacent to the project site. The proposed project does not propose uses that would be expected to generate an excessive need for these facilities such that construction or relocation would be required. Therefore, impacts would be **less than significant**.

d) ***Less-than-Significant Impact***: The proposed project would produce waste during construction and operation, typical of a normal hotel expansion development. The proposed project does not include any uses that would otherwise generate excessive solid waste during either construction or the operational life of the proposed project. Construction would be a short-term and a temporary source of waste. Operation would result in a long-term source for solid waste (per the project's CalEEMod output, the project is estimated to generate approximately 191 tons of solid waste per year).

The City contracts Burrtec to manage and dispose of solid waste (City of Rancho Mirage 2017). The solid waste would be taken to Edom Hill Transfer Station, located in Cathedral City approximately 3 miles north of the City of Rancho Mirage (City of Rancho Mirage 2017). The Edom Hill transfer station has a maximum permitted throughput of 3,500 tons per day and a permitted capacity of 3,500 tons per day for general waste (City of Rancho Mirage 2017). The solid waste is transferred from Edom Hill transfer station to Lamb Canyon Sanitary Landfill, which has a maximum permitted throughput of 500 tons per day, a maximum permitted capacity of approximately 38 million cubic yards, and a remaining capacity of approximately 19 million cubic yards (CalRecycle n.d.a.). Given the estimated remaining capacity and the continued state and local efforts and regulations to reduce waste streams to landfills, the proposed project would be adequately served by existing landfills. Impacts would be **less than significant.**

e) ***No Impact***: During construction and operation, the proposed project would be required to comply with applicable federal, state, and local regulations regarding the proper disposal of solid waste, including the City of Rancho Mirage Municipal Code as it relates to solid waste and recycling. Therefore, **no impact** would occur.

19.3 Mitigation Measures

No mitigation measures required.

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20. WILDFIRE

WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

20.1 Setting

The project site is not located in or near state responsibility areas (SRA), and near lands are also not located in or near SRAs. The project site is located within a local responsibility area (LRA). According to Exhibit 27 of the City's General Plan Safety Element, the project site is located within a moderate fire threat zone and is adjacent to a high fire threat zone (City of Rancho Mirage 2017). However, the City's General Plan Safety Element also notes that "the historical record indicates that the wildland fire hazard in Rancho Mirage is relatively low" (City of Rancho Mirage 2017).

20.2 Discussion of Impacts:

a) ***No Impact.*** The City of Rancho Mirage operates an Emergency Preparedness Commission that provides resources to reduce future disaster damages and enhance disaster

preparedness, response, and recovery (City of Rancho Mirage n.d.b.). Additionally, the City of Rancho Mirage participates in the Riverside County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) (City of Rancho Mirage 2017). The City of Rancho Mirage has two main evacuation routes, I-10 and Highway 111 (City of Rancho Mirage 2017). Multiple fire hazard goals, policies and programs presented in the general plan would establish emergency preparedness and procedure in the case of wildfires. The proposed project would not impair access to identified evacuation routes, as discussed in Section 17 Transportation. The proposed project would not substantially impair adopted emergency responses plans or emergency evacuation plans and therefore there would be **no impact**.

b) ***Less-than-significant Impact***. As discussed earlier, the project site is not located in or near an SRA and is located within a moderate fire threat zone (City of Rancho Mirage 2017). The project site is not located within the Santa Ana Wildfire Threat Index map, and therefore proposed project occupants would not be exposed to potential pollutant concentrations originating from uncontrolled spread of wildfire due to prevailing Santa Ana Winds (Santa Ana Wildfire Treat Index n.d.a.). All fire protection codes present in the City of Rancho Mirage's municipal code would be adhered to and would lessen potential exposure of proposed project occupants to pollutants resulting from wildfire spread. Therefore, impacts would be **less than significant**.

c) ***Less-than-significant Impact.*** The proposed project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risks or that may result in temporary or ongoing impacts to the environment. As discussed in Section 19, Utilities and Service Systems, the proposed project would connect to existing infrastructure. New inlet roads would be constructed as part of the proposed project and would follow all setback and fire code regulations established by the City of Rancho Mirage and the County of Riverside. Therefore, impacts would be **less than significant.**

d) ***Less-than-significant Impact.*** As discussed in Section 10, Hydrology and Water Quality, the proposed project would not be located within a 100-year flood hazard area (City of Rancho Mirage 2017). Additionally, although the proposed project would increase the amount of impervious surface at the site compared to existing conditions, this increase would not be significant. According to Exhibit 24 of the City's General Plan Safety Element, the project site is located in an area where "numerous rock falls and landscapes expected to occur during an earthquake" (City of Rancho Mirage 2017); however, compliance with the City's General Plan policies and the California Building Code (CBC) (discussed in Section 7, Geology and Soils) would mitigate the potential landslide impacts to a level less than significant. Therefore, the proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landsides, as a result of runoff, post-fire slope instability, or drainage changes. Impacts would be **less than significant.**

20.3 Mitigation Measures:

No mitigation measures required.

21. MANDATORY FINDINGS OF SIGNIFICANCE

MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

21.1 Discussion of Impacts

a) ***Less-than-Significant Impact with Mitigation Incorporated.*** As discussed in Section 4, Biological Resources, the proposed project would cause potential significant impacts to special status wildlife. However, with incorporation of **MM-BIO-1 through MM-BIO-6**, all potentially significant

impacts would be reduced to a level below significance. The proposed project would not substantially degrade the quality of the environment as it would be developed in land that has already been graded. Additionally, the proposed project would not substantially degrade the quality of the environment, impact fish or wildlife species, or plant communities.

As discussed in Section 5, Cultural Resources, potential impacts regarding inadvertent discovery of cultural resources could occur during construction of the proposed project. However, implementation of **MM-CUL-1** and **MM-CUL-2** would ensure that impacts would be less then significant. Overall, impacts would be **less than significant with the incorporation of mitigation**.

b) ***Less-than-Significant Impact with Mitigation Incorporated.*** As provided in the analysis of this Initial Study, the proposed project would not result in significant impacts to aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, energy, geology and soils, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire. Mitigation measures recommended for biological resources, cultural resources, traffic, geology and soils, and noise would reduce impacts to below a level of significance.

The proposed project would incrementally contribute to cumulative impacts for projects occurring within the City. With mitigation, however, implementation of the proposed project would not result in any residual significant impacts that could contribute to a cumulative impact. In addition, other related projects would presumably be bound by their applicable lead agency to (1) comply with the all applicable federal, state, and local regulatory requirements; and (2) incorporate all feasible mitigation measures, consistent with CEQA, to further ensure that their potentially cumulative impacts would be reduced to less-than-significant levels.

In the absence of residually significant impacts, the incremental accumulation of effects would not be cumulatively considerable and would be **less than significant with incorporation of mitigation.**

c) ***Less-than-Significant Impact with Mitigation Incorporated.*** The potential for adverse direct or indirect impacts to human beings was considered throughout the above analysis in this Initial Study. Based on this evaluation, there is no substantial evidence that construction or operation of the proposed project with the proposed mitigation measures incorporated would result in a substantial adverse effect on human beings.

21.2 Mitigation Measures

Refer to **MM-BIO-1 through MM-BIO-6, MM-CUL-1**, **MM-CUL-2**, **MM-NOI-1**, **MM-TRA-1**, and **MM-TRA-2**.

Table 21.2-1: Mitigation Monitoring and Reporting Program

Mitigation Measure	Responsible Agency	Timing	Verification

			(Date and Initials)
AESTHETICS			
N/A			
AGRICULTURAL RESOURCES			
N/A			
AIR QUALITY			
N/A			
BIOLOGICAL RESOURCES			
MM-BIO-1: Coachella Valley Multiple Species Habitat Conservation Plan Fee Payment. As a signatory to the Coachella Valley Multiple Species Habitat Conservation Plan, the City of Rancho Mirage shall require a local development mitigation fee prior to the issuance of building permits for the proposed use on the project site at the rates applicable at the time of payment of the fee as set forth in the most recent fee schedule. The project applicant shall be required to provide documentation to the City of Rancho Mirage confirming the payment of the local development mitigation fee.	Project Applicant, City of Rancho Mirage- Building/Planning Division, Coachella Valley Conservation Commission	Prior to construction and issuance of grading permit	
MM-BIO-2: Coachella Valley Multiple Species Habitat Conservation Plan Land Use Adjacency Guidelines. The project applicant shall implement the following Land Use Adjacency Guidelines (Coachella Valley Multiple Species Habitat Conservation Plan [CVMSHCP], Section 4.5) to minimize and avoid indirect effects from development adjacent to conservation areas (i.e., Santa Rosa and San Jacinto Mountains Conservation Area), where applicable: • **Drainage**: Proposed Development adjacent to or within a Conservation Area shall incorporate plans to ensure that the quantity and quality of runoff discharged to the adjacent Conservation Area is not altered in an adverse way when compared with existing	Project Applicant, City of Rancho Mirage- Planning Division, Coachella Valley Conservation Commission	During project construction and operation	

	conditions. Stormwater systems shall be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials, or other elements that might degrade or harm biological resources or ecosystem processes within the adjacent Conservation Area. • **Toxics**: Land uses proposed adjacent to or within a Conservation Area that use chemicals or generate bioproducts such as manure that are potentially toxic or may adversely affect wildlife and plant species, habitat, or water quality shall incorporate measures to ensure that application of such chemicals does not result in any discharge to the adjacent Conservation Area. • **Lighting**: For proposed development adjacent to or within a Conservation Area, lighting shall be shielded and directed toward the developed area. Landscape shielding or other appropriate methods shall be incorporated in project designs to minimize the effects of lighting adjacent to or within the adjacent Conservation Area in accordance with the guidelines to be included in the Implementation Manual. • **Noise**: Proposed development adjacent to or within a Conservation Area that generates noise in excess of 75 A-weighted decibels sound equivalent level hourly shall incorporate setbacks, berms, or			

walls, as appropriate, to minimize the effects of noise on the adjacent Conservation Area in accordance with the guidelines to be included in the Implementation Manual. • **Invasives**: Invasive, non-native plant species shall not be incorporated in the landscape for land uses adjacent to or within a Conservation Area. Landscape treatments within or adjacent to a Conservation Area shall incorporate native plant materials to the maximum extent feasible; recommended native species are listed in Table 4-112 [CVMSHCP, Section 4.5.5]. The plants listed in Table 4-113 shall not be used within or adjacent to a Conservation Area. This list may be amended from time to time through a Minor Amendment with Wildlife Agency Concurrence. • **Barriers**: Land uses adjacent to or within a Conservation Area shall incorporate barriers in individual project designs to minimize unauthorized public access, domestic animal predation, illegal trespass, or dumping in a Conservation Area. Such barriers may include native landscaping, rocks/boulders, fencing, walls and/or signage. • **Grading/Land Development**: Manufactured slopes associated with site development shall not extend into adjacent land in a Conservation Area.			

MM-BIO-3: **Nesting Birds**. To maintain compliance with the Migratory Bird Treaty Act and California Fish and Game Code, if ground-disturbing and/or vegetation clearance activities are scheduled to occur during the avian nesting season (typically February 15 through August 31), a qualified biologist shall conduct a pre-construction nesting bird survey within the project impact footprint and a 500-foot buffer where legal access is granted around the disturbance footprint. Surveys shall be conducted within 3 days prior to initiation of ground-disturbing activities. If an active nest is detected during the nesting bird survey, avoidance buffers shall be implemented as determined by a qualified biologist (typically 300 feet for passerines and 500 feet for raptors and special-status species). The buffer shall be of a distance to ensure avoidance of adverse effects to the nesting bird by accounting for topography, ambient conditions, species, nest location, and activity type. All nests shall be monitored as determined by the qualified biologist until nestlings have fledged and dispersed or it is confirmed that the nest has been unsuccessful or abandoned. The qualified biologist shall halt all construction activities within proximity to an active nest if it is determined that the activities are harassing the nest and may result in nest abandonment or take. The qualified biologist shall also have the authority to require implementation of avoidance measures related to noise, vibration, or light pollution if indirect impacts are resulting in harassment of the nest.	Project Applicant, City of Rancho Mirage -Planning Divisions, a Qualified Biologist	Three days prior to initiation of ground-disturbing activities	
MM-BIO-4: Burrowing Owl. Pre-construction surveys for burrowing owls shall be completed within areas of suitable habitat (i.e., flatter portions of the site) in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012), with the first survey no less than 14 days prior to initiation of project-related activities, and the second within 24 hours of project-related activities. If an active burrowing owl burrow is detected within 500 feet of the impact footprint, avoidance and minimization measures shall be	Project Applicant, City of Rancho Mirage- Planning Division, a Qualified Biologist	The first survey no less than 14 days prior to initiation of project-related activities, and the second	

implemented in accordance with the *Staff Report on Burrowing Owl Mitigation* guidelines or agreed upon by the California Department of Fish and Wildlife, including implementation of a non-disturbance buffer and monitoring of the nest to ensure activities are not adversely affecting the nest. If the project will occur within this zone, then work must occur outside the nesting season, or until it can be shown that the birds have finished nesting, at which point passive relocation may occur.		within 24 hours of project-related activities.	
MM-BIO-5: General Avoidance and Minimization Measures. The following avoidance and minimization measures shall be implemented during project construction activities: • To prevent inadvertent entrapment of special-status wildlife during construction, all excavated steep-walled holes or trenches more than 2 feet deep shall be covered with plywood or similar materials at the close of each working day, or be provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped wildlife. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape.	Project Applicant, City of Rancho Mirage - Planning Division,	During construction	
MM-BIO-6: Desert Tortoise. Because the project is located outside of a Conservation Area but within the 50,272 acres of naturally occurring desert tortoise habitat anticipated to be impacted under the Coachella Valley Multiple Species Habitat Conservation Plan, the project applicant shall notify the U.S. Fish and Wildlife Service 45 days prior to the issuance of a grading permit to allow for the potential salvage of adult tortoises within this notification time period.	Project Applicant, City of Rancho Mirage- Planning Division, and a Qualified Biologist	45 days prior to the issuance of a grading permit	
CULTURAL RESOURCES			
MM-CUL-1: A Qualified Archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, and a Native American monitor shall be	Project Applicant, City of Rancho	During project	

present for initial ground-disturbing activities associated with the current proposed project in the event unanticipated discoveries are made. The monitors may stop ground-disturbing activities in order to assess any discoveries in the field. In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 50 feet of the find shall immediately stop until a Qualified Archaeologist can evaluate the significance of the find and determine whether additional study is warranted. Depending on the significance of the find under the California Environmental Quality Act (CEQA) and the CEQA Guidelines (California Public Resources Code, Section 21082; 14 CCR 15064.5(f)), the Qualified Archaeologist may exhaust the data potential of the find through the process of field level recordation and then allow work to continue. If the discovery proves significant under CEQA, additional work such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted. If Native American cultural resources (i.e., prehistoric or ethnohistoric-period artifacts, food remains, or features associated with Native Americans) are exposed during proposed project-related ground disturbance, the Agua Caliente Band of Cahuilla Indians shall be contacted. This group shall be asked to provide the services of a trained Native American consultant to monitor ground-disturbing work in the area containing the Native American cultural resources. This monitoring would occur on an as-needed basis and would be intended to ensure that Native American concerns are taken into account during the construction process.	Mirage- - Planning Division, A Qualified Archaeologist, a Native American monitor	constructio n	
MM-CUL-2: If human remains are discovered during construction of the proposed project, California Health and Safety Code, Section 7050.5, states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner shall be contacted. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie	Project Applicant, City of Rancho Mirage, A Qualified Archaeologist,	During project constructio n	

adjacent remains shall occur until the County Coroner has determined, within two working days of notification of discovery, the appropriate treatment and disposition of the human remains. Pursuant to California Public Resources Code, Section 5097.98, if the remains are thought to be Native American, the County Coroner will notify the Native American Heritage Commission, which will then notify the most likely descendent. At this time, the person who discovered the remains will contact the City of Rancho Mirage (City) so that they may work with the most likely descendent on the respectful treatment and disposition of the remains. Further provisions of the California Public Resources Code, Section 5097.98, are to be followed as applicable.	County Coroner (if applicable)		
GEOLOGY AND SOILS			
N/A			
GREENHOUSE GAS EMISSIONS			
N/A			
HAZARDS AND HAZARDOUS MATERIALS			
N/A			
HYDROLOGY AND WATER QUALITY			
N/A			
LAND USE AND PLANNING			
N/A			
MINERAL RESOURCES			
N/A			
NOISE			
MM-NOI-1: During proposed project construction, the applicant shall require that large-loaded trucks and dozers (greater than 80,000 pounds) shall not be used within 50 feet along the entire southern property line. Instead, small rubber-tired or alternative equipment shall be used within this area during proposed project construction to reduce vibration effects. If all mobile equipment used during proposed project construction are less than 80,000 pounds, then the 50 foot buffer mitigation is not required.	Project Applicant, City of Rancho Mirage- Planning Division	During project construction	
POPULATION AND HOUSING			
N/A			

PUBLIC SERVICES			
N/A			
RECREATION			
N/A			
TRANSPORTATION/TRAFFIC			
MM-TRA-1: Hwy. 111 and Frank Sinatra Dr. (#3) – Prior to operation of the proposed project, the Applicant shall increase the turn lane capacity from 260' to 400' for the North Bound Lane movement.	Project Applicant, City of Rancho Mirage- City Engineer	Prior to operation	
MM-TRA-2: Hwy. 111 and Frank Sinatra Dr. (#3) – Prior to operation of the proposed project, the Applicant shall increase turn lane capacity from 170' to 250' for the East Bound Lane movement.	Project Applicant, City of Rancho Mirage- City Engineer	Prior to operation	
TRIBAL CULTURAL RESOURCES			
See **MM-CUL-1** and **MM-CUL-2** above.			
UTILITIES AND SERVICE SYSTEMS			
N/A			

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Appendix A
Air Quality and GHG Technical Report

Air Quality and Greenhouse Gas Emissions Analysis Technical Report Ritz-Carlton Rancho Mirage Project Kam Sang Company, Inc. Rancho Mirage, California

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
°C	degrees Celsius
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
AB	Assembly Bill
amsl	above mean sea level
AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CALGreen	California's Green Building Standards
CalRecycle	California Department of Resources Recycling and Recovery
CAP	climate action plan
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
CY	cubic yard
DPM	diesel particulate matter
EO	Executive Order
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutant
HFC	hydrofluorocarbon
HRA	health risk assessment
LCFS	Low Carbon Fuel Standard
LOS	level of service
LST	localized significance thresholds
mph	miles per hour
MPO	metropolitan planning organization
MMT	million metric ton
MT	metric ton
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NF_3	nitrogen trifluoride
NHTSA	National Highway Traffic Safety Administration
NO	nitric oxide
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	ozone

Acronym/Abbreviation	Definition
PFC	perfluorocarbon
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
ppb	parts per billion
ppm	parts per million
ROG	Reactive Organic Gas
RPS	Renewables Portfolio Standard
RTP	regional transportation plan
SB	Senate Bill
SBCCOG	South Bay Cities Council of Governments
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	sustainable communities strategy
SF_6	sulfur hexafluoride
SO_2	sulfur dioxide
SO_x	sulfur oxides
SRA	source-receptor area
TAC	toxic air contaminant
TIS	traffic impact study
VOC	volatile organic compound
ZNE	zero net energy
ZEV	Zero-Emissions Vehicle

Executive Summary

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emissions impacts associated with implementation of the proposed Ritz-Carlton Rancho Mirage Project (project) located within the City of Rancho Mirage (City). This assessment uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). Construction and operational criteria air pollutant and GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod)Version 2020.4.0 and California Air Resources Board (CARB) Emission Factors version 2017 (EMFAC2017).

Project Overview

The purpose of the proposed project is to construct residential suites and hotel villas, event space, commercial, and amenity space at 68900 Frank Sinatra Drive in the City of Rancho Mirage. The project site is located in the City of Rancho Mirage (City), in Riverside County. The proposed site is an approximate 16.48-acre parcel of previously graded land.

The residential suites, event space, and commercial area would be located within Building A-1. This new building would provide an approximately 23,843-square-foot indoor event space (Venue) and 3,960-square-foot exterior entertaining and garden spaces. The building would also house 48 residential suites over underground parking for the both the suites and the event space along with additional parking for the existing hotel. Building A-1 would be three stories with a maximum height of 30 feet, 3 inches.

The project also includes 58 proposed hotel villas with private garages across 15 buildings (Buildings B-2 to B-7) to the south and east of Building A-1. The hotel villas would be two stories. These residential suites and hotel villas would be comprised of a mix of one-, two-, and three-bedroom units.

The project would include 510 parking spaces. Including a parking structure where 381 spaces serve the residential suites, event space, commercial uses, and additional spaces for the existing hotel. The hotel villas would have either one- or two-car private garages totaling 86 spaces. An additional 43 spaces are provided as tandem parking in front of the one-car garages.

The project site is located within the Salton Sea Air Basin and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Construction and operational criteria air pollutant and GHG emissions were estimated using CalEEMod, consistent with the SCAQMD guidance.

Air Quality

The air quality impact analysis evaluated the potential for adverse impacts to air quality due to construction and operational emissions resulting from the project. Impacts were evaluated for their significance based on the SCAQMD mass daily criteria air pollutant thresholds of significance (SCAQMD 1993, 2019). Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated include volatile organic compounds (VOCs) (also referred to as reactive organic gases), oxides of nitrogen (NO_x), CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$. VOCs and NO_x are important because they are precursors to O_3.

Air Quality Plan Consistency

SCAQMD has established two criteria to evaluate the potential for the proposed project to conflict with the applicable air quality plan, which is the SCAQMD 2016 Air Quality Management Plan (AQMP) (SCAQMD 2017a). Regarding Consistency Criterion No. 1, the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations as supported in the analysis presented in this technical report, which demonstrates that estimated project-generated construction and operational emissions would not exceed the SCAQMD mass daily emissions thresholds.

Regarding Consistency Criterion No. 2, the site is currently zoned Resort Hotel (Rs-H) and Open Space: Mountain Reserve (MR) in the General Plan (City of Rancho Mirage 2017). The proposed hotel suites and villas are located on the Rs-H zoned property and therefore consistent with the General Plan designation. This designation allows for the development of hotels and destination resorts with limited, ancillary commercial uses, such as spas, recreational facilities, restaurants, lounges, and small retail shops that directly support the primary use. The Sky Mesa is located on the MR zoned portion of the project site, which is assigned to public lands or property subject to conservation easements in the Santa Rosa Mountains. Uses are limited to recreational activities, such as hiking or equestrian and non-motorized bike trails and facilities consistent with the need to protect sensitive biological resources. Vehicular access is not permitted in this designation. A Conditional Use Permit (CUP) would be proposed for the MR portion of the project site to include the event space, restaurant, and amenities proposed for the Sky Mesa. However, the proposed uses for the project site are consistent with the existing land use designations, and no changes in land use designations would be required

SCAG reported the City's population to be 18,739 persons as of 2018 (SCAG 2019). In 2018, the City had a total of 14,492 housing units, and in 2017, the City had a total of 16,902 jobs (SCAG 2019). By 2040, SCAG projected the City to have a population of 25,000 persons and 20,500 jobs (SCAG 2016). According to the City's General Plan Housing Element (City of Rancho Mirage 2017), the 2014–2021 Regional Housing Needs Allocation (RHNA) determined that the City needed a total of 95 housing units. The proposed project would construct 108 residential units. However, these residential units would operate similar to time-share properties and therefore future residents would not be in the proposed residential units year-round. Because the proposed residential units are not typical residential units that residents cannot occupy year-round, theses housing units do not count towards the RHNA housing unit determination. SCAG's Local Profile Report for the City of Rancho Mirage indicated that the City's average household size was two persons per dwelling unit as of 2018 (SCAG 2019). Using these assumptions, implementation of the proposed project would have the potential to increase the City's population by 216 persons. This population increase would comply with SCAG's projected population increase for the City. Accordingly, the proposed project is consistent with the SCAG RTP/SCS forecasts used in the SCAQMD AQMP development. Thus, the project would not conflict with Consistency Criterion No. 2. Based on these considerations, impacts related to the project's potential to conflict with or obstruct implementation of the applicable air quality plan would be less than significant.

Based on these considerations, impacts related to the project's potential to conflict with or obstruct implementation of the applicable air quality plan would be less than significant.

Construction Criteria Air Pollutant Emissions

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Estimated maximum daily construction emissions would not exceed the SCAQMD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction.

Operational Criteria Air Pollutant Emissions

Operational year 2024 was assumed based on input from the applicant. Operation of the project would generate operational criteria air pollutants from mobile sources (vehicles), area sources (consumer product use, architectural coatings, and landscape maintenance equipment), and energy (natural gas). Estimated maximum daily operational emissions would not exceed the SCAQMD operational significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$.

Exposure of Sensitive Receptors

SCAQMD recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ impacts as a result of construction activities to sensitive receptors in the immediate vicinity of a project site. As such, a localized emissions impact analysis has been prepared that compares project-generated emissions during construction to SCAQMD localized significance thresholds (LSTs) to determine potential impacts to nearby sensitive receptors during construction of the project. The impacts were analyzed using methods consistent with those in SCAQMD's Final LST Methodology (2009). In summary, construction activities would not generate emissions in excess of the SCAQMD site-specific LSTs; therefore, site-specific construction impacts during construction of the project would be less than significant.

Operation of the project would not expose sensitive receptors to localized high concentrations of CO or contribute traffic volumes to intersections that would cause a CO hotspot. The proposed project would not generate traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots. In addition, due to continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SSAB is steadily decreasing. Based on these considerations, the proposed project potential CO hotspot impacts would be less than significant.

Other Emissions (Odors)

Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application, which would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Impacts associated with odors during construction would be less than significant.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The proposed project entails operation of residential suites and hotel villas, event space, commercial, and amenity space, which has not been identified by SCAQMD as a land use typically associated with odor complaints. Therefore, the proposed project operations would result in an odor impact that is less than significant.

Cumulative Impacts

The potential for the project to result in a cumulatively considerable impact, per the SCAQMD guidance and thresholds, is based on the project's potential to exceed the project-specific daily thresholds. As discussed previously, maximum construction and operational emissions would not exceed the SCAQMD significance thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Therefore, the project would not result in a cumulatively considerable increase in criteria air pollutants.

Greenhouse Gas Emissions

Global climate change is primarily considered a cumulative impact, but must also be evaluated on a project-level under CEQA. A project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHG emissions. GHGs are gases that absorb infrared radiation in the

atmosphere. Principal GHGs regulated under state and federal law and regulations include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GHG emissions are measured in metric tons of CO_2 equivalent (MT CO_2e), which account for weighted global warming potential factors for CH_4 and N_2O.

Project-Generated Construction and Operational Greenhouse Gas Emissions

The threshold applied to assess the potential for the project to generate GHG emissions either directly or indirectly that may have a significant impact on the environment was the SCAQMD threshold of 3,000 MT CO_2e per year. Pursuant to SCAQMD recommendation, construction emissions were amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies (SCAQMD 2008).

Construction of the project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. Total project-generated GHG emissions during construction were estimated to be 888 MT CO_2e over the construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 30 MT CO_2e per year.

The project would generate operational GHG emissions from area sources (landscape maintenance), energy sources (natural gas and electricity), mobile sources, solid waste, and water supply and wastewater treatment. Estimated annual project-generated operational GHG emissions and amortized construction emissions would be approximately 2,363 MT CO_2e per year. As such, the annual operational GHG emissions with amortized construction emissions would not exceed the SCAQMD threshold of 3,000 MT CO_2e per year. Therefore, the project-generated GHG emissions would result in a less than significant impact.

Consistency with Applicable Greenhouse Gas Reduction Plans

The proposed project would not interfere with implementation of any of the GHG reduction goals for 2030 or 2050, described herein, because the project would not exceed the SCAQMD's draft interim threshold of 3,000 MT CO_2e per year (SCAQMD 2008). This threshold was established based on the goal of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. Because the proposed project would not exceed the threshold, this analysis provides support for the conclusion that the project would not impede the state's trajectory toward the above-described statewide GHG reduction goals for 2030 or 2050. In addition, the project would comply with laws and regulations that would reduce GHG emissions.

In addition, since the specific path to compliance for the state in regards to the long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the project would be speculative and cannot be identified at this time. The proposed project's consistency would assist in meeting the City's contribution to GHG emission reduction targets in California. With respect to future GHG targets under SB 32 and EO S-3-05, CARB has also made clear its legal interpretation that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet SB 32's 40% reduction target by 2030 and EO S-3-05's 80% reduction target by 2050; this legal interpretation by an expert agency provides evidence that future regulations will be adopted to continue the state on its trajectory toward meeting these future GHG targets.

As described herein, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and no mitigation is required. This impact would be less than significant.

1 Introduction

1.1 Report Purpose and Scope

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emissions impacts associated with implementation of the proposed Ritz-Carlton Rancho Mirage Project (project). This assessment uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), and is based on the emissions-based significance thresholds recommended by the South Coast Air Quality Management District (SCAQMD) and other applicable thresholds of significance.

This introductory section provides a description of the proposed project and location. Section 2, Air Quality, describes the air quality–related environmental setting, regulatory setting, existing air quality conditions, and thresholds of significance and analysis methodology, and presents an air quality impact analysis per Appendix G of the CEQA Guidelines. Section 3, Greenhouse Gas Emissions, follows the same format as Section 2 and similarly describes the GHG emissions–related environmental setting, regulatory setting, existing climate changes conditions, and thresholds of significance and analysis methodology, and presents a GHG emissions impact analysis per Appendix G of the CEQA Guidelines. Section 4, References Cited, includes a list of the sources cited in this technical report.

1.2 Regional and Local Setting

The approximately 16.48-acre project site is located at 68900 Frank Sinatra Drive approximately 0.85 miles southwest of the intersection with State Route 111 in the City of Rancho Mirage, Riverside County (Assessor's Parcel Numbers 689-330-026, -028 and 689-020-012, -014). The majority of the 16.48-acre project site is currently vacant and lies south and east of the existing Ritz-Carlton Rancho Mirage Hotel.

The proposed project site is vacant with dirt covering the majority of the site. The entire project site has been rough graded. An asphalt dead-end road has been constructed on the property as a temporary construction access point for the hotel to the north. A shipping container and construction equipment remain on the project site from construction staging activities during previous development on the hotel property. As mentioned above, the existing Ritz-Carlton Rancho Mirage Hotel is to the north and west of the project site with a hotel service access road immediately bordering the property. Another hotel service access road borders the project site to the northeast, which leads to the proposed Sky Mesa Recreation Area. To the south is Mirada Circle and the Mirada single-family residential development. Confronting the project site across Frank Sinatra Drive to the northwest is a rough graded but undeveloped parcel.

The project site is situated on all or portions of Assessor's Parcel Numbers 689330026, -28, -34, which have a General Plan Land Use designation of Commercial: Resort Hotel (Rs-H) and also on parcels 689020012, -14 carrying an Open Space: Mountain Reserve (MR) designation. The project site is located within the Salton Sea Air Basin (SSAB), in Riverside County.

1.3 Project Description

The purpose of the proposed project is to construct residential suites and hotel villas, event space, commercial, and amenity space at 68900 Frank Sinatra Drive in the City of Rancho Mirage. The project site is located in the City of Rancho Mirage (City), in Riverside County. The proposed site is an approximate 16.48-acre parcel of previously graded land.

The residential suites, event space, and commercial area would be located within Building A-1. This new building would provide an approximately 23,843-square-foot indoor event space (Venue) and 3,960-square-foot exterior entertaining and garden spaces. The building would also house 48 residential suites over underground parking for the both the suites and the event space along with additional parking for the existing hotel. Building A-1 would be three stories with a maximum height of 30 feet, 3 inches.

The project also includes 58 proposed hotel villas with private garages across 15 buildings (Buildings B-2 to B-7) to the south and east of Building A-1. The hotel villas would be two stories. These residential suites and hotel villas would be comprised of a mix of one-, two-, and three- bedroom units.

The project would include 510 parking spaces. Including a parking structure where 381 spaces serve the residential suites, event space, commercial uses, and additional spaces for the existing hotel. The hotel villas would have either one- or two-car private garages totaling 86 spaces. An additional 43 spaces are provided as tandem parking in front of the one-car garages.

2 Air Quality

2.1 Environmental Setting

The project site is located within the Salton Sea Air Basin (SSAB). The Riverside County portion of the SSAB is bounded by the San Jacinto Mountains in the west and spans eastward to the Palo Verde Valley. The Coachella Valley Planning Area is a federal nonattainment area that is part of a sub-region of Riverside County in the SSAB that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east.

2.1.1 Meteorological and Topographical Conditions

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted. Meteorological and topographical conditions, however, are also important. Factors such as wind speed and direction, air temperature gradients and sunlight, and precipitation and humidity interact with physical landscape features to determine the movement and dispersal of air pollutants. Meteorological and topographical factors that affect air quality in the SSAB are described below.

Climate

The SSAB includes the central portion of Riverside County (Coachella Valley) and all of Imperial County. The Riverside County portion of the SSAB is under the jurisdiction of the SCAQMD. The SSAB is generally very flat and bordered to the west by the Peninsular Mountain range and to the east by the Chocolate, Orocopia, and Cargo Muchacho Mountains. The Riverside County portion of the SSAB is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. The federal nonattainment area (known as the Coachella Valley Planning Area) is a subregion of Riverside County and the SSAB that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (SCAQMD 2017).

The SSAB is a continental, desert region with a climate characterized by low annual rainfall, low humidity, hot days, and cool nights. Temperatures exceed 100°F during the summer with daily highs near 110°F during July and August. The mean temperature in the summer is 89°F, while the mean temperature in the winter is 57°F (SCAQMD 2017). Rainfall in the area varies considerably, although precipitation normally occurs November through April. A semi-permanent high-pressure zone blocks mid-latitude storms and causes sunny skies most of the time in the SSAB. The high-pressure zone tends to be weaker in the winter, and it is during this time that the SSAB usually receives its average 2.8 inches of annual precipitation. The Peninsular Mountains to the west block coastal influence, such as cool and damp marine air that traverses inland from the Pacific Ocean. The geographic barriers and atmospheric conditions often limit the amount of precipitation for the area.

The Coachella Valley is impacted by pollutant transport from the South Coast Air Basin (SCAB). Ozone in the atmosphere of the Riverside County portion of SSAB is both directly transported from the SCAB and formed principally from ozone precursors (hydrocarbons and NO_x[1]) emitted upwind. In addition, pollutant transport occurs to the Antelope Valley, Mojave Desert, Ventura County, and San Diego County. The mountains to the east act as physical barriers to the dispersion of airborne contaminants. The Coachella Valley is exposed to frequent gusty winds; with stronger tending to occur in the western portion of the valley, while lighter winds tend to occur in the

[1] NO_x is a general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide (NO_2) and other oxides of nitrogen.

east half of the valley. The pollutant transport pathway from the SCAB to the SSAB is through the San Gorgonio Pass (sometimes referred to as the Banning Pass) to the Coachella Valley.

Sunlight

The presence and intensity of sunlight are prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain "primary" pollutants (mainly reactive hydrocarbons and oxides of nitrogen (NO_x)) react to form "secondary" pollutants (primarily oxidants). Since this process is time dependent, secondary pollutants can be formed many miles downwind of the emission sources. Southern California has abundant sunshine, which drives the photochemical reactions that form pollutants such as ozone (O_3) and a substantial portion of fine particulate matter ($PM_{2.5}$, particles less than 2.5 microns in diameter). In the SSAB, high concentrations of O_3 are normally recorded during the late spring, summer, and early autumn months, when more intense sunlight drives enhanced photochemical reactions. Due to the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of Southern California.

Temperature Inversions

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air mix and disperse into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions, in which pollutants are trapped and accumulate close to the ground. The inversion—a layer of warm, dry air overlaying cool, moist marine air—is a normal condition in coastal Southern California. The cool, damp, and hazy sea air capped by coastal clouds is heavier than the warm, clear air, which acts as a lid through which the cooler marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above mean sea level (amsl), the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet amsl, the terrain prevents the pollutants from entering the upper atmosphere, resulting in the pollutants settling in the foothill communities. Below 1,200 feet amsl, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the daylight hours.

Mixing heights for inversions are lower in the summer and inversions are more persistent, being partly responsible for the high levels of O_3 observed during summer months in the SSAB. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods, allowing them to form secondary pollutants by reacting in the presence of sunlight. The SSAB has a limited ability to disperse these pollutants due to typically low wind speeds and the surrounding mountain ranges.

As with other cities within the SSAB, the City is susceptible to air inversions, which trap a layer of stagnant air near the ground where pollutants are further concentrated. These inversions produce haziness caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources. Elevated concentrations of particulate matter less than 10 microns in diameter (PM_{10}) and $PM_{2.5}$ can occur in the SSAB throughout the year but occur most frequently in fall and winter. Although there are some changes in emissions by day-of-week and season, the observed variations in pollutant concentrations are primarily the result of seasonal differences in weather conditions.

The Coachella Valley has limited local NO_x emissions to help scavenge the ozone at night. This elevated overnight ozone contributes to an early morning bump in the Coachella Valley ozone concentrations, starting around 8 a.m. Pacific Standard Time, with the ample sunlight and strong overnight temperature inversions in the desert. Ozone

concentrations in this area reach an initial peak before noon and then drop slightly with increased mixing in the early afternoon, before climbing to the daily peak as the normal onshore flow reaches the Coachella Valley through the San Gorgonio Pass, transporting new ozone from the South Coast Air Basin (SCAQMD 2013).

2.1.2 Pollutants and Effects

2.1.2.1 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead. These pollutants, as well as toxic air contaminants (TACs), are discussed in the following paragraphs.[2] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_x and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric ozone) and at the Earth's surface in the troposphere (ozone).[3] The O_3 that the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide. NO2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain

[2] The descriptions of the criteria air pollutants and associated health effects are based on the U.S. Environmental Protection Agency's Criteria Air Pollutants (EPA 2018a) and the California Air Resources Board's Glossary of Air Pollutant Terms (CARB 2019a).

[3] The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016).

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can

transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere. Sulfates can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles. Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$ described above.

Reactive Organic Gases. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as ROG. Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of ROG result from the formation of O_3 and its related health effects. High levels of ROG in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for ROG as a group.

2.1.2.2 Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2016a). DPM is typically composed of carbon particles ("soot," also called black carbon, or BC) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2016a). The CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) (17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2016a). Those most vulnerable to non-cancer health effects are children, whose lungs are still developing, and the elderly, who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Valley Fever. Coccidioidomycosis, more commonly known as "valley fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. The ecologic factors that appear to be most conducive to survival and replication of the spores are high summer temperatures, mild winters, sparse rainfall, and alkaline, sandy soils.

Riverside County is not considered a highly endemic region for valley fever as the latest report from the California Department of Public Health listed Riverside County as having 2.7 cases per 100,000 people (CDPH 2019).

Even if present at a site, earth-moving activities may not result in increased incidence of valley fever. Propagation of *Coccidioides immitis* is dependent on climatic conditions, with the potential for growth and surface exposure highest following early seasonal rains and long dry spells. *Coccidioides immitis* spores can be released when filaments are disturbed by earth-moving activities, although receptors must be exposed to and inhale the spores to be at increased risk of developing valley fever. Moreover, exposure to *Coccidioides immitis* does not guarantee that an individual will become ill—approximately 60% of people exposed to the fungal spores are asymptomatic and show no signs of an infection (USGS 2000).

2.1.3 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The SCAQMD identifies sensitive receptors as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993). Residential land uses are located to the south of the proposed project site. The closest off-site sensitive receptors to the project site include residences located approximately 25 meters (82 feet) south of the project's limits of construction.

2.2 Regulatory Setting

2.2.1 Federal Regulations

2.2.1.1 Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. EPA is responsible for implementing most aspects of the Clean Air Act, including setting National

Ambient Air Quality Standards (NAAQS) for major air pollutants; setting hazardous air pollutant (HAP) standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan that demonstrates how those areas will attain the standards within mandated time frames.

2.2.1.2 Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required EPA to identify national emission standards for hazardous air pollutants to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

2.2.2 State Regulations

2.2.2.1 Criteria Air Pollutants

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 1.

Table 1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
	1 hour	0.09 ppm (180 μg/m^3)	—	

Table 1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
O_3	8 hours	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)[f]	Same as primary standard[f]
NO_2[g]	1 hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	Same as primary standard
	Annual arithmetic mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 µg/m³)
	24 hours	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 µg/m³	150 µg/m³	Same as primary standard
	Annual arithmetic mean	20 µg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 µg/m³	Same as primary standard
	Annual arithmetic mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
Lead[j,k]	30-day average	1.5 µg/m³	—	—
	Calendar quarter	—	1.5 µg/m³ (for certain areas)[k]	Same as primary standard
	Rolling 3-month average	—	0.15 µg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 µg/m³)	—	—
Sulfates	24- hours	25 µg/m³	—	—
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016b.

Notes: O_3 = ozone; ppm = parts per million by volume; µg/m³ = micrograms per cubic meter; NO_2 = nitrogen dioxide; CO = carbon monoxide; mg/m³= milligrams per cubic meter; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; PST = Pacific Standard Time.

[a] California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National primary standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[g] To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m³ to 12.0 µg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m³ were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

[j] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

2.2.2.2 Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. In 1987, the Legislature enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) to address public concern over the release of TACs into the atmosphere. AB 2588 law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment (HRA), and if specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive diesel risk reduction plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-

Ignition (Diesel) Engines and Equipment program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. There are several Airborne Toxic Control Measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700

This section of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

2.2.3 Local Regulations

2.2.3.1 South Coast Air Quality Management District

The SCAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the Riverside County portion of the SSAB, where the project is located. The SCAQMD operates monitoring stations in the SSAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The SCAQMD's Air Quality Management Plans (AQMPs) include control measures and strategies to be implemented to attain state and federal ambient air quality standards in the SSAB. The SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

The most recent is the 2016 AQMP (SCAQMD 2017), adopted by the SCAQMD governing board on March 3, 2017. The 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air. The 2016 AQMP represents a new approach, focusing on available, proven, and cost-effective alternatives to traditional strategies while seeking to achieve multiple goals in partnership with other entities promoting reductions in GHGs and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2017). Because mobile sources are the principal contributor to the SSAB's air quality challenges, the SCAQMD has been and will continue to be closely engaged with CARB and the EPA, who have primary responsibility for these sources. The 2016 AQMP recognizes the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings, and industrial facilities to cleaner technologies in a manner that benefits not only air quality but also local businesses and the regional economy. These "win-win" scenarios are key to implementation of this 2016 AQMP with broad support from a wide range of stakeholders.

On April 18, 2003, the EPA approved the 2003 Coachella Valley State Implementation Plan (2003 CVSIP), which addressed future-year attainment of the annual average PM_{10} NAAQS with a 2006 attainment deadline. This federal standard was revoked, effective December 15, 2006. Since 2007, annual average PM_{10} concentrations have met the revoked federal annual standard (50 µg/m^3). The 2003 CVSIP also addressed continued attainment of the 24-hour PM_{10} federal standard, except for uncontrollable natural events. The 2016 AQMP does not include new modeling efforts for PM_{10}. Since the mid-1990s, peak 24-hour average PM10 concentrations have not exceeded the current federal standard (150 µg/m^3) other than on days with windblown dust from natural events, which can be excluded upon EPA concurrence consistent with the Exceptional Event Rules and prior policies. The PM_{10} data

from the Coachella Valley monitors shows attainment of the PM_{10} 24-hour NAAQS after the removal of the flagged high-wind exceptional events, for which SCAQMD supporting documentation will be submitted and subsequent EPA approval will be required. However, the EPA has requested that SCAQMD conduct additional ambient monitoring in the southeastern portion of the Coachella Valley before the redesignation can be considered. This new station has been in operation since 2013 in the community of Mecca, and redesignation will be revisited upon analysis of the required three full years of data.

The previous AQMP was the 2012 AQMP, which was adopted in February 2013 (SCAQMD 2013). The 2012 AQMP proposed policies and measures to achieve federal and state standards for improved air quality in the SSAB and those portions of the SSAB (formerly named the Southeast Desert Air Basin) that are under SCAQMD jurisdiction. The 2012 AQMP is designed to meet applicable federal and state requirements for O_3 and particulate matter. The 2012 AQMP documents that attainment of the federal 24-hour $PM_{2.5}$ standard is impracticable by 2015, and SSAB should be classified as a "serious" nonattainment area along with the appropriate federal requirements. The 2012 AQMP includes the planning requirements to meet the 1-hour O_3 standard. The 2012 AQMP demonstrates attainment of the federal 24-hour $PM_{2.5}$ standard by 2014 in the SSAB through adoption of all feasible measures. Finally, the 2012 AQMP updates the EPA-approved 8-hour O_3 control plan with new measures designed to reduce reliance on the Clean Air Act Section 182(e)(5) long-term measures for NO_x and VOC reductions. The 2012 AQMP reduction and control measures, which are outlined to mitigate emissions, are based on existing and projected land use and development. The EPA, with a final ruling on April 14, 2016, approved the Clean Air Act planning requirements for the 24-hour $PM_{2.5}$ standard portion and on September 3, 2014, approved the 1-hour O_3 Clean Air Act planning requirements.

Applicable Rules

Emissions that would result from mobile, area, and stationary sources during construction and operation of the project are subject to the rules and regulations of SCAQMD. The SCAQMD rules applicable to the project may include the following:

- **Rule 401 – Visible Emissions:** This rule establishes the limit for visible emissions from stationary sources.
- **Rule 402 – Nuisance:** This rule prohibits the discharge of air pollutants from a facility that cause injury, detriment, nuisance, or annoyance to the public or damage to business or property.
- **Rule 403 – Fugitive Dust:** This rule requires fugitive dust sources to implement best available control measures for all sources and prohibits all forms of visible particulate matter from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.
- **Rule 403.1** Rule 403.1 requires a Fugitive Dust Control Plan approved by South Coast AQMD or an authorized local government agency prior to initiating any construction/ earth-moving activity. These requirements are only applicable to construction projects with 5,000 or more square feet of surface area disturbance and therefore applicable to the proposed project.
- **Rule 431.2 – Sulfur Content of Liquid Fuels:** The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose of reducing the formation of SO_x and particulates during combustion and of enabling the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary-source applications in the SCAQMD. The rule also affects diesel fuel supplied for mobile sources.

- **Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines:** This rule applies to stationary and portable engines rated at greater than 50 horsepower (hp). The purpose of Rule 1110.2 is to reduce NO_x, VOCs, and CO emissions from engines. Emergency engines, including those powering standby generators, are generally exempt from the emissions and monitoring requirements of this rule because they have permit conditions that limit operation to 200 hours or less per year as determined by an elapsed operating time meter.
- **Rule 1113 – Architectural Coatings:** This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

2.2.3.2 Coachella Valley Association of Governments

The City is within the jurisdiction of the Coachella Valley Association of Governments (CVAG), which participates in regional planning with the Southern California Association of Governments (SCAG). CVAG is, among other things, the regional transportation planning agency coordinating government services in the Coachella Valley. As the recognized transportation planning agency with the Riverside County Transportation Commission, it is CVAG's responsibility to prepare and adopt a Regional Transportation Plan (RTP) for the Coachella Valley. This is accomplished through the creation of the Transportation Project Prioritization Study (TPPS), which identifies and prioritizes transportation projects in the region. The CVAG developed its first TPPS in 1989, with subsequent report updates in 1993, 1999, 2005, and 2010. The most recent version was adopted on June 26, 2017 (CVAG 2017). The TPPS includes growth projections for cities within the Coachella Valley. The projects and growth projections within the TPPS are fed into a larger regional planning effort by the SCAG. SCAG recently released its 2016 RTP, which includes the majority of projects seen within the TPPS. The SCAQMD 2016 AQMP applies the updated SCAG growth forecasts assumed in the 2016 RTP/SCS. Responding to the context of the RTP guidelines and California state legislation, CVAG's Active Transportation Plan, also within the TPPS, was designed to be completed simultaneously with the TPPS and Regional Arterial Cost Estimate documents. Together, this family of documents serves as CVAG's RTP, listing all regionally significant transportation projects, including roadway projects, active transportation projects, and other improvement projects that have been identified to benefit regional circulation within the Coachella Valley. The CVAG also developed fugitive dust ordinances that include (1) dust control plans for each construction project needing a grading permit; (2) plans to pave or chemically treat unpaved surfaces if daily vehicle trips exceed 150; (3) imposition of 15 mph speed limits for unpaved surfaces if daily vehicle trips do not exceed 150; (4) paving or chemical treatment of unpaved parking lots; and (5) actions to discourage use of unimproved property by off-highway vehicles.

SCAG has developed Connect SoCal, the 2020-2045 RTP/SCS, which is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. Connect SoCal charts a path toward a more mobile, sustainable and prosperous region by making connections between transportation networks, between planning strategies and between the people whose collaboration can improve the quality of life for Southern Californians. Connect SoCal embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura. Connect SoCal was adopted by the regional council on September 3, 2020.

2.2.3.3 City of Rancho Mirage

As discussed in the City's General Plan (City of Rancho Mirage 2017), policies pertaining to improving air quality are addressed in Chapter 6, Air Quality Element. The Air Quality Element is intended to protect the public's health and welfare by implementing measures that allow the South Coast Air Basin to attain Federal and State air quality standards. To achieve this goal, the Element sets forth a number of programs to reduce current pollution emissions and to require new development to include measures to comply with air quality standards.

Goals directly applicable to air quality are described below.

GOAL AQ 1

Preservation and enhancement of regional air quality for the protection of the health and welfare of the community as a whole.

POLICY AQ 1.1

The City shall coordinate and cooperate with CVAG and SCAQMD in the ongoing monitoring and management of major pollutants affecting Rancho Mirage and the region, with particular focus on PM10.

PROGRAM AQ 1.1A

Participate, through CVAG and SCAQMD, in the monitoring of all air pollutants of regional concern on a continuous basis, and maintain records of trends in regional air quality. Provide all required reporting for inclusion in SCAQMD's annual report.

PROGRAM AQ 1.1B

Make SCAQMD's Air Quality Management manual available to encourage and facilitate self-regulation to the greatest extent practical.

PROGRAM AQ 1.1C

Coordinate with developers and encourage the phasing and staging of development to assure the lowest construction related pollutant emission levels practical. Impose mitigation measures, including the use of water trucks and temporary irrigation systems, as well as other measures that will effectively limit fugitive dust emissions resulting from construction or other site disturbance.

PROGRAM AQ 1.1D

Maintain and operate a street sweeping program for public roadways to minimize litter and PM10 emissions.

PROGRAM AQ 1.1E

Encourage private development to utilize street sweeping services for private roadways.

POLICY AQ 1.2

The City shall promote the development of pedestrian-oriented retail centers, as well as community wide multi use trails and bike paths, dedicated bike lanes, and other desirable alternatives to motor vehicle traffic.

POLICY AQ 1.3

The City shall promote the appropriate and cost-effective development and coordination of mass transit/ shuttle service linking residential, shopping, resort, and commercial centers of Rancho Mirage, and participate with CVAG, the Southern California Association of Governments, and public and private service providers to improve and optimize regional transportation services.

POLICY AQ 1.4

The City shall encourage the use of clean alternative energy sources for transportation, heating, and cooling whenever practical.

PROGRAM AQ 1.4A

Consider the use of compressed natural gas and electric powered vehicles, as well as other alternative and/or renewable energy sources to the extent cost-effective.

PROGRAM AQ 1.4B

Require the installation of electric vehicle charging stations, as a ratio of total required parking, for new commercial projects.

POLICY AQ 1.5

The City shall review all development proposals for potential adverse effects on air quality and require mitigation of any significant impacts.

PROGRAM AQ 1.5A

Conduct an initial study and, as appropriate, require detailed air quality analyses for all applications that have the potential to adversely affect air quality.

PROGRAM AQ 1.5B

Require projects with the potential to generate significant levels of air pollutants to incorporate air pollution mitigation in their design and operation, and to utilize the most advanced technological methods feasible.

PROGRAM AQ 1.5C

To the extent feasible, monitor the effectiveness of transportation management programs of employers, which may include coordinated carpooling, off-peak shift times, employee flex time, and other components.

As future demand warrants, promote and support the development of a "Park and Ride" program to decrease existing and future traffic levels in the community.

PROGRAM AQ 1.5D

Require all building, both residential and commercial, to be electric vehicle charging station ready.

PROGRAM AQ 1.6D

The City shall require air quality studies for projects that are proposed within 500 feet of I-10, and which include sensitive receptors.

POLICY AQ 1.6

The City shall strive towards achieving a level-of-service C (see Circulation Element) on all roadways to improve traffic flow, minimize idling time, and reduce air emissions.

2.3 Regional and Local Air Quality Conditions

2.3.1 Coachella Valley Portion of the Salton Sea Air Basin Attainment Designation

Pursuant to the 1990 federal Clean Air Act amendments, EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. Table 2 depicts the current attainment status of the project site with respect to the NAAQS and CAAQS, and outlines attainment classifications for the criteria pollutants.

Table 2. Coachella Valley Portion of the Salton Sea Air Basin Attainment Classification

Pollutant	Designation/Classification	
	Federal Standards	*State Standards*
Ozone (O_3) – 1 hour	No federal standard	**Nonattainment**
Ozone (O_3) – 8 hour	**Severe nonattainment**	**Nonattainment**
Nitrogen dioxide (NO_2)	Unclassifiable/attainment	Attainment
Carbon monoxide (CO)	Unclassifiable/attainment	Attainment
Sulfur dioxide (SO_2)	Unclassifiable/attainment	Attainment

Table 2. Coachella Valley Portion of the Salton Sea Air Basin Attainment Classification

Pollutant	Designation/Classification	
	Federal Standards	*State Standards*
Coarse particulate matter (PM_{10})	**Serious nonattainment**	**Nonattainment**
Fine particulate matter ($PM_{2.5}$)	Unclassifiable/attainment	Attainment
Lead (Pb)	Unclassifiable/attainment	Attainment
Hydrogen sulfide	No federal standard	Unclassified
Sulfates	No federal standard	Attainment
Visibility-reducing particles	No federal standard	Unclassified
Vinyl chloride	No federal standard	No designation

Sources: SCAQMD 2017.
Notes: Bold text = not in attainment; attainment = meets the standards; attainment/maintenance = achieve the standards after a nonattainment designation; nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify; unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

In summary, the SSAB is designated as a nonattainment area for federal and state O_3 standards and federal and state PM_{10} standards. The SSAB is designated as an attainment area for federal and state CO, $PM_{2.5}$, NO_2, and SO_2 standards.

Despite the current nonattainment status, air quality within the SSAB has generally improved since the inception of air pollutant monitoring in 1976. This improvement is mainly due to lower-polluting on-road motor vehicles, more stringent regulation of industrial sources, and the implementation of emission reduction strategies by the SCAQMD. This trend toward cleaner air has occurred in spite of continued population growth. Despite this growth, air quality has improved significantly over the years, primarily due to the impacts of the region's air quality control program. PM_{10} levels have declined almost 50% since 1990, and $PM_{2.5}$ levels have also declined 50% since measurements began in 1999 (SCAQMD 2013). Similar improvements are observed with O_3, although the rate of O_3 decline has slowed in recent years.

2.3.2 Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. SCAQMD monitors local ambient air quality in the region of the project site. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2017 to 2019 are presented in Table 3. The Palm Springs monitoring station, located at 590 Racquet Club Road, Palm Springs, California, is the nearest air quality monitoring station to the project site, located approximately 12.6 miles northwest of the project site. The data collected at this station are considered representative of the air quality experienced in the project vicinity. Air quality data for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$ from the Palm Springs monitoring station are provided in Table 3. Because SO_2 measurements are not monitored at the Palm Springs monitoring station, the measurements were taken from the Rubidoux monitoring station (1588 Mission Boulevard, Rubidoux, California, approximately 69 miles northwest of the project site). The number of days exceeding the ambient air quality standards is also shown in Table 3.

Table 3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2017	*2018*	*2019*	*2017*	*2018*	*2019*
Ozone (O_3)										
Palm Springs	ppm	Maximum 1-hour concentration	State	0.09	0.113	0.111	0.100	18	11	5
	ppm	Maximum 8-hour concentration	State	0.070	0.097	0.099	0.084	63	58	34
			Federal	0.070	0.097	0.099	0.085	57	56	39
Nitrogen Dioxide (NO_2)										
Palm Springs	ppm	Maximum 1-hour concentration	State	0.18	0.043	0.043	0.041	0	0	0
			Federal	0.100	0.043	0.043	0.041	0	0	0
	ppm	Annual concentration	State	0.030	0.007	0.007	0.00726	0	0	0
			Federal	0.053	0.0065	0.0068	0.00726	0	0	0
Carbon Monoxide (CO)										
Palm Springs	ppm	Maximum 1-hour concentration	State	20	1	1.1	1.3	0	0	0
			Federal	35	1	1.1	1.3	0	0	0
	ppm	Maximum 8-hour concentration	State	9.0	0.4	0.8	0.7	0	0	0
			Federal	9	0.4	0.8	0.7	0	0	0
Sulfur Dioxide (SO_2)										
Rubidoux	ppm	Maximum 1-hour concentration	Federal	0.075	0.0025	0.0017	0.0018	0	0	0
	ppm	Maximum 24-hour concentration	Federal	0.14	0.0012	0.0009	0.0009	0	0	0
	ppm	Annual concentration	Federal	0.030	0.00029	0.00045	0.00042	0	0	0
Coarse Particulate Matter (PM_{10})[b]										
Palm Springs	µg/m³	Maximum 24-hour concentration	State	50	60.5	37.4	51.8	–	0	6
			Federal	150	105.6	422.3	75.6	0	2	0
	µg/m³	Annual concentration	State	20	ND	20.1	19.9	–	–	–
Fine Particulate Matter ($PM_{2.5}$)[b]										
Palm Springs	µg/m³	Maximum 24-hour concentration	Federal	35	14.5	30.2	15.5	0	0	0
	µg/m³	Annual concentration	State	12	6.0	6.0	6.0	0	–	–
			Federal	12.0	6.0	6.0	6.0	0	–	–

Sources: CARB 2016b; EPA 2018b.

Notes: ppm = parts per million by volume; ND = insufficient data available to determine the value; -- = not available; μg/m³ = micrograms per cubic meter.
Data taken from CARB iADAM (CARB 2020) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.
Exceedances of federal and state standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour ozone, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

[a] Mean does not satisfy minimum data completeness criteria.

[b] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

2.4 Significance Criteria and Methodology

2.4.1 Thresholds of Significance

The significance criteria used to evaluate the project impacts to air quality is based on the recommendations provided in Appendix G of the CEQA Guidelines. For the purposes of this air quality analysis, a significant impact would occur if the project would (14 CCR 15000 et seq.):

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable new increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to determine whether the project would have a significant impact on air quality.

The SCAQMD has established Air Quality Significance Thresholds, as revised in April 2019, that set forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality under existing and cumulative conditions. The quantitative air quality analysis provided herein applies the SCAQMD thresholds identified in Table 4 to determine the potential for the project to result in a significant impact under CEQA.

Table 4. SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	*Construction (Pounds per Day)*	*Operation (Pounds per Day)*
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3

Table 4. SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	*Construction (Pounds per Day)*	*Operation (Pounds per Day)*
TACs and Odor Thresholds		
TACs[b]	Maximum incremental cancer risk ≥ 10 in 1 million Chronic and acute hazard index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality Standards for Criteria Pollutants[c]		
NO_2 1-hour average NO_2 annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.030 ppm (state) and 0.0534 ppm (federal)	
CO 1-hour average CO 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
PM_{10} 24-hour average PM_{10} annual average	10.4 μg/m³ (construction)[d] 2.5 μg/m³ (operation) 1.0 μg/m³	
$PM_{2.5}$ 24-hour average	10.4 μg/m³ (construction)[d] 2.5 μg/m³ (operation)	

Source: SCAQMD 2019.
Notes: SCAQMD = South Coast Air Quality Management District; VOC = volatile organic compounds; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; TAC = toxic air contaminant; NO_2 = nitrogen dioxide; ppm = parts per million by volume; μg/m³ = micrograms per cubic meter.
GHG emissions thresholds for industrial projects, as added in the March 2015 revision to the SCAQMD Air Quality Significance Thresholds, were not include included in Table 4 as they are addressed within the GHG emissions analysis and not the air quality study.

[a] The phaseout of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.
[b] TACs include carcinogens and noncarcinogens.
[c] Ambient air quality standards for criteria pollutants are based on SCAQMD Rule 1303, Table A-2, unless otherwise stated.
[d] Ambient air quality threshold are based on SCAQMD Rule 403.
[e] For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.

The evaluation of whether the project would conflict with or obstruct implementation of the applicable air quality plan (Impact AQ-1) is based on the SCAQMD CEQA Air Quality Handbook (SCAQMD 1993), Chapter 12, Sections 12.2 and 12.3. The first criterion assesses if the project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP, which is addressed in detail in Section 2.5.2, Threshold AQ-2, of this report. The second criterion is if the project would exceed the assumptions in the AQMP or increments based on the year of project buildout and phase, as discussed further in Section 2.5.1, Threshold AQ-1, of this report.

To evaluate the potential for the project to result in a cumulatively considerable new increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (Threshold AQ-2), this analysis applies the SCAQMD's construction and operational criteria pollutants mass daily thresholds, as shown in Table 4. A project would result in a cumulatively considerable new increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air

quality standard, if the project's construction or operational emissions would exceed the SCAQMD VOC or NO_x thresholds shown in Table 4. These emissions-based thresholds for O_3 precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur). This approach is used because O_3 is not emitted directly (see the discussion of O_3 and its sources in Section 2.1.2, Pollutants and Effects), and the effects of an individual project's emissions of O_3 precursors (VOC and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

The assessment of the project's potential to expose sensitive receptors to substantial pollutant concentrations (Section 2.5.3, Threshold AQ-3) includes a localized significance threshold (LST) analysis and CO hotspot assessment, as recommended by the SCAQMD. For project sites of 5 acres or less, the SCAQMD LST Methodology (2009) includes lookup tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., the emissions would not cause an exceedance of the applicable concentration limits for NO_2, CO, PM_{10}, and $PM_{2.5}$) without performing project-specific dispersion modeling. Although the proposed development area of the site is greater than 5 acres (estimated to be 16.48 acres), the project would disturb less than 5 acres in 1 day, as discussed in detail in the following text, so it is appropriate to use the lookup tables for the LST evaluation.

The LST significance thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of a project that would not cause or contribute to an exceedance of the relevant ambient air quality standards, while the threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust). The LST significance threshold for $PM_{2.5}$ is intended to ensure that construction emissions do not contribute substantially to existing exceedances of the $PM_{2.5}$ ambient air quality standards. The allowable emission rates depend on the following parameters:

1. Source-receptor area (SRA) in which the project is located
2. Size of the project site
3. Distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals)

The project site is located in SRA 30 (Coachella Valley). The SCAQMD provides guidance for applying California Emissions Estimator Model (CalEEMod) to the LSTs. LST pollutant screening level concentration data is currently published for 1-, 2-, and 5-acre sites for varying distances. The maximum number of acres disturbed on the peak day was estimated using the "Fact Sheet for Applying CalEEMod to Localized Significance Thresholds" (SCAQMD 2011), which provides estimated acres per 8-hour day for crawler tractors, graders, rubber-tired dozers, and scrapers. Based on the construction schedule, it was assumed that one grader, one rubber-tired dozer, two scrappers and two crawler tractors (CalEEMod category: tractor/loader/backhoes) would be used based on the applicant provide construction equipment schedule. CalEEMod default values assume that during an 8-hour day, graders, rubber-tired dozers and crawler tractors can each disturb a maximum of 0.5 acres and scrapers each disturb one acre. This results in a total of 4 acres disturbed per day from the equipment.

The nearest sensitive-receptor land use (a residence) is located approximately of 25 meters (82 feet) south of the project's limits of construction. As such, the LST receptor distance was assumed to be 25 meters (82 feet). Because threshold values at 4 acres are not directly provided in look up table, thresholds were determined thought interpolation between thresholds provided for 2 acres and 5 acres. The LST values from the SCAQMD lookup tables for SRA 30 for a 4-acre project site and a receptor distance of 25 meters (82 feet) are shown in Table 5.

Table 5. Localized Significance Thresholds for Source-Receptor Area 30 (Coachella Valley)

Pollutant	Threshold (Pounds per Day)
NO_2	266.33
CO	1,961
PM_{10}	11.67
$PM_{2.5}$	7.00

Source: SCAQMD 2009.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
LST thresholds were determined based on the values for 4-acre site at a distance of 25 meters (82 feet) from the nearest sensitive receptor.

The potential for the project to result in an odor impact (Section 2.5.4, Threshold AQ-4) is based on the project's land use type and operational activity, and the potential for the project to create an odor nuisance pursuant to SCAQMD Rule 402.

2.4.2 Approach and Methodology

2.4.2.1 Construction Emissions

Construction of the proposed Project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance, VOC off-gassing from architectural coatings and asphalt pavement application) and off-site sources (e.g., vendor trucks, haul trucks, and worker vehicle trips). Specifically, entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Internal combustion engines used by construction equipment, haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$. Construction emissions can vary substantially from day to day depending on the level of activity; the specific type of operation; and, for dust, the prevailing weather conditions.

Application of architectural coatings, such as exterior paint and other finishes, and application of asphalt pavement would also produce VOC emissions. VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers used during construction of the facility. CalEEMod calculates the VOC evaporative emissions from application of surface coatings based on the VOC emissions factor, the building square footage, and the assumed fraction of surface area. No-VOC paint, defined as paint with a VOC content of 5 grams/liter or less, is proposed for the project.

The proposed project would be required to comply with SCAQMD Rule 403 (Fugitive Dust) to control dust emissions generated during any dust-generating activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active dust areas up to two times per day, depending on weather conditions. Rule 403.1 is a supplemental rule to Rule 403 and is applicable to man-made sources of fugitive dust in Coachella Valley. Rule 403.1 requires a Fugitive Dust Control Plan approved by South Coast AQMD or an authorized local government agency prior to initiating any construction/ earth-moving activity. These requirements are only applicable to construction projects with 5,000 or more square feet of surface area disturbance and therefore applicable to the proposed project.

Emissions from the construction phase of the proposed project were estimated using CalEEMod version 2020.04.0. For a conservative emission estimation, construction is assumed to begin in February 1, 2023, and conclude in November of 2024. In the event actual construction proceeds longer into year 2024, this analysis provides a conservative approach resulting in slightly higher daily emissions and annual emissions. A detailed depiction of expected construction schedules, including information regarding phasing, equipment used during each phase, trucks, and worker vehicles, is provided in Appendix A, CalEEMod Output Files.

General construction equipment modeling assumptions are provided in Table 6. The applicant provided project specific values for equipment mix for all construction phase. Equipment horsepower, and load factors were based on CalEEMod defaults. The project site is currently vacant and site preparation included clearing and grubbing has previously been performed and as such is not part of this analysis.

During the grading phase of construction, it is anticipated that approximately 6,920 cubic yards of material would be exported and no material would be imported. For the analysis, it was generally assumed that heavy-duty construction equipment would be operating at the site 5 days per week. Detailed construction equipment modeling assumptions are provided in Appendix A.

Table 6. Construction Scenario Assumptions

	One-Way Vehicle Trips			Equipment			Schedule	
Construction Phase	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Types*	*Quantity*	*Usage Hours*	*Start Date*	*Finish Date*
Grading	10	8	692	Graders	1	8	2/1/2023	3/21/2023
				Rubber-Tired Dozers	1	8		
				Tractors/ Loaders/ Backhoes	2	8		
				Scrapers	2	8		
				Excavator	2	8		
Building Construction	50	46	60	Cranes	1	7	3/22/2023	8/20/2024
				Forklifts	3	8		
				Generator Sets	1	8		
				Tractors/ Loaders/ Backhoes	3	7		
				Welders	1	8		
Paving	20	20	197	Pavers	2	8	8/21/2024	9/17/2024
				Paving Equipment	2	8		
				Rollers	2	8		

Table 6. Construction Scenario Assumptions

	One-Way Vehicle Trips			Equipment			Schedule	
Construction Phase	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Types*	*Quantity*	*Usage Hours*	*Start Date*	*Finish Date*
Architectural Coating / Finish Phase	70	60	380	Air Compressors	1	6	9/18/2024	10/15/2024

Notes: See Appendix A for details.
Two one-way trips will be assumed per worker, per haul truck, and per vendor truck

2.4.2.2 Operational Emissions

Operation of the proposed project would produce VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions associated with vehicular traffic, area sources (consumer products, architectural coatings, landscaping equipment), energy sources (natural gas, appliances, and space and water heating), and stationary sources (emergency generator). CalEEMod was used to estimate daily emissions from these operational sources including modelling the emissions of a 1,200 hp) diesel-fired emergency generator based on 1 hour per day and 50 hours per year of operation per SCAQMD Rule 1470, which limits emergency generators to 50 hours of use per year for maintenance and testing. CalEEMod default emission factors were used for the proposed generator, corresponding with the install dates.

Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment. Emissions associated with natural gas usage in space heating, water heating, and stoves are calculated in the building energy use module of CalEEMod, as described in the following text.

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Other paint products, furniture coatings, or architectural coatings are not considered consumer products (CAPCOA 2017). Consumer product VOC emissions are estimated in CalEEMod based on the floor area of residential and nonresidential buildings and on the default factor of pounds of VOC per building square foot per day. For parking lot land uses, CalEEMod estimates VOC emissions associated with use of parking surface degreasers based on a square footage of parking surface area and pounds of VOC per square foot per day.

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers using during building maintenance. CalEEMod calculates the VOC evaporative emissions from application of residential and nonresidential surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The VOC emission factor is based on the VOC content of the surface coatings, and SCAQMD's Rule 1113 (Architectural Coatings) governs the VOC content for interior and exterior coatings. The model default reapplication rate of 10% of area per year

is assumed. Consistent with CalEEMod defaults, it is assumed that the non-residential surface area for painting equals 2.0 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating. For the parking surface area, the architectural coating area is assumed to be 6% of the total square footage, consistent with the supporting CalEEMod studies provided as an appendix to the CalEEMod User's Guide (CAPCOA 2017).

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers. The emissions associated from landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per residential dwelling unit per day and grams per square foot of nonresidential building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days.

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth). Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site. For energy use from residential and nonresidential buildings, CalEEMod energy intensity values (natural gas usage per square foot per year) assumptions were based on the California Commercial End-Use Survey database. CalEEMod default values for energy consumption were applied for the project analysis.

Mobile Sources

The proposed project would generate criteria pollutant emissions from mobile sources (vehicular traffic). On-road vehicular emissions associated with the proposed project operation were modeled using trip generation rates for the Ritz-Carlton residences, Sky Mesa Restaurant, and weekend special events at the project venue space estimated by Urban Crossroads (2020a). The venue space was modeled in CalEEMod as an arena. Additional modeled land uses include the parking garage with elevator, swimming pools, driveway parking and paved roads.

2.5 Impact Analysis

2.5.1 Threshold AQ-1

Would the project conflict with or obstruct implementation of the applicable air quality plan?

As previously discussed, the project site is located within the SSAB under the jurisdiction of the SCAQMD, which is the local agency responsible for administration and enforcement of air quality regulations for the area. The SCAQMD has established criteria for determining consistency with the AQMP, currently the 2016 AQMP, in Chapter 12, Sections 12.2 and 12.3, in the SCAQMD CEQA Air Quality Handbook (SCAQMD 1993). The criteria are as follows (SCAQMD 1993):

> **Consistency Criterion No. 1:** The proposed project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP.

Consistency Criterion No. 2: The proposed project will not exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Consistency Criterion No. 1

Section 2.5.2, Threshold AQ-2, evaluates the project's potential impacts in regards to CEQA Guidelines Appendix G Threshold 2 (will the project result in a cumulatively considerable new increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard). As discussed in Section 2.5.2, the project would not result in a significant and unavoidable impact associated with the violation of an air quality standard. Because the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, the project would not conflict with Consistency Criterion No. 1 of the SCAQMD CEQA Air Quality Handbook.

Consistency Criterion No. 2

While striving to achieve the NAAQS and CAAQS for O_3 and PM_{10} through a variety of air quality control measures, the 2016 AQMP also accommodates planned growth in the SSAB. Projects are considered consistent with, and would not conflict with or obstruct implementation of, the AQMP if the growth in socioeconomic factors (e.g., population, employment) is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the SCAQMD CEQA Air Quality Handbook).

The potential of the proposed project to exceed the assumptions in the AQMP or increments based on the year of project buildout and phase is primarily assessed by determining consistency between the proposed project's land use designations and its potential to generate population growth. In general, projects are considered consistent with, and not in conflict with or obstruct implementation of, the AQMP if the growth they produce in socioeconomic factors is consistent with the underlying regional plans used to develop the AQMP (SCAQMD 1993).

The project site is currently zoned Resort Hotel (Rs-H) and Open Space: Mountain Reserve (MR) in the General Plan (City of Rancho Mirage 2017). The proposed hotel suites and villas are located on the Rs-H zoned property and therefore consistent with the General Plan designation. This designation allows for the development of hotels and destination resorts with limited, ancillary commercial uses, such as spas, recreational facilities, restaurants, lounges, and small retail shops that directly support the primary use. The Sky Mesa is located on the MR zoned portion of the project site, which is assigned to public lands or property subject to conservation easements in the Santa Rosa Mountains. Uses are limited to recreational activities, such as hiking or equestrian and non-motorized bike trails and facilities consistent with the need to protect sensitive biological resources. Vehicular access is not permitted in this designation. Under existing conditions, the Sky Mesa portion of the project would conflict with the underlying land use designations. However, as part of the proposed project, the applicant is proposing an amendment to the City's General Plan that would expand the Resort Hotel (Rs-H) designation and zoning to encompass the Sky Mesa portion of the site, which is a privately owned property and not public land. Per the description of allowable uses for Rs-H outlined above, the Sky Mesa Recreation Area would be consistent with Rs-H zone. With future approval and adoption of the zone change by City Council, the proposed project would not conflict with the City's General Plan with regard to allowable land uses.

SCAG reported the City's population to be 18,739 persons as of 2018 (SCAG 2019). In 2018, the City had a total of 14,492 housing units, and in 2017, the City had a total of 16,902 jobs (SCAG 2019). By 2040, SCAG projected the City to have a population of 25,000 persons and 20,500 jobs (SCAG 2016). According to the City's General Plan Housing Element (City of Rancho Mirage 2017), the 2014–2021 RHNA determined that the City needed a total of

95 housing units. The proposed project would construct 106 residential units. However, these residential units would operate similar to time-share properties and therefore future residents would not be in the proposed residential units year-round. Because the proposed residential units are not typical residential units that residents cannot occupy year-round, theses housing units do not count towards the RHNA housing unit determination. SCAG's Local Profile Report for the City of Rancho Mirage indicated that the City's average household size was two persons per dwelling unit as of 2018 (SCAG 2019). Using these assumptions, implementation of the proposed project would have the potential to increase the City's population by 216 persons. This population increase would comply with SCAG's projected population increase for the City. Accordingly, the proposed project is consistent with the SCAG RTP/SCS forecasts used in the SCAQMD AQMP development.

Summary

As described previously, the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, and would not conflict with Consistency Criterion No. 1. Implementation of the project would be not exceed the demographic growth forecasts for the City; therefore, the project would also be consistent with the SCAQMD 2016 AQMP, which based future emission estimates on the SCAG 2016 RTP/SCS. Thus, the project would not conflict with Consistency Criterion No. 2. Based on these considerations, impacts related to the project's potential to conflict with or obstruct implementation of the applicable air quality plan would be **less than significant**.

2.5.2 Threshold AQ-2

Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard?

A quantitative analysis was conducted to determine whether proposed activities might result in emissions of criteria air pollutants that may cause exceedances of the NAAQS or CAAQS, or cumulatively contribute to existing nonattainment of ambient air quality standards. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide, particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}; course particulate matter), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$; fine particulate matter), and lead. Pollutants that are evaluated herein include volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), which are important because they are precursors to O_3, as well as CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$.

As discussed in Section 2.3.1, Coachella Valley Portion of the Salton Sea Air Basin Attainment Designation, the SSAB has been designated as a federal and state nonattainment area for O_3 and PM_{10}. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SSAB including motor vehicles, off-road equipment, and commercial and industrial facilities.

Construction

Construction of the proposed project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance, VOC off-gassing from architectural coatings and asphalt pavement application) and off-site sources (e.g., vendor trucks, haul trucks, and worker vehicle trips). Specifically, entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Internal combustion engines used by construction equipment, haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in

emissions of VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$. Construction emissions can vary substantially from day to day depending on the level of activity; the specific type of operation; and, for dust, the prevailing weather conditions.

Application of architectural coatings, such as exterior paint and other finishes, and application of asphalt pavement would also produce VOC emissions. VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers used during construction of the facility. CalEEMod calculates the VOC evaporative emissions from application of surface coatings based on the VOC emissions factor, the building square footage, and the assumed fraction of surface area. No-VOC paint, defined as paint with a VOC content of 5 grams/liter or less, is proposed for the project.

Emissions from the construction phase of the proposed project were estimated using CalEEMod version 2020.04.0 For a conservative emission estimation, construction is assumed to begin in February 1, 2023 and conclude in November of 2024. In the event actual construction proceeds longer into year 2024, this analysis provides a conservative approach resulting in slightly higher daily emissions and annual emissions. A detailed depiction of expected construction schedules—including information regarding phasing, equipment used during each phase, trucks, and worker vehicles—is provided in Appendix A.

During the grading phase of construction, it is anticipated that approximately 6,920 cubic yards of material would be exported and no material would be imported. For the analysis, it was generally assumed that heavy-duty construction equipment would be operating at the site 5 days per week. Detailed construction equipment modeling assumptions are provided in Appendix A.

Table 7 shows the estimated maximum daily construction emissions associated with the construction phase of the proposed project.

Table 7. Estimated Maximum Daily Construction Emissions - Unmitigated

Year	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	pounds per day					
2023	3.39	35.53	28.73	0.07	4.10	2.05
2024	6.15	30.88	40.98	0.10	4.50	2.03
Maximum Daily Emissions	**6.15**	**35.53**	**40.98**	**0.10**	**4.50**	**2.05**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No

Source: SCAQMD 2019.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
See Appendix A for detailed results.
[a] These estimates reflect control of fugitive dust required by SCAQMD Rule 403, specifically, watering of active site areas two times per day.

As shown in Table 7, daily construction emissions would not exceed the SCAQMD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction. Construction-generated emissions would be temporary and would not represent a long-term source of criteria air pollutant emissions. As such, impacts would be less than significant.

Operations

Operation of the proposed project would produce VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions associated with vehicular traffic, area sources (consumer products, architectural coatings, landscaping equipment), energy sources (natural gas,

appliances, and space and water heating), and stationary sources (emergency generator). CalEEMod was used to estimate daily emissions from these operational sources including modelling the emissions of a 1,200 hp) diesel-fired emergency generator based on 1-hour per day and 50-hours per year of operation per SCAQMD Rule 1470, which limits emergency generators to 50-hours of use per year for maintenance and testing. CalEEMod default emission factors were used for the proposed generator, corresponding with the install dates.

On-road vehicular emissions associated with the proposed project operation were modeled using trip generation rates for the Ritz-Carlton residences, Sky Mesa Restaurant, and weekend special events at the project venue space estimated by Urban Crossroads (2020a). The venue space was modeled in CalEEMod as an arena. Additional modeled land uses include the parking garage with elevator, swimming pools, driveway parking and paved roads. Emissions from energy sources also include natural gas combustion for appliances and space and water heating. CalEEMod defaults were also used for area sources (landscape maintenance equipment, consumer products, and architectural coatings for maintenance of buildings).

Table 8 summarizes the maximum daily area, energy, mobile, and stationary (emergency generator) emissions of criteria pollutants that would be generated by the development of the proposed project and how emissions compare to the SCAQMD thresholds of significance. As shown, the increase in all criteria pollutants are below SCAQMD thresholds. The values shown are the maximum summer or winter daily emissions (i.e., foreseeable worst case) results from CalEEMod. Details of the emission calculations are provided in Appendix B, SCAQMD Risk Tool Files.

Table 8. Estimated Maximum Daily Operational Emissions

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	(Pounds per Day)					
Proposed Project						
Area	3.23	0.10	8.80	<0.01	0.05	0.05
Energy	0.13	1.12	0.77	0.01	0.09	0.09
Mobile	5.29	7.37	52.23	0.12	12.46	3.39
Stationary	1.97	8.81	5.02	0.01	0.29	0.30
Total	**10.62**	**17.40**	**66.82**	**0.14**	**12.89**	**3.83**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
Area sources = consumer product use, architectural coatings, and landscape maintenance equipment. Energy sources = natural gas. Mobile sources = motor vehicles. Stationary sources = emergency generator.
See Appendix A for detailed results. The values shown are the maximum summer or winter daily emissions results from CalEEMod.

As shown in Table 8, maximum daily operational emissions of VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ generated by the proposed project would not exceed the SCAQMD's significance thresholds.

As previously discussed, the SSAB has been designated as a federal and state nonattainment area for O_3 and PM_{10}. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SSAB, including motor vehicles, off-road equipment, and commercial and industrial facilities. Construction and operational activities of the proposed project would generate VOC and NO_x emissions (precursors to O_3) and emissions of PM_{10}. However, as indicated in Tables 7 and 8, project-generated emissions would not exceed the SCAQMD emission-based significance thresholds for VOCs, NO_x, or PM_{10}.

Cumulative localized impacts would potentially occur if a project were to occur concurrently with another off-site project. Schedules for potential future projects near the project area are currently unknown; therefore, potential impacts associated with two or more simultaneous projects would be considered speculative.[4] However, future projects would be subject to CEQA and would require air quality analysis and, where necessary, mitigation. Criteria air pollutant emissions associated with construction activity of future projects would be reduced through implementation of control measures required by the SCAQMD. Cumulative PM_{10} emissions would be reduced because all future projects would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all sites in the SCAQMD. In addition, cumulative VOC emissions would be subject to SCAQMD Rule 1113 (Architectural Coatings).

Therefore, the proposed project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants, and impacts would be less than significant during construction and operation.

Health Effects of Criteria Air Pollutants

Construction of the proposed project would generate criteria air pollutant emissions; however, the project would not exceed the SCAQMD mass-emission thresholds.

Health effects associated with O_3 include respiratory symptoms, worsening of lung disease leading to premature death, and damage to lung tissue (CARB 2019b). VOCs and NO_x are precursors to O_3, for which the SSAB is designated as nonattainment with respect to the NAAQS and CAAQS. Thus, existing O_3 levels in the SSAB are at unhealthy levels during certain periods. The contribution of VOCs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SSAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the VOC emissions would occur because exceedances of the O_3 NAAQS and CAAQS tend to occur between May and October when solar radiation is highest. The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, because the proposed project would not involve construction or operational activities that would result in O_3 precursor emissions (VOC or NO_x) in excess of the SCAQMD thresholds, the project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

Exposure to NO_2 and NO_x can irritate the lungs, cause bronchitis and pneumonia, lower resistance to respiratory infections, and enhance allergic responses (CARB 2019c). Project construction and operation would not exceed the SCAQMD NO_x threshold, and existing ambient NO_2 concentrations are below the NAAQS and CAAQS. Thus, implementation of the proposed project is not expected to exceed the NO_2 standards or contribute to associated health effects.

Health effects associated with CO include chest pain in patients with heart disease, headache, light-headedness, and reduced mental alertness (CARB 2019d). CO tends to be a localized impact associated with congested intersections. CO hotspots were discussed previously as a less than significant impact. Thus, the proposed project's CO emissions would not contribute to the health effects associated with this pollutant.

[4] The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145).

Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing (EPA 2009). The SSAB is designated as nonattainment for PM_{10} under the NAAQS and CAAQS. Implementation of the proposed project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the SCAQMD's thresholds. Accordingly, the proposed project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause an increase in related regional health effects for these pollutants.

In summary, the proposed project would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants, and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Therefore, impacts would be **less than significant**.

2.5.3 Threshold AQ-3

Would the project expose sensitive receptors to substantial pollutant concentrations?

Localized Significance Thresholds

A localized significance threshold (LST) analysis was performed to evaluate localized air quality impacts to sensitive receptors in the immediate vicinity of the proposed project as a result of proposed project activities. The impacts were analyzed using methods consistent with those in the SCAQMD (2008) Final Localized Significance Threshold Methodology. The proposed project is located within SRA 30 (Coachella Valley).

The greatest on-site daily emissions of NOx, CO, PM_{10}, and $PM_{2.5}$ generated during construction occurred during the grading period of the proposed project construction. Based on the construction schedule, it was assumed that one grader, one rubber-tired dozer, two scrappers and two crawler tractors (CalEEMod category: tractor/loader/backhoes) would be used based on the applicant provide construction equipment schedule. CalEEMod default values assume that during an 8-hour day, graders, rubber-tired dozers and crawler tractors can each disturb a maximum of 0.5 acres and scrapers each disturb 1 acre. This results in a total of 4 acres disturbed per day from the equipment. The SCAQMD LST values for 2 acres and 5 acres within SRA 30, with a nearby receptor distance of 25 meters (82 feet), were used to interpolate values for the proposed project's 4-acre disturbance per day.

Project construction activities would result in temporary sources of on-site criteria air pollutant emissions associated with construction equipment exhaust and dust-generating activities. According to the Final Localized Significance Threshold Methodology, "off-site mobile emissions from the project should not be included in the emissions compared to the LSTs" (SCAQMD 2009). Trucks and worker trips associated with the proposed project are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways since emissions would be relatively brief in nature and would cease once the vehicles pass through the main streets. Therefore, off-site emissions from trucks and worker vehicle trips are not included in the LST analysis. For the on-site portions of operation of trucks and worker vehicles, trips were limited to 1,000 feet (assumed on-site distance). The maximum daily on-site construction emissions generated during construction of the proposed project is presented in Table 9, and compared to the SCAQMD localized significance criteria for SRA 30 to determine whether project-generated on-site construction emissions would result in potential LST impacts.

Table 9. Construction Localized Significance Thresholds Analysis

Year	NO_2	CO	PM_{10}	$PM_{2.5}$
	pounds per day (on site)			
2023	34.76	28.30	3.77	1.95
2024	26.29	34.86	1.20	1.09
Maximum Daily On Site Emissions	**34.76**	**34.86**	**3.77**	**1.95**
SCAQMD LST Criteria	*266.33*	*1,961.00*	*11.67*	*7.00*
Threshold Exceeded?	No	No	No	No

Source: SCAQMD 2008.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
See Appendix B for detailed results. Localized significance thresholds are shown for a 4-acre project site and a distance of 25 meters (82 feet) to the nearest sensitive receptor.

As shown in Table 9, proposed construction activities would not generate emissions in excess of site-specific LSTs; therefore, localized impacts of the proposed project would be less than significant.

Health Impacts of Toxic Air Contaminants

Toxic air contaminants (TACs) are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. As discussed under the LST analysis, the nearest sensitive receptors are single family residential dwellings adjacent and south of the proposed project site.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SCAQMD recommends an incremental cancer risk threshold of 10 in 1 million. "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period will contract cancer based on the use of standard Office of Environmental Health Hazard Assessment (OEHHA) risk-assessment methodology (OEHHA 2015). In addition, some TACs have non-carcinogenic effects. The SCAQMD recommends a Hazard Index of 1 or more for acute (short-term) and chronic (long-term) non-carcinogenic effects.[5] TACs that would potentially be emitted during construction activities associated with development of the proposed project would be diesel particulate matter.

Diesel particulate matter emissions would be emitted from heavy equipment operations and heavy-duty trucks. Heavy-duty construction equipment is subject to a California Air Resources Board (CARB) Airborne Toxics Control Measure for in-use diesel construction equipment to reduce diesel particulate emissions. As described for the LST analysis, PM_{10} (representative of diesel particulate matter) exposure would be minimal. According to the OEHHA, health risk assessments (which determine the exposure of sensitive receptors to toxic emissions) should be based on a 30-year exposure period for the maximally exposed individual resident. However, such assessments should also be limited to the period/duration of activities associated with the project. The duration of the proposed construction activities would constitute a small percentage of the total 30-year exposure period. The construction period for the proposed project would be approximately 22 months, after which construction-related TAC emissions

[5] Non-cancer adverse health risks are measured against a hazard index, which is defined as the ratio of the predicted incremental exposure concentrations of the various non-carcinogens from the project to published reference exposure levels that can cause adverse health effects.

would cease. Due to this relatively short period of exposure and minimal particulate emissions on site, TACs generated during construction would not be expected to result in concentrations causing significant health risks.

Following completion of on-site construction activities, the proposed project would not involve routine operational activities that would generate TAC emissions other than intermittent maintenance and testing of the natural diesel-fired emergency generator, which would be limited to 50 hours per year. SCAQMD Rule 1470 limits operation of emergency generators to 50 hours per year for maintenance and testing). Due to this relatively short period of exposure, small engine size of the emergency generator (1,200 hp), and minimal on-site particulate emissions from other sources, TACs generated during operation would not result in concentrations causing significant health risks as demonstrated through SCAQMD' Risk Assessment Tool for Rule 1401 and 212, (Version 8.1). The Risk Assessment Tool, a spreadsheet program, was used to perform a screening level evaluation of the cancer and non-cancer health effects of the emergency generator emissions pursuant to Rule 1401, see Appendix B for program results. As shown in Appendix B, the emergency generator passes Tier II Maximum Individual Cancer Risk (MICR).

For the reasons described above, the project would not result in substantial TAC exposure to sensitive receptors in the vicinity of the proposed project, and impacts would be less than significant. No mitigation is required.

Local Carbon Monoxide Concentrations

Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed federal and/or state standards for CO are termed CO "hotspots." CO transport is extremely limited and disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting sensitive receptors. Typically, high CO concentrations are associated with severely congested intersections operating at an unacceptable level of service (LOS) (LOS E or worse is unacceptable). Projects contributing to adverse traffic impacts may result in the formation of a CO hotspot. Additional analysis of CO hotspot impacts would be conducted if a project would result in a significant impact or contribute to an adverse traffic impact at a signalized intersection that would potentially subject sensitive receptors to CO hotspots.

The Code of Federal Regulations (CFR) Procedures for Determining Localized CO, PM_{10}, and $PM_{2.5}$ Concentrations (hot-spot analysis), states that "CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities, which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established 'Guideline' methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site" (40 CFR 93.123[c][5]). While project construction would involve on-road vehicle trips from trucks and workers during construction, construction activities are considered temporary. As a result, the proposed construction activities would not require a project-level construction hotspot analysis.

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. To verify that the proposed project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted. The traffic impact study for the proposed project evaluated whether there would be a decrease in the LOS (i.e., increased congestion) at the intersections affected by the proposed project. The potential for CO hotspots was evaluated based on the results of the traffic impact study. The California Department of Transportation Institute of Transportation Studies Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) (Caltrans 2010) was followed for this analysis. CO hotspots are typically evaluated when (1) the LOS of an intersection decreases to LOS E or worse; (2) signalization and/or channelization is added to an

intersection; and (3) sensitive receptors such as residences, schools, and hospitals are located in the vicinity of the affected intersection or roadway segment.

The proposed project's traffic impact study (Urban Crossroads 2020a) evaluated three intersections including Frank Sinatra Drive and Driveway, 1, Frank Sinatra Drive and Driveway, 2, and Highway 111 and Frank Sinatra Drive. As determined by the traffic impact study, the addition of project traffic to study area intersections did not result in deficient intersection LOS operations. Therefore, further analysis is not required. Accordingly, the proposed project would not generate traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots. In addition, due to continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SSAB is steadily decreasing. Based on these considerations, the proposed project would result in a less than significant impact to air quality with regard to potential CO hotspots. No mitigation is required.

2.5.4 Threshold AQ-4

Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the proposed project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. Such odors would disperse rapidly from the proposed project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The proposed project includes operation of hotel facilities, and restaurant spaces, which are not anticipated to generate odors and does not result in operation of the types of land uses listed in SCAQMD's screening criteria. For the reasons described above, project construction and operation would result in an odor impact that would be less than significant.

3 Greenhouse Gas Emissions

3.1 Environmental Setting

3.1.1 Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-twentieth century and is the most significant driver of observed climate change (IPCC 2013; EPA 2017). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in Section 3.3.2, Potential Effects of Climate Change.

3.1.2 Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code section 38505(g) for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) (see also 14 CCR 15364.5).[6] Some GHGs, such as CO_2, CH_4, and N_2O are emitted into the atmosphere through natural processes and

[6] Climate forcing substances include GHGs and other substances such as black carbon and aerosols. This discussion focuses on the seven GHGs identified in the California Health and Safety Code Section 38505, because impacts associated with other climate forcing substances are not evaluated herein.

human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.[7]

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N_2O as a propellant (such as in rockets, racecars, and aerosol sprays).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric O_3-depleting substances (e.g., CFCs, HCFCs, and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to O_3-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the ozone depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- **Sulfur Hexafluoride:** SF_6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen Trifluoride:** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

[7] The descriptions of GHGs are summarized from the IPCC Fourth Assessment Report (2007), CARB's "Glossary of Terms Used in GHG Inventories" (2018a), and EPA's "Climate Change" (2017).

Chlorofluorocarbons. CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere), and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

Hydrochlorofluorocarbons. HCFCs are a large group of compounds, whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of $PM_{2.5}$, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived substance that varies spatially, which makes it difficult to quantify the global warming potential (GWP). Diesel exhaust emissions are a major source of black carbon and are TACs that have been regulated and controlled in California for several decades to protect public health. In relation to declining DPM as a result of CARB's regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen, plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

3.1.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2017). The Intergovernmental Panel on Climate Change (IPCC) developed the GWP concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons of CO_2 equivalent (MT CO_2e).

The current version of CalEEMod (Version 2020.04.0) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC's Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the project.

3.2 Regulatory Setting

3.2.1 Federal Regulations

Massachusetts v. EPA. In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act of 2007. The Energy Independence and Security Act of 2007 (December 2007), among other key measures, would do the following, which would aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020, and directs National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy-efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards. In 2007, in response to the *Massachusetts v. EPA* U.S. Supreme Court ruling, the Bush Administration issued Executive Order (EO) 13432 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016 (75 FR 25324–25728).

In 2010, President Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021 (77 FR 62624–63200), and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines (76 FR 57106–57513).

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types of sizes of buses and work trucks. The final standards are expected to lower carbon dioxide emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

In August 2018, EPA and NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and establish new standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards now in place, the 2018 proposal would increase U.S. fuel consumption by about half a million barrels per day (2%–3% of total daily consumption, according to the Energy Information Administration) and would impact the global climate by 3/1000th of 1°C by 2100 (EPA and NHTSA 2018). California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global climate change initiatives. Thus, the timing and consequences of the 2018 federal proposal are speculative at this time.

On September 27, 2019, EPA and NHTSA published the "Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program." (84 Fed. Reg. 51,310), which became effective November 26, 2019. The Part One Rule revokes California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. On March 31, 2020, the EPA and NHTSA issued Part Two of the SAFE Rule, which will go into effect 60 days after being published in the Federal Register. The Part Two Rule sets CO_2 emissions standards and corporate average fuel economy standards for passenger vehicles and light duty trucks for model years 2021 through 2026. This issue is evolving as California and 22 other states, as well as the District of Columbia and four cities, filed suit against the EPA and a petition for reconsideration of the rule on November 26, 2019. The litigation is not expected to be resolved for at least several months.

Clean Power Plan and New Source Performance Standards for Electric Generating Units. On October 23, 2015, EPA published a final rule (effective December 22, 2015) establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric

generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, the EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. The U.S. Supreme Court stayed implementation of the Clean Power Plan pending resolution of several lawsuits.

3.2.2 State Regulations

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes executive orders, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

The state has taken a number of actions to address climate change. These include executive orders, legislation, and CARB plans and requirements. These are summarized below.

EO S-3-05. EO S-3-05 (June 2005) established California's GHG emissions reduction targets and laid out responsibilities among the state agencies for implementing the EO and for reporting on progress toward the targets. This EO established the following targets:

- By 2010, reduce GHG emissions to 2000 levels
- By 2020, reduce GHG emissions to 1990 levels
- By 2050, reduce GHG emissions to 80% below 1990 levels

EO S-3-05 also directed the California Environmental Protection Agency to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issued reports from 2006 to 2010.

AB 32. In furtherance of the goals established in EO S-3-05, the Legislature enacted AB 32 (Núñez and Pavley). The bill is referred to as the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions at 1990 levels by 2020 and initiate the transformations required to achieve the state's long-range climate objectives.

EO B-18-12. EO B-18-12 (April 2012) directed state agencies, departments, and other entities under the governor's executive authority to take action to reduce entity-wide GHG emissions by at least 10% by 2015 and 20% by 2020, as measured against a 2010 baseline. EO B-18-12 also established goals for existing state buildings for reducing grid-based energy purchases and water use.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing

GHG emissions to 80% below 1990 levels by 2050 as set forth in S-3-05. To facilitate achieving this goal, EO B-30-15 called for CARB to update the Scoping Plan to express the 2030 target in terms of million metric tons (MMT) CO_2e. The EO also called for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets.

Senate Bill (SB) 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills. SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to the Board as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and, requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

CARB's 2007 Statewide Limit. In 2007, in accordance with California Health and Safety Code, Section 38550, CARB approved a statewide limit on the GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO_2e).

CARB's Climate Change Scoping Plan. One specific requirement of AB 32 is for CARB to prepare a "scoping plan" for achieving the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (Health and Safety Code, Section 38561(a)), and to update the plan at least once every 5 years. In 2008, CARB approved the first scoping plan. The Climate Change Scoping Plan: A Framework for Change (Scoping Plan) included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state's long-range climate objectives. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
2. Achieving a statewide renewable energy mix of 33%
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (LCFS) (17 CCR 95480 et seq.)
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

The Scoping Plan also identified local governments as essential partners in achieving California's goals to reduce GHG emissions because they have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Specifically, the Scoping Plan encouraged local governments to adopt a reduction goal for municipal operations and for community emissions to reduce GHGs by approximately 15% from then levels (2008) by 2020. Many local governments developed community-scale local GHG reduction plans based on this Scoping Plan recommendation.

In 2014, CARB approved the first update to the Scoping Plan. The First Update to the Climate Change Scoping Plan: Building on the Framework (First Update) defined the state's GHG emission reduction priorities for the next 5 years and laid the groundwork to start the transition to the post-2020 goals set forth in EO S-3-05 and EO B-16-2012 (CARB 2014). The First Update concluded that California is on track to meet the 2020 target but recommended a 2030 mid-term GHG reduction target be established to ensure a continuum of action to reduce emissions. The First Update recommended a mix of technologies in key economic sectors to reduce emissions through 2050 including energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings and industrial machinery; decarbonizing electricity and fuel supplies; and, the rapid market penetration of efficient and clean energy technologies. As part of the First Update, CARB recalculated the state's 1990 emissions level, using more recent GWPs identified by the Intergovernmental Panel on Climate Change, from 427 MMT CO_2e to 431 MMT CO_2e.

In 2015, as directed by EO B-30-15, CARB began working on an update to the Scoping Plan to incorporate the 2030 target of 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050 as set forth in S-3-05. The Governor called on California to pursue a new and ambitious set of strategies, in line with the five climate change pillars from his inaugural address, to reduce GHG emissions and prepare for the unavoidable impacts of climate change. In the summer of 2016, the Legislature affirmed the importance of addressing climate change through passage of Senate Bill 32 (SB 32) (Pavley, Chapter 249, Statutes of 2016).

In December 2017, CARB adopted California's 2017 Climate Change Scoping Plan (2017 Scoping Plan) for public review and comment (CARB 2017a). The 2017 Scoping Plan builds on the successful framework established in the initial Scoping Plan and First Update, while identifying new, technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target as established by SB 32 and define the state's climate change priorities to 2030 and beyond. The strategies' known commitments include implementing renewable energy and energy efficiency (including the mandates of SB 350), increased stringency of the LCFS, measures identified in the Mobile Source and Freight Strategies, measures identified in the proposed Short-Lived Climate Pollutant (SLCP) Plan, and increased stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, it recommends continuing the Cap-and-Trade Program.

For local governments, the 2017 Scoping Plan replaced the initial Scoping Plan's 15% reduction goal with a recommendation to aim for a community-wide goal of no more than 6 MT CO_2e per capita by 2030 and no more than 2 MT CO_2e per capita by 2050, which are consistent with the state's long-term goals. These goals are also consistent with the Under 2 Memorandum of Understanding (Under 2 2019) and the Paris Agreement (UNFCCC 2019), which are developed around the scientifically based levels necessary to limit global warming below 2°C. The 2017 Scoping Plan recognized the benefits of local government GHG planning (e.g., through CAPs) and provide more information regarding tools CARB is working on to support those efforts. It also recognizes the CEQA streamlining provisions for project level review where there is a legally adequate CAP.[8]

When discussing project-level GHG emissions reduction actions and thresholds in the context of CEQA, the 2017 Scoping Plan states that "achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development" for project-level CEQA analysis, but also recognizes that

[8] *Sierra Club v. County of Napa* (2004) 121 Cal.App.4th 1490; *San Francisco Tomorrow et al. v. City and County of San Francisco* (2015) 229 Cal.App.4th 498; *San Franciscans Upholding the Downtown Specific Plan v. City & County of San Francisco* (2002) 102 Cal.App.4th 656; *Sequoyah Hills Homeowners Assn. V. City of Oakland* (1993) 23 Cal.App.4th 704, 719.

such a standard may not be appropriate or feasible for every development project. The 2017 Scoping Plan further provides that "the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA."

CARB's Regulations for the Mandatory Reporting of Greenhouse Gas Emissions. CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (17 CCR 95100–95157) incorporated by reference certain requirements that EPA promulgated in its Final Rule on Mandatory Reporting of Greenhouse Gases (40 CFR, Part 98). Specifically, Section 95100(c) of the Mandatory Reporting Regulation incorporated those requirements that EPA promulgated in the Federal Register on October 30, 2009; July 12, 2010; September 22, 2010; October 28, 2010; November 30, 2010; December 17, 2010; and April 25, 2011. In general, entities subject to the Mandatory Reporting Regulation that emit over 10,000 MT CO_2e per year are required to report annual GHGs through the California Electronic GHG Reporting Tool. Certain sectors, such as refineries and cement plants, are required to report regardless of emission levels. Entities that emit more than the 25,000 MT CO_2e per year threshold are required to have their GHG emission report verified by a CARB-accredited third party.

SB 605 and SB 1383. SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of SLCPs in the state; and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of SLCPs (40% below 2013 levels by 2030 for methane and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its Short-Lived Climate Pollutant Reduction Strategy (SLCP Reduction Strategy) in March 2017. The SLCP Reduction Strategy establishes a framework for the statewide reduction of emissions of black carbon, methane, and fluorinated gases (CARB 2017b).

EO B-55-18. EO B-55-18 (September 2018) establishes a statewide policy for the state to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. The goal is an addition to the existing statewide targets of reducing the state's GHG emissions. CARB will work with relevant state agencies to ensure that future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code, Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402[d]) and cost effectiveness (California Public Resources Code, Sections 25402[b][2] and [b][3]). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2016 Title 24 standards are the currently applicable building energy efficiency standards, and became effective on January 1, 2017. The 2019 Title 24 Building Energy Efficiency Standards, which will be effective January 1, 2020, will further reduce energy used and associated GHG emissions compared to current standards. In general, single-family residences built to the 2019 standards are anticipated to use approximately 7% less energy due to energy efficiency measures than those built to the 2016 standards; once rooftop solar electricity generation is factored in, single-family residences built under the 2019 standards will use approximately 53% less energy than those under the 2016 standards (CEC 2018). Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018).

The 2019 Title 24 standards focus on building energy efficiency and ensuring solar electricity generated on site is used on site. "Looking beyond the 2019 standards, the most important energy characteristic for a building will be that it produces and consumes energy at times that are appropriate and responds to the needs of the grid, which reduces the building's emissions" (CEC 2018). In furtherance of that characteristic, the 2019 standards require that new homes include solar photovoltaic to meet the home's expected annual electric needs, and also encourage demand-responsive technologies including battery storage, heat-pump water heaters, and improving buildings' thermal envelopes through high performance attics, walls, and windows. These smarter homes perform better and affect the grid less, which reduces the buildings' GHG emissions.

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen, and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality.

The 2019 Title 24 Building Energy Efficiency Standards became effective January 1, 2020, will further reduce energy used and associated GHG emissions compared to current standards. Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018).

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The California Public Utilities Commission, CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) performance for new construction in California. The key policy timelines include: (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030.[9]

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. The CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power

[9] See for example, CPUC (2013). It is expected that achievement of the zero net energy goal will occur via revisions to the Title 24 standards.

supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

Senate Bill 1. SB 1. SB 1 (Murray) (August 2006) established a $3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the California Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry. The goals included establishing solar energy systems as a viable mainstream option for both homes and businesses within 10 years of adoption, and placing solar energy systems on 50% of new homes within 13 years of adoption. SB 1, also termed "Go Solar California," was previously titled "Million Solar Roofs."

AB 1470 (Solar Water Heating). This bill established the Solar Water Heating and Efficiency Act of 2007. The bill makes findings and declarations of the Legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand. The bill defines several terms for purposes of the act. The bill required the commission to evaluate the data available from a specified pilot program, and, if it made a specified determination, to design and implement a program of incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general-purpose lighting to reduce electricity consumption by 50% for indoor residential lighting and by 25% for indoor commercial lighting.

Renewable Energy and Energy Procurement

SB 1078. SB 1078 (Sher) (September 2002) established the Renewables Portfolio Standard (RPS) program, which required an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (see SB 107, EO S-14-08, and S-21-09).

SB 1368. SB 1368 (September 2006), required CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by CPUC.

EO S-14-08. EO S-14-08 (November 2008) focused on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This EO required that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the EO directed state agencies to take appropriate actions to facilitate reaching this target. The California Natural Resources Agency (CNRA), through collaboration with CEC and the California Department of Fish and Game (now the California Department of Fish and Wildlife), was directed to lead this effort.

EO S-21-09 and SB X1-2. EO S-21-09 (September 2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. CARB was further directed to work with CPUC and CEC to ensure that the regulation builds upon the RPS program and was applicable to investor-owned utilities, publicly owned utilities,

direct access providers, and community choice providers. Under this order, CARB was to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health and can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB initially approved regulations to implement a Renewable Electricity Standard. However, this regulation was not finalized because of subsequent legislation (SB X1-2, Simitian, statutes of 2011) signed by Governor Brown in April 2011.

SB X1 2 expanded the RPS by establishing a renewable energy target of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation (30 megawatts or less), digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location.

SB X1-2 applies to all electricity retailers in the state including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must meet the renewable energy goals listed above.

SB 350. SB 350 (October 2015) further expanded the RPS by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 included the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires CPUC, in consultation with CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

SB 100. SB 100 (2018) increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources do not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

Mobile Sources

AB 1493. AB 1493 (Pavley) (July 2002) was enacted in a response to the transportation sector accounting for more than half of California's CO_2 emissions. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%.

Heavy-Duty Diesel. CARB adopted the final Heavy Duty Truck and Bus Regulation, Title 13, Division 3, Chapter 1, Section 2025, on December 31, 2014 to reduce DPM (black carbon) and NO_x emissions from heavy-duty diesel vehicles. The rule requires DPM filters be applied to newer heavier trucks and buses by January 1, 2012, with older

vehicles required to comply by January 1, 2015. The rule will require nearly all diesel trucks and buses to be compliant with the 2010 model year engine requirement by January 1, 2023. CARB also adopted an Airborne Toxic Control Measure to limit idling of diesel-fueled commercial vehicles on December 12, 2013. This rule requires diesel-fueled vehicles with gross vehicle weights greater than 10,000 pounds to idle no more than 5 minutes at any location (13 CCR 2485).

EO S-1-07. EO S-1-07 (January 2007, implementing regulation adopted in April 2009) sets a declining LCFS for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020 (17 CCR 95480 et seq.). The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered.

SB 375. SB 375 (Steinberg) (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035 and to update those targets every 8 years. SB 375 requires the state's 18 regional metropolitan planning organizations (MPOs) to prepare a sustainable communities strategy (SCS) as part of their RTP that will achieve the GHG reduction targets set by CARB. If a MPO is unable to devise an SCS to achieve the GHG reduction target, the MPO must prepare an alternative planning strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code, Section 65080(b)(2)(K), an SCS does not (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process. In 2010, CARB adopted the SB 375 targets for the regional MPOs. The targets for CVAG are a 10.5% reduction in emissions per capita by 2020 and a 15.4% reduction by 2035.

Advanced Clean Cars Program and Zero-Emissions Vehicle Program. The Advanced Clean Cars program (January 2012) is a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2012). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75% less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with EPA and NHTSA, adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The Zero-Emissions Vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018 to 2025 model years.

EO B-16-12. EO B-16-12 (March 2012) required that state entities under the governor's direction and control support and facilitate the rapid commercialization of ZEVs. It ordered CARB, CEC, CPUC, and other relevant agencies to work with the Plug-In Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve benchmark goals by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 established a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels

by 2050. This directive did not apply to vehicles that have special performance requirements necessary for the protection of the public safety and welfare.

AB 1236. AB 1236 (October 2015) (Chiu) required a city, county, or city and county to approve an application for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits unless the city or county makes specified written findings based upon substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provided for appeal of that decision to the planning commission, as specified. The bill provided that the implementation of consistent statewide standards to achieve the timely and cost-effective installation of electric vehicle charging stations is a matter of statewide concern. The bill required electric vehicle charging stations to meet specified standards. The bill required a city, county, or city and county with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that created an expedited and streamlined permitting process for electric vehicle charging stations, as specified. The bill also required a city, county, or city and county with a population of less than 200,000 residents to adopt this ordinance by September 30, 2017.

Water

EO B-29-15. In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

EO B-37-16. Issued May 2016, EO B-37-16 directs the State Water Resources Control Board (Water Board) to adjust emergency water conservation regulations through the end of January 2017 to reflect differing water supply conditions across the state. The Water Board must also develop a proposal to achieve a mandatory reduction of potable urban water usage that builds off the mandatory 25% reduction called for in EO B-29-15. The Water Board and Department of Water Resources will develop new, permanent water use targets that build upon the existing state law requirements that the state achieve 20% reduction in urban water usage by 2020. EO B-37-16 also specifies that the Water Board will permanently prohibit water-wasting practices such as hosing off sidewalks, driveways, and other hardscapes; washing automobiles with hoses not equipped with a shut-off nozzle; using non-recirculated water in a fountain or other decorative water feature; watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation; and irrigating ornamental turf on public street medians.

EO B-40-17. EO B-40-17 (April 2017) lifted the drought emergency in all California counties except Fresno, Kings, Tulare, and Tuolumne. It also rescinds EO B-29-15, but expressly states that EO B-37-16 remains in effect and directs the Water Board to continue development of permanent prohibitions on wasteful water use.

Solid Waste

AB 939 and AB 341. In 1989, AB 939, known as the Integrated Waste Management Act (California Public Resources Code, Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The

statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000.

AB 341 (Chapter 476, Statutes of 2011 [Chesbro]) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal.

Other State Actions

SB 97. SB 97 (Dutton) (August 2007) directed the Governor's Office of Planning and Research (OPR) to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. CNRA adopted the CEQA Guidelines amendments in December 2009, and they became effective in March 2010.

Under the amended CEQA Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4[a]). The CEQA Guidelines require a lead agency to consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]). The CEQA Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures. The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009a).

With respect to GHG emissions, the CEQA Guidelines state that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions (14 CCR 15064.4[a]). The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance based standards" (14 CCR 15064.4[a]). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent to which a project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]).

EO S-13-08. EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to

assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009 (CNRA 2009b), and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: Agriculture, Biodiversity and Habitat, Emergency Management, Energy, Forestry, Ocean and Coastal Ecosystems and Resources, Public Health, Transportation, and Water. Issuance of the Safeguarding California: Implementation Action Plans followed in March 2016 (CNRA 2016). In January 2018, the CNRA released the Safeguarding California Plan: 2018 Update, which communicates current and needed actions that state government should take to build climate change resiliency (CNRA 2018a).

3.2.3 Local Regulations

3.2.3.1 South Coast Air Quality Management District

Air districts typically act in an advisory capacity to local governments in establishing the framework for environmental review of air pollution impacts under CEQA. This may include recommendations regarding significance thresholds, analytical tools to estimate emissions and assess impacts, and mitigations for potentially significant impacts. Although air districts will also address some of these issues on a project-specific basis as responsible agencies, they may provide general guidance to local governments on these issues (SCAQMD 2008). As discussed in Section 3.4.1, Thresholds of Significance, SCAQMD has recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects; however, these thresholds were not adopted. See Section 2.2.3.1, South Coast Air Quality Management District, for additional discussion on SCAQMD.

3.2.3.2 Southern California Association of Governments

SB 375 requires MPOs to prepare an SCS in their RTP. As the CVAG is not a MPO, the SCAG is the MPO for the Coachella Valley and the project area. The SCAG Regional Council adopted the 2012 RTP/SCS in April 2012 (SCAG 2012), and the 2016–2040 RTP/SCS (2016 RTP/SCS) was adopted in April 2016 (SCAG 2016). Both the 2012 and 2016 RTP/SCSs establish a development pattern for the region that, when integrated with the transportation network and other policies and measures, would reduce GHG emissions from transportation (excluding goods movement). Specifically, the 2012 RTP/SCS links the goals of sustaining mobility with the goals of fostering economic development; enhancing the environment; reducing energy consumption; promoting transportation-friendly development patterns; and encouraging all residents affected by socioeconomic, geographic, and commercial limitations to be provided with fair access. The 2012 and 2016 RTP/SCSs do not require that local general plans, specific plans, or zoning be consistent with it but provide incentives for consistency for governments and developers. The current SCAQMD AQMP (2016 AQMP) is based on the SCAG 2016 RTP/SCS demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by SCAG for their 2016–2040 RTP/SCS, the SCAG 2016 RTP/SCS. The SCAG 2016 RTP/SCS takes into account demographic growth forecasts developed by CVAG.

3.2.3.3 City of Rancho Mirage

The City has not adopted a comprehensive climate action plan, and there is currently no local guidance that would be applicable to the proposed project. The City addresses GHG-reducing goals in the March 2013, Sustainability Plan and Energy Action Plan. However, while the Sustainability Plan provides GHG reduction goals, they do not

extend beyond year 2020. At this time, no mandatory GHG plans, policies, regulations, or finalized agency guidelines would apply to the proposed project.

City of Rancho Mirage Energy Action Plan

The City's Energy Action Plan (ePlan) provides a roadmap of actions within the City's Municipal operations, to help reduce energy consumption, to reduce operation costs and increase energy awareness. The ePlan's goals focuses on three areas: retrofit and expansion of municipal facilities, upgrading the municipal fleet and consideration of municipal programs and actions that will help reduce municipal and community-wide energy use and GHG emissions.

City of Rancho Mirage Sustainability Plan

In March 2013, the City adopted the 2013 Sustainability Action Plan: Leadership in Energy Efficiency (Sustainability Plan) in order to set GHG reduction goals and measures. The Sustainability Plan is a framework for the documenting and implementation of policies and programs that will reduce the City's GHG emissions, working towards the statewide target of 1990 levels by 2020, set by AB 32.

3.3 Greenhouse Gas Inventories and Climate Change Conditions

3.3.1 Sources of Greenhouse Gas Emissions

3.3.1.1 Global Inventory

Anthropogenic GHG emissions worldwide in 2017 (the most recent year for which data is available) totaled approximately 50,860 MMT of CO_2e, excluding land use change and forestry (PBL 2018). Six countries—China, the United States, the Russian Federation, India, Japan, and Brazil—and the European community accounted for approximately 65% of the total global emissions, or approximately 33,290 MMT CO_2e (PBL 2018).

3.3.1.2 National and State Inventories

Per the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017, total U.S. GHG emissions were approximately 6,457 MMT CO_2e in 2017 (EPA 2019). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.2% of CO_2 emissions in 2017 (4,912.0 MMT CO_2e). Relative to the 1990 emissions level, gross U.S. GHG emissions in 2017 were 1.3% higher; however, the gross emissions are down from a high of 15.7% above the 1990 level that occurred in 2007. GHG emissions decreased from 2016 to 2017 by 0.5% (35.5 MMT CO_2e) and, overall, net emissions in 2017 were 13% below 2005 levels (EPA 2019).

According to California's 2000–2016 GHG emissions inventory (2018 edition), California emitted 429.4 MMT CO_2e in 2016, including emissions resulting from out-of-state electrical generation (CARB 2018b). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high-GWP substances, and recycling and waste. The California GHG emission source categories (as defined in CARB's 2008 Scoping Plan) and their relative contributions in 2016 are presented in Table 10.

Table 10. Greenhouse Gas Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total[a]
Transportation	169.38	39%
Industrial uses[b]	89.61	21%
Electricity generation[c]	68.58	16%
Residential and commercial uses	39.36	9%
Agriculture	33.84	8%
High GWP substances	19.78	5%
Recycling and waste	8.81	2%
Totals	**429.40**	**100%**

Source: CARB 2018b.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent; GWP = global warming potential. Emissions reflect 2016 California GHG inventory.

[a] Percentage of total has been rounded and total may not sum due to rounding.
[b] The Aliso Canyon natural gas leak event released 1.96 MMT CO_2e of unanticipated emissions in 2015 and 0.53 MMT CO_2e in 2016. These leak emissions will be fully mitigated according to legal settlement and are tracked separately from routine inventory emissions.
[c] Includes emissions associated with imported electricity, which account for 26.28 MMT CO_2e.

Between 2000 and 2016, per capita GHG emissions in California have dropped from a peak of 14.0 MT per person in 2001 to 10.8 MT per person in 2016, representing a 23% decrease. In addition, total GHG emissions in 2016 were approximately 12 MMT CO_2e less than 2015 emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California will continue to reduce emissions below the 2020 target of 431 MT CO_2e (CARB 2018b).

The City developed a GHG emission inventory in March 2013 as part of the Rancho Mirage Sustainability Plan. The inventory provides a detailed analysis of the City's carbon footprint showing the sources and sectors of emissions. In 2010, the City emitted 277,698 metric tons of CO_2e. The largest portion of the emission, over 43%, came from the electricity used to power the City's homes, businesses, resorts, fountains and streetlights. The transportation sector made up approximately 33% of the emissions.

3.3.2 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 Intergovernmental Panel on Climate Change Synthesis Report (IPCC 2014) indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply. The primary effect of global climate change has been a rise in average global tropospheric temperature. The primary effect of global climate change has been a rise in average global tropospheric temperature. Reflecting the long-term warming trend since pre-industrial times, observed mean surface temperature for the decade 2006–2015 was 0.87°C (likely between 0.75°C and 0.99°C) higher than the average over the 1850–1900 period (IPCC 2018). Scientific modeling predicts

that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. Human activities are estimated to have caused approximately 1.0°C (1.8°F) of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C (1.4°F to 2.2°F) (IPCC 2018). Global warming is likely to reach 1.5°C (2.7°F) between 2030 and 2052 if it continues to increase at the current rate (IPCC 2018).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The Office of Environmental Health Hazard Assessment identified various indicators of climate change in California, which are scientifically based measurements that track trends in various aspects of climate change. Many indicators reveal discernible evidence that climate change is occurring in California and is having significant, measurable impacts in the state. Changes in the state's climate have been observed, including an increase in annual average air temperature with record warmth from 2012 to 2016, more frequent extreme heat events, more extreme drought, a decline in winter chill, an increase in cooling degree days and a decrease in heating degree days, and an increase in variability of statewide precipitation (OEHHA 2018).

Warming temperatures and changing precipitation patterns have altered California's physical systems—the ocean, lakes, rivers and snowpack—upon which the state depends. Winter snowpack and spring snowmelt runoff from the Sierra Nevada and southern Cascade Mountains provide approximately one-third of the state's annual water supply. Impacts of climate on physical systems have been observed such as high variability of snow-water content (i.e., amount of water stored in snowpack), decrease in snowmelt runoff, glacier change (loss in area), rise in sea levels, increase in average lake water temperature and coastal ocean temperature, and a decrease in dissolved oxygen in coastal waters (OEHHA 2018).

Impacts of climate change on biological systems, including humans, wildlife, and vegetation, have also been observed, including climate change impacts on terrestrial, marine, and freshwater ecosystems. As with global observations, species responses include those consistent with warming: elevational or latitudinal shifts in range, changes in the timing of key plant and animal life cycle events, and changes in the abundance of species and in community composition. Humans are better able to adapt to a changing climate than plants and animals in natural ecosystems. Nevertheless, climate change poses a threat to public health as warming temperatures and changes in precipitation can affect vector-borne pathogen transmission and disease patterns in California as well as the variability of heat-related deaths and illnesses. In addition, since 1950, the area burned by wildfires each year has been increasing.

The CNRA has released four California Climate Change Assessments (2006, 2009, 2012, and 2018), which have addressed the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea-level rise, more intense and frequent drought, more severe and frequent wildfires, more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, and ocean acidification, hypoxia, and warming. To address local and regional governments need for information to support action in their communities, the Fourth Assessment (2018) includes reports for nine regions of the state, including the Inland Deserts Region, where the project is located. Key projected climate changes for the Inland Deserts Region include the following (CNRA 2018b):

1. Extremely high maximum temperatures are expected to occur in the Inland Deserts.
2. The fate of the Salton Sea is a critical determinant of future environmental quality.
3. Renewable energy development will have big impacts on the economy and infrastructure.

4. Continuing current land use/development patterns (i.e., housing development in the region to compensate for lack of development on the coast) will require increased energy for cooling to compensate for a rise in extreme high temperatures.
5. Higher temperatures will exacerbate water stress in an already very water-limited region.
6. Changing water availability is a key determinant of the future for ecological and agricultural systems.
7. Population in the Inland Deserts is highly vulnerable to the effects of climate change.
8. Tourism is a major economic driver that is likely to be threatened by a changing climate.

3.4 Significance Criteria and Methodology

3.4.1 Thresholds of Significance

The significance criteria used to evaluate the project's GHG emissions impacts are based on the recommendations provided in Appendix G of the CEQA Guidelines. For the purposes of this GHG emissions analysis, the project would have a significant environmental impact if it would (14 CCR 15000 et seq.):

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Global climate change is a cumulative impact; a proposed project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. In addition, while GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008), GHG emissions impacts must also be evaluated on a proposed project-level under CEQA.

SCAQMD

Neither the State of California nor the SCAQMD has adopted emission-based thresholds of significance for GHG emissions under CEQA. However, in October 2008, the SCAQMD proposed recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development proposed projects as presented in its Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold (SCAQMD 2008). This guidance document, which builds on the previous guidance prepared by the CAPCOA, explored various approaches for establishing a significance threshold for GHG emissions. The draft interim CEQA thresholds guidance document was not adopted or approved by the Governing Board.

The SCAQMD formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. From December 2008 to September 2010, the SCAQMD hosted working group meetings and revised the draft threshold proposal several times, although it did not officially provide these proposals in a subsequent document. The SCAQMD has continued to consider adoption of significance thresholds for residential and general land use development proposed projects. The most recent proposal, issued in September 2010, uses the following tiered approach to evaluate potential GHG impacts from various uses (SCAQMD 2010):

Tier 1 Determine if CEQA categorical exemptions are applicable. If not, move to Tier 2.

Tier 2 Consider whether or not the proposed project is consistent with a locally adopted GHG reduction plan that has gone through public hearing and CEQA review, that has an approved inventory, includes monitoring, etc. If not, move to Tier 3.

Tier 3 Consider whether the project generates GHG emissions in excess of screening thresholds for individual land uses. The 10,000 MT CO_2e per year threshold for industrial uses would be recommended for use by all lead agencies. Under option 1, separate screening thresholds are proposed for residential projects (3,500 MT CO_2e per year), commercial projects (1,400 MT CO_2e per year), and mixed-use projects (3,000 MT CO_2e per year). Under option 2, a single numerical screening threshold of 3,000 MT CO_2e per year would be used for all non-industrial projects. If the project generates emissions in excess of the applicable screening threshold, move to Tier 4.

Tier 4 Consider whether the project generates GHG emissions in excess of applicable performance standards for the project service population (population plus employment). The efficiency targets were established based on the goal of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. The 2020 efficiency targets are 4.8 MT CO_2e per service population for project level analyses and 6.6 MT CO_2e per service population for plan level analyses. If the project generates emissions in excess of the applicable efficiency targets, move to Tier 5.

Tier 5 Consider the implementation of CEQA mitigation (including the purchase of GHG offsets) to reduce the project efficiency target to Tier 4 levels.

However, neither SCAQMD or Rancho Mirage adopted these thresholds and therefor the quantitative analysis provided herein is provided for informational purposes only. In the absence of an adopted quantitative thresholds, GHGs are evaluated in the context of policy consistency.

3.4.2 Approach and Methodology

3.4.2.1 Construction Emissions

CalEEMod Version 2020.4.0 was used to estimate potential project-generated GHG emissions during construction. Construction of the project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. All details for construction criteria air pollutants discussed in Section 2.4.2.1, Construction Emissions, are also applicable for the estimation of construction-related GHG emissions. As such, see Section 2.4.2.1 for a discussion of construction emissions calculation methodology and assumptions.

3.4.2.2 Operational Emissions

CalEEMod Version 2020.04.0 was used to estimate potential project-generated operational GHG emissions from area sources (natural gas combustion and landscape maintenance), electrical generation (including electrical generation associated with water supply and wastewater treatment), and solid waste. GHG emissions would also be generated through intermittent maintenance and testing of the diesel emergency generator, limited to 50 hours per year. CalEEMod was used to calculate the annual GHG emissions. GHG emission estimates were based on the mobile source, area source, and energy (natural gas) operational assumptions described in Section 2.4.2.2, within

the air quality analysis. CalEEMod default values were used to estimate GHG emissions associated with energy (electricity) consumption, solid waste, and water and wastewater.

Emissions from each category—area sources, energy sources, mobile sources, solid waste, and water supply and wastewater treatment—is discussed in the following text with respect to the proposed project. For additional details, see Section 2.4.2, Approach and Methodology, for a discussion of operational emission calculation methodology and assumptions, specifically for mobile sources. Operational year 2024 was assumed to be the first year of operation following completion of construction.

Area Sources

CalEEMod was used to estimate GHG emissions from the project's area sources, which include operation of gasoline-powered landscape maintenance equipment, which produce minimal GHG emissions. See Section 2.4.2.2 for a discussion of landscaping equipment emissions calculations. Consumer product use and architectural coatings result in VOC emissions, which are analyzed in air quality analysis only, and little to no GHG emissions.

Energy Sources

The estimation of operational energy emissions was based on CalEEMod land use defaults and units or total area (i.e., square footage) of the proposed project's land uses. For buildings, CalEEMod energy intensity value (electricity or natural gas usage per square foot per year) assumptions were based on the California Commercial End-Use Survey database. Emissions are calculated by multiplying the energy use by the utility carbon intensity (pounds of GHGs per kilowatt-hour for electricity or 1,000 British thermal units for natural gas) for CO_2 and other GHGs. Annual natural gas (non-hearth) and electricity emissions were estimated in CalEEMod using the emissions factors for Southern California Edison (SCE), which would be the energy source provider for the proposed project. CalEEMod default energy intensity factors (CO_2, CH_4, and N_2O mass emissions per kilowatt-hour) for SCE is based on the value for SCE's energy mix identified in SCE's 2018 corporate sustainability report.

Mobile Sources

All details for criteria air pollutants discussed in Section 2.4.2.2 are also applicable for the estimation of operational mobile source GHG emissions.

Regulatory measures related to mobile sources include Assembly Bill (AB) 1493 (Pavley) and related federal standards. AB 1493 required that CARB establish GHG emission standards for automobiles, light-duty trucks, and other vehicles determined by CARB to be vehicles that are primarily used for noncommercial personal transportation in the state. In addition, the NHTSA and EPA have established corporate fuel economy standards and GHG emission standards, respectively, for automobiles and light-, medium-, and heavy-duty vehicles. Implementation of these standards and fleet turnover (replacement of older vehicles with newer ones) will gradually reduce emissions from the proposed project's motor vehicles. The effectiveness of fuel economy improvements was evaluated for motor vehicles in 2023 to the extent it was captured in EMFAC2017. In addition, the Low Carbon Fuel Standard calls for a 10% reduction in the "carbon intensity" of motor vehicle fuels by 2020.

Solid Waste

The project would generate solid waste, and therefore, result in CO_2e emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste.

Water and Wastewater

Supply, conveyance, treatment, and distribution of water for the project require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the project requires the use of electricity for conveyance and treatment, along with GHG emissions generated during wastewater treatment. Water consumption estimates for both indoor and outdoor water use and associated electricity consumption from water use and wastewater generation were estimated using CalEEMod default values.

3.5 Impact Analysis

3.5.1 Threshold GHG-1

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

Construction Emissions

Construction of the project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road vendor trucks, and worker vehicles. The SCAQMD (2008) Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold recommends that, "construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies."

CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 2.4.2.1. Construction of the project is anticipated last a total of approximately 22 months. On-site sources of GHG emissions include off-road equipment and off-site sources including vendor trucks and worker vehicles. Table 11 presents construction emissions for the project from on-site and off-site emission sources

Table 11. Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2023	571.69	0.13	0.01	579.09
2024	562.96	0.08	0.03	572.69
			Total	**1151.78**
			Amortized Over 30 Years	**38.39**

Source: See Appendix B for complete results.
Notes: GHG = greenhouse gas; CO2 = carbon dioxide; CH4 = methane; N2O = nitrous oxide; CO2e = carbon dioxide equivalent

As shown in Table 11, the estimated total GHG emissions in 2023 through 2024 would be approximately 1,152 MT CO_2e. Amortized over 30 years, construction GHG emissions would be approximately 38 MT CO_2e per year. In addition, as with project-generated construction criteria air pollutant emissions, GHG emissions generated during proposed construction activities would be short term, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

Because there is no separate GHG threshold for construction, the evaluation of significance is discussed in the operational emissions analysis in the following text.

Operational Emissions

Operation of the proposed project would generate GHG emissions through motor vehicle trips to and from the project site; landscape maintenance equipment operation; energy use (natural gas and generation of electricity consumed by the project); solid waste disposal; and generation of electricity associated with water supply, treatment, and distribution; wastewater treatment; and natural gas consumed by the emergency generator. GHG emissions would also be generated through intermittent maintenance and testing of the diesel emergency generator, limited to 50 hours per year. CalEEMod was used to calculate the annual GHG emissions. GHG emission estimates were based on the mobile source, area source, and energy (natural gas) operational assumptions described in Section 2.4.2.2 within the air quality analysis. CalEEMod default values were used to estimate GHG emissions associated with energy (electricity) consumption, solid waste, and water and wastewater.

The estimated operational (2024) project-generated GHG emissions from area sources, energy usage, motor vehicles, solid waste generation, water usage and wastewater generation, and stationary sources are shown in Table 12.

Table 12. Estimated Annual Operational GHG Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Proposed Project				
Area	1.80	0.00	0.00	1.85
Energy	555.64	0.03	0.01	558.68
Mobile	1,507.92	0.08	0.07	1,531.81
Stationary	22.85	0.00	0.00	22.93
Solid waste	38.80	2.29	0.00	96.13
Water supply and wastewater	66.95	0.03	0.02	72.63
			Total	**2,284.03**
			Amortized Construction Emissions	*38*
			Operation + Amortized Construction Total	**2,322.42**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent
See Appendix B for detailed results. These emissions reflect operational year 2024

As shown in Table 12, estimated annual net project-generated GHG emissions would be approximately 2,284 MT CO_2e per year as a result of proposed project operations only. Estimated annual project-generated operational emissions in 2024 (2,284MT CO_2e per year) plus amortized project construction emissions (38 MT CO_2e per year) would be approximately 2,322 MT CO_2e per year.

3.5.2 Threshold GHG-2

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

Project Consistency with the Scoping Plan

As discussed in Section 3.2.2, Potential Effects of Climate Change, the Scoping Plan (approved by CARB in 2008 and updated in 2014 and 2017) provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The Scoping Plan is not directly applicable to specific projects, nor is it intended to be used for project-level evaluations.[10] Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., LCFS), among others.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. To the extent that these regulations are applicable to the project, its inhabitants, or uses, the project would comply with all regulations adopted in furtherance of the Scoping Plan to the extent required by law.

Compliance with Applicable Laws and Regulations

Table 13 identifies laws and regulations currently in effect that reduce project-related GHG emissions. Because GHG laws and regulations continue to expand under California's climate leadership efforts, including most recently the enactment of SB 100 (2018), Table 13 presents a snapshot of these GHG laws and regulations. Since additional GHG laws and regulations are likely to apply, and listed laws and regulations are likely to continue to evolve, the scope of GHG laws and regulations applicable to GHG-emissions related to the project is anticipated to expand over time and result in lower-than-predicted GHG emissions.

Table 13. Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
Building Components/Facility Operations		
Roofs/Ceilings/Insulation	California Energy Code (Title 24, Part 6)	The project must comply with efficiency standards regarding roofing, ceilings, and insulation (See Title 24, Part 6 Compliance Manual at Section 3.2.2.)
Flooring	CALGreen Code (Title 24, Part 11)	The project must comply with efficiency standards regarding flooring materials. For example, for 80% of floor area receiving "resilient flooring," the flooring must meet

[10] The Final Statement of Reasons for the amendments to the CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009a).

Table 13. Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		applicable installation and material requirements contained in CALGreen Code Section 5.504.4.6.
Windows and Doors (Fenestration)	California Energy Code	The project must comply with fenestration efficiency requirements. For example, the choice of windows, glazed doors, and any skylights for the project must conform to energy consumption requirements affecting size, orientation, and types of fenestration products used. (See Title 24, Part 6 Compliance Manual, Section 3.3.)
Building Walls/Insulation	CALGreen Code California Energy Code	The project must comply with efficiency requirements for building walls and insulation. Exterior Walls: Must meet requirements in current edition of California Energy Code, and comply with Section 5.407.1, which required weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1403.2. Construction must also meet requirements contained in Title 24, Part 6, which vary by material of the exterior walls. (See Title 24, Part 6 Compliance Manual, Part 3.2.3.) Demising (Interior) Walls: Mandatory insulation requirements for demising walls (which separate conditioned from non-conditions space) differ by the type of wall material used. (*Id*. at 3.2.4.) Door Insulation: There are mandatory requirements for air infiltration rates to improve insulation efficiency; they differ according to the type of door. (*Id*. at 3.2.5.) Flooring Insulation: There are mandatory requirements for insulation that depend on the material and location of the flooring. (*Id*. at 3.2.6.)
Finish Materials	CALGreen Code	The project must comply with pollutant control requirements for finish materials. For example, materials including adhesives, sealants, caulks, paints and coatings, carpet systems, and composite wood products must meet requirements in CALGreen Code to ensure pollutant control. (CALGreen Code Section 5.504.4.)
Wet Appliances (Toilets/Faucets/Urinals, Dishwasher/Clothes Washer/Water Heater)	CALGreen Code California Energy Code Appliance Efficiency Regulations (Title 20 Standards)	Wet appliances associated with the project must meet various efficiency requirements. For example: Toilets/Faucets/Urinals: Use associated with the project is subject to new maximum rates for toilets, urinals, and faucets effective July 1, 2018: • Water closets maximum flush volume 1.28 gallons per flush • Showerheads maximum flow rate 2.0 gallons per minute (gpm) at 80 pounds per square inch (psi) • Wash fountains 1.8 gpm/20 (rim space inches at 60 psi) • Metering faucets 0.20 gallons/cycle • Lavatory faucets 0.5 gpm at 60 psi

Table 13. Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		• Kitchen faucets and aerators 1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi • Wall mounted urinals 0.125 gallons per flush • Floor mounted urinals 0.5 gallons per flush (CALGreen Code Section 5.303.) Water Heaters: Use associated with the project is subject to appliance efficiency requirements for water heaters. (Title 20 Standards, Sections 1605.1(f), 1605.3(f).) Dishwasher/Clothes Washer: Use associated with the project is subject to appliance efficiency requirements for dishwashers and clothes washers. (Title 20 Standards, Sections 1605.1(o)–(q), 1605.3(o)–(q).)
Dry Appliances (Refrigerator/Freezer, Heater/Air Conditioner, Clothes Dryer)	Title 20 Standards CALGreen Code	Dry appliances associated with the project must meet various efficiency requirements. For example: Refrigerator/Freezer: Use associated with the project is subject to appliance efficiency requirements for refrigerators and freezers. (Title 20 Standards, Sections 1605.1(a), 1605.3(a).) Heater/Air Conditioner: Use associated with the project is subject to appliance efficiency requirements for heaters and air conditioners. (Title 20 Standards, Sections 1605.1(b)–(e), 1605.3(b)–(e) as applicable.) Clothes Dryer: Use associated with the project is subject to appliance efficiency requirements for clothes dryers. (Title 20 Standards, Section 1605.1(q).)
	CALGreen Code	Installations of HVAC, refrigeration and fire suppression equipment must comply with CALGreen Code Sections 5.508.1.1 and 508.1.2, which prohibits CFCs, halons, and certain HCFCs and HFCs.
Lighting	Title 20 Standards	Lighting associated with the project will be subject to energy efficiency requirements contained in Title 20 Standards. General Lighting: Indoor and outdoor lighting associated with the project must comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1(j),(k),(n), 1605.3(j),(k),(n).) Emergency lighting and self-contained lighting: the project must also comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1(l), 1605.3(l).)
	California Energy Code	Lighting associated with the project will also be subject to energy efficiency requirements contained in Title 24, Part 6, which contains energy standards for non-residential indoor lighting and outdoor lighting. (See Title 24 Part 6 Compliance Manual, at Sections 5, 6.) Mandatory lighting controls for indoor lighting include, for example, regulations for automatic shut-off, automatic daytime controls, demand responsive controls, and

Table 13. Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		certificates of installation. (Id. at Section 5.) Regulations for outdoor lighting include, for example, creation of lighting zones, lighting power requirements, a hardscape lighting power allowance, requirements for outdoor incandescent and luminaire lighting, and lighting control functionality. (Id. at Section 6.)
	AB 1109	Lighting associated with the project will be subject to energy efficiency requirements adopted pursuant to AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general purpose lighting, to reduce electricity consumption 50% for indoor residential lighting and 25% for indoor commercial lighting.
Bicycle and Vehicle Parking	CALGreen Code	The project will be required to provide compliant bicycle parking, fuel-efficient vehicle parking, and electric vehicle charging spaces (CALGreen Code Sections 5.106.4, 5.106.5.2, 5.106.5.3)
Landscaping	CALGreen Code	The CALGreen Code includes outdoor water efficiency provisions in Section 5.304.
	EO B-29-15	The project is also subject to emissions reduction requirements to be achieved by implementation of EO B-29-15. This emergency EO directs the Department of Water Resources to lead a statewide initiative to replace 50 million square feet of lawns and ornamental turf with drought tolerant landscapes. The order also directed the departments to update the Model Water Efficient Landscaping Ordinance, which they did in 2015.
	Model Water Efficient Landscaping Ordinance	The model ordinance promotes efficient landscaping in new developments and establishes an outdoor water budget for new and renovated landscaped areas that are 500 square feet or larger. (CCR, Title 23, Division 2, Chapter 2.7.)
	Cap-and-Trade Program	Transportation fuels used in landscape maintenance equipment (e.g., gasoline) would be subject to the Cap-and-Trade Program. (See “Energy Use,” below.)
Refrigerants	CARB Management of High GWP Refrigerants for Stationary Sources	Any refrigerants associated with the project will be subject to CARB standards. CARB’s Regulation for the Management of High GWP Refrigerants for Stationary Sources 1) reduces emissions of high-GWP refrigerants from leaky stationary, non-residential refrigeration equipment; 2) reduces emissions resulting from the installation and servicing of stationary refrigeration and air conditioning appliances using high-GWP refrigerants; and 3) requires verification GHG emission reductions. (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5.1, Section 95380 et seq.)

Table 13. Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
Consumer Products	CARB High GWP GHGs in Consumer Products	All consumer products associated with the project will be subject to CARB standards. CARB's consumer products regulations set VOC limits for numerous categories of consumer products, and limits the reactivity of the ingredients used in numerous categories of aerosol coating products (CCR, Title 17, Division 3, Chapter 1, Subchapter 8.5.)
Construction		
Use of Off-Road Diesel Engines, Vehicles, and Equipment	CARB In-Use Off-Road Diesel Vehicle Regulation	Any relevant vehicle or machine use associated with the project will be subject to CARB standards. The CARB In-Use-Off-Road Diesel Vehicle Regulation applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulation: 1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; 2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; 3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and 4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The requirements and compliance dates of the Off-Road regulation vary by fleet size, as defined by the regulation.
	Cap-and-Trade Program	Transportation fuels (e.g., gasoline) used in equipment operation would be subject to the Cap-and-Trade Program. (See "Energy Use," below.)
Pollutant Control	CALGreen Code	If an HVAC system is used during construction, the project must use return air filters with a MERV of 8, based on ASHRAE 52.2-1999, or an average efficiency of 30% based on ASHRAE 5.2.1-1992. All filters must be replaced immediately prior to occupancy. (CALGreen Code Section 5.504.1.)
Greening New Construction	CALGreen Code	All new construction, including the project, must comply with CALGreen Code, as discussed in more detail throughout this table. Adoption of the mandatory CALGreen Code standards for construction has been essential for improving the overall environmental performance of new buildings; it also sets voluntary targets for builders to exceed the mandatory requirements.
Construction Waste	CALGreen Code	The project will be subject to CALGreen Code requirements for construction waste reduction, disposal, and recycling, such as a requirement to recycle and/or salvage for reuse a minimum of 65% of the non-hazardous construction waste in accordance with Section 5.408.1.1, 5.408.1.2, or 5.408.1.3; or meet a local construction and demolition

Table 13. Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		waste management ordinance, whichever is more stringent.
Worker, vendor and truck vehicle trips (on-road vehicles)	Cap-and-Trade Program	Transportation fuels (e.g., gasoline) used in worker, vendor and truck vehicle trips would be subject to the Cap-and-Trade Program. (See "Energy Use," below.)
Solid Waste		
Solid Waste Management	Landfill Methane Control Measure	Waste associated with the project will be disposed per state requirements for landfills, material recovery facilities, and transfer stations. Per the statewide GHG emissions inventory, the largest emissions from waste management sectors come from landfills, and are in the form of CH_4. In 2010, CARB adopted a regulation that reduces emissions from methane in landfills, primarily by requiring owners and operators of certain uncontrolled municipal solid waste landfills to install gas collection and control systems, and requires existing and newly installed gas and control systems to operate in an optimal manner. The regulation allows local air districts to voluntarily enter into a memorandum of understanding with CARB to implement and enforce the regulation and to assess fees to cover costs of implementation.
	Mandatory Commercial Recycling (AB 341)	AB 341 will require the project, if it generates four cubic yards or more of commercial solid waste per week, to arrange for recycling services, using one of the following: self-haul; subscribe to a hauler(s); arranging for pickup of recyclable materials; subscribing to a recycling service that may include mixed waste processing that yields diversion results comparable to source separation. The project will also be subject to local commercial solid waste recycling program required to be implemented by each jurisdiction under AB 341.
	CALGreen Code	The project will be subject to CALGreen Code requirement to provide areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling (CALGreen Code Section 5.410.1)
Energy Use		
Electricity/Natural Gas Generation	Cap-and-Trade Program	Electricity and natural gas usage associated with the project will be subject to the Cap-and-Trade Program. The rules came into effect on January 1, 2013, applying to large electric power plants and large industrial plants. In 2015, importers and distributors of fossil fuels were added to the Cap-and-Trade Program in the second phase. Specifically, on January 1, 2015, cap-and-trade compliance obligations were phased in for suppliers of natural gas, reformulated gasoline blendstock for oxygenate blending (RBOB), distillate fuel oils, and liquefied petroleum gas that

Table 13. Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		meet or exceed specified emissions thresholds. The threshold that triggers a cap-and-trade compliance obligation for a fuel supplier is 25,000 MT or more of CO_2e annually from the GHG emissions that would result from full combustion or oxidation of quantities of fuels (including natural gas, RBOB, distillate fuel oil, liquefied petroleum gas, and blended fuels that contain these fuels) imported and/or delivered to California.
Renewable Energy	California RPS (SB X1-2, SB 350, and SB 100)	Energy providers associated with the project will be required to comply with RPS set by SB X1 2, SB 350, and SB 100. SB X1 2 requires investor-owned utilities, publicly-owned utilities, and electric service providers to increase purchases of renewable energy such that at least 33% of retail sales are procured from renewable energy resources by December 31, 2020. In the interim, each entity was required to procure an average of 20% of renewable energy for the period of January 1, 2011 through December 31, 2013; and will be required to procure an average of 25% by December 31, 2016, and 33% by 2020. SB 350 requires retail sellers and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030. SB 100 increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California by 2045.
	Million Solar Roofs Program (SB 1)	The project will participate in California's energy market, which is affected by implementation of the Million Solar Roofs Program. As part of Governor Schwarzenegger's Million Solar Roofs Program, California has set a goal to install 3,000 megawatts of new, solar capacity through 2016. The Million Solar Roofs Program is a ratepayer-financed incentive program aimed at transforming the market for rooftop solar systems by driving down costs over time.
	California Solar Initiative- Thermal Program	The project will participate in California's energy market, which is affected by implementation of the California Solar Initiative -Thermal Program. The program offers cash rebates of up to $4,366 on solar water heating systems for single-family residential customers. Multifamily and Commercial properties qualify for rebates of up to $800,000 on solar water heating systems and eligible solar

Table 13. Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		pool heating systems qualify for rebates of up to $500,000. Funding for the California Solar Initiative-Thermal program comes from ratepayers of PG&E, Southern California Edison, Southern California Gas Company, and San Diego Gas & Electric. The rebate program is overseen by the CPUC as part of the California Solar Initiative.
	Waste Heat and Carbon Emissions Reduction Act (AB 1613, AB 2791)	The project will participate in California's energy market, which is affected by implementation of the Waste Heat and Carbon Emissions Reduction Act. Originally enacted in 2007 and amended in 2008, this act directed the CEC, CPUC, and CARB to implement a program that would encourage the development of new combined heat and power systems in California with a generating capacity of not more than 20 megawatts, to increase combined heat and power use by 30,000 gigawatt-hour. The CPUC publicly owned electric utilities, and CEC duly established policies and procedures for the purchase of electricity from eligible combined heat and power systems. CEC guidelines require combined heat and power systems to be designed to reduce waste energy; have a minimum efficiency of 60%; have NO_x emissions of no more than 0.07 pounds per megawatt-hour; be sized to meet eligible customer generation thermal load; operate continuously in a manner that meets expected thermal load and optimizes efficient use of waste heat; and be cost effective, technologically feasible, and environmentally beneficial.
Vehicular/Mobile Sources		
General	CVAG's RTP / SCAG's 2016 RTP/SCS	As set forth below, the project complies with the applicable, polices of, the CVAG's RTP / SCAG's 2016 RTP/SCS.
Fuel	Low Carbon Fuel Standard (LCFS)/ EO S-01-07	Vehicle trips associated with the project will be subject to LCFS (EO S-01-07), which requires a 10% or greater reduction in the average fuel carbon intensity by 2020 with a 2010 baseline for transportation fuels in California regulated by CARB. The program establishes a strong framework to promote the low carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG goals.
	Cap-and-Trade Program	Use of gasoline associated with the project will be subject to the Cap-and-Trade Program. The rules came into effect on January 1, 2013, applying to large electric power plants and large industrial plants. In 2015, importers and distributors of fossil fuels were added to the Cap-and-Trade Program in the second phase. Specifically, on January 1, 2015, cap-and-trade compliance obligations were phased in for suppliers of natural gas, RBOB, distillate fuel oils, and liquefied petroleum gas that meet or exceed specified emissions thresholds. The

Table 13. Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		threshold that triggers a cap-and-trade compliance obligation for a fuel supplier is 25,000 MT or more of CO_2e annually from the GHG emissions that would result from full combustion or oxidation of quantities of fuels (including natural gas, RBOB, distillate fuel oil, liquefied petroleum gas, and blended fuels that contain these fuels) imported and/or delivered to California.
Automotive Refrigerants	CARB Regulation for Small Containers of Automotive Refrigerant	Vehicles associated with the project will be subject to CARB's Regulation for Small Containers of Automotive Refrigerant. (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5, Section 95360 et seq.) The regulation applies to the sale, use, and disposal of small containers of automotive refrigerant with a GWP greater than 150. The regulation achieves emission reductions through implementation of four requirements: 1) use of a self-sealing valve on the container, 2) improved labeling instructions, 3) a deposit and recycling program for small containers, and 4) an education program that emphasizes best practices for vehicle recharging. This regulation went into effect on January 1, 2010 with a 1-year sell-through period for containers manufactured before January 1, 2010. The target recycle rate is initially set at 90%, and rises to 95% beginning January 1, 2012.
Light-Duty Vehicles	AB 1493 (or the Pavley Standard)	Cars that drive to and from the project will be subject to AB 1493, which directed CARB to adopt a regulation requiring the maximum feasible and cost effective reduction of GHG emissions from new passenger vehicles. Pursuant to AB 1493, CARB adopted regulations that establish a declining fleet average standard for CO_2, CH_4, N_2O, and HFCs (air conditioner refrigerants) in new passenger vehicles and light-duty trucks beginning with the 2009 model year and phased-in through the 2016 model year. These standards are divided into those applicable to lighter and those applicable to heavier portions of the passenger vehicle fleet. The regulations will reduce "upstream" smog-forming emissions from refining, marketing, and distribution of fuel.
	Advanced Clean Car and ZEV Programs	Cars that drive to and from the project will be subject to the Advanced Clean Car and ZEV Programs. In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards called Advanced Clean Cars. By 2025, new automobiles will emit 34% fewer global warming gases and 75% fewer smog-forming emissions.

Table 13. Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		The ZEV program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018–2025 model years.
	Tire Inflation Regulation	Cars that drive to and from the project will be subject to the CARB Tire Inflation Regulation, which took effect on September 1, 2010, and applies to vehicles with a gross vehicle weight rating of 10,000 pounds or less. Under this regulation, automotive service providers must, inter alia, check and inflate each vehicle's tires to the recommended tire pressure rating, with air or nitrogen, as appropriate, at the time of performing any automotive maintenance or repair service, and to keep a copy of the service invoice for a minimum of three years, and make the vehicle service invoice available to the CARB, or its authorized representative upon request.
	EPA and NHTSA GHG and CAFE standards.	Mobile sources that travel to and from the project would be subject to EPA and NHTSA GHG and CAFE standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles. (75 FR 25324–25728 and 77 FR 62624–63200.)
Medium- and Heavy-Duty Vehicles	CARB In-Use On-Road Heavy-Duty Diesel Vehicles Regulation (Truck and Bus Regulation)	Any heavy-duty trucks associated with the project will be subject to CARB standards. The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds.
	CARB In-Use Off-Road Diesel Vehicle Regulation	Any relevant vehicle or machine use associated with the project will be subject to CARB standards. The CARB In-Use-Off-Road Diesel Vehicle Regulation applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulations: 1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; 2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; 3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and 4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits).

Table 13. Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		The requirements and compliance dates of the Off-Road regulation vary by fleet size, as defined by the regulation.
	Heavy-Duty Vehicle GHG Emission Reduction Regulation	Any relevant vehicle or machine use associated with the project will be subject to CARB standards. The CARB Heavy-Duty Vehicle GHG Emission Reduction Regulation applies to heavy-duty tractors that pull 53-foot or longer box-type trailers. (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 1, Section 95300 et seq.) Fuel efficiency is improved through improvements in tractor and trailer aerodynamics and the use of low rolling resistance tires.
	EPA and NHTSA GHG and CAFE standards.	Mobile sources that travel to and from the project would be subject to EPA and NHTSA GHG and CAFE standards for medium- and heavy-duty vehicles. (76 FR 57106–57513.)
Water Use		
Water Use Efficiency	Emergency State Water Board Regulations	Water use associated with the project will be subject to emergency regulations. On May 18, 2016, partially in response to EO B-27-16, the State Water Board adopted emergency water use regulations (CCR, title 23, Section 864.5 and amended and re-adopted Sections 863, 864, 865, and 866). The regulation directs the State Water Board, Department of Water Resources, and CPUC to implement rates and pricing structures to incentivize water conservation, and calls upon water suppliers, homeowners' associations, California businesses, landlords and tenants, and wholesale water agencies to take stronger conservation measures.
	EO B-37-16	Water use associated with the project will be subject to Emergency EO B-37-16, issued May 9, 2016, which directs the State Water Resources Control Board to adjust emergency water conservation regulations through the end of January 2017 to reflect differing water supply conditions across the state. The Water Board must also develop a proposal to achieve a mandatory reduction of potable urban water usage that builds off the mandatory 25% reduction called for in EO B-29-15. The Water Board and Department of Water Resources will develop new, permanent water use targets to which the project will be subject. The Water Board will permanently prohibit water-wasting practices such as hosing off sidewalks, driveways, and other hardscapes; washing automobiles with hoses not equipped with a shut-off nozzle; using non-recirculated water in a fountain or other decorative water feature; watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation; and irrigating ornamental turf on public street medians.

Table 13. Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
	EO B-40-17	EO B-40-17 lifted the drought emergency in all California counties except Fresno, Kings, Tulare, and Tuolumne. It also rescinds EO B-29-15, but expressly states that EO B-37-16 remains in effect and directs the State Water Resources Control Board to continue development of permanent prohibitions on wasteful water use to which the project will be subject.
	SB X7-7	Water provided to the project will be affected by SB X7-7's requirements for water suppliers. SB X7-7, or the Water Conservation Act of 2009, requires all water suppliers to increase water use efficiency. It also requires, among other things, that the Department of Water Resources, in consultation with other state agencies, develop a single standardized water use reporting form, which would be used by both urban and agricultural water agencies.
	CALGreen Code	The project is subject to CALGreen Code's water efficiency standards for indoor and outdoor water use (CALGreen Code, Section 5.303, 5.304.)
	California Water Code, Division 6, Part 2.10, Sections 10910–10915.	Development and approval of the project requires the development of a project-specific Water Supply Assessment.
	Cap-and-Trade Program	Electricity usage associated with water and wastewater supply, treatment and distribution would be subject to the Cap-and-Trade Program.
	California RPS (SB X1-2, SB 350, SB 100)	Electricity usage associated with water and wastewater supply, treatment and distribution associated with the project will be required to comply with RPS set by SB X1-2, SB 350, and SB 100.

Notes: gpm = gallons per minute; psi = pounds per square inch; GHG = greenhouse gas; AB = Assembly Bill; SB = Senate Bill; EO = Executive Order; HVAC = heating, ventilation, and air conditioning; CFC = chlorofluorocarbons; HFCs = hydrofluorocarbons; HCFCs = hydrochlorofluorocarbons; CEC = California Energy Commission; CCR = California Code of Regulations; CARB = California Air Resources Board; GWP = global warming potential; VOC = volatile organic compounds; MERV = Minimum Efficiency Reporting Value; ASHRAE = American Society of Heating, Refrigerating and Air-Conditioning Engineers; CH_4 = methane; CO_2e = carbon dioxide equivalent; RBOB = reformulated blendstock for oxygenate blending; RPS = renewable portfolio standard; CPUC = California Public Utilities Commission; SCE = Southern California Edison; NO_x = oxides of nitrogen; SCAG = Southern California Association of Governments; RTP = regional transportation plan; SCS = sustainable communities strategy; LCFS = low carbon fuel standard; CO_2 = carbon dioxide; N_2O = nitrous oxide; ZEV = zero-emissions vehicle; EPA = Environmental Protection Agency; NHTSA = National Highway Traffic Safety Administration; CAFE = corporate average fuel economy; PM = particulate matter; FR = Federal Register.

As described above, the project's GHG emissions (both on and off site) are regulated by many GHG reduction mandates. Compliance with these GHG reduction legal requirements is appropriately assumed to occur under CEQA (*Oakland Heritage Alliance v. City of Oakland* [2011] 195 Cal. App. 4th 884, 906; *Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 234 Cal. App. 4th 214, 244-45).

City of Rancho Mirage Energy Action Plan

The City's ePlan provides a roadmap of actions within the City's Municipal operations, to help reduce energy consumption, to reduce operation costs and increase energy awareness. The ePlan's goals focuses on three areas: retrofit and expansion of municipal facilities, upgrading the municipal fleet and consideration of municipal programs and actions that will help reduce municipal and communitywide energy use and GHG emissions.

City of Rancho Mirage Sustainability Plan

In March 2013, the City adopted the 2013 Sustainability Action Plan: Leadership in Energy Efficiency (Sustainability Plan) in order to set GHG reduction goals and measures. The Sustainability Plan is a framework for the documenting and implementation of policies and programs that will reduce the City's GHG emissions, working towards the statewide target of 1990 levels by 2020, set by AB 32.

The City addresses GHG-reducing goals in the March 2013, Sustainability Plan and Energy Action Plan. However, while the Sustainability Plan provides GHG reduction goals, they do not extend beyond year 2020. Nevertheless, the proposed project would not interfere with implementation of the City's sustainability goals, because it would not exceed the SCAQMD's recommended threshold of 3,000 MT CO_2e per year. In addition, the proposed project does not prevent the City from promoting sustainability and energy efficiency goals to reduce the City's carbon footprint.

Project Consistency with CVAG's RTP / SCAG's 2016 RTP/SCS/ Connect SoCal, the 2020-2045 RTP/SCS

The City is within the jurisdiction of CVAG, which participates in regional planning with SCAG. CVAG is, among other things, the regional transportation planning agency coordinating government services in the Coachella Valley. As the recognized transportation planning agency with the Riverside County Transportation Commission, it is CVAG's responsibility to prepare and adopt an RTP for the Coachella Valley. This is accomplished through the creation of the TPPS, which identifies and prioritizes transportation projects in the region. The CVAG developed its first TPPS in 1989, with subsequent report updates in 1993, 1999, 2005, and 2010. The most recent version was adopted on June 26, 2017 (CVAG 2017). The TPPS includes growth projections for cities within the Coachella Valley. The projects and growth projections within the TPPS are fed into a larger regional planning effort by the SCAG. SCAG recently released its 2016 RTP, which includes the majority of projects seen within the TPPS. The SCAQMD 2016 AQMP applies the updated SCAG growth forecasts assumed in the 2016 RTP/SCS. Responding to the context of the RTP guidelines and California state legislation, CVAG's Active Transportation Plan, also within the TPPS, was designed to be completed simultaneously with the TPPS and Regional Arterial Cost Estimate documents. Together, this family of documents serves as CVAG's RTP, listing all regionally significant transportation projects, including roadway projects, active transportation projects, and other improvement projects that have been identified to benefit regional circulation within the Coachella Valley. The CVAG also developed fugitive dust ordinances that include (1) dust control plans for each construction project needing a grading permit; (2) plans to pave or chemically treat unpaved surfaces if daily vehicle trips exceed 150; (3) imposition of 15 mph speed limits for unpaved surfaces if daily vehicle trips do not exceed 150; (4) paving or chemical treatment of unpaved parking lots; and (5) actions to discourage use of unimproved property by off-highway vehicles.

SCAG's 2016 RTP/SCS is a regional growth-management strategy that targets per capita GHG reduction from passenger vehicles and light-duty trucks in the Southern California region pursuant to Senate Bill 375. In addition to demonstrating the region's ability to attain and exceed the GHG emission-reduction targets set forth by CARB, the 2016 RTP/SCS outlines a series of actions and strategies for integrating the transportation network with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation

demands. Thus, successful implementation of the 2016 RTP/SCS would result in more complete communities with a variety of transportation and housing choices, while reducing automobile use. With regard to individual developments, such as the proposed project, the strategies and policies set forth in the 2016 RTP/SCS can be grouped into the following three categories: (1) reduction of vehicle trips and VMT; (2) increased use of alternative fuel vehicles; and (3) improved energy efficiency. The project's consistency with these three strategy categories is presented below.

Consistency with VMT Reduction Strategies and Policies

The proposed project's consistency with this aspect of the 2016 RTP/SCS is demonstrated via the project's land use characteristics and consistency with the regional growth forecast assumed in the 2016 RTP/SCS for the City. According to the City's General Plan Housing Element (City of Rancho Mirage 2017), the 2014–2021 RHNA determined that the City needed a total of 95 housing units. The project would construct 106 residential units. However, these residential units would operate similar to time-share properties and therefore future residents would not be in the proposed residential units year-round. Because the proposed residential units are not typical residential units that residents cannot occupy year-round, theses housing units do not count towards the RHNA housing unit determination. SCAG's Local Profile Report for the City of Rancho Mirage indicated that the City's average household size was two persons per dwelling unit as of 2018 (SCAG 2019). Using these assumptions, implementation of the project would have the potential to increase the City's population by 216 persons. This population increase would comply with SCAG's projected population increase for the City. Accordingly, the proposed project is consistent with the SCAG RTP/SCS forecasts used in the SCAQMD AQMP development. Therefore, vehicle trip generation as a result of the proposed project are concluded to have been anticipated in the SCAG 2016 RTP/SCS growth projections because the proposed project site would be accommodated by the City's predicted projections.

Increased Use of Alternative Fueled Vehicles Policy Initiative

The second goal of the 2016 RTP/SCS, with regard to individual development projects such as the proposed project, is to increase alternative fueled vehicles to reduce per capita GHG emissions. This 2016 RTP/SCS policy initiative focuses on accelerating fleet conversion to electric or other near zero-emission technologies. The proposed project would comply with the applicable 2016 CALGreen standards. The proposed project includes 829 parking spaces total (Urban Crossroads 2020b).

Energy Efficiency Strategies and Policies

The third important focus within the 2016 RTP/SCS, for individual developments such as the proposed project, involves improving energy efficiency (e.g., reducing energy consumption) to reduce GHG emissions. The 2016 RTP/SCS goal is to actively encourage and create incentives for energy efficiency, where possible. The proposed project would comply with the applicable 2016 CALGreen standards.

Based on the analysis above, the proposed project would be consistent with the SCAG 2016 RTP/SCS

SCAG has developed Connect SoCal, the 2020-2045 RTP/SCS, which is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. Connect SoCal charts a path toward a more mobile, sustainable and prosperous region by making connections between transportation networks, between planning strategies and between the people whose collaboration can improve the quality of life for Southern Californians. Connect SoCal embodies a collective vision for the region's future and is developed with input from local

governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura.

On September 3, 2020, Connect SoCal was adopted by SCAG's Regional Council. Connect SoCal is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. The major goals of the Connect SoCal are outlined in Table 8-4, Project Consistency with the SCAG Connect SoCal RTP/SCS, along with the Project's consistency with them.

Table 8-4. Project Consistency with the SCAG Connect SoCal RTP/SCS

RTP/SCS Measure	Proposed Project Potential to Conflict
Encourage regional economic prosperity and global competitiveness.	Not applicable. The proposed project would not inhibit SCAG from encouraging regional economic prosperity and global competitiveness.
Improve mobility, accessibility, reliability, and travel safety for people and goods.	Not applicable. The proposed project would not inhibit SCAG from strengthening the regional transportation network for goods movement.
Enhance the preservation, security, and resilience of the regional transportation system.	Not applicable. The proposed project would not inhibit SCAG from enhancing the resilience of the regional transportation system.
Increase person and goods movement and travel choices within the transportation system.	Not applicable. The proposed project would not inhibit SCAG from increasing person and goods movement and travel choices within the transportation system.
Reduce greenhouse gas emissions and improve air quality.	No conflict. The proposed project would result in criteria air pollutant and GHG emissions during construction and operation. However, as presented in Section 3.2, the proposed project would not exceed the SCAQMD mass daily significance thresholds during construction or operation. GHG emissions would be reduced through compliance with applicable CALGreen standards.
Support healthy and equitable communities.	No conflict. A desert landscape design is proposed throughout the project site including water cascades, multiple pools, rock escarpments, and fountains. Landscaping would be located throughout the project site and between proposed buildings with pedestrian access provided by the on-site pedestrian network.
Adapt to a changing climate and support an integrated regional development pattern and transportation network.	Not applicable. The Proposed Project would not inhibit SCAG from supporting an integrated regional development pattern and transportation network.
Leverage new transportation technologies and data-driven solutions that result in more efficient travel.	Not applicable. The Proposed Project would not inhibit SCAG from leveraging technology for the transportation system.
Encourage development of diverse housing types in areas that are supported by multiple transportation options.	Not applicable. The Proposed Project does not include housing and would not inhibit SCAG from encouraging development of diverse housing types.
Promote conservation of natural and agricultural lands and restoration of habitats.	No conflict. The proposed project site is vacant with dirt covering the majority of the site. The proposed project will provide approximately 35% open space made up of landscape areas, pools, water features, and paths. A desert landscape design is proposed throughout the project site

Table 8-4. Project Consistency with the SCAG Connect SoCal RTP/SCS

RTP/SCS Measure	Proposed Project Potential to Conflict
	including water cascades, multiple pools, rock escarpments, and fountains. Landscaping would be located throughout the project site and between proposed buildings with pedestrian access provided by the on-site pedestrian network. The proposed plant palette would comprise of native, drought-tolerant plantings, consistent with the existing hotel landscaping and surrounding areas.

Source: SCAG 2020.

As shown in Table 8-4, the project would be consistent with all applicable measures within the SCAG Connect SoCal RTP/SCS.

Consistency with Executive Order S-3-05 and Senate Bill 32

- **EO S-3-05.** This EO establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.
- **SB 32.** This bill establishes for a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030.

This section evaluates whether the GHG emissions trajectory after proposed project completion would impede the attainment of the 2030 and 2050 GHG reduction goals identified in EOs B-30-15 and S-3-05.

To begin, CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the First Update to the Climate Change Scoping Plan that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014, p. ES2). With regard to the 2050 target for reducing GHG emissions to 80% below 1990 levels, the First Update to the Climate Change Scoping Plan states the following (CARB 2014, p. 34):

> This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions.

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, EO B-30-15, and EO S-3-05. This is confirmed in the 2017 Scoping Plan, which states (CARB 2017a):

> The Scoping Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while identifying new, technologically feasible and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities.

Neither SCAQMD or Rancho Mirage adopted GHG thresholds of significance, and as discussed previously, the quantitative analysis provided herein is provided for informational purposes only. Nevertheless, the project would not exceed the SCAQMD's draft interim threshold of 3,000 MT CO_2e per year (SCAQMD 2008), providing evidence that the project would not interfere with implementation of any of the above-described GHG reduction goals for 2030 or 2050 because . This unadopted threshold was established based on the goal of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. Because the proposed project would not exceed the threshold, this analysis provides support for the conclusion that the project would not impede the state's trajectory toward the above-described statewide GHG reduction goals for 2030 or 2050. In addition, the project would comply with laws and regulations that would reduce GHG emissions.

Furthermore, the proposed project would not conflict with the state's trajectory toward future GHG reductions. In addition, since the specific path to compliance for the state in regards to the long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the project would be speculative and cannot be identified at this time. The proposed project's consistency would assist in meeting the City's contribution to GHG emission reduction targets in California. With respect to future GHG targets under SB 32 and EO S-3-05, CARB has also made clear its legal interpretation that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet SB 32's 40% reduction target by 2030 and EO S-3-05's 80% reduction target by 2050; this legal interpretation by an expert agency provides evidence that future regulations will be adopted to continue the state on its trajectory toward meeting these future GHG targets.

Based on the above considerations, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and no mitigation is required. This impact would be less than significant.

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Appendix A

CalEEMod Output Files

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Ritz Carlton Rancho Mirage

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	381.00	Space	3.43	152,400.00	0
Other Asphalt Surfaces	77.85	1000sqft	1.79	77,850.00	0
Parking Lot	129.00	Space	1.16	51,600.00	0
Arena	23.84	1000sqft	7.66	23,840.00	0
Quality Restaurant	6.97	1000sqft	0.16	6,966.00	0
Recreational Swimming Pool	23.75	1000sqft	0.55	23,746.00	0
Apartments Low Rise	106.00	Dwelling Unit	6.63	106,000.00	303

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Section 1.0 Project Characteristics.

Land Use - Venue modeled as Arena to represent event space. An approximately 5,513 square foot, 33-feet, 6-inches tall, community clubroom/lounge with access to a central pool terrace.

Construction Phase - Demolition and Site Preparation previously preformed. Schedule provided by applicant.

Off-road Equipment - Default values

Off-road Equipment - Default Values

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Default values

Off-road Equipment - Default values

Off-road Equipment - Default values

Trips and VMT - Based on applicant provided information.

On-road Fugitive Dust - Default values

Demolition - No demolition

Grading - Material export based on applicant provided 692 hauls trucks and extimated 10 cubic yard truck capacity. Total acres graded equal default values.

Architectural Coating - Per applicant No-VOC paint will be used, VOC content of 5 grams/liter assumed.

Vehicle Trips - Per TIA. Recreational Swimming Pool set equal to zero, as they are for residence use.

Vehicle Emission Factors - Default values

Vehicle Emission Factors - Default values

Vehicle Emission Factors - Default values

Road Dust - Default values

Woodstoves - No woodstoves or fireplaces.

Area Coating - Per applicant No-VOC paint will be used, VOC content of 5 grams/liter assumed.

Landscape Equipment - Default values

Energy Use - Default values

Water And Wastewater - Coachella Valley Water District WRP-7 Assume 100% aerobic.

Solid Waste - Default values

Land Use Change -

Sequestration - Based on landscape plan: 845 trees will be planted.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Energy Mitigation -

Water Mitigation -

Fleet Mix -

Stationary Sources - Emergency Generators and Fire Pumps - Applicant provided information.

Stationary Sources - Emergency Generators and Fire Pumps EF - Default values

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	5.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	5.00
tblArchitecturalCoating	EF_Residential_Exterior	50.00	5.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	5.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	5
tblAreaCoating	Area_EF_Nonresidential_Interior	100	5
tblAreaCoating	Area_EF_Residential_Exterior	50	5
tblAreaCoating	Area_EF_Residential_Interior	50	5
tblConstructionPhase	NumDays	20.00	67.00
tblConstructionPhase	NumDays	35.00	108.00
tblConstructionPhase	NumDays	20.00	22.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	90.10	0.00
tblFireplaces	NumberNoFireplace	10.60	0.00
tblFireplaces	NumberWood	5.30	0.00
tblGrading	AcresOfGrading	105.00	330.00
tblGrading	MaterialExported	0.00	6,920.00
tblLandUse	LandUseSquareFeet	6,970.00	6,966.00
tblLandUse	LandUseSquareFeet	23,750.00	23,746.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	845.00
tblTripsAndVMT	HaulingTripNumber	865.00	692.00
tblTripsAndVMT	HaulingTripNumber	0.00	60.00
tblTripsAndVMT	HaulingTripNumber	0.00	197.00
tblTripsAndVMT	HaulingTripNumber	0.00	380.00

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	66.00	46.00
tblTripsAndVMT	VendorTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	60.00
tblTripsAndVMT	WorkerTripNumber	20.00	10.00
tblTripsAndVMT	WorkerTripNumber	218.00	50.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	44.00	70.00
tblVehicleTrips	ST_TR	8.14	7.14
tblVehicleTrips	ST_TR	10.71	25.58
tblVehicleTrips	ST_TR	90.04	43.98
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	6.28	6.10
tblVehicleTrips	SU_TR	10.71	25.58
tblVehicleTrips	SU_TR	71.97	33.63
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	10.71	0.00
tblVehicleTrips	WD_TR	83.84	41.92
tblVehicleTrips	WD_TR	28.82	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	5.30	0.00
tblWoodstoves	NumberNoncatalytic	5.30	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
2023	0.3011	2.9760	2.7819	6.4400e-003	0.3678	0.1242	0.4920	0.1006	0.1153	0.2159	0.0000	571.6894	571.6894	0.1329	0.0137	579.0860
2024	0.3189	2.1046	2.6014	6.2700e-003	0.1881	0.0842	0.2723	0.0513	0.0793	0.1306	0.0000	562.9629	562.9629	0.0770	0.0262	572.6891
Maximum	**0.3189**	**2.9760**	**2.7819**	**6.4400e-003**	**0.3678**	**0.1242**	**0.4920**	**0.1006**	**0.1153**	**0.2159**	**0.0000**	**571.6894**	**571.6894**	**0.1329**	**0.0262**	**579.0860**

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					
2023	0.3011	2.9760	2.7819	6.4400e-003	0.2134	0.1242	0.3376	0.0583	0.1153	0.1736	0.0000	571.6889	571.6889	0.1329	0.0137	579.0855
2024	0.3189	2.1046	2.6014	6.2700e-003	0.1881	0.0842	0.2723	0.0513	0.0793	0.1306	0.0000	562.9626	562.9626	0.0770	0.0262	572.6887
Maximum	**0.3189**	**2.9760**	**2.7819**	**6.4400e-003**	**0.2134**	**0.1242**	**0.3376**	**0.0583**	**0.1153**	**0.1736**	**0.0000**	**571.6889**	**571.6889**	**0.1329**	**0.0262**	**579.0855**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**27.78**	**0.00**	**20.21**	**27.84**	**0.00**	**12.21**	**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	**2-1-2023**	**4-30-2023**	1.2362	1.2362
2	**5-1-2023**	**7-31-2023**	1.0536	1.0536
3	**8-1-2023**	**10-31-2023**	0.5934	0.5934
4	**11-1-2023**	**1-31-2024**	0.5835	0.5835
5	**2-1-2024**	**4-30-2024**	0.5470	0.5470
6	**5-1-2024**	**7-31-2024**	0.6327	0.6327
7	**8-1-2024**	**9-30-2024**	0.5322	0.5322
		Highest	1.2362	1.2362

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	0.5741	0.0127	1.1003	6.0000e-005		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	1.8016	1.8016	1.7500e-003	0.0000	1.8454
Energy	0.0230	0.2048	0.1414	1.2600e-003		0.0159	0.0159		0.0159	0.0159	0.0000	555.6353	555.6353	0.0320	7.5300e-003	558.6804
Mobile	0.6238	1.0413	6.6994	0.0163	1.7375	0.0131	1.7506	0.4642	0.0123	0.4764	0.0000	1,507.9183	1,507.9183	0.0755	0.0738	1,531.8121
Stationary	0.0492	0.2202	0.1255	2.4000e-004		7.2400e-003	7.2400e-003		7.2400e-003	7.2400e-003	0.0000	22.8478	22.8478	3.2000e-003	0.0000	22.9279
Waste						0.0000	0.0000		0.0000	0.0000	38.8038	0.0000	38.8038	2.2932	0.0000	96.1347
Water						0.0000	0.0000		0.0000	0.0000	7.3223	59.6245	66.9469	0.0302	0.0165	72.6298
Total	**1.2702**	**1.4789**	**8.0665**	**0.0179**	**1.7375**	**0.0424**	**1.7798**	**0.4642**	**0.0415**	**0.5057**	**46.1261**	**2,147.8275**	**2,193.9536**	**2.4360**	**0.0979**	**2,284.0302**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

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	0.5741	0.0127	1.1003	6.0000e-005		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	1.8016	1.8016	1.7500e-003	0.0000	1.8454
Energy	0.0230	0.2048	0.1414	1.2600e-003		0.0159	0.0159		0.0159	0.0159	0.0000	555.6353	555.6353	0.0320	7.5300e-003	558.6804
Mobile	0.6238	1.0413	6.6994	0.0163	1.7375	0.0131	1.7506	0.4642	0.0123	0.4764	0.0000	1,507.9183	1,507.9183	0.0755	0.0738	1,531.8121
Stationary	0.0492	0.2202	0.1255	2.4000e-004		7.2400e-003	7.2400e-003		7.2400e-003	7.2400e-003	0.0000	22.8478	22.8478	3.2000e-003	0.0000	22.9279
Waste						0.0000	0.0000		0.0000	0.0000	38.8038	0.0000	38.8038	2.2932	0.0000	96.1347
Water						0.0000	0.0000		0.0000	0.0000	7.3223	59.6245	66.9469	0.0302	0.0165	72.6298
Total	**1.2702**	**1.4789**	**8.0665**	**0.0179**	**1.7375**	**0.0424**	**1.7798**	**0.4642**	**0.0415**	**0.5057**	**46.1261**	**2,147.8275**	**2,193.9536**	**2.4360**	**0.0979**	**2,284.0302**

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	598.2600
Total	**598.2600**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	2/1/2023	7/1/2023	5	108	
2	Building Construction	Building Construction	7/2/2023	11/29/2024	5	370	
3	Architectural Coating/Finish Phase	Architectural Coating	7/2/2024	10/2/2024	5	67	
4	Paving	Paving	9/29/2024	10/29/2024	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 330

Acres of Paving: 6.38

Residential Indoor: 214,650; Residential Outdoor: 71,550; Non-Residential Indoor: 54,479; Non-Residential Outdoor: 18,160; Striped Parking Area: 16,911 (Architectural Coating – sqft)

OffRoad Equipment

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating/Finish Phase	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

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
Grading	8	10.00	8.00	692.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	46.00	60.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating/Finish Phase	1	70.00	60.00	380.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	20.00	20.00	197.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2023

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					0.2808	0.0000	0.2808	0.0769	0.0000	0.0769	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1794	1.8638	1.5148	3.3500e-003		0.0769	0.0769		0.0708	0.0708	0.0000	294.4901	294.4901	0.0952	0.0000	296.8712
Total	**0.1794**	**1.8638**	**1.5148**	**3.3500e-003**	**0.2808**	**0.0769**	**0.3577**	**0.0769**	**0.0708**	**0.1477**	**0.0000**	**294.4901**	**294.4901**	**0.0952**	**0.0000**	**296.8712**

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	7.3000e-004	0.0365	9.5900e-003	1.9000e-004	5.9700e-003	4.2000e-004	6.3900e-003	1.6400e-003	4.0000e-004	2.0400e-003	0.0000	18.4308	18.4308	2.6000e-004	2.9000e-003	19.3028
Vendor	4.9000e-004	0.0162	6.0800e-003	9.0000e-005	3.1200e-003	1.4000e-004	3.2600e-003	9.0000e-004	1.3000e-004	1.0400e-003	0.0000	8.2171	8.2171	8.0000e-005	1.2100e-003	8.5809
Worker	2.1200e-003	1.6600e-003	0.0218	7.0000e-005	7.9900e-003	4.0000e-005	8.0300e-003	2.1200e-003	3.0000e-005	2.1600e-003	0.0000	6.0474	6.0474	1.3000e-004	1.5000e-004	6.0957
Total	**3.3400e-003**	**0.0543**	**0.0375**	**3.5000e-004**	**0.0171**	**6.0000e-004**	**0.0177**	**4.6600e-003**	**5.6000e-004**	**5.2400e-003**	**0.0000**	**32.6953**	**32.6953**	**4.7000e-004**	**4.2600e-003**	**33.9794**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2023

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					0.1264	0.0000	0.1264	0.0346	0.0000	0.0346	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1794	1.8638	1.5148	3.3500e-003		0.0769	0.0769		0.0708	0.0708	0.0000	294.4898	294.4898	0.0952	0.0000	296.8709
Total	**0.1794**	**1.8638**	**1.5148**	**3.3500e-003**	**0.1264**	**0.0769**	**0.2033**	**0.0346**	**0.0708**	**0.1054**	**0.0000**	**294.4898**	**294.4898**	**0.0952**	**0.0000**	**296.8709**

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	7.3000e-004	0.0365	9.5900e-003	1.9000e-004	5.9700e-003	4.2000e-004	6.3900e-003	1.6400e-003	4.0000e-004	2.0400e-003	0.0000	18.4308	18.4308	2.6000e-004	2.9000e-003	19.3028
Vendor	4.9000e-004	0.0162	6.0800e-003	9.0000e-005	3.1200e-003	1.4000e-004	3.2600e-003	9.0000e-004	1.3000e-004	1.0400e-003	0.0000	8.2171	8.2171	8.0000e-005	1.2100e-003	8.5809
Worker	2.1200e-003	1.6600e-003	0.0218	7.0000e-005	7.9900e-003	4.0000e-005	8.0300e-003	2.1200e-003	3.0000e-005	2.1600e-003	0.0000	6.0474	6.0474	1.3000e-004	1.5000e-004	6.0957
Total	**3.3400e-003**	**0.0543**	**0.0375**	**3.5000e-004**	**0.0171**	**6.0000e-004**	**0.0177**	**4.6600e-003**	**5.6000e-004**	**5.2400e-003**	**0.0000**	**32.6953**	**32.6953**	**4.7000e-004**	**4.2600e-003**	**33.9794**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2023

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	0.1022	0.9350	1.0559	1.7500e-003		0.0455	0.0455		0.0428	0.0428	0.0000	150.6731	150.6731	0.0358	0.0000	151.5692
Total	**0.1022**	**0.9350**	**1.0559**	**1.7500e-003**		**0.0455**	**0.0455**		**0.0428**	**0.0428**	**0.0000**	**150.6731**	**150.6731**	**0.0358**	**0.0000**	**151.5692**

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	2.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	1.8000e-004	1.0000e-005	1.9000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5615	0.5615	1.0000e-005	9.0000e-005	0.5880
Vendor	3.4000e-003	0.1118	0.0421	5.9000e-004	0.0216	9.7000e-004	0.0226	6.2400e-003	9.3000e-004	7.1700e-003	0.0000	56.8733	56.8733	5.6000e-004	8.4000e-003	59.3912
Worker	0.0128	9.9800e-003	0.1314	4.0000e-004	0.0481	2.2000e-004	0.0483	0.0128	2.1000e-004	0.0130	0.0000	36.3962	36.3962	7.9000e-004	9.1000e-004	36.6871
Total	**0.0162**	**0.1229**	**0.1738**	**1.0000e-003**	**0.0699**	**1.2000e-003**	**0.0711**	**0.0191**	**1.1500e-003**	**0.0202**	**0.0000**	**93.8309**	**93.8309**	**1.3600e-003**	**9.4000e-003**	**96.6663**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2023

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	0.1022	0.9350	1.0559	1.7500e-003		0.0455	0.0455		0.0428	0.0428	0.0000	150.6729	150.6729	0.0358	0.0000	151.5690
Total	**0.1022**	**0.9350**	**1.0559**	**1.7500e-003**		**0.0455**	**0.0455**		**0.0428**	**0.0428**	**0.0000**	**150.6729**	**150.6729**	**0.0358**	**0.0000**	**151.5690**

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	2.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	1.8000e-004	1.0000e-005	1.9000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5615	0.5615	1.0000e-005	9.0000e-005	0.5880
Vendor	3.4000e-003	0.1118	0.0421	5.9000e-004	0.0216	9.7000e-004	0.0226	6.2400e-003	9.3000e-004	7.1700e-003	0.0000	56.8733	56.8733	5.6000e-004	8.4000e-003	59.3912
Worker	0.0128	9.9800e-003	0.1314	4.0000e-004	0.0481	2.2000e-004	0.0483	0.0128	2.1000e-004	0.0130	0.0000	36.3962	36.3962	7.9000e-004	9.1000e-004	36.6871
Total	**0.0162**	**0.1229**	**0.1738**	**1.0000e-003**	**0.0699**	**1.2000e-003**	**0.0711**	**0.0191**	**1.1500e-003**	**0.0202**	**0.0000**	**93.8309**	**93.8309**	**1.3600e-003**	**9.4000e-003**	**96.6663**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2024

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	0.1766	1.6133	1.9400	3.2300e-003		0.0736	0.0736		0.0692	0.0692	0.0000	278.2189	278.2189	0.0658	0.0000	279.8637
Total	**0.1766**	**1.6133**	**1.9400**	**3.2300e-003**		**0.0736**	**0.0736**		**0.0692**	**0.0692**	**0.0000**	**278.2189**	**278.2189**	**0.0658**	**0.0000**	**279.8637**

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	4.0000e-005	2.0600e-003	5.4000e-004	1.0000e-005	3.4000e-004	2.0000e-005	3.6000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.0196	1.0196	2.0000e-005	1.6000e-004	1.0679
Vendor	6.1700e-003	0.2065	0.0768	1.0700e-003	0.0399	1.7800e-003	0.0417	0.0115	1.7100e-003	0.0132	0.0000	103.3797	103.3797	1.0800e-003	0.0153	107.9508
Worker	0.0220	0.0164	0.2266	7.1000e-004	0.0888	3.9000e-004	0.0892	0.0236	3.6000e-004	0.0239	0.0000	65.0657	65.0657	1.3200e-003	1.5600e-003	65.5628
Total	**0.0283**	**0.2249**	**0.3039**	**1.7900e-003**	**0.1291**	**2.1900e-003**	**0.1313**	**0.0352**	**2.0900e-003**	**0.0373**	**0.0000**	**169.4651**	**169.4651**	**2.4200e-003**	**0.0170**	**174.5814**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2024

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	0.1766	1.6133	1.9400	3.2300e-003		0.0736	0.0736		0.0692	0.0692	0.0000	278.2186	278.2186	0.0658	0.0000	279.8634
Total	**0.1766**	**1.6133**	**1.9400**	**3.2300e-003**		**0.0736**	**0.0736**		**0.0692**	**0.0692**	**0.0000**	**278.2186**	**278.2186**	**0.0658**	**0.0000**	**279.8634**

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	4.0000e-005	2.0600e-003	5.4000e-004	1.0000e-005	3.4000e-004	2.0000e-005	3.6000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.0196	1.0196	2.0000e-005	1.6000e-004	1.0679
Vendor	6.1700e-003	0.2065	0.0768	1.0700e-003	0.0399	1.7800e-003	0.0417	0.0115	1.7100e-003	0.0132	0.0000	103.3797	103.3797	1.0800e-003	0.0153	107.9508
Worker	0.0220	0.0164	0.2266	7.1000e-004	0.0888	3.9000e-004	0.0892	0.0236	3.6000e-004	0.0239	0.0000	65.0657	65.0657	1.3200e-003	1.5600e-003	65.5628
Total	**0.0283**	**0.2249**	**0.3039**	**1.7900e-003**	**0.1291**	**2.1900e-003**	**0.1313**	**0.0352**	**2.0900e-003**	**0.0373**	**0.0000**	**169.4651**	**169.4651**	**2.4200e-003**	**0.0170**	**174.5814**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Architectural Coating/Finish Phase - 2024

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	0.0808					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0600e-003	0.0408	0.0606	1.0000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	8.5534	8.5534	4.8000e-004	0.0000	8.5654
Total	**0.0868**	**0.0408**	**0.0606**	**1.0000e-004**		**2.0400e-003**	**2.0400e-003**		**2.0400e-003**	**2.0400e-003**	**0.0000**	**8.5534**	**8.5534**	**4.8000e-004**	**0.0000**	**8.5654**

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	4.0000e-004	0.0201	5.3200e-003	1.0000e-004	3.2800e-003	2.3000e-004	3.5000e-003	9.0000e-004	2.2000e-004	1.1200e-003	0.0000	9.9556	9.9556	1.5000e-004	1.5700e-003	10.4270
Vendor	2.2500e-003	0.0752	0.0280	3.9000e-004	0.0145	6.5000e-004	0.0152	4.1900e-003	6.2000e-004	4.8100e-003	0.0000	37.6437	37.6437	3.9000e-004	5.5500e-003	39.3082
Worker	8.6100e-003	6.4000e-003	0.0886	2.8000e-004	0.0347	1.5000e-004	0.0349	9.2200e-003	1.4000e-004	9.3600e-003	0.0000	25.4298	25.4298	5.1000e-004	6.1000e-004	25.6241
Total	**0.0113**	**0.1017**	**0.1218**	**7.7000e-004**	**0.0525**	**1.0300e-003**	**0.0535**	**0.0143**	**9.8000e-004**	**0.0153**	**0.0000**	**73.0292**	**73.0292**	**1.0500e-003**	**7.7300e-003**	**75.3593**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Architectural Coating/Finish Phase - 2024

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	0.0808					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0600e-003	0.0408	0.0606	1.0000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	8.5534	8.5534	4.8000e-004	0.0000	8.5654
Total	**0.0868**	**0.0408**	**0.0606**	**1.0000e-004**		**2.0400e-003**	**2.0400e-003**		**2.0400e-003**	**2.0400e-003**	**0.0000**	**8.5534**	**8.5534**	**4.8000e-004**	**0.0000**	**8.5654**

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	4.0000e-004	0.0201	5.3200e-003	1.0000e-004	3.2800e-003	2.3000e-004	3.5000e-003	9.0000e-004	2.2000e-004	1.1200e-003	0.0000	9.9556	9.9556	1.5000e-004	1.5700e-003	10.4270
Vendor	2.2500e-003	0.0752	0.0280	3.9000e-004	0.0145	6.5000e-004	0.0152	4.1900e-003	6.2000e-004	4.8100e-003	0.0000	37.6437	37.6437	3.9000e-004	5.5500e-003	39.3082
Worker	8.6100e-003	6.4000e-003	0.0886	2.8000e-004	0.0347	1.5000e-004	0.0349	9.2200e-003	1.4000e-004	9.3600e-003	0.0000	25.4298	25.4298	5.1000e-004	6.1000e-004	25.6241
Total	**0.0113**	**0.1017**	**0.1218**	**7.7000e-004**	**0.0525**	**1.0300e-003**	**0.0535**	**0.0143**	**9.8000e-004**	**0.0153**	**0.0000**	**73.0292**	**73.0292**	**1.0500e-003**	**7.7300e-003**	**75.3593**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

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	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	3.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0147**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

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	2.1000e-004	0.0104	2.7600e-003	5.0000e-005	1.7000e-003	1.2000e-004	1.8200e-003	4.7000e-004	1.1000e-004	5.8000e-004	0.0000	5.1612	5.1612	8.0000e-005	8.1000e-004	5.4056
Vendor	2.5000e-004	8.2300e-003	3.0600e-003	4.0000e-005	1.5900e-003	7.0000e-005	1.6600e-003	4.6000e-004	7.0000e-005	5.3000e-004	0.0000	4.1202	4.1202	4.0000e-005	6.1000e-004	4.3024
Worker	8.1000e-004	6.0000e-004	8.3100e-003	3.0000e-005	3.2600e-003	1.0000e-005	3.2700e-003	8.6000e-004	1.0000e-005	8.8000e-004	0.0000	2.3857	2.3857	5.0000e-005	6.0000e-005	2.4040
Total	**1.2700e-003**	**0.0192**	**0.0141**	**1.2000e-004**	**6.5500e-003**	**2.0000e-004**	**6.7500e-003**	**1.7900e-003**	**1.9000e-004**	**1.9900e-003**	**0.0000**	**11.6672**	**11.6672**	**1.7000e-004**	**1.4800e-003**	**12.1119**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

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	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	3.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0147**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

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	2.1000e-004	0.0104	2.7600e-003	5.0000e-005	1.7000e-003	1.2000e-004	1.8200e-003	4.7000e-004	1.1000e-004	5.8000e-004	0.0000	5.1612	5.1612	8.0000e-005	8.1000e-004	5.4056
Vendor	2.5000e-004	8.2300e-003	3.0600e-003	4.0000e-005	1.5900e-003	7.0000e-005	1.6600e-003	4.6000e-004	7.0000e-005	5.3000e-004	0.0000	4.1202	4.1202	4.0000e-005	6.1000e-004	4.3024
Worker	8.1000e-004	6.0000e-004	8.3100e-003	3.0000e-005	3.2600e-003	1.0000e-005	3.2700e-003	8.6000e-004	1.0000e-005	8.8000e-004	0.0000	2.3857	2.3857	5.0000e-005	6.0000e-005	2.4040
Total	**1.2700e-003**	**0.0192**	**0.0141**	**1.2000e-004**	**6.5500e-003**	**2.0000e-004**	**6.7500e-003**	**1.7900e-003**	**1.9000e-004**	**1.9900e-003**	**0.0000**	**11.6672**	**11.6672**	**1.7000e-004**	**1.4800e-003**	**12.1119**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6238	1.0413	6.6994	0.0163	1.7375	0.0131	1.7506	0.4642	0.0123	0.4764	0.0000	1,507.9183	1,507.9183	0.0755	0.0738	1,531.8121
Unmitigated	0.6238	1.0413	6.6994	0.0163	1.7375	0.0131	1.7506	0.4642	0.0123	0.4764	0.0000	1,507.9183	1,507.9183	0.0755	0.0738	1,531.8121

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	775.92	756.84	646.60	3,667,810	3,667,810
Arena	0.00	609.83	609.83	448,639	448,639
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Quality Restaurant	292.18	306.54	234.40	477,516	477,516
Recreational Swimming Pool	0.00	0.00	0.00		
Total	1,068.10	1,673.21	1,490.83	4,593,965	4,593,965

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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
Arena	18.50	10.10	7.90	0.00	81.00	19.00	66	28	6
Enclosed Parking with Elevator	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Parking Lot	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Quality Restaurant	18.50	10.10	7.90	12.00	69.00	19.00	38	18	44
Recreational Swimming Pool	18.50	10.10	7.90	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Arena	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Enclosed Parking with Elevator	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Other Asphalt Surfaces	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Parking Lot	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Quality Restaurant	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Recreational Swimming Pool	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	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	327.5881	327.5881	0.0277	3.3500e-003	329.2781
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	327.5881	327.5881	0.0277	3.3500e-003	329.2781
NaturalGas Mitigated	0.0230	0.2048	0.1414	1.2600e-003		0.0159	0.0159		0.0159	0.0159	0.0000	228.0472	228.0472	4.3700e-003	4.1800e-003	229.4024
NaturalGas Unmitigated	0.0230	0.2048	0.1414	1.2600e-003		0.0159	0.0159		0.0159	0.0159	0.0000	228.0472	228.0472	4.3700e-003	4.1800e-003	229.4024

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
Apartments Low Rise	1.60335e+006	8.6500e-003	0.0739	0.0314	4.7000e-004		5.9700e-003	5.9700e-003		5.9700e-003	5.9700e-003	0.0000	85.5607	85.5607	1.6400e-003	1.5700e-003	86.0691
Arena	770747	4.1600e-003	0.0378	0.0317	2.3000e-004		2.8700e-003	2.8700e-003		2.8700e-003	2.8700e-003	0.0000	41.1300	41.1300	7.9000e-004	7.5000e-004	41.3744
Enclosed Parking with Elevator	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
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
Parking Lot	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
Quality Restaurant	1.89935e+006	0.0102	0.0931	0.0782	5.6000e-004		7.0800e-003	7.0800e-003		7.0800e-003	7.0800e-003	0.0000	101.3565	101.3565	1.9400e-003	1.8600e-003	101.9588
Recreational Swimming Pool	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		**0.0231**	**0.2048**	**0.1414**	**1.2600e-003**		**0.0159**	**0.0159**		**0.0159**	**0.0159**	**0.0000**	**228.0472**	**228.0472**	**4.3700e-003**	**4.1800e-003**	**229.4024**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

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					
Apartments Low Rise	1.60335e+006	8.6500e-003	0.0739	0.0314	4.7000e-004		5.9700e-003	5.9700e-003		5.9700e-003	5.9700e-003	0.0000	85.5607	85.5607	1.6400e-003	1.5700e-003	86.0691
Arena	770747	4.1600e-003	0.0378	0.0317	2.3000e-004		2.8700e-003	2.8700e-003		2.8700e-003	2.8700e-003	0.0000	41.1300	41.1300	7.9000e-004	7.5000e-004	41.3744
Enclosed Parking with Elevator	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
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
Parking Lot	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
Quality Restaurant	1.89935e+006	0.0102	0.0931	0.0782	5.6000e-004		7.0800e-003	7.0800e-003		7.0800e-003	7.0800e-003	0.0000	101.3565	101.3565	1.9400e-003	1.8600e-003	101.9588
Recreational Swimming Pool	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		**0.0231**	**0.2048**	**0.1414**	**1.2600e-003**		**0.0159**	**0.0159**		**0.0159**	**0.0159**	**0.0000**	**228.0472**	**228.0472**	**4.3700e-003**	**4.1800e-003**	**229.4024**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	442015	78.3893	6.6200e-003	8.0000e-004	78.7937
Arena	236493	41.9409	3.5400e-003	4.3000e-004	42.1573
Enclosed Parking with Elevator	829056	147.0294	0.0124	1.5000e-003	147.7879
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	18060	3.2029	2.7000e-004	3.0000e-005	3.2194
Quality Restaurant	321551	57.0256	4.8100e-003	5.8000e-004	57.3197
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**327.5881**	**0.0277**	**3.3400e-003**	**329.2781**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	442015	78.3893	6.6200e-003	8.0000e-004	78.7937
Arena	236493	41.9409	3.5400e-003	4.3000e-004	42.1573
Enclosed Parking with Elevator	829056	147.0294	0.0124	1.5000e-003	147.7879
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	18060	3.2029	2.7000e-004	3.0000e-005	3.2194
Quality Restaurant	321551	57.0256	4.8100e-003	5.8000e-004	57.3197
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**327.5881**	**0.0277**	**3.3400e-003**	**329.2781**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	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	0.5741	0.0127	1.1003	6.0000e-005		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	1.8016	1.8016	1.7500e-003	0.0000	1.8454
Unmitigated	0.5741	0.0127	1.1003	6.0000e-005		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	1.8016	1.8016	1.7500e-003	0.0000	1.8454

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	8.0800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5325					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0335	0.0127	1.1003	6.0000e-005		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	1.8016	1.8016	1.7500e-003	0.0000	1.8454
Total	**0.5741**	**0.0127**	**1.1003**	**6.0000e-005**		**6.0900e-003**	**6.0900e-003**		**6.0900e-003**	**6.0900e-003**	**0.0000**	**1.8016**	**1.8016**	**1.7500e-003**	**0.0000**	**1.8454**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

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	8.0800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5325					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0335	0.0127	1.1003	6.0000e-005		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	1.8016	1.8016	1.7500e-003	0.0000	1.8454
Total	**0.5741**	**0.0127**	**1.1003**	**6.0000e-005**		**6.0900e-003**	**6.0900e-003**		**6.0900e-003**	**6.0900e-003**	**0.0000**	**1.8016**	**1.8016**	**1.7500e-003**	**0.0000**	**1.8454**

7.0 Water Detail

7.1 Mitigation Measures Water

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	66.9469	0.0302	0.0165	72.6298
Unmitigated	66.9469	0.0302	0.0165	72.6298

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.90633 / 4.35399	26.9704	0.0105	5.5600e-003	28.8907
Arena	10.2696 / 0.655504	28.6396	0.0146	8.1600e-003	31.4358
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	2.11563 / 0.13504	5.9000	3.0100e-003	1.6800e-003	6.4761
Recreational Swimming Pool	1.40465 / 0.860914	5.4369	2.1300e-003	1.1300e-003	5.8272
Total		**66.9468**	**0.0302**	**0.0165**	**72.6298**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.90633 / 4.35399	26.9704	0.0105	5.5600e-003	28.8907
Arena	10.2696 / 0.655504	28.6396	0.0146	8.1600e-003	31.4358
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	2.11563 / 0.13504	5.9000	3.0100e-003	1.6800e-003	6.4761
Recreational Swimming Pool	1.40465 / 0.860914	5.4369	2.1300e-003	1.1300e-003	5.8272
Total		**66.9468**	**0.0302**	**0.0165**	**72.6298**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	38.8038	2.2932	0.0000	96.1347
Unmitigated	38.8038	2.2932	0.0000	96.1347

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	48.76	9.8978	0.5850	0.0000	24.5215
Arena	0.66	0.1340	7.9200e-003	0.0000	0.3319
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	6.36	1.2910	0.0763	0.0000	3.1985
Recreational Swimming Pool	135.38	27.4809	1.6241	0.0000	68.0828
Total		**38.8038**	**2.2933**	**0.0000**	**96.1347**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	48.76	9.8978	0.5850	0.0000	24.5215
Arena	0.66	0.1340	7.9200e-003	0.0000	0.3319
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	6.36	1.2910	0.0763	0.0000	3.1985
Recreational Swimming Pool	135.38	27.4809	1.6241	0.0000	68.0828
Total		**38.8038**	**2.2933**	**0.0000**	**96.1347**

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	1200	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/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
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.0492	0.2202	0.1255	2.4000e-004		7.2400e-003	7.2400e-003		7.2400e-003	7.2400e-003	0.0000	22.8478	22.8478	3.2000e-003	0.0000	22.9279
Total	**0.0492**	**0.2202**	**0.1255**	**2.4000e-004**		**7.2400e-003**	**7.2400e-003**		**7.2400e-003**	**7.2400e-003**	**0.0000**	**22.8478**	**22.8478**	**3.2000e-003**	**0.0000**	**22.9279**

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	598.2600	0.0000	0.0000	598.2600

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	845	598.2600	0.0000	0.0000	598.2600
Total		**598.2600**	**0.0000**	**0.0000**	**598.2600**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Ritz Carlton Rancho Mirage

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	381.00	Space	3.43	152,400.00	0
Other Asphalt Surfaces	77.85	1000sqft	1.79	77,850.00	0
Parking Lot	129.00	Space	1.16	51,600.00	0
Arena	23.84	1000sqft	7.66	23,840.00	0
Quality Restaurant	6.97	1000sqft	0.16	6,966.00	0
Recreational Swimming Pool	23.75	1000sqft	0.55	23,746.00	0
Apartments Low Rise	106.00	Dwelling Unit	6.63	106,000.00	303

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Section 1.0 Project Characteristics.

Land Use - Venue modeled as Arena to represent event space. An approximately 5,513 square foot, 33-feet, 6-inches tall, community clubroom/lounge with access to a central pool terrace.

Construction Phase - Demolition and Site Preparation previously preformed. Schedule provided by applicant.

Off-road Equipment - Default values

Off-road Equipment - Default Values

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Default values

Off-road Equipment - Default values

Off-road Equipment - Default values

Trips and VMT - Based on applicant provided information.

On-road Fugitive Dust - Default values

Demolition - No demolition

Grading - Material export based on applicant provided 692 hauls trucks and extimated 10 cubic yard truck capacity. Total acres graded equal default values.

Architectural Coating - Per applicant No-VOC paint will be used, VOC content of 5 grams/liter assumed.

Vehicle Trips - Per TIA. Recreational Swimming Pool set equal to zero, as they are for residence use.

Vehicle Emission Factors - Default values

Vehicle Emission Factors - Default values

Vehicle Emission Factors - Default values

Road Dust - Default values

Woodstoves - No woodstoves or fireplaces.

Area Coating - Per applicant No-VOC paint will be used, VOC content of 5 grams/liter assumed.

Landscape Equipment - Default values

Energy Use - Default values

Water And Wastewater - Coachella Valley Water District WRP-7 Assume 100% aerobic.

Solid Waste - Default values

Land Use Change -

Sequestration - Based on landscape plan: 845 trees will be planted.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Energy Mitigation -

Water Mitigation -

Fleet Mix -

Stationary Sources - Emergency Generators and Fire Pumps - Applicant provided information.

Stationary Sources - Emergency Generators and Fire Pumps EF - Default values

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	5.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	5.00
tblArchitecturalCoating	EF_Residential_Exterior	50.00	5.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	5.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	5
tblAreaCoating	Area_EF_Nonresidential_Interior	100	5
tblAreaCoating	Area_EF_Residential_Exterior	50	5
tblAreaCoating	Area_EF_Residential_Interior	50	5
tblConstructionPhase	NumDays	20.00	67.00
tblConstructionPhase	NumDays	35.00	108.00
tblConstructionPhase	NumDays	20.00	22.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	90.10	0.00
tblFireplaces	NumberNoFireplace	10.60	0.00
tblFireplaces	NumberWood	5.30	0.00
tblGrading	AcresOfGrading	105.00	330.00
tblGrading	MaterialExported	0.00	6,920.00
tblLandUse	LandUseSquareFeet	6,970.00	6,966.00
tblLandUse	LandUseSquareFeet	23,750.00	23,746.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	845.00
tblTripsAndVMT	HaulingTripNumber	865.00	692.00
tblTripsAndVMT	HaulingTripNumber	0.00	60.00
tblTripsAndVMT	HaulingTripNumber	0.00	197.00
tblTripsAndVMT	HaulingTripNumber	0.00	380.00

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	66.00	46.00
tblTripsAndVMT	VendorTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	60.00
tblTripsAndVMT	WorkerTripNumber	20.00	10.00
tblTripsAndVMT	WorkerTripNumber	218.00	50.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	44.00	70.00
tblVehicleTrips	ST_TR	8.14	7.14
tblVehicleTrips	ST_TR	10.71	25.58
tblVehicleTrips	ST_TR	90.04	43.98
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	6.28	6.10
tblVehicleTrips	SU_TR	10.71	25.58
tblVehicleTrips	SU_TR	71.97	33.63
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	10.71	0.00
tblVehicleTrips	WD_TR	83.84	41.92
tblVehicleTrips	WD_TR	28.82	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	5.30	0.00
tblWoodstoves	NumberNoncatalytic	5.30	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
2023	3.3888	35.4691	28.8153	0.0685	5.5214	1.4355	6.9569	1.5114	1.3210	2.8325	0.0000	6,688.2255	6,688.2255	1.9540	0.1585	6,762.9834
2024	6.1507	30.5135	40.9793	0.1031	3.2896	1.2103	4.4999	0.8956	1.1332	2.0288	0.0000	10,302.2409	10,302.2409	1.4089	0.5560	10,503.1520
Maximum	**6.1507**	**35.4691**	**40.9793**	**0.1031**	**5.5214**	**1.4355**	**6.9569**	**1.5114**	**1.3210**	**2.8325**	**0.0000**	**10,302.2409**	**10,302.2409**	**1.9540**	**0.5560**	**10,503.1520**

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					
2023	3.3888	35.4691	28.8153	0.0685	2.6614	1.4355	4.0969	0.7283	1.3210	2.0493	0.0000	6,688.2255	6,688.2255	1.9540	0.1585	6,762.9834
2024	6.1507	30.5135	40.9793	0.1031	3.2896	1.2103	4.4999	0.8956	1.1332	2.0288	0.0000	10,302.2409	10,302.2409	1.4089	0.5560	10,503.1520
Maximum	**6.1507**	**35.4691**	**40.9793**	**0.1031**	**3.2896**	**1.4355**	**4.4999**	**0.8956**	**1.3210**	**2.0493**	**0.0000**	**10,302.2409**	**10,302.2409**	**1.9540**	**0.5560**	**10,503.1520**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**32.46**	**0.00**	**24.96**	**32.54**	**0.00**	**16.11**	**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	3.2304	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487	0.0000	15.8871	15.8871	0.0154	0.0000	16.2733
Energy	0.1263	1.1220	0.7747	6.8900e-003		0.0872	0.0872		0.0872	0.0872		1,377.4193	1,377.4193	0.0264	0.0253	1,385.6046
Mobile	5.2946	6.9510	52.2262	0.1213	12.3664	0.0924	12.4588	3.2992	0.0866	3.3858		12,360.4534	12,360.4534	0.5881	0.5641	12,543.2482
Stationary	1.9693	8.8065	5.0213	9.4600e-003		0.2897	0.2897		0.2897	0.2897		1,007.4170	1,007.4170	0.1412		1,010.9480
Total	**10.6205**	**16.9807**	**66.8244**	**0.1382**	**12.3664**	**0.5180**	**12.8844**	**3.2992**	**0.5122**	**3.8114**	**0.0000**	**14,761.1767**	**14,761.1767**	**0.7711**	**0.5893**	**14,956.0740**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

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	3.2304	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487	0.0000	15.8871	15.8871	0.0154	0.0000	16.2733
Energy	0.1263	1.1220	0.7747	6.8900e-003		0.0872	0.0872		0.0872	0.0872		1,377.4193	1,377.4193	0.0264	0.0253	1,385.6046
Mobile	5.2946	6.9510	52.2262	0.1213	12.3664	0.0924	12.4588	3.2992	0.0866	3.3858		12,360.4534	12,360.4534	0.5881	0.5641	12,543.2482
Stationary	1.9693	8.8065	5.0213	9.4600e-003		0.2897	0.2897		0.2897	0.2897		1,007.4170	1,007.4170	0.1412		1,010.9480
Total	**10.6205**	**16.9807**	**66.8244**	**0.1382**	**12.3664**	**0.5180**	**12.8844**	**3.2992**	**0.5122**	**3.8114**	**0.0000**	**14,761.1767**	**14,761.1767**	**0.7711**	**0.5893**	**14,956.0740**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	2/1/2023	7/1/2023	5	108	
2	Building Construction	Building Construction	7/2/2023	11/29/2024	5	370	
3	Architectural Coating/Finish Phase	Architectural Coating	7/2/2024	10/2/2024	5	67	
4	Paving	Paving	9/29/2024	10/29/2024	5	22	

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 330

Acres of Paving: 6.38

Residential Indoor: 214,650; Residential Outdoor: 71,550; Non-Residential Indoor: 54,479; Non-Residential Outdoor: 18,160; Striped Parking Area: 16,911 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating/Finish Phase	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

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
Grading	8	10.00	8.00	692.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	46.00	60.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Architectural Coating/Finish Phase	1	70.00	60.00	380.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	20.00	20.00	197.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2023

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					5.2001	0.0000	5.2001	1.4239	0.0000	1.4239			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**5.2001**	**1.4245**	**6.6246**	**1.4239**	**1.3105**	**2.7344**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2023

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	0.0140	0.6399	0.1760	3.5200e-003	0.1121	7.7200e-003	0.1199	0.0307	7.3900e-003	0.0381		375.9839	375.9839	5.3300e-003	0.0593	393.7723
Vendor	9.4400e-003	0.2848	0.1110	1.5800e-003	0.0586	2.6000e-003	0.0612	0.0169	2.4900e-003	0.0194		167.5832	167.5832	1.6800e-003	0.0247	174.9980
Worker	0.0436	0.0288	0.4772	1.3200e-003	0.1505	6.9000e-004	0.1512	0.0399	6.3000e-004	0.0406		133.1806	133.1806	2.7200e-003	2.9600e-003	134.1294
Total	**0.0670**	**0.9535**	**0.7641**	**6.4200e-003**	**0.3213**	**0.0110**	**0.3323**	**0.0875**	**0.0105**	**0.0980**		**676.7478**	**676.7478**	**9.7300e-003**	**0.0870**	**702.8998**

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					2.3401	0.0000	2.3401	0.6407	0.0000	0.6407			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**2.3401**	**1.4245**	**3.7646**	**0.6407**	**1.3105**	**1.9513**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2023

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	0.0140	0.6399	0.1760	3.5200e-003	0.1121	7.7200e-003	0.1199	0.0307	7.3900e-003	0.0381		375.9839	375.9839	5.3300e-003	0.0593	393.7723
Vendor	9.4400e-003	0.2848	0.1110	1.5800e-003	0.0586	2.6000e-003	0.0612	0.0169	2.4900e-003	0.0194		167.5832	167.5832	1.6800e-003	0.0247	174.9980
Worker	0.0436	0.0288	0.4772	1.3200e-003	0.1505	6.9000e-004	0.1512	0.0399	6.3000e-004	0.0406		133.1806	133.1806	2.7200e-003	2.9600e-003	134.1294
Total	**0.0670**	**0.9535**	**0.7641**	**6.4200e-003**	**0.3213**	**0.0110**	**0.3323**	**0.0875**	**0.0105**	**0.0980**		**676.7478**	**676.7478**	**9.7300e-003**	**0.0870**	**702.8998**

3.3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.5000e-004	0.0162	4.4500e-003	9.0000e-005	2.8400e-003	2.0000e-004	3.0300e-003	7.8000e-004	1.9000e-004	9.7000e-004		9.5156	9.5156	1.3000e-004	1.5000e-003	9.9658
Vendor	0.0543	1.6377	0.6383	9.0900e-003	0.3372	0.0149	0.3521	0.0971	0.0143	0.1114		963.6036	963.6036	9.6400e-003	0.1423	1,006.2386
Worker	0.2179	0.1440	2.3859	6.5900e-003	0.7526	3.4400e-003	0.7561	0.1996	3.1700e-003	0.2027		665.9032	665.9032	0.0136	0.0148	670.6472
Total	**0.2725**	**1.7979**	**3.0286**	**0.0158**	**1.0926**	**0.0186**	**1.1112**	**0.2974**	**0.0177**	**0.3151**		**1,639.0223**	**1,639.0223**	**0.0234**	**0.1585**	**1,686.8516**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.5000e-004	0.0162	4.4500e-003	9.0000e-005	2.8400e-003	2.0000e-004	3.0300e-003	7.8000e-004	1.9000e-004	9.7000e-004		9.5156	9.5156	1.3000e-004	1.5000e-003	9.9658
Vendor	0.0543	1.6377	0.6383	9.0900e-003	0.3372	0.0149	0.3521	0.0971	0.0143	0.1114		963.6036	963.6036	9.6400e-003	0.1423	1,006.2386
Worker	0.2179	0.1440	2.3859	6.5900e-003	0.7526	3.4400e-003	0.7561	0.1996	3.1700e-003	0.2027		665.9032	665.9032	0.0136	0.0148	670.6472
Total	**0.2725**	**1.7979**	**3.0286**	**0.0158**	**1.0926**	**0.0186**	**1.1112**	**0.2974**	**0.0177**	**0.3151**		**1,639.0223**	**1,639.0223**	**0.0234**	**0.1585**	**1,686.8516**

3.3 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.5000e-004	0.0162	4.5000e-003	9.0000e-005	2.8400e-003	1.9000e-004	3.0300e-003	7.8000e-004	1.9000e-004	9.6000e-004		9.3602	9.3602	1.4000e-004	1.4800e-003	9.8033
Vendor	0.0534	1.6382	0.6306	8.9400e-003	0.3372	0.0148	0.3520	0.0971	0.0142	0.1113		948.7567	948.7567	9.9900e-003	0.1399	990.6836
Worker	0.2033	0.1280	2.2281	6.3800e-003	0.7526	3.2800e-003	0.7559	0.1996	3.0200e-003	0.2026		644.7075	644.7075	0.0123	0.0137	649.0996
Total	**0.2571**	**1.7824**	**2.8632**	**0.0154**	**1.0926**	**0.0183**	**1.1109**	**0.2974**	**0.0174**	**0.3148**		**1,602.8244**	**1,602.8244**	**0.0224**	**0.1551**	**1,649.5865**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.5000e-004	0.0162	4.5000e-003	9.0000e-005	2.8400e-003	1.9000e-004	3.0300e-003	7.8000e-004	1.9000e-004	9.6000e-004		9.3602	9.3602	1.4000e-004	1.4800e-003	9.8033
Vendor	0.0534	1.6382	0.6306	8.9400e-003	0.3372	0.0148	0.3520	0.0971	0.0142	0.1113		948.7567	948.7567	9.9900e-003	0.1399	990.6836
Worker	0.2033	0.1280	2.2281	6.3800e-003	0.7526	3.2800e-003	0.7559	0.1996	3.0200e-003	0.2026		644.7075	644.7075	0.0123	0.0137	649.0996
Total	**0.2571**	**1.7824**	**2.8632**	**0.0154**	**1.0926**	**0.0183**	**1.1109**	**0.2974**	**0.0174**	**0.3148**		**1,602.8244**	**1,602.8244**	**0.0224**	**0.1551**	**1,649.5865**

3.4 Architectural Coating/Finish Phase - 2024

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	2.4111					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**2.5919**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Architectural Coating/Finish Phase - 2024

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	0.0124	0.5680	0.1575	3.0600e-003	0.0993	6.8000e-003	0.1061	0.0272	6.5000e-003	0.0337		327.3725	327.3725	4.9800e-003	0.0516	342.8729
Vendor	0.0696	2.1367	0.8226	0.0117	0.4398	0.0194	0.4591	0.1266	0.0185	0.1451		1,237.5088	1,237.5088	0.0130	0.1824	1,292.1960
Worker	0.2846	0.1791	3.1193	8.9300e-003	1.0537	4.5900e-003	1.0583	0.2794	4.2300e-003	0.2836		902.5905	902.5905	0.0172	0.0192	908.7394
Total	**0.3667**	**2.8839**	**4.0993**	**0.0237**	**1.5927**	**0.0307**	**1.6234**	**0.4332**	**0.0292**	**0.4625**		**2,467.4717**	**2,467.4717**	**0.0352**	**0.2532**	**2,543.8082**

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	2.4111					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**2.5919**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Architectural Coating/Finish Phase - 2024

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	0.0124	0.5680	0.1575	3.0600e-003	0.0993	6.8000e-003	0.1061	0.0272	6.5000e-003	0.0337		327.3725	327.3725	4.9800e-003	0.0516	342.8729
Vendor	0.0696	2.1367	0.8226	0.0117	0.4398	0.0194	0.4591	0.1266	0.0185	0.1451		1,237.5088	1,237.5088	0.0130	0.1824	1,292.1960
Worker	0.2846	0.1791	3.1193	8.9300e-003	1.0537	4.5900e-003	1.0583	0.2794	4.2300e-003	0.2836		902.5905	902.5905	0.0172	0.0192	908.7394
Total	**0.3667**	**2.8839**	**4.0993**	**0.0237**	**1.5927**	**0.0307**	**1.6234**	**0.4332**	**0.0292**	**0.4625**		**2,467.4717**	**2,467.4717**	**0.0352**	**0.2532**	**2,543.8082**

3.5 Paving - 2024

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	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3513					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3395**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

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	0.0196	0.8968	0.2486	4.8400e-003	0.1567	0.0107	0.1674	0.0430	0.0103	0.0532		516.8648	516.8648	7.8700e-003	0.0815	541.3373
Vendor	0.0232	0.7123	0.2742	3.8900e-003	0.1466	6.4500e-003	0.1530	0.0422	6.1700e-003	0.0484		412.5029	412.5029	4.3400e-003	0.0608	430.7320
Worker	0.0813	0.0512	0.8912	2.5500e-003	0.3010	1.3100e-003	0.3024	0.0798	1.2100e-003	0.0810		257.8830	257.8830	4.9100e-003	5.4800e-003	259.6398
Total	**0.1241**	**1.6602**	**1.4140**	**0.0113**	**0.6043**	**0.0185**	**0.6228**	**0.1650**	**0.0177**	**0.1826**		**1,187.2507**	**1,187.2507**	**0.0171**	**0.1478**	**1,231.7091**

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	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3513					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3395**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

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	0.0196	0.8968	0.2486	4.8400e-003	0.1567	0.0107	0.1674	0.0430	0.0103	0.0532		516.8648	516.8648	7.8700e-003	0.0815	541.3373
Vendor	0.0232	0.7123	0.2742	3.8900e-003	0.1466	6.4500e-003	0.1530	0.0422	6.1700e-003	0.0484		412.5029	412.5029	4.3400e-003	0.0608	430.7320
Worker	0.0813	0.0512	0.8912	2.5500e-003	0.3010	1.3100e-003	0.3024	0.0798	1.2100e-003	0.0810		257.8830	257.8830	4.9100e-003	5.4800e-003	259.6398
Total	**0.1241**	**1.6602**	**1.4140**	**0.0113**	**0.6043**	**0.0185**	**0.6228**	**0.1650**	**0.0177**	**0.1826**		**1,187.2507**	**1,187.2507**	**0.0171**	**0.1478**	**1,231.7091**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	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	5.2946	6.9510	52.2262	0.1213	12.3664	0.0924	12.4588	3.2992	0.0866	3.3858		12,360.4534	12,360.4534	0.5881	0.5641	12,543.2482
Unmitigated	5.2946	6.9510	52.2262	0.1213	12.3664	0.0924	12.4588	3.2992	0.0866	3.3858		12,360.4534	12,360.4534	0.5881	0.5641	12,543.2482

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	775.92	756.84	646.60	3,667,810	3,667,810
Arena	0.00	609.83	609.83	448,639	448,639
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Quality Restaurant	292.18	306.54	234.40	477,516	477,516
Recreational Swimming Pool	0.00	0.00	0.00		
Total	1,068.10	1,673.21	1,490.83	4,593,965	4,593,965

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3
Arena	18.50	10.10	7.90	0.00	81.00	19.00	66	28	6
Enclosed Parking with Elevator	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Parking Lot	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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
Quality Restaurant	18.50	10.10	7.90	12.00	69.00	19.00	38	18	44
Recreational Swimming Pool	18.50	10.10	7.90	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Arena	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Enclosed Parking with Elevator	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Other Asphalt Surfaces	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Parking Lot	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Quality Restaurant	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Recreational Swimming Pool	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	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	0.1263	1.1220	0.7747	6.8900e-003		0.0872	0.0872		0.0872	0.0872		1,377.4193	1,377.4193	0.0264	0.0253	1,385.6046
NaturalGas Unmitigated	0.1263	1.1220	0.7747	6.8900e-003		0.0872	0.0872		0.0872	0.0872		1,377.4193	1,377.4193	0.0264	0.0253	1,385.6046

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	4392.73	0.0474	0.4048	0.1723	2.5800e-003		0.0327	0.0327		0.0327	0.0327		516.7918	516.7918	9.9100e-003	9.4700e-003	519.8628
Arena	2111.64	0.0228	0.2070	0.1739	1.2400e-003		0.0157	0.0157		0.0157	0.0157		248.4278	248.4278	4.7600e-003	4.5500e-003	249.9041
Enclosed Parking with Elevator	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
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
Parking Lot	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
Quality Restaurant	5203.7	0.0561	0.5102	0.4285	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1997	612.1997	0.0117	0.0112	615.8377
Recreational Swimming Pool	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		**0.1263**	**1.1220**	**0.7747**	**6.8800e-003**		**0.0872**	**0.0872**		**0.0872**	**0.0872**		**1,377.4193**	**1,377.4193**	**0.0264**	**0.0252**	**1,385.6046**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

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					
Apartments Low Rise	4.39273	0.0474	0.4048	0.1723	2.5800e-003		0.0327	0.0327		0.0327	0.0327		516.7918	516.7918	9.9100e-003	9.4700e-003	519.8628
Arena	2.11164	0.0228	0.2070	0.1739	1.2400e-003		0.0157	0.0157		0.0157	0.0157		248.4278	248.4278	4.7600e-003	4.5500e-003	249.9041
Enclosed Parking with Elevator	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
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
Parking Lot	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
Quality Restaurant	5.2037	0.0561	0.5102	0.4285	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1997	612.1997	0.0117	0.0112	615.8377
Recreational Swimming Pool	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		**0.1263**	**1.1220**	**0.7747**	**6.8800e-003**		**0.0872**	**0.0872**		**0.0872**	**0.0872**		**1,377.4193**	**1,377.4193**	**0.0264**	**0.0252**	**1,385.6046**

6.0 Area Detail

6.1 Mitigation Measures Area

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	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	3.2304	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487	0.0000	15.8871	15.8871	0.0154	0.0000	16.2733
Unmitigated	3.2304	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487	0.0000	15.8871	15.8871	0.0154	0.0000	16.2733

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	0.0443					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.9178					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2683	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487		15.8871	15.8871	0.0154		16.2733
Total	**3.2304**	**0.1012**	**8.8023**	**4.7000e-004**		**0.0487**	**0.0487**		**0.0487**	**0.0487**	**0.0000**	**15.8871**	**15.8871**	**0.0154**	**0.0000**	**16.2733**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

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	0.0443					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.9178					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2683	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487		15.8871	15.8871	0.0154		16.2733
Total	**3.2304**	**0.1012**	**8.8023**	**4.7000e-004**		**0.0487**	**0.0487**		**0.0487**	**0.0487**	**0.0000**	**15.8871**	**15.8871**	**0.0154**	**0.0000**	**16.2733**

7.0 Water Detail

7.1 Mitigation Measures Water

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	1200	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/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
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	1.9693	8.8065	5.0213	9.4600e-003		0.2897	0.2897		0.2897	0.2897		1,007.4170	1,007.4170	0.1412		1,010.9480
Total	**1.9693**	**8.8065**	**5.0213**	**9.4600e-003**		**0.2897**	**0.2897**		**0.2897**	**0.2897**		**1,007.4170**	**1,007.4170**	**0.1412**		**1,010.9480**

11.0 Vegetation

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Ritz Carlton Rancho Mirage

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	381.00	Space	3.43	152,400.00	0
Other Asphalt Surfaces	77.85	1000sqft	1.79	77,850.00	0
Parking Lot	129.00	Space	1.16	51,600.00	0
Arena	23.84	1000sqft	7.66	23,840.00	0
Quality Restaurant	6.97	1000sqft	0.16	6,966.00	0
Recreational Swimming Pool	23.75	1000sqft	0.55	23,746.00	0
Apartments Low Rise	106.00	Dwelling Unit	6.63	106,000.00	303

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Section 1.0 Project Characteristics.

Land Use - Venue modeled as Arena to represent event space. An approximately 5,513 square foot, 33-feet, 6-inches tall, community clubroom/lounge with access to a central pool terrace.

Construction Phase - Demolition and Site Preparation previously preformed. Schedule provided by applicant.

Off-road Equipment - Default values

Off-road Equipment - Default Values

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Default values

Off-road Equipment - Default values

Off-road Equipment - Default values

Trips and VMT - Based on applicant provided information.

On-road Fugitive Dust - Default values

Demolition - No demolition

Grading - Material export based on applicant provided 692 hauls trucks and extimated 10 cubic yard truck capacity. Total acres graded equal default values.

Architectural Coating - Per applicant No-VOC paint will be used, VOC content of 5 grams/liter assumed.

Vehicle Trips - Per TIA. Recreational Swimming Pool set equal to zero, as they are for residence use.

Vehicle Emission Factors - Default values

Vehicle Emission Factors - Default values

Vehicle Emission Factors - Default values

Road Dust - Default values

Woodstoves - No woodstoves or fireplaces.

Area Coating - Per applicant No-VOC paint will be used, VOC content of 5 grams/liter assumed.

Landscape Equipment - Default values

Energy Use - Default values

Water And Wastewater - Coachella Valley Water District WRP-7 Assume 100% aerobic.

Solid Waste - Default values

Land Use Change -

Sequestration - Based on landscape plan: 845 trees will be planted.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Energy Mitigation -

Water Mitigation -

Fleet Mix -

Stationary Sources - Emergency Generators and Fire Pumps - Applicant provided information.

Stationary Sources - Emergency Generators and Fire Pumps EF - Default values

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	5.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	5.00
tblArchitecturalCoating	EF_Residential_Exterior	50.00	5.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	5.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	5
tblAreaCoating	Area_EF_Nonresidential_Interior	100	5
tblAreaCoating	Area_EF_Residential_Exterior	50	5
tblAreaCoating	Area_EF_Residential_Interior	50	5
tblConstructionPhase	NumDays	20.00	67.00
tblConstructionPhase	NumDays	35.00	108.00
tblConstructionPhase	NumDays	20.00	22.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	90.10	0.00
tblFireplaces	NumberNoFireplace	10.60	0.00
tblFireplaces	NumberWood	5.30	0.00
tblGrading	AcresOfGrading	105.00	330.00
tblGrading	MaterialExported	0.00	6,920.00
tblLandUse	LandUseSquareFeet	6,970.00	6,966.00
tblLandUse	LandUseSquareFeet	23,750.00	23,746.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	845.00
tblTripsAndVMT	HaulingTripNumber	865.00	692.00
tblTripsAndVMT	HaulingTripNumber	0.00	60.00
tblTripsAndVMT	HaulingTripNumber	0.00	197.00
tblTripsAndVMT	HaulingTripNumber	0.00	380.00

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	66.00	46.00
tblTripsAndVMT	VendorTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	60.00
tblTripsAndVMT	WorkerTripNumber	20.00	10.00
tblTripsAndVMT	WorkerTripNumber	218.00	50.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	44.00	70.00
tblVehicleTrips	ST_TR	8.14	7.14
tblVehicleTrips	ST_TR	10.71	25.58
tblVehicleTrips	ST_TR	90.04	43.98
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	6.28	6.10
tblVehicleTrips	SU_TR	10.71	25.58
tblVehicleTrips	SU_TR	71.97	33.63
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	10.71	0.00
tblVehicleTrips	WD_TR	83.84	41.92
tblVehicleTrips	WD_TR	28.82	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	5.30	0.00
tblWoodstoves	NumberNoncatalytic	5.30	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
2023	3.3852	35.5254	28.7278	0.0684	5.5214	1.4355	6.9569	1.5114	1.3211	2.8325	0.0000	6,676.6293	6,676.6293	1.9538	0.1593	6,751.4535
2024	6.1165	30.8841	39.8055	0.1015	3.2896	1.2104	4.5001	0.8956	1.1333	2.0289	0.0000	10,139.5042	10,139.5042	1.4075	0.5583	10,341.0444
Maximum	**6.1165**	**35.5254**	**39.8055**	**0.1015**	**5.5214**	**1.4355**	**6.9569**	**1.5114**	**1.3211**	**2.8325**	**0.0000**	**10,139.5042**	**10,139.5042**	**1.9538**	**0.5583**	**10,341.0444**

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					
2023	3.3852	35.5254	28.7278	0.0684	2.6614	1.4355	4.0969	0.7283	1.3211	2.0493	0.0000	6,676.6293	6,676.6293	1.9538	0.1593	6,751.4535
2024	6.1165	30.8841	39.8055	0.1015	3.2896	1.2104	4.5001	0.8956	1.1333	2.0289	0.0000	10,139.5042	10,139.5042	1.4075	0.5583	10,341.0444
Maximum	**6.1165**	**35.5254**	**39.8055**	**0.1015**	**3.2896**	**1.4355**	**4.5001**	**0.8956**	**1.3211**	**2.0493**	**0.0000**	**10,139.5042**	**10,139.5042**	**1.9538**	**0.5583**	**10,341.0444**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**32.46**	**0.00**	**24.96**	**32.54**	**0.00**	**16.11**	**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	3.2304	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487	0.0000	15.8871	15.8871	0.0154	0.0000	16.2733
Energy	0.1263	1.1220	0.7747	6.8900e-003		0.0872	0.0872		0.0872	0.0872		1,377.4193	1,377.4193	0.0264	0.0253	1,385.6046
Mobile	4.5177	7.3724	46.1106	0.1126	12.3664	0.0924	12.4589	3.2992	0.0866	3.3858		11,479.9934	11,479.9934	0.6007	0.5759	11,666.6164
Stationary	1.9693	8.8065	5.0213	9.4600e-003		0.2897	0.2897		0.2897	0.2897		1,007.4170	1,007.4170	0.1412		1,010.9480
Total	**9.8436**	**17.4021**	**60.7088**	**0.1295**	**12.3664**	**0.5181**	**12.8845**	**3.2992**	**0.5123**	**3.8115**	**0.0000**	**13,880.7167**	**13,880.7167**	**0.7838**	**0.6011**	**14,079.4421**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

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	3.2304	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487	0.0000	15.8871	15.8871	0.0154	0.0000	16.2733
Energy	0.1263	1.1220	0.7747	6.8900e-003		0.0872	0.0872		0.0872	0.0872		1,377.4193	1,377.4193	0.0264	0.0253	1,385.6046
Mobile	4.5177	7.3724	46.1106	0.1126	12.3664	0.0924	12.4589	3.2992	0.0866	3.3858		11,479.9934	11,479.9934	0.6007	0.5759	11,666.6164
Stationary	1.9693	8.8065	5.0213	9.4600e-003		0.2897	0.2897		0.2897	0.2897		1,007.4170	1,007.4170	0.1412		1,010.9480
Total	**9.8436**	**17.4021**	**60.7088**	**0.1295**	**12.3664**	**0.5181**	**12.8845**	**3.2992**	**0.5123**	**3.8115**	**0.0000**	**13,880.7167**	**13,880.7167**	**0.7838**	**0.6011**	**14,079.4421**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	2/1/2023	7/1/2023	5	108	
2	Building Construction	Building Construction	7/2/2023	11/29/2024	5	370	
3	Architectural Coating/Finish Phase	Architectural Coating	7/2/2024	10/2/2024	5	67	
4	Paving	Paving	9/29/2024	10/29/2024	5	22	

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 330

Acres of Paving: 6.38

Residential Indoor: 214,650; Residential Outdoor: 71,550; Non-Residential Indoor: 54,479; Non-Residential Outdoor: 18,160; Striped Parking Area: 16,911 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating/Finish Phase	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

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
Grading	8	10.00	8.00	692.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	46.00	60.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Architectural Coating/Finish Phase	1	70.00	60.00	380.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	20.00	20.00	197.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2023

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					5.2001	0.0000	5.2001	1.4239	0.0000	1.4239			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**5.2001**	**1.4245**	**6.6246**	**1.4239**	**1.3105**	**2.7344**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2023

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	0.0129	0.6780	0.1797	3.5300e-003	0.1121	7.7300e-003	0.1199	0.0307	7.4000e-003	0.0381		376.5719	376.5719	5.2800e-003	0.0593	394.3867
Vendor	8.7800e-003	0.3019	0.1146	1.5800e-003	0.0586	2.6100e-003	0.0612	0.0169	2.4900e-003	0.0194		167.9510	167.9510	1.6500e-003	0.0248	175.3874
Worker	0.0418	0.0299	0.3824	1.1900e-003	0.1505	6.9000e-004	0.1512	0.0399	6.3000e-004	0.0406		120.6287	120.6287	2.6500e-003	3.0200e-003	121.5959
Total	**0.0635**	**1.0098**	**0.6767**	**6.3000e-003**	**0.3213**	**0.0110**	**0.3323**	**0.0875**	**0.0105**	**0.0981**		**665.1516**	**665.1516**	**9.5800e-003**	**0.0872**	**691.3700**

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					2.3401	0.0000	2.3401	0.6407	0.0000	0.6407			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**2.3401**	**1.4245**	**3.7646**	**0.6407**	**1.3105**	**1.9513**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2023

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	0.0129	0.6780	0.1797	3.5300e-003	0.1121	7.7300e-003	0.1199	0.0307	7.4000e-003	0.0381		376.5719	376.5719	5.2800e-003	0.0593	394.3867
Vendor	8.7800e-003	0.3019	0.1146	1.5800e-003	0.0586	2.6100e-003	0.0612	0.0169	2.4900e-003	0.0194		167.9510	167.9510	1.6500e-003	0.0248	175.3874
Worker	0.0418	0.0299	0.3824	1.1900e-003	0.1505	6.9000e-004	0.1512	0.0399	6.3000e-004	0.0406		120.6287	120.6287	2.6500e-003	3.0200e-003	121.5959
Total	**0.0635**	**1.0098**	**0.6767**	**6.3000e-003**	**0.3213**	**0.0110**	**0.3323**	**0.0875**	**0.0105**	**0.0981**		**665.1516**	**665.1516**	**9.5800e-003**	**0.0872**	**691.3700**

3.3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.3000e-004	0.0172	4.5500e-003	9.0000e-005	2.8400e-003	2.0000e-004	3.0300e-003	7.8000e-004	1.9000e-004	9.7000e-004		9.5305	9.5305	1.3000e-004	1.5000e-003	9.9814
Vendor	0.0505	1.7358	0.6589	9.1100e-003	0.3372	0.0150	0.3521	0.0971	0.0143	0.1114		965.7183	965.7183	9.4600e-003	0.1427	1,008.4773
Worker	0.2091	0.1493	1.9120	5.9700e-003	0.7526	3.4400e-003	0.7561	0.1996	3.1700e-003	0.2027		603.1433	603.1433	0.0132	0.0151	607.9796
Total	**0.2599**	**1.9023**	**2.5754**	**0.0152**	**1.0926**	**0.0186**	**1.1112**	**0.2974**	**0.0177**	**0.3151**		**1,578.3920**	**1,578.3920**	**0.0228**	**0.1593**	**1,626.4383**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.3000e-004	0.0172	4.5500e-003	9.0000e-005	2.8400e-003	2.0000e-004	3.0300e-003	7.8000e-004	1.9000e-004	9.7000e-004		9.5305	9.5305	1.3000e-004	1.5000e-003	9.9814
Vendor	0.0505	1.7358	0.6589	9.1100e-003	0.3372	0.0150	0.3521	0.0971	0.0143	0.1114		965.7183	965.7183	9.4600e-003	0.1427	1,008.4773
Worker	0.2091	0.1493	1.9120	5.9700e-003	0.7526	3.4400e-003	0.7561	0.1996	3.1700e-003	0.2027		603.1433	603.1433	0.0132	0.0151	607.9796
Total	**0.2599**	**1.9023**	**2.5754**	**0.0152**	**1.0926**	**0.0186**	**1.1112**	**0.2974**	**0.0177**	**0.3151**		**1,578.3920**	**1,578.3920**	**0.0228**	**0.1593**	**1,626.4383**

3.3 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.3000e-004	0.0172	4.6000e-003	9.0000e-005	2.8400e-003	1.9000e-004	3.0300e-003	7.8000e-004	1.9000e-004	9.6000e-004		9.3748	9.3748	1.4000e-004	1.4800e-003	9.8187
Vendor	0.0496	1.7364	0.6512	8.9600e-003	0.3372	0.0149	0.3520	0.0971	0.0142	0.1113		950.8535	950.8535	9.8200e-003	0.1403	992.9010
Worker	0.1957	0.1327	1.7857	5.7800e-003	0.7526	3.2800e-003	0.7559	0.1996	3.0200e-003	0.2026		584.0576	584.0576	0.0120	0.0140	588.5348
Total	**0.2457**	**1.8863**	**2.4415**	**0.0148**	**1.0926**	**0.0184**	**1.1110**	**0.2974**	**0.0175**	**0.3148**		**1,544.2859**	**1,544.2859**	**0.0219**	**0.1558**	**1,591.2545**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.3000e-004	0.0172	4.6000e-003	9.0000e-005	2.8400e-003	1.9000e-004	3.0300e-003	7.8000e-004	1.9000e-004	9.6000e-004		9.3748	9.3748	1.4000e-004	1.4800e-003	9.8187
Vendor	0.0496	1.7364	0.6512	8.9600e-003	0.3372	0.0149	0.3520	0.0971	0.0142	0.1113		950.8535	950.8535	9.8200e-003	0.1403	992.9010
Worker	0.1957	0.1327	1.7857	5.7800e-003	0.7526	3.2800e-003	0.7559	0.1996	3.0200e-003	0.2026		584.0576	584.0576	0.0120	0.0140	588.5348
Total	**0.2457**	**1.8863**	**2.4415**	**0.0148**	**1.0926**	**0.0184**	**1.1110**	**0.2974**	**0.0175**	**0.3148**		**1,544.2859**	**1,544.2859**	**0.0219**	**0.1558**	**1,591.2545**

3.4 Architectural Coating/Finish Phase - 2024

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	2.4111					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**2.5919**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Architectural Coating/Finish Phase - 2024

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	0.0114	0.6019	0.1607	3.0700e-003	0.0993	6.8100e-003	0.1061	0.0272	6.5100e-003	0.0337		327.8863	327.8863	4.9300e-003	0.0517	343.4098
Vendor	0.0647	2.2648	0.8494	0.0117	0.4398	0.0194	0.4592	0.1266	0.0186	0.1452		1,240.2437	1,240.2437	0.0128	0.1830	1,295.0883
Worker	0.2740	0.1858	2.4999	8.0900e-003	1.0537	4.5900e-003	1.0583	0.2794	4.2300e-003	0.2836		817.6806	817.6806	0.0168	0.0196	823.9487
Total	**0.3501**	**3.0525**	**3.5101**	**0.0229**	**1.5927**	**0.0308**	**1.6235**	**0.4332**	**0.0293**	**0.4625**		**2,385.8106**	**2,385.8106**	**0.0345**	**0.2543**	**2,462.4468**

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	2.4111					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**2.5919**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Architectural Coating/Finish Phase - 2024

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	0.0114	0.6019	0.1607	3.0700e-003	0.0993	6.8100e-003	0.1061	0.0272	6.5100e-003	0.0337		327.8863	327.8863	4.9300e-003	0.0517	343.4098
Vendor	0.0647	2.2648	0.8494	0.0117	0.4398	0.0194	0.4592	0.1266	0.0186	0.1452		1,240.2437	1,240.2437	0.0128	0.1830	1,295.0883
Worker	0.2740	0.1858	2.4999	8.0900e-003	1.0537	4.5900e-003	1.0583	0.2794	4.2300e-003	0.2836		817.6806	817.6806	0.0168	0.0196	823.9487
Total	**0.3501**	**3.0525**	**3.5101**	**0.0229**	**1.5927**	**0.0308**	**1.6235**	**0.4332**	**0.0293**	**0.4625**		**2,385.8106**	**2,385.8106**	**0.0345**	**0.2543**	**2,462.4468**

3.5 Paving - 2024

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	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3513					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3395**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

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	0.0180	0.9503	0.2538	4.8400e-003	0.1567	0.0107	0.1675	0.0430	0.0103	0.0532		517.6760	517.6760	7.7900e-003	0.0816	542.1849
Vendor	0.0216	0.7549	0.2831	3.9000e-003	0.1466	6.4700e-003	0.1531	0.0422	6.1900e-003	0.0484		413.4146	413.4146	4.2700e-003	0.0610	431.6961
Worker	0.0783	0.0531	0.7143	2.3100e-003	0.3010	1.3100e-003	0.3024	0.0798	1.2100e-003	0.0810		233.6230	233.6230	4.7900e-003	5.6100e-003	235.4139
Total	**0.1178**	**1.7583**	**1.2512**	**0.0111**	**0.6043**	**0.0185**	**0.6229**	**0.1650**	**0.0177**	**0.1827**		**1,164.7136**	**1,164.7136**	**0.0169**	**0.1482**	**1,209.2949**

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	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3513					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3395**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

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	0.0180	0.9503	0.2538	4.8400e-003	0.1567	0.0107	0.1675	0.0430	0.0103	0.0532		517.6760	517.6760	7.7900e-003	0.0816	542.1849
Vendor	0.0216	0.7549	0.2831	3.9000e-003	0.1466	6.4700e-003	0.1531	0.0422	6.1900e-003	0.0484		413.4146	413.4146	4.2700e-003	0.0610	431.6961
Worker	0.0783	0.0531	0.7143	2.3100e-003	0.3010	1.3100e-003	0.3024	0.0798	1.2100e-003	0.0810		233.6230	233.6230	4.7900e-003	5.6100e-003	235.4139
Total	**0.1178**	**1.7583**	**1.2512**	**0.0111**	**0.6043**	**0.0185**	**0.6229**	**0.1650**	**0.0177**	**0.1827**		**1,164.7136**	**1,164.7136**	**0.0169**	**0.1482**	**1,209.2949**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	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	4.5177	7.3724	46.1106	0.1126	12.3664	0.0924	12.4589	3.2992	0.0866	3.3858		11,479.9934	11,479.9934	0.6007	0.5759	11,666.6164
Unmitigated	4.5177	7.3724	46.1106	0.1126	12.3664	0.0924	12.4589	3.2992	0.0866	3.3858		11,479.9934	11,479.9934	0.6007	0.5759	11,666.6164

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	775.92	756.84	646.60	3,667,810	3,667,810
Arena	0.00	609.83	609.83	448,639	448,639
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Quality Restaurant	292.18	306.54	234.40	477,516	477,516
Recreational Swimming Pool	0.00	0.00	0.00		
Total	1,068.10	1,673.21	1,490.83	4,593,965	4,593,965

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3
Arena	18.50	10.10	7.90	0.00	81.00	19.00	66	28	6
Enclosed Parking with Elevator	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Parking Lot	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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
Quality Restaurant	18.50	10.10	7.90	12.00	69.00	19.00	38	18	44
Recreational Swimming Pool	18.50	10.10	7.90	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Arena	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Enclosed Parking with Elevator	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Other Asphalt Surfaces	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Parking Lot	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Quality Restaurant	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Recreational Swimming Pool	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	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	0.1263	1.1220	0.7747	6.8900e-003		0.0872	0.0872		0.0872	0.0872		1,377.4193	1,377.4193	0.0264	0.0253	1,385.6046
NaturalGas Unmitigated	0.1263	1.1220	0.7747	6.8900e-003		0.0872	0.0872		0.0872	0.0872		1,377.4193	1,377.4193	0.0264	0.0253	1,385.6046

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	4392.73	0.0474	0.4048	0.1723	2.5800e-003		0.0327	0.0327		0.0327	0.0327		516.7918	516.7918	9.9100e-003	9.4700e-003	519.8628
Arena	2111.64	0.0228	0.2070	0.1739	1.2400e-003		0.0157	0.0157		0.0157	0.0157		248.4278	248.4278	4.7600e-003	4.5500e-003	249.9041
Enclosed Parking with Elevator	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
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
Parking Lot	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
Quality Restaurant	5203.7	0.0561	0.5102	0.4285	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1997	612.1997	0.0117	0.0112	615.8377
Recreational Swimming Pool	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		**0.1263**	**1.1220**	**0.7747**	**6.8800e-003**		**0.0872**	**0.0872**		**0.0872**	**0.0872**		**1,377.4193**	**1,377.4193**	**0.0264**	**0.0252**	**1,385.6046**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

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					
Apartments Low Rise	4.39273	0.0474	0.4048	0.1723	2.5800e-003		0.0327	0.0327		0.0327	0.0327		516.7918	516.7918	9.9100e-003	9.4700e-003	519.8628
Arena	2.11164	0.0228	0.2070	0.1739	1.2400e-003		0.0157	0.0157		0.0157	0.0157		248.4278	248.4278	4.7600e-003	4.5500e-003	249.9041
Enclosed Parking with Elevator	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
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
Parking Lot	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
Quality Restaurant	5.2037	0.0561	0.5102	0.4285	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1997	612.1997	0.0117	0.0112	615.8377
Recreational Swimming Pool	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		**0.1263**	**1.1220**	**0.7747**	**6.8800e-003**		**0.0872**	**0.0872**		**0.0872**	**0.0872**		**1,377.4193**	**1,377.4193**	**0.0264**	**0.0252**	**1,385.6046**

6.0 Area Detail

6.1 Mitigation Measures Area

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	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	3.2304	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487	0.0000	15.8871	15.8871	0.0154	0.0000	16.2733
Unmitigated	3.2304	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487	0.0000	15.8871	15.8871	0.0154	0.0000	16.2733

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	0.0443					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.9178					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2683	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487		15.8871	15.8871	0.0154		16.2733
Total	**3.2304**	**0.1012**	**8.8023**	**4.7000e-004**		**0.0487**	**0.0487**		**0.0487**	**0.0487**	**0.0000**	**15.8871**	**15.8871**	**0.0154**	**0.0000**	**16.2733**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

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	0.0443					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.9178					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2683	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487		15.8871	15.8871	0.0154		16.2733
Total	**3.2304**	**0.1012**	**8.8023**	**4.7000e-004**		**0.0487**	**0.0487**		**0.0487**	**0.0487**	**0.0000**	**15.8871**	**15.8871**	**0.0154**	**0.0000**	**16.2733**

7.0 Water Detail

7.1 Mitigation Measures Water

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

Ritz Carlton Rancho Mirage - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	1200	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/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
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	1.9693	8.8065	5.0213	9.4600e-003		0.2897	0.2897		0.2897	0.2897		1,007.4170	1,007.4170	0.1412		1,010.9480
Total	**1.9693**	**8.8065**	**5.0213**	**9.4600e-003**		**0.2897**	**0.2897**		**0.2897**	**0.2897**		**1,007.4170**	**1,007.4170**	**0.1412**		**1,010.9480**

11.0 Vegetation

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Ritz Carlton Rancho Mirage for LST

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	381.00	Space	3.43	152,400.00	0
Other Asphalt Surfaces	77.85	1000sqft	1.79	77,850.00	0
Parking Lot	129.00	Space	1.16	51,600.00	0
Arena	23.84	1000sqft	7.66	23,840.00	0
Quality Restaurant	6.97	1000sqft	0.16	6,966.00	0
Recreational Swimming Pool	23.75	1000sqft	0.55	23,746.00	0
Apartments Low Rise	106.00	Dwelling Unit	6.63	106,000.00	303

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Section 1.0 Project Characteristics.

Land Use - Venue modeled as Arena to represent event space. An approximately 5,513 square foot, 33-feet, 6-inches tall, community clubroom/lounge with access to a central pool terrace.

Construction Phase - Demolition and Site Preparation previously preformed. Schedule provided by applicant.

Off-road Equipment - Default values

Off-road Equipment - Default Values

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Default values

Off-road Equipment - Default values

Off-road Equipment - Default values

Trips and VMT - Based on applicant provided information. For LST anlaysis trip lengths set equal to 1,000 ft for onsite operation only.

On-road Fugitive Dust - Default values

Demolition - No demolition

Grading - Material export based on applicant provided 692 hauls trucks and extimated 10 cubic yard truck capacity. Total acres graded equal default values.

Architectural Coating - Per applicant No-VOC paint will be used, VOC content of 5 grams/liter assumed.

Vehicle Trips - Per TIA. Recreational Swimming Pool set equal to zero, as they are for residence use.

Vehicle Emission Factors - Default values

Vehicle Emission Factors - Default values

Vehicle Emission Factors - Default values

Road Dust - Default values

Woodstoves - No woodstoves or fireplaces.

Area Coating - Per applicant No-VOC paint will be used, VOC content of 5 grams/liter assumed.

Landscape Equipment - Default values

Energy Use - Default values

Water And Wastewater - Coachella Valley Water District WRP-7 Assume 100% aerobic.

Solid Waste - Default values

Land Use Change -

Sequestration - Based on landscape plan: 845 trees will be planted.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Energy Mitigation -

Water Mitigation -

Fleet Mix -

Stationary Sources - Emergency Generators and Fire Pumps - Applicant provided information.

Stationary Sources - Emergency Generators and Fire Pumps EF - Default values

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	5.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	5.00
tblArchitecturalCoating	EF_Residential_Exterior	50.00	5.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	5.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	5
tblAreaCoating	Area_EF_Nonresidential_Interior	100	5
tblAreaCoating	Area_EF_Residential_Exterior	50	5
tblAreaCoating	Area_EF_Residential_Interior	50	5
tblConstructionPhase	NumDays	20.00	67.00
tblConstructionPhase	NumDays	35.00	108.00
tblConstructionPhase	NumDays	20.00	22.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	90.10	0.00
tblFireplaces	NumberNoFireplace	10.60	0.00
tblFireplaces	NumberWood	5.30	0.00
tblGrading	AcresOfGrading	105.00	330.00
tblGrading	MaterialExported	0.00	6,920.00
tblLandUse	LandUseSquareFeet	6,970.00	6,966.00
tblLandUse	LandUseSquareFeet	23,750.00	23,746.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	845.00
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripLength	20.00	0.19

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	HaulingTripNumber	865.00	692.00
tblTripsAndVMT	HaulingTripNumber	0.00	60.00
tblTripsAndVMT	HaulingTripNumber	0.00	197.00
tblTripsAndVMT	HaulingTripNumber	0.00	380.00
tblTripsAndVMT	VendorTripLength	7.90	0.19
tblTripsAndVMT	VendorTripLength	7.90	0.19
tblTripsAndVMT	VendorTripLength	7.90	0.19
tblTripsAndVMT	VendorTripLength	7.90	0.19
tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	66.00	46.00
tblTripsAndVMT	VendorTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	60.00
tblTripsAndVMT	WorkerTripLength	19.80	0.19
tblTripsAndVMT	WorkerTripLength	19.80	0.19
tblTripsAndVMT	WorkerTripLength	19.80	0.19
tblTripsAndVMT	WorkerTripLength	19.80	0.19
tblTripsAndVMT	WorkerTripNumber	20.00	10.00
tblTripsAndVMT	WorkerTripNumber	218.00	50.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	44.00	70.00
tblVehicleTrips	ST_TR	8.14	7.14
tblVehicleTrips	ST_TR	10.71	25.58
tblVehicleTrips	ST_TR	90.04	43.98
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	6.28	6.10
tblVehicleTrips	SU_TR	10.71	25.58
tblVehicleTrips	SU_TR	71.97	33.63
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	10.71	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	WD_TR	83.84	41.92
tblVehicleTrips	WD_TR	28.82	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	5.30	0.00
tblWoodstoves	NumberNoncatalytic	5.30	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
2023	3.3529	34.7573	28.3032	0.0625	5.2045	1.4248	6.6293	1.4251	1.3108	2.7360	0.0000	6,057.2549	6,057.2549	1.9462	0.0195	6,108.0826
2024	5.7313	26.1877	34.8636	0.0563	0.0498	1.1456	1.1954	0.0144	1.0716	1.0859	0.0000	5,426.3912	5,426.3912	1.3559	0.0610	5,478.4687
Maximum	**5.7313**	**34.7573**	**34.8636**	**0.0625**	**5.2045**	**1.4248**	**6.6293**	**1.4251**	**1.3108**	**2.7360**	**0.0000**	**6,057.2549**	**6,057.2549**	**1.9462**	**0.0610**	**6,108.0826**

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					
2023	3.3529	34.7573	28.3032	0.0625	2.3444	1.4248	3.7692	0.6420	1.3108	1.9528	0.0000	6,057.2549	6,057.2549	1.9462	0.0195	6,108.0826
2024	5.7313	26.1877	34.8636	0.0563	0.0498	1.1456	1.1954	0.0144	1.0716	1.0859	0.0000	5,426.3912	5,426.3912	1.3559	0.0610	5,478.4687
Maximum	**5.7313**	**34.7573**	**34.8636**	**0.0625**	**2.3444**	**1.4248**	**3.7692**	**0.6420**	**1.3108**	**1.9528**	**0.0000**	**6,057.2549**	**6,057.2549**	**1.9462**	**0.0610**	**6,108.0826**

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.43**	**0.00**	**36.55**	**54.40**	**0.00**	**20.49**	**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	3.2304	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487	0.0000	15.8871	15.8871	0.0154	0.0000	16.2733
Energy	0.1263	1.1220	0.7747	6.8900e-003		0.0872	0.0872		0.0872	0.0872		1,377.4193	1,377.4193	0.0264	0.0253	1,385.6046
Mobile	5.2946	6.9510	52.2262	0.1213	12.3664	0.0924	12.4588	3.2992	0.0866	3.3858		12,360.4534	12,360.4534	0.5881	0.5641	12,543.2482
Stationary	1.9693	8.8065	5.0213	9.4600e-003		0.2897	0.2897		0.2897	0.2897		1,007.4170	1,007.4170	0.1412		1,010.9480
Total	**10.6205**	**16.9807**	**66.8244**	**0.1382**	**12.3664**	**0.5180**	**12.8844**	**3.2992**	**0.5122**	**3.8114**	**0.0000**	**14,761.1767**	**14,761.1767**	**0.7711**	**0.5893**	**14,956.0740**

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

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	3.2304	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487	0.0000	15.8871	15.8871	0.0154	0.0000	16.2733
Energy	0.1263	1.1220	0.7747	6.8900e-003		0.0872	0.0872		0.0872	0.0872		1,377.4193	1,377.4193	0.0264	0.0253	1,385.6046
Mobile	5.2946	6.9510	52.2262	0.1213	12.3664	0.0924	12.4588	3.2992	0.0866	3.3858		12,360.4534	12,360.4534	0.5881	0.5641	12,543.2482
Stationary	1.9693	8.8065	5.0213	9.4600e-003		0.2897	0.2897		0.2897	0.2897		1,007.4170	1,007.4170	0.1412		1,010.9480
Total	**10.6205**	**16.9807**	**66.8244**	**0.1382**	**12.3664**	**0.5180**	**12.8844**	**3.2992**	**0.5122**	**3.8114**	**0.0000**	**14,761.1767**	**14,761.1767**	**0.7711**	**0.5893**	**14,956.0740**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	2/1/2023	7/1/2023	5	108	
2	Building Construction	Building Construction	7/2/2023	11/29/2024	5	370	
3	Paving	Paving	9/29/2024	10/29/2024	5	22	
4	Architectural Coating/Finish Phase	Architectural Coating	7/2/2024	10/2/2024	5	67	

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 330

Acres of Paving: 6.38

Residential Indoor: 214,650; Residential Outdoor: 71,550; Non-Residential Indoor: 54,479; Non-Residential Outdoor: 18,160; Striped Parking Area: 16,911 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating/Finish Phase	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	10.00	8.00	692.00	0.19	0.19	0.19	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	46.00	60.00	0.19	0.19	0.19	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Paving	6	20.00	20.00	197.00	0.19	0.19	0.19	LD_Mix	HDT_Mix	HHDT
Architectural Coating/Finish Phase	1	70.00	60.00	380.00	0.19	0.19	0.19	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2023

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					5.2001	0.0000	5.2001	1.4239	0.0000	1.4239			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**5.2001**	**1.4245**	**6.6246**	**1.4239**	**1.3105**	**2.7344**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2023

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	8.5800e-003	0.1329	0.1179	2.3000e-004	1.2000e-003	1.5000e-004	1.3500e-003	3.4000e-004	1.4000e-004	4.8000e-004		24.3182	24.3182	4.9000e-004	3.8300e-003	25.4708
Vendor	6.1800e-003	0.1040	0.0849	1.7000e-004	1.6200e-003	1.2000e-004	1.7300e-003	4.9000e-004	1.1000e-004	6.0000e-004		18.2681	18.2681	4.1000e-004	2.8500e-003	19.1277
Worker	0.0164	4.8300e-003	0.0492	3.0000e-005	1.5400e-003	5.0000e-005	1.5900e-003	4.2000e-004	5.0000e-005	4.7000e-004		3.1910	3.1910	1.1000e-003	6.1000e-004	3.4005
Total	**0.0312**	**0.2417**	**0.2520**	**4.3000e-004**	**4.3600e-003**	**3.2000e-004**	**4.6700e-003**	**1.2500e-003**	**3.0000e-004**	**1.5500e-003**		**45.7772**	**45.7772**	**2.0000e-003**	**7.2900e-003**	**47.9990**

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					2.3401	0.0000	2.3401	0.6407	0.0000	0.6407			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**2.3401**	**1.4245**	**3.7646**	**0.6407**	**1.3105**	**1.9513**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Grading - 2023

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	8.5800e-003	0.1329	0.1179	2.3000e-004	1.2000e-003	1.5000e-004	1.3500e-003	3.4000e-004	1.4000e-004	4.8000e-004		24.3182	24.3182	4.9000e-004	3.8300e-003	25.4708
Vendor	6.1800e-003	0.1040	0.0849	1.7000e-004	1.6200e-003	1.2000e-004	1.7300e-003	4.9000e-004	1.1000e-004	6.0000e-004		18.2681	18.2681	4.1000e-004	2.8500e-003	19.1277
Worker	0.0164	4.8300e-003	0.0492	3.0000e-005	1.5400e-003	5.0000e-005	1.5900e-003	4.2000e-004	5.0000e-005	4.7000e-004		3.1910	3.1910	1.1000e-003	6.1000e-004	3.4005
Total	**0.0312**	**0.2417**	**0.2520**	**4.3000e-004**	**4.3600e-003**	**3.2000e-004**	**4.6700e-003**	**1.2500e-003**	**3.0000e-004**	**1.5500e-003**		**45.7772**	**45.7772**	**2.0000e-003**	**7.2900e-003**	**47.9990**

3.3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2023

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	2.2000e-004	3.3600e-003	2.9800e-003	1.0000e-005	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.6155	0.6155	1.0000e-005	1.0000e-004	0.6446
Vendor	0.0355	0.5978	0.4883	9.9000e-004	9.2900e-003	6.8000e-004	9.9700e-003	2.8000e-003	6.5000e-004	3.4500e-003		105.0415	105.0415	2.3400e-003	0.0164	109.9845
Worker	0.0820	0.0242	0.2459	1.6000e-004	7.7100e-003	2.6000e-004	7.9700e-003	2.1100e-003	2.4000e-004	2.3500e-003		15.9548	15.9548	5.5000e-003	3.0500e-003	17.0024
Total	**0.1177**	**0.6253**	**0.7372**	**1.1600e-003**	**0.0170**	**9.4000e-004**	**0.0180**	**4.9200e-003**	**8.9000e-004**	**5.8100e-003**		**121.6117**	**121.6117**	**7.8500e-003**	**0.0195**	**127.6315**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2023

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	2.2000e-004	3.3600e-003	2.9800e-003	1.0000e-005	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.6155	0.6155	1.0000e-005	1.0000e-004	0.6446
Vendor	0.0355	0.5978	0.4883	9.9000e-004	9.2900e-003	6.8000e-004	9.9700e-003	2.8000e-003	6.5000e-004	3.4500e-003		105.0415	105.0415	2.3400e-003	0.0164	109.9845
Worker	0.0820	0.0242	0.2459	1.6000e-004	7.7100e-003	2.6000e-004	7.9700e-003	2.1100e-003	2.4000e-004	2.3500e-003		15.9548	15.9548	5.5000e-003	3.0500e-003	17.0024
Total	**0.1177**	**0.6253**	**0.7372**	**1.1600e-003**	**0.0170**	**9.4000e-004**	**0.0180**	**4.9200e-003**	**8.9000e-004**	**5.8100e-003**		**121.6117**	**121.6117**	**7.8500e-003**	**0.0195**	**127.6315**

3.3 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2024

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	2.2000e-004	3.3600e-003	2.9800e-003	1.0000e-005	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.6059	0.6059	1.0000e-005	1.0000e-004	0.6346
Vendor	0.0352	0.5958	0.4848	9.7000e-004	9.2900e-003	6.7000e-004	9.9700e-003	2.8000e-003	6.4000e-004	3.4400e-003		103.3932	103.3932	2.3400e-003	0.0161	108.2588
Worker	0.0758	0.0223	0.2362	1.5000e-004	7.7100e-003	2.5000e-004	7.9600e-003	2.1100e-003	2.3000e-004	2.3400e-003		15.4415	15.4415	5.0600e-003	2.9000e-003	16.4329
Total	**0.1112**	**0.6215**	**0.7240**	**1.1300e-003**	**0.0170**	**9.2000e-004**	**0.0180**	**4.9200e-003**	**8.7000e-004**	**5.7900e-003**		**119.4406**	**119.4406**	**7.4100e-003**	**0.0191**	**125.3263**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2024

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	2.2000e-004	3.3600e-003	2.9800e-003	1.0000e-005	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.6059	0.6059	1.0000e-005	1.0000e-004	0.6346
Vendor	0.0352	0.5958	0.4848	9.7000e-004	9.2900e-003	6.7000e-004	9.9700e-003	2.8000e-003	6.4000e-004	3.4400e-003		103.3932	103.3932	2.3400e-003	0.0161	108.2588
Worker	0.0758	0.0223	0.2362	1.5000e-004	7.7100e-003	2.5000e-004	7.9600e-003	2.1100e-003	2.3000e-004	2.3400e-003		15.4415	15.4415	5.0600e-003	2.9000e-003	16.4329
Total	**0.1112**	**0.6215**	**0.7240**	**1.1300e-003**	**0.0170**	**9.2000e-004**	**0.0180**	**4.9200e-003**	**8.7000e-004**	**5.7900e-003**		**119.4406**	**119.4406**	**7.4100e-003**	**0.0191**	**125.3263**

3.4 Paving - 2024

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	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3513					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3395**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2024

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	0.0120	0.1854	0.1645	3.1000e-004	1.6800e-003	2.0000e-004	1.8800e-003	4.8000e-004	1.9000e-004	6.7000e-004		33.4567	33.4567	6.9000e-004	5.2700e-003	35.0431
Vendor	0.0153	0.2591	0.2108	4.2000e-004	4.0400e-003	2.9000e-004	4.3300e-003	1.2200e-003	2.8000e-004	1.5000e-003		44.9536	44.9536	1.0200e-003	7.0100e-003	47.0691
Worker	0.0303	8.9200e-003	0.0945	6.0000e-005	3.0800e-003	1.0000e-004	3.1800e-003	8.4000e-004	9.0000e-005	9.4000e-004		6.1766	6.1766	2.0200e-003	1.1600e-003	6.5732
Total	**0.0576**	**0.4533**	**0.4697**	**7.9000e-004**	**8.8000e-003**	**5.9000e-004**	**9.3900e-003**	**2.5400e-003**	**5.6000e-004**	**3.1100e-003**		**84.5869**	**84.5869**	**3.7300e-003**	**0.0134**	**88.6853**

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	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3513					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3395**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2024

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	0.0120	0.1854	0.1645	3.1000e-004	1.6800e-003	2.0000e-004	1.8800e-003	4.8000e-004	1.9000e-004	6.7000e-004		33.4567	33.4567	6.9000e-004	5.2700e-003	35.0431
Vendor	0.0153	0.2591	0.2108	4.2000e-004	4.0400e-003	2.9000e-004	4.3300e-003	1.2200e-003	2.8000e-004	1.5000e-003		44.9536	44.9536	1.0200e-003	7.0100e-003	47.0691
Worker	0.0303	8.9200e-003	0.0945	6.0000e-005	3.0800e-003	1.0000e-004	3.1800e-003	8.4000e-004	9.0000e-005	9.4000e-004		6.1766	6.1766	2.0200e-003	1.1600e-003	6.5732
Total	**0.0576**	**0.4533**	**0.4697**	**7.9000e-004**	**8.8000e-003**	**5.9000e-004**	**9.3900e-003**	**2.5400e-003**	**5.6000e-004**	**3.1100e-003**		**84.5869**	**84.5869**	**3.7300e-003**	**0.0134**	**88.6853**

3.5 Architectural Coating/Finish Phase - 2024

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	2.4111					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**2.5919**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating/Finish Phase - 2024

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	7.5800e-003	0.1174	0.1042	2.0000e-004	1.0600e-003	1.3000e-004	1.1900e-003	3.0000e-004	1.2000e-004	4.2000e-004		21.1909	21.1909	4.3000e-004	3.3400e-003	22.1956
Vendor	0.0460	0.7772	0.6324	1.2700e-003	0.0121	8.8000e-004	0.0130	3.6500e-003	8.4000e-004	4.4900e-003		134.8607	134.8607	3.0500e-003	0.0210	141.2071
Worker	0.1061	0.0312	0.3307	2.1000e-004	0.0108	3.5000e-004	0.0111	2.9500e-003	3.2000e-004	3.2700e-003		21.6181	21.6181	7.0800e-003	4.0600e-003	23.0061
Total	**0.1596**	**0.9258**	**1.0672**	**1.6800e-003**	**0.0240**	**1.3600e-003**	**0.0253**	**6.9000e-003**	**1.2800e-003**	**8.1800e-003**		**177.6696**	**177.6696**	**0.0106**	**0.0284**	**186.4088**

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	2.4111					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**2.5919**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating/Finish Phase - 2024

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	7.5800e-003	0.1174	0.1042	2.0000e-004	1.0600e-003	1.3000e-004	1.1900e-003	3.0000e-004	1.2000e-004	4.2000e-004		21.1909	21.1909	4.3000e-004	3.3400e-003	22.1956
Vendor	0.0460	0.7772	0.6324	1.2700e-003	0.0121	8.8000e-004	0.0130	3.6500e-003	8.4000e-004	4.4900e-003		134.8607	134.8607	3.0500e-003	0.0210	141.2071
Worker	0.1061	0.0312	0.3307	2.1000e-004	0.0108	3.5000e-004	0.0111	2.9500e-003	3.2000e-004	3.2700e-003		21.6181	21.6181	7.0800e-003	4.0600e-003	23.0061
Total	**0.1596**	**0.9258**	**1.0672**	**1.6800e-003**	**0.0240**	**1.3600e-003**	**0.0253**	**6.9000e-003**	**1.2800e-003**	**8.1800e-003**		**177.6696**	**177.6696**	**0.0106**	**0.0284**	**186.4088**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	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	5.2946	6.9510	52.2262	0.1213	12.3664	0.0924	12.4588	3.2992	0.0866	3.3858		12,360.4534	12,360.4534	0.5881	0.5641	12,543.2482
Unmitigated	5.2946	6.9510	52.2262	0.1213	12.3664	0.0924	12.4588	3.2992	0.0866	3.3858		12,360.4534	12,360.4534	0.5881	0.5641	12,543.2482

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	775.92	756.84	646.60	3,667,810	3,667,810
Arena	0.00	609.83	609.83	448,639	448,639
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Quality Restaurant	292.18	306.54	234.40	477,516	477,516
Recreational Swimming Pool	0.00	0.00	0.00		
Total	1,068.10	1,673.21	1,490.83	4,593,965	4,593,965

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3
Arena	18.50	10.10	7.90	0.00	81.00	19.00	66	28	6
Enclosed Parking with Elevator	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Parking Lot	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	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
Quality Restaurant	18.50	10.10	7.90	12.00	69.00	19.00	38	18	44
Recreational Swimming Pool	18.50	10.10	7.90	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Arena	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Enclosed Parking with Elevator	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Other Asphalt Surfaces	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Parking Lot	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Quality Restaurant	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189
Recreational Swimming Pool	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	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	0.1263	1.1220	0.7747	6.8900e-003		0.0872	0.0872		0.0872	0.0872		1,377.4193	1,377.4193	0.0264	0.0253	1,385.6046
NaturalGas Unmitigated	0.1263	1.1220	0.7747	6.8900e-003		0.0872	0.0872		0.0872	0.0872		1,377.4193	1,377.4193	0.0264	0.0253	1,385.6046

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	4392.73	0.0474	0.4048	0.1723	2.5800e-003		0.0327	0.0327		0.0327	0.0327		516.7918	516.7918	9.9100e-003	9.4700e-003	519.8628
Arena	2111.64	0.0228	0.2070	0.1739	1.2400e-003		0.0157	0.0157		0.0157	0.0157		248.4278	248.4278	4.7600e-003	4.5500e-003	249.9041
Enclosed Parking with Elevator	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
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
Parking Lot	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
Quality Restaurant	5203.7	0.0561	0.5102	0.4285	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1997	612.1997	0.0117	0.0112	615.8377
Recreational Swimming Pool	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		**0.1263**	**1.1220**	**0.7747**	**6.8800e-003**		**0.0872**	**0.0872**		**0.0872**	**0.0872**		**1,377.4193**	**1,377.4193**	**0.0264**	**0.0252**	**1,385.6046**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

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					
Apartments Low Rise	4.39273	0.0474	0.4048	0.1723	2.5800e-003		0.0327	0.0327		0.0327	0.0327		516.7918	516.7918	9.9100e-003	9.4700e-003	519.8628
Arena	2.11164	0.0228	0.2070	0.1739	1.2400e-003		0.0157	0.0157		0.0157	0.0157		248.4278	248.4278	4.7600e-003	4.5500e-003	249.9041
Enclosed Parking with Elevator	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
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
Parking Lot	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
Quality Restaurant	5.2037	0.0561	0.5102	0.4285	3.0600e-003		0.0388	0.0388		0.0388	0.0388		612.1997	612.1997	0.0117	0.0112	615.8377
Recreational Swimming Pool	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		**0.1263**	**1.1220**	**0.7747**	**6.8800e-003**		**0.0872**	**0.0872**		**0.0872**	**0.0872**		**1,377.4193**	**1,377.4193**	**0.0264**	**0.0252**	**1,385.6046**

6.0 Area Detail

6.1 Mitigation Measures Area

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	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	3.2304	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487	0.0000	15.8871	15.8871	0.0154	0.0000	16.2733
Unmitigated	3.2304	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487	0.0000	15.8871	15.8871	0.0154	0.0000	16.2733

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	0.0443					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.9178					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2683	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487		15.8871	15.8871	0.0154		16.2733
Total	**3.2304**	**0.1012**	**8.8023**	**4.7000e-004**		**0.0487**	**0.0487**		**0.0487**	**0.0487**	**0.0000**	**15.8871**	**15.8871**	**0.0154**	**0.0000**	**16.2733**

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

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	0.0443					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.9178					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2683	0.1012	8.8023	4.7000e-004		0.0487	0.0487		0.0487	0.0487		15.8871	15.8871	0.0154		16.2733
Total	**3.2304**	**0.1012**	**8.8023**	**4.7000e-004**		**0.0487**	**0.0487**		**0.0487**	**0.0487**	**0.0000**	**15.8871**	**15.8871**	**0.0154**	**0.0000**	**16.2733**

7.0 Water Detail

7.1 Mitigation Measures Water

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

Ritz Carlton Rancho Mirage for LST - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	1200	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/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
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	1.9693	8.8065	5.0213	9.4600e-003		0.2897	0.2897		0.2897	0.2897		1,007.4170	1,007.4170	0.1412		1,010.9480
Total	**1.9693**	**8.8065**	**5.0213**	**9.4600e-003**		**0.2897**	**0.2897**		**0.2897**	**0.2897**		**1,007.4170**	**1,007.4170**	**0.1412**		**1,010.9480**

11.0 Vegetation

Appendix B

SCAQMD Risk Tool Files

TIER 1/TIER 2 SCREENING RISK ASSESSMENT DATA INPUT

(Procedure Version 8.1 & Package N, September 1, 2017) - Risk Tool V1.1

Application Deemed Complete Date	03/18/20
A/N	
Facility Name	

1. Stack Data	**Input**	**Units**
Hours/Day	1	hrs/day
Days/Week	1	days/wk
Weeks/Year	50	wks/yr
Control Efficiency	0.000	
Does source have T-BACT?	NO	
Source type (Point or Volume)	P	P or V
Stack Height or Building Height	20	feet
Building Area	5000	ft^2
Distance-Residential	170	meters
Distance-Commercial	170	meters
Meteorological Station	Mission Viejo	
Project Duration (Short term options: 2, 5, or 9 years; Else 30 years)	30	years

Source Type	Diesel ICE
Screening Mode (**NO** = Tier 1 or Tier 2; **YES** = Tier 3)	NO

TIER 2 SCREENING RISK ASSESSMENT REPORT

(Procedure Version 8.1 & Package N, September 1, 2017) - Risk Tool V1.1

A/N: _____ **Fac:** _____ **Application deemed complete date:** 3/18/2020

1. Stack Data

Equipment Type	Diesel ICE	Engine Horse Power: 1200 BHP
		Engine Year Built: 2020
		Generator Engine? YES
Combustion Eff	0.0	Engine Emission Factor: 0.07 g/bhp-hr
	No T-BACT	
Operation Schedule	1 hrs/day	
	1 days/week	
	50 weeks/year	
Stack Height	20 ft	
Distance to Residential	170 m	
Distance to Commercial	170 m	
Meteorological Station	Mission Viejo	

2. Tier 2 Data

Dispersion Factors tables	Point Source
For Chronic X/Q	Table 10
For Acute X/Q max	Table 10.6

Dilution Factors

Receptor	X/Q (µg/m³)/(tons/yr)	X/Qmax (µg/m³)/(lbs/hr)
Residential	0.18	12.09
Commercial - Worker	0.18	8.67

Intake and Adjustment Factors

	Residential	Worker
Year of Exposure	30	
Combined Exposure Factor (CEF) - Table 4	677.40	55.86
Worker Adjustment Factor (WAF) - Table 5	1	4.20

A/N: _____ Application deemed complete date: 03/18/20

3. Rule 1401 Compound Data

Compound	R1 - Uncontrolled (lbs/hr)	R2 - Controlled (lbs/hr)	CP $(mg/kg\text{-}day)^{-1}$	MP MICR Resident	MP MICR Worker	MP Chronic Resident	MP Chronic Worker	REL Chronic ($\mu g/m^3$)	REL 8-hr Chronic ($\mu g/m^3$)	REL Acute ($\mu g/m^3$)	MWAF
Particulate Emissions from Diesel-Fueled E	1.85E-01	1.67E-01	1.10E+00	1.00	1.00	1.00	1.00	5.00E+00			1

A/N: _____ Application deemed complete date: 03/18/20

4. Emission Calculations

Compound	R1 (lbs/hr)	R2 (lbs/hr)	R1 (lbs/day)	R2 (lbs/day)	R2 (lbs/yr)	R2 (tons/yr)
Particulate Emissions from Diesel-Fueled Er	1.85E-01	1.67E-01	1.85E-01	1.67E-01	8.33E+00	4.16E-03

TIER 2 RESULTS **A/N:** _____ **Application deemed complete date:** 03/18/20

5a. MICR

MICR Resident = CP (mg/(kg-day))^-1 * Q (ton/yr) * (X/Q) Resident * CEF Resident * MP Resident * 1e-6 * MWAF

MICR Worker = CP (mg/(kg-day))^-1 * Q (ton/yr) * (X/Q) Worker * CEF Worker* MP Worker* WAF Worker* 1e-6 * MWAF

Compound	Residential	Commercial
Particulate Emissions from Diesel-Fueled Er	5.61E-07	1.94E-07
Total	**5.61E-07**	**1.94E-07**
	PASS	**PASS**

5b. Is Cancer Burden Calculation Needed (MICR >1E-6)? **NO**

New X/Q at which $MICR_{70yr}$ is one-in-a-million [(µg/m³)/(tons/yr)]:
New Distance, interpolated from X/Q table using New X/Q (meter):
Zone Impact Area (km²):
Zone of Impact Population (7000 person/km²):
Cancer Burden:

6. Hazard Index Summary **A/N:** _____ **Application deemed complete date:** 03/18/20

HIA = [Q(lb/hr) * (X/Q)max * MWAF]/ Acute REL
HIC = [Q(ton/yr) * (X/Q) * MP * MWAF] / Chronic REL
HIC 8-hr= [Q(ton/yr) * (X/Q) * WAF * MWAF] / 8-hr Chronic REL

Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Alimentary system (liver) - AL			N/A	Pass	Pass	Pass
Bones and teeth - BN			N/A	Pass	Pass	Pass
Cardiovascular system - CV			N/A	Pass	Pass	Pass
Developmental - DEV			N/A	Pass	Pass	Pass
Endocrine system - END			N/A	Pass	Pass	Pass
Eye			N/A	Pass	Pass	Pass
Hematopoietic system - HEM			N/A	Pass	Pass	Pass
Immune system - IMM			N/A	Pass	Pass	Pass
Kidney - KID			N/A	Pass	Pass	Pass
Nervous system - NS			N/A	Pass	Pass	Pass
Reproductive system - REP			N/A	Pass	Pass	Pass
Respiratory system - RES		1.51E-04	N/A	Pass	Pass	Pass
Skin			N/A	Pass	Pass	Pass

6a. Hazard Index Acute - Resident

HIA = [Q(lb/hr) * (X/Q)max resident * MWAF] / Acute REL

	HIA - Residential									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Particulate Emissions from Diesel-Fueled Er										
Total										

6a. Hazard Index Acute - Worker **A/N:** _____ **Application deemed complete date:** 03/18/20

HIA = [Q(lb/hr) * (X/Q)max Worker * MWAF] / Acute REL

	HIA - Commercial									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Particulate Emissions from Diesel-Fueled Er										
Total										

Appendix B
Biological Resources Report

78-075 MAIN STREET, SUITE G-203
LA QUINTA, CALIFORNIA 92253
T 760.341.6660 F 760.346.6118

February 21, 2022 11942

Phil Wolfgramm
Kam Sang Company Inc.
411 E. Huntington Drive, Suite 305
Arcadia, California 91006

Subject: Biological Resources Assessment for the Ritz-Carlton Rancho Mirage – Sky Mesa Recreation Area Project, City of Rancho Mirage, Riverside County, California

Dear Mr. Wolfgramm:

This biological resources assessment describes the existing biological conditions of the proposed Ritz-Carlton Rancho Mirage – Sky Mesa Recreation Area Project (project). The project site, totaling 4.5 acres, includes six parcels (Assessor's Parcel Numbers 689-020-012, 689-020-014, 689-330-031, 689-330-032, 689-330-034, and 689-331-018), will provide additional event space, a restaurant, and amenities such as a pool terrace and view opportunities of the surrounding areas. The project and special-status biological resources are analyzed in the context of the California Environmental Quality Act (CEQA) and in the context of the City of Rancho Mirage General Plan and the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP). The City of Rancho Mirage (City) is the lead agency responsible for CEQA compliance. The biological assessment report will support the CEQA document prepared for the development of the site.

This biological resources assessment is intended to describe the existing conditions of special-status biological resources on the project site (proposed project footprint) and within a 500-foot buffer where access was granted (study area), totaling 43.9 acres; quantify impacts to special-status biological resources that would result from implementation of the project and describe those impacts in terms of biological significance under both CEQA and the CVMSHCP; and recommend avoidance, minimization, and mitigation measures to avoid and reduce impacts to special-status biological resources, if necessary.

1 Introduction

1.1 Project Location

The project site is located at 68900 Frank Sinatra Drive, approximately 0.85 miles southwest of the intersection with State Route 111 in the City of Rancho Mirage, Riverside County (Assessor's Parcel Numbers 689-020-012, 689-020-014, 689-330-031, 689-330-032, 689-330-034, and 689,331-018) (Figure 1, Project Location Map; figures are provided in Attachment A). The majority of the 4.5-acre project site is currently vacant and lies east of the existing Ritz-Carlton Rancho Mirage Hotel. The project site is located in Section 3, Township 5 South, and Range 5 East of the San Bernardino Baseline and Meridian, U.S. Geological Survey Cathedral City 7.5-minute quadrangle. The approximate center of the project site corresponds to 33.767293 north latitude and -116.454342 west longitude.

1.2 Project Background and Description

In 2006, an environmental impact report (EIR) was prepared for the Lodge at Rancho Mirage Hotel Expansion Project, which encompassed a total of 39.01 acres that included the existing Lodge Hotel site, and other developed and entitled lands within the lower foothills of the Santa Rosa Mountains. The 2006 EIR analyzed portions of the Ritz-Carlton Residences site of the proposed project but did not analyze the Sky Mesa Recreation Area. Therefore, this biological resources assessment covers only the Sky Mesa Recreation Area. The proposed Sky Mesa Recreation Area would provide additional event space, a restaurant, and amenities such as a pool terrace and view opportunities of the surrounding areas (Figure 2, Site Plan). The Sky Mesa Recreation Area is an approximately 4.5-acre site located along Frank Sinatra Drive approximately 0.85 miles southwest of the intersection with California State Route 111 within the City of Rancho Mirage, Riverside County. It lies directly adjacent to existing development (Ritz-Carlton to one side, water tanks to the other) within a matrix of development between Cathedral City/Cathedral Canyon Cove/Rancho Mirage neighborhoods approximately 0.5 miles to the northwest, east, and southeast (Figure 1).

2 Regional Planning Context

2.1 Coachella Valley Multiple Species Habitat Conservation Plan

The project is located within the boundaries of the CVMSHCP (CVAG 2016) as administered by the Coachella Valley Conservation Commission. The CVMSHCP is a habitat conservation plan pursuant to Section 10(a) of the federal Endangered Species Act, which authorizes the issuance of take permits and establishes standards for the content of habitat conservation plans. It is also a natural community conservation plan pursuant to California Fish and Game Code Section 2835, which authorizes the California Department of Fish and Wildlife (CDFW) to permit the take of any covered species whose conservation and management are provided for in an approved natural community conservation plan. Compliance with the CVMSHCP (and associated permits) provides permittees with take authorization for covered species so long as the activity is covered by the CVMSHCP. Covered species include listed and non-listed species that are adequately conserved by the CVMSHCP.

The project is a covered activity under the CVMSHCP and would receive coverage for impacts to covered species. The project site is not located within a CVMSHCP conservation area. The nearest CVMSHCP conservation area, the Santa Rosa and San Jacinto Mountains Conservation Area, is located approximately 332 feet south of the project site (Figure 3, Coachella Valley MSHCP). The project site is mapped as Developed and Sonoran Creosote Brush Scrub in the CVMSHCP (see Figure 3-1 in CVAG 2016).

2.2 City of Rancho Mirage General Plan

The City of Rancho Mirage General Plan (City of Rancho Mirage 2017) sets forth goals, policies, and programs to manage its future growth. Several elements within the General Plan were established to address potential impacts to biological resources. Specifically, the Conservation and Open Space Element which establishes biological resources goals, policies, and programs toward preserving and effectively managing the valuable natural resources in Rancho Mirage.

The 4.5-acre project site is situated on all or portions of Assessor parcel numbers 689-330-031, -032, -34 and 689-331-018 which have a General Plan Land Use designation of Commercial: Resort Hotel (Rs-H) totaling 0.9 acres, and

also on parcels 689020012 and -14 carrying an Open Space: Mountain Reserve (MR) designation totaling 3.6 acres. The stated goal of the Resort Hotel (Rs-H) zone is for "the development of hotels and destination resorts with limited, ancillary commercial uses, such as spas, recreational facilities, restaurants, lounges, and small retail shops that directly support the primary use." The stated goal of the Mountain Reserve (MR) zone is "for public lands or property subject to conservation easements in the Santa Rosa Mountains. Uses are limited to recreational activities, such as hiking or equestrian and non-motorized bike trails and facilities consistent with the need to protect sensitive biological resources. Vehicular access is not permitted in this designation."

A zone change from Mountain Reserve (MR) to Resort Hotel (Rs-H) is concurrently proposed for the Sky Mesa Recreation Area. Under existing conditions, the Sky Mesa portion of the project would conflict with the underlying land use designations. However, as part of the proposed project, the applicant is proposing an amendment to the City's General Plan that would expand the Resort Hotel (Rs-H) designation and zoning to encompass the Sky Mesa portion of the site. As noted above, the MR zone was adopted for the purposed of avoiding or mitigating possible impacts on sensitive biological resources.

3 Methods

3.1 Literature Review

For this biological resources assessment, "special-status" species are those that are (1) listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act; (2) listed or candidates for listing as threatened or endangered under the California Endangered Species Act; (3) state fully protected species; (4) CDFW Species of Special Concern; (5) Fish and Game Code Section 4000 fur-bearing animal; (6) species listed on the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants with a California Rare Plant Rank of 1B or 2B; or (7) species requiring additional surveys under the CVMSHCP (CVAG 2016).

Other special-status biological resources include sensitive plant communities; wetlands, including riparian habitat; and wildlife corridors. Sensitive plant communities are those that are considered to support unique vegetation communities that have a rank of S1–S3 on the CDFW List of Terrestrial Communities or are considered locally important by a local planning document, such as the County of Riverside General Plan or the CVMSHCP.

Special-status biological resources present or potentially present on the project site were identified through a literature search using the following sources: U.S. Fish and Wildlife Service's (USFWS) Critical Habitat and Occurrence Data (USFWS 2021), CDFW's California Natural Diversity Database (CDFW 2021), and the CNPS's online Inventory of Rare, Threatened, and Endangered Plants (CNPS 2021a). Searches were completed for the following U.S. Geological Survey quadrangles (which include the quadrangle within which the study area is located and the eight surrounding quadrangles): Cathedral City, Desert Hot Springs, Seven Palms Valley, East Deception Canyon, Myoma, Palm Springs, Palm View Peak, Rancho Mirage, and La Quinta.

3.2 Field Reconnaissance

Dudek biologist Britney Strittmater conducted a general biological survey of the study area on June 29, 2021, from 6:10 a.m. to 8:35 a.m. The general biological survey was conducted on foot, and the undeveloped portions of the

study area (where legally accessible) were walked thoroughly to complete the resource inventory. Private properties and portions of the study area were not walked due to either private property or to steep topography. These sections of the study area were surveyed via binoculars from public roadways and from the undeveloped portions of the project site. The survey was conducted when weather conditions were favorable, with partly cloudy skies, wind speeds from 2 to 5 miles per hour, and temperatures ranging from 85°F to 89°F. All native and naturalized plant species encountered within the study area were identified and recorded. The potential for special-status plant and wildlife species to occur within the study area was evaluated based on the vegetation communities, soils present, and surrounding features. Vegetation communities and land covers on site were mapped directly in the field. A formal jurisdictional delineation was not conducted; however, an investigation was conducted of the extent and distribution of potential jurisdictional waters of the United States regulated by the U.S. Army Corps of Engineers, jurisdictional waters of the state regulated by the Regional Water Quality Control Board, and jurisdictional streambed and associated riparian vegetation regulated by the CDFW.

Latin and common names for plant species with a California Rare Plant Rank (formerly CNPS List) follow the CNPS On-Line Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2021a). For plant species without a California Rare Plant Rank, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2021), and common names follow the California Natural Community List (CDFW 2020) or the U.S. Department of Agriculture Natural Resources Conservation Service Plants Database (USDA 2021). Natural vegetation communities were mapped in the field following A Manual of California Vegetation, second edition (Sawyer et al. 2009) where feasible, with modifications to accommodate the lack of conformity of the observed communities to those of Oberbauer et al. (2008). Land cover types (i.e., areas that lack vegetation communities) were described in accordance with Draft Vegetation Communities of San Diego County (Oberbauer et al. 2008). Latin and common names of animals follow Crother (2017) for reptiles and amphibians, American Ornithological Society (AOS 2020) for birds, Wilson and Reeder (2005) for mammals, North American Butterfly Association (NABA 2016) or San Diego Natural History Museum (SDNHM 2002) for butterflies, and Moyle (2002) for fish.

Dudek used geographic information system software (ArcGIS) to map biological resources and prepare figures.

3.3 Survey Limitations

Access to a portion of the 500-foot buffer was not available during the survey because some of the properties are private and access was not granted, such as Coachella Valley Water District property, or portions of the study area were not accessible on foot due to steep topography. The 500-buffer, for areas that were inaccessible, were surveyed visually using binoculars. Therefore, vegetation mapping and habitat assessments were conducted from the project site or other public roads, in addition to being complimented with the use of aerial signatures of vegetation communities occurring within the study area.

The reconnaissance survey was conducted during the summer season, which resulted in detection and identification of most annual and perennial plant species that may potentially occur in the area. Due to the timing of the surveys, early spring annual and cryptic perennials may not have been detectable.

Conditions were suitable for detection of most wildlife species (i.e., partly cloudy skies, 85°F to 89°F temperatures, and light winds). Surveys specifically aimed at detection of the full range of wildlife species were not conducted.

However, notes were taken for incidental wildlife observations made during surveys to establish a general baseline of wildlife diversity within the study area. These surveys were conducted during the daytime, which usually results in few observations of mammals, many of which may be active at night. In addition, many species of reptiles and amphibians are nocturnal or cryptic in their habitats and are difficult to observe using standard meandering transects.

The current survey effort provides an accurate representation of the potential for special-status species to occur in the study area. The surveys conducted to date were thorough and comprehensive, and the results of the study contained herein provide a reasonable, accurate assessment of the study area.

4 Results

4.1 Site Description

The project site is located within the Colorado Desert, in the central portion of the Coachella Valley, which is generally bound by the San Bernardino Mountains and Little San Bernardino Mountains to the north, the San Jacinto and Santa Rosa Mountains to the south, and the Salton Sea and Imperial Valley to the east. The project site is relatively flat along the previously graded pad; however, elevations steeply slope to the northwest, north, northeast, and south of the graded pad. Elevation within the study area ranges from approximately 580 feet above mean sea level to approximately 650 feet above mean sea level in the central portion (i.e., graded plateau) of the study area.

The proposed project site is vacant, with a portion of the site that has been partially graded and the remaining areas containing native desert vegetation along steep slopes. The existing Ritz-Carlton Rancho Mirage Hotel is to the west of the project site. A hotel service access road borders the project site to the west, which leads to the proposed Sky Mesa Recreation Area (i.e., project site). To the south is Mirada Circle and the Mirada single-family residential development. Facing the project site across Frank Sinatra Drive to the northwest is a rough graded but undeveloped parcel.

Representative photographs of the project site and study area are included in Attachment B.

4.2 Soils

Two soil series are mapped within the study area: rock outcrop and rock outcrop-Lithic Torripsamments complex. The entirety of the project site is comprised of rock outcrop, and a small patch of rock outcrop-Lithic Torripsamments complex is only found within the western portion of the study area buffer. These soils are described in more detail below (USDA 1980), and the spatial distribution of these soils is depicted in Figure 4, Soils Map.

- **Rock Outcrop Series** occurs on very steep land types in mountainous areas. This series contains 75% to 100% of the soil surface containing outcrop of granite and sandstone. These soils support watershed and recreation, with some areas used for homesites. Vegetation includes stunted ceanothus (*Ceanothus* spp.), manzanita (*Arctostaphylos* spp.), desert agave (*Agave deserti*), brittle bush (*Encelia farinosa*), creosote bush (*Larrea tridentata*), and a few ocotillos (*Fouquieria splendens*) (USDA 1980).
- **Rock Outcrop-Lithic Torripsamment Series** consists well-drained soils that formed from metasedimentary rocks, granite, grandiorite, or gabbro. Rock Outcrop-Lithic Torripsamments soils are found along steep slopes of 9% to 50% and occur at elevations of 200 feet to 3,000 feet above mean sea level. These soils

support watershed, wildlife habitat, recreation, and some homesites. Vegetation includes brittle bush, desert agave, and ocotillo (USDA 1980).

4.3 Vegetation Communities and Land Covers

A total of six vegetation communities and land cover types occur within the study area based on general physiognomy and species composition. Four vegetation communities were mapped and include brittle bush scrub, creosote bush – brittle bush scrub, fountain grass swards, and tamarisk thickets, and two land covers (disturbed habitat and urban/developed) occur within the study area. Figure 5, Biological Resources Map, illustrates the distribution of land covers, and Table 1 provides a summary of each land cover's extent within the study area.

Table 1. Vegetation Communities and Land Covers within the Study Area

Vegetation Community/Land Cover	Acreage
Vegetation Communities	
Brittle bush scrub	4.1
Creosote bush – brittle bush scrub[1]	23.5
Fountain grass swards	0.5
Tamarisk thickets	1.4
Non-Natural Land Covers	
Disturbed habitat	4.7
Urban/developed	9.8
Total[2]	**43.9**

Sources: CDFW 2020; Oberbauer et al. 2008.
Notes:
1 Considered a Natural Community under CVMSHCP (CVAG 2016).
2 Totals may not add due to rounding.

4.3.1 Brittle Bush Scrub

Brittle bush scrub is dominated or co-dominated by brittle bush (*Encelia farinosa)* in the shrub layer with an open herbaceous layer, and emergent trees or tall shrubs may be present at low cover (Sawyer et al. 2009; CNPS 2021b). Other species within this association occurring at low cover include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum),* and white sage *(Salvia apiana)* (Sawyer et al. 2009; CNPS 2021b).

Within the study area, brittle bush scrub is dominated by an open cover of brittle bush occurring in two patches within the northwestern portion of the study area and one patch within the northeastern portion of the study area. The community does not occur within the proposed project footprint. Associated species present within this community at low cover include fountain grass (*Pennisetum setaceum*), and California fagonbush (*Fagonia laevis*). The herbaceous layer is sparse and is composed of common Mediterranean grass (*Schismus barbatus*) and redstem stork's bill (*Erodium cicutarium*).

The brittle bush scrub alliance has a rank of G5S4 by CDFW (CDFW 2020), meaning that it is apparently secure both globally and within California. Therefore, CDFW does not consider this alliance to be a special-status vegetation community under CEQA (CDFW 2020).

4.3.2 Creosote Bush – Brittle Bush Scrub

The creosote bush-brittle bush scrub alliance includes creosote bush as the co-dominant shrub, forming an open to intermittent community less than approximately 3 meters (10 feet) in height and occurring along slopes and well-drained upper bajadas and alluvial fans (Sawyer et. al 2009).

Within the study area, Sonoran creosote bush – brittle bush is the most common occurring community and is co-dominated by an open cover of creosote bush and brittle bush. Associated species present within this community at a lower cover include California fagonbush, burrobush (*Ambrosia dumosa*), Wiggins' cholla (*Cylindropuntia echinocarpa*), Schott's dalea (*Psorothamnus schottii*), white ratany (*Krameria bicolor*), and desert trumpet (Eriogonum inflatum). The herbaceous layer is sparse and composed of common Mediterranean grass, redstem stork's bill, desert Indianwheat (*Plantago ovata*), and Thomas' buckheat (*Eriogonum thomasii*).

The *Larrea tridentata – Encelia farinosa* alliance has a rank of G5S5 by CDFW (CDFW 2020), meaning that it is apparently secure both globally and within the state. Therefore, CDFW does not consider this alliance to be a special-status vegetation community under CEQA (CDFW 2020). Sonoran creosote bush scrub is within the CVMSHCP and is considered a natural community to be conserved in CVMSHCP Conservation Areas (CVAG 2016).

4.3.3 Fountain Grass Swards

The fountain grass swards semi-natural stand includes fountain grass as the dominant or co-dominant herb; emergent trees and shrubs may also be present at low covers. This semi-natural stand forms an open to intermittent stand less than 1.5 meters (5 feet) in height (Sawyer et al. 2009).

Within the study area, fountain grass swards stand is dominated by an open cover of fountain grass and occurs along a canyon bottom within the northeastern portion of the study area. This stand does not occur within the proposed project footprint. Associated species present within this community include brittle bush.

The fountain grass swards alliance is a semi-natural stand that is not considered a special-status vegetation community under CEQA.

4.3.4 Tamarisk Thickets

This community includes tamarix as the dominant species in the shrub canopy and occurs along lake margins, ditches, wash, rivers and other watercourses (Sawyer et al. 2009).

Within the study area, tamarisk thickets occur within two patches, associated with canyon bottoms present within the study area, and is dominated by an intermittent cover of tamarix (*Tamarix ramosissima*). Tamarix thickets occur outside of the proposed project footprint, immediately north and south of the existing Ritz-Carlton Hotel within the study area buffer. Associated species present within this community at low covers include fountain grass, Washington fan palm (*Washingtonia robusta*), date palm (*Phoenix dactylifera*), and blue palo verde (*Parkinsonia florida*).

The tamarisk thickets alliance is a semi-natural stand that is not considered a special-status vegetation community under CEQA.

4.3.5 Disturbed Habitat

The classification of disturbed habitat is due to the predominance of bare ground, non-native plant species, and other disturbance-tolerant plant species. Oberbauer et al. (2008) describes disturbed habitat as areas that have been physically disturbed by previous human activity and are no longer recognizable as a native or naturalized vegetation association, but that continue to retain a soil substrate. Typically, vegetation, if present, is nearly exclusively composed of non-native annual plant species.

Within the study area, disturbed land consists of the previously graded areas (i.e., graded pad within the project site and a graded portion located within the southwestern portion of the study area buffer) and areas that have been disturbed that are associated with the Coachella Valley Water District water towers within the northern portion of the study area. These areas support a low cover (less than 10%) of vegetation.

Disturbed habitat is not a vegetation community; therefore, it is not considered a special-status vegetation community under CEQA (CDFW 2020).

4.3.6 Urban/Developed Land

Urban/developed areas include areas that have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Developed land is characterized by permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that often require irrigation (Oberbauer et al. 2008).

Within the study area, developed areas include existing Ritz-Carlton Rancho Mirage Hotel, ornamental plantings along Frank Sinatra Drive, a paved recreational path associated with the existing Ritz-Carlton Rancho Mirage Hotel, and Coachella Valley Water District water towers and associated access road.

Developed land is not a vegetation community; therefore, it is not considered a special-status vegetation community under CEQA (CDFW 2020).

4.3.7 Floral Diversity

A total of 26 species of vascular plants, including 18 native (69%) and 8 non-native (31%), were recorded within the study area. This low plant diversity reflects the steep terrain and rocky conditions within the study area. Plant species observed within the study area are listed in Attachment C, Vascular Plant Species.

4.4 Wildlife

Five bird species were detected within the study area: house finch (*Haemorhous mexicanus*), Anna's hummingbird (*Calypte anna*), common raven (*Corvus corax*), mourning dove (*Zenaida macroura*), and mountain chickadee (*Poecile gambeli*). No nests were observed during the survey. No amphibian species were observed, and none are expected to occur. No reptile species were observed within the study area; however, common reptiles that may occur include common side-blotched lizard (*Uta stansburiana*). One mammal species were detected during the survey: coyote (*Canis latrans*). No invertebrate species were observed during the survey. Wildlife species observed within the study area are listed in Attachment D, Wildlife Species Compendium.

4.5 Special-Status Plant Species

Attachment E, Special-Status Plant Species Detected or Potentially Occurring in the Study Area, lists special-status plant species that were identified by the literature review. For each species listed, a determination was made regarding the potential for the species to occur in the study area based on information gathered during the field reconnaissance, including the location of the site, habitats present, current site conditions, and past and present land use.

No focused special-status plant surveys were conducted. No special-status plants were incidentally observed during the June 2021 survey. No federally or state-listed species have a potential to occur within the study area. No non-listed special-status species were determined to have a moderate to high potential to occur within the biological study area (Attachment E). Those special-status plant species that occur in the region, but that are not expected, or have low potential to occur in the study area due to the site being outside of the species' known elevation range or a lack of suitable habitat or soils, are also included in Attachment E; however, these species are not discussed further because no significant direct or indirect impacts are expected.

4.6 Special-Status Wildlife Species

Attachment F, Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area, lists special-status wildlife species that were identified in the literature review. For each species listed, a determination was made regarding potential use of the project site based on information gathered during the field reconnaissance, known habitat preferences, and knowledge of the species' relative distributions in the area.

No focused special-status wildlife surveys were conducted. No listed or non-listed special-status wildlife species were incidentally detected within the study area during the June 2021 survey. One federally and state-listed species has a moderate potential to occur within the study area: Peninsular bighorn sheep (*Ovis canadensis nelsoni* pop. 2 DPS); however, this species is covered under the CVMSHCP. One other non-listed species has a moderate potential to occur within the study area: red diamondback rattlesnake (*Crotalus ruber*), which is not covered under the CVMSHCP. One other non-listed species has a low potential to occur within the flatter portions of the study area: burrowing owl (*Athene cunicularia*), which is covered under the CVMSHCP.

One federally and state-listed threatened species, desert tortoise, is not expected to occur; however, this species is covered by the CVMSHCP and has additional requirements under the CVMSHCP; therefore, this species is included for further discussion.

4.7 Nesting Birds

The study area contains ornamental trees and shrubs that provide potential habitat for commonly occurring nesting birds, such as Anna's hummingbird. No nests were observed within the study area during the 2021 reconnaissance survey.

4.8 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small patches that join larger blocks of habitat and help reduce the

adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as stepping stones for wildlife dispersal. Wildlife movement within the project site is unlikely due to the steep topography and urbanized area to the west (i.e., existing Ritz-Carlton Hotel). However, the remainder of the study area and the surrounding environment consist of open desert scrub habitat that likely function as open habitat but do not function as a corridor for wildlife. Furthermore, the CVMSHCP addresses regional wildlife linkages and crossings, and the project site is not within a designated linkage (Figure 3).

4.9 Local Regulatory Setting

4.9.1 CVMSHCP Consistency Analysis

The lead agency for this project is the City of Rancho Mirage, which is a Permittee of the CVMSHCP. Compliance with the CVMSHCP provides Permittees with take authorization for covered species for all covered activities, which includes development outside of CVMSHCP conservation areas. Therefore, the project is a covered activity, and compliance with the CVMSHCP would provide take authorization for covered species. No CVMSHCP covered species were incidentally observed within the study area during the 2021 site visit. One federally and state-listed species that is covered under the CVMSHCP has a moderate potential to occur: Peninsular bighorn sheep. No non-listed CVMSHCP covered species had a moderate or high potential to occur within the project site. The following provides a summary of the requirements of the CVMSHCP as they relate to the project.

Section 4.5 of the CVMSHCP provides land use adjacency guidelines for new land uses adjacent to conservation areas. The project is located adjacent to the Santa Rosa and San Jacinto Mountains Conservation Area within the southwestern corner of the study area buffer; therefore, these measures apply to the project.

Section 9 of the CVMSHCP sets forth species-specific conservation goals and objectives for each of the covered species. Peninsular bighorn sheep, a covered species under the CVMSHCP, was determined to have a moderate potential to occur within the project site. Section 9 of the CVMSHCP does not identify any avoidance, minimization, or mitigation measures for this species for areas outside of the conservation areas.

The CVMSHCP shows desert tortoise modeled habitat overlapping the study area (Figure 3). As noted previously, Chapter 9 of the CVMSHCP does not identify any avoidance, minimization, or mitigation measures for areas outside of the conservation areas for desert tortoise, and desert tortoise is not expected to occur within the project site (Attachment F). However, according to the USFWS CVMSHCP amended permit (TE-104601-1), permit term and condition no. 45 states for projects located outside of the proposed conservation areas within the 50,272 acres of naturally occurring desert tortoise habitat anticipated to be impacted, the Permittee (i.e., City of Rancho Mirage) shall either (1) notify the USFWS 45 days prior to the issuance of a grading permit to allow for the potential salvage of adult tortoises within this notification time period or (2) condition such projects to conduct desert tortoise clearance surveys per the USFWS's protocol. The project site overlaps modeled desert tortoise habitat (Figure 3); however, since it was determined to not support suitable habitat for desert tortoise as discussed in Attachment F, it is recommended that the Permittee notify the USFWS 45 days prior to issuance of a grading permit.

Section 10 of the CVMSHCP sets forth conservation goals and objectives for each of the covered natural communities. Covered natural communities present in the study area include Sonoran creosote bush scrub. No

measures are required outside of conservation areas for this community. Payment of the CVMSHCP development fee would provide coverage for sensitive natural communities that will be impacted.

A fee is required for all projects located within the CVMSHCP plan area. With payment of this fee, adherence to Land Use Adjacency Guidelines within Section 4.5 of the CVMSHCP, and adherence to USFWS CVMSHCP amended permit (TE-104601-1), permit term and condition no. 45, the project would be consistent with the CVMSHCP.

4.9.2 City of Rancho Mirage General Plan

As discussed in Section 2.2, several elements within the City's General Plan were established to address potential impacts to biological resources. Specifically, the Conservation and Open Space Element which establishes biological resources goals, policies, and programs toward preserving and effectively managing the valuable natural resources in the City. The following goals and policies are outlined in Chapter 5 (Conservation and Open Space Element) of the General Plan:

- **Goal COS 3:** The protection and preservation of biological resources in Rancho Mirage, especially sensitive and special status wildlife species and their natural habitats.
    - Policy COS 3.1: The City shall support and participate in local and regional efforts to evaluate and protect natural habitats, including suitable habitats for rare and endangered species occurring in Rancho Mirage and vicinity.
        - Program COS 3.1A: Review and evaluate all development proposals on vacant lands for their impacts on existing habitats and wildlife.
        - Program COS 3.1B: Maintain an accurate and regularly updated map and information base on sensitive species and habitats in Rancho Mirage and vicinity.
        - Program COS 3.1C: Continue to participate in the implementation of the CVMSHCP/NCPP with special emphasis on habitats located in the Santa Rosa Mountain areas.
        - Program COS 3.1D: Continue to require new developments to prepare wildlife and plant surveys and implement the requirements of the CVMSHCP/NCPP.
    - Policy COS 3.2: The City shall encourage and promote an understanding and appreciation of sensitive biological resources in Rancho Mirage and the vicinity.
        - Program COS 3.2A: Provide developers direction and information on preservation and reuse of valuable topsoil and use of locally appropriate xeriscape design concepts.
        - Program COS 3.2B: Discourage unnecessary clearing of native desert landscape.
        - Program COS 3.2C: Explore the feasibility and appropriateness of establishing an interpretive trail system in the City's mountain preserve or other similar area to enhance the public appreciation for the natural resources in Rancho Mirage.

- Policy COS 3.3: The City shall encourage the use of naturally occurring desert plant materials in landscaping for development projects, to the greatest extent possible, and discourage the use of non-native plant materials that are harmful to native plant and animal species.

    - Program COS 3.3A: Request that developers salvage naturally occurring desert plant materials, to the greatest extent possible, for integration into project landscaping as a way to provide or enhance wildlife habitat and to extend the local desert environment into the urban design of Rancho Mirage. Incorporation of these indigenous materials shall be integrated into project landscape plans, and shall be submitted to the City for approval.

    - Program COS 3.3B: Prepare a comprehensive planting materials list, which shall include native and non-native, drought tolerant trees, shrubs, and groundcovers that complement the local environment, provide habitat for local wildlife, and extend the desert into the built environment. A list of prohibited plant materials shall also be prepared.

In addition, a zone change from Mountain Reserve (MR) to Resort Hotel (Rs-H) is concurrently proposed for the Sky Mesa Recreation Area. Under existing conditions, the project would conflict with the underlying land use designations. However, as part of the proposed project, the applicant is proposing an amendment to the City's General Plan that would expand the Resort Hotel (Rs-H) designation and zoning of the existing Ritz Carlton to encompass the Sky Mesa site. As noted, the MR zone was adopted for the purposed of avoiding or mitigating possible impacts on sensitive biological resources.

5 Impacts and Recommendations

This section addresses potential impacts (permanent, temporary, direct, and indirect), as defined below, to special-status biological resources that could result from implementation of the project. This section addresses each CEQA significance threshold, identifies potential impacts, and provides mitigation measures, as applicable.

Permanent Impacts result in the permanent long-term loss of a biological resource (e.g., loss of suitable habitat for special-status plant and wildlife species). Permanent impacts associated with the proposed project would occur from construction of additional event space, restaurant, and amenities such as a pool terrace and view opportunities of the surrounding areas with paved pathways.

Temporary Impacts refer to areas directly and indirectly impacted. No temporary impacts would result from project implementation; any staging for the proposed project would be within the existing development footprint of the 2006 EIR analyzed portions of the Ritz-Carlton Residences site.

Direct Impacts are the alteration, disturbance, or destruction of biological resources that would result from project-related activities. Direct impacts can include temporary impacts, such as the disturbance or removal of vegetation that returns to pre-activity conditions, or permanent impacts, which could result, for example, from placement of the new turbine pads that precludes the regeneration of vegetation.

Indirect Impacts are reasonably foreseeable effects caused by project implementation on biological resources outside of the area of direct impact (usually the limits of work areas). Indirect impacts may include increased human activity, decreased water quality and altered hydrology, soil compaction, elevated noise and dust levels, and the

introduction of invasive wildlife or plant species. Temporary indirect impacts may include temporary increases in noise or dust, whereas permanent indirect impacts could result from long-term effects to surrounding habitat such as the introduction of invasive species.

Table 2 summarizes direct impacts to vegetation communities and land covers as a result of the proposed project and are depicted on Figure 6, Biological Resources Impacts. As described in Section 1.2 of this report, the project would include construction of the event space, a restaurant, and amenities such as a pool terrace and view opportunities/trails of the surrounding areas. All proposed additional event spaces and amenities are considered permanent impacts to vegetation communities. The proposed project would not result in any temporary impacts.

Table 2. Impacts to Vegetation Communities and Land Covers within the Project Site

Vegetation Community/Land Cover	Permanent Impact (acres)
Vegetation Communities	
Brittle bush scrub	–
Creosote bush – brittle bush scrub[1]	0.68
Fountain grass swards	–
Tamarisk thickets	–
Non-Natural Land Covers	
Disturbed habitat	0.85
Urban/developed	0.04
Total[1]	**1.57**

Note:
[1] Totals may not sum due to rounding.

CEQA Significance Thresholds

The following are the significance thresholds for biological resources provided in the CEQA Appendix G Environmental Checklist, which states that project activities could potentially have a significant affect if they:

1. **Impact-BIO-1**: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS (Threshold Bio-1).
2. **Impact-BIO-2:** Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS (Threshold Bio-2).
3. **Impact-BIO-3:** Have a substantial adverse effect on state and federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (Threshold Bio-3).
4. **Impact-BIO-4:** Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites (Threshold Bio-4).
5. **Impact-BIO-5:** Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Threshold Bio-5).

6. **Impact-BIO-6:** Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan (Threshold Bio-6).

5.1 Impact-BIO-1: Special-Status Species

5.1.1 Special-Status Plants

No federally or state-listed plant species have a potential to occur within the project site. There are no special-status plant species with a moderate or high potential to occur. Therefore, the project would not result in direct or indirect impacts to special-status plant species. As such, impacts to special-status plant species would be less than significant.

5.1.2 Special-Status Wildlife

No listed or non-listed special-status wildlife species were incidentally observed during the June 2021 biological survey. One federally and state-listed species has a moderate potential to occur within the study area: Peninsular bighorn sheep. Peninsular bighorn sheep is covered under the CVMSHCP. One non-listed species has a moderate potential to occur within the project site: red diamondback rattlesnake. Red diamondback rattlesnake is not covered under the CVMSHCP. No other non-listed species have a moderate or high potential to occur within the project site. Burrowing owl, which is covered under the CVMSHCP, has a low potential to occur within the project site.

5.1.2.1 Birds

One non-listed special-status species, burrowing owl, has a low potential to occur within the flatter portions of the project site. This species is covered by the CVMSHCP; therefore, with consistency with the CVMSHCP, including payment of the CVMSHCP development mitigation fee (**Mitigation Measure BIO-1**) and adherence to the Land Use Adjacency Guidelines (**Mitigation Measure BIO-2**), there would be no significant impacts to this special-status wildlife species. This species is also protected under the Migratory Bird Treaty Act and California Fish and Game Code Section 3516, which protect nesting birds. Implementation of **Mitigation Measure BIO-3**, Nesting Birds, and **Mitigation Measure BIO-4**, Burrowing Owl Pre-Con Survey, would reduce potential impacts to less than significant.

5.1.2.2 Reptiles

One special-status reptile has a moderate potential to occur within the project site: red diamondback rattlesnake. This species is not covered by the CVMSHCP, and impacts could be potentially significant absent mitigation. Due to the amount of adjacent and nearby habitat, loss of fragmented habitat is considered less than significant. Direct impacts could occur through crushing of individuals during grading, entombment of burrowing species, and removal of habitat.

Most reptile species exhibit a "flight" response to disturbance, resulting in temporary displacement, or if disturbance is constant, permanent displacement. The project contains suitable habitat (i.e., desert scrub and rocky conditions) that may be impacted as a result of project implementation; however, suitable habitat will be available adjacent to the affected region, and individuals would be expected to move away from construction activities. Entombment of individuals would be avoided through implementation of **Mitigation Measure BIO-5**, Best Management Practices, which would include covering open trenches. Direct impacts to the few individuals that may be harmed by construction activities would be less than significant.

Potential indirect impacts to red diamondback rattlesnake would be limited to short-term impacts from construction activities and could result from fugitive dust that can degrade habitat and result in health implications for wildlife species; noise and vibration that can stress wildlife species or cause them to leave an area of otherwise suitable habitat; increased human presence, which can also disrupt daily activities of wildlife and cause them to leave an area; and release of chemical pollutants, such as from oil leaks from construction vehicles and machinery. Therefore, indirect impacts to red diamondback rattlesnake could be significant absent mitigation. Although red diamondback rattlesnake is not covered under the CVMSHCP, the project would be required to implement the Land Use Adjacency Guidelines outlined in the CVMSHCP (**Mitigation Measure BIO-2**), which includes construction best management practices and compliance; therefore, implementation of the **Mitigation Measure BIO-2** (Land Use Adjacency Guidelines) would reduce indirect impacts to a less-than-significant level.

One federally and state-listed threatened species, desert tortoise, has additional requirements under the CVMSHCP. This species is covered by the CVMSHCP; however, according to the USWFS CVMSHCP amended permit (TE-104601-1), permit term and condition no. 45 states for projects located outside of the proposed conservation areas within the 50,272 acres of naturally occurring desert tortoise habitat anticipated to be impacted, the Permittee shall either (1) notify the USFWS 45 days prior to the issuance of a grading permit to allow for the potential salvage of adult tortoises within this notification time period or (2) condition such projects to conduct desert tortoise clearance surveys per the USFWS's protocol. The project site overlaps modeled desert tortoise habitat (Figure 3); however, since it was determined to not support suitable habitat for desert tortoise as discussed in Attachment F, it is recommended that the Permittee notify the USFWS 45 days prior to issuance of a grading permit. Therefore, with compliance with the CVMSHCP, including payment of the CVMSHCP development mitigation fee (**Mitigation Measure BIO-1**), Land Use Adjacency Guidelines delineated in the CVMSHCP (**Mitigation Measure BIO-2**), and adherence to the USFWS CVMSHCP amended permit term and condition no. 45 (**Mitigation Measure BIO-6**), potential impacts to desert tortoise would be reduced to less than significant.

5.1.2.3 Mammals

One federally and state-listed species has a moderate potential to occur within the study area: Peninsular bighorn sheep; however, this species is covered under the CVMSHCP. Therefore, with consistency with the CVMSHCP, including payment of the CVMSHCP development mitigation fee (**Mitigation Measure BIO-1**) and adherence to the Land Use Adjacency Guidelines (**Mitigation Measure BIO-2**), there would be no significant impacts to Peninsular bighorn sheep.

5.2 Impact-BIO-2: Riparian and Special-Status Vegetation Communities

The project site does not contain any riparian habitat or other sensitive natural community identified by CDFW or USFWS. However, the project includes Sonoran creosote bush scrub, which is a natural community covered under the CVMSHCP. To comply with the CVMSHCP, development fees will be required to mitigate habitat loss. Therefore, with compliance with the CVMSHCP, including payment of the CVMSHCP development mitigation fee (**Mitigation Measure BIO-1**) and adherence to the Land Use Adjacency Guidelines (**Mitigation Measure BIO-2**), there would be no significant impacts to special-status vegetation communities, and the project would not be in conflict with the CVMSHCP.

5.3 Impact-BIO-3: Jurisdictional Waters

The project site does contain any jurisdictional waters; therefore, the proposed project would not result in impacts to this resource.

5.4 Impact-BIO-4: Migratory Birds and Wildlife Corridor/Nursery Sites

5.4.1 Nesting Birds

Project construction could result in direct and indirect impacts to nesting birds, including the loss of nests, eggs, and fledglings if ground-disturbing activities occur during the nesting season (generally February 15 through August 31). Construction activities during this time may result in reduced reproductive success and may violate the federal Migratory Bird Treaty Act and California Fish and Game Code. If construction (including any ground-disturbing activities) occurs during the nesting season, a nesting bird survey must be conducted by a qualified biologist prior to grading activities, and impacts to nests must be avoided. With implementation of **Mitigation Measure BIO-3**, no significant impacts to nesting birds would occur.

5.4.2 Wildlife Corridors and Nursery Sites

The project site does not function as a wildlife corridor and does not support any wildlife nursery sites. As a result, implementation of the project would not result in impacts to these resources.

5.5 Impact-BIO-5: Other Local Ordinances

The City of Rancho Mirage General Plan contains several elements that were established to address potential impacts to biological resources. Specifically, the Conservation and Open Space Element establishes biological resources goals, policies, and programs that address potential impacts to candidate, sensitive, or special-status species and their habitats. The City is a Permittee of the CVMSHCP; therefore, compliance with the CVMSHCP provides Permittees with take authorization for covered species for all covered activities, which includes development outside of CVMSHCP conservation areas. Therefore, the project is a covered activity, and compliance with the CVMSHCP would provide take authorization for covered species. Therefore, with payment of the CVMSHCP development mitigation fee (**Mitigation Measure BIO-1**); adherence to the CVMSHCP Land Use Adjacency Guidelines (**Mitigation Measure BIO-2**); and adherence to USFWS CVMSHCP amended permit (TE-104601-1), permit term and condition no. 45 (**Mitigation Measure BIO-6**), in addition to implementation of a nesting bird pre-construction survey, burrowing owl pre-construction survey, and general avoidance and minimization Measures (**Mitigation Measures BIO-3** through **BIO-5**); the project would not be in conflict with the City of Rancho Mirage General Plan.

In addition, as noted in Section 2.2, a zone change from Mountain Reserve (MR) to Resort Hotel (Rs-H) is concurrently proposed for the Sky Mesa Recreation Area. Under existing conditions, the Sky Mesa project would conflict with the underlying land use designations. However, as part of the proposed project, the applicant is proposing an amendment to the City's General Plan that would expand the Resort Hotel (Rs-H) designation and zoning of the existing Ritz Carlton to encompass the Sky Mesa site. As noted, the MR zone was adopted for the purposed of avoiding or mitigating possible impacts on sensitive biological resources and with implementation and

adherence of the above mitigation measures, the project would not be in conflict with the City of Rancho Mirage General Plan.

5.6 Impact-BIO-6: Habitat Conservation Plans

The project site is within the CVMSHCP area. The project site is not located within any CVMSHCP conservation areas; however, it is adjacent to the Santa Rosa and San Jacinto Mountains Conservation Area. A fee is required for all projects located within the CVMSHCP plan area. With payment of this fee (**Mitigation Measure BIO-1**) and adherence to Land Use Adjacency Guidelines in Section 4.5 of the CVMSHCP (**Mitigation Measure BIO-2**), the project would be consistent with the CVMSHCP.

6 Avoidance, Minimization, and Mitigation Measures

Mitigation Measure BIO-1 Coachella Valley Multiple Species Habitat Conservation Plan Fee Payment

As a signatory to the Coachella Valley Multiple Species Habitat Conservation Plan, the City of Rancho Mirage shall require a local development mitigation fee prior to the issuance of building permits for the proposed use on the project site at the rates applicable at the time of payment of the fee as set forth in the most recent fee schedule. The project applicant shall be required to provide documentation to the City of Rancho Mirage confirming the payment of the local development mitigation fee.

Mitigation Measure BIO-2 Coachella Valley Multiple Species Habitat Conservation Plan Land Use Adjacency Guidelines

The project applicant shall implement the following Land Use Adjacency Guidelines (Coachella Valley Multiple Species Habitat Conservation Plan [CVMSHCP], Section 4.5) to minimize and avoid indirect effects from development adjacent to conservation areas (i.e., Santa Rosa and San Jacinto Mountains Conservation Area), where applicable:

- **Drainage**: Proposed Development adjacent to or within a Conservation Area shall incorporate plans to ensure that the quantity and quality of runoff discharged to the adjacent Conservation Area is not altered in an adverse way when compared with existing conditions. Stormwater systems shall be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials, or other elements that might degrade or harm biological resources or ecosystem processes within the adjacent Conservation Area.
- **Toxics**: Land uses proposed adjacent to or within a Conservation Area that use chemicals or generate bioproducts such as manure that are potentially toxic or may adversely affect wildlife and plant species, habitat, or water quality shall incorporate measures to ensure that application of such chemicals does not result in any discharge to the adjacent Conservation Area.
- **Lighting**: For proposed development adjacent to or within a Conservation Area, lighting shall be shielded and directed toward the developed area. Landscape shielding or other appropriate methods shall be incorporated in project designs to minimize the effects of lighting adjacent to

or within the adjacent Conservation Area in accordance with the guidelines to be included in the Implementation Manual.

- **Noise**: Proposed development adjacent to or within a Conservation Area that generates noise in excess of 75 A-weighted decibels sound equivalent level hourly shall incorporate setbacks, berms, or walls, as appropriate, to minimize the effects of noise on the adjacent Conservation Area in accordance with the guidelines to be included in the Implementation Manual.
- **Invasives**: Invasive, non-native plant species shall not be incorporated in the landscape for land uses adjacent to or within a Conservation Area. Landscape treatments within or adjacent to a Conservation Area shall incorporate native plant materials to the maximum extent feasible; recommended native species are listed in Table 4-112 [CVMSHCP, Section 4.5.5]. The plants listed in Table 4-113 shall not be used within or adjacent to a Conservation Area. This list may be amended from time to time through a Minor Amendment with Wildlife Agency Concurrence.
- **Barriers**: Land uses adjacent to or within a Conservation Area shall incorporate barriers in individual project designs to minimize unauthorized public access, domestic animal predation, illegal trespass, or dumping in a Conservation Area. Such barriers may include native landscaping, rocks/boulders, fencing, walls and/or signage.
- **Grading/Land Development**: Manufactured slopes associated with site development shall not extend into adjacent land in a Conservation Area.

Mitigation Measure BIO-3 Nesting Birds

To maintain compliance with the Migratory Bird Treaty Act and California Fish and Game Code, if ground-disturbing and/or vegetation clearance activities are scheduled to occur during the avian nesting season (typically February 15 through August 31), a qualified biologist shall conduct a pre-construction nesting bird survey within the project impact footprint and a 500-foot buffer where legal access is granted around the disturbance footprint. Surveys shall be conducted within 3 days prior to initiation of ground-disturbing activities.

If an active nest is detected during the nesting bird survey, avoidance buffers shall be implemented as determined by a qualified biologist (typically 300 feet for passerines and 500 feet for raptors and special-status species). The buffer shall be of a distance to ensure avoidance of adverse effects to the nesting bird by accounting for topography, ambient conditions, species, nest location, and activity type. All nests shall be monitored as determined by the qualified biologist until nestlings have fledged and dispersed or it is confirmed that the nest has been unsuccessful or abandoned. The qualified biologist shall halt all construction activities within proximity to an active nest if it is determined that the activities are harassing the nest and may result in nest abandonment or take. The qualified biologist shall also have the authority to require implementation of avoidance measures related to noise, vibration, or light pollution if indirect impacts are resulting in harassment of the nest.

Mitigation Measure BIO-4 Burrowing Owl

Pre-construction surveys for burrowing owls shall be completed within areas of suitable habitat (i.e., flatter portions of the site) in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG

2012), with the first survey no less than 14 days prior to initiation of project-related activities, and the second within 24 hours of project-related activities. If an active burrowing owl burrow is detected within 500 feet of the impact footprint, avoidance and minimization measures shall be implemented in accordance with the *Staff Report on Burrowing Owl Mitigation* guidelines or agreed upon by the California Department of Fish and Wildlife, including implementation of a non-disturbance buffer and monitoring of the nest to ensure activities are not adversely affecting the nest. If the project will occur within this zone, then work must occur outside the nesting season, or until it can be shown that the birds have finished nesting, at which point passive relocation may occur.

Mitigation Measure BIO-5 General Avoidance and Minimization Measures

The following avoidance and minimization measures shall be implemented during project construction activities:

- To prevent inadvertent entrapment of special-status wildlife during construction, all excavated steep-walled holes or trenches more than 2 feet deep shall be covered with plywood or similar materials at the close of each working day, or be provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped wildlife. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape.

Mitigation Measure BIO-6 Desert Tortoise

Because the project is located outside of a Conservation Area but within the 50,272 acres of naturally occurring desert tortoise habitat anticipated to be impacted under the Coachella Valley Multiple Species Habitat Conservation Plan, the project applicant shall notify the U.S. Fish and Wildlife Service 45 days prior to the issuance of a grading permit to allow for the potential salvage of adult tortoises within this notification time period.

7 Conclusion

With implementation of the recommended mitigation measures, payment of the CVMSHCP development mitigation fee, adherence to the CVMSHCP Land Use Adjacency Guidelines, and adherence to USFWS CVMSHCP amended permit (TE-104601-1), permit term and condition no. 45, the project would not result in significant impacts to biological resources.

If you have any questions regarding this biological resources assessment, please contact me at bstrittmater@dudek.com or 760.685.1231.

Sincerely,

Britney Strittmater
Biologist

Att.: Attachment A – Figures

Attachment B – Site Photographs
Attachment C – Vascular Plant Species Compendium
Attachment D – Wildlife Species Compendium
Attachment E – Special-Status Plant Species Detected or Potentially Occurring in the Study Area
Attachment F – Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

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Attachment A

Figures



SOURCE: USGS 7.5-Minute Series Cathedral City Quadrangle

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Ritz-Carlton Rancho Mirage - Sky Mesa Recreation Area



SOURCE: ESRI Clarity Imagery 2021

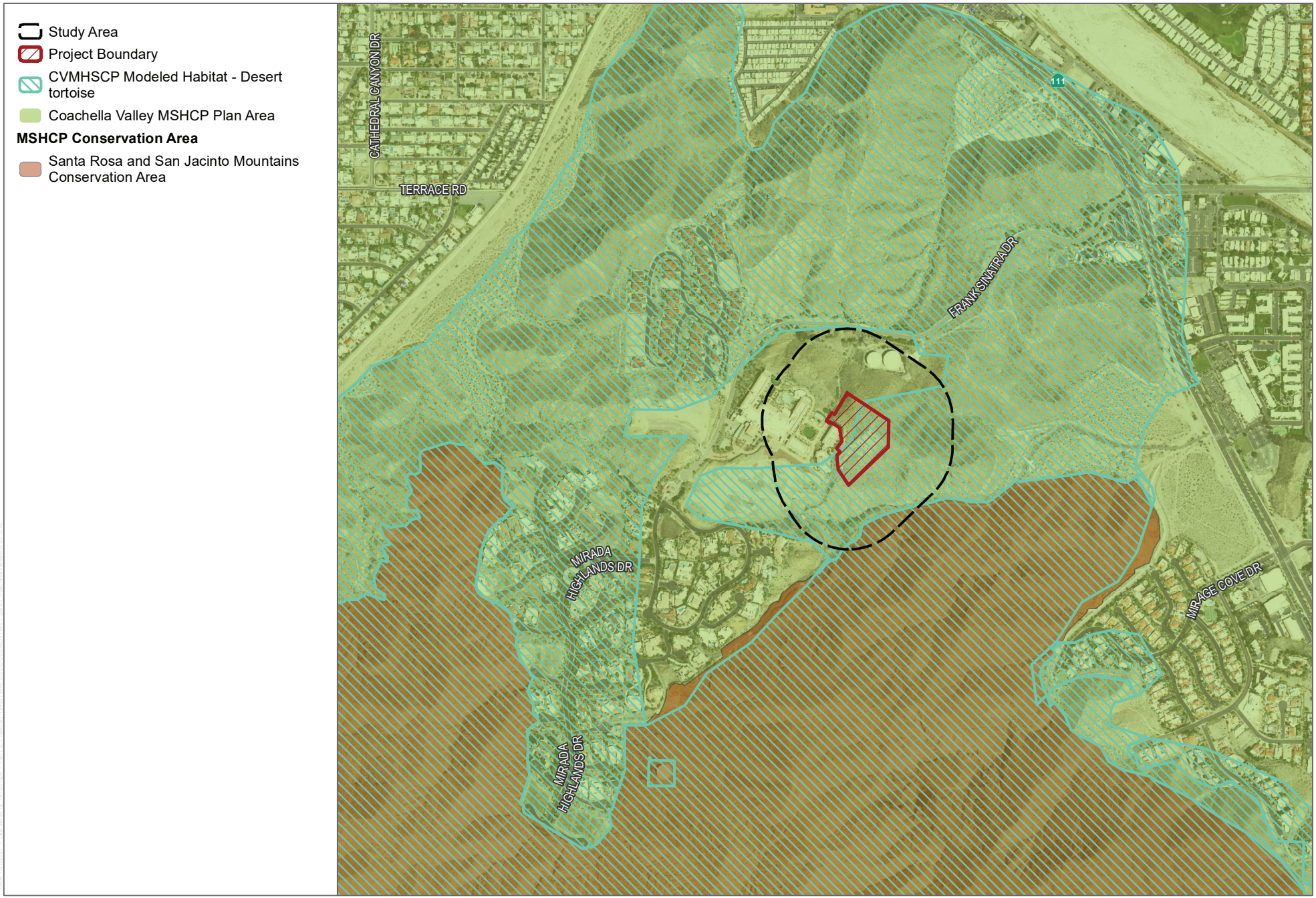
DUDEK

0 50 100 Feet

FIGURE 2

Site Plan

Ritz-Carlton Rancho Mirage - Sky Mesa Recreation Area



SOURCE: Coachella Valley MSHCP 2019, Esri Clarity Imagery 2021

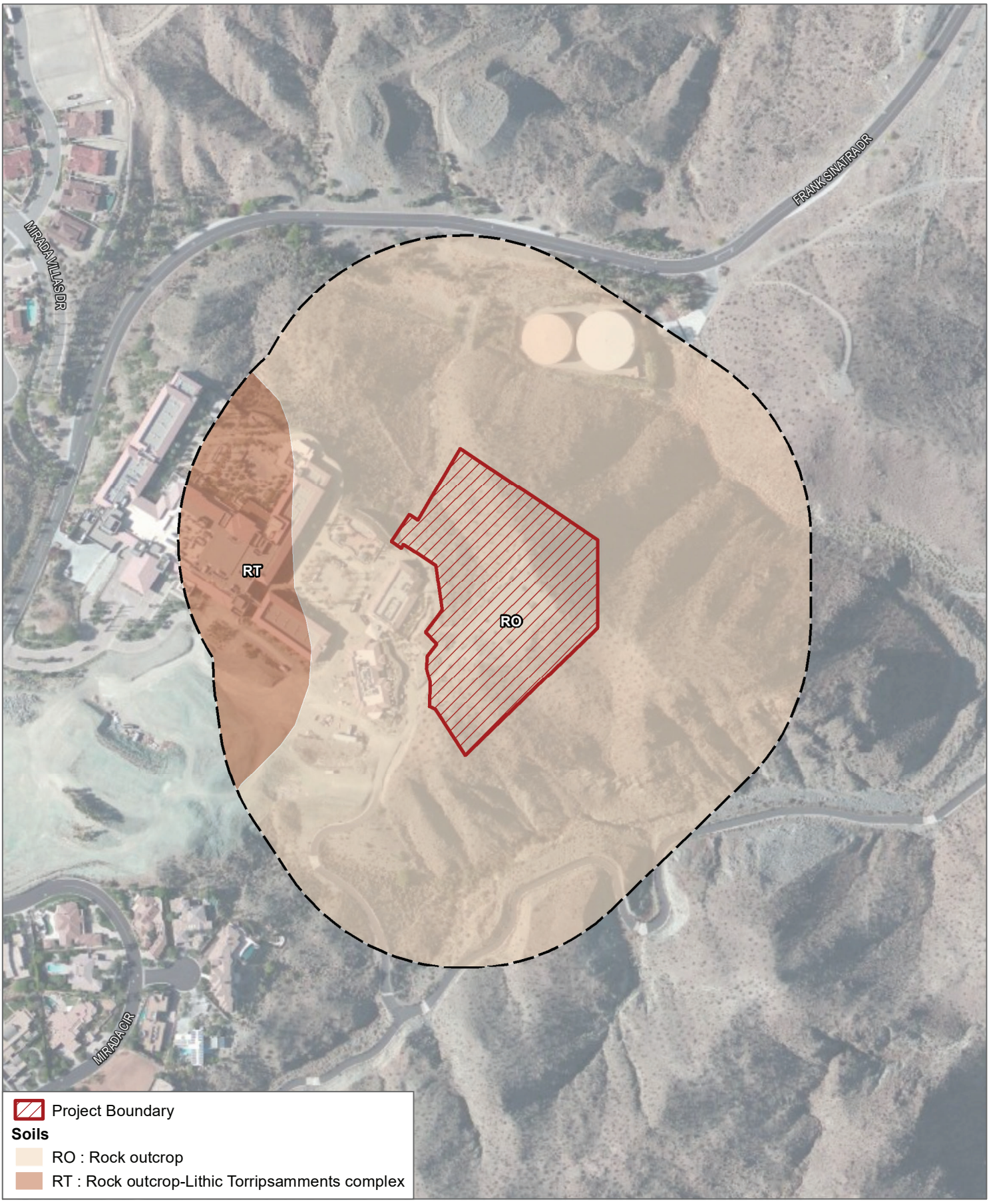
DUDEK

0 500 1,000 Feet

FIGURE 3

Coachella Valley MSHCP

Ritz-Carlton Rancho Mirage - Sky Mesa Recreation Area



SOURCE: USDA 2008 / 2018, Esri Clarity Imagery 2021

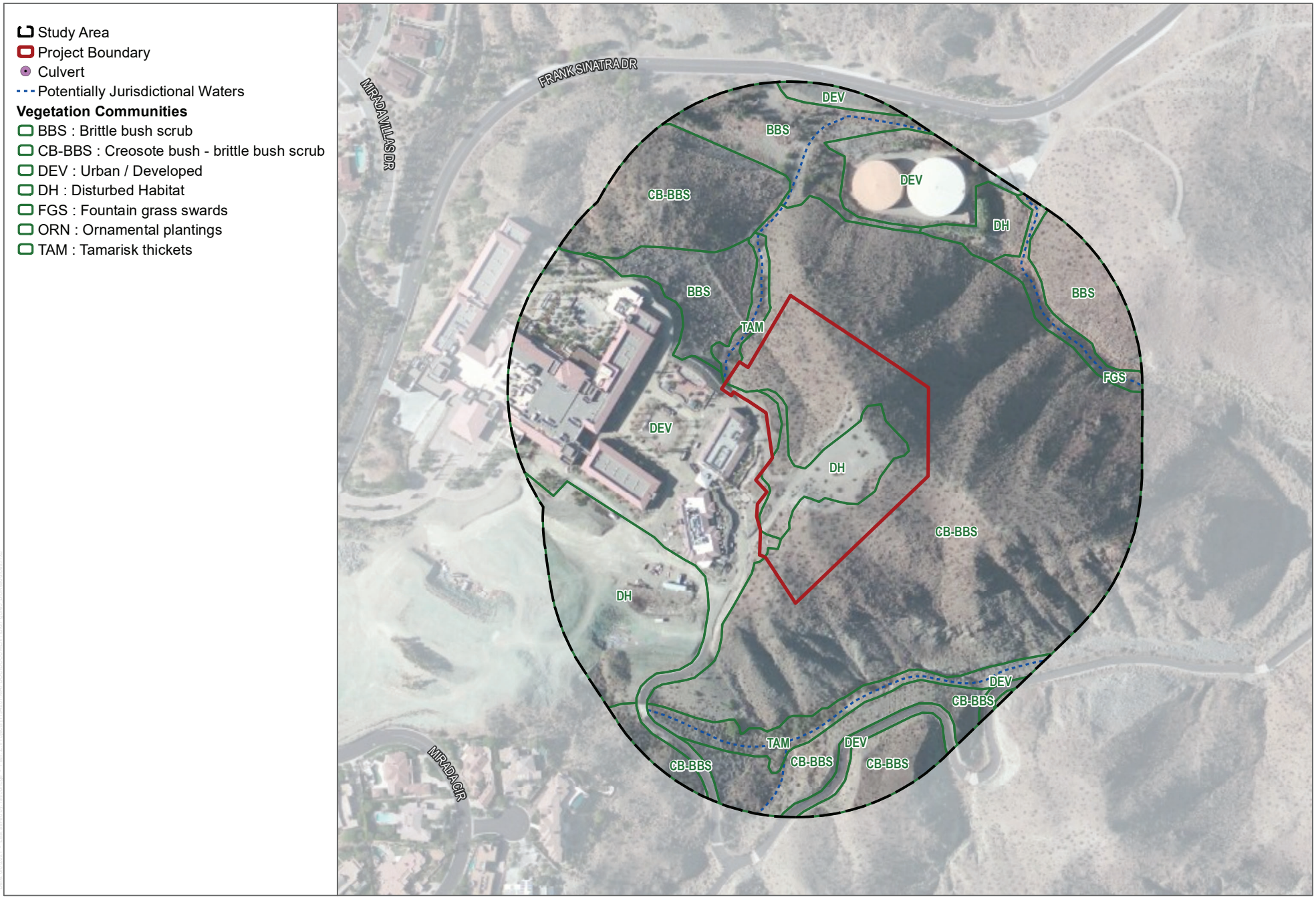
DUDEK

0 150 300 Feet

FIGURE 4

Soils Map

Ritz-Carlton Rancho Mirage - Sky Mesa Recreation Area



SOURCE: Esri Clarity Imagery 2021

DUDEK

0 150 300 Feet

FIGURE 5

Biological Resources Map

Ritz-Carlton Rancho Mirage - Sky Mesa Recreation Area



SOURCE: Esri Clarity Imagery 2021

DUDEK

0 150 300 Feet

FIGURE 6

Biological Resources Impacts

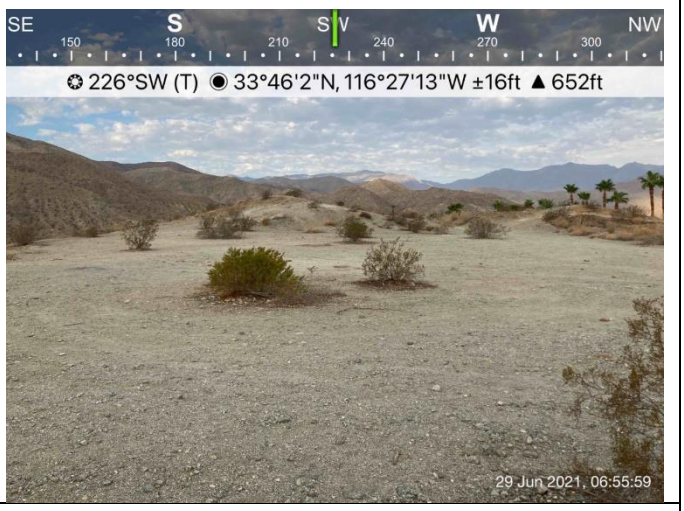
Ritz-Carlton Rancho Mirage - Sky Mesa Recreation Area

Attachment B

Site Photographs



Location 1: Facing southwest. View of creosote bush - brittle bush scrub within southern portion of the proposed impact area.



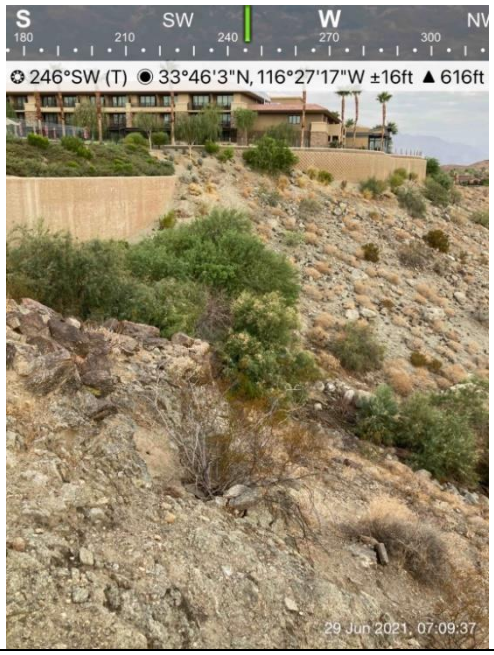
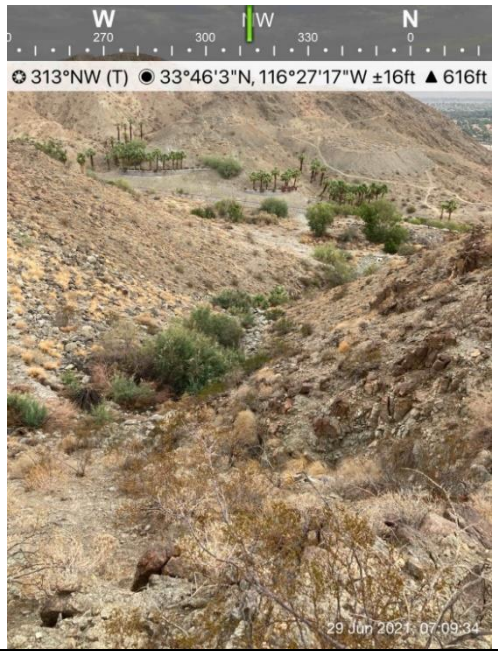
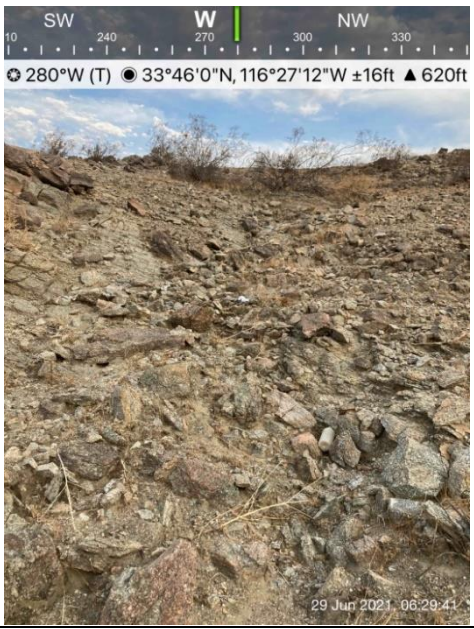
Location 2: Facing southwest. View of disturbed habitat with less than 10% cover of creosote bush, within the eastern portion of the proposed impact area.



Location 3: Facing southwest. View of creosote bush - brittle bush scrub within northeastern portion of the proposed impact area.



Location 4: Facing southeast. View of creosote bush - brittle bush scrub within the northern portion of the proposed impact area.

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<td>Location 5: Facing southwest. View of tamarisk thickets located along upstream portion of drainage, outside of the proposed project impact area and within the northwestern portion of the study area.</td>
<td>Location 6: Facing northwest. View of tamarisk thickets located along downstream portion drainage, outside of the proposed project impact area and within the northwestern portion of the study area.</td>
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<td>Location 7: Facing northwest. View of creosote bush - brittle bush scrub within the study area (outside of proposed project impact area).</td>
<td>Location 8: Facing west. View of rocky steep slopes and creosote bush - brittle bush scrub present throughout most of the proposed project impact area and study area.</td>
</tr>
</table>

Attachment C

Vascular Plant Species Compendium

Vascular Species

Eudicots

ASTERACEAE—SUNFLOWER FAMILY

Ambrosia dumosa—white bursage
Ambrosia salsola—cheesebush
Bebbia juncea—sweetbush
Chaenactis fremontii—pincushion flower
Encelia farinosa—brittle bush
* *Lactuca serriola*—prickly lettuce
Malacothrix glabrata—smooth desertdandelion
* *Oncosiphon piluliferum*—stinknet
Palafoxia arida—desert palafox
Psathyrotes ramosissima—velvet turtleback
Rafinesquia californica—California plumeseed
* *Sonchus oleraceus*—common sowthistle
Stephanomeria pauciflora—brownplume wirelettuce

BORAGINACEAE—BORAGE FAMILY

Amsinckia intermedia—common fiddleneck
Cryptantha angustifolia—Panamint cryptantha
Cryptantha circumscissa—cushion cryptantha
Pectocarya penicillata—sleeping combseed
Pectocarya recurvata—curvenut combseed
Phacelia crenulata—cleftleaf wildheliotrope
Tiquilia plicata—fanleaf crinklemat

BRASSICACEAE—MUSTARD FAMILY

* *Brassica tournefortii*—Tournefort's mustard
* *Hirschfeldia incana*—shortpod mustard
* *Sisymbrium irio*—London rocket

CACTACEAE—CACTUS FAMILY

Cylindropuntia bigelovii—teddy bear cholla
Cylindropuntia echinocarpa—Wiggins' cholla
Ferocactus cylindraceus—California barrel cactus

CHENOPODIACEAE—GOOSEFOOT FAMILY

Atriplex canescens—fourwing saltbush

CLEOMACEAE—CLEOME FAMILY

Peritoma arborea—bladderpod

CUCURBITACEAE—GOURD FAMILY

Cucurbita palmata—coyote gourd

EUPHORBIACEAE—SPURGE FAMILY

Croton californicus—California croton
Ditaxis serrata—Yuma silverbush
Euphorbia albomarginata—whitemargin sandmat
Stillingia paucidentata—Mojave toothleaf

FABACEAE—LEGUME FAMILY

Parkinsonia florida—blue palo verde

GERANIACEAE—GERANIUM FAMILY

* *Erodium cicutarium*—redstem stork's bill

LOASACEAE—LOASA FAMILY

Mentzelia involucrata—whitebract blazingstar
Petalonyx thurberi—Thurber's sandpaper plant

NYCTAGINACEAE—FOUR O'CLOCK FAMILY

Abronia villosa var. *villosa*—desert sand verbena

ONAGRACEAE—EVENING PRIMROSE FAMILY

Camissonia contorta—plains evening primrose
Camissonia strigulosa—sandysoil suncup
Camissoniopsis pallida—paleyellow suncup
Chylismia claviformis—browneyes

PLANTAGINACEAE—PLANTAIN FAMILY

Plantago ovata—desert Indianwheat

POLEMONIACEAE—PHLOX FAMILY

Eriastrum eremicum—desert woollystar
Loeseliastrum schottii—Schott's calico

POLYGONACEAE—BUCKWHEAT FAMILY

Chorizanthe brevicornu—brittle spineflower
Eriogonum thomasii—Thomas' buckwheat

SIMMONDSIACEAE—JOJOBA FAMILY

Simmondsia chinensis—jojoba

Zygophyllaceae—Caltrop Family

Larrea tridentata—creosote bush

Monocots

POACEAE—GRASS FAMILY

* *Hordeum murinum*—mouse barley
* *Schismus barbatus*—common Mediterranean grass

* signifies introduced (non-native) species

Attachment D

Wildlife Species Compendium

Bird

Blackbirds, Orioles and Allies

ICTERIDAE—BLACKBIRDS

Icterus bullockii—Bullock's oriole

Old World Warblers and Gnatcatchers

SYLVIIDAE—SYLVIID WARBLERS

Polioptila melanura—black-tailed gnatcatcher

Shrikes

LANIIDAE—SHRIKES

Lanius ludovicianus—loggerhead shrike

Swallows

HIRUNDINIDAE—SWALLOWS

Hirundo rustica—barn swallow

Wood Warblers and Allies

PARULIDAE—WOOD-WARBLERS

Setophaga coronata—yellow-rumped warbler

Invertebrate

Butterflies

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Vanessa cardui—painted lady

Mammal

Hares and Rabbits

LEPORIDAE—HARES AND RABBITS

Lepus californicus—black-tailed jackrabbit

Sylvilagus audubonii—desert cottontail

Squirrels

SCIURIDAE—SQUIRRELS

Ammospermophilus leucurus—white-tailed antelope squirrel

Reptile

Lizards

PHRYNOSOMATIDAE—IGUANID LIZARDS

Uta stansburiana—common side-blotched lizard

Attachment E

Special-Status Plant Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR)	Coachella Valley MSHCP	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Abronia villosa var. *aurita*	chaparral sand-verbena	None/None/1B.1	None	Chaparral, Coastal scrub, Desert dunes; sandy/annual herb/(Jan) Mar–Sep/246–5,245	Not expected to occur. The site is located within the species' known elevation range; however, there is no suitable vegetation present to support this species.
Acmispon haydonii	pygmy lotus	None/None/1B.3	None	Pinyon and juniper woodland, Sonoran desert scrub; rocky/perennial herb/Jan–June/ 1,705–3,935	Not expected to occur. The site is outside of the species' known elevation range.
Almutaster pauciflorus	alkali marsh aster	None/None/2B.2	None	Meadows and seeps; alkaline/perennial herb/June–Oct/787–2,620	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Ambrosia monogyra	singlewhorl burrobrush	None/None/2B.2	None	Chaparral, Sonoran desert scrub; sandy/perennial shrub/Aug–Nov/33–1,640	Low potential to occur. The site is located within the species' known elevation range and suitable desert scrub vegetation is present; however, the site lacks sandy soils, and the nearest documented occurrence was recorded in 1920 and is approximately 6.2 miles northeast of the site (CDFW 2021). This conspicuous perennial shrub would likely have been detected if present.
Astragalus bernardinus	San Bernardino milk-vetch	None/None/1B.2	None	Joshua tree woodland, Pinyon and juniper woodland; Often granitic or carbonate/ perennial herb/Apr–June/2,950–6,560	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Astragalus hornii var. *hornii*	Horn's milk-vetch	None/None/1B.1	None	Meadows and seeps, Playas; lake margins, alkaline/annual herb/May–Oct/197–2,785	Not expected to occur. The site is located within the species' known elevation range; however, there is no suitable vegetation present to support this species.
Astragalus lentiginosus var. *coachellae*	Coachella Valley milk-vetch	FE/None/1B.2	Covered	Desert dunes, Sonoran desert scrub (sandy)/annual / perennial herb/ Feb–May/131–2,145	Not expected to occur. While the site is located within the species' known elevation range and there is desert scrub present, this species occurs in dunes and sandy flats along margins of sandy washes and is strongly affiliated with sandy substrates (CVAG 2016). The site supports rocky substates and does not support suitable sandy soils, dunes, or sandy washes to support this species. The nearest documented occurrence is approximately 2.2 miles north of the site (CDFW 2021).
Astragalus preussii var. *laxiflorus*	Lancaster milk-vetch	None/None/1B.1	None	Chenopod scrub/perennial herb/ Mar–May/2,295–2,295	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Astragalus tricarinatus	triple-ribbed milk-vetch	FE/None/1B.2	Covered	Joshua tree woodland, Sonoran desert scrub; sandy or gravelly/perennial herb/Feb–May/1,475–3,900	Not expected to occur. The site is outside of the species' known elevation range.
Atriplex parishii	Parish's brittlescale	None/None/1B.1	None	Chenopod scrub, Playas, Vernal pools; alkaline/annual herb/June–Oct/82–6,230	Not expected to occur. The site is located within the species' known elevation range; however, there is no suitable vegetation present to support this species.
Ayenia compacta	California ayenia	None/None/2B.3	None	Mojavean desert scrub, Sonoran desert scrub; rocky/perennial herb/Mar–Apr/492–3,590	Low potential to occur. The site is located within the species' known elevation range and suitable desert scrub and rocky soils are present; however, this species is more associated with sandy and gravelly washes within canyons (Jepson Flora Project 2021). In addition, the nearest documented occurrence is from 1919 and is approximately 4.9 miles west of the site (CDFW 2021).
Boechera johnstonii	Johnston's rockcress	None/None/1B.2	None	Chaparral, Lower montane coniferous forest; often on eroded clay/perennial herb/ Feb–June/4,425–7,050	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Calochortus palmeri var. *munzii*	San Jacinto mariposa lily	None/None/1B.2	None	Chaparral, Lower montane coniferous forest, Meadows and seeps/perennial bulbiferous herb/Apr–July/2,805–7,215	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Chaenactis parishii	Parish's chaenactis	None/None/1B.3	None	Chaparral (rocky)/perennial herb/ May–July/4,265–8,200	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Coachella Valley MSHCP	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Chorizanthe parryi var. *parryi*	Parry's spineflower	None/None/1B.1	None	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland; sandy or rocky, openings/annual herb/Apr–June/ 902–4,000	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	None/None/1B.2	None	Chaparral, Coastal scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools; often clay/annual herb/Apr–July/98–5,015	Not expected to occur. The site is located within the species' known elevation range; however, there is no suitable vegetation present to support this species.
Chorizanthe xanti var. *leucotheca*	white-bracted spineflower	None/None/1B.2	None	Coastal scrub (alluvial fans), Mojavean desert scrub, Pinyon and juniper woodland; sandy or gravelly/annual herb/Apr–June/984–3,935	Not expected to occur. The site is outside of the species' known elevation range.
Deinandra mohavensis	Mojave tarplant	None/SE/1B.3	None	Chaparral, Coastal scrub, Riparian scrub; mesic/annual herb/(May) June–Oct (Jan)/ 2,095–5,245	Not expected to occur. The site is outside of the species' known elevation range.
Ditaxis claryana	glandular ditaxis	None/None/2B.2	None	Mojavean desert scrub, Sonoran desert scrub; sandy/perennial herb/Oct, Dec, Jan, Feb, Mar/ 0–1,525	Low potential to occur. The site is located within the species' known elevation range, and suitable desert scrub vegetation is present; however, the site lacks sandy soils. The nearest documented occurrence is approximately 2.4 miles southeast of the site (CDFW 2021).
Dodecahema leptoceras	slender-horned spineflower	FE/SE/1B.1	None	Chaparral, Cismontane woodland, Coastal scrub (alluvial fan); sandy/annual herb/ Apr–June/656–2,490	Not expected to occur. The site is located within the species' known elevation range; however, there is no suitable vegetation present to support this species.
Eremothera boothii ssp. *boothii*	Booth's evening-primrose	None/None/2B.3	None	Joshua tree woodland, Pinyon and juniper woodland/annual herb/Apr–Sep/2,670–7,870	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Eriastrum harwoodii	Harwood's eriastrum	None/None/1B.2	None	Desert dunes/annual herb/Mar–June/ 410–3,000	Not expected to occur. The site is located within the species' known elevation range; however, there is no suitable vegetation present to support this species.
Erigeron parishii	Parish's daisy	FT/None/1B.1	None	Mojavean desert scrub, Pinyon and juniper woodland; usually carbonate, sometimes granitic/perennial herb/May–Aug/2,620–6,560	Not expected to occur. The site is outside of the species' known elevation range.
Euphorbia abramsiana	Abrams' spurge	None/None/2B.2	None	Mojavean desert scrub, Sonoran desert scrub; sandy/annual herb/(Aug) Sep–Nov/-16–4,295	Low potential to occur. The site is located within the species' known elevation range and suitable desert scrub vegetation is present; however, the site lacks sandy soils. The nearest documented occurrence is approximately 6.2 miles east of the site (CDFW 2021).
Euphorbia arizonica	Arizona spurge	None/None/2B.3	None	Sonoran desert scrub (sandy)/perennial herb/Mar–Apr/164–985	Low potential to occur. The site is located within the species' known elevation range, and suitable desert scrub vegetation is present; however, the site lacks sandy soils. The nearest documented occurrence is approximately 2.5 miles west of the site (CDFW 2021).
Euphorbia misera	cliff spurge	None/None/2B.2	None	Coastal bluff scrub, Coastal scrub, Mojavean desert scrub; rocky/perennial shrub/Dec–Aug (Oct)/33–1,640	Low potential to occur. The site is located within the species' known elevation range, and suitable desert scrub vegetation is present; however, the nearest documented occurrence is approximately 14 miles northwest of the site (CDFW 2021). This conspicuous perennial shrub would likely have been detected if present.
Euphorbia platysperma	flat-seeded spurge	None/None/1B.2	None	Desert dunes, Sonoran desert scrub (sandy)/annual herb/Feb–Sep/213–330	Not expected to occur. The site is outside of the species' known elevation range.
Heuchera hirsutissima	shaggy-haired alumroot	None/None/1B.3	None	Subalpine coniferous forest, Upper montane coniferous forest; rocky, granitic/perennial rhizomatous herb/(May) June–July/ 4,985–11,480	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Coachella Valley MSHCP	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Imperata brevifolia	California satintail	None/None/2B.1	None	Chaparral, Coastal scrub, Mojavean desert scrub, Meadows and seeps (often alkali), Riparian scrub; mesic/perennial rhizomatous herb/Sep–May/0–3,985	Low potential to occur. The site is located within the species' known elevation range, and suitable desert scrub vegetation is present; however, the site lacks alkali soils to support this species. The nearest documented occurrence is approximately 5.4 miles west of the site (CDFW 2021).
Lilium parryi	lemon lily	None/None/1B.2	None	Lower montane coniferous forest, Meadows and seeps, Riparian forest, Upper montane coniferous forest; mesic/perennial bulbiferous herb/July–Aug/4,000–9,005	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Linanthus jaegeri	San Jacinto linanthus	None/None/1B.2	None	Subalpine coniferous forest, Upper montane coniferous forest; granitic, rocky/perennial herb/July–Sep/7,200–10,005	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Linanthus maculatus ssp. *maculatus*	Little San Bernardino Mtns. linanthus	None/None/1B.2	Covered	Desert dunes, Joshua tree woodland, Mojavean desert scrub, Sonoran desert scrub; Sandy/annual herb/Mar–May/459–4,000	Not expected to occur. The site is located within the species' known elevation range, and desert scrub vegetation is present; however, this species is known to occur in loose soft sandy soils on low benches along washes (CVAG 2016), which are absent. The nearest documented occurrence is approximately 5.9 miles northwest of the site (CDFW 2021).
Marina orcuttii var. *orcuttii*	California marina	None/None/1B.3	None	Chaparral, Pinyon and juniper woodland, Sonoran desert scrub; rocky/perennial herb/May–Oct/3,440–3,805	Not expected to occur. The site is outside of the species' known elevation range.
Matelea parvifolia	spearleaf	None/None/2B.3	None	Mojavean desert scrub, Sonoran desert scrub; rocky/perennial herb/Mar–May (July)/1,440–3,590	Not expected to occur. The site is outside of the species' known elevation range.
Mentzelia tricuspis	spiny-hair blazing star	None/None/2B.1	None	Mojavean desert scrub; sandy, gravelly, slopes, and washes/annual herb/Mar–May/ 492–4,195	Low potential to occur. The site is located within the species' known elevation range, and desert scrub vegetation is present along with gravelly/rocky slopes; however, the site lacks sandy soils. The nearest documented occurrence is approximately 13.8 miles northwest of the site (CDFW 2021).
Nemacaulis denudata var. *gracilis*	slender cottonheads	None/None/2B.2	None	Coastal dunes, Desert dunes, Sonoran desert scrub/annual herb/(Mar) Apr–May/ -165–1,310	Low potential to occur. The site is located within the species' known elevation range; desert scrub vegetation is present; and there is a documented occurrence slightly overlapping the site; however, this occurrence was documented in 1942 and was listed as needing more fieldwork (CDFW 2021). According to CalFlora (2021), this species occurs more in dune habitats.
Penstemon californicus	California beardtongue	None/None/1B.2	None	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland; sandy/perennial herb/May–June (Aug)/3,835–7,545	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Petalonyx linearis	narrow-leaf sandpaper-plant	None/None/2B.3	None	Mojavean desert scrub, Sonoran desert scrub; Sandy or rocky canyons/perennial shrub/ (Jan–Feb)Mar–May (June–Dec)/-82–3,655	Low potential to occur. The site is located within the species' known elevation range, and there is desert scrub vegetation and rocky soils present; however, the site lacks sandy soils. The nearest documented occurrence is approximately 6.5 miles southeast of the site (CDFW 2021). This conspicuous perennial shrub would likely have been detected if present.
Pseudorontium cyathiferum	Deep Canyon snapdragon	None/None/2B.3	None	Sonoran desert scrub (rocky)/annual herb/ Feb–Apr/0–2,620	Low potential to occur. The site is located within the species' known elevation range and there is desert scrub and rocky soils present; however, this species has only been documented in the Coachella Valley within Coyote Creek, approximately 8.9 miles southeast of the site and was documented in 1978 (CDFW 2021).
Saltugilia latimeri	Latimer's woodland-gilia	None/None/1B.2	None	Chaparral, Mojavean desert scrub, Pinyon and juniper woodland; rocky or sandy, often	Not expected to occur. The site is outside of the species' known elevation range.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Coachella Valley MSHCP	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				granitic, sometimes washes/annual herb/Mar–June/1,310–6,230	
Selaginella eremophila	desert spike-moss	None/None/2B.2	None	Chaparral, Sonoran desert scrub (gravelly or rocky)/perennial rhizomatous herb/(May) June (July)/656–4,245	Low potential to occur. The site is located within the species' known elevation range, and desert scrub vegetation is present; however, the nearest documented occurrence is from 1938 and was approximately 1.72 miles northwest of the site (CDFW 2021).
Senna covesii	Coves' cassia	None/None/2B.2	None	Sonoran desert scrub; Dry, sandy desert washes and slopes/perennial herb/Mar–June (Aug)/738–4,245	Low potential to occur. The site is located within the species' known elevation range, and desert scrub vegetation is present; however, the site lacks suitable sandy desert washes and slopes to support this species. The site is comprised of rocky soils. The nearest documented occurrence is approximately 10.1 miles south of the site (CDFW 2021).
Sidotheca emarginata	white-margined oxytheca	None/None/1B.3	None	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland/annual herb/(Feb) Apr–July (Aug)/3,935–8,200	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Stemodia durantifolia	purple stemodia	None/None/2B.1	None	Sonoran desert scrub (often mesic, sandy)/perennial herb/(Jan) Apr, June, Aug, Sep, Oct, Dec/591–985	Low potential to occur. The site is located within the species' known elevation range, and desert scrub vegetation is present; however, the site lacks mesic and sandy soils to support this species. The nearest documented occurrence is approximately 1 mile west of the site (CDFW 2021).
Streptanthus campestris	southern jewelflower	None/None/1B.3	None	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland; rocky/perennial herb/(Apr) May–July/2,950–7,545	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Thelypteris puberula var. *sonorensis*	Sonoran maiden fern	None/None/2B.2	None	Meadows and seeps (seeps and streams)/perennial rhizomatous herb/ Jan–Sep/164–2,000	Not expected to occur. The site is located within the species' known elevation range; however, there is no suitable vegetation present to support this species.
Thysanocarpus rigidus	rigid fringepod	None/None/1B.2	None	Pinyon and juniper woodland; Dry rocky slopes/annual herb/Feb–May/1,965–7,215	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present to support this species.
Xylorhiza cognata	Mecca-aster	None/None/1B.2	Covered	Sonoran desert scrub/perennial herb/Jan–June/66–1,310	Low potential to occur. The site is located within the species' known elevation range and desert scrub vegetation is present; however, the species is known to occur in arid canyons in washes (Jepson Flora Project 2021). While the site supports steep slopes, suitable canyons and washes are absent. The nearest documented occurrence is approximately 5.9 miles northwest of the site (CDFW 2021).

Status Legend
Federal
FE: Federally listed as endangered
FT: Federally listed as threatened
State
SE: State listed as endangered
CRPR: California Rare Plant Rank
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Threat Rank
0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
0.3 – Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Attachment F

Special-Status Wildlife Species Detected or Potentially Occurring in the Study Area

Scientific Name	Common Name	Status (Federal/State)	Coachella Valley MSHCP	Habitat	Potential to Occur
Amphibians					
Rana draytonii	California red-legged frog	FT/SSC	None	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	Not expected to occur. The site lacks suitable aquatic resources to support this species. The nearest documented occurrence is approximately 4.7 miles west of the site (CDFW 2021).
Rana muscosa	mountain yellow-legged frog	FE/SE, WL	None	Lakes, ponds, meadow streams, isolated pools, and open riverbanks; rocky canyons in narrow canyons and in chaparral	Not expected to occur. The site lacks suitable aquatic resources to support this species. The nearest documented occurrence is approximately 5.3 miles west of the site (CDFW 2021).
Reptiles					
Crotalus ruber	red diamondback rattlesnake	None/SSC	None	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Moderate potential to occur. The site support suitable rocky areas to support this species. The nearest documented occurrence is approximately 1.5 miles south of the site (CDFW 2021).
Gopherus agassizii	Mojave desert tortoise	FT/ST	Covered	Arid and semi-arid habitats in Mojave and Sonoran Deserts, including sandy or gravelly locations along riverbanks, washes, sandy dunes, canyon bottoms, desert oases, rocky hillsides, creosote flats, and hillsides	Not expected to occur. While the site does support desert habitat and rocky hillsides, the site did not include any burrows to support this species. The nearest documented occurrence is approximately 6.8 miles southeast of the site, east of Highway 74 (CDFW 2021).
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC	None	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Not expected to occur. The site lacks suitable vegetation and sandy soils to support this species.
Phrynosoma mcallii	flat-tailed horned lizard	None/SSC	Covered	Desert washes and flats with sparse low-diversity vegetation cover and sandy soils	Not expected to occur. The nearest documented occurrence is approximately 0.5 miles south of the site (CDFW 2021); however, the site lacks suitable desert washes and sandy soils to support this species.
Uma inornata	Coachella fringe-toed lizard	FT/SE	Covered	Sand dunes in sparse desert scrub, alkali scrub, and desert wash	Not expected to occur. While the site does contain desert scrub, the site lacks suitable sand dunes and wind-blown aeolian soils to support this species. The nearest documented occurrence is located 2.2 miles north of the site (CDFW 2021).
Birds					
Aquila chrysaetos (nesting and wintering)	golden eagle	BCC/FP, WL	None	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Not expected to nest or winter. The site lacks suitable large trees and cliffs for nesting. The nearest documented occurrence is approximately 7.3 miles south of the site (CDFW 2021).
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	BCC/SSC	Covered	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Low potential to occur. The study area contains desert scrub vegetation; however, no small mammal burrows suitable for burrowing owl were observed and the site contains rocky and steep slopes. The nearest documented occurrence is located approximately 4.5 miles to the northeast (CDFW 2021).
Cypseloides niger (nesting)	black swift	BCC/SSC	None	Nests in moist crevices, caves, and cliffs behind or adjacent to waterfalls in deep canyons; forages over a wide range of habitats	Not expected to nest. The site lacks suitable crevices, caves, cliffs, and waterfalls.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE	Covered	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. The site lacks suitable dense riparian habitat to support this species. The nearest documented occurrence of this species is located approximately 1.9 miles south of the site (CDFW 2021).

Scientific Name	Common Name	Status (Federal/State)	Coachella Valley MSHCP	Habitat	Potential to Occur
Lanius ludovicianus (nesting)	loggerhead shrike	BCC/SSC	None	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Low potential to occur. Suitable open habitat is present; however, the site supports a low cover of scattered shrubs and perching opportunities. The nearest documented occurrence is approximately 7.8 miles east of the site (CDFW 2021).
Polioptila californica californica	coastal California gnatcatcher	FT/SSC	None	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to occur. The site lacks suitable sage scrub communities to support this species, and the site contains steep slopes.
Progne subis (nesting)	purple martin	None/SSC	None	Nests and forages in woodland habitats including riparian, coniferous, and valley foothill and montane woodlands; in the Sacramento region often nests in weep holes under elevated freeways	Not expected to nest. The site lacks suitable woodland habits to support this species.
Pyrocephalus rubinus (nesting)	vermilion flycatcher	None/SSC	None	Nests in riparian woodlands, riparian scrub, and freshwater marshes; typical desert riparian with cottonwood, willow, mesquite adjacent to irrigated fields, ditches, or pastures	Not expected to occur. The site lacks suitable riparian habitat and adjacent fields or pastures to support this species.
Toxostoma crissale	Crissal thrasher	None/SSC	Covered	Nests and forages in desert riparian and desert wash; dense thickets of sagebrush and other shrubs such as mesquite, iron catclaw acacia, and arrowweed willow within juniper and pinyon–juniper woodlands	Not expected to occur. The site lacks suitable riparian and sagebrush habitats to support this species. The nearest documented occurrence is approximately 5.9 miles northwest of the site (CDFW 2021).
Toxostoma lecontei	LeConte's thrasher	BCC/SSC	Covered	Nests and forages in desert wash, desert scrub, alkali desert scrub, desert succulent, and Joshua tree habitats; nests in spiny shrubs or cactus	Not expected to nest, moderate potential to forage. The site supports suitable desert scrub habitat for foraging; however, the site lacks suitable spiny shrubs for nesting. The site supports minimal cactus species. The nearest documented occurrence is located approximately 2.7 miles north of the site (CDFW 2021).
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	Covered	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur. The site lacks suitable dense riparian habitat to support this species. The nearest documented occurrence of this species is located approximately 4.6 miles west of the site (CDFW 2021).
Fishes					
Cyprinodon macularius	desert pupfish	FE/SE	Covered	Desert springs, small streams, and marshes below 1,515 meters (5,000 feet) above mean sea level; tolerates high salinities, high water temperatures, and low dissolved-oxygen concentrations	Not expected to occur. The site lacks suitable aquatic resources to support this species.
Mammals					
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None/SSC	None	Desert wash, desert scrub, desert succulent scrub, and pinyon–juniper woodland	Not expected to occur. The site contains desert scrub; however, no small mammal burrows were observed and the site contains rocky and steep slopes. The nearest documented occurrence is approximately 4.1 miles southeast of the site (CDFW 2021).
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC	None	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	Not expected to occur. The site lacks suitable riparian, coniferous, or deciduous forests. The nearest documented occurrence is 9.7 miles southwest of the site (CDFW 2021).

Scientific Name	Common Name	Status (Federal/State)	Coachella Valley MSHCP	Habitat	Potential to Occur
Lasiurus xanthinus	western yellow bat	None/SSC	Covered	Valley–foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 feet above mean sea level; roosts in riparian and palms	Not expect to roost or forage within project site; low potential to roost and forage within study area. There are no palms within the proposed project development; however, there are palms located within the study area buffer that may provide roosting habitat. The nearest documented occurrence is approximately 2.1 miles southeast of the site (CDFW 2021).
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC	None	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Not expected to occur. The site contains desert scrub and rocky areas; however, no middens were observed, and the nearest documented occurrence is approximately 7.9 miles northeast of the site (CDFW 2021).
Nyctinomops femorosaccus	pocketed free-tailed bat	None/SSC	None	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with drop-offs, caverns, and buildings	Not expected to roost within project site; moderate potential to forage within project site. This species tends to prefer rocky outcrops and high cliffs for roosting, which are not present within the site. The desert scrub can provide suitable habitat for foraging. The nearest documented occurrence is approximately 6.1 miles northwest of the site (CDFW 2021).
Nyctinomops macrotis	big free-tailed bat	None/SSC	None	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water	Not expected to occur. There are no suitable rocky outcrops or cliffs for roosting. Additionally, the site lacks water needed for foraging. The nearest documented occurrence is approximately 6.1 miles northwest of the site (CDFW 2021).
Ovis canadensis nelsoni	Nelson's bighorn sheep	None/FP	None	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes, and alluvial fans	Not expected to occur. The site is located outside of this species' known geographic range; this species occurs within the San Bernardino Mountain range (CDFW 2021).
Ovis canadensis nelsoni pop. 2 DPS	Peninsular bighorn sheep DPS	FE/FP, ST	Covered	Dry, rocky, low-elevation desert slopes, canyons, and washes; females near water during lambing season	Moderate potential to occur. The site supports rocky desert slopes. The nearest known occurrence is approximately 1.7 miles south of the site (CDFW 2021).
Perognathus longimembris bangsi	Palm Springs pocket mouse	None/SSC	Covered	Creosote scrub, desert scrub, and grasslands; sparse to moderately dense vegetative cover	Not expected to occur. The site contains sparse desert scrub; however, no small mammal burrows were observed, and the site contains rocky and steep slopes. The nearest documented occurrence is approximately 7.6 miles east of the site (CDFW 2021).
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None/SSC	None	Lower-elevation grassland, alluvial sage scrub, and coastal scrub	Not expected to occur. The site lacks suitable grassland, sage scrub, and coastal scrub to support this species.
Spermophilus (Xerospermophilus) *tereticaudus chlorus*	Palm Springs round-tailed ground squirrel	None/SSC	Covered	Sandy arid regions of Lower Sonoran Life Zone including creosote bush scrub and creosote–palo verde	Not expected to occur. The site contains creosote bush scrub; however, the site lacks suitable sandy soils and no small mammal burrows were observed. The nearest documented occurrence is approximately 3.6 miles northeast of the site (CDFW 2021).
Invertebrates					
Dinacoma caseyi	Casey's June beetle	FE/None	None	Found only in two populations in a small area of southern Palm Springs	Not expected potential to occur. Species is only known from two populations along the Whitewater River and within Tahquitz Creek within Palm Springs (CDFW 2021).

Status Legend
Federal
BCC: USFWS—Birds of Conservation Concern
FE: Federally listed as endangered
FT: Federally listed as threatened
State
FP: CDFW Fully Protected species
SE: State listed as endangered
ST: State listed as threatened
SSC: California Species of Special Concern
WL: CDFW Watch List species

Appendix C
Cultural Report

CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

September 26, 2019

Michael Kao
Kam Sang Company, Inc.
411 E. Huntington Drive, Suite 305
Arcadia, CA 91006

Re: Update and Addendum to Historical/Archaeological Resources Survey
Ritz-Carlton Hotel Expansion and Sky Mesa Recreation Area Project
City of Rancho Mirage, Riverside County, California
CRM TECH Project Nos. 3502 and 3539

Dear Mr. Kao:

At your request, CRM TECH has completed a cultural resources study for the project referenced above, which entails the proposed expansion of the Ritz-Carlton Hotel at Rancho Mirage, including the construction of an event venue plaza and a recreation area known as Sky Mesa. The subject property of the study consists of approximately 18.2 acres of undeveloped land lying adjacent to the south and the east of the existing hotel at 68900 Frank Sinatra Drive, on the western edge of the City of Rancho Mirage, Riverside County (Figs. 1, 2). The project area comprises a portion the northwest quarter of Section 3, T5S R5E, San Bernardino Baseline and Meridian (Fig. 1).

Background

As you know, most of the current project area was previously included in a cultural resource survey completed by CRM TECH in 2006 (Hogan and Tang 2006). That study consisted of a historical/ archaeological resources records search, historical background research, Native American consultation, and a systematic field survey (*ibid*.). The records search results indicated that a segment of a prehistoric trail, designated 33-000628 (CA-RIV-628t), had been recorded in 1979 as extending into the 39-acre area covered by the 2006 study, but the field survey revealed that that segment of the original trail was no longer extant (*ibid*.:1, 3). In any event, the location of the prehistoric trail recorded in 1979 was well outside the current project boundary.

At the completion of the 2006 study, it was concluded that no cultural resources were extant in the area surveyed at that time (Hogan and Tang 2006:3). Subsequently, CRM TECH undertook an archaeological monitoring program on the property between December 2006 and September 2007 (Tang 2008). The field procedures for the archaeological monitoring program consisted of intermittent "spot-checking" during earth-moving operations in the areas designated for the Hotel Villas, Tennis Villas, and the spa (*ibid*.:3). Again, no evidence of any archaeological deposits was found during the monitoring program (*ibid*.).

Since these previous studies are now more than 10 years old, and since a portion of the current project area was not included in the 2006-2007 studies, the present study was designed and implemented as an update and an addendum for statutory compliances purposes under provisions of

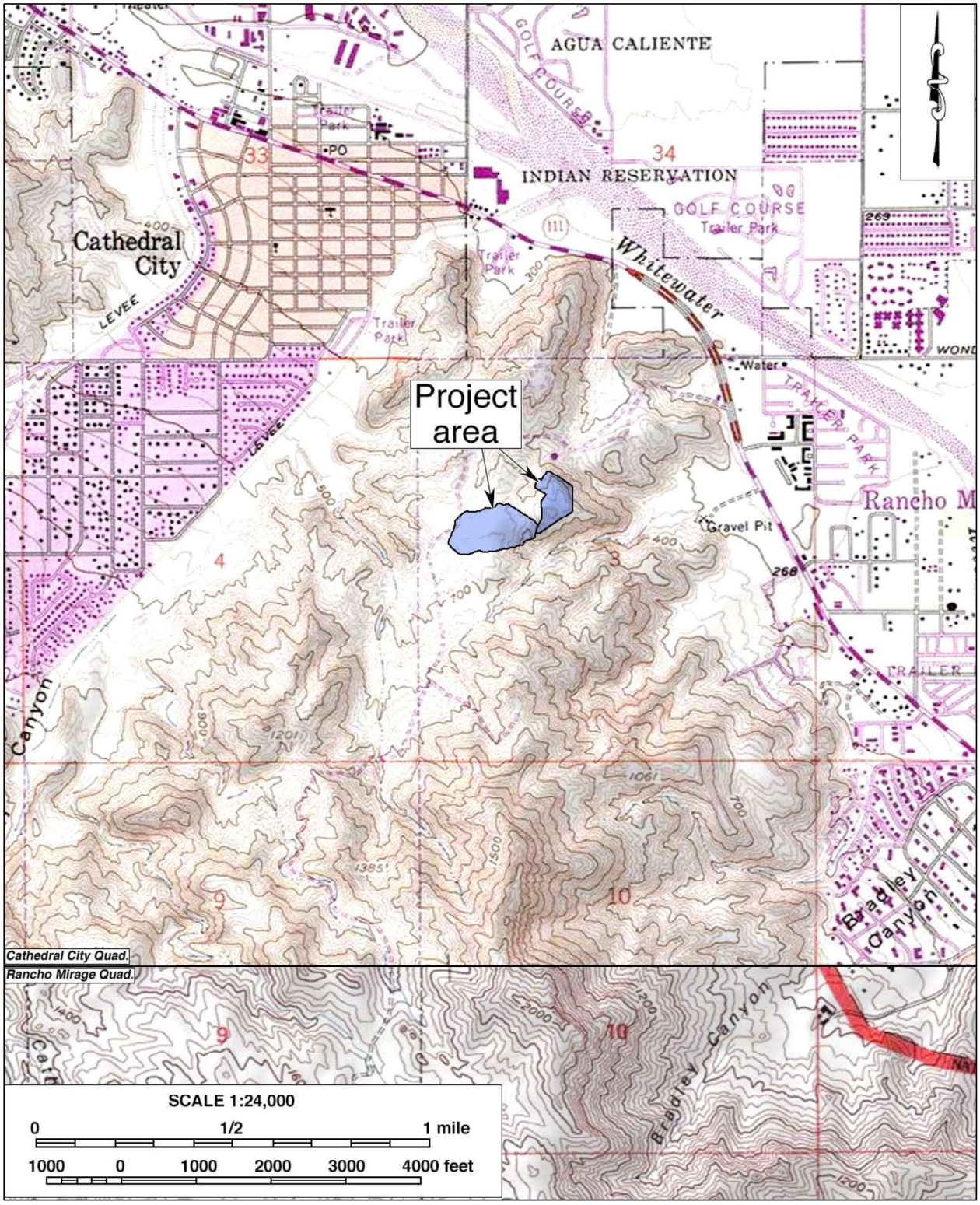


Figure 1. Project location. (Based on USGS Cathedral City and Rancho Mirage, Calif., 7.5' quadrangles [USGS 1981; 1988])



Figure 2. Aerial view of the project area.

the California Environmental Quality Act (CEQA). The scope of this study includes updates to the records search and the historical background research, further consultation with Native American representatives, and a systematic field survey at intensive and reconnaissance levels as appropriate. A summary of the methods, results, and final conclusion of the study is presented below.

Records Search

The records search update was conducted on June 14, 2019, by CRM TECH archaeologist Nina Gallardo, B.A., at the Eastern Information Center (EIC), University of California, Riverside. The results indicate that no further studies have occurred in the current project area since 2007, and no cultural resources have been identified on the property. Outside the project area but within a one-mile radius, a total of 38 cultural resources studies have been reported to the EIC, 17 of them completed since 2006. In all, more than 75% of the land within the scope of the records search has now been surveyed (Fig. 3).

The records search results further indicate that 67 historic-period sites have been recorded within the one-mile radius, including 62 building, two roads, and three utility lines, all clustered one-half mile or more to the north and northwest of the project area. Site 33-000628 (CA-RIV-628t), the trail noted above, and a single ceramic pot drop nearly a mile to the west represent the only prehistoric cultural resources recorded within the records search scope. At these distances, the proposed project has no potential to impact any of these 69 known cultural resources. Therefore, they require no further consideration in the CEQA-compliance process for this project.

Historical Background Research

Historical background research for this study was conducted by CRM TECH historian Terri Jacquemain, M.A. In addition to the sources consulted during the 2006 study (Hogan and Tang 2006:3), aerial photographs that have become available since then were also examined for further information. Taken between 1972 and 2018, the aerial photographs are available at the Nationwide Environmental Title Research (NETR) Online website and through the Google Earth software.

The historic maps show no man-made features in or near the current project area throughout the 1850s-1950s era (Figs. 4-7). The earliest man-made features known to be present within the project boundaries were a leveled pad on a hilltop in the eastern—i.e., Sky Mesa—portion of the project area and part of a winding dirt road leading to it, both of which were first noted in 1972 (NETR Online 1972). The hotel and the roadways now surrounding the project area were constructed between 1972 and 1996 (NETR Online 1972; 1996; Google Earth 1996).

The western portion of the project area received limited disturbance until 2006-2007, when the ground surface in the entire area was cleared and apparently graded (NETR Online 1996-2009; Google Earth 1996-2009; Tang 2008). As a result, all preexisting features in that portion of the project area, including a segment the dirt road, were obliterated (NETR Online 2009; Google Earth 2009). To date, however, the property has remained undeveloped and was used only for materials stockpiling, construction staging, and occasional parking (NETR Online 2009-2014; Google Earth 2009-2018). In the eastern portion, meanwhile, the dirt road and the leveled pad observed in 1972 have been the only notable man-made features known to exist (NETR Online 1972-2014; Google Earth 1996-2018).

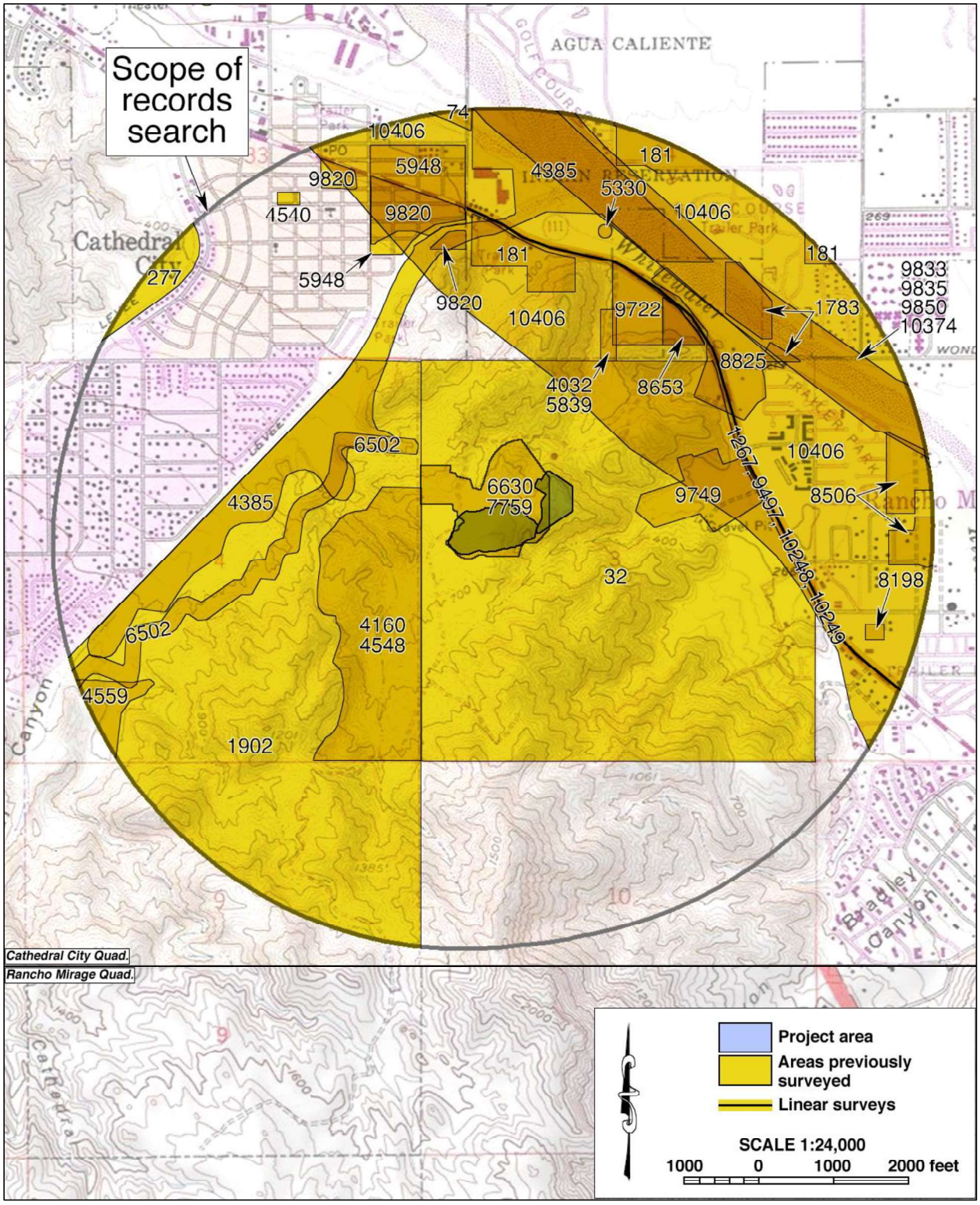


Figure 3. Previous cultural resources studies in the vicinity of the project area, listed by EIC file number (cf. Hogan and Tang 2006:2). Locations of historical/archaeological sites are not shown as a protective measure.

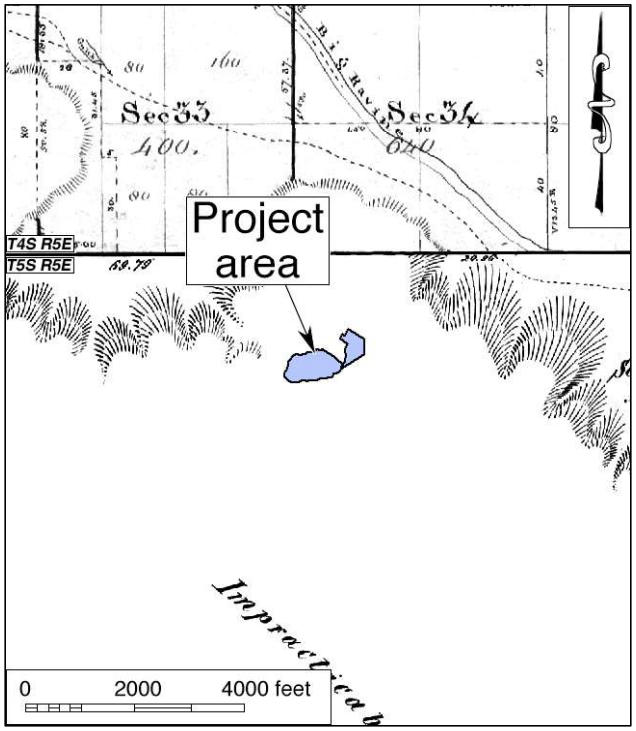


Figure 4. The project area and vicinity in 1855-1856. (Source: GLO 1856a; 1856b)

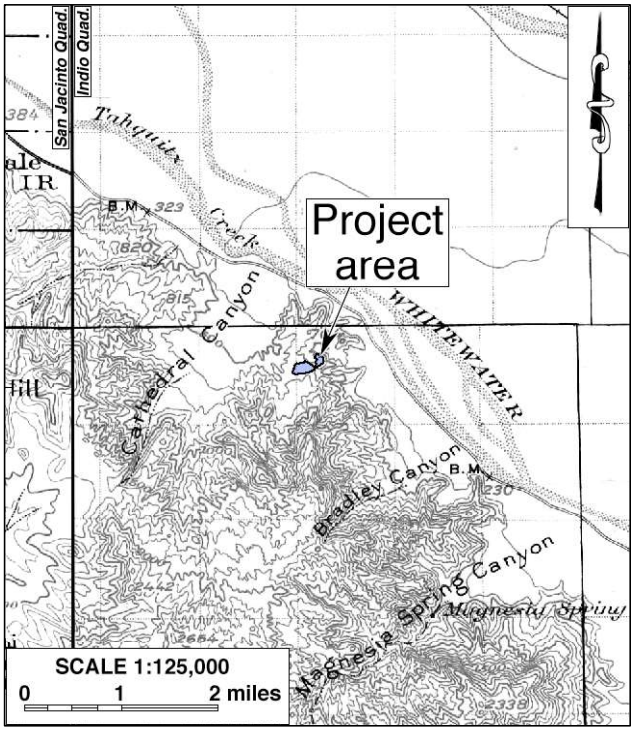


Figure 5. The project area and vicinity in 1897-1901. (Source: USGS 1901; 1904)

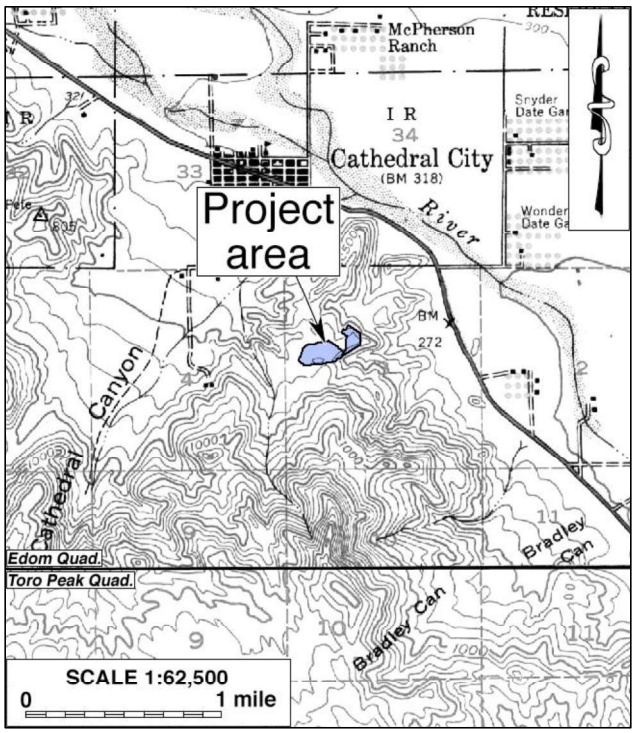


Figure 6. The project area and vicinity in 1941. (Source: USGS 1941a; 1941b)

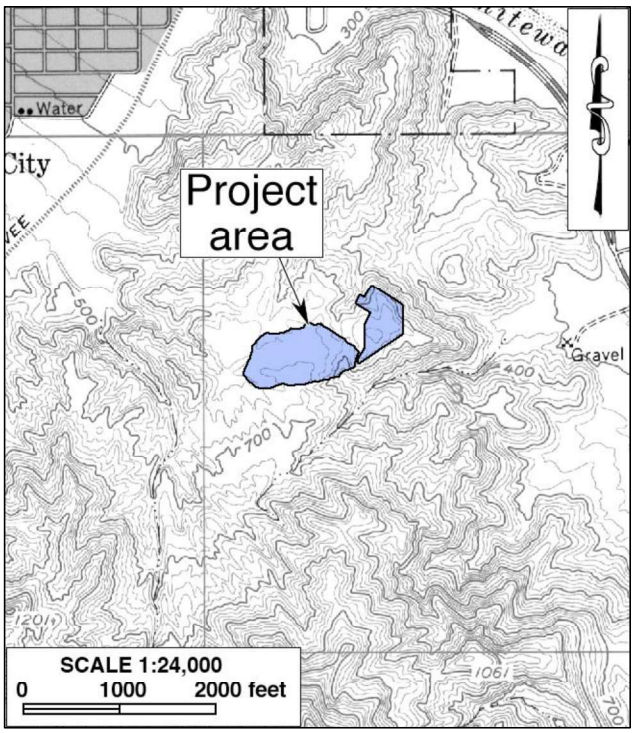


Figure 7. The project area and vicinity in 1956. (Source: USGS 1958)

Field Inspection

On June 21 and September 6, 2019, CRM TECH archaeologist Daniel Ballester, M.S., carried out the field survey of the western and eastern portions of the project area, respectively. In light of the extensive past ground disturbance, the western portion was surveyed at a reconnaissance level by walking a series of parallel north-south transects at 25-meter (approximately 75-foot) intervals. The less disturbed eastern portion, including the area not covered by the 2006-2007 studies, was surveyed at an intensive level by walking along parallel north-south transects at five-meter (approximately 15-foot) intervals in the relatively level areas and along the contours on the slopes.

Using these methods, the ground surface of the entire project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic period (i.e., 50 years or older). Ground visibility was excellent (90-100%) due to the lack of any substantial vegetation growth in either portion of the project area (Fig. 8). In addition, bedrock outcrops on the slopes in the eastern portion of the property were closely inspected for any evidence of prehistoric milling features.

The field survey encountered no potential "historical resources" within or adjacent to the project boundaries. In the western portion, past grading of the ground surface has leveled most of the land and removed bedrock outcrops, resulting in a sizable rock pile near the center of the property. In the eastern portion, the slopes beyond the leveled hilltop and the dirt access road retain more of the area's native landscape, with some bedrock boulders exposed naturally on the surface. The badly exfoliating boulders (Fig. 9), however, presents a poor material for use as milling surfaces by the Native people or for preservation of any evidence of such use.

Native American Consultation

On June 11, 2019, CRM TECH submitted a written request to the State of California Native American Heritage Commission (NAHC) for a records search in the commission's Sacred Lands File (see App. 1). In the meantime, CRM TECH notified the nearby Agua Caliente Band of Cahuilla Indians prior to each part of the archaeological fieldwork and invited tribal participation (see App.



Figure 8. Typical landscapes in the project area. *Left*: western portion of the project area, view to the north (photograph taken on June 21, 2019); *right*: eastern portion of the project area, view to the northeast (photograph taken on September 6, 2019).

1). In response, the Agua Caliente Tribal Historic Preservation Office stated by e-mail on both occasions that the tribe would not be able to participate (see App. 1).



Figure 9. Typical bedrock outcrop in the eastern portion of the project area (photograph taken on September 6, 2019).

In a letter dated June 25, 2019, the NAHC reports that the Sacred Lands File identified no Native American cultural resources in the project vicinity but recommends further consultation with local Native American groups. For that purpose, the NAHC provided a list of potential contacts in the region (see App. 1). Upon receiving the NAHC's reply, on June 26, CRM TECH sent written requests for comments to all 11 tribal organizations on the referral list (see App. 1). For some of the tribes, the designated spokespersons on cultural resources issues were contacted in lieu of the tribal political leaders on the referral list, as recommended in the past by tribal government staff. The 11 tribal representatives contacted during this study are listed below:

- Patricia Garcia-Plotkin, Tribal Historic Preservation Officer, Agua Caliente Band of Cahuilla Indians;
- Amanda Vance, Chairperson, Augustine Band of Cahuilla Indians;
- Judy Stapp, Director of Cultural Affairs, Cabazon Band of Mission Indians;
- BobbyRay Esparza, Cultural Resources Coordinator, Cahuilla Band of Indians;
- Shane Chapparosa, Chairperson, Los Coyotes Band of Cahuilla and Cupeño Indians;
- Travis Armstrong, Tribal Historic Preservation Officer, Morongo Band of Mission Indians;
- John Gomez, Jr., Cultural Resource Coordinator, Ramona Band of Cahuilla Indians;
- Mercedes Estrada, Tribal Administrative Assistant, Santa Rosa Band of Cahuilla Indians;
- Joseph Ontiveros, Tribal Historic Preservation Officer, Soboba Band of Luiseño Indians;
- Michael Mirelez, Cultural Resources Coordinator, Torres Martinez Desert Cahuilla Indians;
- Anthony Madrigal, Jr., Tribal Historic Preservation Officer, Twenty-Nine Palms Band of Mission Indians.

As of this time, four of the tribes have responded to the inquiry (see App. 1). Among them, BobbyRay Esparza of the Cahuilla Band and Travis Armstrong of the Morongo Band stated that their tribes had no additional information on any Native American cultural resources in the project vicinity, and both deferred further consultation to the Agua Caliente Band. Victoria Martin, Tribal Secretary for the Augustine Band, similarly indicated that the tribe was not aware of any Native American cultural resources that might be affected by the project and requested to be notified of any discovery of such resources.

On behalf of the Agua Caliente Band, Lacy Padilla, Archaeologist with the Tribal Historic Preservation Office, identified the project location as a part of the tribe's traditional use area. Therefore, Ms. Padilla requested the presence of approved Agua Caliente Native American Cultural Resource Monitor(s) during ground-disturbing activities and tribal review of all cultural resources documentation generated for this project.

Conclusion and Recommendations

Based on the research results summarized above, CRM TECH concludes that the original finding of the 2006 survey remain valid and appropriate regarding the current project area. Accordingly, CRM TECH presents the following recommendations to the City of Rancho Mirage:

- No "historical resources" exist within or adjacent to the project area, and thus the proposed project will not cause a substantial adverse change to any known "historical resources."
- No further cultural resources investigation is necessary for the proposed project unless development plans undergo such changes as to include areas not covered by this study.
- If buried cultural materials are discovered during any earth-moving operations associated with the project, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

Thank you for this opportunity to be of service. If you have any questions or need further information regarding this study, please do not hesitate to contact our office.

Sincerely,

Bai "Tom" Tang, M.A.
Principal, CRM TECH

References Cited:

GLO (General Land Office, U.S. Department of the Interior)
1856a Plat map: Township No. IV South Range No. V East, SBBM; surveyed in 1855-1856.
1856b Plat map: Township No. V South Range No. V East, SBBM; surveyed in 1855-1856.

Google Earth
1996-2018 Aerial photographs of the project vicinity; taken in 1996, 2002, 2004-2006, 2009, and 2011-2018. Available through the Google Earth software.

Hogan, Michael, and Bai "Tom" Tang
2006 Historical and Archaeological Resources Investigation: The Lodge at Rancho Mirage, Approximately 39 Acres, City of Rancho Mirage, Riverside County, California. On file, Eastern Information Center, University of California, Riverside.

NETR Online
1972-2014 Aerial photographs of the project vicinity; taken in 1972, 1996, 2002, 2005, 2009, 2010, 2012, and 2014. http://www.historicaerials.com.

Tang, Bai "Tom"
2008 Archaeological Monitoring of Earth-Moving Operations: The Lodge Hotel Expansion Project, 68-900 Frank Sinatra Drive, City of Rancho Mirage, Riverside County, California. On file, Eastern Information Center, University of California, Riverside.

USGS (United States Geological Survey, U.S. Department of the Interior)
1901 Map: San Jacinto, Calif. (30', 1:125,000); surveyed in 1897-1898.
1904 Map: Indio, Calif. (30', 1:125,000); surveyed in 1901.
1941a Map: Edom, Calif. (15', 1:62,500); aerial photographs taken in 1941.

1941b Map: Toro Peak, Calif. (15', 1:62,500); aerial photographs taken in 1941.
1958 Map: Cathedral City, Calif. (7.5', 1:24,000); aerial photographs taken in 1956.
1981 Map: Cathedral City, Calif. (7.5', 1:24,000); 1958 edition photorevised in 1978.
1988 Map: Rancho Mirage, Calif. (7.5', 1:24,000); 1957 edition photorevised in 1984.

APPENDIX 1

CORRESPONDENCE WITH NATIVE AMERICAN REPRESENTATIVES*

* Eleven local Native American representatives were contacted; a sample letter is included in the appendix.

SACRED LANDS FILE & NATIVE AMERICAN CONTACTS LIST REQUEST

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691
(916)373-3710
(916)373-5471 (Fax)
nahc@nahc.ca.gov

Project: Proposed Ritz Carlton Residences, Rancho Mirage Project (CRM TECH No. 3502)

County: Riverside

USGS Quadrangle Name: Cathedral City and Rancho Mirage, Calif.

Township 5 South **Range** 5 East SB **BM; Section(s)** 3

Company/Firm/Agency: CRM TECH

Contact Person: Nina Gallardo

Street Address: 1016 E. Cooley Drive, Suite A/B

City: Colton, CA **Zip:** 92324

Phone: (909) 824-6400 **Fax:** (909) 824-6405

Email: ngallardo@crmtech.us

Project Description: The primary component of the project is a residential development on approximately 13 acres of land along Frank Sinatra Drive, near the Ritz Carlton Hotel, in the southern part of the City of Rancho Mirage, Riverside County, California.

June 11, 2019

From: Nina Gallardo <ngallardo@crmtech.us>
Sent: Tuesday, June 11, 2019 2:35 PM
To: Agua Caliente Tribal Historic Preservation Office (ACBCI-THPO@aguacaliente.net); lpadilla@aguacaliente.net; 'Feeney, Hannah (TRBL)'
Subject: Update to Cultural Study and Participation in Field Inspection for the Proposed Ritz Carlton Residences Project in the Southern Part of the City of Rancho Mirage, Riverside County (CRM TECH No. 3502)

Hello,

I'm writing to inform you that CRM TECH will be conducting an update to the previous cultural resources study for the proposed Ritz Carlton Residences Project in the southern part of the City of Rancho Mirage, Riverside County (CRM TECH No. 3502). Specifically, I am contacting you to see if the tribe would like to participate in the field inspection. We conducted an intensive-level survey back in 2006 and then an archaeological monitoring program in late 2006 and 2007 on the same property. We are currently concerned with only 13 acres of the previous project area, as depicted in the enclosed map. We will contact you again when we have a specific time and date for the fieldwork. We would also appreciate any information that the tribe can provided about the project location. Please feel free to email back with any questions regarding the proposed project and possible availability for the field inspection.

Thank you for your time and input on this project.

Nina Gallardo
(909) 824-6400 (phone)
(909) 824-6405 (fax)
CRM TECH
1016 E. Cooley Drive, Ste. A/B
Colton, CA 92324

From: Nina Gallardo <ngallardo@crmtech.us>
Sent: Tuesday, June 18, 2019 12:01 PM
To: lpadilla@aguacaliente.net; 'Feeney, Hannah (TRBL)'; Katherine Croft (TRBL) (kcroft@aguacaliente.net); Agua Caliente Tribal Historic Preservation Office (ACBCI-THPO@aguacaliente.net)
Subject: FW: Update to Cultural Study and Participation in Field Inspection for the Proposed Ritz Carlton Residences Project in the Southern Part of the City of Rancho Mirage, Riverside County (CRM TECH No. 3502)

Hello,

I'm emailing to see if the tribe would be available later this week to join us for the field inspection of the above-referenced project area. We were thinking about conducting it either Thursday morning (6/20) or Friday morning (6/21). Please let me know if the tribe is interested in joining us or if these dates are convenient for the tribe.

Thanks again for your time,

Nina Gallardo
CRM TECH
909-824-6400

From: Feeney, Hannah (TRBL) <hfeeney@aguacaliente.net>
Sent: Wednesday, June 19, 2019 5:03 PM
To: ngallardo@crmtech.us; Padilla, Lacy (TRBL); Croft, Katherine (TRBL); THPO Consulting
Subject: RE: Update to Cultural Study and Participation in Field Inspection for the Proposed Ritz Carlton Residences Project in the Southern Part of the City of Rancho Mirage, Riverside County (CRM TECH No. 3502)

Hello Nina,

Unfortunately we are juggling a lot this week and we will have to pass on the field inspection for this project. Please keep us updated.

Thank you,

Hannah Feeney
Cultural Resources Analyst
Agua Caliente Band of Cahuilla Indians
760-699-6828 (desk)
760-413-5836 (cell)

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

June 25, 2019

Nina Gallardo
CRM Tech

VIA Email to: ngallardo@crmtech.us

RE: Proposed Ritz Carlton Residences, Rancho Mirage Project, Riverside County

Dear Ms. Gallardo:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: steven.quinn@nahc.ca.gov.

Sincerely,

Steven Quinn
Associate Governmental Program Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Riverside County
6/25/2019

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
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This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Proposed Ritz Carlton Residences, Rancho Mirage Project, Riverside County.

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This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Proposed Ritz Carlton Residences, Rancho Mirage Project, Riverside County.

June 26, 2019

Patricia Garcia-Plotkin, Tribal Historic Preservation Officer
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA 92264

RE: Proposed Ritz Carlton Residences, Rancho Mirage Project
13 Acres in the City of Rancho Mirage, Riverside County, California
CRM TECH Contract #3502

Dear Ms. Garcia-Plotkin:

I am writing to bring your attention to an ongoing CEQA-compliance study for the proposed project referenced above. The project entails the construction of a hotel venue space and residential units on approximately 13 acres of land along Frank Sinatra Drive, just south of the Ritz Carlton Hotel, in the City of Rancho Mirage. Between 2006-2007, CRM TECH conducted a cultural resources survey and an archaeological monitoring program on this property as a part of the Lodge at Rancho Mirage Project. The accompanying map, based on the USGS Cathedral City and Rancho Mirage, Calif., 7.5' quadrangles, depicts the location of the project area in Section 3, T5S R5E, SBBM.

In a letter dated June 25, 2019, the Native American Heritage Commission reports that the sacred lands record search identified no Native American cultural resources within the project area, but recommends that local Native American groups be contacted for further information (see attached). Therefore, as part of the cultural resources study for this project, I am writing to request your input on potential Native American cultural resources in or near the project area.

Please respond at your earliest convenience if you have any specific knowledge of sacred/religious sites or other sites of Native American traditional cultural value in or near the project area, or any other information to consider during the cultural resources investigations. Any information or concerns may be forwarded to CRM TECH by telephone, e-mail, facsimile, or standard mail. Requests for documentation or information we cannot provide will be forwarded to our client and/or the lead agency, namely the City of Coachella.

We would also like to clarify that, as the cultural resources consultant for the project, CRM TECH is not involved in the AB 52-compliance process or in government-to-government consultations. The purpose of this letter is to seek any information that you may have to help us determine if there are cultural resources in or near the project area that we should be aware of and to help us assess the sensitivity of the project area. Thank you for your time and effort in addressing this important matter.

Respectfully,

Nina Gallardo
Project Archaeologist/Native American liaison
CRM TECH
Email: ngallardo@crmtech.us

Encl.: NAHC response letter and project location map

From: Cultural Department <culturaldirector@cahuilla.net>
Sent: Wednesday, June 26, 2019 3:54 PM
To: ngallardo@crmtech.us; anthonymad2002@gmail.com
Subject: Re: NA Scoping Letter for the Proposed Ritz Carlton Residences, Rancho Mirage Project, in the City of Rancho Mirage, Riverside County (CRM TECH No. 3502)

Good Afternoon Ms. Gallardo,

The Cahuilla Band of Indians received your letter of June 26, 2019 regarding the above project located in the City of Rancho Mirage, Riverside County, Ca. We do not have knowledge of any cultural resources near or within the project area. We request that you reach out the Agua Caliente Band of Indians regarding this project and to continue the consulting process with them. We appreciate your help in preserving Tribal Cultural Resources in your project.

Respectfully,

BobbyRay Esparza
Cultural Coordinator
Cahuilla Band of Indians
Cell: (760)423-2773
Office: (951)763-5549
Fax:(951)763-2808

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

03-008-2006-001

June 27, 2019

[VIA EMAIL TO:ngallardo@crmtech.us]
CRM TECH
Ms. Nina Gallardo
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Re: Ritz Carlton Residences

Dear Ms. Nina Gallardo,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the The Lodge at Rancho Mirage 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.

*Copies of any cultural resource documentation (report and site records) generated in connection with this project.

*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.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)699-6956. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Lacy Padilla
Archaeologist
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

From: Tribal Historic Preservation Office <thpo@morongo-nsn.gov>
Sent: Monday, July 1, 2019 4:02 PM
To: 'ngallardo@crmtech.us'
Subject: Ritz Carlton Residences, Rancho Mirage

Hello,

Thank you for your letter regarding the project.

We have no additional information to provide at this time and will likely defer to the Agua Caliente Band of Cahuilla for this project during AB 52 consultation.

Thank you for reaching out to our office.

Sincerely,

Travis Armstrong
Tribal Historic Preservation Officer
Morongo Band of Mission Indians
951-755-5259
Email: thpo@morongo-nsn.gov

AUGUSTINE BAND OF CAHUILLA INDIANS

PO Box 846 84-481 Avenue 54 Coachella CA 92236
Telephone: (760) 398-4722
Fax (760) 369-7161
Tribal Chairperson: Amanda Vance
Tribal Vice-Chairperson: William Vance
Tribal Secretary: Victoria Martin

August 28, 2019

Nina Gallardo
CRM Tech
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

RE: Proposed Ritz Carlton Residents, Ranch Mirage Project
13 Acres in the City of Rancho Mirage, Riverside County, California
CRM TECH Contract #3502

Dear Ms. Gallardo-

Thank you for the opportunity to offer input concerning the development of the above-identified project. We appreciate your sensitivity to the cultural resources that may be impacted by your project, and the importance of these cultural resources to the Native American peoples that have occupied the land surrounding the area of your project for thousands of years. Unfortunately, increased development and lack of sensitivity to cultural resources has resulted in many significant cultural resources being destroyed or substantially altered and impacted. Your invitation to consult on this project is greatly appreciated.

At this time, we are unaware of specific cultural resources that may be affected by the proposed project, however in the event you should discover any cultural resources during the development of this project please contact our office immediately for further evaluation.

Very truly yours,

Augustine Band of Cahuilla Indians

Victoria Martin
Tribal Secretary

AUG 30 2019

From: Nina Gallardo <ngallardo@crmtech.us>
Sent: Wednesday, September 4, 2019 11:29 AM
To: lpadilla@aguacaliente.net; 'Feeney, Hannah (TRBL)'; Agua Caliente Tribal Historic Preservation Office (ACBCI-THPO@aguacaliente.net)
Subject: Cultural Study and participation in Field Survey for the Proposed Sky Mesa Recreation Area Project at the Ritz-Carlton, City of Rancho Mirage, Riverside Co. (CRM TECH No. 3539)

Hello,

I'm writing to inform you that CRM TECH will be conducting the cultural resources study for the proposed Sky Mesa Recreation Area Project at the Ritz-Carlton, in the western part of the City of Rancho Mirage, Riverside County (CRM TECH No. 3539). The project is located just east of the Ritz Carlton Residences Project (CRM TECH No. 3502) that was surveyed a few months ago. Specifically, I am contacting you to see if the tribe would like to participate in the field survey, which we would like to do this Friday morning (9/6). We would also appreciate any information that the tribe can provided about the project location. Please feel free to email back with any questions regarding the project and possible availability for the field survey.

Thank you for your time and input on this project.

Nina Gallardo
(909) 824-6400 (phone)
(909) 824-6405 (fax)
CRM TECH
1016 E. Cooley Drive, Ste. A/B
Colton, CA 92324

From: Nina Gallardo <ngallardo@crmtech.us>
Sent: Thursday, September 5, 2019 12:53 PM
To: lpadilla@aguacaliente.net; 'Feeney, Hannah (TRBL)'; Katherine Croft (TRBL) (kcroft@aguacaliente.net); Agua Caliente Tribal Historic Preservation Office (ACBCI-THPO@aguacaliente.net)
Subject: FW: Cultural Study and participation in Field Survey for the Proposed Sky Mesa Recreation Area Project at the Ritz-Carlton, City of Rancho Mirage, Riverside Co. (CRM TECH No. 3539)

Hello,

I'm emailing to see if tomorrow morning (9/6) for the above-mentioned project is convenient for the tribe to join us on the survey. If it's not possible, then is next Monday morning (Sept. 9th) more convenient for the tribe?

Thanks,

Nina
CRM TECH
909-824-6400

From: Padilla, Lacy (TRBL) <lpadilla@aguacaliente.net>
Sent: Thursday, September 5, 2019 1:23 PM
To: ngallardo@crmtech.us
Subject: RE: Cultural Study and participation in Field Survey for the Proposed Sky Mesa Recreation Area Project at the Ritz-Carlton, City of Rancho Mirage, Riverside Co. (CRM TECH No. 3539)

Hi Nina,

We are still very busy in our office and will be unable to make it to the survey. If you could please let us know if you find anything, we would appreciate it.

Thank you,
Lacy

Appendix D
Drainage Study

Preliminary Drainage Study
for
Ritz Carlton Rancho Mirage
City of Rancho Mirage

Prepared for:
Kam Sang Company, Inc.
411 E. Huntington Drive #305
Arcadia, CA 91006

September 3, 2019

Prepared by:

Tory Walker, PE, CFM, LEED GA
R.C.E. 45005

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TORY R. WALKER ENGINEERING
RELIABLE SOLUTIONS IN WATER RESOURCES

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2.2 Existing Condition Hydrology Approach and Results
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REFERENCES

APPENDICES

1. Site Maps
2. RCFC&WCD Hydrology Manual Charts and NOAA Atlas 14 Rainfall Data
3. Rational Method Hydrology Calculations
4. Onsite Detention Analysis

CHAPTER 1 - BACKGROUND

1.1 – Introduction

The purpose of this report is to summarize the preliminary (CEQA level) hydrologic analysis of the proposed Ritz Carlton Rancho Mirage project, which includes the proposed Residences and Sky Mesa Recreation Area. The project site is located just east of the intersection of Frank Sinatra Drive and Mirada Circle, in the City of Rancho Mirage, CA. An increase in runoff is anticipated for the Residences portion of the project due to diversion of some drainage areas, and since the total impervious area will be greater in developed conditions. Therefore, a detention routing analysis is necessary to demonstrate that the developed condition 100-year peak flow is below the existing condition level. This study analyzes the following:

1. 100-Year Rational Method hydrology for the existing and proposed conditions
2. 100-Year Unit Hydrograph hydrology for demonstration of onsite detention for the Residences

1.2 – Summary of Existing Conditions

The Residences

The majority of the existing site is mass graded and there is little to no vegetative cover. The total drainage area of the project site is approximately 14 acres with Hydrologic Soil Group Type B soils. The soil type was assumed based on the project's geotechnical study (the project is not mapped by the Riverside County hydrology manual or the NRCS Web Soil Survey).

Onsite runoff is conveyed via sheet flow and shallow drainage courses to the project's discharge points along the western and eastern property boundary (see Existing Condition Hydrology Map in Appendix 1). The existing site is divided into three basins, Basin 100 (denoted by 100 series nodes), Basin 200 (denoted by 200 series nodes), and Basin 300 (denoted by 300 series nodes). Basin 100 drains generally west to the gutter on Frank Sinatra Drive (Discharge Point 1). From Discharge Point 1, flow is conveyed north in the Frank Sinatra Drive gutter to an existing inlet and storm drain system, which eventually discharges to a natural drainage channel. Basin 200 drains generally east to Discharge Point 2 in the natural drainage channel located east of the site. Basin 300 drains west to Discharge Point 3 at the Mirada Circle gutter, which flows west and eventually discharges to a natural drainage channel.

Sky Mesa Recreation Area

The existing site is partially graded with generally poor desert vegetative cover. The total drainage area of the project site is approximately 2.6 acres with Hydrologic Soil Group Type B soils. The soil type was assumed based on the project's geotechnical study (the project is not mapped by the Riverside County hydrology manual or the NRCS Web Soil Survey).

Onsite runoff is conveyed via sheet flow and shallow drainage courses to the project's discharge points along the western property boundary (see Existing Condition Hydrology Map in Appendix 1). The existing site is divided into two basins, Basin 400 (denoted by 400 series nodes), and Basin 500 (denoted by 500 series nodes). Basin 400 drains generally west to the existing Ritz Carlton development (Discharge Point 4). Basin 500 drains northwest to Discharge Point 5 in the existing natural drainage channel west of the site.

1.3 – Summary of Proposed Conditions

The Residences

The proposed development project includes residential condo and townhome type buildings, road, driveway, parking, patio, and landscaped areas. The project site will be divided into three major drainage basins such that the overall site drainage patterns will remain similar to the existing condition. Basin 100 (100 series nodes) will drain to Discharge Point 1, Basin 200 (200 series nodes) will drain to Discharge Point 2, and Basin 300 (300 series nodes) will drain to Discharge Point 3 (see Proposed Condition Hydrology Map in Appendix 1). The development will increase the impervious area and the drainage area for Discharge Points 1 and 2; therefore, underground detention vaults are proposed to mitigate the increase in peak flow to below existing levels. For Discharge Point 1, the portion of Basin 100 draining to Node 102 will enter detention Vault-1. Detained flow from Vault-1 will be discharged via storm drain and a curb outlet to Frank Sinatra Drive, where it will join with flow from the remaining area that bypasses the vault. For Discharge Point 2, the portion of Basin 200 draining to Node 204 will enter detention Vault-2. Detained flow from Vault-2 will be discharged via storm drain to the existing natural channel, where it will join with flow from the remaining area that bypasses the vault.

Sky Mesa Recreation Area

The Sky Mesa Recreation Area includes a restaurant with roof top garden (built into the natural hillside), driveway, patio, pool, sidewalk, lawn, and desert landscape areas. The project site will be divided into two major drainage basins such that the overall site drainage patterns will remain similar to the existing condition. Basin 400 (400 series nodes) will drain to Discharge Point 4, and Basin 500 (500 series nodes) will drain to Discharge Point 5 (see Proposed Condition Hydrology Map in Appendix 1). The project reduces the average onsite slope, maximizes pervious area by incorporating roof top garden areas for the restaurant, and provides extensive landscape areas throughout the site. Therefore, no increase in peak flow rates is anticipated in the proposed condition.

CHAPTER 2 – HYDROLOGIC ANALYSIS

2.1 – Methodology

Methodology used for the computation of storm runoff is consistent with criteria set forth in the Riverside County Flood Control and Water Conservation District (RCFC&WCD) Hydrology Manual. Advanced Engineering Software (AES) was used for computing hydrologic calculations, which integrates the RCFC&WCD methodology and standards.

2.1.1 Design Storms

The 100-year storm was analyzed using the Rational Method from Section D of the RCFC&WCD Hydrology Manual. The 100-year peak flow was determined for each of the project's discharge points for existing and proposed conditions in order to quantify the project's hydrologic impacts.

2.1.2 Rational Method

The Rational Method, as described in the RCFC&WCD Hydrology Manual, was used to generate peak flows for this project. The Rational Method is an appropriate methodology because the drainage area size is relatively small (less than 300 to 500 acres). The Rational Method inputs include the land cover type, flow length, elevation, and drainage area.

2.1.3 "Short Cut" Synthetic Unit Hydrograph Method

The "Short Cut" Synthetic Unit Hydrograph Method," as described in the RCFC&WCD Hydrology Manual, was used to determine the detained peak flow from the Residences project site. The Short Cut Method is an appropriate methodology because of the small drainage area and need to route the site-specific hydrograph through the proposed underground detention vaults.

2.2 – Existing Condition Hydrology Approach and Results

2.2.1 Soil Type and Land Cover

The soil type for the project site is not mapped within the RCFC&WCD Hydrology Manual or the NRCS Web Soil Survey. The geotechnical report indicated a mixture of sandy soils, underlying rock layers, rocky areas, and exposed rock layers. The sandy soils would typically infiltrate well (Type A or B soil), while the rock areas will have poor infiltration (Type C or D). Therefore, an average condition of Soil Type B was assumed to represent the entire project site. The land cover consists primarily of open graded dirt areas and rocky slopes with poor vegetation cover (low density desert vegetation). Some areas around the perimeter of the site include paved road and driveway areas. Runoff coefficient C-values were assigned based on the combinations of land cover, paved, and building surfaces/types, as well as the percent impervious area for each subarea.

2.2.2 Peak Flow Determination

The Rational Method was used to analyze the 100-year storm for the existing condition. Pre-developed peak flows were computed by AES Rational Method software for Riverside County and are presented in Table 1a and 1b below. Supporting calculations are provided in Appendix 3.

TABLE 1a: Existing Condition Peak Flow Table (The Residences)

Location	Area (ac)	Q_{100} (cfs)
Discharge Point 1 (Basin 100)	3.5	17.0
Discharge Point 2 (Basin 200)	8.3	37.5
Discharge Point 3 (Basin 300)	1.9	9.2
TOTAL	13.7	

TABLE 1b: Existing Condition Peak Flow Table (Sky Mesa)

Location	Area (ac)	Q_{100} (cfs)
Discharge Point 4 (Basin 400)	0.50	2.91
Discharge Point 5 (Basin 500)	2.04	10.7
TOTAL	2.54	

2.3 – Proposed Condition Hydrology Approach and Results

2.3.1 Soil Type and Land Cover

The Residences portion of the project site predominantly consists of Soil Type D, based on the extensive rock layers noted in the geotechnical report, and the assumption that most of the site's soil will be compacted for development. For the Sky Mesa Recreation Area, Type B soil was assumed to represent the proposed landscape and undisturbed natural areas. The land cover consists of rooftop, paved parking, driveway, patio, pool, sidewalk, lawn, desert landscaped areas, and natural areas with desert vegetation. Runoff coefficient C-values were assigned based on the combinations of land cover, paved, and building surfaces/types, as well as the percent impervious area for each subarea.

2.3.2 Peak Flow Determination

The Rational Method was used to analyze the 100-year storm for the proposed condition. Post-developed peak flows were computed by AES Rational Method software for Riverside County and are presented in Table 2a and 2b below. Supporting calculations are provided in Appendix 3.

As the Residences project increases the 100-year peak flow for Discharge Points 1 and 2, a detention analysis was carried out to reduce the proposed peak flow below existing condition level (see Section 2.3.3 below). Due to the reduction in drainage area for Discharge Point 3, the proposed peak flow is less than existing conditions and no detention is required.

The Sky Mesa Recreation Area project reduces the average onsite slope, maximizes pervious area by incorporating roof top garden areas for the restaurant, and provides extensive landscape areas throughout the site. Therefore, the proposed peak flow is less than existing conditions and no detention is required.

TABLE 2a: Proposed Condition Peak Flow Table (The Residences)

Location	Area (ac)	Q_{100} (cfs)
Discharge Point 1 (Basin 100)	4.5	24.4
Discharge Point 2 (Basin 200)	8.1	42.0
Discharge Point 3 (Basin 300)	1.1	6.4
TOTAL	13.7	

TABLE 2b: Proposed Condition Peak Flow Table (Sky Mesa)

Location	Area (ac)	Q_{100} (cfs)
Discharge Point 4 (Basin 400)	0.49	2.39
Discharge Point 5 (Basin 500)	2.15	9.42
TOTAL	2.64	

2.3.3 Detention Analysis

To analyze the onsite detention provided by the proposed underground detention vaults, "Shortcut Method" Synthetic Unit Hydrographs were created for the existing and proposed conditions. For the proposed condition, hydrographs were generated for the tributary area to each vault (inflow hydrograph), and for the bypass area not draining to the vault. The hydrographs were entered into HEC-HMS, which was used to route the inflow hydrograph through the detention vault to size the outlet structure and vault, as required to reduce the peak flow below existing conditions. The results are summarized in Table 3:

TABLE 3 – Existing vs. Proposed Condition Peak Flows

Synthetic Unit Hydrograph 100-year, 24-hour Peak Flow Rate (cfs)				
Location	**Existing**	**Proposed**	**Detained**	**Diff**
Discharge Point 1	2.03	2.97	2.01	-0.02
Discharge Point 2	4.74	5.32	4.63	-0.11

Vault 1 is located at Node 102 and provides 100-year detention for Discharge Point 1. Vault 2 is located at Node 204 and provides 100-year detention for Discharge Point 2. The conceptual location and footprint of each vault is shown on the Proposed Condition Hydrology Map in Appendix 1. Preliminary vault and outlet structure dimensions are provided in Tables 4.1 and 4.2:

TABLE 4.1: Detention Vault Dimensions

Detention Vault ID	Depth (ft)	Footprint Area (sf)	Total Volume (cf) (Assumed Vault Porosity = 0.95)
Vault-1	6.0	2,600	14,820
Vault-2	6.0	1,000	5,700

TABLE 4.2: Outlet Structure Dimensions

Detention Vault ID	RISER DIMENSIONS FOR POC-1				
	LOWER OUTLET			EMERGENCY OVERFLOW WEIR	
	Outlet Type	Invert Elevation (ft)	Diameter (in)	Invert Elevation (ft)	Weir Length (ft)
1	Orifice	0.00	3.375	6.00	6.0
2	Orifice	0.00	6.5	6.00	9.0

CHAPTER 3 – CONCLUSION

The proposed Ritz Carlton Residences and Sky Mesa Recreation Area projects, as designed, will not substantially alter the existing drainage pattern. The total overall 100-year peak flowrate will not increase from pre- to post- project condition at the project's discharge points; therefore runoff from the proposed project will not exceed the capacity of the downstream drainage system. For the Residences, this will be achieved by adequately detaining the 100-year storm in the proposed underground detention vaults, and providing proper energy dissipation at each of the project's discharge points.

Additional impacts to streams or rivers are not anticipated for this project. This is because there are no streams or rivers running through or immediately around the project site, and proposed onsite peak flows are less than existing levels. Therefore, the project will not result in any on- or off-site erosion, siltation, or flooding.

Based on topography and FEMA floodplain maps, the project site is not located near a 100-year flood hazard area boundary. No housing is proposed within a 100-year flood hazard area, and no structures are proposed within a 100-year flood hazard area which would impede or redirect flood flows. Furthermore, the project will not expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam, as there are no levees or dams impacted by the project site.

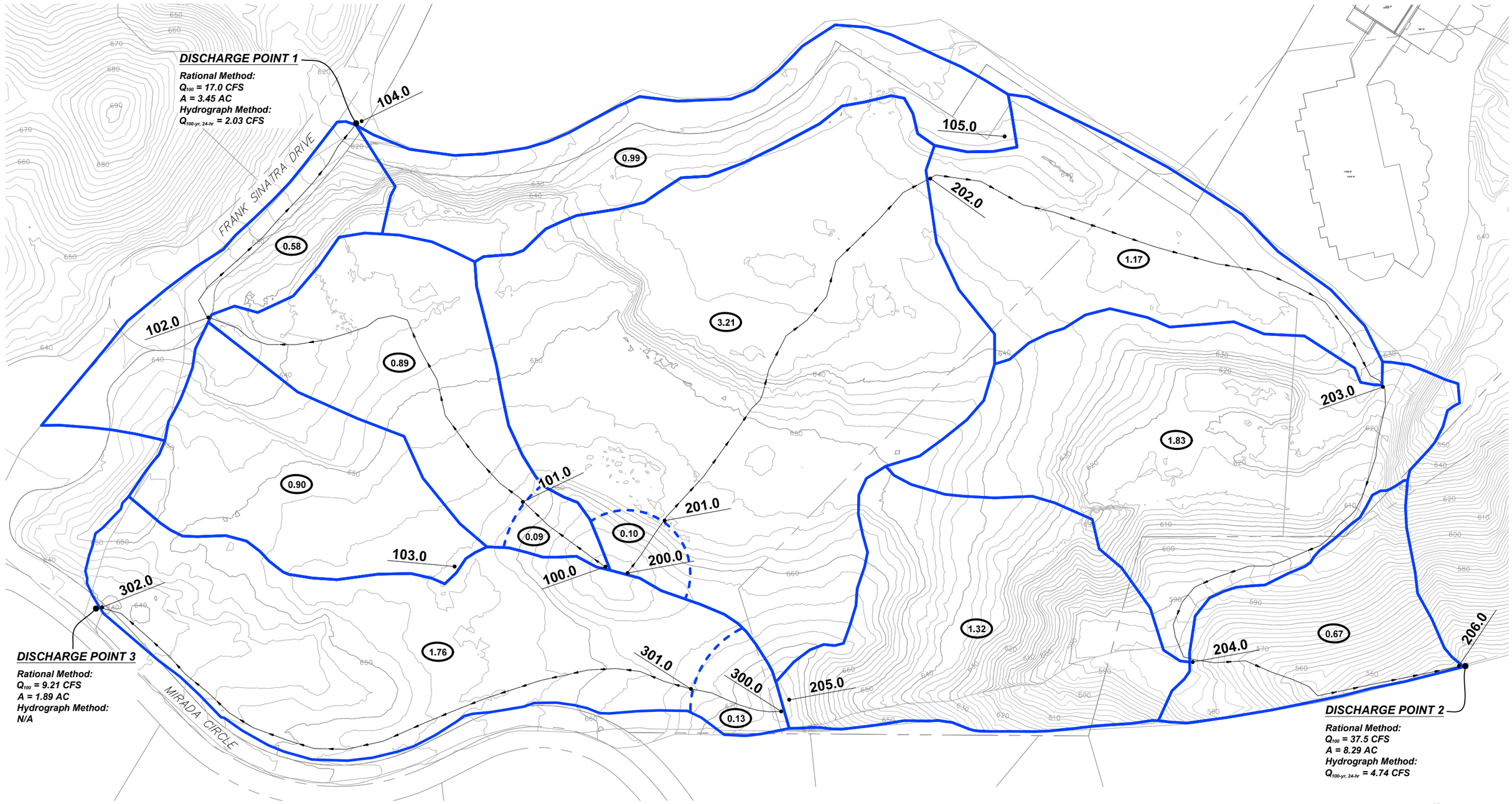
REFERENCES

1. Riverside County Flood Control and Water Conservation District, *Hydrology Manual,* April 1978.
2. *Planning-Level Geotechnical Feasibility Report Proposed Expansion Project The Lodge at Rancho Mirage*, prepared by Earth Systems Southwest, March 15, 2006.

APPENDIX 1

Site Maps

- Existing and Proposed Hydrology Maps
- Conceptual Grading Study



LEGEND

- SUBAREA DRAINAGE BOUNDARY
- INITIAL SUBAREA BOUNDARY
- FLOWPATH
- 100.0 — RATIONAL METHOD NODE
- 0.08 — SUBAREA DRAINAGE AREA (AC)
- 610 — EXISTING CONTOUR

N W E S

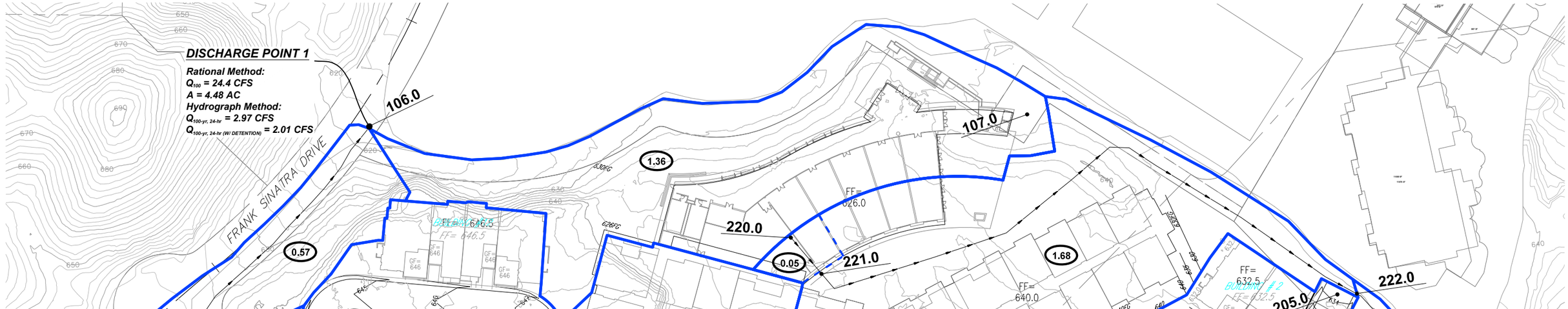
0 40 80 FEET

SCALE: 1" = 40'

TORY R. WALKER ENGINEERING
RELIABLE SOLUTIONS IN WATER RESOURCES
122 CIVIC CENTER DR, STE 206, VISTA, CA 92084 · 760-414-9212

RITZ CARLTON RESIDENCES RANCHO MIRAGE

EXISTING CONDITION HYDROLOGY MAP



LEGEND

- SUBAREA DRAINAGE BOUNDARY
- INITIAL SUBAREA BOUNDARY
- FLOWPATH
- 100.0 — RATIONAL METHOD NODE
- 0.08 — SUBAREA DRAINAGE AREA (AC)
- 610 — PROPOSED CONTOUR/SURFACE
- 610 — EXISTING CONTOUR

*NOTE: PRELIMINARY LOCATION OF UNDERGROUND DETENTION VAULTS (VAULT–1 AND VAULT–2). REFER TO REPORT SECTION 2.3.3 FOR ADDITIONAL INFORMATION.

N W E S

0 40 80 FEET

SCALE: 1" = 40'

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RELIABLE SOLUTIONS IN WATER RESOURCES
122 CIVIC CENTER DR, STE 206, VISTA, CA 92084 · 760-414-9212

RITZ CARLTON RESIDENCES
RANCHO MIRAGE

PROPOSED CONDITION HYDROLOGY MAP



BASIS OF BEARINGS:
THE BEARINGS N 00°31'00" E OF THE EASTERLY LINE OF LOTS 50 AND 51 OF TRACT MAP 19397, AS SHOWN BY MAP ON FILE IN BOOK 160, PAGES 64 THROUGH 77, INCLUSIVE, OF MAPS, RIVERSIDE COUNTY RECORDS IS TAKEN AS THE BASIS OF BEARINGS OF THIS MAP.

BENCH MARK
2 1/2" BRASS DISK STAMPED "COUNTY OF RIVERSIDE PD-21, DEC. 1963" SET IN HEADWALL ON SOUTH SIDE OF HWY 111, 360 FEET NW OF FRANK SINATRA DRIVE

OWNER:
KAM SANG COMPANY, INC.
411 E. HUNTINGTON DRIVE, #305
ARCADIA, CA 91006
TEL: (626) 446-2988
FAX: (626) 446-3392
E-MAIL: www.kamsangcompany.com

ARCHITECT:
LCRA
ARCHITECTURE & PLANNING
35 HUGUS ALLEY, SUITE 220
PASADENA, CA 91103
TEL. (626) 449-9698
E-MAIL: www.lcra-architects.com

PREPARED BY:
FOCUS ENGINEERING, INC.
25 MAUCHLY, SUITE 317
IRVINE, CA 92618
TEL: (949) 450-0590
FAX: (949) 450-0592
E-MAIL: focusengring@sbcglobal.net

REGISTERED PROFESSIONAL ENGINEER
CHUA LIN LIU
No. 41497
EXP. 12/31/19
CIVIL
STATE OF CALIFORNIA

REVISIONS

NO.	DATE	DESCRIPTION

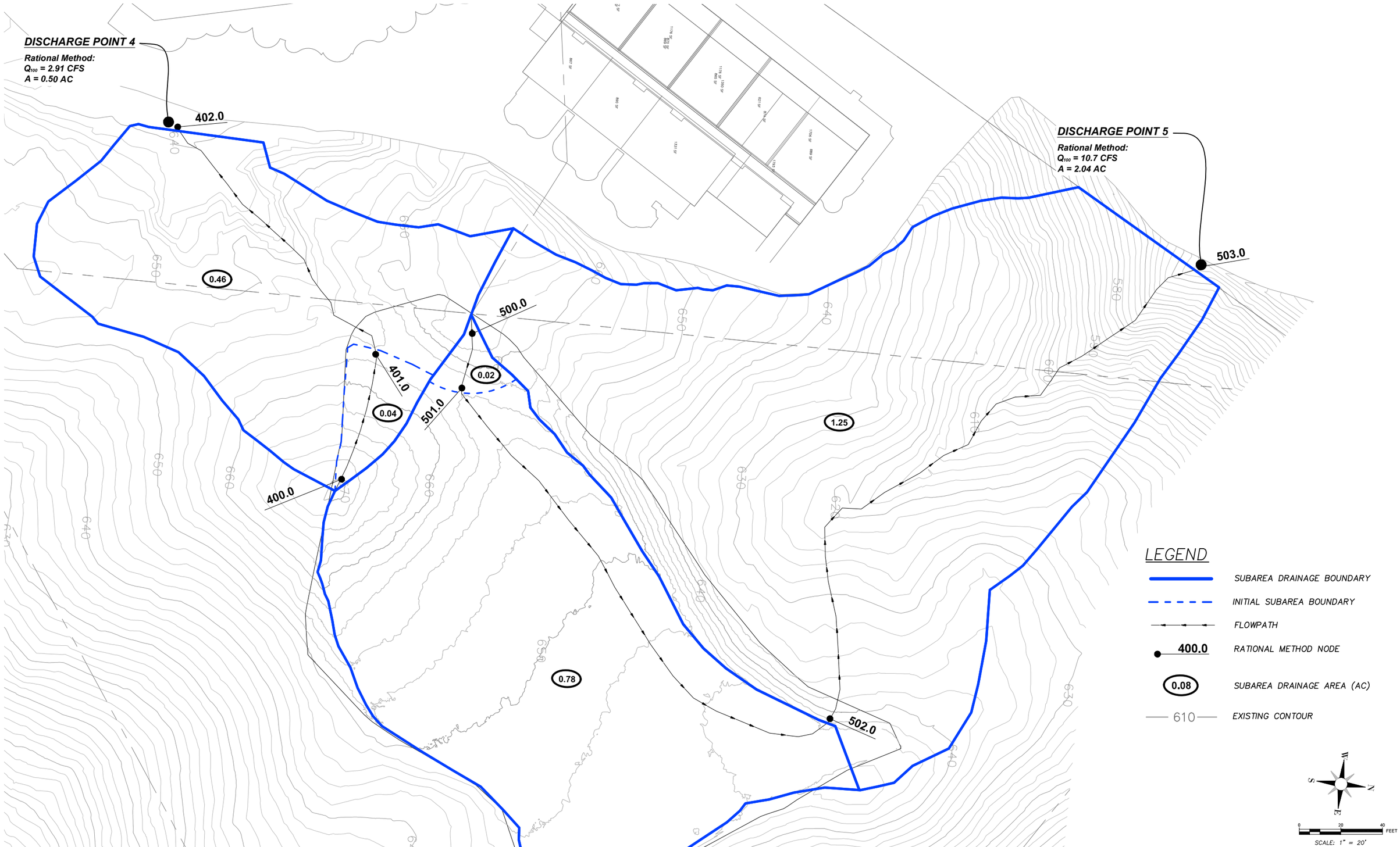
CITY OF RANCHO MIRAGE

CONCEPTUAL GRADING STUDY FOR RANCHO MIRAGE – RITZ II

SITE GRADING WITHOUT EXISTING TOPO

PRINT DATE: 2018-06-26

SHEET
OF
1



TORY R. WALKER ENGINEERING
RELIABLE SOLUTIONS IN WATER RESOURCES
122 CIVIC CENTER DR, STE 206, VISTA, CA 92084 · 760-414-9212

RITZ CARLTON
SKY MESA RECREATION AREA

EXISTING CONDITION HYDROLOGY MAP

DISCHARGE POINT 4

Rational Method:
Q_{100} = 2.39 CFS
A = 0.49 AC

DISCHARGE POINT 5

Rational Method:
Q_{100} = 9.42 CFS
A = 2.15 AC

403.0
402.0
401.0
400.0
501.0
500.0
502.0
505.0
504.0
503.0
506.0

0.30
0.08
0.10
0.36
0.04
0.44
1.14
0.17

LEGEND

- SUBAREA DRAINAGE BOUNDARY
- INITIAL SUBAREA BOUNDARY
- FLOWPATH
- 100.0 — RATIONAL METHOD NODE
- 0.08 — SUBAREA DRAINAGE AREA (AC)
- 610 — PROPOSED CONTOUR/SURFACE
- 610 — EXISTING CONTOUR
- ROOF TOP DESERT GARDEN AREA

0 20 40 FEET
SCALE: 1" = 20'

TORY R. WALKER ENGINEERING
RELIABLE SOLUTIONS IN WATER RESOURCES
122 CIVIC CENTER DR, STE 206, VISTA, CA 92084 · 760-414-9212

RITZ CARLTON
SKY MESA RECREATION AREA

PROPOSED CONDITION HYDROLOGY MAP

APPENDIX 2

RCFC&WCD Hydrology Manual Charts
And NOAA Atlas 14 Rainfall Data

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent(2)
Natural or Agriculture	0 - 10	0
Single Family Residential: (3)		
40,000 S. F. (1 Acre) Lots	10 - 25	20
20,000 S. F. (½ Acre) Lots	30 - 45	40
7,200 - 10,000 S. F. Lots	45 - 55	50
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 -100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.

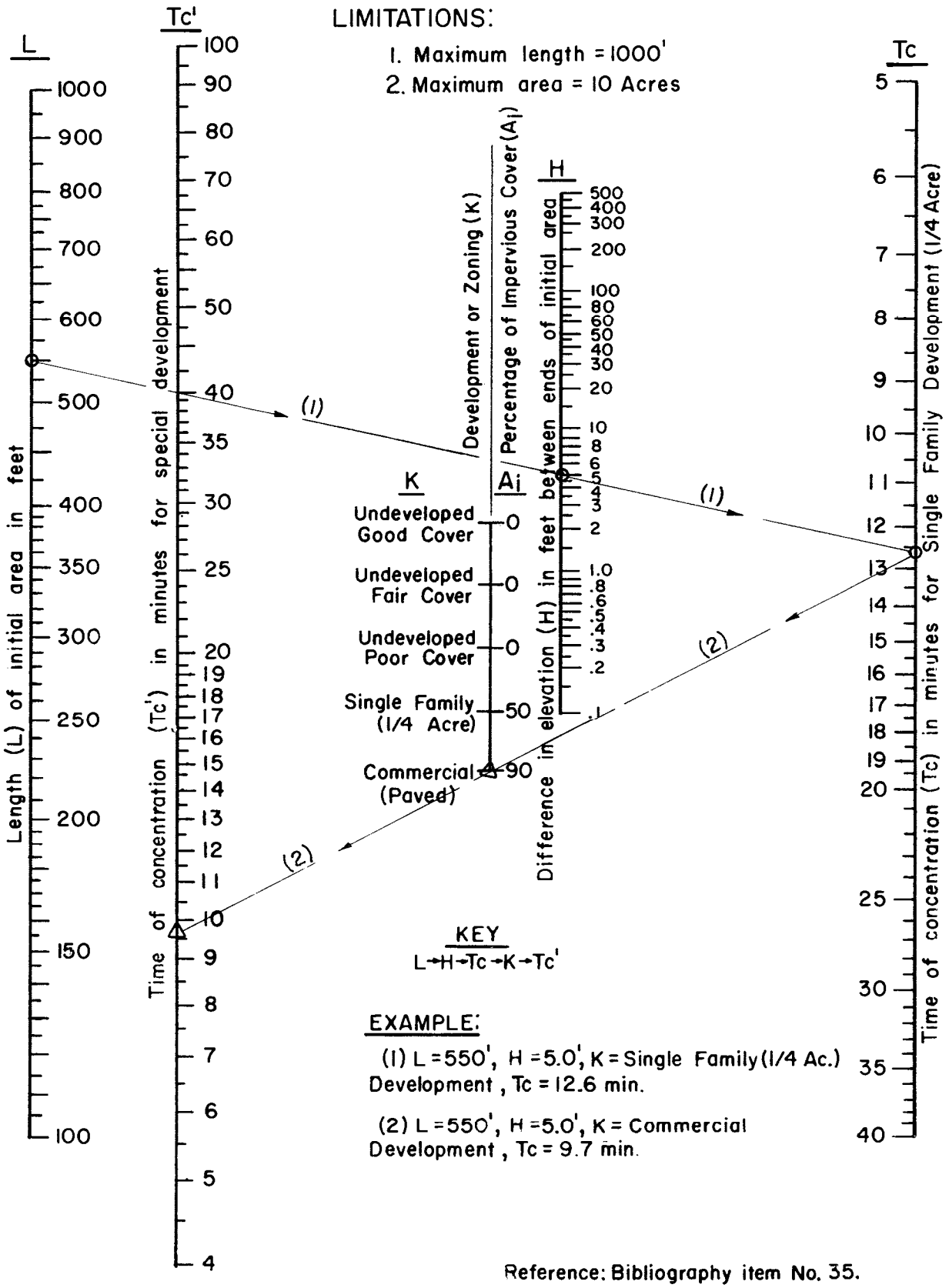
2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area should always be made, and a review of aerial photos, where available may assist in estimating the percentage of impervious cover in developed areas.

3. For typical horse ranch subdivisions increase impervious area 5 percent over the values recommended in the table above.

RCFC & WCD
HYDROLOGY MANUAL

IMPERVIOUS COVER FOR DEVELOPED AREAS

PLATE D-5.6



Reference: Bibliography item No. 35.

RCFC & WCD
HYDROLOGY MANUAL

TIME OF CONCENTRATION FOR INITIAL SUBAREA

PLATE D-3

NOAA Atlas 14, Volume 6, Version 2
Location name: Rancho Mirage, California, USA*
Latitude: 33.766°, Longitude: -116.4573°
Elevation: 661.75 ft**
* source: ESRI Maps
** source: USGS

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/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.900** (0.756-1.09)	**1.48** (1.22-1.79)	**2.39** (1.98-2.90)	**3.29** (2.71-4.03)	**4.78** (3.80-6.06)	**6.18** (4.81-8.00)	**7.86** (5.98-10.4)	**10.2** (7.54-14.0)	**16.3** (11.5-23.3)	**23.3** (15.9-34.5)
10-min	**0.642** (0.540-0.780)	**1.06** (0.876-1.28)	**1.72** (1.42-2.08)	**2.36** (1.94-2.89)	**3.43** (2.72-4.34)	**4.43** (3.45-5.74)	**5.63** (4.28-7.49)	**7.31** (5.39-10.0)	**11.7** (8.27-16.7)	**16.7** (11.4-24.7)
15-min	**0.520** (0.432-0.628)	**0.852** (0.708-1.03)	**1.38** (1.15-1.68)	**1.90** (1.56-2.33)	**2.76** (2.20-3.50)	**3.57** (2.78-4.62)	**4.54** (3.45-6.04)	**5.89** (4.35-8.06)	**9.43** (6.67-13.5)	**13.5** (9.19-19.9)
30-min	**0.420** (0.350-0.510)	**0.688** (0.574-0.834)	**1.12** (0.928-1.36)	**1.54** (1.27-1.89)	**2.23** (1.78-2.84)	**2.89** (2.25-3.75)	**3.68** (2.79-4.89)	**4.77** (3.52-6.53)	**7.63** (5.40-10.9)	**10.9** (7.44-16.1)
60-min	**0.290** (0.242-0.351)	**0.474** (0.395-0.575)	**0.771** (0.640-0.937)	**1.06** (0.873-1.30)	**1.54** (1.23-1.95)	**1.99** (1.55-2.58)	**2.53** (1.93-3.37)	**3.29** (2.43-4.50)	**5.26** (3.72-7.51)	**7.51** (5.13-11.1)
2-hr	**0.194** (0.162-0.234)	**0.318** (0.265-0.386)	**0.506** (0.420-0.616)	**0.680** (0.560-0.834)	**0.952** (0.758-1.21)	**1.19** (0.928-1.54)	**1.47** (1.11-1.95)	**1.78** (1.32-2.44)	**2.66** (1.88-3.79)	**3.79** (2.59-5.61)
3-hr	**0.153** (0.127-0.185)	**0.250** (0.208-0.303)	**0.393** (0.327-0.478)	**0.522** (0.431-0.641)	**0.720** (0.573-0.913)	**0.889** (0.693-1.15)	**1.08** (0.820-1.44)	**1.30** (0.956-1.77)	**1.79** (1.26-2.55)	**2.55** (1.74-3.77)
6-hr	**0.102** (0.085-0.124)	**0.165** (0.138-0.201)	**0.256** (0.213-0.311)	**0.336** (0.277-0.412)	**0.454** (0.361-0.576)	**0.553** (0.431-0.717)	**0.661** (0.502-0.879)	**0.781** (0.577-1.07)	**0.959** (0.679-1.37)	**1.29** (0.883-1.91)
12-hr	**0.063** (0.053-0.077)	**0.101** (0.084-0.122)	**0.154** (0.128-0.187)	**0.200** (0.164-0.245)	**0.267** (0.212-0.339)	**0.323** (0.251-0.418)	**0.383** (0.291-0.509)	**0.449** (0.331-0.614)	**0.545** (0.386-0.778)	**0.649** (0.443-0.959)
24-hr	**0.038** (0.033-0.043)	**0.059** (0.052-0.068)	**0.089** (0.079-0.103)	**0.115** (0.101-0.135)	**0.153** (0.130-0.185)	**0.185** (0.153-0.227)	**0.219** (0.177-0.275)	**0.255** (0.202-0.330)	**0.309** (0.234-0.416)	**0.354** (0.259-0.492)
2-day	**0.022** (0.019-0.025)	**0.034** (0.030-0.039)	**0.050** (0.044-0.058)	**0.065** (0.057-0.076)	**0.087** (0.073-0.104)	**0.104** (0.087-0.128)	**0.124** (0.100-0.156)	**0.145** (0.114-0.187)	**0.176** (0.133-0.236)	**0.201** (0.148-0.280)
3-day	**0.015** (0.014-0.018)	**0.024** (0.021-0.027)	**0.035** (0.031-0.041)	**0.046** (0.040-0.053)	**0.061** (0.052-0.074)	**0.074** (0.061-0.091)	**0.088** (0.071-0.110)	**0.103** (0.081-0.133)	**0.126** (0.095-0.169)	**0.145** (0.106-0.201)
4-day	**0.012** (0.011-0.014)	**0.018** (0.016-0.021)	**0.027** (0.024-0.032)	**0.035** (0.031-0.041)	**0.047** (0.040-0.057)	**0.057** (0.047-0.070)	**0.068** (0.055-0.085)	**0.080** (0.063-0.103)	**0.097** (0.074-0.131)	**0.112** (0.082-0.156)
7-day	**0.007** (0.007-0.009)	**0.011** (0.010-0.013)	**0.017** (0.015-0.020)	**0.022** (0.019-0.026)	**0.029** (0.025-0.035)	**0.035** (0.029-0.044)	**0.042** (0.034-0.053)	**0.050** (0.039-0.064)	**0.061** (0.046-0.082)	**0.070** (0.051-0.097)
10-day	**0.006** (0.005-0.006)	**0.008** (0.007-0.010)	**0.013** (0.011-0.015)	**0.016** (0.014-0.019)	**0.022** (0.018-0.026)	**0.026** (0.022-0.032)	**0.031** (0.025-0.039)	**0.037** (0.029-0.048)	**0.045** (0.034-0.061)	**0.052** (0.038-0.073)
20-day	**0.003** (0.003-0.004)	**0.005** (0.004-0.005)	**0.007** (0.006-0.008)	**0.009** (0.008-0.011)	**0.012** (0.010-0.015)	**0.015** (0.012-0.018)	**0.018** (0.014-0.022)	**0.021** (0.017-0.027)	**0.026** (0.020-0.035)	**0.030** (0.022-0.042)
30-day	**0.002** (0.002-0.003)	**0.004** (0.003-0.004)	**0.005** (0.005-0.006)	**0.007** (0.006-0.008)	**0.009** (0.008-0.011)	**0.012** (0.010-0.014)	**0.014** (0.011-0.017)	**0.016** (0.013-0.021)	**0.020** (0.015-0.027)	**0.023** (0.017-0.032)
45-day	**0.002** (0.002-0.002)	**0.003** (0.002-0.003)	**0.004** (0.004-0.005)	**0.005** (0.005-0.006)	**0.007** (0.006-0.009)	**0.009** (0.007-0.011)	**0.010** (0.009-0.013)	**0.012** (0.010-0.016)	**0.015** (0.012-0.021)	**0.018** (0.013-0.025)
60-day	**0.001** (0.001-0.002)	**0.002** (0.002-0.003)	**0.003** (0.003-0.004)	**0.004** (0.004-0.005)	**0.006** (0.005-0.007)	**0.007** (0.006-0.009)	**0.009** (0.007-0.011)	**0.010** (0.008-0.013)	**0.013** (0.010-0.017)	**0.015** (0.011-0.021)

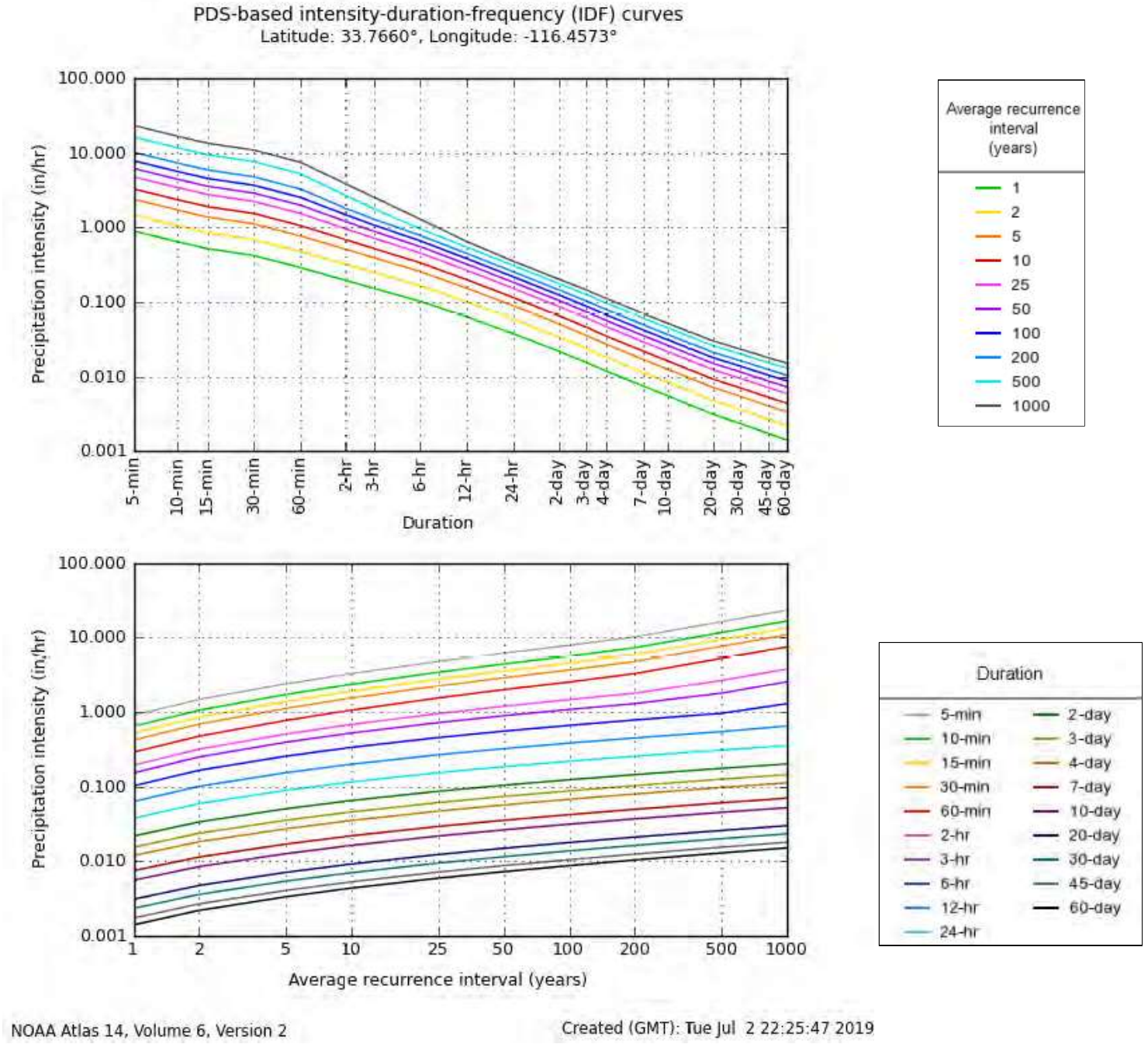
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

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.

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PF graphical



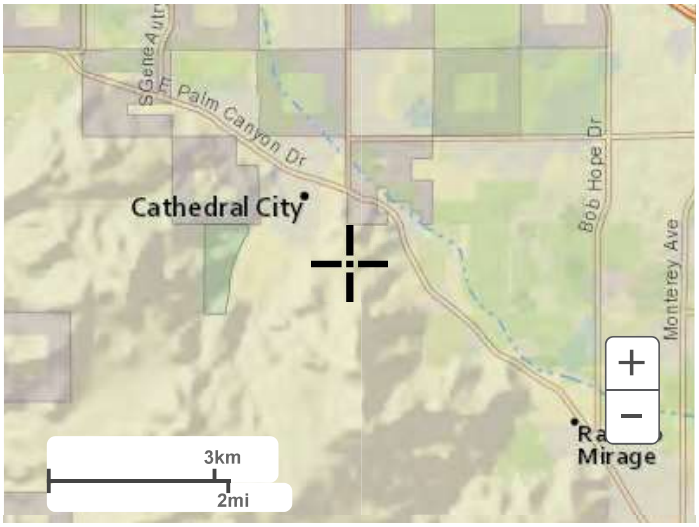
NOAA Atlas 14, Volume 6, Version 2

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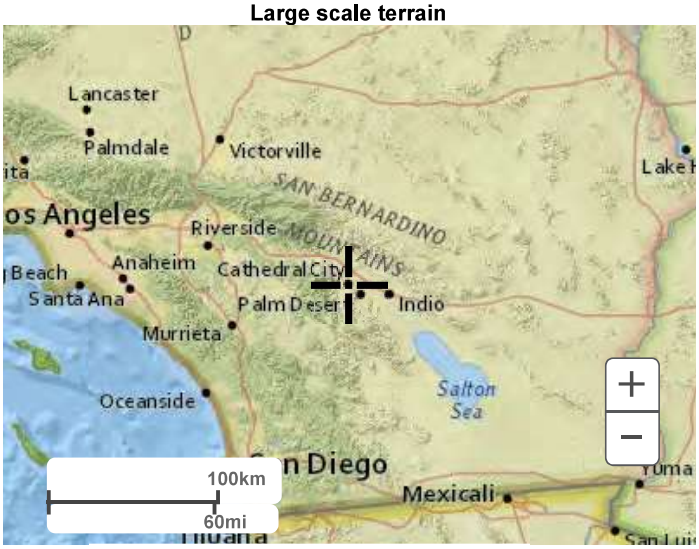
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Maps & aerials

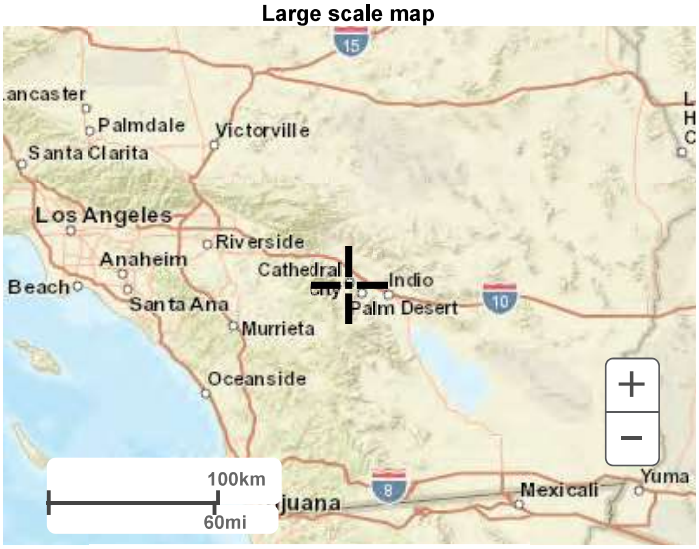
Small scale terrain



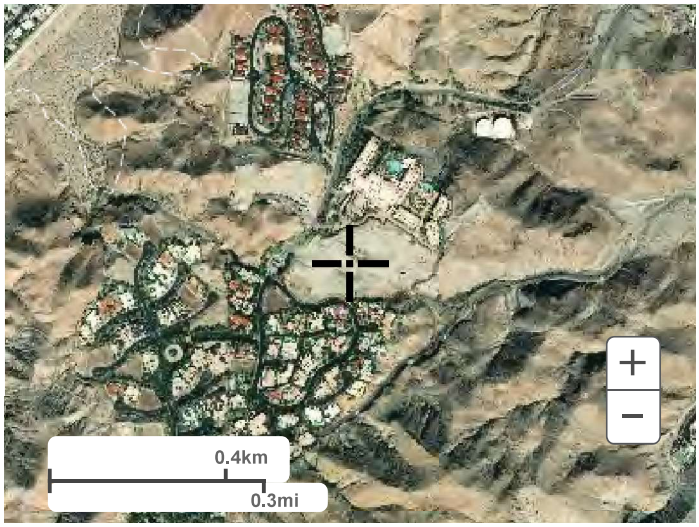
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX 3

Rational Method Hydrology Calculations

RATIONAL METHOD HYDROLOGY DATA SHEET

Proj: Ritz Carlton
Date:
Description: Existing Condition (CEQA Drainage Study)
Drawing Path:

Job#: 562-01

U/S NODE	D/S NODE	AES CODE	U/S ELEV	D/S ELEV	LENGTH (feet)	Imperv. Area (sf)	%Imperv	AREA (acres)	NOTES
100.0	101.0	2	669.0	657.0	96	0	0.0%	0.09	
101.0	102.0	5	657.0	635.0	388	0	0.0%	0.89	
103.0	102.0	8				0	0.0%	0.90	
102.0	104.0	6	635.0	619.0	230	11180	44.0%	0.58	
105.0	104.0	8				15963	37.0%	0.99	
							TOTAL	3.45	
200.0	201.0	2	669.0	654.0	57	0	0.0%	0.10	
201.0	202.0	5	654.0	635.0	397	0	0.0%	3.21	
202.0	203.0	5	635.0	626.0	471	9114	17.9%	1.17	
203.0	204.0	5	626.0	584.0	358	6700	8.4%	1.83	
205.0	204.0	8				263	0.5%	1.32	
204.0	206.0	5	584.0	534.0	253	2840	9.8%	0.67	
							TOTAL	8.29	
300.0	301.0	2	676.0	666.0	84	0	0.0%	0.13	
301.0	302.0	5	666.0	640.0	589	0	0.0%	1.76	
							TOTAL	1.89	

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
       RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
        (c) Copyright 1982-2007 Advanced Engineering Software (aes)
                    (Rational Tabling Version 7.0D)
                Release Date: 06/01/2007  License ID 1532

                         Analysis prepared by:
```

```
 ************************* DESCRIPTION OF STUDY *************************
* 562-01                                                                *
* EXISTING CONDITION 100-YR (DISCHARGE POINT 1)                         *
*                                                                       *
 ************************************************************************

  FILE NAME: RCEX1.DAT
  TIME/DATE OF STUDY: 11:56 07/16/2019
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.360
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.060
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  5.630
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  2.530
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4467076
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4464271
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   2.530
  SLOPE OF INTENSITY DURATION CURVE = 0.4464
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
```

```
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    96.00
  UPSTREAM ELEVATION(FEET) =    669.00
  DOWNSTREAM ELEVATION(FEET) =    657.00
  ELEVATION DIFFERENCE(FEET) =     12.00
  TC = 0.533*[(   96.00**3)/(    12.00)]**.2 =    5.011
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.664
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7918
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      0.55
  TOTAL AREA(ACRES) =      0.09   TOTAL RUNOFF(CFS) =      0.55

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    657.00  DOWNSTREAM(FEET) =    635.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   388.00   CHANNEL SLOPE =  0.0567
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  25.000
  MANNING'S FACTOR = 0.035   MAXIMUM DEPTH(FEET) =   3.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.275
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7712
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.72
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.28
  AVERAGE FLOW DEPTH(FEET) =   0.22   TRAVEL TIME(MIN.) =   2.83
  Tc(MIN.) =    7.84
  SUBAREA AREA(ACRES) =     0.89       SUBAREA RUNOFF(CFS) =    4.31
  TOTAL AREA(ACRES) =        1.0         PEAK FLOW RATE(CFS) =       4.85

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.27   FLOW VELOCITY(FEET/SEC.) =   2.67
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     484.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.275
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7712
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.90   SUBAREA RUNOFF(CFS) =    4.36
  TOTAL AREA(ACRES) =        1.9   TOTAL RUNOFF(CFS) =       9.21
  TC(MIN.) =    7.84

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    104.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  635.00  DOWNSTREAM ELEVATION(FEET) =  619.00
  STREET LENGTH(FEET) =   230.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
```

```
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.65
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.39
    HALFSTREET FLOOD WIDTH(FEET) =   12.70
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    6.52
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.54
  STREET FLOW TRAVEL TIME(MIN.) =   0.59   Tc(MIN.) =    8.43
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.076
  SINGLE-FAMILY(1/2 ACRE LOT) RUNOFF COEFFICIENT = .8206
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.58      SUBAREA RUNOFF(CFS) =    2.89
  TOTAL AREA(ACRES) =        2.5        PEAK FLOW RATE(CFS) =      12.10

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  13.40
  FLOW VELOCITY(FEET/SEC.) =  6.73   DEPTH*VELOCITY(FT*FT/SEC.) =   2.71
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    104.00 =     714.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    104.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.076
  SINGLE-FAMILY(1/2 ACRE LOT) RUNOFF COEFFICIENT = .8206
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.99   SUBAREA RUNOFF(CFS) =    4.94
  TOTAL AREA(ACRES) =        3.5   TOTAL RUNOFF(CFS) =      17.04
  TC(MIN.) =    8.43
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        3.5  TC(MIN.) =      8.43
  PEAK FLOW RATE(CFS)   =      17.04
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
           RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2007 Advanced Engineering Software (aes)
                    (Rational Tabling Version 7.0D)
                 Release Date: 06/01/2007  License ID 1532

                          Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* 562-01                                                                 *
* EXISTING CONDITION 100-YR (DISCHARGE POINT 2)                          *
*                                                                        *
 **************************************************************************

  FILE NAME: RCEX2.DAT
  TIME/DATE OF STUDY: 14:14 07/16/2019
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.360
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.060
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  5.630
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  2.530
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4467076
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4464271
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   2.530
  SLOPE OF INTENSITY DURATION CURVE = 0.4464
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
```

```
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    57.00
  UPSTREAM ELEVATION(FEET) =    669.00
  DOWNSTREAM ELEVATION(FEET) =    654.00
  ELEVATION DIFFERENCE(FEET) =     15.00
  TC = 0.533*[(   57.00**3)/(    15.00)]**.2 =    3.505
  COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.672
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7919
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      0.61
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.61

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    654.00  DOWNSTREAM(FEET) =    635.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   397.00   CHANNEL SLOPE =  0.0479
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  40.000
  MANNING'S FACTOR = 0.035   MAXIMUM DEPTH(FEET) =   3.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.386
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7732
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.58
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.60
  AVERAGE FLOW DEPTH(FEET) =   0.29   TRAVEL TIME(MIN.) =   2.54
  Tc(MIN.) =    7.54
  SUBAREA AREA(ACRES) =     3.21       SUBAREA RUNOFF(CFS) =   15.85
  TOTAL AREA(ACRES) =       3.3         PEAK FLOW RATE(CFS) =      16.46

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.37   FLOW VELOCITY(FEET/SEC.) =   3.02
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     454.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    203.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    635.00  DOWNSTREAM(FEET) =    626.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   471.00   CHANNEL SLOPE =  0.0191
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  15.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   5.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.630
  SINGLE-FAMILY(1-ACRE LOT) RUNOFF COEFFICIENT = .7870
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      19.05
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.20
  AVERAGE FLOW DEPTH(FEET) =   0.63   TRAVEL TIME(MIN.) =   2.46
  Tc(MIN.) =   10.00
  SUBAREA AREA(ACRES) =     1.17       SUBAREA RUNOFF(CFS) =    5.18
  TOTAL AREA(ACRES) =       4.5         PEAK FLOW RATE(CFS) =      21.64

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.66   FLOW VELOCITY(FEET/SEC.) =   3.30
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =     925.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    204.00 IS CODE =  51
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    626.00  DOWNSTREAM(FEET) =    584.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   358.00   CHANNEL SLOPE =  0.1173
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   8.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.520
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7564
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      25.46
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  13.19
  AVERAGE FLOW DEPTH(FEET) =   0.49   TRAVEL TIME(MIN.) =   0.45
  Tc(MIN.) =   10.45
  SUBAREA AREA(ACRES) =     1.83       SUBAREA RUNOFF(CFS) =    7.64
  TOTAL AREA(ACRES) =        6.3         PEAK FLOW RATE(CFS) =      29.28

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.52   FLOW VELOCITY(FEET/SEC.) =  13.75
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    204.00 =    1283.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    205.00 TO NODE    204.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.520
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7564
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.32   SUBAREA RUNOFF(CFS) =    5.51
  TOTAL AREA(ACRES) =        7.6   TOTAL RUNOFF(CFS) =      34.79
  TC(MIN.) =   10.45

****************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    206.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    584.00  DOWNSTREAM(FEET) =    534.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   253.00   CHANNEL SLOPE =  0.1976
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.050   MAXIMUM DEPTH(FEET) =   5.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.406
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7539
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      36.16
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   8.39
  AVERAGE FLOW DEPTH(FEET) =   0.92   TRAVEL TIME(MIN.) =   0.50
  Tc(MIN.) =   10.95
  SUBAREA AREA(ACRES) =     0.67       SUBAREA RUNOFF(CFS) =    2.73
  TOTAL AREA(ACRES) =        8.3         PEAK FLOW RATE(CFS) =      37.52

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.94   FLOW VELOCITY(FEET/SEC.) =   8.46
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    206.00 =    1536.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        8.3  TC(MIN.) =     10.95
  PEAK FLOW RATE(CFS)   =      37.52
============================================================================
============================================================================
```

END OF RATIONAL METHOD ANALYSIS

```
**************************************************************************
           RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2007 Advanced Engineering Software (aes)
                    (Rational Tabling Version 7.0D)
                 Release Date: 06/01/2007  License ID 1532

                          Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* 562-01                                                                 *
* EXISTING CONDITION 100-YR (DISCHARGE POINT 3)                          *
*                                                                        *
 **************************************************************************

  FILE NAME: RCEX3.DAT
  TIME/DATE OF STUDY: 15:10 07/16/2019
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.360
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.060
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  5.630
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  2.530
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4467076
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4464271
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   2.530
  SLOPE OF INTENSITY DURATION CURVE = 0.4464
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  ========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    300.00 TO NODE    301.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
```

```
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    84.00
  UPSTREAM ELEVATION(FEET) =    676.00
  DOWNSTREAM ELEVATION(FEET) =    666.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  TC = 0.533*[(   84.00**3)/(    10.00)]**.2 =    4.797
  COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.672
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7919
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      0.79
  TOTAL AREA(ACRES) =      0.13   TOTAL RUNOFF(CFS) =      0.79

****************************************************************************
  FLOW PROCESS FROM NODE    301.00 TO NODE    302.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    666.00  DOWNSTREAM(FEET) =    640.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   589.00   CHANNEL SLOPE =  0.0441
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   8.000
  MANNING'S FACTOR = 0.035   MAXIMUM DEPTH(FEET) =   2.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.214
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7702
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.03
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.26
  AVERAGE FLOW DEPTH(FEET) =   0.44   TRAVEL TIME(MIN.) =   3.02
  Tc(MIN.) =    8.02
  SUBAREA AREA(ACRES) =     1.76       SUBAREA RUNOFF(CFS) =    8.42
  TOTAL AREA(ACRES) =        1.9         PEAK FLOW RATE(CFS) =       9.21

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.55   FLOW VELOCITY(FEET/SEC.) =   3.78
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    302.00 =     673.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.9  TC(MIN.) =      8.02
  PEAK FLOW RATE(CFS)   =       9.21
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

RATIONAL METHOD HYDROLOGY DATA SHEET

Proj: Ritz Carlton - Sky Mesa
Date:
Description: Existing Condition (CEQA Drainage Study)
Drawing Path:

Job#: 562-01

U/S NODE	D/S NODE	AES CODE	U/S ELEV	D/S ELEV	LENGTH (feet)	Imperv. Area (sf)	%Imperv	AREA (acres)	NOTES
400.0	401.0	2	670.0	656.0	71	0	0.0%	0.04	
401.0	402.0	5	656.0	640.0	144	1150	5.8%	0.46	
							TOTAL	0.50	
500.0	501.0	2	663.0	656.0	38	0	0.0%	0.02	
501.0	502.0	5	656.0	642.0	255	0	0.0%	0.78	
502.0	503.0	5	642.0	556.0	321	0	0.0%	1.25	
							TOTAL	2.04	

```
******************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2007 Advanced Engineering Software (aes)
                    (Rational Tabling Version 7.0D)
                 Release Date: 06/01/2007  License ID 1532

                          Analysis prepared by:




 ************************ DESCRIPTION OF STUDY ************************
* 562-01                                                              *
* EXISTING CONDITION 100-YR (DISCHARGE POINT 4 - SKY MESA)            *
*                                                                     *
 *********************************************************************

  FILE NAME: RCEX4.DAT
  TIME/DATE OF STUDY: 17:15 08/30/2019
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.360
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.060
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  5.630
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  2.530
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4467076
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4464271
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   2.530
  SLOPE OF INTENSITY DURATION CURVE = 0.4464
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  ========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

******************************************************************************
  FLOW PROCESS FROM NODE    400.00 TO NODE    401.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
```

```
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    71.00
  UPSTREAM ELEVATION(FEET) =    670.00
  DOWNSTREAM ELEVATION(FEET) =    656.00
  ELEVATION DIFFERENCE(FEET) =     14.00
  TC = 0.533*[(   71.00**3)/(    14.00)]**.2 =    4.054
  COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.672
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7919
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      0.24
  TOTAL AREA(ACRES) =      0.04   TOTAL RUNOFF(CFS) =      0.24

****************************************************************************
  FLOW PROCESS FROM NODE    401.00 TO NODE    402.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    656.00  DOWNSTREAM(FEET) =    640.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   144.00   CHANNEL SLOPE =  0.1111
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   5.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.352
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7877
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.57
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   4.79
  AVERAGE FLOW DEPTH(FEET) =   0.33   TRAVEL TIME(MIN.) =   0.50
  Tc(MIN.) =    5.50
  SUBAREA AREA(ACRES) =     0.46       SUBAREA RUNOFF(CFS) =    2.66
  TOTAL AREA(ACRES) =        0.5         PEAK FLOW RATE(CFS) =       2.91

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.42   FLOW VELOCITY(FEET/SEC.) =   5.58
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    402.00 =     215.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.5  TC(MIN.) =      5.50
  PEAK FLOW RATE(CFS)   =       2.91
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2007 Advanced Engineering Software (aes)
                    (Rational Tabling Version 7.0D)
                 Release Date: 06/01/2007  License ID 1532

                          Analysis prepared by:




 ************************ DESCRIPTION OF STUDY ************************
* 562-01                                                              *
* EXISTING CONDITION 100-YR (DISCHARGE POINT 5 - SKY MESA)            *
*                                                                     *
 *********************************************************************

  FILE NAME: RCEX5.DAT
  TIME/DATE OF STUDY: 08:31 09/03/2019
-----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
-----------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.360
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.060
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  5.630
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  2.530
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4467076
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4464271
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   2.530
  SLOPE OF INTENSITY DURATION CURVE = 0.4464
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

******************************************************************************
  FLOW PROCESS FROM NODE    500.00 TO NODE    501.00 IS CODE =  21
-----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
=============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
```

```
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    38.00
  UPSTREAM ELEVATION(FEET) =    663.00
  DOWNSTREAM ELEVATION(FEET) =    656.00
  ELEVATION DIFFERENCE(FEET) =      7.00
  TC = 0.533*[(   38.00**3)/(     7.00)]**.2 =    3.201
  COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.672
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7919
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      0.12
  TOTAL AREA(ACRES) =      0.02   TOTAL RUNOFF(CFS) =      0.12

****************************************************************************
  FLOW PROCESS FROM NODE    501.00 TO NODE    502.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    656.00  DOWNSTREAM(FEET) =    642.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   255.00   CHANNEL SLOPE =  0.0549
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   3.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.876
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7810
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.23
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.06
  AVERAGE FLOW DEPTH(FEET) =   0.27   TRAVEL TIME(MIN.) =   1.39
  Tc(MIN.) =    6.39
  SUBAREA AREA(ACRES) =     0.78       SUBAREA RUNOFF(CFS) =    4.19
  TOTAL AREA(ACRES) =        0.8         PEAK FLOW RATE(CFS) =       4.31

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.35   FLOW VELOCITY(FEET/SEC.) =   3.60
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    502.00 =     293.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    502.00 TO NODE    503.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    642.00  DOWNSTREAM(FEET) =    556.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   321.00   CHANNEL SLOPE =  0.2679
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.557
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7760
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.49
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.47
  AVERAGE FLOW DEPTH(FEET) =   0.50   TRAVEL TIME(MIN.) =   0.72
  Tc(MIN.) =    7.11
  SUBAREA AREA(ACRES) =     1.25       SUBAREA RUNOFF(CFS) =    6.36
  TOTAL AREA(ACRES) =        2.0         PEAK FLOW RATE(CFS) =      10.67

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.57   FLOW VELOCITY(FEET/SEC.) =   8.23
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    503.00 =     614.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.0  TC(MIN.) =      7.11
```

```
  PEAK FLOW RATE(CFS)   =      10.67
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

RATIONAL METHOD HYDROLOGY DATA SHEET

Proj: Ritz Carlton
Date:
Description: Proposed Condition (CEQA Drainage Study)
Drawing Path:

Job#: 562-01

U/S NODE	D/S NODE	AES CODE	U/S ELEV	D/S ELEV	LENGTH (feet)	Imperv. Area (sf)	%Imperv	AREA (acres)	NOTES
100.0	101.0	2	660.0	657.5	30	1866	76.5%	0.06	
101.0	102.0	6	657.5	643.0	510	40340	73.6%	1.26	
103.0	102.0	8				25455	55.6%	1.05	
102.0	105.0	6	643.0	636.0	102	4954	61.3%	0.19	
105.0	106.0	6	636.0	619.0	234	11409	45.8%	0.57	
107.0	106.0	8				38501	65.2%	1.36	
							TOTAL	4.48	
200.0	201.0	2	660.0	659.6	33	570	27.1%	0.05	
201.0	202.0	6	659.6	639.5	305	24871	89.4%	0.64	
203.0	202.0	8				25889	77.8%	0.76	
202.0	204.0	6	639.5	621.0	259	9694	22.5%	0.99	
206.0	204.0	8				33742	73.3%	1.06	
205.0	204.0	8				47200	79.8%	1.36	
204.0	206.0	5	590.0	584.0	102	0			
206.0	206.0	1							Confluence stream 1 of 2
220.0	221.0	2	650.0	649.5	41	2270	100.0%	0.05	
221.0	222.0	5	636.0	634.0	544	46689	63.8%	1.68	
222.0	206.0	5	634.0	584.0	474	6963	18.7%	0.85	
206.0	206.0	1							Confluence stream 2 of 2
206.0	207.0	5	584.0	534.0	253	2840	9.8%	0.67	
							TOTAL	8.11	
300.0	301.0	2				2300	94.5%	0.06	Assume minimum 5 min Tc
301.0	302.0	6	657.0	645.0	355	31014	78.7%	0.91	
302.0	303.0	4	641.5	641.0	35				
303.0	304.0	5	641.0	640.0	48	0	0.0%	0.11	
							TOTAL	1.07	

```
**************************************************************************
           RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2007 Advanced Engineering Software (aes)
                    (Rational Tabling Version 7.0D)
                  Release Date: 06/01/2007  License ID 1532

                          Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* 562-01                                                                 *
* PROPOSED CONDITION 100-YR (DISCHARGE POINT 1)                          *
*                                                                        *
 **************************************************************************

  FILE NAME: RCPR1.DAT
  TIME/DATE OF STUDY: 11:10 07/24/2019
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.360
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.060
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  5.630
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  2.530
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4467076
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4464271
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   2.530
  SLOPE OF INTENSITY DURATION CURVE = 0.4464
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
          ASSUMED INITIAL SUBAREA UNIFORM
          DEVELOPMENT IS APARTMENT
```

```
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    62.00
  UPSTREAM ELEVATION(FEET) =    660.00
  DOWNSTREAM ELEVATION(FEET) =    657.50
  ELEVATION DIFFERENCE(FEET) =      2.50
  TC = 0.323*[(   62.00**3)/(     2.50)]**.2 =    3.196
  COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.672
  APARTMENT DEVELOPMENT RUNOFF COEFFICIENT = .8901
  SOIL CLASSIFICATION IS "D"
  SUBAREA RUNOFF(CFS) =      0.41
  TOTAL AREA(ACRES) =      0.06   TOTAL RUNOFF(CFS) =      0.41

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  657.50  DOWNSTREAM ELEVATION(FEET) =  643.00
  STREET LENGTH(FEET) =   510.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 15.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0160
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.95
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.29
    HALFSTREET FLOOD WIDTH(FEET) =    7.07
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.07
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.89
  STREET FLOW TRAVEL TIME(MIN.) =   2.77   Tc(MIN.) =    7.77
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.302
  APARTMENT DEVELOPMENT RUNOFF COEFFICIENT = .8881
  SOIL CLASSIFICATION IS "D"
  SUBAREA AREA(ACRES) =    1.26      SUBAREA RUNOFF(CFS) =    7.05
  TOTAL AREA(ACRES) =       1.3        PEAK FLOW RATE(CFS) =       7.46

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.34   HALFSTREET FLOOD WIDTH(FEET) =   9.88
  FLOW VELOCITY(FEET/SEC.) =  3.48   DEPTH*VELOCITY(FT*FT/SEC.) =   1.18
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     572.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.302
  SINGLE-FAMILY(1/4 ACRE LOT) RUNOFF COEFFICIENT = .8704
  SOIL CLASSIFICATION IS "D"
  SUBAREA AREA(ACRES) =    1.05   SUBAREA RUNOFF(CFS) =    5.76
  TOTAL AREA(ACRES) =       2.4   TOTAL RUNOFF(CFS) =      13.22
  TC(MIN.) =    7.77

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    102.00 TO NODE    105.00 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  643.00  DOWNSTREAM ELEVATION(FEET) =  636.00
 STREET LENGTH(FEET) =   102.00   CURB HEIGHT(INCHES) =  8.0
 STREET HALFWIDTH(FEET) = 30.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.018
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      13.74
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.35
   HALFSTREET FLOOD WIDTH(FEET) =   10.43
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.90
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.06
 STREET FLOW TRAVEL TIME(MIN.) =   0.29   Tc(MIN.) =    8.06
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.200
 CONDOMINIUM DEVELOPMENT RUNOFF COEFFICIENT = .8789
 SOIL CLASSIFICATION IS "D"
 SUBAREA AREA(ACRES) =    0.19      SUBAREA RUNOFF(CFS) =    1.04
 TOTAL AREA(ACRES) =        2.6        PEAK FLOW RATE(CFS) =      14.26

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  10.66
 FLOW VELOCITY(FEET/SEC.) =  5.89   DEPTH*VELOCITY(FT*FT/SEC.) =   2.08
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    105.00 =     674.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  636.00  DOWNSTREAM ELEVATION(FEET) =  619.00
 STREET LENGTH(FEET) =   234.00   CURB HEIGHT(INCHES) =  8.0
 STREET HALFWIDTH(FEET) = 30.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.018
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      15.75
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.43
   HALFSTREET FLOOD WIDTH(FEET) =   14.88
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    7.25
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    3.11
 STREET FLOW TRAVEL TIME(MIN.) =   0.54   Tc(MIN.) =    8.60
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.024
```

```
  SINGLE-FAMILY(1/4 ACRE LOT) RUNOFF COEFFICIENT = .8691
  SOIL CLASSIFICATION IS "D"
  SUBAREA AREA(ACRES) =    0.57      SUBAREA RUNOFF(CFS) =    2.98
  TOTAL AREA(ACRES) =        3.1        PEAK FLOW RATE(CFS) =      17.24

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.44   HALFSTREET FLOOD WIDTH(FEET) =  15.43
  FLOW VELOCITY(FEET/SEC.) =  7.43   DEPTH*VELOCITY(FT*FT/SEC.) =   3.26
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    106.00 =     908.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    106.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.024
  CONDOMINIUM DEVELOPMENT RUNOFF COEFFICIENT = .8784
  SOIL CLASSIFICATION IS "D"
  SUBAREA AREA(ACRES) =    1.36   SUBAREA RUNOFF(CFS) =    7.20
  TOTAL AREA(ACRES) =        4.5   TOTAL RUNOFF(CFS) =      24.44
  TC(MIN.) =    8.60
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        4.5  TC(MIN.) =      8.60
  PEAK FLOW RATE(CFS)   =      24.44
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
           RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2007 Advanced Engineering Software (aes)
                    (Rational Tabling Version 7.0D)
                  Release Date: 06/01/2007  License ID 1532

                          Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* 562-01                                                                 *
* PROPOSED CONDITION 100-YR (DISCHARGE POINT 2)                          *
*                                                                        *
 **************************************************************************

  FILE NAME: RCPR2.DAT
  TIME/DATE OF STUDY: 16:24 07/22/2019
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.360
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.060
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  5.630
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  2.530
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4467076
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4464271
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   2.530
  SLOPE OF INTENSITY DURATION CURVE = 0.4464
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  ========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
```

```
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    33.00
  UPSTREAM ELEVATION(FEET) =    660.00
  DOWNSTREAM ELEVATION(FEET) =    659.60
  ELEVATION DIFFERENCE(FEET) =      0.40
  TC = 0.303*[(   33.00**3)/(     0.40)]**.2 =    2.967
  COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.672
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8951
  SOIL CLASSIFICATION IS "D"
  SUBAREA RUNOFF(CFS) =      0.34
  TOTAL AREA(ACRES) =      0.05   TOTAL RUNOFF(CFS) =      0.34

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  659.60  DOWNSTREAM ELEVATION(FEET) =  639.50
  STREET LENGTH(FEET) =   305.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 15.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0160
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.35
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.20
    HALFSTREET FLOOD WIDTH(FEET) =    2.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.23
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.04
  STREET FLOW TRAVEL TIME(MIN.) =   0.97   Tc(MIN.) =    5.97
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.086
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8947
  SOIL CLASSIFICATION IS "D"
  SUBAREA AREA(ACRES) =    0.64      SUBAREA RUNOFF(CFS) =    4.06
  TOTAL AREA(ACRES) =        0.7        PEAK FLOW RATE(CFS) =       4.40

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.27   HALFSTREET FLOOD WIDTH(FEET) =   5.74
  FLOW VELOCITY(FEET/SEC.) =  4.49   DEPTH*VELOCITY(FT*FT/SEC.) =   1.19
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     338.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    202.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.086
  APARTMENT DEVELOPMENT RUNOFF COEFFICIENT = .8894
  SOIL CLASSIFICATION IS "D"
  SUBAREA AREA(ACRES) =    0.76   SUBAREA RUNOFF(CFS) =    4.79
  TOTAL AREA(ACRES) =        1.5   TOTAL RUNOFF(CFS) =       9.19
  TC(MIN.) =    5.97

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    202.00 TO NODE    204.00 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  639.50  DOWNSTREAM ELEVATION(FEET) =  621.00
 STREET LENGTH(FEET) =   259.00   CURB HEIGHT(INCHES) =  8.0
 STREET HALFWIDTH(FEET) = 15.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.018
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0160
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      12.03
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.34
   HALFSTREET FLOOD WIDTH(FEET) =    9.96
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.54
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.89
 STREET FLOW TRAVEL TIME(MIN.) =   0.78   Tc(MIN.) =    6.75
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.709
 SINGLE-FAMILY(1-ACRE LOT) RUNOFF COEFFICIENT = .8553
 SOIL CLASSIFICATION IS "D"
 SUBAREA AREA(ACRES) =    0.99      SUBAREA RUNOFF(CFS) =    5.68
 TOTAL AREA(ACRES) =        2.4        PEAK FLOW RATE(CFS) =      14.87

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  10.98
 FLOW VELOCITY(FEET/SEC.) =  5.82   DEPTH*VELOCITY(FT*FT/SEC.) =   2.09
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    204.00 =     597.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    206.00 TO NODE    204.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.709
 APARTMENT DEVELOPMENT RUNOFF COEFFICIENT = .8888
 SOIL CLASSIFICATION IS "D"
 SUBAREA AREA(ACRES) =    1.06   SUBAREA RUNOFF(CFS) =    6.32
 TOTAL AREA(ACRES) =        3.5   TOTAL RUNOFF(CFS) =      21.19
 TC(MIN.) =    6.75

****************************************************************************
 FLOW PROCESS FROM NODE    205.00 TO NODE    204.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.709
 APARTMENT DEVELOPMENT RUNOFF COEFFICIENT = .8888
 SOIL CLASSIFICATION IS "D"
 SUBAREA AREA(ACRES) =    1.36   SUBAREA RUNOFF(CFS) =    8.11
 TOTAL AREA(ACRES) =        4.9   TOTAL RUNOFF(CFS) =      29.30
 TC(MIN.) =    6.75

****************************************************************************
 FLOW PROCESS FROM NODE    204.00 TO NODE    206.00 IS CODE =  51
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    590.00  DOWNSTREAM(FEET) =    584.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   102.00   CHANNEL SLOPE =  0.0588
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.035   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      29.30
  FLOW VELOCITY(FEET/SEC.) =   6.89   FLOW DEPTH(FEET) =   0.90
  TRAVEL TIME(MIN.) =   0.25   Tc(MIN.) =    7.00
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    206.00 =     699.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    206.00 TO NODE    206.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.00
  RAINFALL INTENSITY(INCH/HR) =   6.60
  TOTAL STREAM AREA(ACRES) =     4.86
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     29.30

****************************************************************************
  FLOW PROCESS FROM NODE    220.00 TO NODE    221.00 IS CODE =  22
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  USER SPECIFIED Tc(MIN.) =    5.000
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.672
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8951
  SOIL CLASSIFICATION IS "D"
  SUBAREA RUNOFF(CFS) =      0.34
  TOTAL AREA(ACRES) =      0.05   TOTAL RUNOFF(CFS) =      0.34

****************************************************************************
  FLOW PROCESS FROM NODE    221.00 TO NODE    222.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    636.00  DOWNSTREAM(FEET) =    634.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   544.00   CHANNEL SLOPE =  0.0037
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.884
  CONDOMINIUM DEVELOPMENT RUNOFF COEFFICIENT = .8779
  SOIL CLASSIFICATION IS "D"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.74
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.23
  AVERAGE FLOW DEPTH(FEET) =   0.46   TRAVEL TIME(MIN.) =   4.06
  Tc(MIN.) =    9.06
  SUBAREA AREA(ACRES) =     1.68       SUBAREA RUNOFF(CFS) =    8.68
  TOTAL AREA(ACRES) =        1.7         PEAK FLOW RATE(CFS) =       9.02

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.58   FLOW VELOCITY(FEET/SEC.) =   2.64
  LONGEST FLOWPATH FROM NODE    220.00 TO NODE    222.00 =     646.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    222.00 TO NODE    206.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    634.00  DOWNSTREAM(FEET) =    584.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   474.00   CHANNEL SLOPE =  0.1055
 CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   8.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.678
 SINGLE-FAMILY(1-ACRE LOT) RUNOFF COEFFICIENT = .8477
 SOIL CLASSIFICATION IS "D"
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      11.07
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  10.48
 AVERAGE FLOW DEPTH(FEET) =   0.36   TRAVEL TIME(MIN.) =   0.75
 Tc(MIN.) =    9.81
 SUBAREA AREA(ACRES) =     0.85       SUBAREA RUNOFF(CFS) =    4.09
 TOTAL AREA(ACRES) =        2.6         PEAK FLOW RATE(CFS) =      13.11

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.39   FLOW VELOCITY(FEET/SEC.) =  10.67
 LONGEST FLOWPATH FROM NODE    220.00 TO NODE    206.00 =    1120.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    206.00 TO NODE    206.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =    9.81
 RAINFALL INTENSITY(INCH/HR) =   5.68
 TOTAL STREAM AREA(ACRES) =     2.58
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.11

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       29.30     7.00        6.602          4.86
     2       13.11     9.81        5.678          2.58

 ********************************WARNING*********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ************************************************************************

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF       Tc      INTENSITY
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)
     1       38.65     7.00        6.602
     2       38.31     9.81        5.678

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      38.65   Tc(MIN.) =    7.00
 TOTAL AREA(ACRES) =        7.4
 LONGEST FLOWPATH FROM NODE    220.00 TO NODE    206.00 =    1120.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    206.00 TO NODE    207.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    584.00  DOWNSTREAM(FEET) =    534.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   253.00   CHANNEL SLOPE =  0.1976
 CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   4.000
 MANNING'S FACTOR = 0.050   MAXIMUM DEPTH(FEET) =   5.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.405
 UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7735
 SOIL CLASSIFICATION IS "B"
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      40.31
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   8.58
 AVERAGE FLOW DEPTH(FEET) =   0.97   TRAVEL TIME(MIN.) =   0.49
 Tc(MIN.) =    7.49
 SUBAREA AREA(ACRES) =     0.67       SUBAREA RUNOFF(CFS) =    3.32
 TOTAL AREA(ACRES) =        8.1         PEAK FLOW RATE(CFS) =      41.97

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.98   FLOW VELOCITY(FEET/SEC.) =   8.68
 LONGEST FLOWPATH FROM NODE    220.00 TO NODE    207.00 =    1373.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        8.1  TC(MIN.) =      7.49
 PEAK FLOW RATE(CFS)   =      41.97
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2007 Advanced Engineering Software (aes)
                    (Rational Tabling Version 7.0D)
                 Release Date: 06/01/2007  License ID 1532

                          Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* 562-01                                                                 *
* PROPOSED CONDITION 100-YR (DISCHARGE POINT 3)                          *
*                                                                        *
 ************************************************************************

  FILE NAME: RCPR3.DAT
  TIME/DATE OF STUDY: 09:49 07/24/2019
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.360
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.060
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  5.630
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  2.530
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4467076
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4464271
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   2.530
  SLOPE OF INTENSITY DURATION CURVE = 0.4464
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  ========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    300.00 TO NODE    301.00 IS CODE =  22
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
```

```
  USER SPECIFIED Tc(MIN.) =    5.000
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.672
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8951
  SOIL CLASSIFICATION IS "D"
  SUBAREA RUNOFF(CFS) =      0.41
  TOTAL AREA(ACRES) =      0.06   TOTAL RUNOFF(CFS) =      0.41

****************************************************************************
  FLOW PROCESS FROM NODE    301.00 TO NODE    302.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  657.00  DOWNSTREAM ELEVATION(FEET) =  645.00
  STREET LENGTH(FEET) =   355.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 15.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0160
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.11
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.27
    HALFSTREET FLOOD WIDTH(FEET) =    5.74
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.18
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.84
  STREET FLOW TRAVEL TIME(MIN.) =   1.86   Tc(MIN.) =    6.86
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.661
  APARTMENT DEVELOPMENT RUNOFF COEFFICIENT = .8887
  SOIL CLASSIFICATION IS "D"
  SUBAREA AREA(ACRES) =    0.91      SUBAREA RUNOFF(CFS) =    5.39
  TOTAL AREA(ACRES) =        1.0        PEAK FLOW RATE(CFS) =       5.80

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.31   HALFSTREET FLOOD WIDTH(FEET) =   8.32
  FLOW VELOCITY(FEET/SEC.) =  3.55   DEPTH*VELOCITY(FT*FT/SEC.) =   1.11
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    302.00 =     411.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    302.00 TO NODE    303.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   641.50  DOWNSTREAM(FEET) =   641.00
  FLOW LENGTH(FEET) =    35.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   8.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.83
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.80
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    6.95
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    303.00 =     446.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    303.00 TO NODE    304.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    641.00  DOWNSTREAM(FEET) =    640.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    48.00   CHANNEL SLOPE =  0.0208
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   5.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.502
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7751
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.08
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.71
  AVERAGE FLOW DEPTH(FEET) =   0.38   TRAVEL TIME(MIN.) =   0.30
  Tc(MIN.) =    7.24
  SUBAREA AREA(ACRES) =     0.11       SUBAREA RUNOFF(CFS) =    0.55
  TOTAL AREA(ACRES) =        1.1         PEAK FLOW RATE(CFS) =       6.35

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.39   FLOW VELOCITY(FEET/SEC.) =   2.72
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    304.00 =     494.00 FEET.
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.24
  PEAK FLOW RATE(CFS)   =       6.35
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

RATIONAL METHOD HYDROLOGY DATA SHEET

Proj: Ritz Carlton - Sky Mesa
Date:
Description: Proposed Condition (CEQA Drainage Study)
Drawing Path:

Job#: 562-01

U/S NODE	D/S NODE	AES CODE	U/S ELEV	D/S ELEV	LENGTH (feet)	Imperv. Area (sf)	%Imperv	AREA (acres)	NOTES
400.0	401.0	2	670.0	654.0	81	0	0.0%	0.10	
401.0	402.0	5	654.0	648.0	60	0	0.0%	0.08	
402.0	403.0	5	644.0	640.0	58	4919	37.4%	0.30	
							TOTAL	0.49	
500.0	501.0	2	670.0	669.0	45	0	0.0%	0.04	
501.0	502.0	4	654.5	649.5	128				
502.0	502.0	8				6272	40.5%	0.36	
502.0	503.0	4	649.5	643.0	136				
503.0	503.0	8				3327	17.2%	0.44	
503.0	504.0	4	643.0	632.0	41				
504.0	504.0	8				437	5.9%	0.17	
504.0	505.0	4	632.0	631.0	15				
505.0	506.0	5	631.0	556.0	274	7340	14.8%	1.14	
							TOTAL	2.15	

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2007 Advanced Engineering Software (aes)
                    (Rational Tabling Version 7.0D)
                  Release Date: 06/01/2007  License ID 1532

                         Analysis prepared by:




 ************************ DESCRIPTION OF STUDY ************************
* 562-01                                                              *
* PROPOSED CONDITION 100-YR (DISCHARGE POINT 4 - SKY MESA)            *
*                                                                     *
 **********************************************************************

  FILE NAME: RCPR4.DAT
  TIME/DATE OF STUDY: 09:24 09/03/2019
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.360
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.060
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  5.630
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  2.530
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4467076
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4464271
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   2.530
  SLOPE OF INTENSITY DURATION CURVE = 0.4464
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    400.00 TO NODE    401.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
          ASSUMED INITIAL SUBAREA UNIFORM
          DEVELOPMENT IS: UNDEVELOPED WITH GOOD COVER
```

```
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    81.00
 UPSTREAM ELEVATION(FEET) =    670.00
 DOWNSTREAM ELEVATION(FEET) =    654.00
 ELEVATION DIFFERENCE(FEET) =     16.00
 TC = 0.937*[(   81.00**3)/(    16.00)]**.2 =    7.520
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.394
 UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7733
 SOIL CLASSIFICATION IS "B"
 SUBAREA RUNOFF(CFS) =      0.49
 TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.49

****************************************************************************
 FLOW PROCESS FROM NODE    401.00 TO NODE    402.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    654.00  DOWNSTREAM(FEET) =    648.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =    60.00   CHANNEL SLOPE =  0.1000
 CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   8.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.244
 UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7707
 SOIL CLASSIFICATION IS "B"
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       0.69
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.43
 AVERAGE FLOW DEPTH(FEET) =   0.19   TRAVEL TIME(MIN.) =   0.41
 Tc(MIN.) =    7.93
 SUBAREA AREA(ACRES) =     0.08       SUBAREA RUNOFF(CFS) =    0.38
 TOTAL AREA(ACRES) =        0.2         PEAK FLOW RATE(CFS) =       0.88

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.21   FLOW VELOCITY(FEET/SEC.) =   2.52
 LONGEST FLOWPATH FROM NODE    400.00 TO NODE    402.00 =     141.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    402.00 TO NODE    403.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    644.00  DOWNSTREAM(FEET) =    640.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =    58.00   CHANNEL SLOPE =  0.0690
 CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  50.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.138
 SINGLE-FAMILY(1/2 ACRE LOT) RUNOFF COEFFICIENT = .8213
 SOIL CLASSIFICATION IS "B"
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.64
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.12
 AVERAGE FLOW DEPTH(FEET) =   0.06   TRAVEL TIME(MIN.) =   0.31
 Tc(MIN.) =    8.24
 SUBAREA AREA(ACRES) =     0.30       SUBAREA RUNOFF(CFS) =    1.51
 TOTAL AREA(ACRES) =        0.5         PEAK FLOW RATE(CFS) =       2.39

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.07   FLOW VELOCITY(FEET/SEC.) =   3.76
 LONGEST FLOWPATH FROM NODE    400.00 TO NODE    403.00 =     199.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        0.5  TC(MIN.) =      8.24
 PEAK FLOW RATE(CFS)   =       2.39
```

==========
==========
END OF RATIONAL METHOD ANALYSIS

```
****************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2007 Advanced Engineering Software (aes)
                    (Rational Tabling Version 7.0D)
                 Release Date: 06/01/2007  License ID 1532

                          Analysis prepared by:




 ************************ DESCRIPTION OF STUDY ************************
* 562-01                                                                  *
* PROPOSED CONDITION 100-YR (DISCHARGE POINT 5 - SKY MESA)                *
*                                                                         *
 ***************************************************************************

  FILE NAME: RCPR5.DAT
  TIME/DATE OF STUDY: 11:40 09/03/2019
---------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
---------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.360
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.060
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  5.630
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  2.530
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.4467076
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.4464271
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   2.530
  SLOPE OF INTENSITY DURATION CURVE = 0.4464
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    500.00 TO NODE    501.00 IS CODE =  21
---------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
===========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH GOOD COVER
```

```
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    45.00
  UPSTREAM ELEVATION(FEET) =    670.00
  DOWNSTREAM ELEVATION(FEET) =    669.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  TC = 0.937*[(   45.00**3)/(     1.00)]**.2 =    9.201
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.843
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7632
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      0.18
  TOTAL AREA(ACRES) =      0.04   TOTAL RUNOFF(CFS) =      0.18

****************************************************************************
  FLOW PROCESS FROM NODE    501.00 TO NODE    502.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   654.50  DOWNSTREAM(FEET) =   649.50
  FLOW LENGTH(FEET) =   128.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   6.0 INCH PIPE IS   1.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.13
  GIVEN PIPE DIAMETER(INCH) =   6.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.18
  PIPE TRAVEL TIME(MIN.) =   0.52    Tc(MIN.) =    9.72
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    502.00 =     173.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    502.00 TO NODE    502.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.702
  SINGLE-FAMILY(1/2 ACRE LOT) RUNOFF COEFFICIENT = .8162
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.36   SUBAREA RUNOFF(CFS) =    1.68
  TOTAL AREA(ACRES) =       0.4   TOTAL RUNOFF(CFS) =       1.85
  TC(MIN.) =    9.72

****************************************************************************
  FLOW PROCESS FROM NODE    502.00 TO NODE    503.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   649.50  DOWNSTREAM(FEET) =   643.00
  FLOW LENGTH(FEET) =   136.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   4.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.98
  GIVEN PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.85
  PIPE TRAVEL TIME(MIN.) =   0.28    Tc(MIN.) =   10.00
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    503.00 =     309.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    503.00 TO NODE    503.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.630
  SINGLE-FAMILY(1-ACRE LOT) RUNOFF COEFFICIENT = .7870
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.44   SUBAREA RUNOFF(CFS) =    1.95
```

```
  TOTAL AREA(ACRES) =        0.8   TOTAL RUNOFF(CFS) =       3.80
  TC(MIN.) =   10.00

****************************************************************************
  FLOW PROCESS FROM NODE    503.00 TO NODE    504.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   643.00  DOWNSTREAM(FEET) =   632.00
  FLOW LENGTH(FEET) =    41.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   3.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.18
  GIVEN PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.80
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   10.04
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    504.00 =     350.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    504.00 TO NODE    504.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.620
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7586
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.17   SUBAREA RUNOFF(CFS) =    0.72
  TOTAL AREA(ACRES) =        1.0   TOTAL RUNOFF(CFS) =       4.53
  TC(MIN.) =   10.04

****************************************************************************
  FLOW PROCESS FROM NODE    504.00 TO NODE    505.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   632.00  DOWNSTREAM(FEET) =   631.00
  FLOW LENGTH(FEET) =    15.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.45
  GIVEN PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.53
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =   10.06
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    505.00 =     365.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    505.00 TO NODE    506.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    631.00  DOWNSTREAM(FEET) =    556.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   274.00   CHANNEL SLOPE =  0.2737
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.467
  SINGLE-FAMILY(1-ACRE LOT) RUNOFF COEFFICIENT = .7842
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.97
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.40
  AVERAGE FLOW DEPTH(FEET) =   0.49   TRAVEL TIME(MIN.) =   0.62
  Tc(MIN.) =   10.68
  SUBAREA AREA(ACRES) =     1.14       SUBAREA RUNOFF(CFS) =    4.89
```

```
  TOTAL AREA(ACRES) =        2.2         PEAK FLOW RATE(CFS) =       9.42

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.54   FLOW VELOCITY(FEET/SEC.) =   7.94
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    506.00 =     639.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.2  TC(MIN.) =     10.68
  PEAK FLOW RATE(CFS)   =       9.42
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX 4

Onsite Detention Analysis

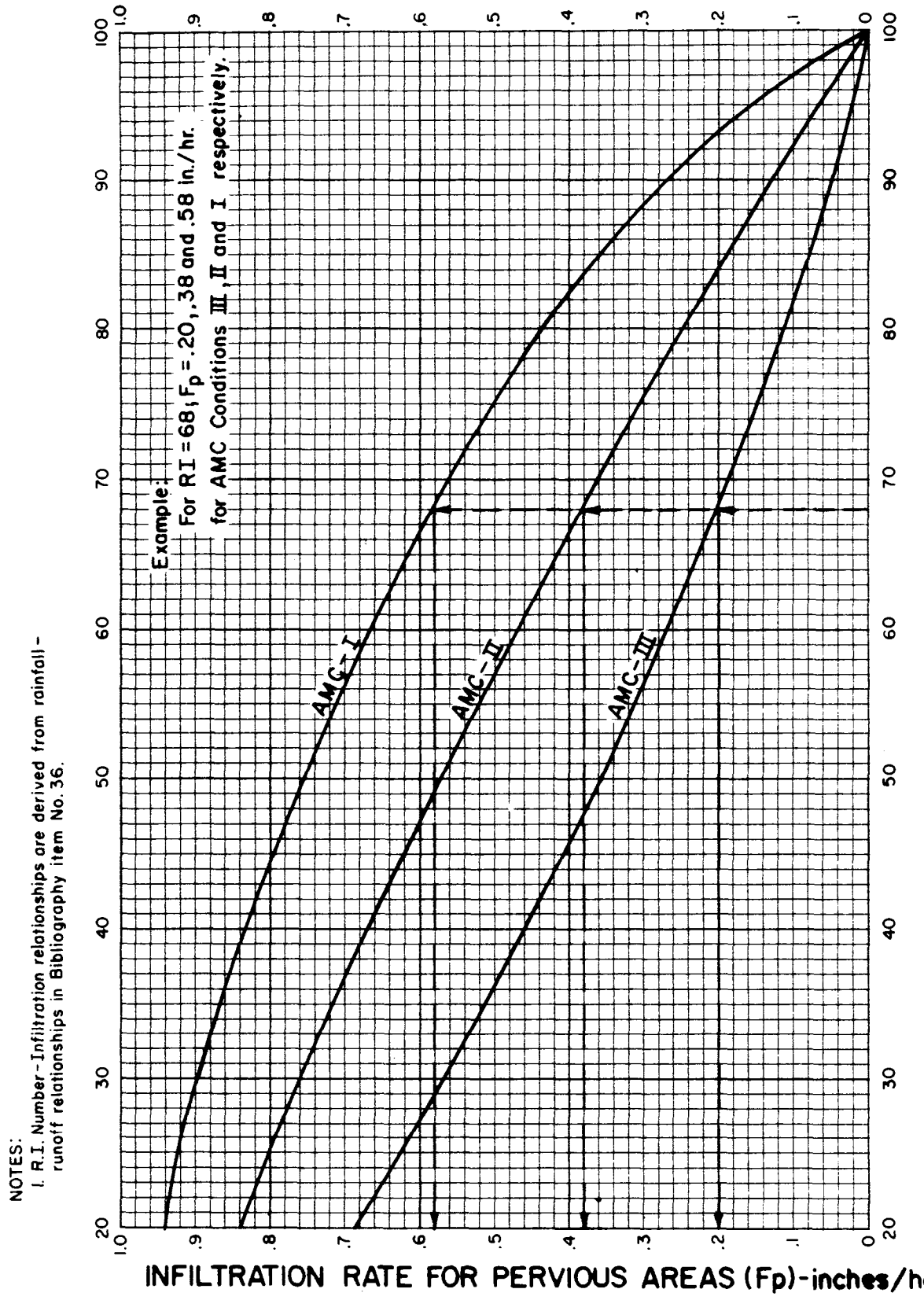
RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparrel, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparrel, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	72	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	28	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		76	85	90	92

RCFC & WCD
HYDROLOGY MANUAL

RUNOFF INDEX NUMBERS FOR PERVIOUS AREA

PLATE D-5.5 (1 of 2)



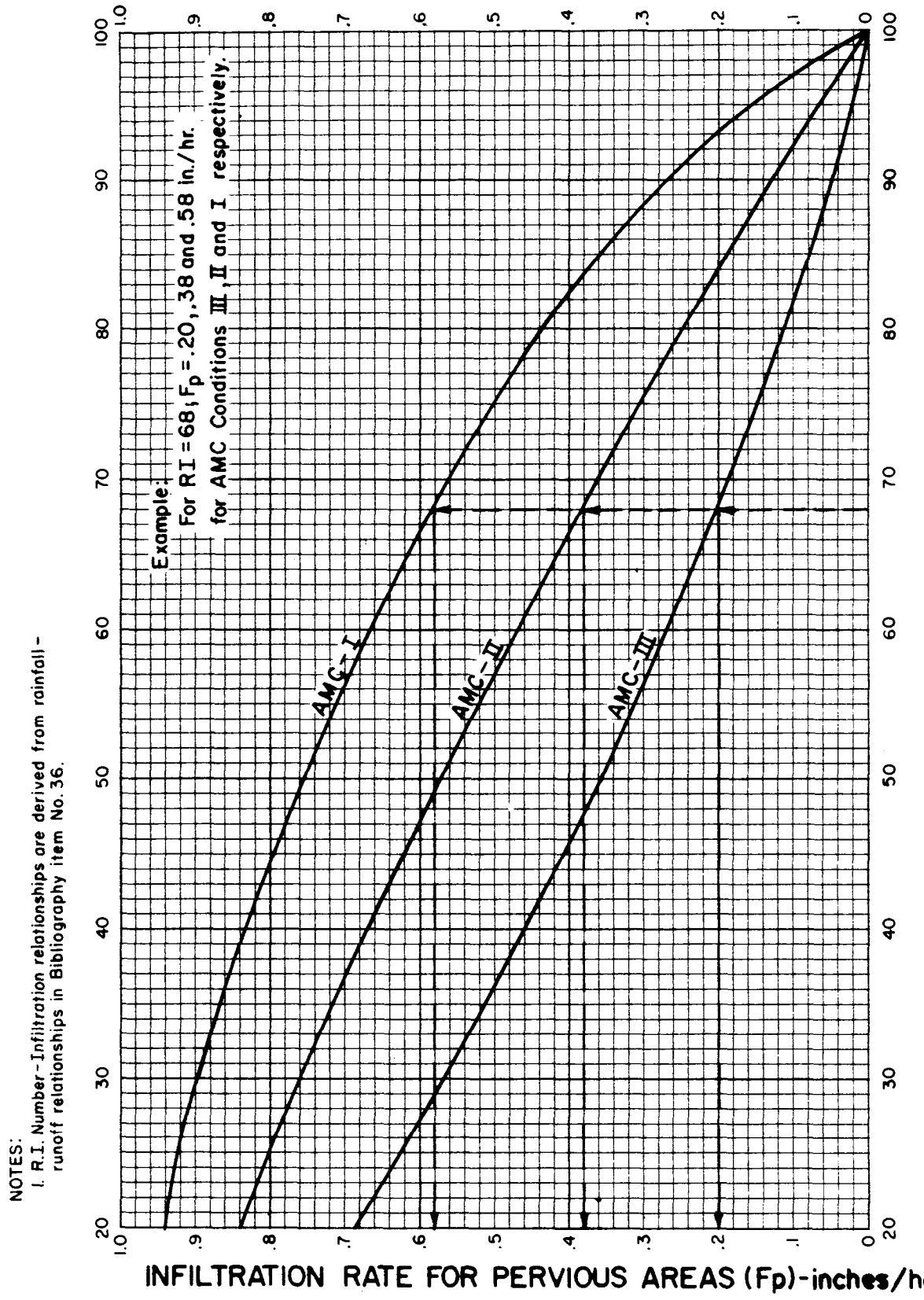
NOTES:
1. R.I. Number-Infiltration relationships are derived from rainfall-runoff relationships in Bibliography item No. 36.

RCFC & WCD

HYDROLOGY MANUAL

INFILTRATION RATE FOR PERVIOUS AREAS VERSUS RUNOFF INDEX NUMBERS

PLATE E-6.2



NOTES:
1. R.I. Number-Infiltration relationships are derived from rainfall-runoff relationships in Bibliography item No. 36.

RCFC & WCD

HYDROLOGY MANUAL

INFILTRATION RATE FOR PERVIOUS AREAS VERSUS RUNOFF INDEX NUMBERS

PLATE E-6.2

NOAA Atlas 14, Volume 6, Version 2
Location name: Rancho Mirage, California, USA*
Latitude: 33.766°, Longitude: -116.4573°
Elevation: 661.75 ft**
* source: ESRI Maps
** source: USGS

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	0.075 (0.063-0.091)	0.123 (0.102-0.149)	0.199 (0.165-0.242)	0.274 (0.226-0.336)	0.398 (0.317-0.505)	0.515 (0.401-0.667)	0.655 (0.498-0.870)	0.850 (0.628-1.16)	1.36 (0.962-1.94)	1.94 (1.33-2.87)
10-min	0.107 (0.090-0.130)	0.176 (0.146-0.213)	0.286 (0.237-0.347)	0.393 (0.323-0.482)	0.571 (0.454-0.724)	0.738 (0.575-0.956)	0.938 (0.713-1.25)	1.22 (0.899-1.67)	1.95 (1.38-2.78)	2.78 (1.90-4.12)
15-min	0.130 (0.108-0.157)	0.213 (0.177-0.258)	0.345 (0.287-0.420)	0.475 (0.391-0.583)	0.690 (0.549-0.876)	0.892 (0.695-1.16)	1.14 (0.862-1.51)	1.47 (1.09-2.02)	2.36 (1.67-3.36)	3.37 (2.30-4.98)
30-min	0.210 (0.175-0.255)	0.344 (0.287-0.417)	0.559 (0.464-0.680)	0.769 (0.633-0.943)	1.12 (0.890-1.42)	1.44 (1.13-1.87)	1.84 (1.40-2.44)	2.39 (1.76-3.26)	3.82 (2.70-5.45)	5.45 (3.72-8.06)
60-min	0.290 (0.242-0.351)	0.474 (0.395-0.575)	0.771 (0.640-0.937)	1.06 (0.873-1.30)	1.54 (1.23-1.95)	1.99 (1.55-2.58)	2.53 (1.93-3.37)	3.29 (2.43-4.50)	5.26 (3.72-7.51)	7.51 (5.13-11.1)
2-hr	0.387 (0.323-0.469)	0.636 (0.530-0.771)	1.01 (0.841-1.23)	1.36 (1.12-1.67)	1.90 (1.52-2.42)	2.38 (1.86-3.09)	2.93 (2.23-3.90)	3.57 (2.63-4.88)	5.31 (3.76-7.58)	7.59 (5.18-11.2)
3-hr	0.458 (0.382-0.555)	0.750 (0.625-0.910)	1.18 (0.981-1.44)	1.57 (1.29-1.93)	2.16 (1.72-2.74)	2.67 (2.08-3.46)	3.24 (2.46-4.31)	3.89 (2.87-5.32)	5.37 (3.80-7.66)	7.66 (5.23-11.3)
6-hr	0.613 (0.511-0.742)	0.991 (0.826-1.20)	1.53 (1.27-1.86)	2.01 (1.66-2.47)	2.72 (2.16-3.45)	3.31 (2.58-4.29)	3.96 (3.01-5.26)	4.68 (3.46-6.40)	5.74 (4.06-8.20)	7.74 (5.29-11.4)
12-hr	0.763 (0.636-0.924)	1.22 (1.01-1.47)	1.85 (1.54-2.25)	2.40 (1.98-2.95)	3.22 (2.56-4.08)	3.89 (3.03-5.04)	4.61 (3.50-6.13)	5.41 (3.99-7.40)	6.57 (4.65-9.38)	7.82 (5.34-11.6)
24-hr	0.905 (0.801-1.04)	1.42 (1.25-1.64)	2.14 (1.89-2.48)	2.77 (2.42-3.23)	3.68 (3.12-4.44)	4.43 (3.68-5.45)	5.25 (4.25-6.60)	6.13 (4.84-7.93)	7.42 (5.63-9.98)	8.49 (6.23-11.8)
2-day	1.05 (0.925-1.21)	1.62 (1.43-1.87)	2.42 (2.14-2.80)	3.13 (2.73-3.65)	4.16 (3.52-5.01)	5.01 (4.16-6.16)	5.93 (4.81-7.47)	6.95 (5.48-8.98)	8.43 (6.39-11.3)	9.67 (7.09-13.5)
3-day	1.11 (0.985-1.28)	1.71 (1.51-1.97)	2.55 (2.25-2.95)	3.30 (2.88-3.85)	4.39 (3.72-5.29)	5.31 (4.41-6.53)	6.31 (5.12-7.95)	7.42 (5.86-9.59)	9.05 (6.86-12.2)	10.4 (7.65-14.5)
4-day	1.15 (1.01-1.32)	1.75 (1.55-2.02)	2.62 (2.31-3.03)	3.38 (2.95-3.94)	4.51 (3.82-5.43)	5.46 (4.53-6.71)	6.50 (5.27-8.17)	7.65 (6.04-9.89)	9.35 (7.09-12.6)	10.8 (7.91-15.0)
7-day	1.26 (1.11-1.45)	1.91 (1.69-2.21)	2.85 (2.52-3.30)	3.68 (3.22-4.30)	4.92 (4.16-5.92)	5.95 (4.94-7.31)	7.08 (5.74-8.91)	8.34 (6.58-10.8)	10.2 (7.73-13.7)	11.8 (8.64-16.4)
10-day	1.34 (1.18-1.54)	2.03 (1.80-2.35)	3.03 (2.67-3.51)	3.92 (3.42-4.57)	5.23 (4.43-6.29)	6.33 (5.25-7.78)	7.53 (6.11-9.48)	8.87 (7.00-11.5)	10.9 (8.23-14.6)	12.5 (9.19-17.4)
20-day	1.49 (1.32-1.72)	2.28 (2.01-2.63)	3.41 (3.01-3.95)	4.41 (3.86-5.15)	5.91 (5.01-7.12)	7.17 (5.96-8.82)	8.56 (6.94-10.8)	10.1 (7.98-13.1)	12.4 (9.41-16.7)	14.4 (10.5-20.0)
30-day	1.69 (1.49-1.94)	2.59 (2.29-2.99)	3.90 (3.44-4.52)	5.07 (4.43-5.91)	6.81 (5.77-8.20)	8.29 (6.88-10.2)	9.92 (8.05-12.5)	11.7 (9.27-15.2)	14.5 (11.0-19.5)	16.8 (12.3-23.4)
45-day	1.87 (1.66-2.16)	2.90 (2.57-3.35)	4.40 (3.88-5.09)	5.73 (5.01-6.69)	7.74 (6.55-9.32)	9.45 (7.84-11.6)	11.3 (9.20-14.3)	13.5 (10.6-17.4)	16.7 (12.6-22.4)	19.4 (14.2-27.0)
60-day	2.03 (1.79-2.34)	3.16 (2.80-3.65)	4.82 (4.25-5.57)	6.30 (5.51-7.35)	8.53 (7.23-10.3)	10.4 (8.67-12.8)	12.6 (10.2-15.8)	15.0 (11.8-19.4)	18.6 (14.1-25.0)	21.7 (16.0-30.3)

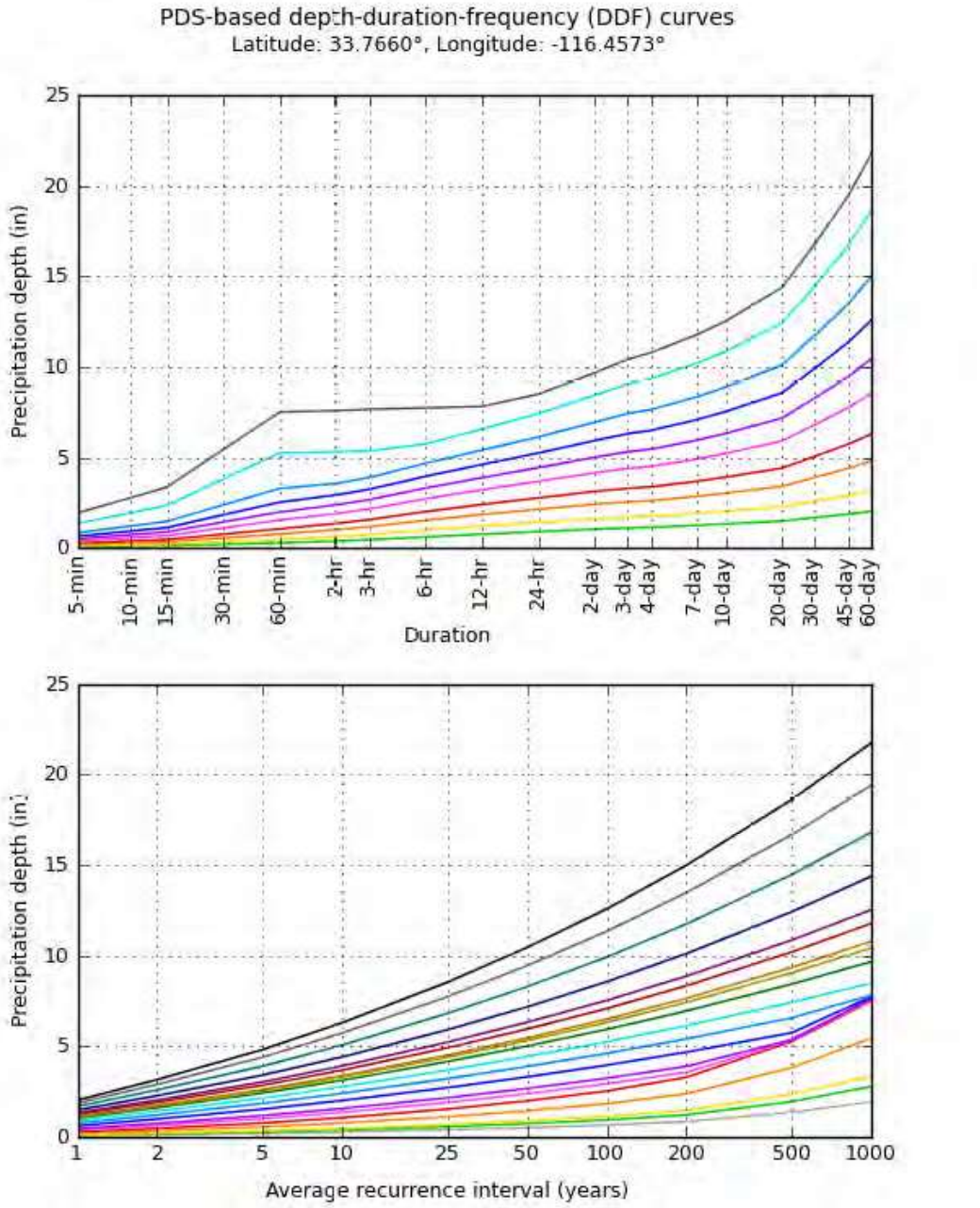
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

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.

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PF graphical



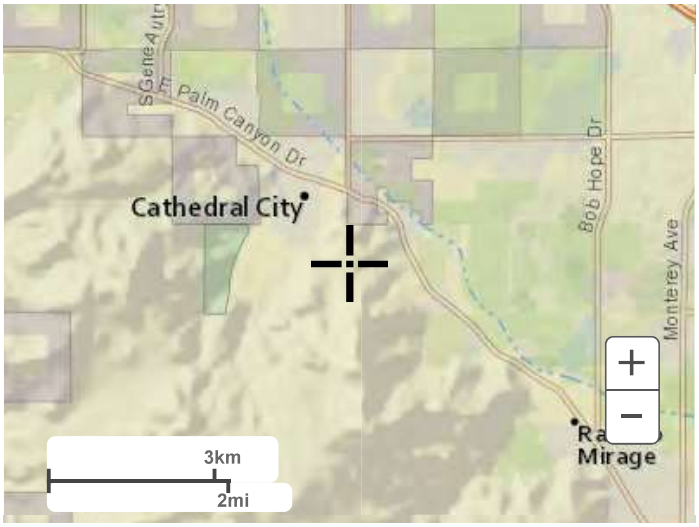
NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Tue Jul 2 21:50:40 2019

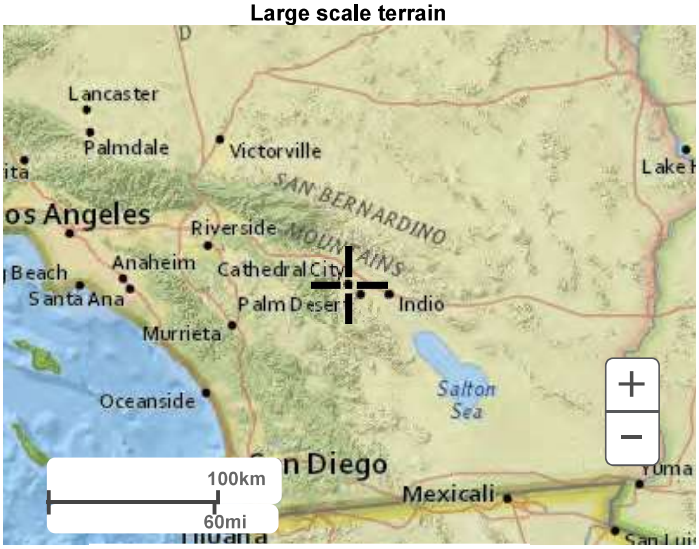
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Maps & aerials

Small scale terrain



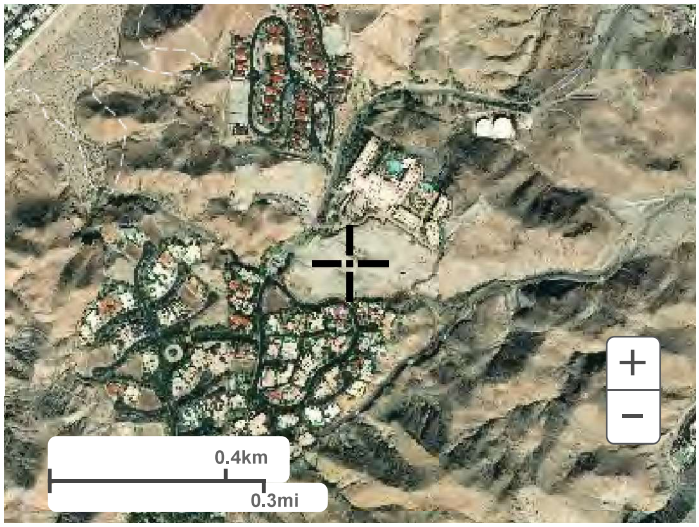
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Unit Time for 24-hour storms = 15 minutes (per Plate E-1.2)

Storm Event	Precipitation (inches)	RCFC&WCD Hydrology Manual Reference
100-yr, 24-hour	5.25	NOAA Atlas 14

Discharge Point 1 (Existing Condition)

Storm	Volume (ac-ft)	Volume (cf)	Peak FLow (cfs)
100-yr, 24-hour	0.80	34801	2.03

Loss Parameters (Existing Condition - Discharge Point 1)

Drainage Area	150,401	sf		
	3.45	ac		
A_i	27,143	sf		
	18%	imp		
Runoff Index	86		Note:	Plate E-6.1: Barren (Rockland, eroded and graded); Soil Type B
F_p	0.18	in/hr	Note:	Plate E-6.2: AMC II

$$F = F_p(1 - 0.9A_i)$$ ***F =*** **0.151 in/hr**

For 24-hr storms, F_T is variable loss rate

$$F_T = C[24 - (T/60)]^{1.55} + F_M$$

$$C = (F - F_M)/54$$

$$T = \text{Unit Time}/2$$

$$F_M = 0.5F$$

F_T = **0.266**

C = **0.0014**

T = **7.5**

F_M = **0.075**

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Existing Condition - Discharge Point 1) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	3.45	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.151	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.075
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR MAX	[22] LOSS RATE IN/HR LOW	[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
1					0.2	0.042	0.266	0.036	0.006	0.02
2					0.3	0.063	0.263	0.054	0.009	0.03
3					0.3	0.063	0.260	0.054	0.009	0.03
4					0.4	0.084	0.257	0.071	0.013	0.04
5					0.3	0.063	0.254	0.054	0.009	0.03
6					0.3	0.063	0.251	0.054	0.009	0.03
7					0.3	0.063	0.248	0.054	0.009	0.03
8					0.4	0.084	0.245	0.071	0.013	0.04
9					0.4	0.084	0.242	0.071	0.013	0.04
10					0.4	0.084	0.239	0.071	0.013	0.04
11					0.5	0.105	0.236	0.089	0.016	0.05
12					0.5	0.105	0.233	0.089	0.016	0.05
13					0.5	0.105	0.230	0.089	0.016	0.05
14					0.5	0.105	0.228	0.089	0.016	0.05
15					0.5	0.105	0.225	0.089	0.016	0.05
16					0.6	0.126	0.222	0.107	0.019	0.07
17					0.6	0.126	0.219	0.107	0.019	0.07
18					0.7	0.147	0.216	0.125	0.022	0.08
19					0.7	0.147	0.213	0.125	0.022	0.08
20					0.8	0.168	0.211	0.143	0.025	0.09
21					0.6	0.126	0.208	0.107	0.019	0.07
22					0.7	0.147	0.205	0.125	0.022	0.08
23					0.8	0.168	0.203	0.143	0.025	0.09
24					0.8	0.168	0.200	0.143	0.025	0.09
25					0.9	0.189	0.197	0.161	0.028	0.10
26					0.9	0.189	0.195	0.161	0.028	0.10
27					1.0	0.210	0.192	0.179	0.018	0.06
28					1.0	0.210	0.189	0.179	0.021	0.07
29					1.0	0.210	0.187	0.179	0.023	0.08
30					1.1	0.231	0.184	0.196	0.047	0.16
31					1.2	0.252	0.182	0.214	0.070	0.24
32					1.3	0.273	0.179	0.232	0.094	0.33
33					1.5	0.315	0.177	0.268	0.138	0.48
34					1.5	0.315	0.174	0.268	0.141	0.49
35					1.6	0.336	0.172	0.286	0.164	0.57
36					1.7	0.357	0.169	0.303	0.188	0.65
37					1.9	0.399	0.167	0.339	0.232	0.81
38					2.0	0.420	0.165	0.357	0.255	0.89
39					2.1	0.441	0.162	0.375	0.279	0.97
40					2.2	0.462	0.160	0.393	0.302	1.05
41					1.5	0.315	0.158	0.268	0.157	0.55
42					1.5	0.315	0.155	0.268	0.160	0.56
43					2.0	0.420	0.153	0.357	0.267	0.93
44					2.0	0.420	0.151	0.357	0.269	0.94
45					1.9	0.399	0.149	0.339	0.250	0.87
46					1.9	0.399	0.146	0.339	0.253	0.88
47					1.7	0.357	0.144	0.303	0.213	0.74
48					1.8	0.378	0.142	0.321	0.236	0.82
49					2.5	0.525	0.140	0.446	0.385	1.34
50					2.6	0.546	0.138	0.464	0.408	1.42
51					2.8	0.588	0.136	0.500	0.452	1.57
52					2.9	0.609	0.134	0.518	0.475	1.65
53					3.4	0.714	0.132	0.607	0.582	2.03
54					3.4	0.714	0.130	0.607	0.584	**2.03**
55					2.3	0.483	0.128	0.411	0.355	1.24
56					2.3	0.483	0.126	0.411	0.357	1.24
57					2.7	0.567	0.124	0.482	0.443	1.54
58					2.6	0.546	0.122	0.464	0.424	1.48
59					2.6	0.546	0.120	0.464	0.426	1.48
60					2.5	0.525	0.118	0.446	0.407	1.42
61					2.4	0.504	0.117	0.428	0.387	1.35
62					2.3	0.483	0.115	0.411	0.368	1.28
63					1.9	0.399	0.113	0.339	0.286	1.00
64					1.9	0.399	0.111	0.339	0.288	1.00

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Existing Condition - Discharge Point 1) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	3.45	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.151	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.075
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR		[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
							MAX	LOW		
65					0.4	0.084	0.110	0.071	0.013	0.04
66					0.4	0.084	0.108	0.071	0.013	0.04
67					0.3	0.063	0.106	0.054	0.009	0.03
68					0.3	0.063	0.105	0.054	0.009	0.03
69					0.5	0.105	0.103	0.089	0.002	0.01
70					0.5	0.105	0.102	0.089	0.003	0.01
71					0.5	0.105	0.100	0.089	0.005	0.02
72					0.4	0.084	0.099	0.071	0.013	0.04
73					0.4	0.084	0.097	0.071	0.013	0.04
74					0.4	0.084	0.096	0.071	0.013	0.04
75					0.3	0.063	0.094	0.054	0.009	0.03
76					0.2	0.042	0.093	0.036	0.006	0.02
77					0.3	0.063	0.092	0.054	0.009	0.03
78					0.4	0.084	0.090	0.071	0.013	0.04
79					0.3	0.063	0.089	0.054	0.009	0.03
80					0.2	0.042	0.088	0.036	0.006	0.02
81					0.3	0.063	0.087	0.054	0.009	0.03
82					0.3	0.063	0.086	0.054	0.009	0.03
83					0.3	0.063	0.085	0.054	0.009	0.03
84					0.2	0.042	0.084	0.036	0.006	0.02
85					0.3	0.063	0.083	0.054	0.009	0.03
86					0.2	0.042	0.082	0.036	0.006	0.02
87					0.3	0.063	0.081	0.054	0.009	0.03
88					0.2	0.042	0.080	0.036	0.006	0.02
89					0.3	0.063	0.079	0.054	0.009	0.03
90					0.2	0.042	0.078	0.036	0.006	0.02
91					0.2	0.042	0.078	0.036	0.006	0.02
92					0.2	0.042	0.077	0.036	0.006	0.02
93					0.2	0.042	0.077	0.036	0.006	0.02
94					0.2	0.042	0.076	0.036	0.006	0.02
95					0.2	0.042	0.076	0.036	0.006	0.02
96					0.2	0.042	0.075	0.036	0.006	0.02
TOTALS					100.0				11.11	38.67

EFFECTIVE RAIN = 2.78 INCHES
TOTAL RUNOFF VOLUME = 0.80 AC-FT

Discharge Point 2 (Existing Condition)

Storm	Volume (ac-ft)	Volume (cf)	Peak FLow (cfs)
100-yr, 24-hour	1.81	78852	4.74

Loss Parameters (Existing Condition - Discharge Point 2)

Drainage Area	361,322	sf		
	8.29	ac		
A_i	18,916	sf		
	5%	imp		
Runoff Index	86		Note:	Plate E-6.1: Barren (Rockland, eroded and graded); Soil Type B
F_p	0.18	in/hr	Note:	Plate E-6.2: AMC II

$$F = F_p(1 - 0.9A_i)$$ ***F =*** **0.172 in/hr**

For 24-hr storms, F_T is variable loss rate

$$F_T = C[24 - (T/60)]^{1.55} + F_M$$

$$C = (F - F_M)/54$$

$$T = \text{Unit Time}/2$$

$$F_M = 0.5F$$

F_T = **0.303**

C = **0.0016**

T = **7.5**

F_M = **0.086**

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Existing Condition - Discharge Point 2) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	8.29	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.172	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.086
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR MAX	[22] LOSS RATE IN/HR LOW	[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
1					0.2	0.042	0.303	0.036	0.006	0.05
2					0.3	0.063	0.299	0.054	0.009	0.08
3					0.3	0.063	0.296	0.054	0.009	0.08
4					0.4	0.084	0.292	0.071	0.013	0.11
5					0.3	0.063	0.289	0.054	0.009	0.08
6					0.3	0.063	0.286	0.054	0.009	0.08
7					0.3	0.063	0.282	0.054	0.009	0.08
8					0.4	0.084	0.279	0.071	0.013	0.11
9					0.4	0.084	0.275	0.071	0.013	0.11
10					0.4	0.084	0.272	0.071	0.013	0.11
11					0.5	0.105	0.269	0.089	0.016	0.13
12					0.5	0.105	0.265	0.089	0.016	0.13
13					0.5	0.105	0.262	0.089	0.016	0.13
14					0.5	0.105	0.259	0.089	0.016	0.13
15					0.5	0.105	0.256	0.089	0.016	0.13
16					0.6	0.126	0.252	0.107	0.019	0.16
17					0.6	0.126	0.249	0.107	0.019	0.16
18					0.7	0.147	0.246	0.125	0.022	0.18
19					0.7	0.147	0.243	0.125	0.022	0.18
20					0.8	0.168	0.240	0.143	0.025	0.21
21					0.6	0.126	0.237	0.107	0.019	0.16
22					0.7	0.147	0.234	0.125	0.022	0.18
23					0.8	0.168	0.230	0.143	0.025	0.21
24					0.8	0.168	0.227	0.143	0.025	0.21
25					0.9	0.189	0.224	0.161	0.028	0.24
26					0.9	0.189	0.221	0.161	0.028	0.24
27					1.0	0.210	0.218	0.179	0.032	0.26
28					1.0	0.210	0.215	0.179	0.032	0.26
29					1.0	0.210	0.213	0.179	0.032	0.26
30					1.1	0.231	0.210	0.196	0.021	0.18
31					1.2	0.252	0.207	0.214	0.045	0.38
32					1.3	0.273	0.204	0.232	0.069	0.58
33					1.5	0.315	0.201	0.268	0.114	0.95
34					1.5	0.315	0.198	0.268	0.117	0.98
35					1.6	0.336	0.196	0.286	0.140	1.17
36					1.7	0.357	0.193	0.303	0.164	1.37
37					1.9	0.399	0.190	0.339	0.209	1.75
38					2.0	0.420	0.187	0.357	0.233	1.95
39					2.1	0.441	0.185	0.375	0.256	2.14
40					2.2	0.462	0.182	0.393	0.280	2.34
41					1.5	0.315	0.179	0.268	0.136	1.13
42					1.5	0.315	0.177	0.268	0.138	1.16
43					2.0	0.420	0.174	0.357	0.246	2.06
44					2.0	0.420	0.172	0.357	0.248	2.08
45					1.9	0.399	0.169	0.339	0.230	1.92
46					1.9	0.399	0.167	0.339	0.232	1.94
47					1.7	0.357	0.164	0.303	0.193	1.61
48					1.8	0.378	0.162	0.321	0.216	1.81
49					2.5	0.525	0.159	0.446	0.366	3.06
50					2.6	0.546	0.157	0.464	0.389	3.25
51					2.8	0.588	0.155	0.500	0.433	3.63
52					2.9	0.609	0.152	0.518	0.457	3.82
53					3.4	0.714	0.150	0.607	0.564	4.72
54					3.4	0.714	0.148	0.607	0.566	**4.74**
55					2.3	0.483	0.145	0.411	0.338	2.82
56					2.3	0.483	0.143	0.411	0.340	2.84
57					2.7	0.567	0.141	0.482	0.426	3.56
58					2.6	0.546	0.139	0.464	0.407	3.41
59					2.6	0.546	0.137	0.464	0.409	3.42
60					2.5	0.525	0.135	0.446	0.390	3.26
61					2.4	0.504	0.133	0.428	0.371	3.11
62					2.3	0.483	0.131	0.411	0.352	2.95
63					1.9	0.399	0.129	0.339	0.270	2.26
64					1.9	0.399	0.127	0.339	0.272	2.28

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Existing Condition - Discharge Point 2) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	8.29	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.172	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.086
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR MAX	[22] LOSS RATE IN/HR LOW	[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
65					0.4	0.084	0.125	0.071	0.013	0.11
66					0.4	0.084	0.123	0.071	0.013	0.11
67					0.3	0.063	0.121	0.054	0.009	0.08
68					0.3	0.063	0.119	0.054	0.009	0.08
69					0.5	0.105	0.117	0.089	0.016	0.13
70					0.5	0.105	0.116	0.089	0.016	0.13
71					0.5	0.105	0.114	0.089	0.016	0.13
72					0.4	0.084	0.112	0.071	0.013	0.11
73					0.4	0.084	0.110	0.071	0.013	0.11
74					0.4	0.084	0.109	0.071	0.013	0.11
75					0.3	0.063	0.107	0.054	0.009	0.08
76					0.2	0.042	0.106	0.036	0.006	0.05
77					0.3	0.063	0.104	0.054	0.009	0.08
78					0.4	0.084	0.103	0.071	0.013	0.11
79					0.3	0.063	0.101	0.054	0.009	0.08
80					0.2	0.042	0.100	0.036	0.006	0.05
81					0.3	0.063	0.099	0.054	0.009	0.08
82					0.3	0.063	0.097	0.054	0.009	0.08
83					0.3	0.063	0.096	0.054	0.009	0.08
84					0.2	0.042	0.095	0.036	0.006	0.05
85					0.3	0.063	0.094	0.054	0.009	0.08
86					0.2	0.042	0.093	0.036	0.006	0.05
87					0.3	0.063	0.092	0.054	0.009	0.08
88					0.2	0.042	0.091	0.036	0.006	0.05
89					0.3	0.063	0.090	0.054	0.009	0.08
90					0.2	0.042	0.089	0.036	0.006	0.05
91					0.2	0.042	0.088	0.036	0.006	0.05
92					0.2	0.042	0.088	0.036	0.006	0.05
93					0.2	0.042	0.087	0.036	0.006	0.05
94					0.2	0.042	0.087	0.036	0.006	0.05
95					0.2	0.042	0.086	0.036	0.006	0.05
96					0.2	0.042	0.086	0.036	0.006	0.05
TOTALS					100.0				10.48	87.61

EFFECTIVE RAIN = 2.62 INCHES
TOTAL RUNOFF VOLUME = 1.81 AC-FT

Discharge Point 1 (Proposed Condition)

Storm	Volume (ac-ft)	Volume (cf)	Peak FLow (cfs)
100-yr, 24-hour	1.42	61935	2.97

Loss Parameters (Proposed Condition - Discharge Point 1)

Drainage Area	195,054	sf		
	4.48	ac		
A_i	122,525	sf		
	63%	imp		
Runoff Index	88		Note:	Plate E-6.1: Assume desert landscaping => Open Brush - Poor; Soil Type D
F_p	0.15	in/hr	Note:	Plate E-6.2: AMC II

$$F = F_p(1 - 0.9A_i)$$ ***F =*** **0.065 in/hr**

For 24-hr storms, F_T is variable loss rate

$$F_T = C[24 - (T/60)]^{1.55} + F_M$$ ***F_T =*** **0.115**

$$C = (F - F_M)/54$$ ***C =*** **0.0006**

$$T = \text{Unit Time}/2$$ ***T =*** **7.5**

$$F_M = 0.5F$$ ***F_M =*** **0.033**

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Prop Condition - Discharge Point 1) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	4.48	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.065	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.033
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR		[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
							MAX	LOW		
1					0.2	0.042	0.115	0.036	0.006	0.03
2					0.3	0.063	0.114	0.054	0.009	0.04
3					0.3	0.063	0.112	0.054	0.009	0.04
4					0.4	0.084	0.111	0.071	0.013	0.06
5					0.3	0.063	0.110	0.054	0.009	0.04
6					0.3	0.063	0.109	0.054	0.009	0.04
7					0.3	0.063	0.107	0.054	0.009	0.04
8					0.4	0.084	0.106	0.071	0.013	0.06
9					0.4	0.084	0.105	0.071	0.013	0.06
10					0.4	0.084	0.103	0.071	0.013	0.06
11					0.5	0.105	0.102	0.089	0.003	0.01
12					0.5	0.105	0.101	0.089	0.004	0.02
13					0.5	0.105	0.100	0.089	0.005	0.02
14					0.5	0.105	0.098	0.089	0.007	0.03
15					0.5	0.105	0.097	0.089	0.008	0.04
16					0.6	0.126	0.096	0.107	0.030	0.14
17					0.6	0.126	0.095	0.107	0.031	0.14
18					0.7	0.147	0.094	0.125	0.053	0.24
19					0.7	0.147	0.092	0.125	0.055	0.25
20					0.8	0.168	0.091	0.143	0.077	0.35
21					0.6	0.126	0.090	0.107	0.036	0.16
22					0.7	0.147	0.089	0.125	0.058	0.26
23					0.8	0.168	0.088	0.143	0.080	0.36
24					0.8	0.168	0.086	0.143	0.082	0.37
25					0.9	0.189	0.085	0.161	0.104	0.47
26					0.9	0.189	0.084	0.161	0.105	0.47
27					1.0	0.210	0.083	0.179	0.127	0.57
28					1.0	0.210	0.082	0.179	0.128	0.58
29					1.0	0.210	0.081	0.179	0.129	0.58
30					1.1	0.231	0.080	0.196	0.151	0.68
31					1.2	0.252	0.079	0.214	0.173	0.78
32					1.3	0.273	0.078	0.232	0.195	0.88
33					1.5	0.315	0.076	0.268	0.239	1.08
34					1.5	0.315	0.075	0.268	0.240	1.08
35					1.6	0.336	0.074	0.286	0.262	1.18
36					1.7	0.357	0.073	0.303	0.284	1.28
37					1.9	0.399	0.072	0.339	0.327	1.48
38					2.0	0.420	0.071	0.357	0.349	1.57
39					2.1	0.441	0.070	0.375	0.371	1.67
40					2.2	0.462	0.069	0.393	0.393	1.77
41					1.5	0.315	0.068	0.268	0.247	1.11
42					1.5	0.315	0.067	0.268	0.248	1.12
43					2.0	0.420	0.066	0.357	0.354	1.60
44					2.0	0.420	0.065	0.357	0.355	1.60
45					1.9	0.399	0.064	0.339	0.335	1.51
46					1.9	0.399	0.063	0.339	0.336	1.52
47					1.7	0.357	0.062	0.303	0.295	1.33
48					1.8	0.378	0.061	0.321	0.317	1.43
49					2.5	0.525	0.061	0.446	0.464	2.10
50					2.6	0.546	0.060	0.464	0.486	2.20
51					2.8	0.588	0.059	0.500	0.529	2.39
52					2.9	0.609	0.058	0.518	0.551	2.49
53					3.4	0.714	0.057	0.607	0.657	2.97
54					3.4	0.714	0.056	0.607	0.658	**2.97**
55					2.3	0.483	0.055	0.411	0.428	1.93
56					2.3	0.483	0.054	0.411	0.429	1.94
57					2.7	0.567	0.054	0.482	0.513	2.32
58					2.6	0.546	0.053	0.464	0.493	2.23
59					2.6	0.546	0.052	0.464	0.494	2.23
60					2.5	0.525	0.051	0.446	0.474	2.14
61					2.4	0.504	0.050	0.428	0.454	2.05
62					2.3	0.483	0.050	0.411	0.433	1.96
63					1.9	0.399	0.049	0.339	0.350	1.58
64					1.9	0.399	0.048	0.339	0.351	1.58

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Prop Condition - Discharge Point 1) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	4.48	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.065	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.033
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR		[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
							MAX	LOW		
65					0.4	0.084	0.047	0.071	0.037	0.17
66					0.4	0.084	0.047	0.071	0.037	0.17
67					0.3	0.063	0.046	0.054	0.017	0.08
68					0.3	0.063	0.045	0.054	0.018	0.08
69					0.5	0.105	0.045	0.089	0.060	0.27
70					0.5	0.105	0.044	0.089	0.061	0.28
71					0.5	0.105	0.043	0.089	0.062	0.28
72					0.4	0.084	0.043	0.071	0.041	0.19
73					0.4	0.084	0.042	0.071	0.042	0.19
74					0.4	0.084	0.041	0.071	0.043	0.19
75					0.3	0.063	0.041	0.054	0.022	0.10
76					0.2	0.042	0.040	0.036	0.002	0.01
77					0.3	0.063	0.040	0.054	0.023	0.11
78					0.4	0.084	0.039	0.071	0.045	0.20
79					0.3	0.063	0.039	0.054	0.024	0.11
80					0.2	0.042	0.038	0.036	0.004	0.02
81					0.3	0.063	0.038	0.054	0.025	0.12
82					0.3	0.063	0.037	0.054	0.026	0.12
83					0.3	0.063	0.037	0.054	0.026	0.12
84					0.2	0.042	0.036	0.036	0.006	0.03
85					0.3	0.063	0.036	0.054	0.027	0.12
86					0.2	0.042	0.035	0.036	0.007	0.03
87					0.3	0.063	0.035	0.054	0.028	0.13
88					0.2	0.042	0.035	0.036	0.007	0.03
89					0.3	0.063	0.034	0.054	0.029	0.13
90					0.2	0.042	0.034	0.036	0.008	0.04
91					0.2	0.042	0.034	0.036	0.008	0.04
92					0.2	0.042	0.033	0.036	0.009	0.04
93					0.2	0.042	0.033	0.036	0.009	0.04
94					0.2	0.042	0.033	0.036	0.009	0.04
95					0.2	0.042	0.033	0.036	0.009	0.04
96					0.2	0.042	0.033	0.036	0.009	0.04
TOTALS					100.0				15.24	68.82

EFFECTIVE RAIN = 3.81 INCHES
TOTAL RUNOFF VOLUME = 1.42 AC-FT

Runoff Hydrograph to Detention Vault-1 (Proposed Condition)

Storm	Volume (ac-ft)	Volume (cf)	Peak FLow (cfs)
100-yr, 24-hour	0.77	33364	1.58

Loss Parameters (Proposed Condition - Runoff Hydgraph to Detention Vault-1)

Drainage Area	102,994	sf		
	2.36	ac		
A_i	67,661	sf		
	66%	imp		
Runoff Index	88		Note:	Plate E-6.1: Assume desert landscaping => Open Brush - Poor; Soil Type D
F_p	0.15	in/hr	Note:	Plate E-6.2: AMC II

$$F = F_p(1 - 0.9A_i)$$ ***F =*** **0.061 in/hr**

For 24-hr storms, F_T is variable loss rate

$$F_T = C[24 - (T/60)]^{1.55} + F_M$$

$$C = (F - F_M)/54$$

$$T = \text{Unit Time}/2$$

$$F_M = 0.5F$$

F_T = **0.108**
C = **0.0006**
T = **7.5**
F_M = **0.031**

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Prop Condition - Runoff HG to Detention Vault-1) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	2.36	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.061	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.031
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR		[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
							MAX	LOW		
1					0.2	0.042	0.108	0.036	0.006	0.02
2					0.3	0.063	0.107	0.054	0.009	0.02
3					0.3	0.063	0.106	0.054	0.009	0.02
4					0.4	0.084	0.105	0.071	0.013	0.03
5					0.3	0.063	0.103	0.054	0.009	0.02
6					0.3	0.063	0.102	0.054	0.009	0.02
7					0.3	0.063	0.101	0.054	0.009	0.02
8					0.4	0.084	0.100	0.071	0.013	0.03
9					0.4	0.084	0.098	0.071	0.013	0.03
10					0.4	0.084	0.097	0.071	0.013	0.03
11					0.5	0.105	0.096	0.089	0.009	0.02
12					0.5	0.105	0.095	0.089	0.010	0.02
13					0.5	0.105	0.094	0.089	0.011	0.03
14					0.5	0.105	0.093	0.089	0.012	0.03
15					0.5	0.105	0.091	0.089	0.014	0.03
16					0.6	0.126	0.090	0.107	0.036	0.09
17					0.6	0.126	0.089	0.107	0.037	0.09
18					0.7	0.147	0.088	0.125	0.059	0.14
19					0.7	0.147	0.087	0.125	0.060	0.14
20					0.8	0.168	0.086	0.143	0.082	0.20
21					0.6	0.126	0.085	0.107	0.041	0.10
22					0.7	0.147	0.083	0.125	0.064	0.15
23					0.8	0.168	0.082	0.143	0.086	0.20
24					0.8	0.168	0.081	0.143	0.087	0.21
25					0.9	0.189	0.080	0.161	0.109	0.26
26					0.9	0.189	0.079	0.161	0.110	0.26
27					1.0	0.210	0.078	0.179	0.132	0.31
28					1.0	0.210	0.077	0.179	0.133	0.32
29					1.0	0.210	0.076	0.179	0.134	0.32
30					1.1	0.231	0.075	0.196	0.156	0.37
31					1.2	0.252	0.074	0.214	0.178	0.42
32					1.3	0.273	0.073	0.232	0.200	0.48
33					1.5	0.315	0.072	0.268	0.243	0.58
34					1.5	0.315	0.071	0.268	0.244	0.58
35					1.6	0.336	0.070	0.286	0.266	0.63
36					1.7	0.357	0.069	0.303	0.288	0.69
37					1.9	0.399	0.068	0.339	0.331	0.79
38					2.0	0.420	0.067	0.357	0.353	0.84
39					2.1	0.441	0.066	0.375	0.375	0.89
40					2.2	0.462	0.065	0.393	0.397	0.95
41					1.5	0.315	0.064	0.268	0.251	0.60
42					1.5	0.315	0.063	0.268	0.252	0.60
43					2.0	0.420	0.062	0.357	0.358	0.85
44					2.0	0.420	0.061	0.357	0.359	0.86
45					1.9	0.399	0.060	0.339	0.339	0.81
46					1.9	0.399	0.060	0.339	0.339	0.81
47					1.7	0.357	0.059	0.303	0.298	0.71
48					1.8	0.378	0.058	0.321	0.320	0.76
49					2.5	0.525	0.057	0.446	0.468	1.12
50					2.6	0.546	0.056	0.464	0.490	1.17
51					2.8	0.588	0.055	0.500	0.533	1.27
52					2.9	0.609	0.054	0.518	0.555	1.32
53					3.4	0.714	0.054	0.607	0.660	1.57
54					3.4	0.714	0.053	0.607	0.661	**1.58**
55					2.3	0.483	0.052	0.411	0.431	1.03
56					2.3	0.483	0.051	0.411	0.432	1.03
57					2.7	0.567	0.050	0.482	0.517	1.23
58					2.6	0.546	0.050	0.464	0.496	1.18
59					2.6	0.546	0.049	0.464	0.497	1.19
60					2.5	0.525	0.048	0.446	0.477	1.14
61					2.4	0.504	0.047	0.428	0.457	1.09
62					2.3	0.483	0.047	0.411	0.436	1.04
63					1.9	0.399	0.046	0.339	0.353	0.84
64					1.9	0.399	0.045	0.339	0.354	0.84

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Prop Condition - Runoff HG to Detention Vault-1) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	2.36	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.061	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.031
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR		[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
							MAX	LOW		
65					0.4	0.084	0.045	0.071	0.039	0.09
66					0.4	0.084	0.044	0.071	0.040	0.10
67					0.3	0.063	0.043	0.054	0.020	0.05
68					0.3	0.063	0.043	0.054	0.020	0.05
69					0.5	0.105	0.042	0.089	0.063	0.15
70					0.5	0.105	0.041	0.089	0.064	0.15
71					0.5	0.105	0.041	0.089	0.064	0.15
72					0.4	0.084	0.040	0.071	0.044	0.10
73					0.4	0.084	0.039	0.071	0.045	0.11
74					0.4	0.084	0.039	0.071	0.045	0.11
75					0.3	0.063	0.038	0.054	0.025	0.06
76					0.2	0.042	0.038	0.036	0.004	0.01
77					0.3	0.063	0.037	0.054	0.026	0.06
78					0.4	0.084	0.037	0.071	0.047	0.11
79					0.3	0.063	0.036	0.054	0.027	0.06
80					0.2	0.042	0.036	0.036	0.006	0.01
81					0.3	0.063	0.035	0.054	0.028	0.07
82					0.3	0.063	0.035	0.054	0.028	0.07
83					0.3	0.063	0.034	0.054	0.029	0.07
84					0.2	0.042	0.034	0.036	0.008	0.02
85					0.3	0.063	0.034	0.054	0.029	0.07
86					0.2	0.042	0.033	0.036	0.009	0.02
87					0.3	0.063	0.033	0.054	0.030	0.07
88					0.2	0.042	0.032	0.036	0.010	0.02
89					0.3	0.063	0.032	0.054	0.031	0.07
90					0.2	0.042	0.032	0.036	0.010	0.02
91					0.2	0.042	0.032	0.036	0.010	0.02
92					0.2	0.042	0.031	0.036	0.011	0.03
93					0.2	0.042	0.031	0.036	0.011	0.03
94					0.2	0.042	0.031	0.036	0.011	0.03
95					0.2	0.042	0.031	0.036	0.011	0.03
96					0.2	0.042	0.031	0.036	0.011	0.03
TOTALS					100.0				15.55	37.07

EFFECTIVE RAIN = 3.89 INCHES
TOTAL RUNOFF VOLUME = 0.77 AC-FT

Runoff Hydrograph Bypass to Discharge Point 1 (Proposed Condition)

Storm	Volume (ac-ft)	Volume (cf)	Peak FLow (cfs)
100-yr, 24-hour	0.66	28690	1.39

Loss Parameters (Proposed Condition - Runoff Hydgraph Bypass to Discharge Point 1)

Drainage Area	92,060	sf		
	2.11	ac		
A_i	54,864	sf		
	60%	imp		
Runoff Index	88		Note:	Plate E-6.1: Assume desert landscaping => Open Brush - Poor; Soil Type D
F_p	0.15	in/hr	Note:	Plate E-6.2: AMC II

$$F = F_p(1 - 0.9A_i)$$ ***F =*** **0.070 in/hr**

For 24-hr storms, F_T is variable loss rate

$$F_T = C[24 - (T/60)]^{1.55} + F_M$$ ***F_T =*** **0.123**

$$C = (F - F_M)/54$$ ***C =*** **0.0006**

$$T = \text{Unit Time}/2$$ ***T =*** **7.5**

$$F_M = 0.5F$$ ***F_M =*** **0.035**

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Prop Condition - Bypass to Discharge Point 1) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	2.11	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.070	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.035
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR		[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
							MAX	LOW		
1					0.2	0.042	0.123	0.036	0.006	0.01
2					0.3	0.063	0.121	0.054	0.009	0.02
3					0.3	0.063	0.120	0.054	0.009	0.02
4					0.4	0.084	0.119	0.071	0.013	0.03
5					0.3	0.063	0.117	0.054	0.009	0.02
6					0.3	0.063	0.116	0.054	0.009	0.02
7					0.3	0.063	0.114	0.054	0.009	0.02
8					0.4	0.084	0.113	0.071	0.013	0.03
9					0.4	0.084	0.112	0.071	0.013	0.03
10					0.4	0.084	0.110	0.071	0.013	0.03
11					0.5	0.105	0.109	0.089	0.016	0.03
12					0.5	0.105	0.108	0.089	0.016	0.03
13					0.5	0.105	0.106	0.089	0.016	0.03
14					0.5	0.105	0.105	0.089	0.000	0.00
15					0.5	0.105	0.104	0.089	0.001	0.00
16					0.6	0.126	0.102	0.107	0.024	0.05
17					0.6	0.126	0.101	0.107	0.025	0.05
18					0.7	0.147	0.100	0.125	0.047	0.10
19					0.7	0.147	0.098	0.125	0.049	0.10
20					0.8	0.168	0.097	0.143	0.071	0.15
21					0.6	0.126	0.096	0.107	0.030	0.06
22					0.7	0.147	0.095	0.125	0.052	0.11
23					0.8	0.168	0.093	0.143	0.075	0.16
24					0.8	0.168	0.092	0.143	0.076	0.16
25					0.9	0.189	0.091	0.161	0.098	0.21
26					0.9	0.189	0.090	0.161	0.099	0.21
27					1.0	0.210	0.089	0.179	0.121	0.26
28					1.0	0.210	0.087	0.179	0.123	0.26
29					1.0	0.210	0.086	0.179	0.124	0.26
30					1.1	0.231	0.085	0.196	0.146	0.31
31					1.2	0.252	0.084	0.214	0.168	0.36
32					1.3	0.273	0.083	0.232	0.190	0.41
33					1.5	0.315	0.082	0.268	0.233	0.50
34					1.5	0.315	0.080	0.268	0.235	0.50
35					1.6	0.336	0.079	0.286	0.257	0.55
36					1.7	0.357	0.078	0.303	0.279	0.59
37					1.9	0.399	0.077	0.339	0.322	0.69
38					2.0	0.420	0.076	0.357	0.344	0.73
39					2.1	0.441	0.075	0.375	0.366	0.78
40					2.2	0.462	0.074	0.393	0.388	0.83
41					1.5	0.315	0.073	0.268	0.242	0.52
42					1.5	0.315	0.072	0.268	0.243	0.52
43					2.0	0.420	0.071	0.357	0.349	0.74
44					2.0	0.420	0.070	0.357	0.350	0.75
45					1.9	0.399	0.069	0.339	0.330	0.70
46					1.9	0.399	0.068	0.339	0.331	0.71
47					1.7	0.357	0.067	0.303	0.290	0.62
48					1.8	0.378	0.066	0.321	0.312	0.67
49					2.5	0.525	0.065	0.446	0.460	0.98
50					2.6	0.546	0.064	0.464	0.482	1.03
51					2.8	0.588	0.063	0.500	0.525	1.12
52					2.9	0.609	0.062	0.518	0.547	1.17
53					3.4	0.714	0.061	0.607	0.653	1.39
54					3.4	0.714	0.060	0.607	0.654	**1.39**
55					2.3	0.483	0.059	0.411	0.424	0.90
56					2.3	0.483	0.058	0.411	0.425	0.91
57					2.7	0.567	0.057	0.482	0.510	1.09
58					2.6	0.546	0.056	0.464	0.490	1.04
59					2.6	0.546	0.055	0.464	0.491	1.05
60					2.5	0.525	0.055	0.446	0.470	1.00
61					2.4	0.504	0.054	0.428	0.450	0.96
62					2.3	0.483	0.053	0.411	0.430	0.92
63					1.9	0.399	0.052	0.339	0.347	0.74
64					1.9	0.399	0.051	0.339	0.348	0.74

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Prop Condition - Bypass to Discharge Point 1) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	2.11	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.070	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.035
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR		[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
							MAX	LOW		
65					0.4	0.084	0.051	0.071	0.033	0.07
66					0.4	0.084	0.050	0.071	0.034	0.07
67					0.3	0.063	0.049	0.054	0.014	0.03
68					0.3	0.063	0.048	0.054	0.015	0.03
69					0.5	0.105	0.048	0.089	0.057	0.12
70					0.5	0.105	0.047	0.089	0.058	0.12
71					0.5	0.105	0.046	0.089	0.059	0.13
72					0.4	0.084	0.045	0.071	0.039	0.08
73					0.4	0.084	0.045	0.071	0.039	0.08
74					0.4	0.084	0.044	0.071	0.040	0.08
75					0.3	0.063	0.044	0.054	0.019	0.04
76					0.2	0.042	0.043	0.036	0.006	0.01
77					0.3	0.063	0.042	0.054	0.021	0.04
78					0.4	0.084	0.042	0.071	0.042	0.09
79					0.3	0.063	0.041	0.054	0.022	0.05
80					0.2	0.042	0.041	0.036	0.001	0.00
81					0.3	0.063	0.040	0.054	0.023	0.05
82					0.3	0.063	0.040	0.054	0.023	0.05
83					0.3	0.063	0.039	0.054	0.024	0.05
84					0.2	0.042	0.039	0.036	0.003	0.01
85					0.3	0.063	0.038	0.054	0.025	0.05
86					0.2	0.042	0.038	0.036	0.004	0.01
87					0.3	0.063	0.037	0.054	0.026	0.05
88					0.2	0.042	0.037	0.036	0.005	0.01
89					0.3	0.063	0.036	0.054	0.027	0.06
90					0.2	0.042	0.036	0.036	0.006	0.01
91					0.2	0.042	0.036	0.036	0.006	0.01
92					0.2	0.042	0.036	0.036	0.006	0.01
93					0.2	0.042	0.035	0.036	0.007	0.01
94					0.2	0.042	0.035	0.036	0.007	0.01
95					0.2	0.042	0.035	0.036	0.007	0.02
96					0.2	0.042	0.035	0.036	0.007	0.02
TOTALS					100.0				14.96	31.88

EFFECTIVE RAIN = 3.74 INCHES
TOTAL RUNOFF VOLUME = 0.66 AC-FT

Discharge Point 2 (Proposed Condition)

Storm	Volume (ac-ft)	Volume (cf)	Peak FLow (cfs)
100-yr, 24-hour	2.49	108396	5.32

Loss Parameters (Proposed Condition - Discharge Point 2)

Drainage Area	353,209	sf		
	8.11	ac		
A_i	200,729	sf		
	57%	imp		
Runoff Index	88		Note:	Plate E-6.1: Assume desert landscaping => Open Brush - Poor; Soil Type D
F_p	0.15	in/hr	Note:	Plate E-6.2: AMC II

$$F = F_p(1 - 0.9A_i)$$ ***F =*** **0.073 in/hr**

For 24-hr storms, F_T is variable loss rate

$$F_T = C[24 - (T/60)]^{1.55} + F_M$$

$$C = (F - F_M)/54$$

$$T = \text{Unit Time}/2$$

$$F_M = 0.5F$$

F_T = **0.129**

C = **0.0007**

T = **7.5**

F_M = **0.037**

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Prop Condition - Discharge Point 2) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	8.11	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.073	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.037
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR MAX	[22] LOSS RATE IN/HR LOW	[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
1					0.2	0.042	0.129	0.036	0.006	0.05
2					0.3	0.063	0.128	0.054	0.009	0.08
3					0.3	0.063	0.126	0.054	0.009	0.08
4					0.4	0.084	0.125	0.071	0.013	0.10
5					0.3	0.063	0.123	0.054	0.009	0.08
6					0.3	0.063	0.122	0.054	0.009	0.08
7					0.3	0.063	0.121	0.054	0.009	0.08
8					0.4	0.084	0.119	0.071	0.013	0.10
9					0.4	0.084	0.118	0.071	0.013	0.10
10					0.4	0.084	0.116	0.071	0.013	0.10
11					0.5	0.105	0.115	0.089	0.016	0.13
12					0.5	0.105	0.113	0.089	0.016	0.13
13					0.5	0.105	0.112	0.089	0.016	0.13
14					0.5	0.105	0.111	0.089	0.016	0.13
15					0.5	0.105	0.109	0.089	0.016	0.13
16					0.6	0.126	0.108	0.107	0.018	0.15
17					0.6	0.126	0.106	0.107	0.020	0.16
18					0.7	0.147	0.105	0.125	0.042	0.34
19					0.7	0.147	0.104	0.125	0.043	0.35
20					0.8	0.168	0.102	0.143	0.066	0.54
21					0.6	0.126	0.101	0.107	0.025	0.20
22					0.7	0.147	0.100	0.125	0.047	0.39
23					0.8	0.168	0.098	0.143	0.070	0.57
24					0.8	0.168	0.097	0.143	0.071	0.58
25					0.9	0.189	0.096	0.161	0.093	0.76
26					0.9	0.189	0.095	0.161	0.094	0.77
27					1.0	0.210	0.093	0.179	0.117	0.95
28					1.0	0.210	0.092	0.179	0.118	0.96
29					1.0	0.210	0.091	0.179	0.119	0.97
30					1.1	0.231	0.090	0.196	0.141	1.16
31					1.2	0.252	0.088	0.214	0.164	1.34
32					1.3	0.273	0.087	0.232	0.186	1.52
33					1.5	0.315	0.086	0.268	0.229	1.87
34					1.5	0.315	0.085	0.268	0.230	1.88
35					1.6	0.336	0.084	0.286	0.252	2.06
36					1.7	0.357	0.082	0.303	0.275	2.25
37					1.9	0.399	0.081	0.339	0.318	2.60
38					2.0	0.420	0.080	0.357	0.340	2.78
39					2.1	0.441	0.079	0.375	0.362	2.96
40					2.2	0.462	0.078	0.393	0.384	3.14
41					1.5	0.315	0.077	0.268	0.238	1.95
42					1.5	0.315	0.076	0.268	0.239	1.96
43					2.0	0.420	0.074	0.357	0.346	2.83
44					2.0	0.420	0.073	0.357	0.347	2.83
45					1.9	0.399	0.072	0.339	0.327	2.67
46					1.9	0.399	0.071	0.339	0.328	2.68
47					1.7	0.357	0.070	0.303	0.287	2.35
48					1.8	0.378	0.069	0.321	0.309	2.53
49					2.5	0.525	0.068	0.446	0.457	3.74
50					2.6	0.546	0.067	0.464	0.479	3.92
51					2.8	0.588	0.066	0.500	0.522	4.27
52					2.9	0.609	0.065	0.518	0.544	4.45
53					3.4	0.714	0.064	0.607	0.650	5.31
54					3.4	0.714	0.063	0.607	0.651	**5.32**
55					2.3	0.483	0.062	0.411	0.421	3.44
56					2.3	0.483	0.061	0.411	0.422	3.45
57					2.7	0.567	0.060	0.482	0.507	4.14
58					2.6	0.546	0.059	0.464	0.487	3.98
59					2.6	0.546	0.058	0.464	0.488	3.99
60					2.5	0.525	0.058	0.446	0.467	3.82
61					2.4	0.504	0.057	0.428	0.447	3.66
62					2.3	0.483	0.056	0.411	0.427	3.49
63					1.9	0.399	0.055	0.339	0.344	2.81
64					1.9	0.399	0.054	0.339	0.345	2.82

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Prop Condition - Discharge Point 2) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	8.11	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.073	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.037
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR MAX	[22] LOSS RATE IN/HR LOW	[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
65					0.4	0.084	0.053	0.071	0.031	0.25
66					0.4	0.084	0.052	0.071	0.032	0.26
67					0.3	0.063	0.052	0.054	0.011	0.09
68					0.3	0.063	0.051	0.054	0.012	0.10
69					0.5	0.105	0.050	0.089	0.055	0.45
70					0.5	0.105	0.049	0.089	0.056	0.45
71					0.5	0.105	0.049	0.089	0.056	0.46
72					0.4	0.084	0.048	0.071	0.036	0.30
73					0.4	0.084	0.047	0.071	0.037	0.30
74					0.4	0.084	0.047	0.071	0.037	0.31
75					0.3	0.063	0.046	0.054	0.017	0.14
76					0.2	0.042	0.045	0.036	0.006	0.05
77					0.3	0.063	0.045	0.054	0.018	0.15
78					0.4	0.084	0.044	0.071	0.040	0.33
79					0.3	0.063	0.043	0.054	0.020	0.16
80					0.2	0.042	0.043	0.036	0.006	0.05
81					0.3	0.063	0.042	0.054	0.021	0.17
82					0.3	0.063	0.042	0.054	0.021	0.17
83					0.3	0.063	0.041	0.054	0.022	0.18
84					0.2	0.042	0.041	0.036	0.001	0.01
85					0.3	0.063	0.040	0.054	0.023	0.19
86					0.2	0.042	0.040	0.036	0.002	0.02
87					0.3	0.063	0.039	0.054	0.024	0.19
88					0.2	0.042	0.039	0.036	0.003	0.03
89					0.3	0.063	0.038	0.054	0.025	0.20
90					0.2	0.042	0.038	0.036	0.004	0.03
91					0.2	0.042	0.038	0.036	0.004	0.03
92					0.2	0.042	0.037	0.036	0.005	0.04
93					0.2	0.042	0.037	0.036	0.005	0.04
94					0.2	0.042	0.037	0.036	0.005	0.04
95					0.2	0.042	0.037	0.036	0.005	0.04
96					0.2	0.042	0.037	0.036	0.005	0.04
TOTALS					100.0				14.73	120.44

EFFECTIVE RAIN = 3.68 INCHES
TOTAL RUNOFF VOLUME = 2.49 AC-FT

Runoff Hydrograph to Detention Vault-2 (Proposed Condition)

Storm	Volume (ac-ft)	Volume (cf)	Peak FLow (cfs)
100-yr, 24-hour	1.59	69189	3.25

Loss Parameters (Proposed Condition - Runoff Hydgraph to Detention Vault-2)

Drainage Area	211,502	sf		
	4.86	ac		
A_i	141,966	sf		
	67%	imp		
Runoff Index	88		Note:	Plate E-6.1: Assume desert landscaping => Open Brush - Poor; Soil Type D
F_p	0.15	in/hr	Note:	Plate E-6.2: AMC II

$$F = F_p(1 - 0.9A_i)$$ ***F =*** **0.059 in/hr**

For 24-hr storms, F_T is variable loss rate

$$F_T = C[24 - (T/60)]^{1.55} + F_M$$

$$C = (F - F_M)/54$$

$$T = \text{Unit Time}/2$$

$$F_M = 0.5F$$

F_T = **0.105**

C = **0.0005**

T = **7.5**

F_M = **0.030**

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Prop Condition - Runoff HG to Detention Vault-2) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	4.86	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.059	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.030
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR		[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
							MAX	LOW		
1					0.2	0.042	0.105	0.036	0.006	0.03
2					0.3	0.063	0.104	0.054	0.009	0.05
3					0.3	0.063	0.102	0.054	0.009	0.05
4					0.4	0.084	0.101	0.071	0.013	0.06
5					0.3	0.063	0.100	0.054	0.009	0.05
6					0.3	0.063	0.099	0.054	0.009	0.05
7					0.3	0.063	0.098	0.054	0.009	0.05
8					0.4	0.084	0.096	0.071	0.013	0.06
9					0.4	0.084	0.095	0.071	0.013	0.06
10					0.4	0.084	0.094	0.071	0.013	0.06
11					0.5	0.105	0.093	0.089	0.012	0.06
12					0.5	0.105	0.092	0.089	0.013	0.06
13					0.5	0.105	0.091	0.089	0.014	0.07
14					0.5	0.105	0.090	0.089	0.015	0.08
15					0.5	0.105	0.088	0.089	0.017	0.08
16					0.6	0.126	0.087	0.107	0.039	0.19
17					0.6	0.126	0.086	0.107	0.040	0.19
18					0.7	0.147	0.085	0.125	0.062	0.30
19					0.7	0.147	0.084	0.125	0.063	0.31
20					0.8	0.168	0.083	0.143	0.085	0.42
21					0.6	0.126	0.082	0.107	0.044	0.22
22					0.7	0.147	0.081	0.125	0.066	0.32
23					0.8	0.168	0.080	0.143	0.088	0.43
24					0.8	0.168	0.079	0.143	0.089	0.44
25					0.9	0.189	0.078	0.161	0.111	0.54
26					0.9	0.189	0.077	0.161	0.112	0.55
27					1.0	0.210	0.076	0.179	0.134	0.66
28					1.0	0.210	0.075	0.179	0.135	0.66
29					1.0	0.210	0.074	0.179	0.136	0.67
30					1.1	0.231	0.073	0.196	0.158	0.78
31					1.2	0.252	0.072	0.214	0.180	0.88
32					1.3	0.273	0.071	0.232	0.202	0.99
33					1.5	0.315	0.070	0.268	0.245	1.20
34					1.5	0.315	0.069	0.268	0.246	1.21
35					1.6	0.336	0.068	0.286	0.268	1.31
36					1.7	0.357	0.067	0.303	0.290	1.42
37					1.9	0.399	0.066	0.339	0.333	1.63
38					2.0	0.420	0.065	0.357	0.355	1.74
39					2.1	0.441	0.064	0.375	0.377	1.85
40					2.2	0.462	0.063	0.393	0.399	1.95
41					1.5	0.315	0.062	0.268	0.253	1.24
42					1.5	0.315	0.061	0.268	0.254	1.24
43					2.0	0.420	0.060	0.357	0.360	1.76
44					2.0	0.420	0.059	0.357	0.361	1.77
45					1.9	0.399	0.059	0.339	0.340	1.67
46					1.9	0.399	0.058	0.339	0.341	1.67
47					1.7	0.357	0.057	0.303	0.300	1.47
48					1.8	0.378	0.056	0.321	0.322	1.58
49					2.5	0.525	0.055	0.446	0.470	2.30
50					2.6	0.546	0.054	0.464	0.492	2.41
51					2.8	0.588	0.054	0.500	0.534	2.62
52					2.9	0.609	0.053	0.518	0.556	2.72
53					3.4	0.714	0.052	0.607	0.662	3.24
54					3.4	0.714	0.051	0.607	0.663	**3.25**
55					2.3	0.483	0.050	0.411	0.433	2.12
56					2.3	0.483	0.050	0.411	0.433	2.12
57					2.7	0.567	0.049	0.482	0.518	2.54
58					2.6	0.546	0.048	0.464	0.498	2.44
59					2.6	0.546	0.047	0.464	0.499	2.44
60					2.5	0.525	0.047	0.446	0.478	2.34
61					2.4	0.504	0.046	0.428	0.458	2.24
62					2.3	0.483	0.045	0.411	0.438	2.14
63					1.9	0.399	0.045	0.339	0.354	1.74
64					1.9	0.399	0.044	0.339	0.355	1.74

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Prop Condition - Runoff HG to Detention Vault-2) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	4.86	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.059	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.030
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR		[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
							MAX	LOW		
65					0.4	0.084	0.043	0.071	0.041	0.20
66					0.4	0.084	0.043	0.071	0.041	0.20
67					0.3	0.063	0.042	0.054	0.021	0.10
68					0.3	0.063	0.041	0.054	0.022	0.11
69					0.5	0.105	0.041	0.089	0.064	0.32
70					0.5	0.105	0.040	0.089	0.065	0.32
71					0.5	0.105	0.039	0.089	0.066	0.32
72					0.4	0.084	0.039	0.071	0.045	0.22
73					0.4	0.084	0.038	0.071	0.046	0.22
74					0.4	0.084	0.038	0.071	0.046	0.23
75					0.3	0.063	0.037	0.054	0.026	0.13
76					0.2	0.042	0.037	0.036	0.005	0.03
77					0.3	0.063	0.036	0.054	0.027	0.13
78					0.4	0.084	0.036	0.071	0.048	0.24
79					0.3	0.063	0.035	0.054	0.028	0.14
80					0.2	0.042	0.035	0.036	0.007	0.04
81					0.3	0.063	0.034	0.054	0.029	0.14
82					0.3	0.063	0.034	0.054	0.029	0.14
83					0.3	0.063	0.033	0.054	0.030	0.15
84					0.2	0.042	0.033	0.036	0.009	0.04
85					0.3	0.063	0.033	0.054	0.030	0.15
86					0.2	0.042	0.032	0.036	0.010	0.05
87					0.3	0.063	0.032	0.054	0.031	0.15
88					0.2	0.042	0.031	0.036	0.011	0.05
89					0.3	0.063	0.031	0.054	0.032	0.16
90					0.2	0.042	0.031	0.036	0.011	0.05
91					0.2	0.042	0.031	0.036	0.011	0.06
92					0.2	0.042	0.030	0.036	0.012	0.06
93					0.2	0.042	0.030	0.036	0.012	0.06
94					0.2	0.042	0.030	0.036	0.012	0.06
95					0.2	0.042	0.030	0.036	0.012	0.06
96					0.2	0.042	0.030	0.036	0.012	0.06
TOTALS					100.0				15.70	76.88

EFFECTIVE RAIN = 3.93 INCHES
TOTAL RUNOFF VOLUME = 1.59 AC-FT

Runoff Hydrograph Bypass to Discharge Point 2 (Proposed Condition)

Storm	Volume (ac-ft)	Volume (cf)	Peak FLow (cfs)
100-yr, 24-hour	0.92	39878	2.08

Loss Parameters (Proposed Condition - Runoff Hydgraph Bypass to Discharge Point 2)

Drainage Area	141,706	sf		
	3.25	ac		
A_i	58,762	sf		
	41%	imp		
Runoff Index	88		Note:	Plate E-6.1: Assume desert landscaping => Open Brush - Poor; Soil Type D
F_p	0.15	in/hr	Note:	Plate E-6.2: AMC II

$$F = F_p(1 - 0.9A_i)$$ **F = 0.094 in/hr**

For 24-hr storms, F_T is variable loss rate

$$F_T = C[24 - (T/60)]^{1.55} + F_M$$

$$C = (F - F_M)/54$$

$$T = \text{Unit Time}/2$$

$$F_M = 0.5F$$

F_T = 0.166
C = 0.0009
T = 7.5
F_M = 0.047

R C F C & W C D HYDROLOGY MANUAL	"SHORTCUT METHOD" SYNTHETIC UNIT HYDROGRAPH METHOD Unit Hydrograph and Effective Rain Calculation Form	Project: 562-01 (Prop Condition - Bypass to Discharge Point 2) By_____ Date_____ Checked_____ Date_____	Sheet 1 / 1

[1] CONCENTRATION POINT	---	[2] AREA DESIGNATION	---
[3] DRAINAGE AREA-ACRES	3.25	[4] ULTIMATE DISCHARGE-CFS-HRS/IN (645*[3])	N/A
[5] UNIT TIME-MINUTES	15	[6] LAG TIME-MINUTES	---
[7] UNIT TIME-PERCENT OF LAG (100*[5]/[6])	---	[8] S-CURVE	N/A
[9] STORM FREQUENCY & DURATION	100-YR, 24-HR	[10] TOTAL ADJUSTED STORM RAIN-INCHES	5.25
[11] VARIABLE LOSS RATE (AVG)-INCHES/HOUR	0.094	[12] MINIMUM LOSS RATE (FOR VAR. LOSS)-IN/HR	0.047
[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR MAX	[22] LOSS RATE IN/HR LOW	[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
1					0.2	0.042	0.166	0.036	0.006	0.02
2					0.3	0.063	0.164	0.054	0.009	0.03
3					0.3	0.063	0.162	0.054	0.009	0.03
4					0.4	0.084	0.160	0.071	0.013	0.04
5					0.3	0.063	0.158	0.054	0.009	0.03
6					0.3	0.063	0.157	0.054	0.009	0.03
7					0.3	0.063	0.155	0.054	0.009	0.03
8					0.4	0.084	0.153	0.071	0.013	0.04
9					0.4	0.084	0.151	0.071	0.013	0.04
10					0.4	0.084	0.149	0.071	0.013	0.04
11					0.5	0.105	0.147	0.089	0.016	0.05
12					0.5	0.105	0.145	0.089	0.016	0.05
13					0.5	0.105	0.144	0.089	0.016	0.05
14					0.5	0.105	0.142	0.089	0.016	0.05
15					0.5	0.105	0.140	0.089	0.016	0.05
16					0.6	0.126	0.138	0.107	0.019	0.06
17					0.6	0.126	0.137	0.107	0.019	0.06
18					0.7	0.147	0.135	0.125	0.012	0.04
19					0.7	0.147	0.133	0.125	0.014	0.05
20					0.8	0.168	0.131	0.143	0.037	0.12
21					0.6	0.126	0.130	0.107	0.019	0.06
22					0.7	0.147	0.128	0.125	0.019	0.06
23					0.8	0.168	0.126	0.143	0.042	0.14
24					0.8	0.168	0.125	0.143	0.043	0.14
25					0.9	0.189	0.123	0.161	0.066	0.22
26					0.9	0.189	0.121	0.161	0.068	0.22
27					1.0	0.210	0.120	0.179	0.090	0.30
28					1.0	0.210	0.118	0.179	0.092	0.30
29					1.0	0.210	0.117	0.179	0.093	0.31
30					1.1	0.231	0.115	0.196	0.116	0.38
31					1.2	0.252	0.113	0.214	0.139	0.45
32					1.3	0.273	0.112	0.232	0.161	0.53
33					1.5	0.315	0.110	0.268	0.205	0.67
34					1.5	0.315	0.109	0.268	0.206	0.68
35					1.6	0.336	0.107	0.286	0.229	0.75
36					1.7	0.357	0.106	0.303	0.251	0.82
37					1.9	0.399	0.104	0.339	0.295	0.97
38					2.0	0.420	0.103	0.357	0.317	1.04
39					2.1	0.441	0.101	0.375	0.340	1.11
40					2.2	0.462	0.100	0.393	0.362	1.19
41					1.5	0.315	0.098	0.268	0.217	0.71
42					1.5	0.315	0.097	0.268	0.218	0.72
43					2.0	0.420	0.095	0.357	0.325	1.06
44					2.0	0.420	0.094	0.357	0.326	1.07
45					1.9	0.399	0.093	0.339	0.306	1.00
46					1.9	0.399	0.091	0.339	0.308	1.01
47					1.7	0.357	0.090	0.303	0.267	0.88
48					1.8	0.378	0.089	0.321	0.289	0.95
49					2.5	0.525	0.087	0.446	0.438	1.44
50					2.6	0.546	0.086	0.464	0.460	1.51
51					2.8	0.588	0.085	0.500	0.503	1.65
52					2.9	0.609	0.083	0.518	0.526	1.72
53					3.4	0.714	0.082	0.607	0.632	2.07
54					3.4	0.714	0.081	0.607	0.633	**2.08**
55					2.3	0.483	0.080	0.411	0.403	1.32
56					2.3	0.483	0.078	0.411	0.405	1.33
57					2.7	0.567	0.077	0.482	0.490	1.61
58					2.6	0.546	0.076	0.464	0.470	1.54
59					2.6	0.546	0.075	0.464	0.471	1.55
60					2.5	0.525	0.074	0.446	0.451	1.48
61					2.4	0.504	0.073	0.428	0.431	1.41
62					2.3	0.483	0.072	0.411	0.411	1.35
63					1.9	0.399	0.070	0.339	0.329	1.08
64					1.9	0.399	0.069	0.339	0.330	1.08

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[13] CONSTANT LOSS RATE-INCHES/HOUR	---	[14] LOW LOSS RATE-PERCENT	85

	UNIT HYDROGRAPH				EFFECTIVE RAIN					FLOOD HYDROGRAPH
[15] UNIT TIME PERIOD m	[16] TIME PERCENT OF LAG [7]*[15]	[17] CUMULATIVE AVERAGE PERCENT OF ULTIMATE DISCHARGE (S-GRAPH)	[16] DISTRIB GRAPH PERCENT [17]m-[17]m-1	[17] UNIT HYDROGRAPH CFS-HRS/IN [4]*[18] 100.000	[20] PATTERN PERCENT (PL E-5.9)	[21] STORM RAIN IN/HR 60[10][20] 100[5]	[22] LOSS RATE IN/HR		[23] EFFECTIVE RAIN IN/HR [21]-[22]	[24] FLOW CFS
							MAX	LOW		
65					0.4	0.084	0.068	0.071	0.016	0.05
66					0.4	0.084	0.067	0.071	0.017	0.05
67					0.3	0.063	0.066	0.054	0.009	0.03
68					0.3	0.063	0.065	0.054	0.009	0.03
69					0.5	0.105	0.064	0.089	0.041	0.13
70					0.5	0.105	0.063	0.089	0.042	0.14
71					0.5	0.105	0.062	0.089	0.043	0.14
72					0.4	0.084	0.061	0.071	0.023	0.07
73					0.4	0.084	0.061	0.071	0.023	0.08
74					0.4	0.084	0.060	0.071	0.024	0.08
75					0.3	0.063	0.059	0.054	0.004	0.01
76					0.2	0.042	0.058	0.036	0.006	0.02
77					0.3	0.063	0.057	0.054	0.006	0.02
78					0.4	0.084	0.056	0.071	0.028	0.09
79					0.3	0.063	0.056	0.054	0.007	0.02
80					0.2	0.042	0.055	0.036	0.006	0.02
81					0.3	0.063	0.054	0.054	0.009	0.03
82					0.3	0.063	0.053	0.054	0.010	0.03
83					0.3	0.063	0.053	0.054	0.010	0.03
84					0.2	0.042	0.052	0.036	0.006	0.02
85					0.3	0.063	0.051	0.054	0.012	0.04
86					0.2	0.042	0.051	0.036	0.006	0.02
87					0.3	0.063	0.050	0.054	0.013	0.04
88					0.2	0.042	0.050	0.036	0.006	0.02
89					0.3	0.063	0.049	0.054	0.014	0.04
90					0.2	0.042	0.049	0.036	0.006	0.02
91					0.2	0.042	0.048	0.036	0.006	0.02
92					0.2	0.042	0.048	0.036	0.006	0.02
93					0.2	0.042	0.048	0.036	0.006	0.02
94					0.2	0.042	0.047	0.036	0.006	0.02
95					0.2	0.042	0.047	0.036	0.006	0.02
96					0.2	0.042	0.047	0.036	0.006	0.02
TOTALS					100.0				13.51	44.31

EFFECTIVE RAIN = 3.38 INCHES
TOTAL RUNOFF VOLUME = 0.92 AC-FT

Stage-Storage for Vault-1							
Depth (ft)	**Footprint Area (ft^2)**	**Porosity**	**Effective Area (ft^2)**	**Effective Area (ac)**		**Total Volume (ft^3)**	
0	2600	0.95	2470	0.056703		14820	
6	2600	0.95	2470	0.056703			

Stage-Storage for Vault-2							
Depth (ft)	**Footprint Area (ft^2)**	**Porosity**	**Effective Area (ft^2)**	**Effective Area (ac)**		**Total Volume (ft^3)**	
0	1000	0.95	950	0.021809		5700	
6	1000	0.95	950	0.021809			

Stage-Discharge for Vault-1

Lowest Orifice

Diameter: 3.375 inches
Quantity: 1
Invert Elevation: 0.000 ft

Lower Slot

Quantity: 0
Invert Elevation: 0.00 ft
Width: 0.00 ft
Height: 0.00 in / 0.000 ft
H_w: 0.00 ft

Lower Weir

Quantity: 0
Invert Elevation: 0.00 ft
Length: 0.00 ft
H_w: 0.00 ft

Upper Orifice

Diameter: 0.000 inches
Quantity: 0
Invert Elevation: 0.000 ft

Upper Slot

Quantity: 0
Invert Elevation: 0.00 ft
Width: 0.00 ft
Height: 0.00 in / 0.000 ft
H_w: 0.00 ft

Emergency Weir

Invert Elevation: 6.00 ft
Length: 6.00 ft
H_w: 6.00 ft

(H_w = height of slot/weir invert above basin bottom)

Absolute Invert Elevation of Lowest Discharge Opening

Invert Elevation: 0.00 ft

**Head taken as total depth above the invert of the lowest discharge opening.*

h* (ft)	h/D	h/D	$Q_{LOWEST\ ORIFICE}$ (cfs)				$Q_{UPPER\ ORIFICE}$ (cfs)				$Q_{LOWER\ SLOT}$ (cfs)	$Q_{UPPER\ SLOT}$ (cfs)	$Q_{LOWER\ WEIR}$ (cfs)	$Q_{EMERGENCY}$ (cfs)	Q_{TOTAL} (cfs)
	Lowest Orifice	Upper Orifice	Discharge Coefficient	Orifice Flow	Weir Flow	$Q_{control}$	Discharge Coefficient	Orifice Flow	Weir Flow	$Q_{control}$					
0.000	0.000	N/A	N/A	N/A	0.000	0.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.000
0.100	0.356	N/A	N/A	N/A	0.017	0.017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.017
0.200	0.711	N/A	N/A	N/A	0.061	0.061	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.061
0.300	1.067	N/A	N/A	N/A	0.121	0.121	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.121
0.400	1.422	N/A	0.598	0.152	0.183	0.152	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.152
0.500	1.778	N/A	0.598	0.179	0.237	0.179	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.179
0.600	2.133	N/A	0.598	0.202	0.274	0.202	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.202
0.700	2.489	N/A	0.598	0.223	0.291	0.223	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.223
0.800	2.844	N/A	0.599	0.242	0.295	0.242	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.242
0.900	3.200	N/A	0.599	0.260	0.301	0.260	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.260
1.000	3.556	N/A	0.599	0.277	0.338	0.277	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.277
1.100	3.911	N/A	0.600	0.293	0.449	0.293	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.293
1.200	4.267	N/A	0.599	0.307	0.695	0.307	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.307
1.300	4.622	N/A	0.599	0.322	1.157	0.322	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.322
1.400	4.978	N/A	0.599	0.335	1.935	0.335	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.335
1.500	5.333	N/A	0.599	0.348	3.157	0.348	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.348
1.600	5.689	N/A	0.600	0.361	3.611	0.361	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.361
1.700	6.044	N/A	0.600	0.373	3.733	0.373	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.373
1.800	6.400	N/A	0.600	0.385	3.851	0.385	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.385
1.900	6.756	N/A	0.599	0.396	3.963	0.396	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.396
2.000	7.111	N/A	0.599	0.407	4.072	0.407	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.407
2.100	7.467	N/A	0.599	0.418	4.180	0.418	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.418
2.200	7.822	N/A	0.599	0.429	4.286	0.429	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.429
2.300	8.178	N/A	0.599	0.439	4.388	0.439	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.439
2.400	8.533	N/A	0.599	0.449	4.489	0.449	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.449
2.500	8.889	N/A	0.599	0.459	4.587	0.459	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.459
2.600	9.244	N/A	0.599	0.468	4.683	0.468	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.468

Stage-Discharge for Vault-1

Lowest Orifice

Diameter:	3.375	inches
Quantity:	1	
Invert Elevation:	0.000	ft

Lower Slot

Quantity:	0	
Invert Elevation:	0.00	ft
Width:	0.00	ft
Height:	0.00	in
	0.000	ft
H_w:	0.00	ft

Lower Weir

Quantity:	0	
Invert Elevation:	0.00	ft
Length:	0.00	ft
H_w:	0.00	ft

Upper Orifice

Diameter:	0.000	inches
Quantity:	0	
Invert Elevation:	0.000	ft

Upper Slot

Quantity:	0	
Invert Elevation:	0.00	ft
Width:	0.00	ft
Height:	0.00	in
	0.000	ft
H_w:	0.00	ft

Emergency Weir

Invert Elevation:	6.00	ft
Length:	6.00	ft
H_w:	6.00	ft

(H_w = height of slot/weir invert above basin bottom)

Absolute Invert Elevation of Lowest Discharge Opening

Invert Elevation: 0.00 ft

**Head taken as total depth above the invert of the lowest discharge opening.*

h* (ft)	h/D	h/D	$Q_{LOWEST\ ORIFICE}$ (cfs)				$Q_{UPPER\ ORIFICE}$ (cfs)				$Q_{LOWER\ SLOT}$ (cfs)	$Q_{UPPER\ SLOT}$ (cfs)	$Q_{LOWER\ WEIR}$ (cfs)	$Q_{EMERGENCY}$ (cfs)	Q_{TOTAL} (cfs)
	Lowest Orifice	Upper Orifice	Discharge Coefficient	Orifice Flow	Weir Flow	$Q_{control}$	Discharge Coefficient	Orifice Flow	Weir Flow	$Q_{control}$					
2.700	9.600	N/A	0.599	0.478	4.778	0.478	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.478
2.800	9.956	N/A	0.599	0.487	4.870	0.487	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.487
2.900	10.311	N/A	0.599	0.496	4.961	0.496	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.496
3.000	10.667	N/A	0.599	0.505	5.050	0.505	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.505
3.100	11.022	N/A	0.599	0.514	5.137	0.514	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.514
3.200	11.378	N/A	0.599	0.522	5.223	0.522	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.522
3.300	11.733	N/A	0.599	0.531	5.308	0.531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.531
3.400	12.089	N/A	0.599	0.539	5.392	0.539	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.539
3.500	12.444	N/A	0.599	0.547	5.474	0.547	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.547
3.600	12.800	N/A	0.599	0.555	5.554	0.555	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.555
3.700	13.156	N/A	0.599	0.563	5.634	0.563	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.563
3.800	13.511	N/A	0.599	0.571	5.712	0.571	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.571
3.900	13.867	N/A	0.599	0.579	5.789	0.579	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.579
4.000	14.222	N/A	0.599	0.586	5.864	0.586	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.586
4.100	14.578	N/A	0.599	0.594	5.939	0.594	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.594
4.200	14.933	N/A	0.599	0.601	6.013	0.601	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.601
4.300	15.289	N/A	0.599	0.609	6.086	0.609	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.609
4.400	15.644	N/A	0.598	0.616	6.158	0.616	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.616
4.500	16.000	N/A	0.598	0.623	6.229	0.623	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.623
4.600	16.356	N/A	0.598	0.630	6.300	0.630	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.630
4.700	16.711	N/A	0.598	0.637	6.369	0.637	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.637
4.800	17.067	N/A	0.598	0.644	6.438	0.644	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.644
4.900	17.422	N/A	0.598	0.651	6.506	0.651	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.651
5.000	17.778	N/A	0.598	0.657	6.573	0.657	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.657
5.100	18.133	N/A	0.598	0.664	6.640	0.664	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.664
5.200	18.489	N/A	0.598	0.671	6.706	0.671	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.671
5.300	18.844	N/A	0.598	0.677	6.772	0.677	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.677

Stage-Discharge for Vault-1

Lowest Orifice

Diameter:	3.375	inches
Quantity:	1	
Invert Elevation:	0.000	ft

Lower Slot

Quantity:	0	
Invert Elevation:	0.00	ft
Width:	0.00	ft
Height:	0.00	in
	0.000	ft
H_w:	0.00	ft

Lower Weir

Quantity:	0	
Invert Elevation:	0.00	ft
Length:	0.00	ft
H_w:	0.00	ft

Upper Orifice

Diameter:	0.000	inches
Quantity:	0	
Invert Elevation:	0.000	ft

Upper Slot

Quantity:	0	
Invert Elevation:	0.00	ft
Width:	0.00	ft
Height:	0.00	in
	0.000	ft
H_w:	0.00	ft

Emergency Weir

Invert Elevation:	6.00	ft
Length:	6.00	ft
H_w:	6.00	ft

(H_w = height of slot/weir invert above basin bottom)

Absolute Invert Elevation of Lowest Discharge Opening

Invert Elevation: 0.00 ft

**Head taken as total depth above the invert of the lowest discharge opening.*

h* **(ft)**	***h/D***	***h/D***	***Q LOWEST ORIFICE* (cfs)**				***Q UPPER ORIFICE* (cfs)**				***Q LOWER SLOT*** **(cfs)**	***Q UPPER SLOT*** **(cfs)**	***Q LOWER WEIR*** **(cfs)**	***Q EMERGENCY*** **(cfs)**	***Q TOTAL*** **(cfs)**
	Lowest Orifice	*Upper Orifice*	*Discharge Coefficient*	*Orifice Flow*	*Weir Flow*	$Q_{control}$	*Discharge Coefficient*	*Orifice Flow*	*Weir Flow*	$Q_{control}$					
5.400	19.200	N/A	0.598	0.684	6.837	0.684	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.684
5.500	19.556	N/A	0.598	0.690	6.902	0.690	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.690
5.600	19.911	N/A	0.598	0.697	6.966	0.697	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.697
5.700	20.267	N/A	0.598	0.703	7.030	0.703	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.703
5.800	20.622	N/A	0.598	0.709	7.093	0.709	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.709
5.900	20.978	N/A	0.598	0.715	7.155	0.715	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.715
6.000	21.333	N/A	0.598	0.722	7.217	0.722	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.722

Stage-Discharge for Vault-2

Lowest Orifice

Diameter:	6.500	inches
Quantity:	1	
Invert Elevation:	0.000	ft

Lower Slot

Quantity:	0	
Invert Elevation:	0.00	ft
Width:	0.00	ft
Height:	0.00	in
	0.000	ft
H_w:	0.00	ft

Lower Weir

Quantity:	0	
Invert Elevation:	0.00	ft
Length:	0.00	ft
H_w:	0.00	ft

Upper Orifice

Diameter:	0.000	inches
Quantity:	0	
Invert Elevation:	0.000	ft

Upper Slot

Quantity:	0	
Invert Elevation:	0.00	ft
Width:	0.00	ft
Height:	0.00	in
	0.000	ft
H_w:	0.00	ft

Emergency Weir

Invert Elevation:	6.00	ft
Length:	9.00	ft
H_w:	6.00	ft

(H_w = height of slot/weir invert above basin bottom)

Absolute Invert Elevation of Lowest Discharge Opening

Invert Elevation: 0.00 ft

**Head taken as total depth above the invert of the lowest discharge opening.*

h* (ft)	h/D	h/D	$Q_{LOWEST\ ORIFICE}$ (cfs)				$Q_{UPPER\ ORIFICE}$ (cfs)				$Q_{LOWER\ SLOT}$ (cfs)	$Q_{UPPER\ SLOT}$ (cfs)	$Q_{LOWER\ WEIR}$ (cfs)	$Q_{EMERGENCY}$ (cfs)	Q_{TOTAL} (cfs)
	Lowest Orifice	Upper Orifice	Discharge Coefficient	Orifice Flow	Weir Flow	$Q_{control}$	Discharge Coefficient	Orifice Flow	Weir Flow	$Q_{control}$					
0.000	0.000	N/A	N/A	N/A	0.000	0.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.000
0.100	0.185	N/A	N/A	N/A	0.025	0.025	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.025
0.200	0.369	N/A	N/A	N/A	0.094	0.094	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.094
0.300	0.554	N/A	N/A	N/A	0.200	0.200	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.200
0.400	0.738	N/A	N/A	N/A	0.336	0.336	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.336
0.500	0.923	N/A	N/A	N/A	0.492	0.492	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.492
0.600	1.108	N/A	0.593	0.629	0.659	0.629	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.629
0.700	1.292	N/A	0.593	0.719	0.828	0.719	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.719
0.800	1.477	N/A	0.593	0.798	0.990	0.798	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.798
0.900	1.662	N/A	0.594	0.871	1.138	0.871	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.871
1.000	1.846	N/A	0.595	0.939	1.264	0.939	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.939
1.100	2.031	N/A	0.595	1.002	1.365	1.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.002
1.200	2.215	N/A	0.596	1.062	1.439	1.062	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.062
1.300	2.400	N/A	0.596	1.118	1.486	1.118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.118
1.400	2.585	N/A	0.596	1.172	1.510	1.172	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.172
1.500	2.769	N/A	0.597	1.223	1.518	1.223	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.223
1.600	2.954	N/A	0.597	1.272	1.522	1.272	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.272
1.700	3.138	N/A	0.597	1.320	1.539	1.320	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.320
1.800	3.323	N/A	0.597	1.366	1.588	1.366	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.366
1.900	3.508	N/A	0.598	1.411	1.698	1.411	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.411
2.000	3.692	N/A	0.598	1.453	1.900	1.453	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.453
2.100	3.877	N/A	0.598	1.495	2.233	1.495	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.495
2.200	4.062	N/A	0.598	1.535	2.742	1.535	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.535
2.300	4.246	N/A	0.598	1.574	3.481	1.574	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.574
2.400	4.431	N/A	0.598	1.613	4.509	1.613	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.613
2.500	4.615	N/A	0.598	1.651	5.895	1.651	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.651
2.600	4.800	N/A	0.598	1.688	7.716	1.688	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.688

Stage-Discharge for Vault-2

Lowest Orifice

Diameter: 6.500 inches
Quantity: 1
Invert Elevation: 0.000 ft

Lower Slot

Quantity: 0
Invert Elevation: 0.00 ft
Width: 0.00 ft
Height: 0.00 in
0.000 ft
H_w: 0.00 ft

Lower Weir

Quantity: 0
Invert Elevation: 0.00 ft
Length: 0.00 ft
H_w: 0.00 ft

Upper Orifice

Diameter: 0.000 inches
Quantity: 0
Invert Elevation: 0.000 ft

Upper Slot

Quantity: 0
Invert Elevation: 0.00 ft
Width: 0.00 ft
Height: 0.00 in
0.000 ft
H_w: 0.00 ft

Emergency Weir

Invert Elevation: 6.00 ft
Length: 9.00 ft
H_w: 6.00 ft

(H_w = height of slot/weir invert above basin bottom)

Absolute Invert Elevation of Lowest Discharge Opening

Invert Elevation: 0.00 ft

**Head taken as total depth above the invert of the lowest discharge opening.*

h* (ft)	h/D	h/D	$Q_{LOWEST\ ORIFICE}$ (cfs)				$Q_{UPPER\ ORIFICE}$ (cfs)				$Q_{LOWER\ SLOT}$ (cfs)	$Q_{UPPER\ SLOT}$ (cfs)	$Q_{LOWER\ WEIR}$ (cfs)	$Q_{EMERGENCY}$ (cfs)	Q_{TOTAL} (cfs)
	Lowest Orifice	Upper Orifice	Discharge Coefficient	Orifice Flow	Weir Flow	$Q_{control}$	Discharge Coefficient	Orifice Flow	Weir Flow	$Q_{control}$					
2.700	4.985	N/A	0.598	1.724	10.058	1.724	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.724
2.800	5.169	N/A	0.598	1.760	13.016	1.760	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.760
2.900	5.354	N/A	0.598	1.794	16.697	1.794	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.794
3.000	5.538	N/A	0.598	1.828	18.278	1.828	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.828
3.100	5.723	N/A	0.598	1.861	18.610	1.861	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.861
3.200	5.908	N/A	0.598	1.894	18.936	1.894	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.894
3.300	6.092	N/A	0.598	1.926	19.256	1.926	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.926
3.400	6.277	N/A	0.598	1.957	19.572	1.957	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.957
3.500	6.462	N/A	0.598	1.988	19.882	1.988	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	1.988
3.600	6.646	N/A	0.598	2.019	20.187	2.019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.019
3.700	6.831	N/A	0.598	2.049	20.488	2.049	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.049
3.800	7.015	N/A	0.598	2.078	20.785	2.078	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.078
3.900	7.200	N/A	0.598	2.107	21.070	2.107	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.107
4.000	7.385	N/A	0.598	2.135	21.351	2.135	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.135
4.100	7.569	N/A	0.598	2.163	21.628	2.163	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.163
4.200	7.754	N/A	0.597	2.190	21.902	2.190	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.190
4.300	7.938	N/A	0.597	2.217	22.171	2.217	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.217
4.400	8.123	N/A	0.597	2.244	22.445	2.244	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.244
4.500	8.308	N/A	0.597	2.271	22.715	2.271	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.271
4.600	8.492	N/A	0.597	2.298	22.982	2.298	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.298
4.700	8.677	N/A	0.597	2.325	23.246	2.325	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.325
4.800	8.862	N/A	0.597	2.351	23.507	2.351	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.351
4.900	9.046	N/A	0.597	2.376	23.765	2.376	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.376
5.000	9.231	N/A	0.597	2.402	24.020	2.402	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.402
5.100	9.415	N/A	0.597	2.427	24.273	2.427	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.427
5.200	9.600	N/A	0.597	2.452	24.523	2.452	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.452
5.300	9.785	N/A	0.597	2.477	24.770	2.477	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.477

Stage-Discharge for Vault-2

Lowest Orifice

Diameter:	6.500	inches
Quantity:	1	
Invert Elevation:	0.000	ft

Lower Slot

Quantity:	0	
Invert Elevation:	0.00	ft
Width:	0.00	ft
Height:	0.00	in
	0.000	ft
H_w:	0.00	ft

Lower Weir

Quantity:	0	
Invert Elevation:	0.00	ft
Length:	0.00	ft
H_w:	0.00	ft

Upper Orifice

Diameter:	0.000	inches
Quantity:	0	
Invert Elevation:	0.000	ft

Upper Slot

Quantity:	0	
Invert Elevation:	0.00	ft
Width:	0.00	ft
Height:	0.00	in
	0.000	ft
H_w:	0.00	ft

Emergency Weir

Invert Elevation:	6.00	ft
Length:	9.00	ft
H_w:	6.00	ft

(H_w = height of slot/weir invert above basin bottom)

Absolute Invert Elevation of Lowest Discharge Opening

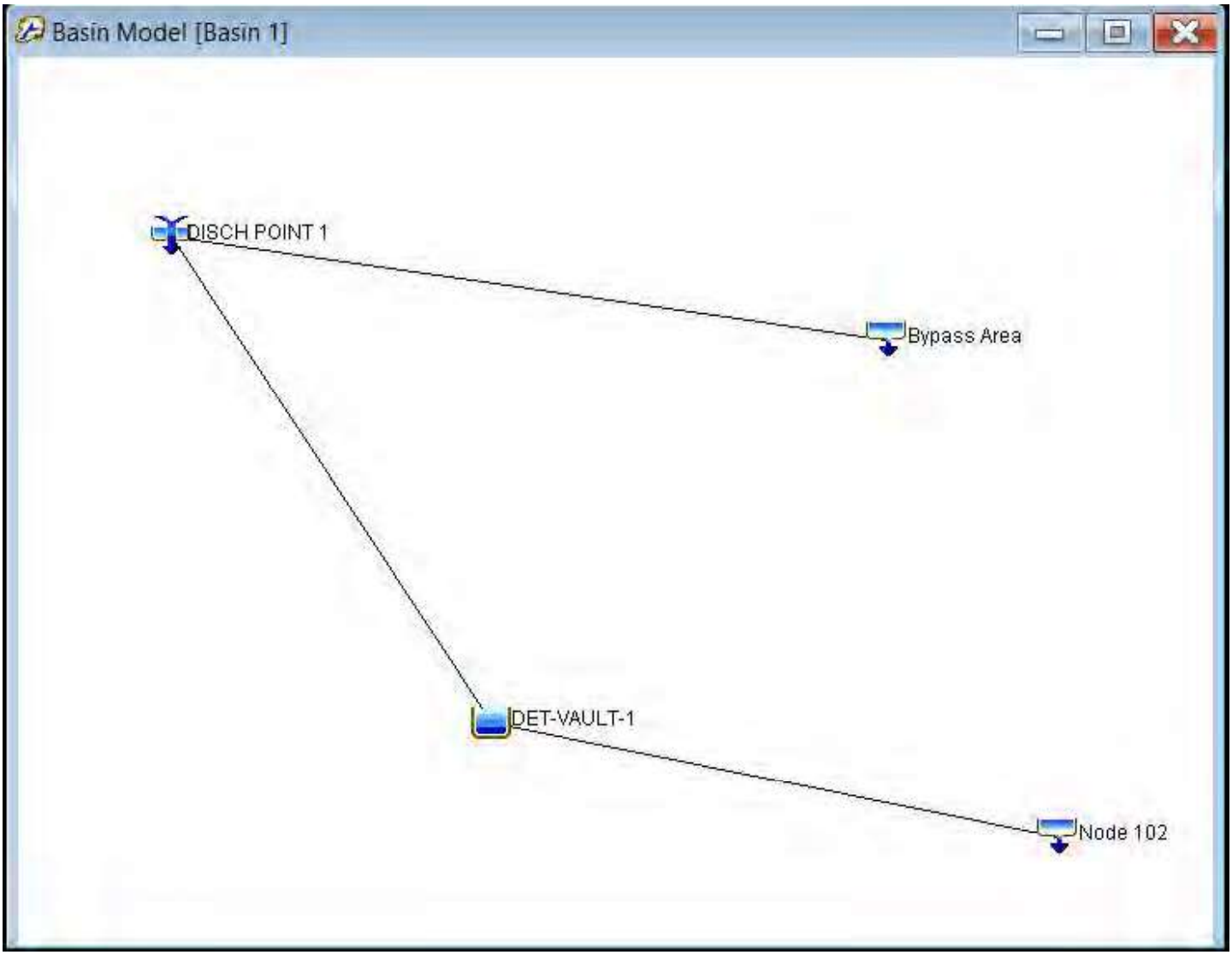
Invert Elevation: 0.00 ft

**Head taken as total depth above the invert of the lowest discharge opening.*

h* **(ft)**	***h/D***	***h/D***	***Q LOWEST ORIFICE* (cfs)**				***Q UPPER ORIFICE* (cfs)**				***Q LOWER SLOT*** **(cfs)**	***Q UPPER SLOT*** **(cfs)**	***Q LOWER WEIR*** **(cfs)**	***Q EMERGENCY*** **(cfs)**	***Q TOTAL*** **(cfs)**
	Lowest Orifice	*Upper Orifice*	*Discharge Coefficient*	*Orifice Flow*	*Weir Flow*	$Q_{control}$	*Discharge Coefficient*	*Orifice Flow*	*Weir Flow*	$Q_{control}$					
5.400	9.969	N/A	0.597	2.502	25.015	2.502	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.502
5.500	10.154	N/A	0.597	2.526	25.258	2.526	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.526
5.600	10.338	N/A	0.597	2.550	25.498	2.550	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.550
5.700	10.523	N/A	0.597	2.574	25.737	2.574	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.574
5.800	10.708	N/A	0.597	2.597	25.972	2.597	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.597
5.900	10.892	N/A	0.597	2.621	26.206	2.621	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.621
6.000	11.077	N/A	0.597	2.644	26.438	2.644	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	2.644

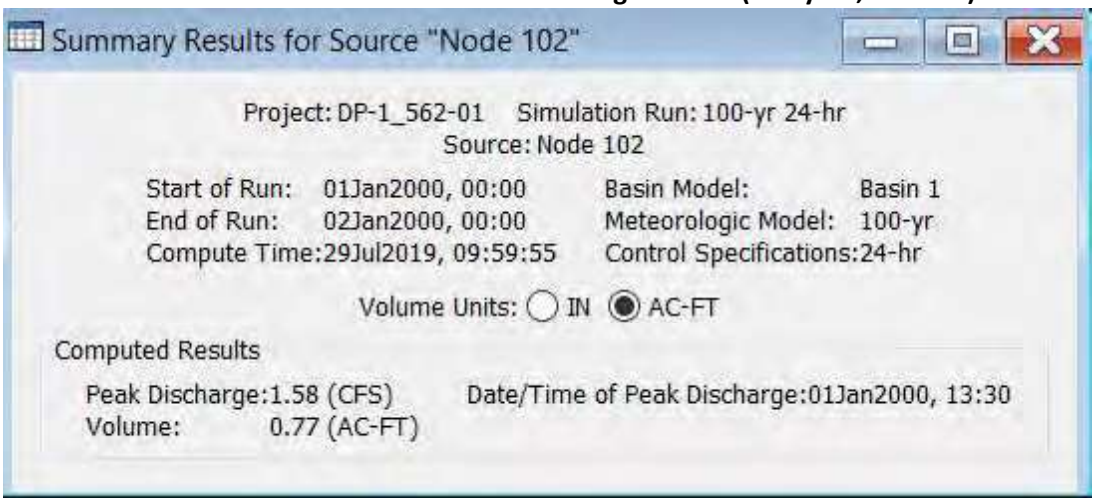
HEC-HMS Detention Routing

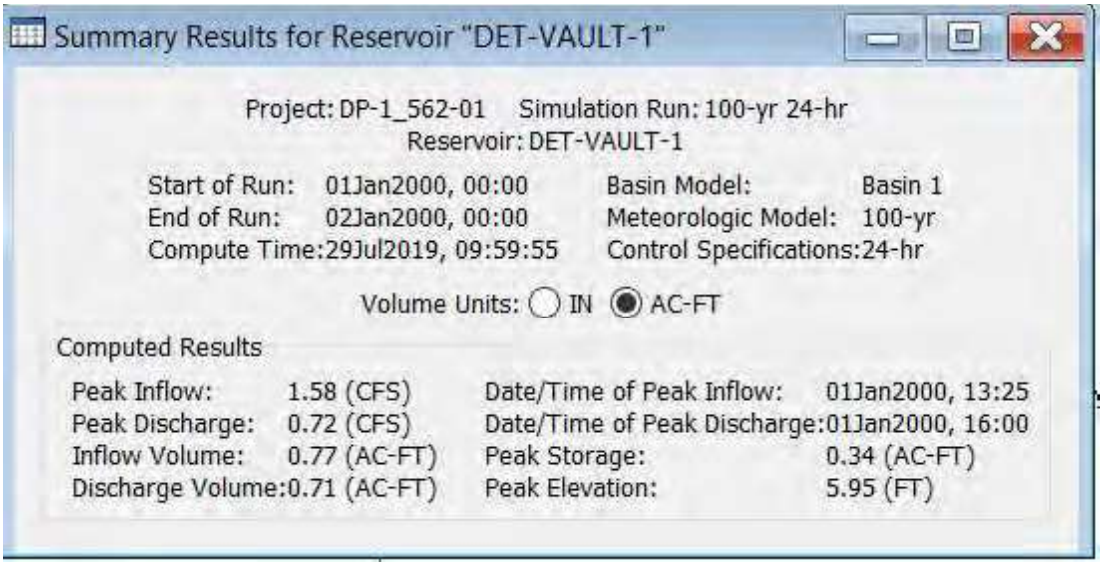
Discharge Point 1 (100-year, 24-hour)

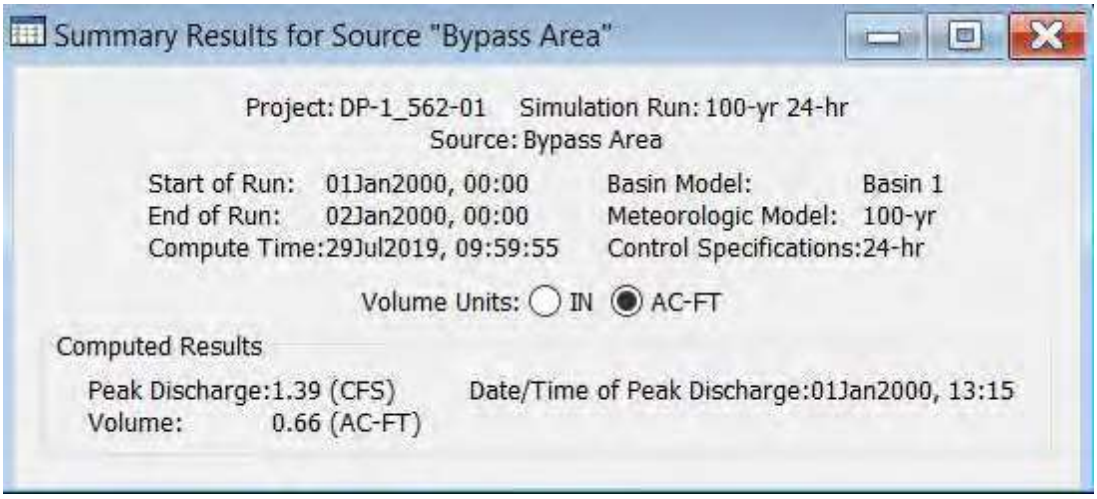


HEC-HMS Detention Routing

Discharge Point 1 (100-year, 24-hour)







HEC-HMS Detention Routing

Discharge Point 1 (100-year, 24-hour)

Summary Results for Junction "DISCH POINT 1"

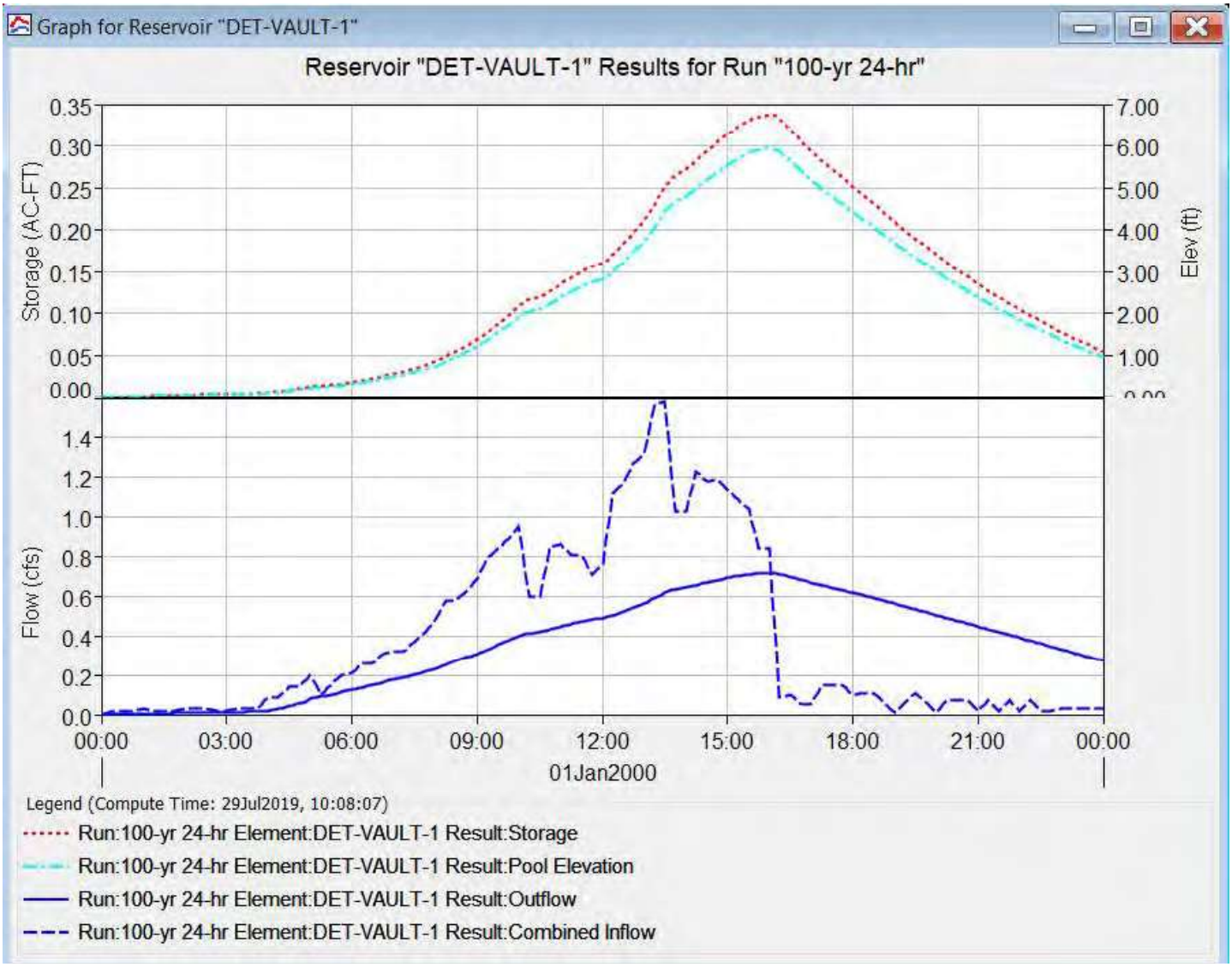
Project: DP-1_562-01 Simulation Run: 100-yr 24-hr
Junction: DISCH POINT 1

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 1
End of Run:	02Jan2000, 00:00	Meteorologic Model:	100-yr
Compute Time:	29Jul2019, 10:08:07	Control Specifications:	24-hr

Volume Units: ○ IN ◉ AC-FT

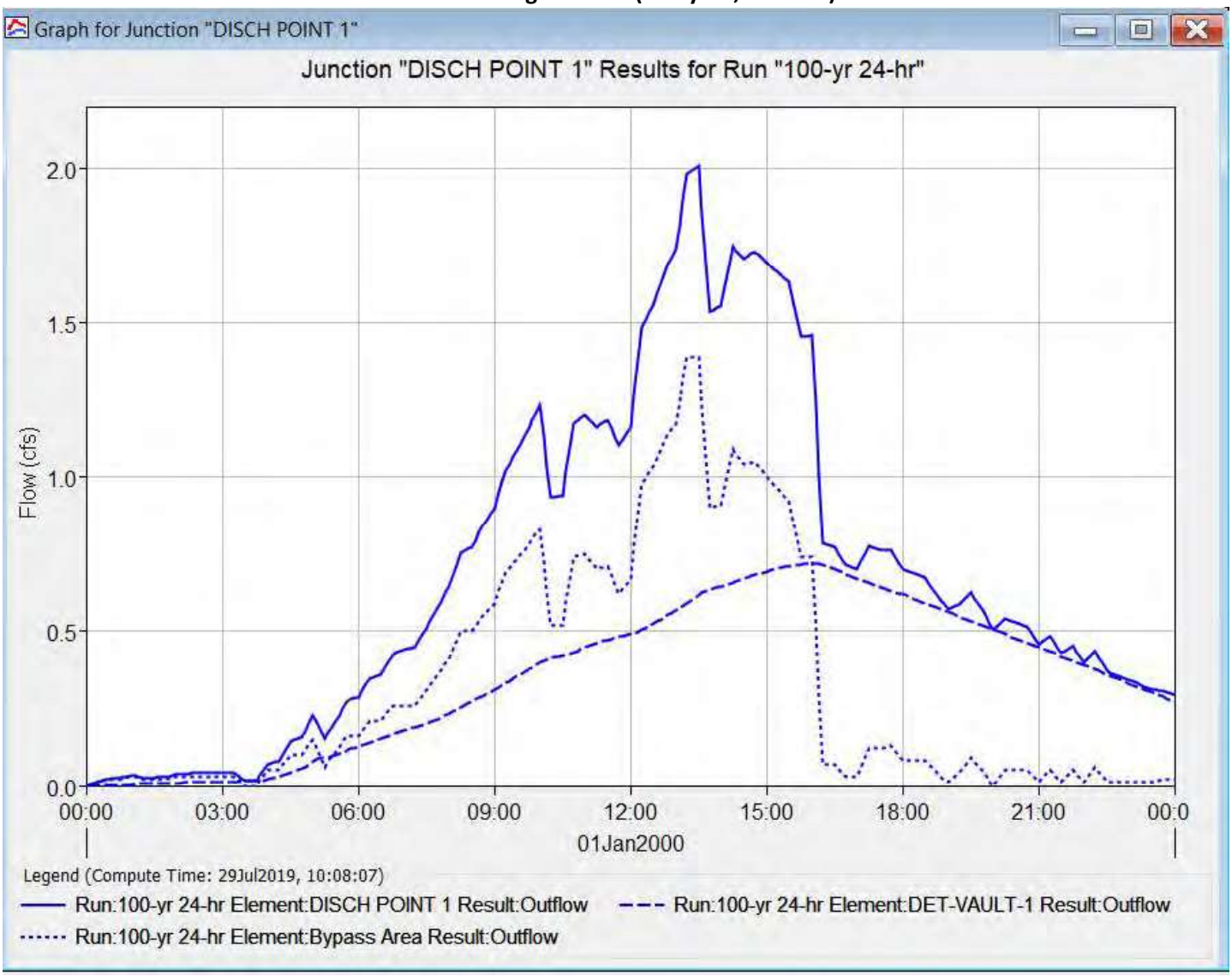
Computed Results

Peak Discharge: 2.01 (CFS) Date/Time of Peak Discharge: 01Jan2000, 13:30
Volume: 1.37 (AC-FT)



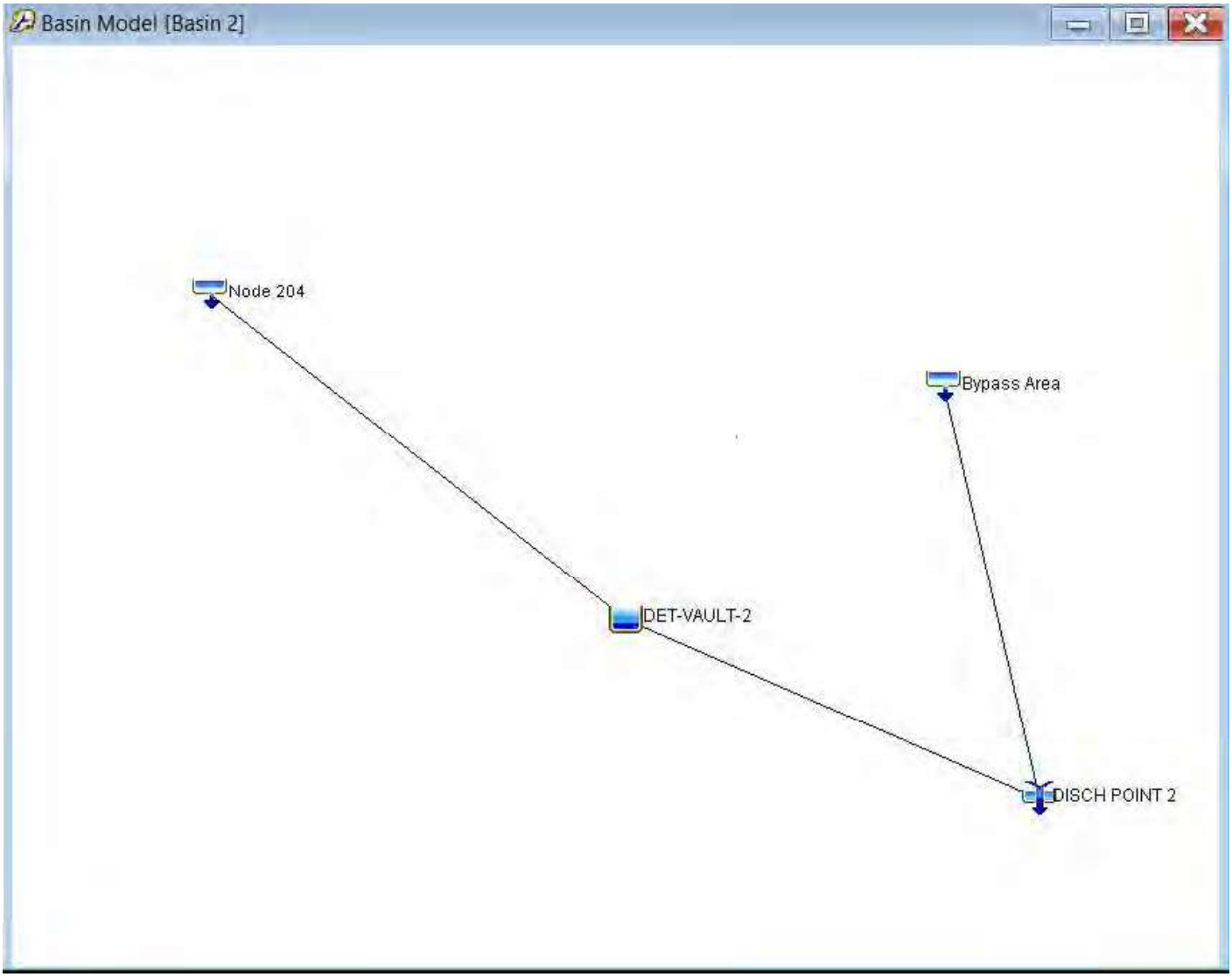
HEC-HMS Detention Routing

Discharge Point 1 (100-year, 24-hour)



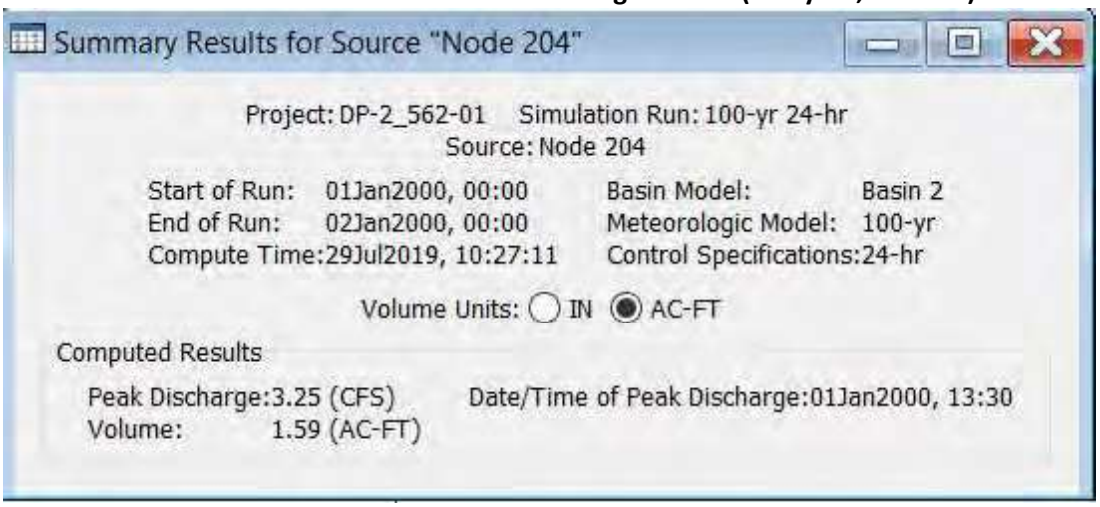
HEC-HMS Detention Routing

Discharge Point 2 (100-year, 24-hour)



HEC-HMS Detention Routing

Discharge Point 2 (100-year, 24-hour)



Summary Results for Source "Node 204"

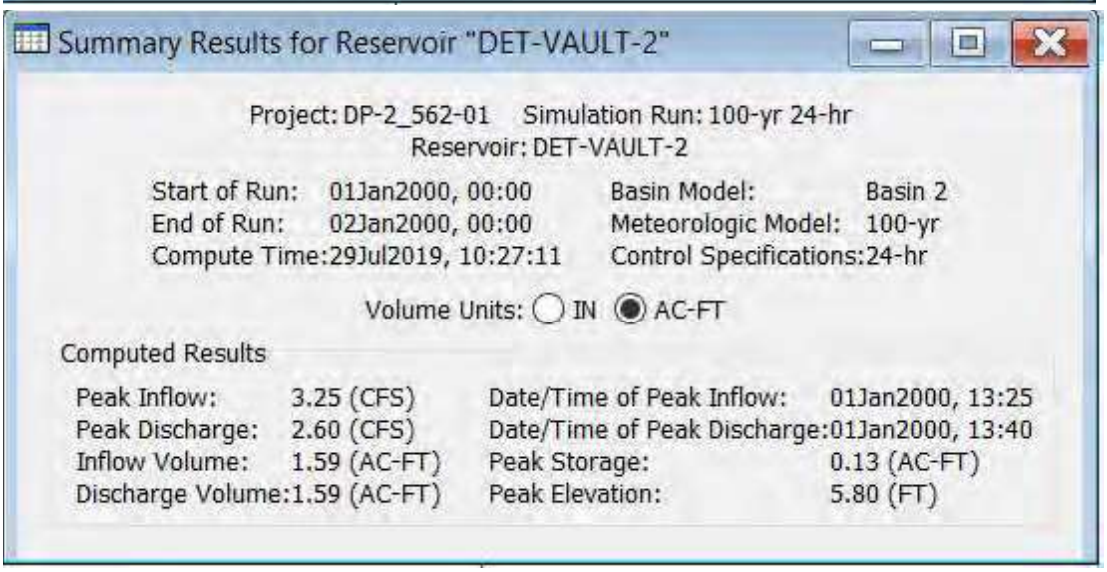
Project: DP-2_562-01 Simulation Run: 100-yr 24-hr
Source: Node 204

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 2
End of Run:	02Jan2000, 00:00	Meteorologic Model:	100-yr
Compute Time:	29Jul2019, 10:27:11	Control Specifications:	24-hr

Volume Units: ○ IN ◉ AC-FT

Computed Results

Peak Discharge:	3.25 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 13:30
Volume:	1.59 (AC-FT)		



Summary Results for Reservoir "DET-VAULT-2"

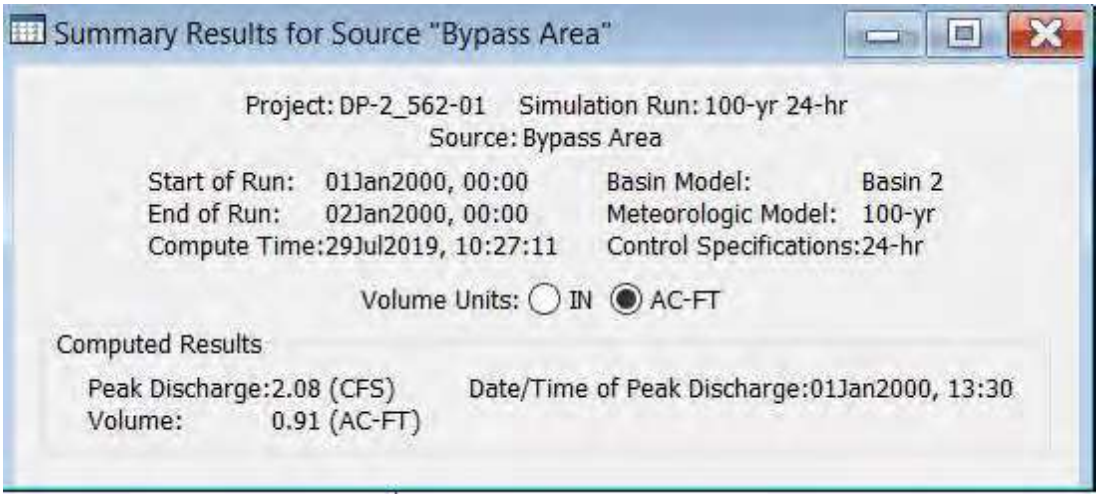
Project: DP-2_562-01 Simulation Run: 100-yr 24-hr
Reservoir: DET-VAULT-2

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 2
End of Run:	02Jan2000, 00:00	Meteorologic Model:	100-yr
Compute Time:	29Jul2019, 10:27:11	Control Specifications:	24-hr

Volume Units: ○ IN ◉ AC-FT

Computed Results

Peak Inflow:	3.25 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 13:25
Peak Discharge:	2.60 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 13:40
Inflow Volume:	1.59 (AC-FT)	Peak Storage:	0.13 (AC-FT)
Discharge Volume:	1.59 (AC-FT)	Peak Elevation:	5.80 (FT)



Summary Results for Source "Bypass Area"

Project: DP-2_562-01 Simulation Run: 100-yr 24-hr
Source: Bypass Area

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 2
End of Run:	02Jan2000, 00:00	Meteorologic Model:	100-yr
Compute Time:	29Jul2019, 10:27:11	Control Specifications:	24-hr

Volume Units: ○ IN ◉ AC-FT

Computed Results

Peak Discharge:	2.08 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 13:30
Volume:	0.91 (AC-FT)		

HEC-HMS Detention Routing

Discharge Point 2 (100-year, 24-hour)

Summary Results for Junction "DISCH POINT 2"

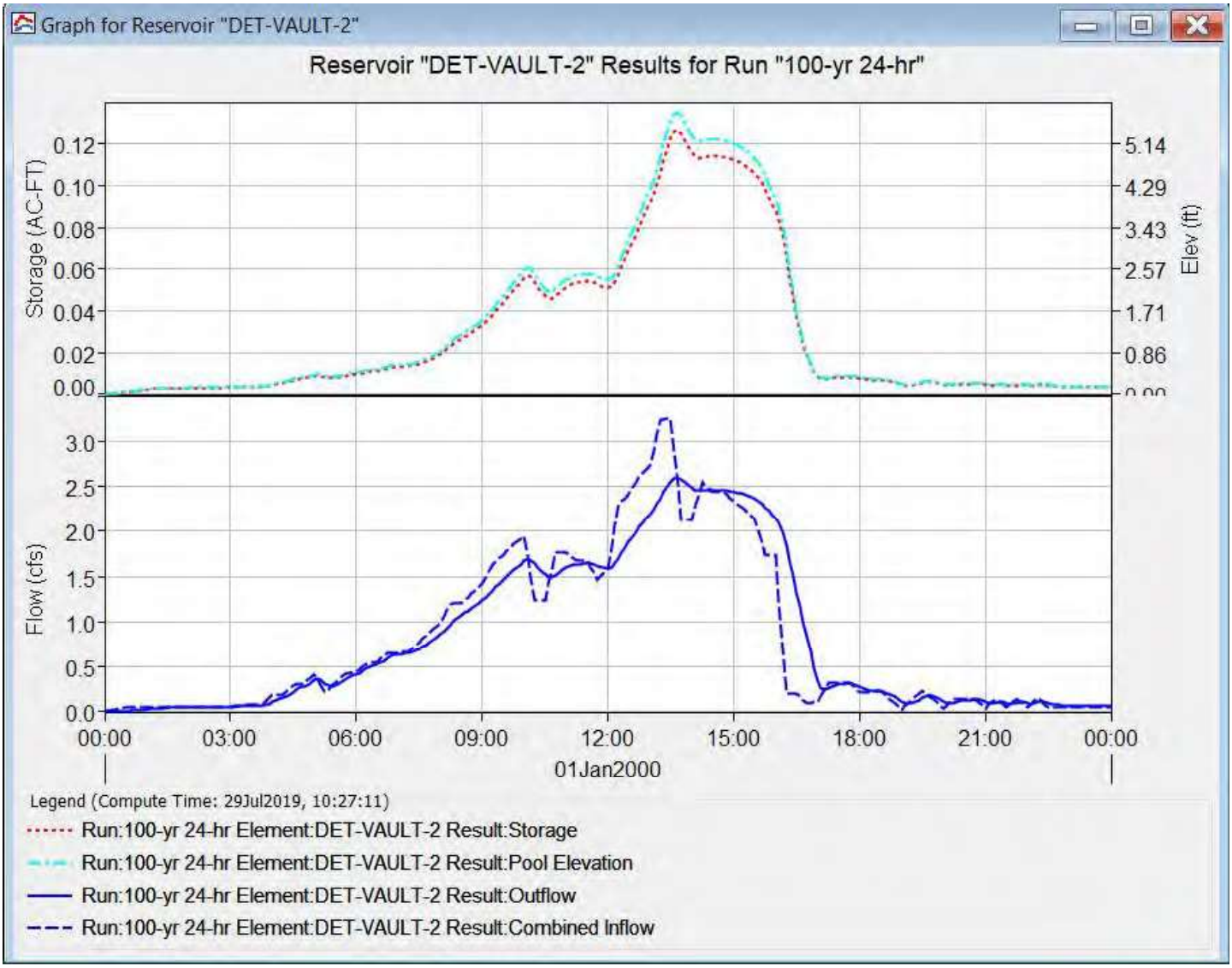
Project: DP-2_562-01 Simulation Run: 100-yr 24-hr
Junction: DISCH POINT 2

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 2
End of Run:	02Jan2000, 00:00	Meteorologic Model:	100-yr
Compute Time:	29Jul2019, 10:27:11	Control Specifications:	24-hr

Volume Units: ○ IN ◉ AC-FT

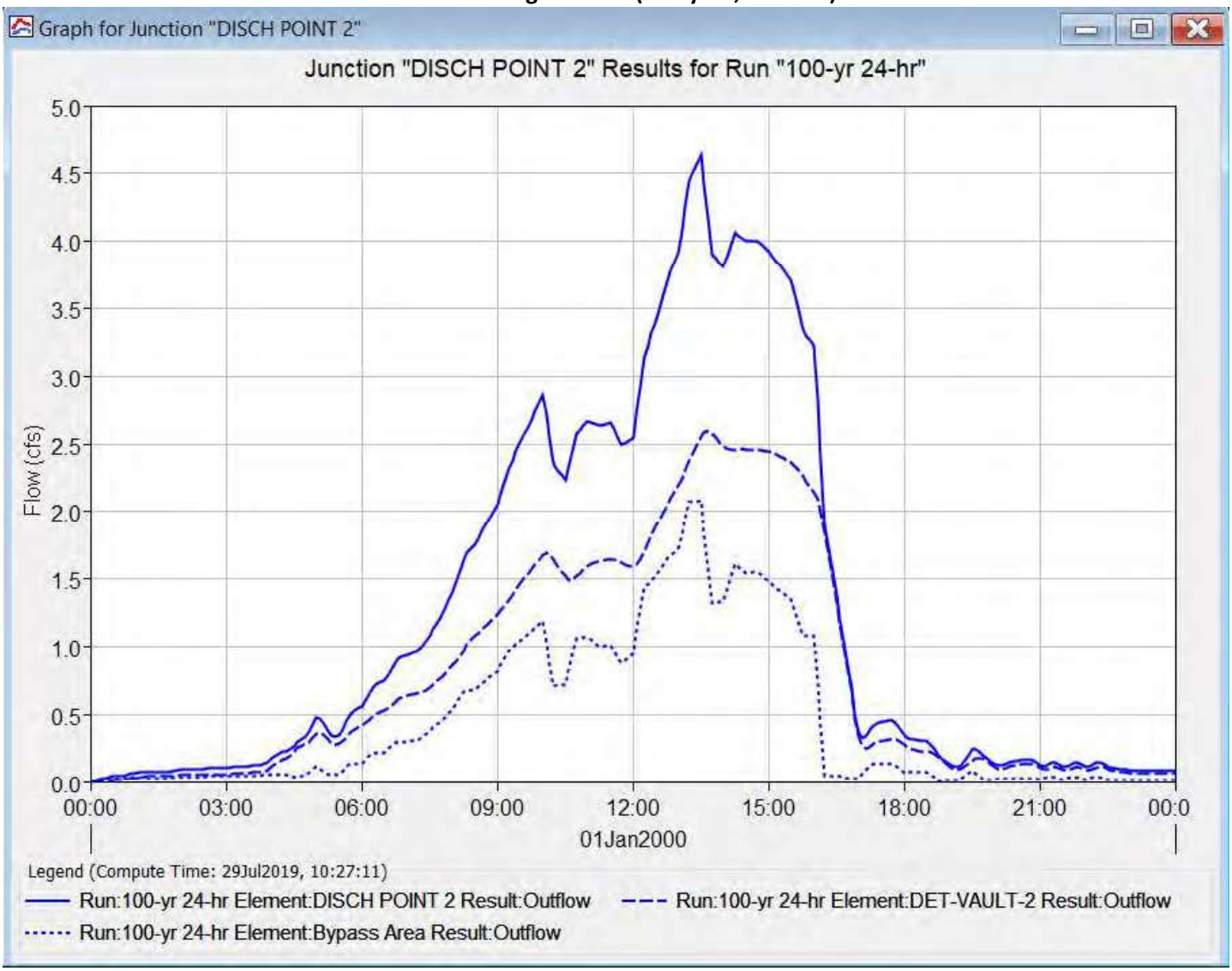
Computed Results

Peak Discharge: 4.63 (CFS) Date/Time of Peak Discharge: 01Jan2000, 13:30
Volume: 2.50 (AC-FT)



HEC-HMS Detention Routing

Discharge Point 2 (100-year, 24-hour)



Appendix E
Noise Study

Ritz-Carlton Residences

NOISE IMPACT ANALYSIS

CITY OF RANCHO MIRAGE

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FEBRUARY 18, 2020

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Ritz-Carlton Residences
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and any necessary noise mitigation measures for the proposed Ritz-Carlton Residences development ("Project"). The Project site is located north of Mirada Circle and east of Frank Sinatra Drive in the City of Rancho Mirage. The Project proposes to expand the existing Ritz-Carlton hotel by 106 residential dwelling units, a 6,966 square foot restaurant, and a 23,843 square foot venue. For the purposes of this analysis, it is assumed that the Project will be constructed within a single phase of development with a projected Opening Year of 2023. This study has been prepared consistent with applicable City of Rancho Mirage noise standards, and significance criteria based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the Project will influence the traffic noise levels in surrounding off-site areas. To quantify the off-site traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on four roadway segments were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in *Ritz-Carlton Residences Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2) To assess the off-site noise level impacts associated with the proposed Project, noise level contours were developed for Existing 2019, Existing plus Ambient (EA), Existing plus Ambient plus Cumulative (EAC), and Horizon Year 2040 traffic conditions. The off-site traffic noise analysis shows that the Project-related traffic noise level increases at receiving land uses under all traffic scenarios will be *less than significant*.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the potential noise sources within Ritz-Carlton Residences site, this analysis estimates the Project-related operational (stationary-source) noise levels at the nearby receiver locations. The Project-related operational noise sources are expected to include air conditioning units, pool activity and outdoor courtyard activity. The analysis shows that the operational noise levels associated with Ritz-Carlton Residences Project will satisfy the City of Rancho Mirage 55 dBA L_{eq} daytime, 50 dBA L_{eq} evening and 45 dBA L_{eq} nighttime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations

CONSTRUCTION NOISE ANALYSIS

Construction-related noise impacts are expected to create short-term and intermittent high-level noise conditions at receivers surrounding the Project site. Using sample reference noise levels to represent the planned construction activities of the Ritz-Carlton Residences site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. Since the City of Rancho Mirage General Plan and Municipal Codes do not identify specific construction noise level thresholds, a construction noise level threshold is identified based on the National Institute for Occupational Safety and Health (NIOSH) limits. The Project-related short-term construction noise levels are expected to range from 42.1 to 70.6 dBA L_{eq} and will satisfy the 85 dBA L_{eq} NIOSH construction noise level threshold at all receiver locations. Therefore, based on the results of this analysis, all nearby sensitive receiver locations will experience *less than significant* impacts due to Project construction noise levels.

CONSTRUCTION NOISE ABATEMENT MEASURES

Though construction noise is intermittent and of short duration, and will not present any long-term impacts, the following practices, while not required, would reduce noise level increases produced by the construction equipment to the nearby noise-sensitive residential land uses:

- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the center).
- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment (between the hours of 7:00 a.m. to 6:00 p.m. Monday to Saturdays, with no activity allowed on Sundays or holidays). The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. At distances ranging from 21 to 591 feet from Project construction activity, construction vibration velocity levels are expected to range from 45.8 to 89.3 VdB and will exceed the FTA 80 VdB threshold for human annoyance at receiver locations R3 and R4. The construction vibration analysis shows that the unmitigated Project-related vibration impacts will be *potentially significant* during the construction activities at the Project site and mitigation is required.

Therefore, a 50-foot vibration buffer zone mitigation measure is required restricting the use of large loaded trucks and dozers (greater than 80,000 pounds) within 50-feet of occupied sensitive receiver locations R3 and R4. With the mitigation measures identified in this report, the mitigated vibration levels with the 50-foot buffer zone will be reduced to 78.0 VdB and will satisfy the FTA 80 VdB threshold for human annoyance. Therefore, impacts with the construction vibration mitigation measure identified in this study will be *less than significant*.

CONSTRUCTION VIBRATION MITIGATION

To reduce the construction vibration impacts to *less than significant* levels, the following vibration mitigation measure is required for Project-related construction activities:

- Large loaded trucks and dozers (greater than 80,000 pounds) shall not be used within 50 feet of occupied noise-sensitive residential homes, as shown on Exhibit ES-A, represented by receiver locations R3 and R4, during Project construction activities. Instead, small rubber-tired or alternative equipment shall be used within this area during Project construction to reduce vibration effects. If all mobile equipment used during Project construction are less than 80,000 pounds, then the 50-foot buffer vibration mitigation is not required.

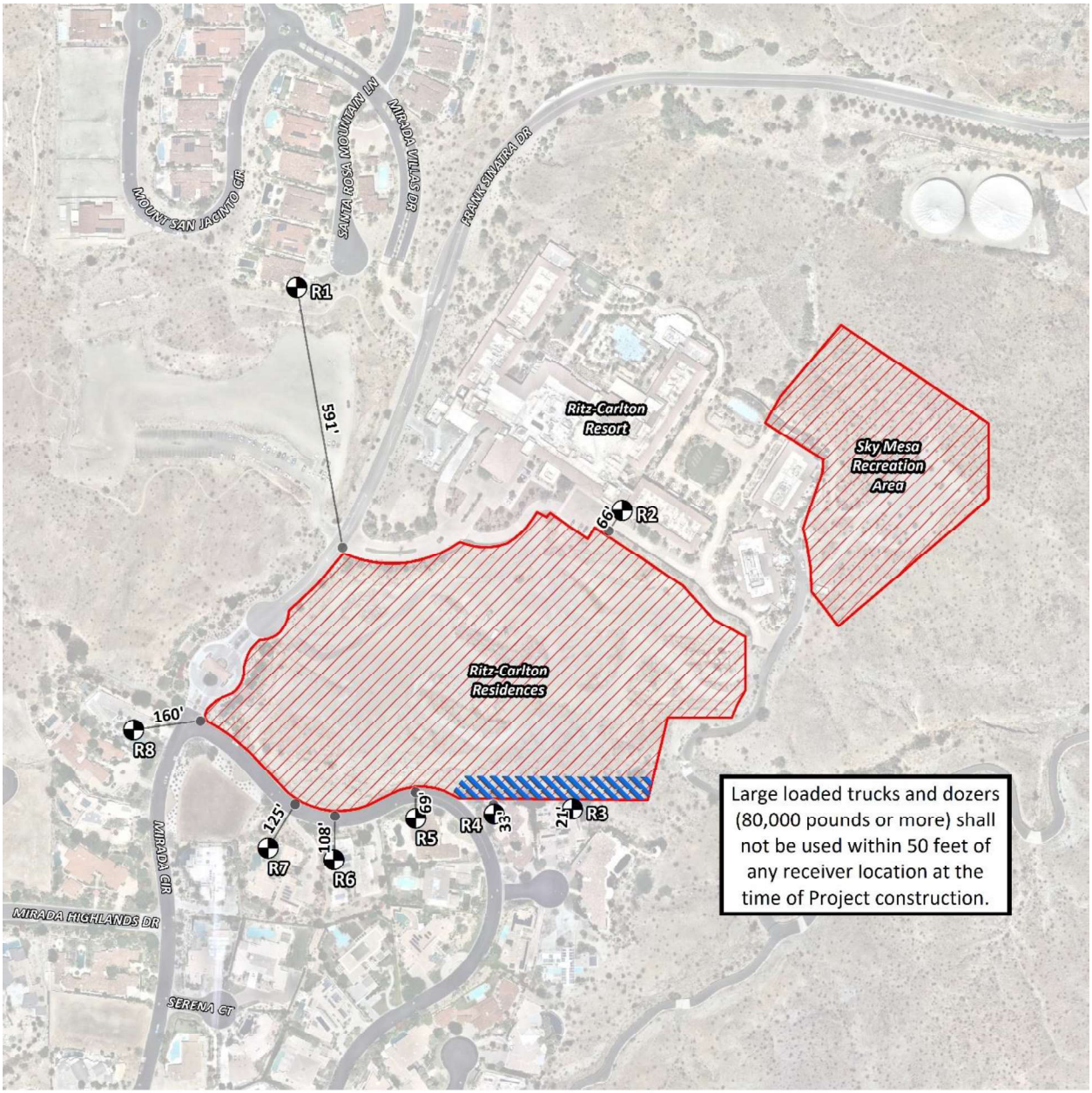
SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this Ritz-Carlton Residences Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures described below.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
Operational Noise	9	*Less Than Significant*	-
Construction Noise	10	*Less Than Significant*	-
Construction Vibration		*Potentially Significant*	*Less Than Significant*

EXHIBIT ES-A: SUMMARY OF RECOMMENDATIONS



LEGEND:

N

Construction Activity

Distance from receiver to Project site boundary (in feet)

50-foot buffer for large loaded trucks and mobile equipment (>80,000 lbs.)

1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Ritz-Carlton Residences ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for transportation noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The Project site is located north of Mirada Circle and east of Frank Sinatra Drive, in the City of Rancho Mirage as shown on Exhibit 1-A. The Project site is located adjacent to the existing Ritz-Carlton Rancho Mirage, north of the Mirada Estates and east of the Villas of Mirada. The Project site is currently vacant and undeveloped.

1.2 PROJECT DESCRIPTION

It is our understanding that the Project is to expand the existing Ritz-Carlton hotel by 106 residential dwelling units, a 6,966 square foot restaurant, and a 23,843 square foot venue. For the purposes of this analysis, it is assumed that the Project will be constructed within a single phase of development with a projected Opening Year of 2023.

The Ritz-Carlton Residences at Rancho Mirage is an expansion and enhancement to the existing Ritz-Carlton Resort. The project consists of renovation of the existing motor court which will provide a connection to the new proposed building across from the existing hotel. This new building will provide a new 23,843 square feet of indoor event space and expansive exterior entertaining and garden spaces. The building will also house 48 Residential Suites over underground parking for the both the suites and the event space along with additional parking for the existing hotel. In addition, 58 new residential villas with their own private garages will be built around naturally landscaped areas. A community clubroom with access to a central pool terrace as well as smaller amenity areas will enhance the new community. The new Sky Mesa Recreation Area will enhance the land southeast of the existing hotel by providing additional event space and amenities such as a pool terrace and view opportunities onto the valley. A new restaurant will be tucked away into the site to provide a new dining experience as well as services to the pool deck.

Per the *Ritz-Carlton Residences Traffic Impact Analysis* prepared by Urban Crossroads, Inc., the Project is expected to generate a net total of 1,068 trip-ends per day, 51 AM peak hour trips and 86 PM peak hour trips. (3)

EXHIBIT 1-A: LOCATION MAP

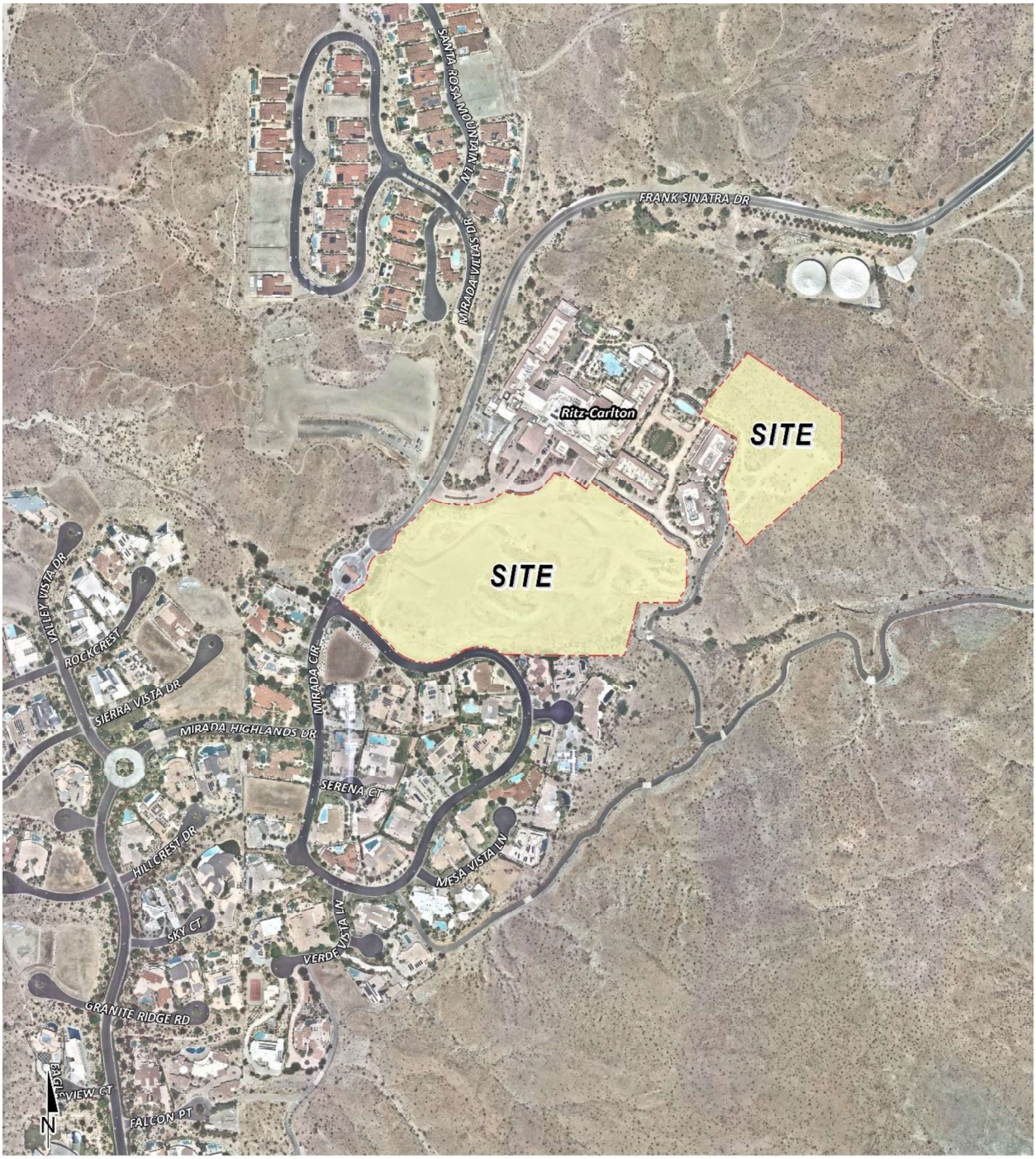


EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (3) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA at approximately 100 feet, which can cause serious discomfort. (4) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Rancho Mirage relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (3)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those

sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (5)

2.3.3 Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (3)

2.3.4 Shielding

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (5)

2.4 Noise Control

Noise control is the process of obtaining an acceptable noise environment for an observation point or receiver by controlling the noise source, transmission path, receiver, or all three. This concept is known as the source-path-receiver concept. In general, noise control measures can be applied to these three elements.

2.5 Noise Barrier Attenuation

Effective noise barriers can reduce noise levels by up to 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (5)

2.6 Land Use Compatibility With Noise

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic

health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (6)

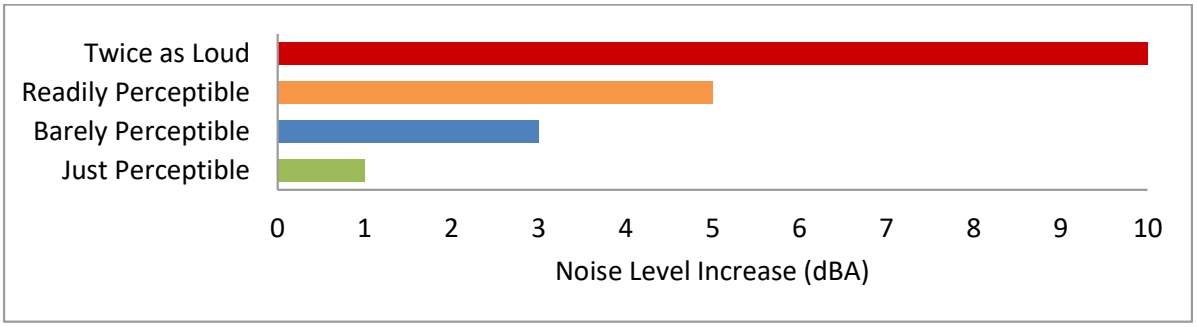
2.7 COMMUNITY RESPONSE TO NOISE

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (7) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (7) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA are considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (5)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 EXPOSURE TO HIGH NOISE LEVELS

The Occupational Safety and Health Administration (OSHA) sets legal limits on noise exposure in the workplace. The permissible exposure limit (PEL) for a worker over an eight-hour day is 90 dBA. The OSHA standard uses a 5-dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half. The National Institute for Occupational Safety and Health (NIOSH) has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dBA for eight hours to minimize occupational noise induced hearing loss. NIOSH also recommends a 3 dBA exchange rate so that every increase by 3 dBA doubles the amount of the noise and halves the recommended amount of exposure time. (8)

OSHA has implemented requirements to protect all workers in general industry (e.g. the manufacturing and the service sectors) for employers to implement a Hearing Conservation Program where workers are exposed to a time weighted average noise level of 85 dBA or higher over an eight-hour work shift. Hearing Conservation Programs require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protectors in use unless changes to tools, equipment and schedules are made so that they are less noisy and worker exposure to noise is less than the 85 dBA. This noise study does not evaluate the noise exposure of workers within a project or construction site based on CEQA requirements, and instead, evaluates Project-related construction noise levels at the nearby sensitive receiver locations in the Project study area.

2.9 VIBRATION

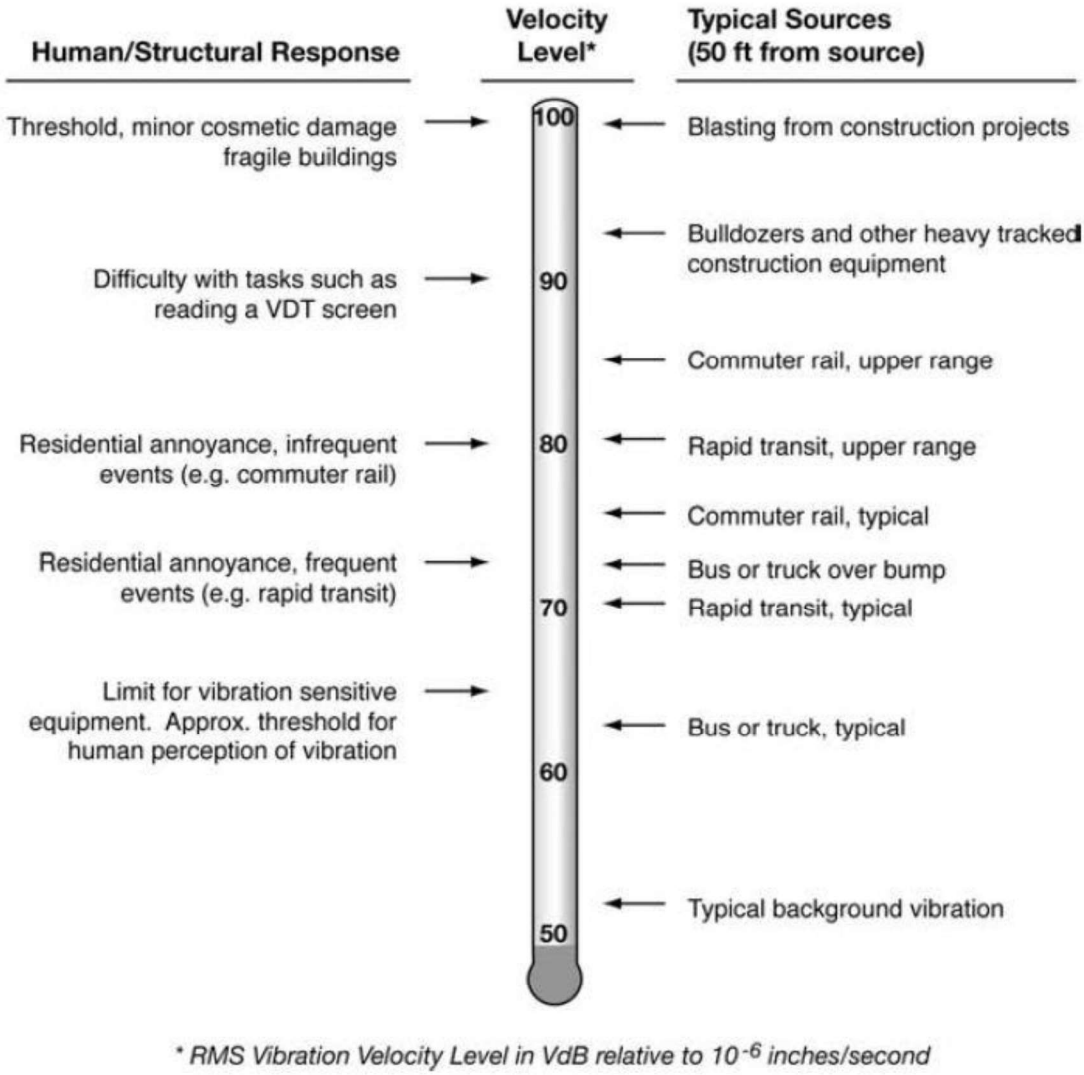
Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (9), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures

(especially older masonry structures), people (especially residents, the elderly, and sick), vibration-sensitive equipment and/or activities

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



Source: Federal Transit Administration (FTA) Transit Noise Impact and Vibration Assessment.

3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research. (10) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA BUILDING CODE

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for the purpose of controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

3.3 CITY OF RANCHO MIRAGE GENERAL PLAN NOISE ELEMENT

The City of Rancho Mirage has adopted a Noise Element of the General Plan (12) to control and abate environmental noise, and to protect the citizens of the City of Rancho Mirage from excessive exposure to noise. The Noise Element is intended to help align the community's various land uses with the existing and future noise environment and thus ensure that any negative effects of noise are minimized or completely avoided.

The noise criteria identified in the City of Rancho Mirage Noise Element are guidelines to evaluate the land use compatibility of transportation related noise. To assist the City in the planning compatible uses, a range of exterior noise thresholds for various land uses have been developed. Particularly sensitive land uses include residences, schools, libraries, churches, hospitals and nursing homes, and destination resort areas. In addition, parks, golf courses, and other outdoor activity areas can be sensitive to noise disturbances. Less sensitive land uses include commercial uses, conventional hotels and motels, and playgrounds. east sensitive to noise are heavy commercial uses, transportation, communication, and utility land uses.

The Noise Level and Land Use Compatibility matrix in the Noise Element shown on Exhibit 3-A provides guidelines to evaluate the acceptability of the transportation related noise level impacts. Single-family residential land uses are considered *normally acceptable* with exterior noise levels below 60 dBA CNEL and *conditionally acceptable* with noise levels below 70 dBA CNEL. Hospitals land uses are considered *normally acceptable* with exterior noise levels below 70 dBA CNEL. For *conditionally acceptable* land use, *new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed*

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Ritz-Carlton Residences Project, stationary-source (operational) noise such as the expected air conditioning units, pool activity and outdoor courtyard activity are typically evaluated against standards established under a jurisdiction's Municipal Code. The City of Rancho Mirage Municipal Code noise standards are provided in Appendix 3.1. The City of Rancho Mirage Municipal Code, Chapter 8.45 establishes the noise level standards for stationary noise sources. The Project's land use will potentially impact nearby noise-sensitive uses in the Project study area. For nearby noise-sensitive residential land uses in the Project study area, Section 8.45.030 identifies the base exterior noise level standard of 55 dBA L_{eq} during the daytime hours (7:00 a.m. to 6:00 p.m.), 50 dBA L_{eq} during the evening hours (6:00 p.m. to 10:00 p.m.) and 45 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). (11) Table 3-1 provides a summary of the City of Rancho Mirage operational exterior noise level standards.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Land Use[1]	Time Period	Exterior Noise Level Standards (dBA L_{eq})[2]
Residential	Daytime (7:00 a.m. to 6:00 p.m.)	55
	Evening (6:00 p.m. to 10:00 p.m.)	50
	Nighttime (10:00 p.m. to 7:00 a.m.)	45

[1] Source: City of Rancho Mirage Municipal Code, Section 8.45.030 Exterior noise level limits (Appendix 3.1).
[2] L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given sample period.

EXHIBIT 3-A: NOISE LEVEL AND LAND USE COMPATIBILITY



3.5 CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of Ritz-Carlton Residences, noise from construction activities are typically evaluated against standards established under a City's Municipal Code. The Municipal Code noise standards for construction are described below for the City of Rancho Mirage to determine the potential noise impacts at nearby receiver locations.

To control noise impacts associated with the construction of the proposed Project, the City has established limits to the hours of operation. The City of Rancho Mirage Municipal Code, Section 15.04.030 indicates that construction, shall be limited to the hours of 7:00 a.m. to 7:00 p.m. weekdays. Construction activity is not permitted on Sundays or major holidays. (12) However, the City's General Plan and Municipal Code do not establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes as the *generation of noise levels in excess of standards* or as a *substantial temporary or periodic noise increase*, therefore, the following construction noise level thresholds are used in this noise study.

To evaluate whether the Project will generate potentially significant temporary construction noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH). (13) A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3-dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. (13) For the purposes of this analysis, the lowest, more conservative construction noise level threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time, they are expressed as L_{eq} noise levels. Therefore, the noise level threshold of 85 dBA L_{eq} over a period of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations.

3.6 VIBRATION STANDARDS

The City of Rancho Mirage has not identified or adopted specific, quantified vibration level standards. However, the United States Department of Transportation Federal Transit Administration (FTA) provides guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines allow 80 VdB for residential uses and buildings where people normally sleep, and 83 VdB for institutional land uses typically occupied during the daytime hours. (9) Construction activities can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. The FTA guidelines provide a substantiated basis for determining the relative significance of potential Project vibration impacts due to on-site construction activities.

4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

B. Generation of excessive ground-borne vibration or ground-borne noise levels?

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

While the City of Rancho Mirage General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases are considered substantial for use under Guideline A. CEQA Appendix G Guideline C applies to nearby public and private airports, if any, and the Project's land use compatibility.

4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

The Palm Springs Airport (PSP) is located roughly 4 miles north west of the Project site Since the Project is located more than two miles away from the nearest airport, the potential impacts are considered *less than significant,* and no further noise analysis is provided under Guideline C.

4.2 NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (15) Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (16) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft

noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (15) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance.

4.3 NON-NOISE-SENSITIVE RECEIVERS

The City of Rancho Mirage General Plan Noise Element (Figure 8-2), *Land Use Compatibility for Community Noise Exposure* was used to establish the satisfactory noise levels of significance for non-noise-sensitive land uses in the Project study area. As previously shown on Exhibit 3-A, the *normally acceptable* exterior noise levels for non-noise-sensitive land uses is 70 dBA CNEL. Noise levels greater than 70 dBA CNEL are considered *conditionally acceptable* per the *Land Use Compatibility for Community Noise Exposure*.

To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *readily perceptible* 5 dBA and *barely perceptible* 3 dBA criteria were used. When the without Project noise levels at the non-noise-sensitive land uses are below the *normally acceptable* 70 dBA CNEL compatibility criteria, a *readily perceptible* 5 dBA or greater noise level increase is considered a significant impact. When the without Project noise levels are greater than the *normally acceptable* 70 dBA CNEL land use compatibility criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the City of Rancho Mirage General Plan Noise Element (Figure 8-2) *Land Use Compatibility for Community Noise Exposure normally acceptable* 70 dBA CNEL exterior noise level criteria.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix.

OFF-SITE TRAFFIC NOISE

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):
    - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
    - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase; or
    - already exceed 65 dBA CNEL, and the Project creates a community noise level increase of greater than 1.5 dBA CNEL (FICON, 1992).
- When the noise levels at existing and future non-noise-sensitive land uses (e.g., office, commercial, industrial):
    - are less than the City of Rancho Mirage General Plan Noise Element (Figure 8-2), *normally acceptable* 70 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project related noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
    - are greater than the City of Rancho Mirage General Plan Noise Element (Figure 8-2), *normally acceptable* 70 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project noise level increase.

OPERATIONAL NOISE

- If Project-related operational (stationary-source) noise levels exceed the base exterior noise level standard of 55 dBA L_{eq} during the daytime hours (7:00 a.m. to 6:00 p.m.), 50 dBA L_{eq} during the evening hours (6:00 p.m. to 10:00 p.m.) and 45 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.) for noise-sensitive residential and institutional uses in the Project study area. (11)
- When the noise levels at existing and future noise-sensitive land uses (e.g., residential, etc.):
    - are less than 60 dBA L_{eq} and the Project creates a readily perceptible 5 dBA L_{eq} or greater Project-related noise level increase; or
    - range from 60 to 65 dBA L_{eq} and the Project creates a barely perceptible 3 dBA L_{eq} or greater Project-related noise level increase; or
    - already exceed 65 dBA L_{eq}, and the Project creates a community noise level impact of greater than 1.5 dBA L_{eq} (FICON, 1992).

CONSTRUCTION NOISE & VIBRATION

- If Project-related construction activities create noise levels which exceed the 85 dBA L_{eq} acceptable noise level threshold at the nearby sensitive receiver locations (NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure).
- If short-term Project generated construction vibration levels exceed the FTA vibration standards of 80 VdB at residential uses (Federal Transit Administration, Transit Noise and Vibration Impact Assessment).

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic[1]	Noise-Sensitive[1,2]	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise-Sensitive[1,2]	If ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Residential[3]	Exterior Noise Level Standards	See Table 3-1	
		If ambient is < 60 dBA L_{eq}[1]	≥ 5 dBA L_{eq} Project increase	
		If ambient is 60 - 65 dBA L_{eq}[1]	≥ 3 dBA L_{eq} Project increase	
		If ambient is > 65 dBA L_{eq}[1]	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise-Sensitive	Permitted between 7:00 a.m. to 6:00 p.m. Monday to Saturdays; with no activity allowed on Sundays or holidays.[4]		
		Noise Level Threshold[5]	85 dBA L_{eq}	n/a
		Vibration Level Threshold[6]	80 VdB	n/a

[1] Source: FICON, 1992.
[2] Source: City of Rancho Mirage General Plan Noise Element.
[3] Source: City of Rancho Mirage General Plan Municipal Code, Section 8.45.030
[4] Source: City of Rancho Mirage General Plan Municipal Code, Section15.04.030
[5] Acceptable threshold for construction noise based on the Criteria for Recommended Standard: Occupational Noise Exposure prepared by the National Institute for Occupational Safety and Health.
[6] Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at five locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Thursday, December 5th, 2019. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (3) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (9)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (9) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 5.2 provides a summary of the existing hourly ambient noise levels described below:

- Location L1 represents the noise levels north of the Project site near existing Villas of Mirada single-family homes and dirt parking lot. The noise levels at this location consist primarily of parking lot vehicle movements from dirt lot to the south. The energy (logarithmic) average daytime noise level was calculated at 49.7 dBA L_{eq} with an average evening noise level of 46.7 dBA L_{eq} and an average nighttime noise level of 44.1 dBA L_{eq}.
- Location L2 represents the noise levels near the eastern boundary of the Project site near the existing Ritz-Carlton hotel and vacant land. The energy (logarithmic) average daytime noise level was calculated at 53.4 dBA L_{eq} with an average evening noise level of 48.0 dBA L_{eq} and an average nighttime noise level of 48.1 dBA L_{eq}. The noise levels at this location consist primarily of walkway activity around the Ritz-Carlton Rancho Mirage
- Location L3 represents the noise levels by the western boundary of the Project site near to the gated entrance of the Mirada Estates. The energy (logarithmic) average daytime noise level was calculated at 50.4 dBA L_{eq} with an average evening noise level of 46.6 dBA L_{eq} and an average nighttime noise level of 41.7 dBA L_{eq}. Traffic on Frank Sinatra Drive represents the primary source of noise at this location.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

The background ambient noise levels in the Project study area are dominated by surface street and parking lot activity. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations. The 24-hour existing noise level measurement results are shown on Table 5-1.

TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		
		Daytime	Evening	Nighttime
L1	Located north of the Project site near the existing Villas of Mirada single-family homes and an open dirt parking lot.	49.7	46.7	44.1
L2	Located near the eastern boundary of the Project site near the existing Ritz-Carlton hotel and vacant land.	53.4	48.0	48.1
L3	Located by the western boundary of the Project site near to the gated entrance of the Mirada Estates.	50.4	46.6	41.7

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Day" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Night" = 10:00 p.m. to 7:00 a.m.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future traffic noise environment.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (18) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (19) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (5)

6.1.1 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the four study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Rancho Mirage General Plan Circulation Element, and the posted vehicle speeds. Consistent with *Ritz-Carlton Residences Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (3) the off-site traffic noise analysis maintains a peak hour to average daily traffic (peak-to-daily) relationship of approximately 16.06% and includes the following traffic scenarios.

- Existing (2019) Without Project
- Existing (2019) With Project
- Existing Plus Ambient Growth (EAP) (2023) Without Project
- Existing Plus Ambient Growth (EAP) (2023) With Project
- Existing Plus Ambient Growth Plus Cumulative Projects (EAC) (2023) Without Project
- Existing Plus Ambient Growth Plus Cumulative Projects (EAC) (2023) With Project
- Horizon Year (2040) Without Project
- Horizon Year (2040) With Project

The average daily traffic (ADT) volumes used for this study are presented on Table 6-2. Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits and Table 6-4 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use[1]	Classification[2]	Distance from Centerline to Receiving Land Use (Feet)[2]	Vehicle Speed (mph)
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	Major Arterial	60'	50
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	Major Arterial	60'	50
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	Local	30'	30
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	Minor Arterial	55'	35

[1] Source: City of Rancho Mirage General Plan, Chapter 2, Exhibit 1, Land Use Map

[2] Source: City of Rancho Mirage General Plan, Chapter 3, Exhibit 8, Circulation Roadway Plan.

[3] Distance to receiving land use is based upon the right-of-way distances for each roadway classification provided in the Circulation Element. "C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]							
			Existing		Existing + Ambient (EA)		Existing + Ambient + Cumulative (EAC)		Horizon Year 2040	
			Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project
1	State Route 111	n/o Frank Sinatra Dr.	41,685	41,953	45,122	45,390	46,714	46,982	51,385	51,653
2	State Route 111	s/o Frank Sinatra Dr.	37,066	37,494	40,121	40,549	40,917	41,345	45,009	45,437
3	Frank Sinatra Dr.	w/o State Route 111	2,553	3,623	2,763	3,833	2,945	4,015	3,240	4,310
4	Frank Sinatra Dr.	e/o State Route 111	14,494	14,868	15,689	16,063	16,025	16,399	17,627	18,001

[1] Source: Ritz-Carlton Residences Traffic Impact Analysis.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	75.55%	13.96%	10.49%	100.00%
Medium Trucks	48.91%	2.17%	48.91%	100.00%
Heavy Trucks	47.30%	5.41%	47.30%	100.00%

[1] Source: Typical Southern California vehicle mix.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-4: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

Classification	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Roadways[1]	97.42%	1.84%	0.74%	100.00%

[1] Source: Typical Southern California vehicle mix.

6.2 VIBRATION ASSESSMENT

Construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-5. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $L_{VdB}(D) = L_{VdB}(25\text{ ft}) - 30\log(D/25)$

TABLE 6-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Vibration Decibels (VdB) at 25 feet[1]
Small bulldozer	58
Jackhammer	79
Loaded Trucks	86
Large bulldozer	87

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment

7 OFF-SITE TRANSPORTATION NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on *Ritz-Carlton Residences Traffic Impact Analysis*. (3) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise contours were developed for the following traffic scenarios:

- Existing Without / With Project: This scenario refers to the existing present-day 2019 noise conditions, without and with the development of the full Project. The existing with Project scenario will not actually occur since the Project would not be fully constructed and operational until 2023 conditions.
- Existing plus Ambient (EA) 2023 Without / With Project: This scenario refers to the existing noise conditions plus the estimated 4 years of background growth in ambient traffic conditions without and with the development of the full Project.
- Existing plus Ambient plus Cumulative (EAC) 2023 Without / With Project: This scenario refers to the existing plus ambient plus cumulative noise conditions at 2023 without and with the proposed Project.
- Horizon Year 2040 Without / With Project: This scenario refers to the future Horizon Year conditions at Year 2040 without and with the proposed Project. This scenario represents buildout of the General Plan land use and includes all cumulative projects identified in the Traffic Impact Analysis.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 and 7-8 present a summary of the exterior traffic noise levels for each traffic condition. Appendix 7.1 includes the traffic noise level contours worksheets for each traffic condition.

TABLE 7-1: EXISTING 2019 WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	76.9	172	370	798
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	76.3	159	342	738
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	62.0	RW	RW	41
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	68.0	RW	88	189

[1] Source: City of Rancho Mirage General Plan, Chapter 2, Exhibit 1, Land Use Map
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road. "C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

TABLE 7-2: EXISTING 2019 WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	76.9	173	372	801
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	76.4	160	345	743
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	63.6	RW	RW	52
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	68.2	RW	89	192

[1] Source: City of Rancho Mirage General Plan, Chapter 2, Exhibit 1, Land Use Map
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road. "C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

TABLE 7-3: EA 2023 WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	77.2	181	390	841
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	76.7	168	361	778
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	62.4	RW	RW	43
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	68.4	RW	93	199

[1] Source: City of Rancho Mirage General Plan, Chapter 2, Exhibit 1, Land Use Map
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road. "C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

TABLE 7-4: EA 2023 WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	77.2	182	392	844
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	76.7	169	364	783
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	63.8	RW	RW	54
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	68.5	RW	94	202

[1] Source: City of Rancho Mirage General Plan, Chapter 2, Exhibit 1, Land Use Map
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road. "C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

TABLE 7-5: EAC 2023 WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	77.4	185	400	861
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	76.8	170	366	788
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	62.7	RW	RW	45
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	68.5	RW	94	202

[1] Source: City of Rancho Mirage General Plan, Chapter 2, Exhibit 1, Land Use Map
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road. "C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

TABLE 7-6: EAC 2023 WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	77.4	186	401	864
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	76.8	171	368	793
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	64.0	RW	RW	55
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	68.6	RW	95	205

[1] Source: City of Rancho Mirage General Plan, Chapter 2, Exhibit 1, Land Use Map
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road. "C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

TABLE 7-7: HORIZON YEAR 2040 WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	77.8	198	426	917
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	77.2	181	390	840
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	63.1	RW	RW	48
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	68.9	RW	100	215

[1] Source: City of Rancho Mirage General Plan, Chapter 2, Exhibit 1, Land Use Map
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road. "C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

TABLE 7-8: HORIZON YEAR 2040 WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	77.8	198	427	920
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	77.2	182	392	845
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	64.3	RW	RW	58
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	69.0	RW	101	218

[1] Source: City of Rancho Mirage General Plan, Chapter 2, Exhibit 1, Land Use Map
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road. "C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

7.2 EXISTING 2019 PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report for informational purposes and to fully analyze all the existing traffic scenarios identified in the *Ritz-Carlton Residences Traffic Impact Analysis* prepared by Urban Crossroads, Inc. However, the analysis of existing off-site traffic noise levels plus traffic noise generated by the proposed Project scenario will not actually occur since the Project would not be fully constructed and operational until future year 2023 plus cumulative conditions. Therefore, no mitigation measures are considered to reduce the Existing Plus Project traffic noise level increases. The EAC 2023 and Horizon Year 2040 traffic noise conditions that include all

cumulative projects are used to determine the significance of the Project off-site traffic noise level increases on the study area roadway segments.

Table 7-1 shows the Existing 2019 without Project conditions CNEL noise levels. The Existing 2019 without Project exterior noise levels are expected to range from 62.0 to 76.9 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing 2019 with Project conditions range from 63.6 to 76.9 dBA CNEL. Table 7-9 shows that the Project off-site traffic noise level increases range from 0.0 to 1.6 dBA CNEL on the study area roadway segments.

7.3 EA 2023 PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the EA 2023 without Project conditions CNEL noise levels. The EA 2023 without Project exterior noise levels are expected to range from 62.4 to 77.2 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the EA 2023 with Project conditions range from 63.8 to 77.2 dBA CNEL. Table 7-10 shows that the Project off-site traffic noise level increases range from 0.0 to 1.4 dBA CNEL.

7.4 EAC 2023 PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-5 presents the EAC 2023 without Project conditions CNEL noise levels. The EAC 2023 without Project exterior noise levels are expected to range from 62.7 to 77.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows the EAC 2023 with Project conditions range from 64.0 to 77.4 dBA CNEL. Table 7-11 shows that the Project off-site traffic noise level increases range from 0.0 to 1.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

7.5 HORIZON YEAR 2040 PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-7 presents the Horizon Year 2040 without Project conditions CNEL noise levels. The Horizon Year 2040 without Project exterior noise levels are expected to range from 63.1 to 77.8 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-8 shows the Horizon Year 2040 with Project conditions range from 64.3 to 77.8 dBA CNEL. Table 7-12 shows that the Project off-site traffic noise level increases range from 0.0 to 1.2 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

TABLE 7-9: EXISTING 2019 WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	Noise-Sensitive Land Use?	CNEL at Receiving Land Use (dBA)[1]			Noise Level Increase Significance Criteria[2]	
					No Project	With Project	Project Increase	Criteria	Exceeded?
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	No	76.9	76.9	0.0	3.0	No
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	No	76.3	76.4	0.1	3.0	No
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	Yes	62.0	63.6	1.6	3.0	No
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	Yes	68.0	68.2	0.2	1.5	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an off-site transportation related noise level increase exceeding the significance criteria (Table 4-1)?
"C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

TABLE 7-10: EA 2023 WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	Noise-Sensitive Land Use?	CNEL at Receiving Land Use (dBA)[1]			Noise Level Increase Significance Criteria[2]	
					No Project	With Project	Project Increase	Criteria	Exceeded?
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	No	77.2	77.2	0.0	3.0	No
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	No	76.7	76.7	0.0	3.0	No
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	Yes	62.4	63.8	1.4	3.0	No
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	Yes	68.4	68.5	0.1	1.5	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an off-site transportation related noise level increase exceeding the significance criteria (Table 4-1)?
"C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

TABLE 7-11: EAC 2023 WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	Noise-Sensitive Land Use?	CNEL at Receiving Land Use (dBA)[1]			Noise Level Increase Significance Criteria[2]		Significant Impact?
					No Project	With Project	Project Increase	Criteria	Exceeded?	
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	No	77.4	77.4	0.0	3.0	No	No
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	No	76.8	76.8	0.0	3.0	No	No
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	Yes	62.7	64.0	1.3	3.0	No	No
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	Yes	68.5	68.6	0.1	1.5	No	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an off-site transportation related noise level increase exceeding the significance criteria (Table 4-1)?
"C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

TABLE 7-12: HORIZON YEAR 2040 WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	Noise-Sensitive Land Use?	CNEL at Receiving Land Use (dBA)[1]			Noise Level Increase Significance Criteria[2]		Significant Impact?
					No Project	With Project	Project Increase	Criteria	Exceeded?	
1	State Route 111	n/o Frank Sinatra Dr.	C-G/MR	No	77.8	77.8	0.0	3.0	No	No
2	State Route 111	s/o Frank Sinatra Dr.	C-G/MR/O	No	77.2	77.2	0.0	3.0	No	No
3	Frank Sinatra Dr.	w/o State Route 111	R-M/R-L/Rs-H	Yes	63.1	64.3	1.2	3.0	No	No
4	Frank Sinatra Dr.	e/o State Route 111	C-G/O/MHP	Yes	68.9	69.0	0.1	1.5	No	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an off-site transportation related noise level increase exceeding the significance criteria (Table 4-1)?
"C-G" = General Commercial; "MR" = Mountain Reserve Open Space; "O" = Office; "R-M" = Medium Density Residential; "R-L" = Low Density Residential; "Rs-H" = Resort Hotel; "MHP" = Mobile Home Park.

8 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 8-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Receiver locations are located in outdoor living areas (e.g., backyards) at 10 feet from any existing or proposed barriers or at the building façade, whichever is closer to the Project site, based on FHWA guidance, and consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Sensitive receiver locations in the Project study area include the nearby residential uses, as described below. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

R1: Located approximately 591 feet north of the Project site, R1 represents existing residential homes (1 Santa Rosa Mountain Lane) west of Frank Sinatra Drive. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the Ritz-Carlton Rancho Mirage located northeast of the Project site at roughly 66 feet. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing residential homes (29 Grande View Court) on the south side of Mirada Circle at approximately 21 feet from the Project site.

R4: Location R4 represents the existing residential home located at 30 Grande View Court approximately 33 feet from the Project site boundary.

R5: Location R5 represents the existing residential home located at 31 Mirada Circle approximately 69 feet from the Project site boundary.

R6: Location R6 represents the existing residential home located at 46 Mirada Circle approximately 108 feet from the Project site boundary.

R7: Location R7 represents the existing residential home located 45 Mirada Circle approximately 125 feet from the Project site boundary.

R8: Location R8 represents the existing residential home located at 1 Mirada Circle approximately 160 feet from the Project site boundary.

EXHIBIT 8-A: RECEIVER LOCATIONS



9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 8, resulting from the operation of the proposed Ritz-Carlton Residences Project. Exhibit 9-A identifies the noise source locations used to assess the operational noise levels.

9.1 OPERATIONAL NOISE SOURCES

It is expected the on-site Project-related noise sources will include: air conditioning units, pool activity and outdoor courtyard activity. This noise analysis is intended to describe noise level impacts associated with the typical operational activities at the Project site.

9.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the air conditioning units, pool activity and outdoor courtyard activity all operating at the same time. These noise level impacts will likely vary throughout the day.

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using Larson Davis Lxt Type 1 and Piccolo Type 2 integrating sound level meters and dataloggers. All sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS



TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Duration (hh:mm:ss)	Ref. Distance (Feet)	Noise Source Height (Feet)	Min./Hour[4]			Reference Noise Level (dBA L_{eq})		Sound Power Level (dBA)[5]
				Day	Eve.	Night	@ Ref. Dist.	@ 50 Feet	
Air Conditioning Units[1]	96:00:00	5'	5'	39	39	28	77.2	57.2	88.9
Pool Activity[2]	00:10:00	5'	4'	60	60	0	68.7	48.7	80.4
Courtyard Activity[3]	00:08:00	10'	5'	60	60	0	73.8	59.8	91.5

[1] As measured by Urban Crossroads, Inc. at the Santee Walmart located at 170 Town Center Parkway.
[2] As measured by Urban Crossroads, Inc. at the Covenant Hill Clubhouse pool in Ladera Ranch.
[3] As measured by Urban Crossroads, Inc. on the Patio at Louie's by the Bay in the City of Newport Beach.
[4] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Day" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Night" = 10:00 p.m. to 7:00 a.m.
[5] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.

9.2.2 AIR CONDITIONING UNITS

To assess the impacts created by the roof-top air conditioning units at the Project buildings, reference noise levels measurements were taken over a four-day total duration at the Santee Walmart. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe mechanical roof-top air conditioning units on the roof of an existing Walmart store, with additional roof-top units operating in the background. The reference noise level represents Lennox SCA120 series 10-ton model packaged air conditioning units. At 5 feet from the closest roof-top air conditioning unit, the highest exterior noise level from all four days of the measurement period was measured at 77.2 dBA L_{eq}. Using the uniform reference distance of 50 feet, the noise level is 57.2 dBA L_{eq}. The operating conditions of the reference noise level measurement reflect peak summer cooling requirements. The air conditioning units were observed to operate 39 minutes during the daytime and evening hours and 28 minutes per hour during the nighttime hours.

9.2.3 POOL ACTIVITY

To represent the noise levels associated with pool activities, Urban Crossroads collected a reference noise level measurement at the Covenant Hill Clubhouse Pool in the unincorporated community of Ladera Ranch in the County of Orange. The measured reference noise level at the uniform 50-foot reference distance is 48.7 dBA L_{eq} for pool activity. The pool activity noise levels include kids playing, running, screaming, splashing, playing with a ball, and parents talking. Noise associated with pool activities is expected to occur for the entire hour (60 minutes).

9.2.4 COURTYARD ACTIVITY

To describe the outdoor common area courtyards activity areas, a reference noise level measurement was taken at the Louie's by the Bay in Newport Beach. At 50 feet, the reference noise level is 59.8 dBA L_{eq} at a noise source height of 5 feet. The reference noise level measurement includes outdoor eating, drinking, with patrons laughing and talking. Courtyard activities are limited to the daytime and evening hours.

9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze the noise level of multiple types of noise sources and calculates the noise levels at any location using the spatially accurate Project site plan and includes the effects of topography, buildings, and multiple barriers in its calculations using the latest standards to predict outdoor noise impacts. Appendix 9.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section. Using the spatially accurate Project site plan and flown aerial imagery from Nearmap, a CadnaA noise prediction model of the Project study area was developed. The noise model provides a three-dimensional representation of the Project study area using the following key data inputs:

- Ground absorption;
- Multiple reflections at buildings and barriers;
- Reference noise level sources by type (area, point, etc.) and noise source height;
- Multiple noise receiver locations and heights;
- Topography and earthen berms;
- Barrier and building heights.

Using the ISO 9613 protocol, the CadnaA noise prediction model will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level calculations at each receiver location and the partial noise level contributions by noise source. The reference sound power level (PWL) for the highest noise source expected at the Project site was input into the CadnaA noise prediction model. While sound pressure levels (e.g. L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (PWL) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish as a result of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the noise analysis to account for mixed ground representing a combination of hard and soft surfaces.

9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Tables 9-2 shows the calculated Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m., evening hours of 7:00 p.m. to 10:00 p.m. and the nighttime hours of 10:00 p.m. to 7:00 a.m. Table 9-2 shows that the Project operational noise levels will range from 26.7 to 47.2 dBA L_{eq}.

TABLE 9-2: PROJECT OPERATIONAL NOISE LEVELS

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]			Noise Level Standards (dBA Leq)[3]			Threshold Exceeded?[4]		
	Day	Eve.	Night	Day	Eve.	Night	Day	Eve.	Night
R1	29.6	30.3	26.7	55	50	45	No	No	No
R2	41.9	42.9	37.3	55	50	45	No	No	No
R3	46.8	47.2	44.6	55	50	45	No	No	No
R4	43.7	43.7	42.2	55	50	45	No	No	No
R5	43.5	43.6	42.0	55	50	45	No	No	No
R6	43.1	43.5	40.8	55	50	45	No	No	No
R7	42.3	42.3	40.7	55	50	45	No	No	No
R8	35.3	35.4	33.7	55	50	45	No	No	No

[1] See Exhibit 8-A for the noise source and receiver locations.
[2] Proposed Project operational noise level calculations included in Appendix 9.1.
[3] City of Rancho Mirage exterior noise level standards for residential land use, as shown on Table 3-1.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Day" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Night" = 10:00 p.m. to 7:00 a.m.

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Rancho Mirage exterior noise level standards at nearby noise-sensitive receiver locations. Table 9-2 shows that the operational noise levels associated with Ritz-Carlton Residences Project will satisfy the City of Rancho Mirage 55 dBA L_{eq} daytime, 50 dBA L_{eq} evening and 45 dBA L_{eq} nighttime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

9.5 PROJECT OPERATIONAL NOISE LEVEL CONTRIBUTIONS

To describe the Project operational noise level contributions, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (3) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describe the Project noise level contributions to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime, evening and nighttime ambient conditions are presented on Tables 9-3, 9-4 and 9-5, respectively. As indicated on Tables 9-3, 9-4 and 9-5, the Project will generate an unmitigated operational noise level increases ranging from 0.0 to 4.7 dBA L_{eq} at the nearby receiver locations.

Tables 9-3, 9-4 and 9-5 show that the Project operational noise level contributions satisfy the operational noise level increase significance criteria presented in Table 4-1. Therefore, the Project related operational noise level increases at all sensitive receiver locations will be *less than significant.*

TABLE 9-3: DAYTIME PROJECT OPERATIONAL NOISE LEVEL CONTRIBUTIONS

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?[7]
R1	29.6	L1	49.7	49.7	0.0	5.0	No
R2	41.9	L2	53.4	53.7	0.3	5.0	No
R3	46.8	L3	50.4	52.0	1.6	5.0	No
R4	43.7	L3	50.4	51.2	0.8	5.0	No
R5	43.5	L3	50.4	51.2	0.8	5.0	No
R6	43.1	L3	50.4	51.1	0.7	5.0	No
R7	42.3	L3	50.4	51.0	0.6	5.0	No
R8	35.3	L3	50.4	50.5	0.1	5.0	No

[1] See Exhibit 8-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 9-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance Criteria as defined in Section 4.

TABLE 9-4: EVENING OPERATIONAL NOISE LEVEL CONTRIBUTIONS

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?[7]
R1	30.3	L1	46.7	46.8	0.1	5.0	No
R2	42.9	L2	48.0	49.2	1.2	5.0	No
R3	47.2	L3	46.6	49.9	3.3	5.0	No
R4	43.7	L3	46.6	48.4	1.8	5.0	No
R5	43.6	L3	46.6	48.4	1.8	5.0	No
R6	43.5	L3	46.6	48.3	1.7	5.0	No
R7	42.3	L3	46.6	48.0	1.4	5.0	No
R8	35.4	L3	46.6	46.9	0.3	5.0	No

[1] See Exhibit 8-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 9-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed evening ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance Criteria as defined in Section 4.

TABLE 9-5: NIGHTTIME OPERATIONAL NOISE LEVEL CONTRIBUTIONS

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?[7]
R1	26.7	L1	44.1	44.2	0.1	5.0	No
R2	37.3	L2	48.1	48.4	0.3	5.0	No
R3	44.6	L3	41.7	46.4	4.7	5.0	No
R4	42.2	L3	41.7	45.0	3.3	5.0	No
R5	42.0	L3	41.7	44.9	3.2	5.0	No
R6	40.8	L3	41.7	44.3	2.6	5.0	No
R7	40.7	L3	41.7	44.2	2.5	5.0	No
R8	33.7	L3	41.7	42.3	0.6	5.0	No

[1] See Exhibit 8-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 9-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance Criteria as defined in Section 4.

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10 CONSTRUCTION ANALYSIS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction activity boundaries in relation to the nearby sensitive receiver locations.

10.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction equipment are expected to occur in the following stages:

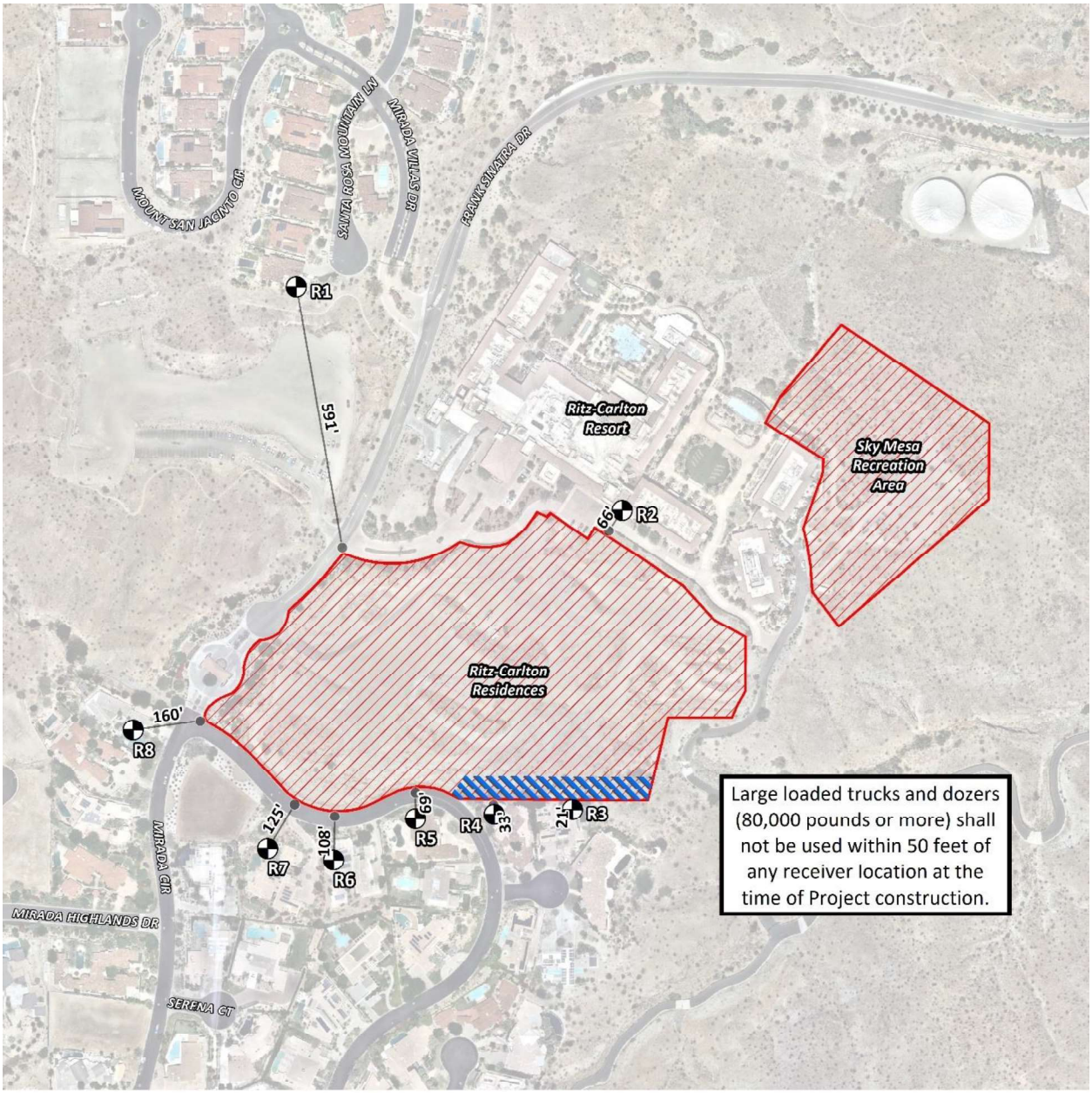
- Demolition
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. Hard site conditions are used in the construction noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source (i.e. construction equipment). For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver and would be further reduced to 68 dBA at 200 feet from the source to the receiver.

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of construction activity area for each stage of construction to the nearest receiver location. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE LOCATIONS



LEGEND:

N

Distance from receiver to Project site boundary (in feet)

Construction Activity

50-foot buffer for large loaded trucks and mobile equipment (>80,000 lbs.)

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})	Highest Reference Noise Level (dBA L_{eq})
Demolition	Demolition Activity	67.9	71.9
	Backhoe	64.2	
	Water Truck Pass-By & Backup Alarm	71.9	
Site Preparation	Scraper, Water Truck, & Dozer Activity	75.3	75.3
	Backhoe	64.2	
	Water Truck Pass-By & Backup Alarm	71.9	
Grading	Rough Grading Activities	73.5	73.5
	Water Truck Pass-By & Backup Alarm	71.9	
	Construction Vehicle Maintenance Activities	67.5	
Building Construction	Foundation Trenching	68.2	71.6
	Framing	62.3	
	Concrete Mixer Backup Alarms & Air Brakes	71.6	
Paving	Concrete Mixer Truck Movements	71.2	71.2
	Concrete Paver Activities	65.6	
	Concrete Mixer Pour & Paving Activities	65.9	
Architectural Coating	Air Compressors	65.2	65.2
	Generator	64.9	
	Crane	62.3	

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.

10.3 CONSTRUCTION NOISE LEVEL COMPLIANCE

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the closest point from the edge of the construction activity areas to each of the nearby receiver locations. As shown on Table 10-2, the unmitigated construction noise levels are expected to range from 42.1 to 70.6 dBA L_{eq} at the nearby receiver locations. Project construction noise levels are considered exempt if activities occur within the hours specified in the City of Rancho Mirage Municipal Code Section 15.04.030 of 7:00 a.m. to 7:00 p.m. on weekdays.

To evaluate whether the Project will generate potentially significant short-term noise levels at nearby receiver locations a construction-related the NIOSH noise level threshold of 85 dBA L_{eq} is used as acceptable thresholds for construction noise at the nearby sensitive receiver locations. The construction noise analysis shows that the noise sensitive residential receiver locations will satisfy the 85 dBA L_{eq} significance threshold during Project construction activities as shown on Table 10-3. Therefore, the noise impacts due to Project construction noise is considered *less than significant* at all noise sensitive receiver locations

TABLE 10-2: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})						
	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	48.8	52.2	50.4	48.5	48.1	42.1	52.2
R2	66.2	69.6	67.8	65.9	65.5	59.5	69.6
R3	66.9	70.3	68.5	66.6	66.2	60.2	70.3
R4	67.2	70.6	68.8	66.9	66.5	60.5	70.6
R5	66.8	70.2	68.4	66.5	66.1	60.1	70.2
R6	61.8	65.2	63.4	61.5	61.1	55.1	65.2
R7	63.1	66.5	64.7	62.8	62.4	56.4	66.5
R8	52.7	56.1	54.3	52.4	52.0	46.0	56.1

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 10.1.

TABLE 10-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	52.2	85	No
R2	69.6	85	No
R3	70.3	85	No
R4	70.6	85	No
R5	70.2	85	No
R6	65.2	85	No
R7	66.5	85	No
R8	56.1	85	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations as shown on Table 10-2.
[3] Construction noise level thresholds as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.4 CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration, the vibration is usually short-term and is not of sufficient magnitude to cause building damage.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site during various stages of construction. Using the vibration source level of construction equipment provided on Table 6-5 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-4 presents the expected Project related vibration levels at the nearby receiver locations.

TABLE 10-4: UNMITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)[2]	Receiver Vibration Levels (VdB)[3]					Threshold (VdB)[4]	Threshold Exceeded?[5]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Levels		
R1	591'	16.8	37.8	44.8	45.8	45.8	80	No
R2	66'	45.4	66.4	73.4	74.4	74.4	80	No
R3	21'	60.3	81.3	88.3	89.3	89.3	80	Yes
R4	33'	54.4	75.4	82.4	83.4	83.4	80	Yes
R5	69'	44.8	65.8	72.8	73.8	73.8	80	No
R6	108'	38.9	59.9	66.9	67.9	67.9	80	No
R7	125'	37.0	58.0	65.0	66.0	66.0	80	No
R8	160'	33.8	54.8	61.8	62.8	62.8	80	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Distance from receiver locations to the source of the nearest construction activity.
[3] Based on the Vibration Source Levels of Construction Equipment included on Table 6-5.
[4] Does the peak vibration exceed the vibration thresholds?
[5] Does the vibration level exceed the FTA acceptable vibration level?

At distances ranging from 21 to 591 feet from Project construction activity, construction vibration velocity levels are expected to range from 45.8 to 89.3 VdB and will exceed the FTA 80 VdB threshold for human annoyance at receiver locations R3 and R4. The construction vibration analysis shows that the unmitigated Project-related vibration impacts will be *potentially significant* during the construction activities at the Project site and mitigation is required.

Therefore, a 50-foot vibration buffer zone mitigation measure is required restricting the use of large loaded trucks and dozers (greater than 80,000 pounds) within 50-feet of occupied sensitive receiver locations R3 and R4. With the mitigation measures identified in this report, and shown on Exhibit 10-A, the mitigated vibration levels with the 50-foot buffer zone will be reduced to 78.0 VdB and will satisfy the FTA 80 VdB threshold for human annoyance as shown on Table 10-

5. Therefore, impacts with the construction vibration mitigation measure identified in this study will be *less than significant*.

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating simultaneously adjacent to the Project site perimeter. Moreover, construction at the Project site will be restricted to the daytime hours between 7:00 a.m. and 6:00 p.m. Monday to Saturday consistent with City of Rancho Mirage requirements thereby eliminating potential vibration impacts during the sensitive evening and nighttime hours.

TABLE 10-5: MITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)[2]	Receiver Vibration Levels (VdB)[3]					Threshold (VdB)[4]	Threshold Exceeded?[5]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Levels		
R3	50'	49.0	70.0	77.0	78.0	78.0	80	No
R4	50'	49.0	70.0	77.0	78.0	78.0	80	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Distance from receiver locations to the source of the nearest construction activity.
[3] Based on the Vibration Source Levels of Construction Equipment included on Table 6-5.
[4] Does the peak vibration exceed the vibration thresholds?
[5] Does the vibration level exceed the FTA acceptable vibration level?

11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **Urban Crossroads, Inc.** *Ritz-Carlton Residences Traffic Impact Analysis.* January 2020.
3. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
4. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
5. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
7. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
8. **Occupational Safety and Health Administration.** *Standard 29 CRF, Part 1910.*
9. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* September 2018.
10. **Office of Planning and Research.** *State of California General Plan Guidelines.* 2018.
11. **City of Rancho Mirage.** *Municipal Code, Chapter 8.45 Noise.*
12. —. *Municipal Code, Sections 15.04.030.*
13. **National Institute for Occupational Safety and Health.** *Criteria for Recommended Standard: Occupational Noise Exposure.* June 1998.
14. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
15. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
16. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
17. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
18. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.

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12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Ritz-Carlton Residences Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5979.

Bill Lawson, P.E., INCE
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Costa Mesa, CA 92626
(949) 336-5979
blawson@urbanxroads.com



EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF RANCHO MIRAGE MUNICIPAL CODE

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Chapter 8.45 NOISE

8.45.010 Purpose.

The city has established a quality of life and environment in which peace and quiet is highly valued by its residents, visitors and businesses. The existence of excessive noise within the city is a condition which is detrimental to the health, safety, comfort, welfare and quality of life of the citizenry and shall be regulated in the public interest. This chapter has been created to implement the goals and policies of the noise element of the city's general plan and to prohibit undesirable noises in the community. This chapter shall be referred to and cited as the Rancho Mirage noise ordinance. (Ord. 633 § 1(Exh. A), 1995)

8.45.020 Definitions.

Ambient noise level means the all encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

Cumulative period means an additive period of time consisting of individual time segments which may be continuous or interrupted.

Decibel (dBA) means a unit of sound level measured on a sound level meter using the A-weighting network.

Emergency means any occurrence or set of circumstances involving actual or imminent physical danger, crisis, trauma or property damage which demands immediate action.

Noise level means the same as sound level the terms are interchangeable.

Person means any individual, association, partnership, corporation, organization, or public agency, including associated officer(s), employee(s) or department(s).

Sound level means the quantity of decibels measured using the frequency weighting of A of a sound level meter.

Sound level meter means an instrument meeting the American National Standards Institute's standard S1.4-1983 or later revision, for Type 1 or Type 2 specifications; or an instrument and the associated recording and analyzing equipment which will provide equivalent data. (Ord. 633 § 1(Exh. A), 1995)

8.45.030 Exterior noise level limits.

No person shall operate or cause to be operated any source of sound or allow the creation of sound or noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level, as measured on any other property, to exceed:

A. The noise level for the applicable zone specified in Table A-1 for a cumulative period of more than thirty minutes in any hour of the applicable time period.

Table A-1

Land Use/Zone	Time of Day	Noise Level (dBA)
Residential, Low Density (R-E, H-R, R-L-2, R-L-3)	7:00 a.m. to 6:00 p.m.	55
	6:00 p.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
Residential, Medium and High Density, Hospital, Open Space (OS, R-M, R-H, MHP)	7:00 a.m. to 6:00 p.m.	60
	6:00 p.m. to 10:00 p.m.	55

	10:00 p.m. to 7:00 a.m.	50
Commercial Office, Resort Commercial, Mixed Use, Institutional (O, P, Rs-H, M-U)	7:00 a.m. to 6:00 p.m. 6:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 60 55
Commercial Neighborhood, General Commercial, Commercial Recreation, Light Industrial (C-N, C-G, I-L)	7:00 a.m. to 6:00 p.m. 6:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	70 65 60

B. For cumulative periods of time less than thirty minutes in an hour, all the noise standards in Table A-1 are increased according to Table B-1.

Table B-1

Duration of Sound	dBA Adjustment
15—30 minutes per hour	+ 3
10—15 minutes per hour	+ 5
5—10 minutes per hour	+ 10
1—5 minutes per hour	+ 15
Any period of time less than 1 minute per hour	+ 20

C. If the measured ambient noise level exceeds the dBA limits in Table A-1, the noise limits and their adjustments for the first three categories in Table B-1 shall be increased in five dBA increments as needed to encompass or reflect said ambient noise level. The maximum noise level under the last two categories in Table B-1 shall be increased, if necessary, only to equal the ambient noise level. (Ord. 1015 § 2, 2011; Ord. 633 § 1(Exh. A), 1995)

8.45.040 Noise level measurement.

A. The location selected for measuring exterior noise levels shall be at the point of the property line of the affected property nearest the alleged offending noise source. If possible, the ambient noise shall be measured at the same location along the property line.

B. If the measurement location is on a boundary between two different locations, the noise level limit applicable to the lower noise zone shall apply.

C. Upon receipt of a complaint or a request to investigate, the code compliance officer, equipped with an American National Standards Institute Type 2 or better sound level meter, may investigate the complaint. The investigation shall consist of measurements and the gathering of data to adequately define the noise problem and shall include the following:

1. Type and measurement of noise source;
2. Location of noise source relative to complainant's or affected property;
3. Time period during which noise source is considered to be intrusive;
4. Total duration of noise levels measured;
5. Date(s) and time(s) of noise measurement survey. (Ord. 633 § 1(Exh. A), 1995)

8.45.050 Special provisions and exemptions.

The following activities and noise sources shall be exempted from the provisions of this chapter:

A. School bands, school athletic and other activities occurring on a school campus;

B. Outdoor gatherings, dance, shows, entertainment for events authorized through the city's special events process;

C. Activities conducted in public parks and public playgrounds that are dependent upon such facilities for their operation;

D. Any emission of sound for purposes of alerting persons to an emergency or the general emission of sound during performance of emergency work;

E. Construction, alteration, repair, grading or improvement of any building, structure, road or improvement to real property for which a permit has been issued by the city if said construction occurs within the allowable hours set forth in Section 15.04.030(A)(10);

F. The operation of any equipment and machinery at any time within any zone by the city, its employees, or any agent or franchisee of the city in the course of performing maintenance, construction or trash collection. (Ord. 633 § 1(Exh. A), 1995)

8.45.060 Additional prohibition.

It is unlawful and a nuisance for any person to keep, maintain or permit upon any lot or parcel of land within the city under his or her control any animal, including any fowl, which by any sound or cry shall habitually disturb the peace and comfort of any person in the reasonable and comfortable enjoyment of life or property. (Ord. 633 § 1(Exh. A), 1995)

8.45.065 Landscape maintenance.

A. It is unlawful and a public nuisance for any person to permit or perform for-hire landscape and non- emergency exterior hardscape maintenance activities such as, but not limited to, tree trimming, re-seeding, lawn mowing, leaf blowing, dust and debris clearing and any other landscaping or nonemergency exterior hardscape maintenance activities which utilize any motorized saw, sander, drill, grinder, leaf-blower, lawnmower, hedge trimmer, edger, or any other similar tool or device any time on Saturday and Sunday and between the hours of six p.m. and seven a.m. the next day during weekdays, unless otherwise provided in this section.

B. The regular mowing or grooming of golf courses, grass tennis courts, grass croquet courts, and lawn bowling areas shall be exempt from the restrictions set forth in this section. The allowed work hours for mowing or green preparation for golf courses, grass tennis courts, grass croquet courts, and lawn bowling areas shall be between five thirty a.m. and seven p.m., seven days per week and during all seasons of the year.

C. Nothing set forth in this section shall permit any person from engaging in any activities that exceed the exterior noise level limits set forth in Section 8.45.030 or otherwise constitute a public nuisance as set forth in Section 14.60.325 of the Municipal Code. (Ord. 979, § 1, 2009; Ord. 936, § 3, 2006)

8.45.070 Administration.

The noise control program established by this chapter shall be administered by and is the responsibility of the code compliance division as directed by the director of the community development department. (Ord. 633 § 1(Exh. A), 1995)

8.45.080 Violations and enforcement procedures.

Violations of this chapter are declared to be a nuisance and subject to the procedures, remedies and penalties set forth in Title 14. (Ord. 916 §4, 2006; Ord. 633 § 1(Exh. A), 1995)

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN: 12610 Study Area Photos



L1_E
33, 46' 4.790000", 116, 27' 30.260000"



L1_N
33, 46' 4.830000", 116, 27' 27.870000"



L1_S
33, 46' 4.720000", 116, 27' 30.310000"



L1_W
33, 46' 4.790000", 116, 27' 30.260000"



L2_E
33, 45' 59.190000", 116, 27' 19.110000"



L2_N
33, 45' 59.040000", 116, 27' 19.080000"

JN: 12610 Study Area Photos



L2_S
33, 45' 58.860000", 116, 27' 19.050000"



L2_W
33, 45' 59.790000", 116, 27' 19.160000"



L3_E
33, 45' 58.040000", 116, 27' 30.810000"



L3_N
33, 45' 58.020000", 116, 27' 30.750000"



L3_S
33, 45' 58.020000", 116, 27' 30.720000"



L3_W
33, 45' 58.010000", 116, 27' 30.780000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

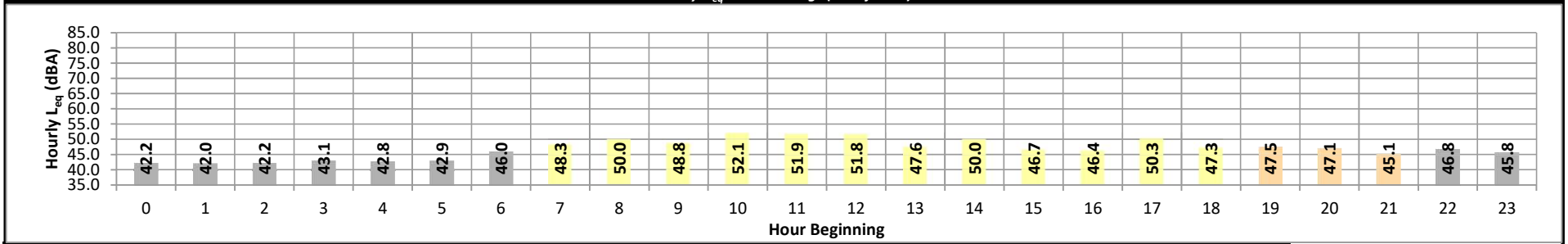
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24-Hour Noise Level Measurement Summary

Date: Thursday, December 5, 2019 *Location:* L1 - Located north of the Project site near the existing Villas of Mirada single-family homes and an open dirt parking lot. *Meter:* Piccolo I *JN:* 12610

Project: Ritz-Carlton Residences *Analyst:* P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	42.2	52.0	40.6	46.0	44.0	43.0	42.0	42.0	42.0	40.0	40.0	40.0	42.2	10.0	52.2
	1	42.0	46.5	40.7	43.0	42.0	42.0	42.0	42.0	42.0	41.0	41.0	40.0	42.0	10.0	52.0
	2	42.2	45.1	40.7	43.0	43.0	43.0	43.0	42.0	42.0	42.0	41.0	41.0	42.2	10.0	52.2
	3	43.1	54.5	40.7	49.0	44.0	43.0	43.0	43.0	43.0	41.0	41.0	40.0	43.1	10.0	53.1
	4	42.8	52.3	40.7	46.0	45.0	44.0	43.0	43.0	42.0	41.0	41.0	40.0	42.8	10.0	52.8
	5	42.9	54.7	40.7	48.0	46.0	45.0	44.0	43.0	42.0	41.0	40.0	40.0	42.9	10.0	52.9
	6	46.0	62.3	42.9	52.0	49.0	48.0	47.0	45.0	45.0	43.0	43.0	43.0	46.0	10.0	56.0
Day	7	48.3	62.1	43.4	56.0	54.0	51.0	50.0	48.0	47.0	45.0	44.0	44.0	48.3	0.0	48.3
	8	50.0	68.2	44.0	61.0	56.0	52.0	50.0	48.0	47.0	45.0	45.0	44.0	50.0	0.0	50.0
	9	48.8	66.0	43.6	59.0	56.0	53.0	51.0	47.0	45.0	44.0	44.0	44.0	48.8	0.0	48.8
	10	52.1	71.5	42.8	65.0	62.0	56.0	54.0	47.0	45.0	43.0	43.0	43.0	52.1	0.0	52.1
	11	51.9	70.7	42.8	63.0	60.0	56.0	54.0	50.0	47.0	44.0	44.0	43.0	51.9	0.0	51.9
	12	51.8	74.2	42.0	65.0	60.0	55.0	51.0	46.0	44.0	43.0	43.0	42.0	51.8	0.0	51.8
	13	47.6	67.9	42.0	58.0	55.0	51.0	48.0	46.0	44.0	43.0	43.0	42.0	47.6	0.0	47.6
	14	50.0	70.0	42.5	60.0	58.0	54.0	52.0	48.0	45.0	43.0	43.0	43.0	50.0	0.0	50.0
	15	46.7	60.3	42.6	56.0	53.0	50.0	49.0	46.0	44.0	43.0	43.0	43.0	46.7	0.0	46.7
	16	46.4	62.8	42.9	56.0	54.0	50.0	48.0	45.0	44.0	43.0	43.0	43.0	46.4	0.0	46.4
	17	50.3	70.3	41.9	63.0	58.0	53.0	50.0	44.0	43.0	43.0	42.0	42.0	50.3	0.0	50.3
	18	47.3	66.4	41.9	57.0	54.0	50.0	47.0	44.0	43.0	42.0	42.0	42.0	47.3	0.0	47.3
Evening	19	47.5	67.0	41.8	59.0	54.0	49.0	46.0	43.0	43.0	42.0	42.0	42.0	47.5	5.0	52.5
	20	47.1	68.8	41.8	56.0	53.0	46.0	45.0	43.0	43.0	42.0	42.0	42.0	47.1	5.0	52.1
	21	45.1	62.9	41.8	54.0	51.0	45.0	44.0	43.0	43.0	42.0	42.0	42.0	45.1	5.0	50.1
Night	22	46.8	68.7	41.9	54.0	51.0	46.0	45.0	43.0	43.0	42.0	42.0	42.0	46.8	10.0	56.8
	23	45.8	65.8	40.7	54.0	48.0	44.0	44.0	43.0	43.0	42.0	42.0	41.0	45.8	10.0	55.8

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	46.4	60.3	41.9	56.0	53.0	50.0	47.0	44.0	43.0	42.0	42.0	42.0
	Max	52.1	74.2	44.0	65.0	62.0	56.0	54.0	50.0	47.0	45.0	45.0	44.0
Energy Average		49.7	Average:		59.9	56.7	52.6	50.3	46.6	44.8	43.4	43.3	42.9
Evening	Min	45.1	62.9	41.8	54.0	51.0	45.0	44.0	43.0	43.0	42.0	42.0	42.0
	Max	47.5	68.8	41.8	59.0	54.0	49.0	46.0	43.0	43.0	42.0	42.0	42.0
Energy Average		46.7	Average:		56.3	52.7	46.7	45.0	43.0	43.0	42.0	42.0	42.0
Night	Min	42.0	45.1	40.6	43.0	42.0	42.0	42.0	42.0	42.0	40.0	40.0	40.0
	Max	46.8	68.7	42.9	54.0	51.0	48.0	47.0	45.0	45.0	43.0	43.0	43.0
Energy Average		44.1	Average:		48.3	45.8	44.2	43.7	42.9	42.7	41.4	41.2	40.8

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
47.9	49.2	44.1

24-Hour CNEL (dBA)

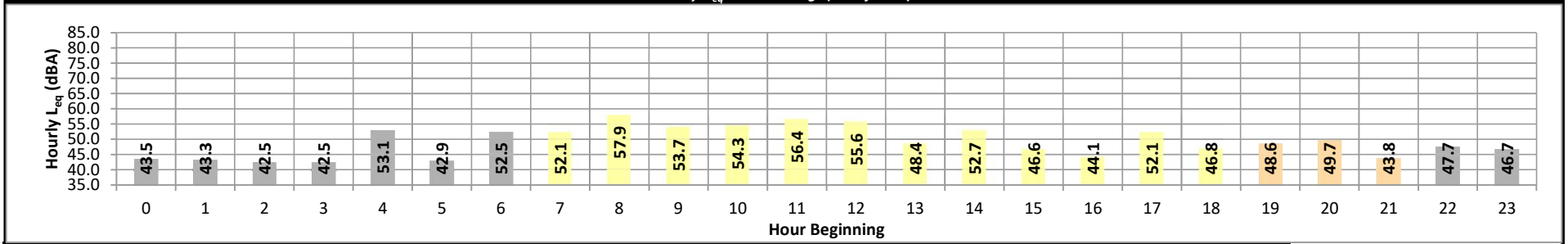
52.1

24-Hour Noise Level Measurement Summary

Date: Thursday, December 5, 2019 *Location:* L2 - Located near the eastern boundary of the Project site near the existing Ritz-Carlton hotel and vacant land. *Meter:* Piccolo I *JN:* 12610

Project: Ritz-Carlton Residences *Analyst:* P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	43.5	49.2	42.6	46.0	44.0	43.0	43.0	43.0	43.0	42.0	42.0	42.0	43.5	10.0	53.5
	1	43.3	47.7	42.5	44.0	44.0	44.0	43.0	43.0	43.0	42.0	42.0	42.0	43.3	10.0	53.3
	2	42.5	46.1	41.4	42.0	42.0	42.0	42.0	42.0	42.0	42.0	41.0	41.0	42.5	10.0	52.5
	3	42.5	47.2	41.4	43.0	42.0	42.0	42.0	42.0	42.0	42.0	41.0	41.0	42.5	10.0	52.5
	4	53.1	82.7	41.4	50.0	46.0	43.0	43.0	42.0	42.0	42.0	42.0	41.0	53.1	10.0	63.1
	5	42.9	49.8	42.5	45.0	44.0	43.0	43.0	42.0	42.0	42.0	42.0	42.0	42.9	10.0	52.9
	6	52.5	80.3	41.7	60.0	54.0	48.0	45.0	43.0	42.0	42.0	42.0	42.0	52.5	10.0	62.5
Day	7	52.1	75.4	42.5	65.0	58.0	50.0	48.0	44.0	43.0	42.0	42.0	42.0	52.1	0.0	52.1
	8	57.9	77.3	42.7	70.0	67.0	63.0	62.0	51.0	47.0	43.0	43.0	42.0	57.9	0.0	57.9
	9	53.7	79.0	42.6	64.0	61.0	54.0	50.0	45.0	43.0	42.0	42.0	42.0	53.7	0.0	53.7
	10	54.3	78.0	42.3	67.0	64.0	59.0	54.0	46.0	43.0	42.0	42.0	42.0	54.3	0.0	54.3
	11	56.4	81.2	42.6	66.0	64.0	61.0	60.0	52.0	46.0	43.0	42.0	42.0	56.4	0.0	56.4
	12	55.6	77.9	41.4	70.0	66.0	57.0	52.0	45.0	43.0	42.0	42.0	42.0	55.6	0.0	55.6
	13	48.4	70.6	41.5	59.0	56.0	49.0	47.0	44.0	43.0	42.0	42.0	42.0	48.4	0.0	48.4
	14	52.7	73.0	41.5	66.0	61.0	55.0	51.0	44.0	42.0	42.0	42.0	42.0	52.7	0.0	52.7
	15	46.6	74.1	41.4	53.0	50.0	46.0	45.0	43.0	42.0	42.0	42.0	41.0	46.6	0.0	46.6
	16	44.1	55.8	42.5	50.0	49.0	46.0	45.0	44.0	43.0	42.0	42.0	42.0	44.1	0.0	44.1
	17	52.1	73.5	42.6	66.0	54.0	47.0	45.0	43.0	42.0	42.0	42.0	42.0	52.1	0.0	52.1
	18	46.8	68.1	42.5	56.0	51.0	46.0	44.0	43.0	42.0	42.0	42.0	42.0	46.8	0.0	46.8
Evening	19	48.6	69.2	42.6	62.0	53.0	46.0	44.0	43.0	43.0	42.0	42.0	42.0	48.6	5.0	53.6
	20	49.7	73.1	42.7	55.0	48.0	44.0	44.0	43.0	43.0	43.0	43.0	42.0	49.7	5.0	54.7
	21	43.8	55.6	42.6	50.0	46.0	44.0	43.0	43.0	43.0	42.0	42.0	42.0	43.8	5.0	48.8
Night	22	47.7	70.0	42.6	57.0	51.0	44.0	44.0	43.0	42.0	42.0	42.0	42.0	47.7	10.0	57.7
	23	46.7	68.2	41.4	53.0	44.0	43.0	42.0	42.0	42.0	42.0	41.0	41.0	46.7	10.0	56.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	44.1	55.8	41.4	50.0	49.0	46.0	44.0	43.0	42.0	42.0	42.0	41.0
	Max	57.9	81.2	42.7	70.0	67.0	63.0	62.0	52.0	47.0	43.0	43.0	42.0
Energy Average		53.4	Average:		62.7	58.4	52.8	50.3	45.3	43.3	42.2	42.1	41.9
Evening	Min	43.8	55.6	42.6	50.0	46.0	44.0	43.0	43.0	43.0	42.0	42.0	42.0
	Max	49.7	73.1	42.7	62.0	53.0	46.0	44.0	43.0	43.0	43.0	43.0	42.0
Energy Average		48.0	Average:		55.7	49.0	44.7	43.7	43.0	43.0	42.3	42.3	42.0
Night	Min	42.5	46.1	41.4	42.0	42.0	42.0	42.0	42.0	42.0	42.0	41.0	41.0
	Max	53.1	82.7	42.6	60.0	54.0	48.0	45.0	43.0	43.0	42.0	42.0	42.0
Energy Average		48.1	Average:		48.9	45.7	43.6	43.0	42.4	42.2	42.0	41.7	41.6

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
51.5	52.7	48.1

24-Hour CNEL (dBA)

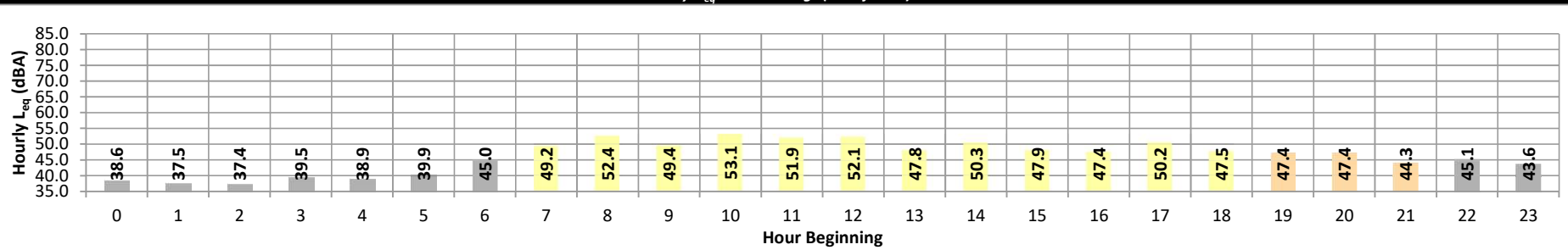
55.8

24-Hour Noise Level Measurement Summary

Date: Thursday, December 5, 2019 *Location:* L3 - Located by the western boundary of the Project site near to the gated entrance of the Mirada Estates. *Meter:* Piccolo I *JN:* 12610

Project: Ritz-Carlton Residences *Analyst:* P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	38.6	56.1	35.8	44.0	42.0	40.0	39.0	38.0	37.0	37.0	36.0	36.0	38.6	10.0	48.6
	1	37.5	51.3	35.2	41.0	40.0	39.0	38.0	37.0	37.0	36.0	36.0	35.0	37.5	10.0	47.5
	2	37.4	61.0	35.1	40.0	38.0	37.0	37.0	37.0	36.0	36.0	35.0	35.0	37.4	10.0	47.4
	3	39.5	58.3	35.4	48.0	45.0	40.0	39.0	39.0	38.0	36.0	36.0	36.0	39.5	10.0	49.5
	4	38.9	59.9	35.5	46.0	43.0	40.0	39.0	38.0	37.0	36.0	36.0	36.0	38.9	10.0	48.9
	5	39.9	60.1	35.8	46.0	44.0	41.0	40.0	39.0	38.0	37.0	37.0	36.0	39.9	10.0	49.9
	6	45.0	60.5	38.2	54.0	51.0	48.0	47.0	45.0	43.0	40.0	39.0	39.0	45.0	10.0	55.0
Day	7	49.2	71.5	41.8	58.0	55.0	53.0	51.0	48.0	46.0	43.0	43.0	42.0	49.2	0.0	49.2
	8	52.4	76.3	42.1	64.0	61.0	56.0	54.0	48.0	46.0	43.0	43.0	43.0	52.4	0.0	52.4
	9	49.4	67.0	40.3	59.0	58.0	56.0	54.0	47.0	44.0	42.0	41.0	41.0	49.4	0.0	49.4
	10	53.1	76.3	40.2	65.0	62.0	58.0	56.0	47.0	44.0	41.0	41.0	41.0	53.1	0.0	53.1
	11	51.9	74.7	40.4	63.0	61.0	55.0	53.0	48.0	45.0	42.0	42.0	41.0	51.9	0.0	51.9
	12	52.1	73.7	39.9	65.0	62.0	57.0	54.0	46.0	43.0	41.0	41.0	40.0	52.1	0.0	52.1
	13	47.8	65.4	40.2	59.0	57.0	53.0	51.0	45.0	43.0	41.0	41.0	41.0	47.8	0.0	47.8
	14	50.3	71.5	40.3	62.0	59.0	55.0	53.0	47.0	43.0	41.0	41.0	41.0	50.3	0.0	50.3
	15	47.9	68.0	40.8	58.0	56.0	53.0	51.0	45.0	43.0	42.0	41.0	41.0	47.9	0.0	47.9
	16	47.4	66.3	41.1	57.0	56.0	53.0	50.0	45.0	43.0	42.0	42.0	41.0	47.4	0.0	47.4
	17	50.2	70.0	41.1	63.0	59.0	54.0	51.0	44.0	43.0	42.0	42.0	41.0	50.2	0.0	50.2
	18	47.5	67.0	41.0	58.0	55.0	52.0	49.0	44.0	43.0	42.0	42.0	42.0	47.5	0.0	47.5
Evening	19	47.4	67.7	41.0	60.0	56.0	50.0	47.0	43.0	42.0	42.0	41.0	41.0	47.4	5.0	52.4
	20	47.4	68.5	41.3	58.0	54.0	49.0	46.0	43.0	42.0	42.0	42.0	42.0	47.4	5.0	52.4
	21	44.3	63.1	36.7	55.0	53.0	47.0	44.0	42.0	42.0	38.0	38.0	37.0	44.3	5.0	49.3
Night	22	45.1	68.1	36.2	55.0	52.0	47.0	44.0	40.0	39.0	38.0	37.0	37.0	45.1	10.0	55.1
	23	43.6	66.5	36.4	54.0	45.0	41.0	41.0	40.0	39.0	38.0	37.0	37.0	43.6	10.0	53.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	47.4	65.4	39.9	57.0	55.0	52.0	49.0	44.0	43.0	41.0	41.0	40.0
	Max	53.1	76.3	42.1	65.0	62.0	58.0	56.0	48.0	46.0	43.0	43.0	43.0
Energy Average		50.4	Average:		60.9	58.4	54.6	52.3	46.2	43.8	41.8	41.7	41.3
Evening	Min	44.3	63.1	36.7	55.0	53.0	47.0	44.0	42.0	42.0	38.0	38.0	37.0
	Max	47.4	68.5	41.3	60.0	56.0	50.0	47.0	43.0	42.0	42.0	42.0	42.0
Energy Average		46.6	Average:		57.7	54.3	48.7	45.7	42.7	42.0	40.7	40.3	40.0
Night	Min	37.4	51.3	35.1	40.0	38.0	37.0	37.0	37.0	36.0	36.0	35.0	35.0
	Max	45.1	68.1	38.2	55.0	52.0	48.0	47.0	45.0	43.0	40.0	39.0	39.0
Energy Average		41.7	Average:		47.6	44.4	41.4	40.4	39.2	38.2	37.1	36.6	36.3

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
48.2	49.8	41.7

24-Hour CNEL (dBA)
51.1

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APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: State Route 111
Road Segment: n/o Frank Sinatra Dr.

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,685 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	6,695 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	5.85	1.01	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-11.39	1.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-15.35	1.04	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.9	71.8	70.5	64.5	72.9	73.5
Medium Trucks:	69.5	63.5	56.0	64.7	70.9	71.0
Heavy Trucks:	69.9	63.8	60.4	65.0	71.2	71.3
Vehicle Noise:	77.6	73.0	71.0	69.5	76.5	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	164	353	760	1,637
CNEL:	172	370	798	1,719

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: State Route 111
Road Segment: s/o Frank Sinatra Dr.

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,066 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	5,953 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	5.34	1.01	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-11.90	1.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-15.86	1.04	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.4	71.3	70.0	64.0	72.4	73.0
Medium Trucks:	68.9	63.0	55.5	64.2	70.4	70.4
Heavy Trucks:	69.4	63.3	59.9	64.5	70.7	70.8
Vehicle Noise:	77.1	72.4	70.5	69.0	76.0	76.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	151	326	703	1,514
CNEL:	159	342	738	1,589

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Frank Sinatra Dr.
Road Segment: w/o State Route 111

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,553 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	410 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-4.06	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	73.48	-21.30	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	79.92	-25.26	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.8	55.7	54.4	48.4	56.8	57.4
Medium Trucks:	54.3	48.4	40.9	49.6	55.8	55.8
Heavy Trucks:	56.8	50.7	47.3	51.9	58.1	58.2
Vehicle Noise:	62.3	57.5	55.3	55.0	61.8	62.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	18	39	85
CNEL:	9	19	41	88

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Frank Sinatra Dr.
Road Segment: e/o State Route 111

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,494 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	2,328 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.000
Medium Trucks:	46.811
Heavy Trucks:	46.830

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.81	0.30	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	75.75	-14.43	0.33	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-18.38	0.32	-1.20	*-5.38*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.2	62.1	60.8	54.8	63.2	63.9
Medium Trucks:	60.4	54.5	47.0	55.7	61.9	62.0
Heavy Trucks:	62.3	56.2	52.8	57.5	63.7	63.8
Vehicle Noise:	68.4	63.7	61.6	60.9	67.8	68.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	84	181	390
CNEL:	41	88	189	407

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: State Route 111
Road Segment: n/o Frank Sinatra Dr.
Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,953 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	6,738 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	5.88	1.01	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-11.36	1.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-15.32	1.04	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.9	71.8	70.5	64.5	72.9	73.5
Medium Trucks:	69.5	63.5	56.0	64.8	70.9	71.0
Heavy Trucks:	69.9	63.8	60.4	65.0	71.2	71.3
Vehicle Noise:	77.6	73.0	71.1	69.6	76.6	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	164	354	763	1,644
CNEL:	173	372	801	1,726

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: State Route 111
Road Segment: s/o Frank Sinatra Dr.
Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,494 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	6,022 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	5.39	1.01	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-11.85	1.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-15.81	1.04	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.4	71.3	70.0	64.0	72.4	73.1
Medium Trucks:	69.0	63.0	55.5	64.3	70.5	70.5
Heavy Trucks:	69.4	63.3	59.9	64.6	70.8	70.9
Vehicle Noise:	77.1	72.5	70.6	69.1	76.1	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	153	329	708	1,525
CNEL:	160	345	743	1,602

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Frank Sinatra Dr.
Road Segment: w/o State Route 111
Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,623 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	582 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-2.54	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	73.48	-19.78	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	79.92	-23.74	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.3	57.2	55.9	49.9	58.3	58.9
Medium Trucks:	55.8	49.9	42.4	51.1	57.3	57.3
Heavy Trucks:	58.3	52.2	48.8	53.5	59.7	59.8
Vehicle Noise:	63.8	59.0	56.8	56.5	63.3	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	23	50	107
CNEL:	11	24	52	112

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Frank Sinatra Dr.
Road Segment: e/o State Route 111
Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,868 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	2,388 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.000
Medium Trucks:	46.811
Heavy Trucks:	46.830

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.92	0.30	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	75.75	-14.32	0.33	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	81.57	-18.27	0.32	-1.20	*-5.38*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.3	62.3	60.9	54.9	63.3	64.0
Medium Trucks:	60.6	54.6	47.1	55.9	62.0	62.1
Heavy Trucks:	62.4	56.3	52.9	57.6	63.8	63.9
Vehicle Noise:	68.6	63.8	61.7	61.0	67.9	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	86	184	397
CNEL:	41	89	192	414

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: State Route 111
Road Segment: n/o Frank Sinatra Dr.

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,122 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	7,247 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	6.19	1.01	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.05	1.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.00	1.04	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.2	72.1	70.8	64.8	73.2	73.9
Medium Trucks:	69.8	63.8	56.3	65.1	71.3	71.3
Heavy Trucks:	70.2	64.1	60.7	65.4	71.6	71.7
Vehicle Noise:	77.9	73.3	71.4	69.9	76.9	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	173	372	801	1,726
CNEL:	181	390	841	1,812

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: State Route 111
Road Segment: s/o Frank Sinatra Dr.

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,121 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	6,443 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	5.68	1.01	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.56	1.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.51	1.04	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.7	71.6	70.3	64.3	72.7	73.4
Medium Trucks:	69.3	63.3	55.8	64.6	70.8	70.8
Heavy Trucks:	69.7	63.6	60.2	64.9	71.1	71.1
Vehicle Noise:	77.4	72.8	70.9	69.4	76.4	76.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	160	344	741	1,596
CNEL:	168	361	778	1,675

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Frank Sinatra Dr.
Road Segment: w/o State Route 111

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,763 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	444 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-3.72	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-20.96	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-24.91	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.1	56.0	54.7	48.7	57.1	57.8
Medium Trucks:	54.7	48.7	41.2	49.9	56.1	56.2
Heavy Trucks:	57.1	51.0	47.6	52.3	58.5	58.6
Vehicle Noise:	62.6	57.8	55.7	55.3	62.1	62.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	19	42	90
CNEL:	9	20	43	93

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Frank Sinatra Dr.
Road Segment: e/o State Route 111

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,689 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	2,520 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.000
Medium Trucks:	46.811
Heavy Trucks:	46.830

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.15	0.30	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-14.08	0.33	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-18.04	0.32	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.6	62.5	61.2	55.2	63.6	64.2
Medium Trucks:	60.8	54.8	47.3	56.1	62.3	62.3
Heavy Trucks:	62.7	56.5	53.2	57.8	64.0	64.1
Vehicle Noise:	68.8	64.0	62.0	61.3	68.1	68.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	89	191	412
CNEL:	43	93	199	429

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA+P
Road Name: State Route 111
Road Segment: n/o Frank Sinatra Dr.

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,390 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	7,290 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	6.22	1.01	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.02	1.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.98	1.04	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.2	72.2	70.9	64.8	73.3	73.9
Medium Trucks:	69.8	63.9	56.4	65.1	71.3	71.3
Heavy Trucks:	70.2	64.1	60.7	65.4	71.6	71.7
Vehicle Noise:	77.9	73.3	71.4	69.9	76.9	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	173	373	804	1,732
CNEL:	182	392	844	1,819

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA+P
Road Name: State Route 111
Road Segment: s/o Frank Sinatra Dr.

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,549 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	6,512 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	5.73	1.01	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.51	1.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.47	1.04	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.7	71.7	70.4	64.4	72.8	73.4
Medium Trucks:	69.3	63.4	55.9	64.6	70.8	70.8
Heavy Trucks:	69.8	63.7	60.3	64.9	71.1	71.2
Vehicle Noise:	77.4	72.8	70.9	69.4	76.4	76.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	161	346	746	1,607
CNEL:	169	364	783	1,687

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA+P
Road Name: Frank Sinatra Dr.
Road Segment: w/o State Route 111

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,833 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	616 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-2.30	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-19.54	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-23.49	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.5	57.5	56.1	50.1	58.5	59.2
Medium Trucks:	56.1	50.1	42.6	51.4	57.5	57.6
Heavy Trucks:	58.6	52.5	49.1	53.7	59.9	60.0
Vehicle Noise:	64.0	59.2	57.1	56.8	63.5	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	24	52	111
CNEL:	12	25	54	116

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA+P
Road Name: Frank Sinatra Dr.
Road Segment: e/o State Route 111

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,063 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	2,580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.000
Medium Trucks:	46.811
Heavy Trucks:	46.830

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.26	0.30	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-13.98	0.33	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-17.94	0.32	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.7	62.6	61.3	55.3	63.7	64.3
Medium Trucks:	60.9	54.9	47.4	56.2	62.4	62.4
Heavy Trucks:	62.8	56.7	53.3	57.9	64.1	64.2
Vehicle Noise:	68.9	64.1	62.1	61.4	68.2	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	90	194	418
CNEL:	44	94	202	436

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC
Road Name: State Route 111
Road Segment: n/o Frank Sinatra Dr.

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,714 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	7,502 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	6.34	1.01	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.89	1.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.85	1.04	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.4	72.3	71.0	65.0	73.4	74.0
Medium Trucks:	69.9	64.0	56.5	65.2	71.4	71.5
Heavy Trucks:	70.4	64.3	60.9	65.5	71.7	71.8
Vehicle Noise:	78.1	73.4	71.5	70.0	77.0	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	177	380	820	1,766
CNEL:	185	400	861	1,854

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC
Road Name: State Route 111
Road Segment: s/o Frank Sinatra Dr.

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,917 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	6,571 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	5.77	1.01	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.47	1.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.43	1.04	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.8	71.7	70.4	64.4	72.8	73.4
Medium Trucks:	69.4	63.4	55.9	64.7	70.8	70.9
Heavy Trucks:	69.8	63.7	60.3	64.9	71.1	71.2
Vehicle Noise:	77.5	72.9	70.9	69.4	76.5	76.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	162	348	750	1,617
CNEL:	170	366	788	1,698

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC
Road Name: Frank Sinatra Dr.
Road Segment: w/o State Route 111

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,945 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	473 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-3.44	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-20.68	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-24.64	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.4	56.3	55.0	49.0	57.4	58.0
Medium Trucks:	54.9	49.0	41.5	50.2	56.4	56.4
Heavy Trucks:	57.4	51.3	47.9	52.6	58.8	58.9
Vehicle Noise:	62.9	58.1	55.9	55.6	62.4	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	20	43	93
CNEL:	10	21	45	97

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC
Road Name: Frank Sinatra Dr.
Road Segment: e/o State Route 111

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,025 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	2,574 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.000
Medium Trucks:	46.811
Heavy Trucks:	46.830

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.25	0.30	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-13.99	0.33	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-17.95	0.32	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.6	62.6	61.3	55.3	63.7	64.3
Medium Trucks:	60.9	54.9	47.4	56.2	62.3	62.4
Heavy Trucks:	62.7	56.6	53.2	57.9	64.1	64.2
Vehicle Noise:	68.9	64.1	62.1	61.4	68.2	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	90	194	417
CNEL:	44	94	202	436

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC+P
Road Name: State Route 111
Road Segment: n/o Frank Sinatra Dr.
Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,982 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	7,545 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	6.37	1.01	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.87	1.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.83	1.04	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.4	72.3	71.0	65.0	73.4	74.0
Medium Trucks:	70.0	64.0	56.5	65.3	71.4	71.5
Heavy Trucks:	70.4	64.3	60.9	65.5	71.7	71.8
Vehicle Noise:	78.1	73.5	71.5	70.0	77.1	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	177	382	823	1,773
CNEL:	186	401	864	1,861

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC+P
Road Name: State Route 111
Road Segment: s/o Frank Sinatra Dr.
Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,345 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	6,640 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	5.81	1.01	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.43	1.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.38	1.04	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.8	71.8	70.4	64.4	72.9	73.5
Medium Trucks:	69.4	63.5	56.0	64.7	70.9	70.9
Heavy Trucks:	69.8	63.7	60.3	65.0	71.2	71.3
Vehicle Noise:	77.5	72.9	71.0	69.5	76.5	76.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	163	351	756	1,628
CNEL:	171	368	793	1,709

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC+P
Road Name: Frank Sinatra Dr.
Road Segment: w/o State Route 111
Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,015 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	645 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-2.10	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-19.33	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-23.29	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.7	57.7	56.3	50.3	58.7	59.4
Medium Trucks:	56.3	50.3	42.8	51.6	57.7	57.8
Heavy Trucks:	58.8	52.7	49.3	53.9	60.1	60.2
Vehicle Noise:	64.3	59.4	57.3	57.0	63.7	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	25	53	115
CNEL:	12	26	55	119

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC+P
Road Name: Frank Sinatra Dr.
Road Segment: e/o State Route 111
Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,399 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	2,634 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.000
Medium Trucks:	46.811
Heavy Trucks:	46.830

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.35	0.30	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-13.89	0.33	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-17.85	0.32	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.7	62.7	61.4	55.4	63.8	64.4
Medium Trucks:	61.0	55.0	47.5	56.3	62.4	62.5
Heavy Trucks:	62.8	56.7	53.3	58.0	64.2	64.3
Vehicle Noise:	69.0	64.2	62.2	61.5	68.3	68.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	91	197	424
CNEL:	44	95	205	442

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: State Route 111
Road Segment: n/o Frank Sinatra Dr.

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,385 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	8,252 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	6.76	1.01	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.48	1.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.44	1.04	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.8	72.7	71.4	65.4	73.8	74.4
Medium Trucks:	70.4	64.4	56.9	65.7	71.8	71.9
Heavy Trucks:	70.8	64.7	61.3	65.9	72.1	72.2
Vehicle Noise:	78.5	73.9	71.9	70.4	77.4	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	188	405	873	1,882
CNEL:	198	426	917	1,976

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: State Route 111
Road Segment: s/o Frank Sinatra Dr.

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,009 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	7,228 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	6.18	1.01	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.06	1.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.01	1.04	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.2	72.1	70.8	64.8	73.2	73.9
Medium Trucks:	69.8	63.8	56.3	65.1	71.3	71.3
Heavy Trucks:	70.2	64.1	60.7	65.4	71.6	71.6
Vehicle Noise:	77.9	73.3	71.4	69.9	76.9	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	172	371	800	1,723
CNEL:	181	390	840	1,809

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Frank Sinatra Dr.
Road Segment: w/o State Route 111

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,240 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	520 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-3.03	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-20.27	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-24.22	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.8	56.7	55.4	49.4	57.8	58.4
Medium Trucks:	55.3	49.4	41.9	50.6	56.8	56.8
Heavy Trucks:	57.8	51.7	48.3	53.0	59.2	59.3
Vehicle Noise:	63.3	58.5	56.3	56.0	62.8	63.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	21	46	100
CNEL:	10	22	48	104

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Frank Sinatra Dr.
Road Segment: e/o State Route 111

Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,627 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	2,831 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.000
Medium Trucks:	46.811
Heavy Trucks:	46.830

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.66	0.30	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-13.58	0.33	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-17.53	0.32	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	63.0	61.7	55.7	64.1	64.7
Medium Trucks:	61.3	55.3	47.8	56.6	62.8	62.8
Heavy Trucks:	63.2	57.1	53.7	58.3	64.5	64.6
Vehicle Noise:	69.3	64.5	62.5	61.8	68.6	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	96	206	445
CNEL:	46	100	215	464

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: State Route 111
Road Segment: n/o Frank Sinatra Dr.
Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,653 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	8,295 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	6.78	1.01	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.46	1.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.41	1.04	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.8	72.7	71.4	65.4	73.8	74.4
Medium Trucks:	70.4	64.4	56.9	65.7	71.9	71.9
Heavy Trucks:	70.8	64.7	61.3	66.0	72.2	72.2
Vehicle Noise:	78.5	73.9	72.0	70.5	77.5	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	189	407	876	1,888
CNEL:	198	427	920	1,983

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: State Route 111
Road Segment: s/o Frank Sinatra Dr.
Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,437 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	7,297 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	86 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.143
Medium Trucks:	41.932
Heavy Trucks:	41.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	6.22	1.01	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.02	1.04	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.97	1.04	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.2	72.2	70.9	64.8	73.3	73.9
Medium Trucks:	69.8	63.9	56.4	65.1	71.3	71.3
Heavy Trucks:	70.2	64.1	60.8	65.4	71.6	71.7
Vehicle Noise:	77.9	73.3	71.4	69.9	76.9	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	173	374	805	1,734
CNEL:	182	392	845	1,820

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Frank Sinatra Dr.
Road Segment: w/o State Route 111
Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,310 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	692 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-1.79	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-19.03	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-22.98	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.0	58.0	56.6	50.6	59.1	59.7
Medium Trucks:	56.6	50.6	43.1	51.9	58.0	58.1
Heavy Trucks:	59.1	53.0	49.6	54.2	60.4	60.5
Vehicle Noise:	64.6	59.7	57.6	57.3	64.1	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	26	56	120
CNEL:	13	27	58	125

Wednesday, February 5, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Frank Sinatra Dr.
Road Segment: e/o State Route 111
Project Name: Ritz-Carlton Residences
Job Number: 12610

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,001 vehicles
Peak Hour Percentage:	16.06%
Peak Hour Volume:	2,891 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	47.000
Medium Trucks:	46.811
Heavy Trucks:	46.830

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.75	0.30	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-13.49	0.33	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-17.44	0.32	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.2	63.1	61.8	55.8	64.2	64.8
Medium Trucks:	61.4	55.4	47.9	56.7	62.9	62.9
Heavy Trucks:	63.2	57.1	53.8	58.4	64.6	64.7
Vehicle Noise:	69.4	64.6	62.6	61.9	68.7	69.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	97	209	451
CNEL:	47	101	218	471

Wednesday, February 5, 2020

APPENDIX 9.1:

CADNAA OPERATIONAL NOISE LEVEL CALCULATIONS

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12610

CadnaA Noise Prediction Model

12610_03.cna

Date:

18.02.20

Analyst:

B. Lawson

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Eve	Night	Day	Eve	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	29.6	30.2	26.7	55.0	50.0	45.0				5.00	r	6498278.71	2223255.93	612.92
R2		R2	41.8	42.9	37.3	55.0	50.0	45.0				5.00	r	6498990.95	2222767.65	647.26
R3		R3	46.8	47.2	44.6	55.0	50.0	45.0				5.00	r	6498881.84	2222114.07	677.54
R4		R4	43.7	43.7	42.1	55.0	50.0	45.0				5.00	r	6498710.78	2222103.28	685.09
R5		R5	43.5	43.5	42.0	55.0	50.0	45.0				5.00	r	6498539.14	2222093.84	677.54
R6		R6	43.0	43.5	40.7	55.0	50.0	45.0				5.00	r	6498360.19	2222003.12	674.50
R7		R7	42.2	42.3	40.7	55.0	50.0	45.0				5.00	r	6498216.10	2222028.54	671.45
R8		R8	35.2	35.3	33.6	55.0	50.0	45.0				5.00	r	6497921.76	2222287.44	640.91

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft^2)		(min)	(min)	(min)	(dB)	(Hz)		(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498231.12	2222368.84	680.50
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498321.58	2222218.93	681.50
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498330.63	2222338.68	680.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498518.87	2222243.92	693.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498677.82	2222259.86	695.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498776.46	2222259.42	681.70
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498863.38	2222268.39	680.04
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498988.39	2222355.48	665.50
POINTSOURCE		AC09	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498589.08	2222389.51	694.50
POINTSOURCE		AC10	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498466.31	2222381.33	687.00
POINTSOURCE		AC11	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6499080.14	2222441.63	666.50
POINTSOURCE		AC12	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6499193.86	2222389.94	663.50
POINTSOURCE		AC13	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498439.99	2222485.60	682.00
POINTSOURCE		AC14	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498456.97	2222579.92	681.50
POINTSOURCE		AC15	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498683.34	2222513.90	675.00
POINTSOURCE		AC16	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6498934.23	2222515.78	675.00
POINTSOURCE		AC17	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00	g	6499564.30	2222674.24	635.39
POINTSOURCE		COURT01	91.5	91.5	91.5	Lw	91.5		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	659.00	a	6498470.67	2222309.28	659.00
POINTSOURCE		COURT02	91.5	91.5	91.5	Lw	91.5		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	659.00	a	6498435.87	2222274.11	659.00
POINTSOURCE		COURT03	91.5	91.5	91.5	Lw	91.5		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	639.00	a	6498930.90	2222330.61	639.00
POINTSOURCE		COURT04	91.5	91.5	91.5	Lw	91.5		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	636.50	a	6498984.40	2222429.77	636.50
POINTSOURCE		COURT05	91.5	91.5	91.5	Lw	91.5		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	654.00	a	6498782.40	2222542.01	654.00
POINTSOURCE		POOL01	80.4	80.4	80.4	Lw	80.4		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	637.00	a	6498942.12	2222196.28	637.00
POINTSOURCE		POOL02	80.4	80.4	80.4	Lw	80.4		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	637.00	a	6498970.56	2222184.69	637.00
POINTSOURCE		POOL03	80.4	80.4	80.4	Lw	80.4		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	649.00	a	6498387.97	2222425.65	649.00
POINTSOURCE		POOL04	80.4	80.4	80.4	Lw	80.4		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	635.50	a	6498906.95	2222372.52	635.50
POINTSOURCE		POOL05	80.4	80.4	80.4	Lw	80.4		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	654.00	r	6499573.22	2222751.82	1281.71
POINTSOURCE		POOL06	80.4	80.4	80.4	Lw	80.4		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	654.00	r	6499651.37	2222695.18	1200.41
POINTSOURCE		POOL07	80.4	80.4	80.4	Lw	80.4		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	654.00	r	6499643.47	2222755.33	1238.37
POINTSOURCE		POOL08	80.4	80.4	80.4	Lw	80.4		0.0	0.0	0.0				468.00	180.00	0.00	0.0	500	(none)	631.50	a	6498918.80	2222629.73	631.50

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height	
						Begin	
						(ft)	
BUILDING		BUILDING00001	x	0		675.50	a
BUILDING		BUILDING00002	x	0		675.00	a
BUILDING		BUILDING00003	x	0		676.50	a
BUILDING		BUILDING00004	x	0		682.00	a
BUILDING		BUILDING00005	x	0		688.00	a
BUILDING		BUILDING00006	x	0		690.00	a
BUILDING		BUILDING00007	x	0		675.50	a
BUILDING		BUILDING00008	x	0		673.50	a
BUILDING		BUILDING00009	x	0		660.50	a
BUILDING		BUILDING00010	x	0		661.50	a
BUILDING		BUILDING00011	x	0		658.50	a
BUILDING		BUILDING00012	x	0		632.00	a
BUILDING		BUILDING00013	x	0		677.00	a
BUILDING		BUILDING00014	x	0		689.50	a
BUILDING		BUILDING00015	x	0		676.50	a
BUILDING		BUILDING00016	x	0		670.00	a

APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE LEVEL CALCULATIONS

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12610

CadnaA Noise Prediction Model
12610_03_Construction.cna
Date:
18.02.20
Analyst:
B. Lawson

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Eve	Night	Day	Eve	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	52.2	52.2	52.2	55.0	50.0	45.0				5.00	r	6498278.71	2223255.93	612.92
R2		R2	69.5	69.5	69.5	55.0	50.0	45.0				5.00	r	6498990.95	2222767.65	647.26
R3		R3	70.2	70.2	70.2	55.0	50.0	45.0				5.00	r	6498881.84	2222114.07	677.54
R4		R4	70.5	70.5	70.5	55.0	50.0	45.0				5.00	r	6498710.78	2222103.28	685.09
R5		R5	70.1	70.1	70.1	55.0	50.0	45.0				5.00	r	6498539.14	2222093.84	677.54
R6		R6	65.1	65.1	65.1	55.0	50.0	45.0				5.00	r	6498360.19	2222003.12	674.50
R7		R7	66.4	66.4	66.4	55.0	50.0	45.0				5.00	r	6498216.10	2222028.54	671.45
R8		R8	56.0	56.0	56.0	55.0	50.0	45.0				5.00	r	6497921.76	2222287.44	640.91

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Moving Pt. Src		
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night				Number		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft^2)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
SITEBOUNDARY		SITEBOUNDARY00001	122.3	122.3	122.3	75.3	75.3	75.3	Lw''	75.3		0.0	0.0	0.0							0.0	500	(none)			
SITEBOUNDARY		SITEBOUNDARY00002	119.9	119.9	119.9	75.3	75.3	75.3	Lw''	75.3		0.0	0.0	0.0							0.0	500	(none)			

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Appendix F1
Traffic Report

Ritz-Carlton Residences

TRAFFIC IMPACT ANALYSIS

CITY OF RANCHO MIRAGE

PREPARED BY:

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JULY 20, 2020

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMS	Changeable Message Sign
CMP	Congestion Management Program
CVAG	Coachella Valley Association of Governments
E+P	Existing Plus Project
EAP	Existing Plus Ambient Growth Plus Project
EAPC	Existing Plus Ambient Growth Plus Project Plus Cumulative
HCM	Highway Capacity Manual
HCS	Highway Capacity Software
ITE	Institute of Transportation Engineers
LOS	Level of Service
MUTCD	Manual on Uniform Traffic Control Devices
N/A	Not Applicable
NP	Without Project
PeMS	Performance Measurement System
PHF	Peak Hour Factor
Project	Ritz-Carlton Residences
PSA	Public Service Announcements
RivTAM	Riverside County Transportation Analysis Model
RTP	Regional Transportation Plan
SAT	Saturday
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
sf	Square Feet
SHS	State Highway System
TIA	Traffic Impact Analysis
TUMF	Transportation Uniform Mitigation Fee
WP	With Project

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Ritz-Carlton Residences ("Project"), which is located north of Mirada Circle and east of Frank Sinatra Drive, in the City of Rancho Mirage as shown on Exhibit 1-1.

The purpose of this TIA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and recommend improvements to achieve acceptable circulation system operational conditions. This TIA has been prepared based on scoping agreement with the City of Rancho Mirage. (1) To ensure that this TIA satisfies the City of Rancho Mirage's traffic study requirements, Urban Crossroads, Inc. prepared a traffic study scoping package for review by City staff prior to the preparation of this report. The Agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology. The Agreement approved by the City is included in Appendix 1.1.

1.1 SUMMARY OF FINDINGS

For Existing (2019), EAPC (2023), and Horizon Year (2040) traffic conditions, the addition of Project traffic to study area intersections did not result in deficient intersection LOS operations.

However, it is recommended that the following improvements be implemented to accommodate Horizon Year (2040) With Project weekend special event 95th percentile traffic flows:

- Hwy. 111 & Frank Sinatra Dr. (#3) – extend storage from 260' to 400' for the NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – extend storage from 170' to 250' for the EBL movement

1.2 PROJECT OVERVIEW

It is our understanding that the Project is to expand the existing Ritz-Carlton hotel by 106 residential dwelling units, a 6,966 restaurant, and a 23,843 square foot venue. For the purposes of this analysis, it is assumed that the Project will be constructed within a single phase of development with a projected Opening Year of 2023.

Access to the Project site will be provided via the following roadways:

- Frank Sinatra Drive on SR-111 (full access)

Regional access to the project site is provided via the SR-111 at Frank Sinatra Drive.

EXHIBIT 1-1: PRELIMINARY SITE PLAN



Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017. (2) The proposed Project is anticipated to generate a net total of 1,068 trip-ends per day, 51 AM peak hour trips and 86 PM peak hour trips.

It should be noted that the venue will generate trips outside the weekday AM and PM peak hours. The trip generation estimate during special event has been calculated based on a maximum allowable occupancy of 0.8 per parking space. As such, the proposed Project (special event) is anticipated to generate a net total of 416 weekend peak hour trips.

The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential impacts to traffic and circulation have been evaluated for each of the following conditions:

- Existing (2019) Conditions
- E+P Conditions
- Existing plus Ambient Growth plus Project (EAP) (2023) Conditions
- Existing plus Ambient Growth plus Project Plus Cumulative (EAPC) (2023) Conditions
- Horizon Year (2040) Without Project
- Horizon Year (2040) With Project

All study area intersections will be evaluated using the Highway Capacity Manual (HCM) 6th Edition analysis methodology.

1.3.1 EXISTING CONDITIONS

Existing physical conditions have been disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.3.2 E+P CONDITIONS

The E+P analysis determines circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions.

1.3.3 EAP CONDITIONS

The EAP (2023) traffic conditions analyses determine potential traffic impacts based on a comparison of the EAP traffic conditions to Existing conditions. To account for background traffic growth, an ambient growth factor from Existing conditions of 6.12% (2 percent per year over 3 years, compounded annually) for 2023 conditions is included for EAP traffic conditions. Consistent with County of Riverside traffic study guidelines, the EAP analysis is intended to identify "Opening Year" deficiencies associated with the development of the proposed Project based on the expected background growth within the study area.

1.3.4 EAPC CONDITIONS

The EAPC (2023) traffic conditions analyses determine the potential near-term cumulative circulation system deficiencies. Background traffic for these analysis scenarios follow the same ambient growth methodology described above for EAP traffic conditions. However, EAPC traffic conditions also include the addition of cumulative development traffic. The comprehensive list of cumulative development projects was compiled from information provided by the City of Rancho Mirage and Cathedral City.

1.3.5 HORIZON YEAR (2040) CONDITIONS

Traffic projections for Horizon Year (2040) with Project conditions were derived from the Riverside Transportation Analysis Model (RivTAM) modified to represent buildout of the City of Rancho Mirage. The Horizon Year (2040) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the City's Development Impact Fee (DIF) program, or other approved funding mechanisms can accommodate the long-range cumulative traffic at the target level of service (LOS) identified by the City of Rancho Mirage (lead agency).

The Horizon Year (2040) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the Transportation Uniform Mitigation Fee (TUMF), or other approved funding mechanism (e.g., Community Facilities District, etc.) can accommodate the long-range cumulative traffic at the target Level of Service (LOS) identified in the City of Rancho Mirage (lead agency) General Plan. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-TUMF) are identified as such. Each of these regional transportation fee programs are discussed in more detail in Section 9 *Local and Regional Funding Mechanisms*.

1.4 STUDY AREA

The Project study area was defined in coordination with the City of Rancho Mirage. Consistent with County of Riverside traffic study guidelines, the study area includes any intersection of "Collector" or higher classification street, with "Collector" or higher classification streets, at which the proposed project will add 50 or more peak hour trips. Exhibit 1-2 presents the study area and intersection analysis locations.

The "50 peak hour trip" criteria generally represents a minimum number of trips at which a typical intersection would have the potential to be substantively impacted by a given development proposal. Although each intersection may have unique operating characteristics, this traffic engineering rule of thumb is a widely utilized tool for estimating a potential area of impact (i.e., study area).

To ensure that this TIA satisfies the needs of the City of Rancho Mirage, Urban Crossroads, Inc. prepared a Project specific traffic study scoping agreement for review by City staff prior to the preparation of this TIA. The agreement provides an outline of the study area, trip generation, trip distribution, and analysis methodology. The agreement approved by the City of Rancho Mirage is included in Appendix 1.1.

1.4.1 INTERSECTIONS

The following 3 study area intersections shown on Exhibit 1-2 and listed in Table 1-1 were selected for this TIA based on consultation with City of Rancho Mirage staff. In general, the study area includes intersections where the Project is anticipated to contribute 50 or more peak hour trips, and input from the City of Rancho Mirage staff.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
1	Frank Sinatra Dr. & Dwy. 1	Rancho Mirage
2	Frank Sinatra Dr. & Dwy. 2	Rancho Mirage
3	Hwy. 111 & Frank Sinatra Dr.	Rancho Mirage

1.5 ANALYSIS FINDINGS

This section provides a summary of the analysis results for Existing (2019), E+P, EAP (2023), EAPC (2023), and Horizon Year (2040) traffic conditions. A summary of intersection LOS by analysis scenario is sown on Exhibit 1-3.

1.5.1 EXISTING CONDITIONS

Intersection Operations

For Existing traffic conditions, the study area intersections are currently operating at an acceptable LOS during the peak hours.

Traffic Signal Warrant Analysis

No study area intersections currently warrant a traffic signal based on peak hour volumes.

Queuing Analysis

A queuing analysis was performed for the study area intersections to assess vehicle queues along the roadways. No intersection turning movements are anticipated to experience periodic queuing issues during one or both peak hours based on the 95th percentile peak hour traffic flows.

1.5.2 E+P CONDITIONS

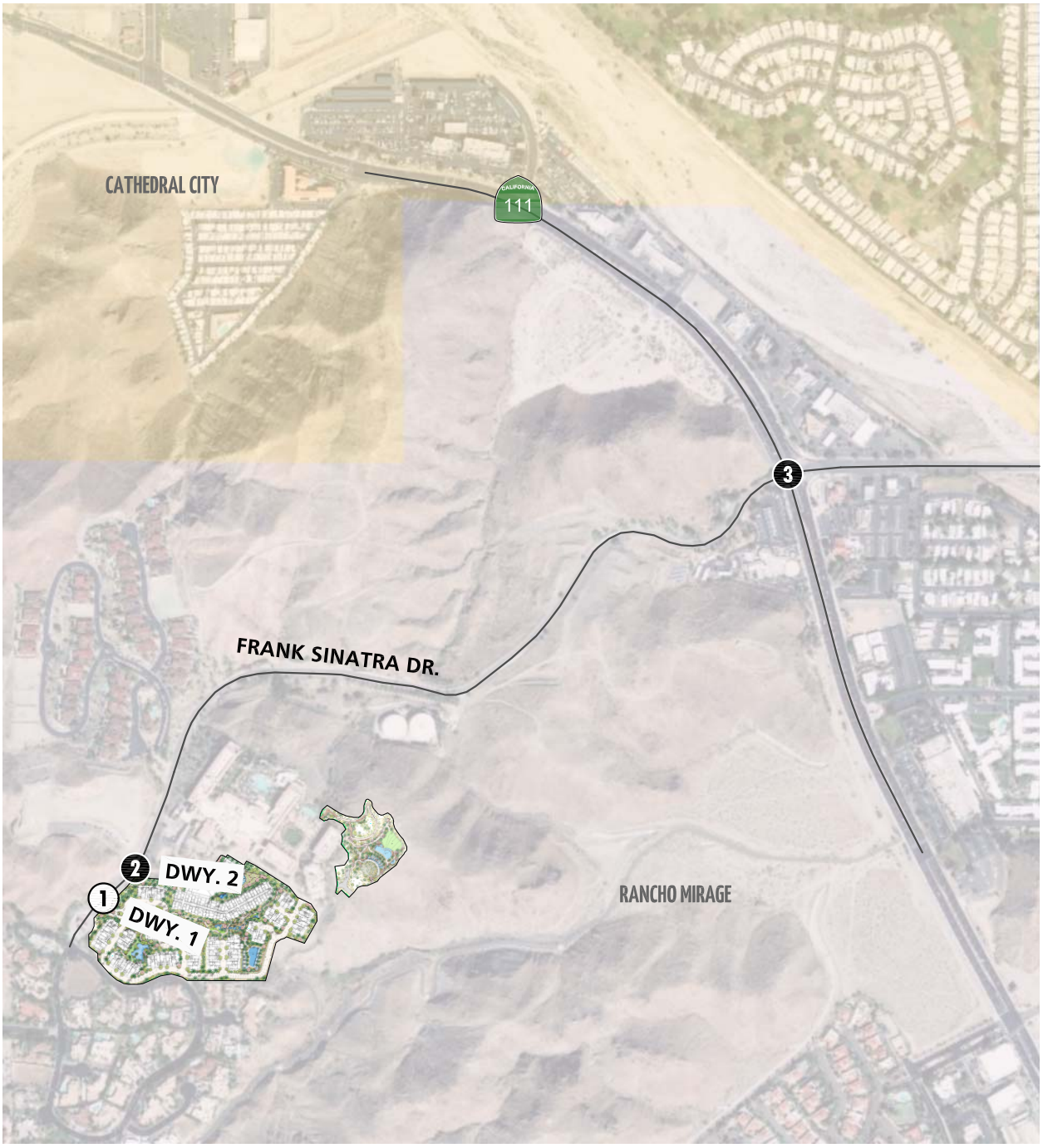
Intersection Operations

The addition of Project traffic is not anticipated to result in any deficiencies consistent with Existing traffic conditions.

Traffic Signal Warrant Analysis

No study area intersections are anticipated to warrant a traffic signal under E+P traffic conditions.

EXHIBIT 1-2: LOCATION MAP



LEGEND:

0 = EXISTING INTERSECTION ANALYSIS LOCATION

(0) = FUTURE INTERSECTION ANALYSIS LOCATION

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EXHIBIT 1-3: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO

#	Intersection	Existing (2019)	E+P	EAP (2023)	EAPC (2023)	Horizon Year (2040) Without Project	Horizon Year (2040) With Project
1	Frank Sinatra Dr. & Dwy. 1	NA				NA	
2	Frank Sinatra Dr. & Dwy. 2						
3	Highway 111 & Frank Sinatra Dr.						

LEGEND:

- = AM PEAK HOUR LOS
- = PM PEAK HOUR LOS
- = SATURDAY LOS
- = LOS A-D
- = LOS E
- = LOS F
- NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

Queuing Analysis

For E+P conditions, no intersection turning movements are anticipated to experience periodic queuing issues during one or both peak hours based on the weekday 95th percentile peak hour traffic flows. However, the following movements are anticipated to exceed the available storage lengths based on the weekend special event 95th percentile peak hour traffic flow:

- Hwy. 111 & Frank Sinatra Dr. (#3) – NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – EBL movement

1.5.3 EAP 2023 Conditions

Intersection Operations

For EAP 2023 conditions, the addition of ambient growth and Project traffic is not anticipated to result in any deficiencies consistent with Existing traffic conditions.

Traffic Signal Warrant Analysis

No study area intersections are anticipated to warrant a traffic signal under EAP 2023 traffic conditions.

Queuing Analysis

For EAP 2023 conditions, no intersection turning movements are anticipated to experience periodic queuing issues during one or both peak hours based on the weekday 95th percentile peak hour traffic flows. However, the following movements are anticipated to exceed the available storage lengths based on the weekend special event 95th percentile peak hour traffic flow:

- Hwy. 111 & Frank Sinatra Dr. (#3) – NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – EBL movement

1.5.4 EAPC 2023 Conditions

Intersection Operations

For EAPC 2023 conditions, the addition of ambient growth, cumulative projects, and Project traffic is not anticipated to result in any deficiencies consistent with Existing traffic conditions.

Traffic Signal Warrant Analysis

No study area intersections are anticipated to warrant a traffic signal under EAPC 2023 traffic conditions.

Queuing Analysis

For EAPC 2023 conditions, no intersection turning movements are anticipated to experience periodic queuing issues during one or both peak hours based on the weekday 95th percentile peak hour traffic flows. However, the following movements are anticipated to exceed the

available storage lengths based on the weekend special event 95th percentile peak hour traffic flow:

- Hwy. 111 & Frank Sinatra Dr. (#3) – NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – EBL movement

1.5.4 Horizon Year (2040) Conditions

Intersection Operations

For Horizon Year (2040) Without Project conditions, no study area intersections are anticipated to operate at unacceptable levels of service. With the addition of Project traffic, no additional study area intersections are anticipated to operate at unacceptable levels of service.

Traffic Signal Warrant Analysis

No study area intersections are anticipated to warrant a traffic signal under Horizon Year (2040) Without and With Project traffic conditions.

Queuing Analysis

No intersection turning movements are anticipated to experience periodic queuing issues during one or both peak hours based on the weekday and weekend 95th percentile peak hour traffic flows for Horizon Year (2040) Without Project. With the addition of Project traffic, no intersection turning movements are anticipated to experience periodic queuing issues during one or both peak hours based on the weekday 95th percentile peak hour traffic flows. However, the following movements are anticipated to exceed the available storage lengths based on the weekend special event 95th percentile peak hour traffic flow:

- Hwy. 111 & Frank Sinatra Dr. (#3) – NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – EBL movement

1.6 ON-SITE ROADWAY AND SITE ACCESS IMPROVEMENTS

The Project is proposed to have access onto the SR-111 at Frank Sinatra Drive. Regional access to the Project site will be provided by the SR-111.

Roadway improvements necessary to provide site access and on-site circulation are assumed to be constructed in conjunction with site development and are described below. These improvements should be in place prior to occupancy.

1.6.1 SITE ADJACENT ROADWAY IMPROVEMENTS

The recommended site-adjacent roadway improvements for the Project are described below. These improvements need to be incorporated into the Project description prior to Project approval or imposed as conditions of approval as part of the Project approval. Exhibit 1-4 illustrates the site adjacent and site access roadway improvement recommendations.

Frank Sinatra Drive is a north-south oriented roadway located along the Project's western boundary. Frank Sinatra Drive appears to be currently constructed at its ultimate full-section

width as a Local Street (60-foot right-of-way) between the Project's northern and southern boundaries.

1.6.2 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 1-4 also illustrates the on-site and site adjacent recommended intersection lane improvements for Project traffic conditions.

It is recommended that the following improvements be implemented to accommodate Horizon Year (2040) With Project weekend special event 95th percentile traffic flows:

- Hwy. 111 & Frank Sinatra Dr. (#3) – extend storage from 260' to 400' for the NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – extend storage from 170' to 250' for the EBL movement

The following intersection recommendations represent the minimum lanes that must be provided to achieve acceptable peak hour operations:

Frank Sinatra Drive & Driveway 1 – Construct the intersection with a stop control on the westbound approach and the following geometrics:

- Northbound Approach: One shared through-right turn lane.
- Southbound Approach: One shared left-through lane.
- Eastbound Approach: Not Applicable (N/A).
- Westbound Approach: One shared left-right turn lane.

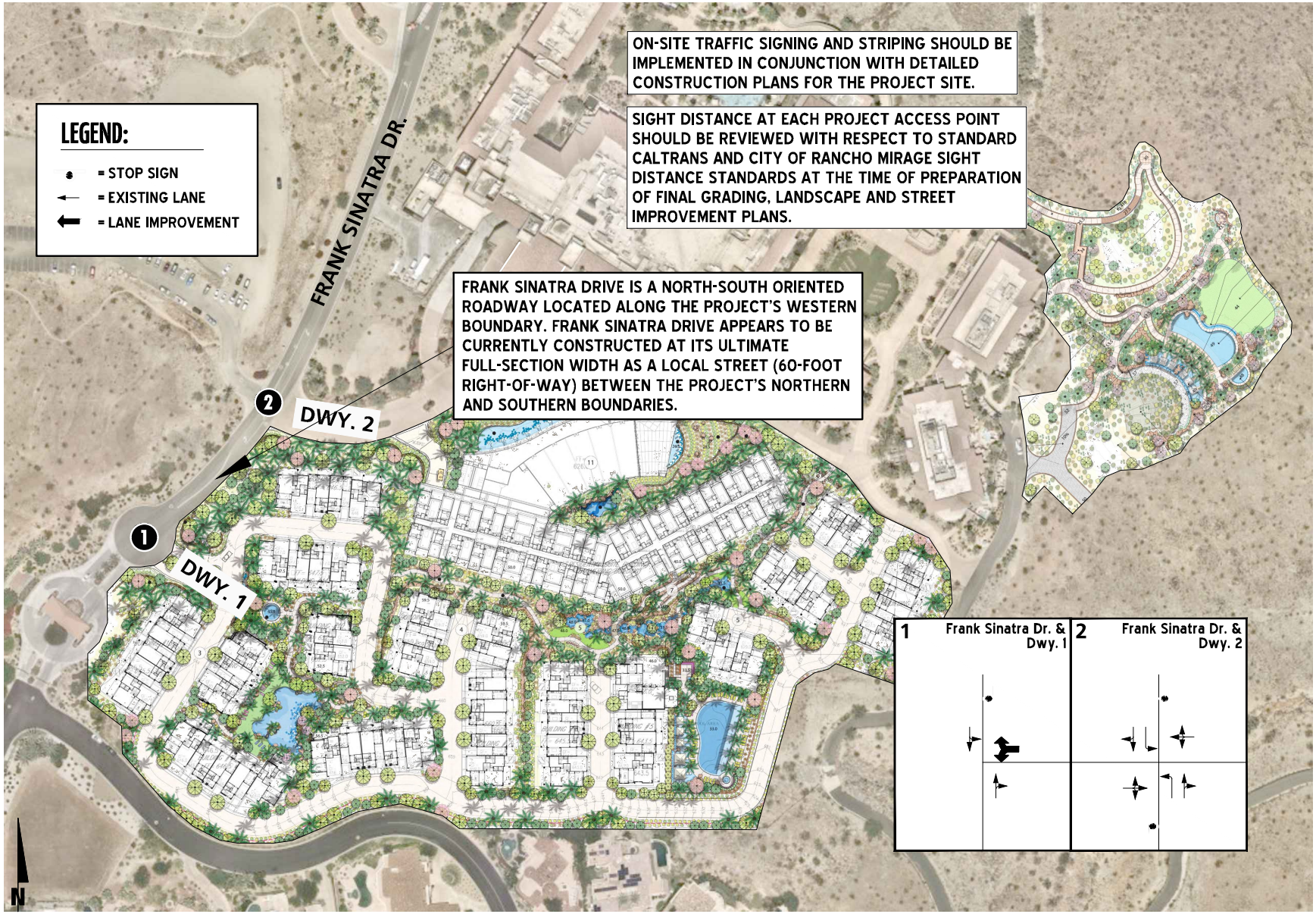
Driveway 2 & Foothill Boulevard – Maintain the existing stop control on the westbound approach and the following existing geometrics:

- Northbound Approach: One left turn lane and one shared through-right turn lane.
- Southbound Approach: One left turn lane and one shared through-right turn lane.
- Eastbound Approach: One shared left-through-right turn lane.
- Westbound Approach: One shared left-through-right turn lane.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and City of Rancho Mirage sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

EXHIBIT 1-4: SITE ADJACENT ROADWAY AND SITE ACCESS RECOMMENDATIONS



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1.7 SIGHT DISTANCE ANALYSIS

The intersection sight distance has been evaluated for Driveway 1 and Driveway 2 on Frank Sinatra Drive. As defined by the California Department of Transportation (Caltrans) Highway Design Manual, sight distance is the continuous length of highway ahead visible to the driver.

At unsignalized intersections, corner sight distance must provide a substantially clear line of sight between the driver of the vehicle waiting on the minor road (driveway) and the driver of an approaching vehicle. For the purposes of this analysis, a 7 ½ second criterion has been applied to the outside travel lanes in either direction to provide the most conservative sight distance. The 7 ½ second criterion allows waiting vehicles to either cross all lanes of through traffic by turning left or cross the near lanes by turning right without requiring through traffic to radically alter their speed.

Adequate visibility for vehicular and pedestrian traffic can be provided at each Project driveway by limiting sight obstructions within the limited use area. Any landscaping/hardscape within the limited use area should not exceed 30-inches (2.5-feet) in height. The limited use area should be kept clear of any landscaping or any other obstructions that may impede the visibility of the driver, including on-street parking. Minimum corner sight distance for the Project driveways is illustrated on Exhibit 1-5, however, sight distance should be re-evaluated once the driveway has been constructed.

1.8 SPECIAL EVENT TRAFFIC MANAGEMENT PLAN

It is recommended that the Project applicant coordinate with the City staff to refine the traffic management plan prior to the Special Event. Exhibit 1-6 shows a high-level event operations planning. (3)

Special event flaggers, law enforcement personnel, and portable changeable message signs (CMS) are recommended to facilitate the movement of special event traffic, shuttles and pedestrians.

1.8.1 CHANGEABLE MESSAGE SIGNS

Portable changeable message signs (CMS) are recommended along the major routes of Highway 111 and Frank Sinatra Drive in order to facilitate guests to and from the on-site and off-site parking.

1.8.2 LAW ENFORCEMENT OFFICERS/EVENT FLAGGERS

Law enforcement personnel and/or special event flaggers are recommended to direct traffic at the following key locations:

- Frank Sinatra Dr. & Dwy. 1
- Frank Sinatra Dr. & Dwy. 2
- Hwy. 111 & Frank Sinatra Dr.

EXHIBIT 1-5: SIGHT DISTANCE



LEGEND:

= MINIMUM SIGHT DISTANCE LINES

= LIMITED USE AREA
(THERE SHALL BE NO OBSTRUCTION WITHIN THE LIMITED USE AREA. OBSTRUCTIONS INCLUDE, BUT NOT LIMITED TO, ANY SIGNS OR OBJECTS HIGHER THAN 2.5' MEASURED FROM PAVEMENT WITHIN THE AREA OF LIMITED USE.)

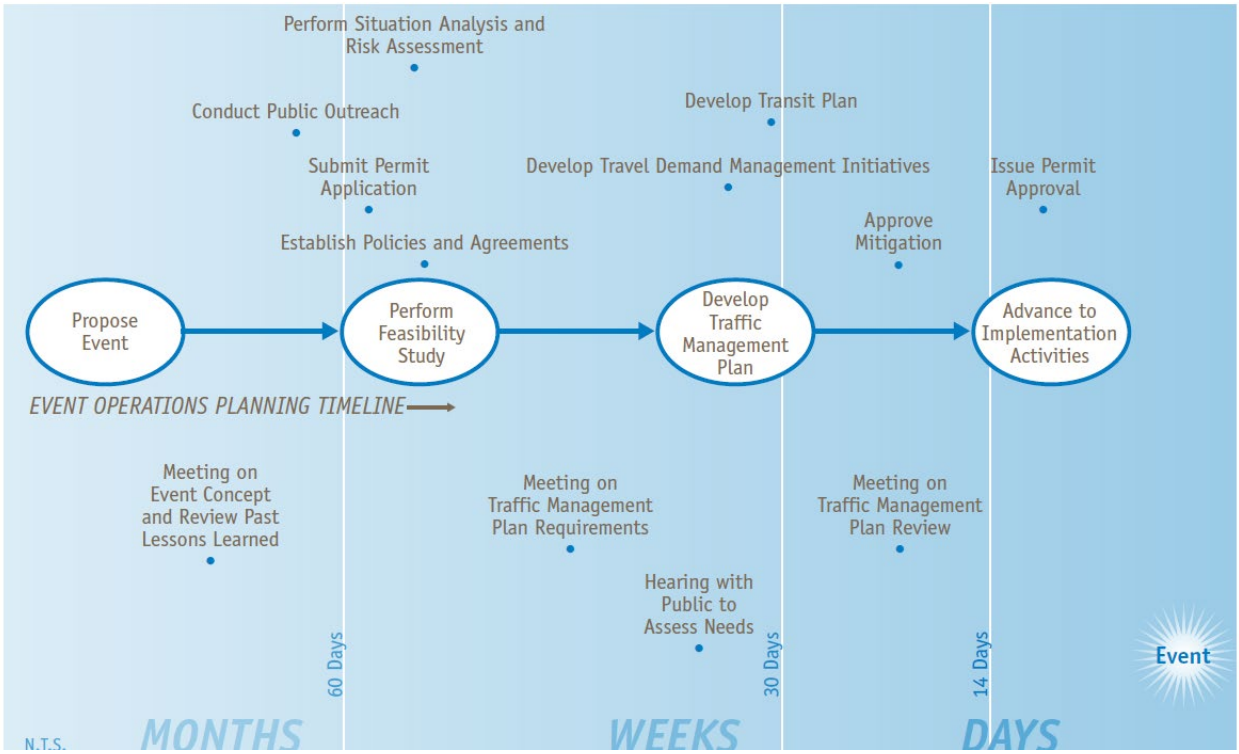
GRAPHIC SCALE
0 60 120
1"=120'

N

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EXHIBIT 1-6: EVENT OPERATIONS PLANNING SCHEDULE



Source: Managing Travel for Planned Special Events Handbook: Executive Summary (June 2007) prepared by Federal Highway Administration (FHWA)

1.8.3 PUBLIC SERVICE ANNOUNCEMENTS

Public service announcements (PSA) are recommended to provide information to event guests prior to the event. Examples include, but are not limited to:

- Online event information (i.e., suggested routes, parking, etc.)
- CMS prior to the event
- Brochures

1.8.4 SIGNAL TIMING ADJUSTMENTS

Coordinate with the City staff to provide traffic signal timing adjustment based on the expected peak arrival and departure periods of the special event at the following intersections:

- Hwy. 111 & Frank Sinatra Dr.

1.8.5 PARKING MANAGEMENT STRATEGIES

The recent rise in popularity of Transportation Network Companies (TNCs) such as Uber and Lyft, has the potential to significantly change future parking demands. The TNC or ridesharing model, in which users can request rides through their smartphones, provides on-demand transportation in personal vehicles with direct point-to-point trips. The use rather than ownership model of TNCs may over time substantially reduce the need for dedicated parking. In addition, on-demand

transportation increases the need to promote accessible drop-off and pick-up areas. Recognizing increased parking demand during special events, the following parking management strategies should be considered:

- **Drop-off and Pick-up areas:** Provide convenient and accessible drop-off and pick-up areas to promote ridesharing and reduce parking demands. In addition, the Project applicant may consider providing short-term parking with time restrictions of 10-15 minutes to provide staging areas for ridesharing vehicles.
- **Off-site Employee Parking:** To maximize the available on-site parking supply, employees should park off-site. According to the parking ratios published by ULI, employees can account for approximately 25% of the available parking supply. Providing off-site parking facilities with convenient shuttle service to bring employees to and from an off-site facility during special events can substantially increase the available of on-site parking supply.
- **Valet Parking**: Implementation of valet parking during special events can substantially increase the available on-site parking capacity. In addition, valet parking will also provide for convenient accessible parking special events.

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2 METHODOLOGIES

This section documents the methodologies and assumptions used to perform this traffic assessment.

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The *Highway Capacity Manual* (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (4) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Rancho Mirage require signalized intersection operations analysis based on the methodology described in the HCM 6th Edition (4). Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1.

TABLE 2-1: SIGNALIZED INTERSECTION DESCRIPTION OF LOS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C	35.01 to 55.00	D	F

ratios. Many vehicles stop and individual cycle failures are noticeable.			
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up	F	F

Source: HCM 6th Edition

Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network. All signalized study area intersections have also utilized the Synchro software.

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15 minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per Chapter 4 of the HCM 6th Edition, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (7)

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Rancho Mirage require the operations of unsignalized intersections be evaluated using the methodology described in the HCM 6th Edition. (4) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: UNSIGNALIZED INTERSECTION DESCRIPTION OF LOS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM 6th Edition

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of

all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD), for all study area intersections. (5)

The signal warrant criteria for Existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CAMUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (5) Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing study area intersections for all analysis scenarios. Warrant 3 is appropriate to use for this TIA because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Future intersections that do not currently exist have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets.

Traffic signal warrant analyses were performed for all of the following unsignalized study area intersections (see Table 2-3):

TABLE 2-3: UNSIGNALIZED INTERSECTION LOCATIONS

ID	Intersection Location
1	Frank Sinatra Drive & Driveway 1
2	Frank Sinatra Drive & Driveway 2

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Existing Conditions* of this report. The traffic signal warrant analysis for future conditions is presented Section 5 *E+P Traffic Analysis*, Section 6 *EAP (2023) Traffic Analysis*, Section 7 *EAPC (2023) Traffic Analysis, and* Section 8 *Horizon Year (2040) Traffic Analysis* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may

satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 QUEUING ANALYSIS

A queuing analysis has been conducted for all intersections and Project driveways. The 95th percentile queuing of vehicles has been assessed along these roadways to determine potential queuing issues at the intersections.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential impacts/needs of the intersections with traffic added from the proposed Project. The 50th percentile maximum queue is the maximum back of queue on a typical cycle during the peak hour, while the 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes during the peak hour. In other words, if traffic were observed for 100 cycles, the 95th percentile queue would be the queue experienced with the 95th busiest cycle (or 5% of the time). The 50th percentile or average queue represents the typical queue length for peak hour traffic conditions, while the 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed; it is simply based on statistical calculations.

2.5 MINIMUM LEVEL OF SERVICE (LOS)

Per Goal 1, Policy 1 of the City of Rancho Mirage General Plan, the following LOS will be utilized for study area intersections located within the City: Require development to achieve a peak hour LOS D or better at intersections and roadway segments.

2.6 DEFICIENCY CRITERIA

To determine whether the addition of project traffic at a study intersection would result in a deficiency, the following will be utilized:

- A deficiency occurs at study area intersections if the pre-Project condition is at or better than LOS D (i.e., acceptable LOS), and the addition of project trips causes the peak hour LOS of the study area intersection to operate at unacceptable LOS (i.e., LOS E or F). Per the County of Riverside traffic study guidelines, for intersections currently operating at unacceptable LOS (LOS E or F), a deficiency would occur if the Project contributes 50 or more peak hour trips to pre-project traffic conditions.

3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Rancho Mirage General Plan Circulation Network, and a review of existing peak hour intersection operations, traffic signal warrant, and queuing analyses.

3.1 EXISTING CIRCULATION NETWORK

The study area includes a total of 3 intersections as shown previously on Exhibit 1-1. Exhibit 3-1 illustrates the study area intersections and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF RANCHO MIRAGE GENERAL PLAN CIRCULATION ELEMENT

Exhibit 3-2 shows the City of Rancho Mirage General Plan Circulation Element, and Exhibit 3-3 illustrates the City of Rancho Mirage General Plan roadway cross-sections.

A brief description of each roadway including existing and planned roadway width is provided below:

Frank Sinatra Drive is an east-west major collector running through the City of Rancho Mirage. Most of Frank Sinatra Drive is constructed to its ultimate design standards with a 100-foot right-of-way. However, Frank Sinatra Drive, west of Highway 111, is designated as a two lane roadway in the General Plan.

Highway 111 is the major arterial connecting most of the commercial centers of the Coachella Valley. As a major arterial, the route runs north-west to south-east diagonally within the study area. Highway 111 provides three through travel lanes in each direction. Highway 111 is designated as a Riverside County CMP roadway.

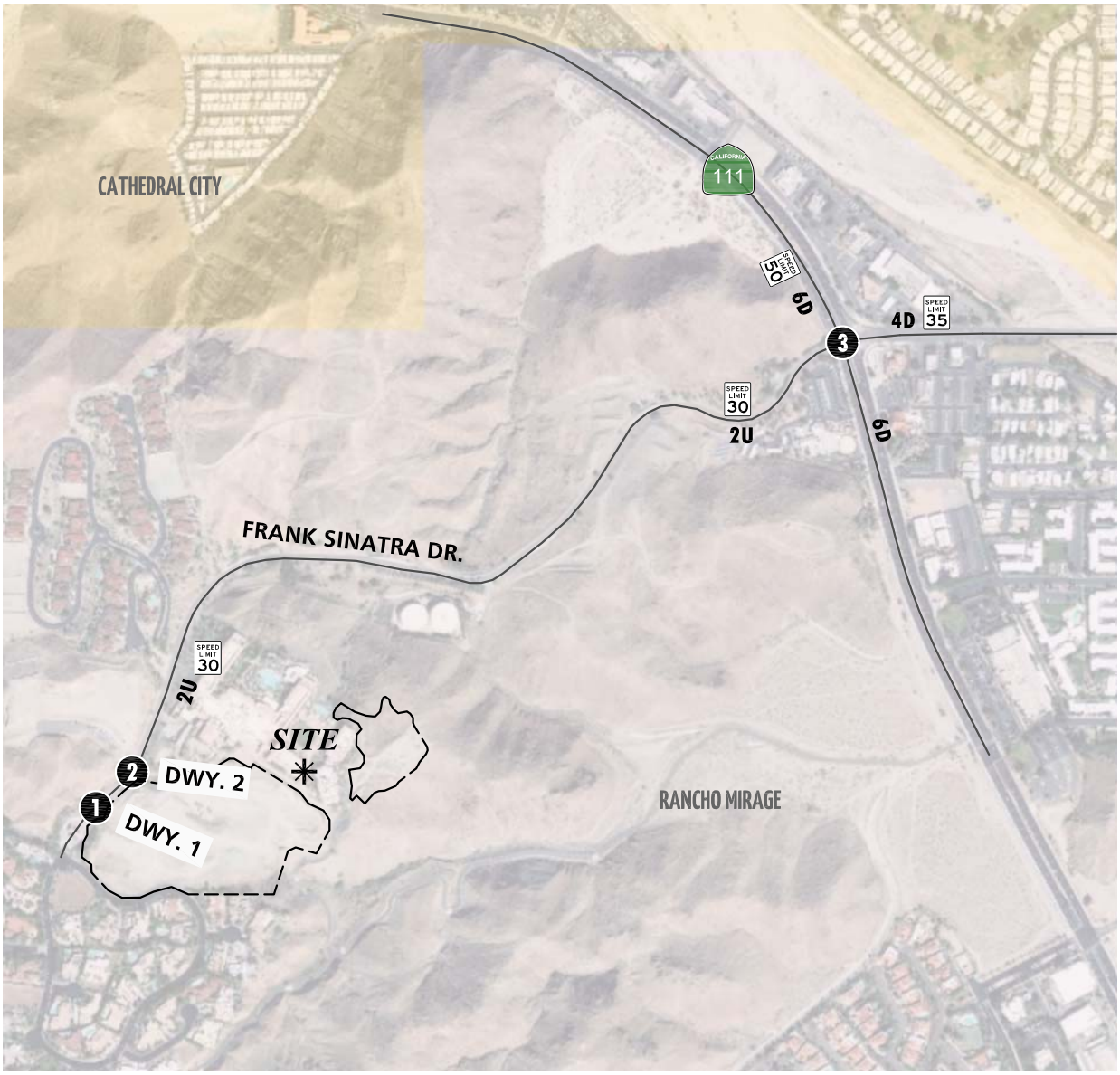
3.3 TRUCK ROUTES

The City of Rancho Mirage designated truck route map is shown on Exhibit 3-4. Highway 111 is identified as designated truck route.

3.4 TRANSIT SERVICE

The City of Rancho Mirage and is currently served by the SunLine Transit Agency (STA), a public transit agency serving various jurisdictions throughout Coachella Valley. The existing bus routes provided within the City are shown on Exhibit 3-5. Transit service is reviewed and updated by STA periodically to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate. It should also be noted that SunDial service provides special services for the disabled and seniors (60+).

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
Future Intersection		

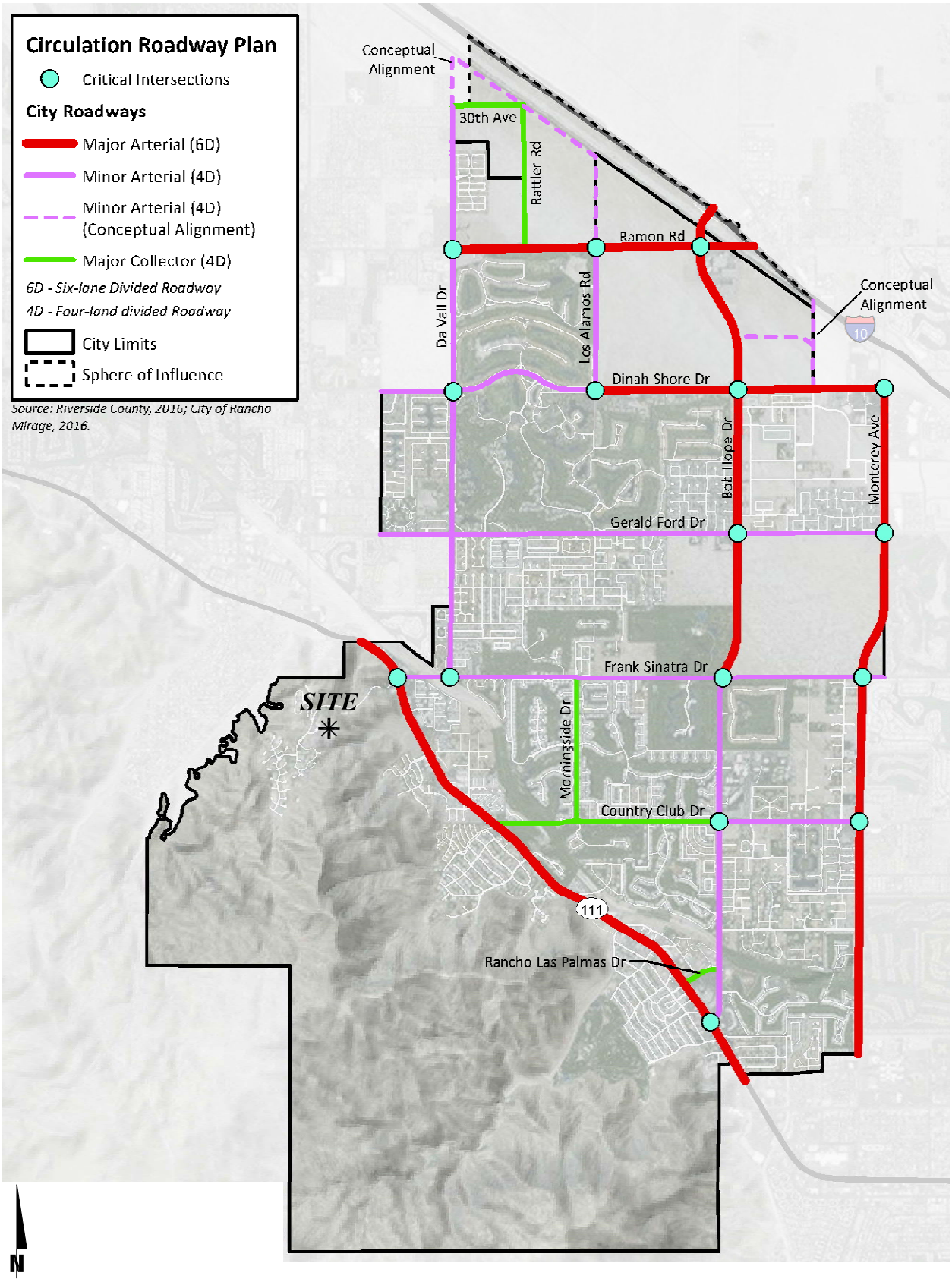
LEGEND:

- = TRAFFIC SIGNAL
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- = CHANNELIZED YIELD
- SPEED LIMIT 25 = SPEED LIMIT (MPH)

N

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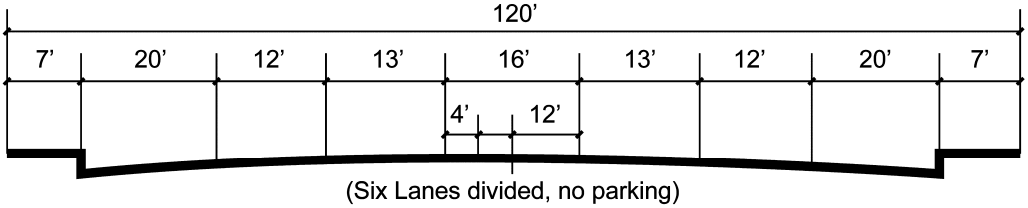
EXHIBIT 3-2: CITY OF RANCHO MIRAGE GENERAL PLAN CIRCULATION ELEMENT



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EXHIBIT 3-3: CITY OF RANCHO MIRAGE GENERAL PLAN STREET CROSS SECTIONS

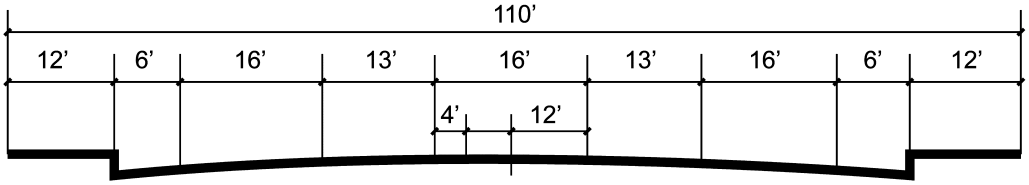
Major Arterial*



(Six Lanes divided, no parking)

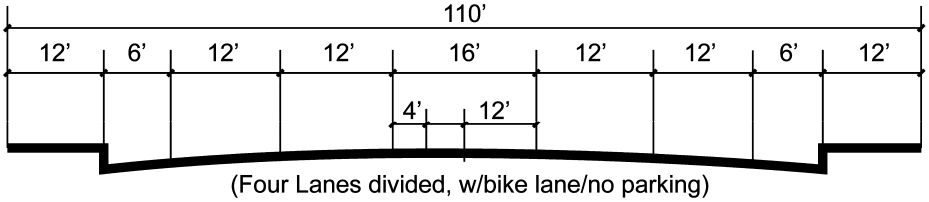
*Highway 111 has special design geometrics, See Rancho Mirage Highway 111 Alignment Study, 1996.

Minor Arterial



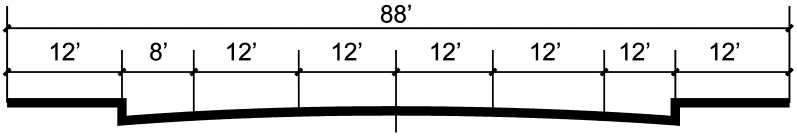
(Four Lanes divided, w/bike lane/no parking)

Major Collector



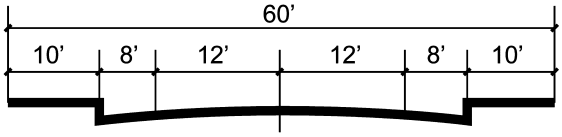
(Four Lanes divided, w/bike lane/no parking)

Minor Collector



(Four Lanes undivided, w/parking)

Local



(Two Lanes, w/parking)

EXHIBIT 3-4: CITY OF RANCHO MIRAGE GENERAL PLAN DESIGNATED TRUCK ROUTES

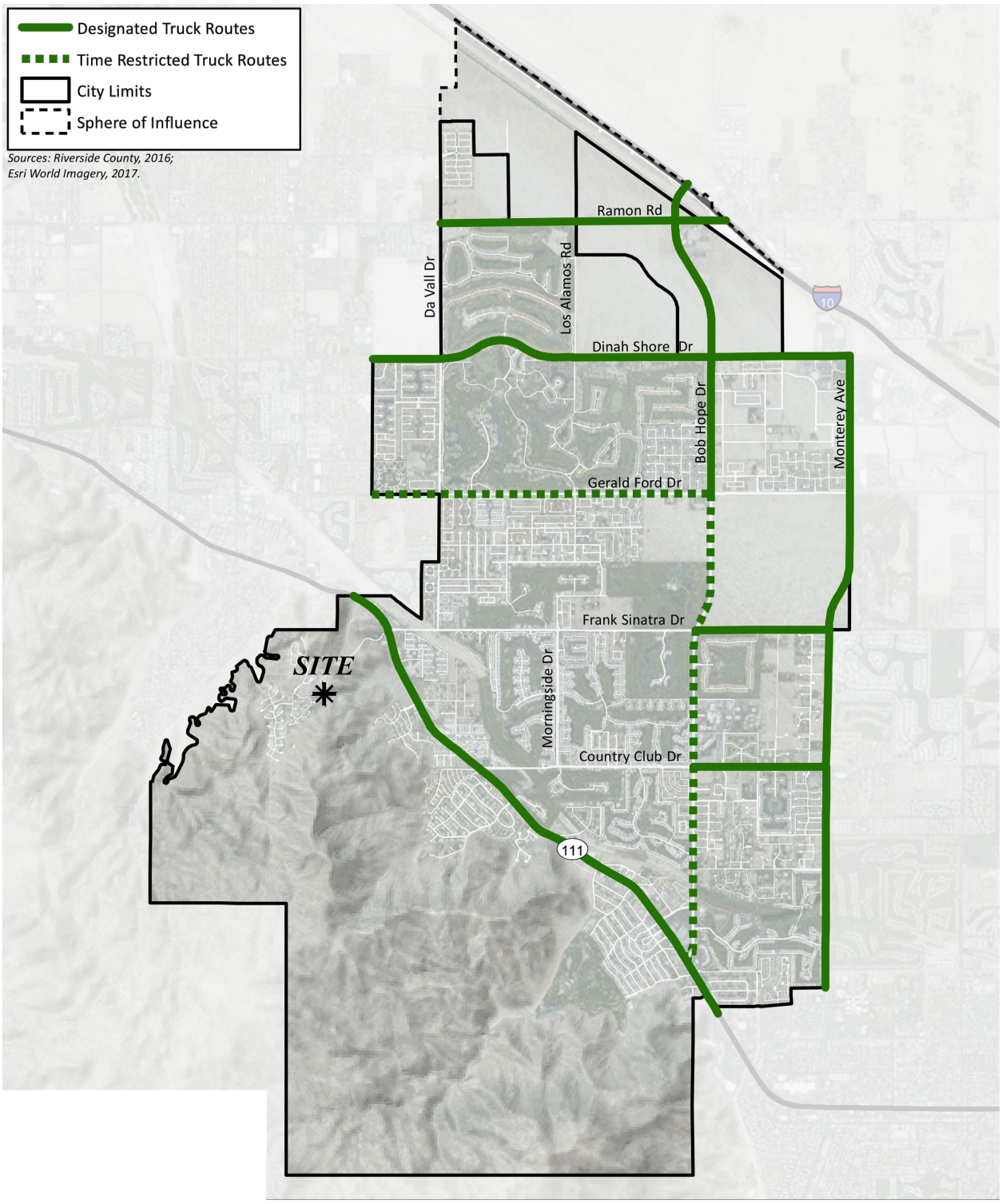


EXHIBIT 3-5: EXISTING TRANSIT ROUTES



LEGEND:

= SUNLINE TRANSIT AGENCY ROUTE 111 B = BUS STOP

N

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3.5 BICYCLE & PEDESTRIAN FACILITIES

Existing bicycle and pedestrian facilities within City are shown on Exhibit 3-6. The General Plan identifies that Pedestrian and other non-motor circulation is encouraged in the City wherever possible.

3.6 EXISTING (2019) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in December 2019. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)
- Saturday Mid-day Peak Hour (peak hour between 10:00 AM and 2:00 PM)

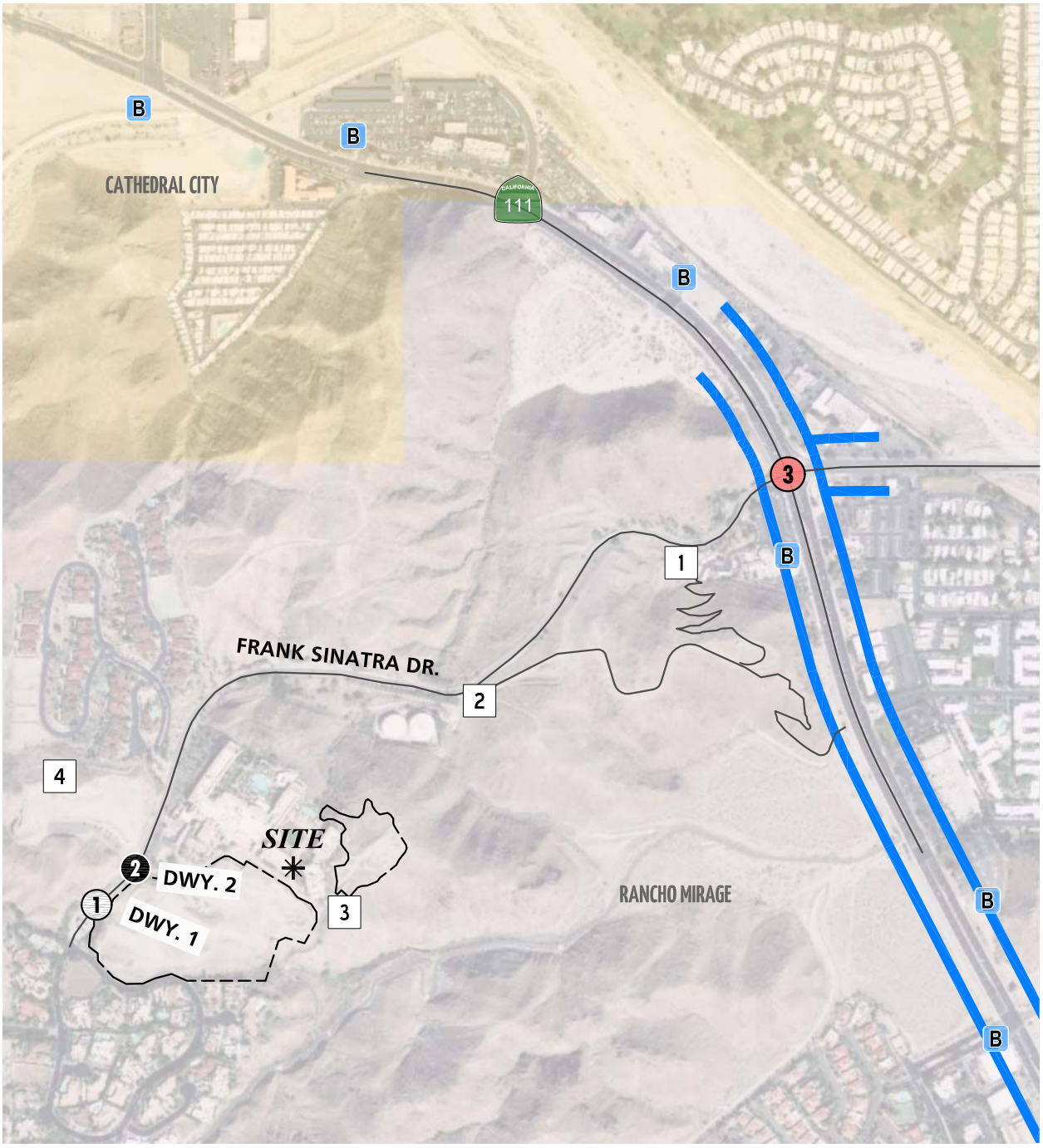
The weekday AM, weekday PM, and Saturday mid-day peak hour count data is representative of typical peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access and where there are currently no uses generating traffic.

Existing weekday average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-7. Existing ADT volumes are based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 6.23 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 16.06 percent. As such, the above equation utilizing a factor of 6.23 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 16.06 percent (i.e., 1/0.01606 = 6.23) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and weekday PM intersection volumes are shown on Exhibit 3-7, and Saturday peak hour intersection volumes are shown on Exhibit 3-8.

EXHIBIT 3-6: EXISTING PEDESTRIAN FACILITIES



LEGEND:

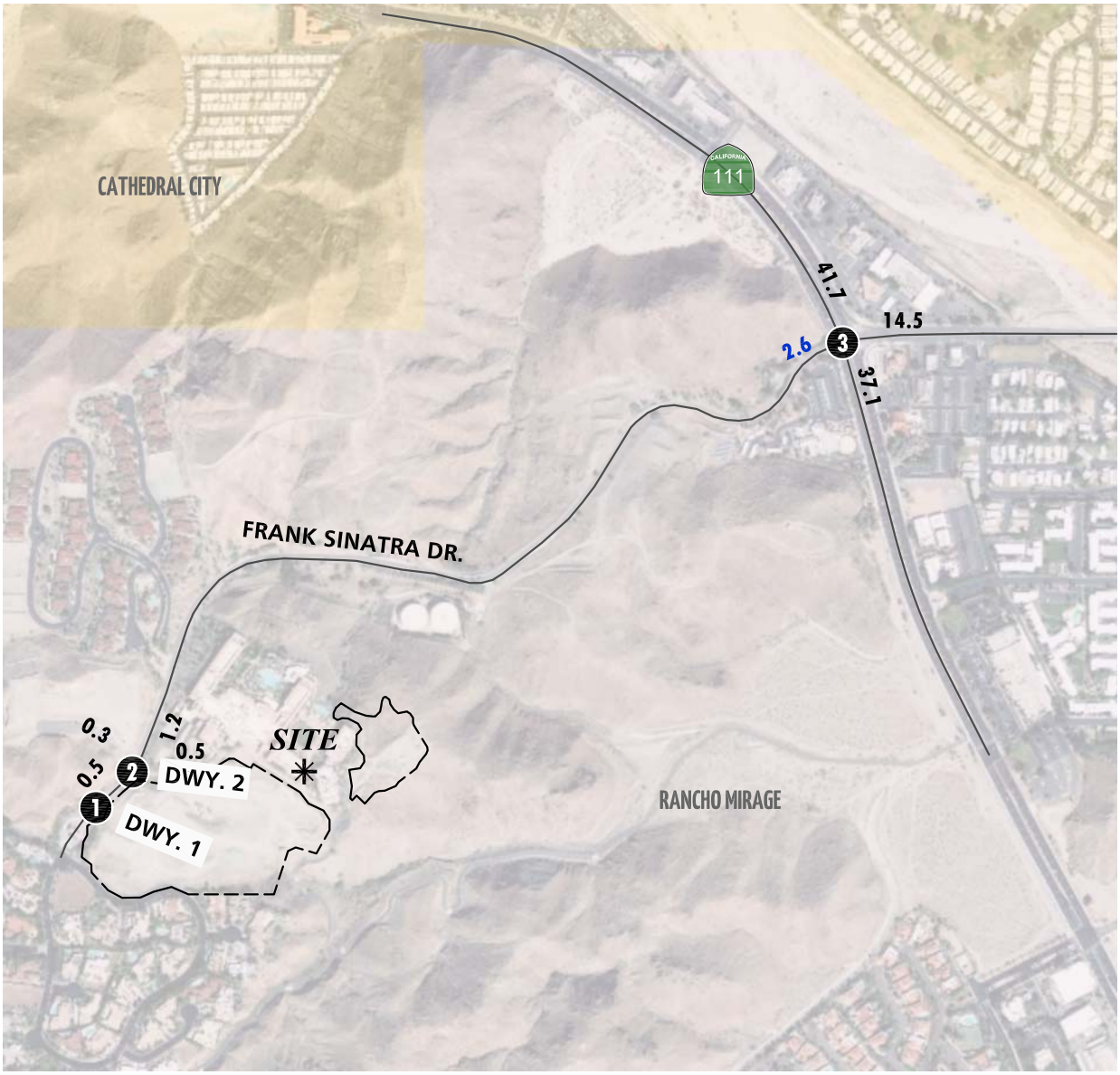
- = SIDEWALK
- 0 = CROSSWALK ON TWO APPROACHES
- B = BUS STOP
- 0 = NO CROSSWALK
- 0 = FUTURE INTERSECTION
- 1 = BIGHORN OVERLOOK TRAIL
- 2 = JACK RABBIT TRAIL
- 3 = CHUCKWALLA TRIAL
- 4 = ROAD RUNNER TRAIL

N

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EXHIBIT 3-7: EXISTING (2019) WEEKDAY TRAFFIC VOLUMES



1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
Future Intersection	0(1) 36(18) 12(25) → 15(8) ← 0(4) ← 0(0) 0(16) → 1(2) → 1(0) → 1(0) 17(20) 0(0)	38(19) 1128(1172) 268(368) → 362(301) ← 55(30) ← 260(149) 14(33) → 20(51) → 17(24) → 35(32) 714(1193) 87(174)

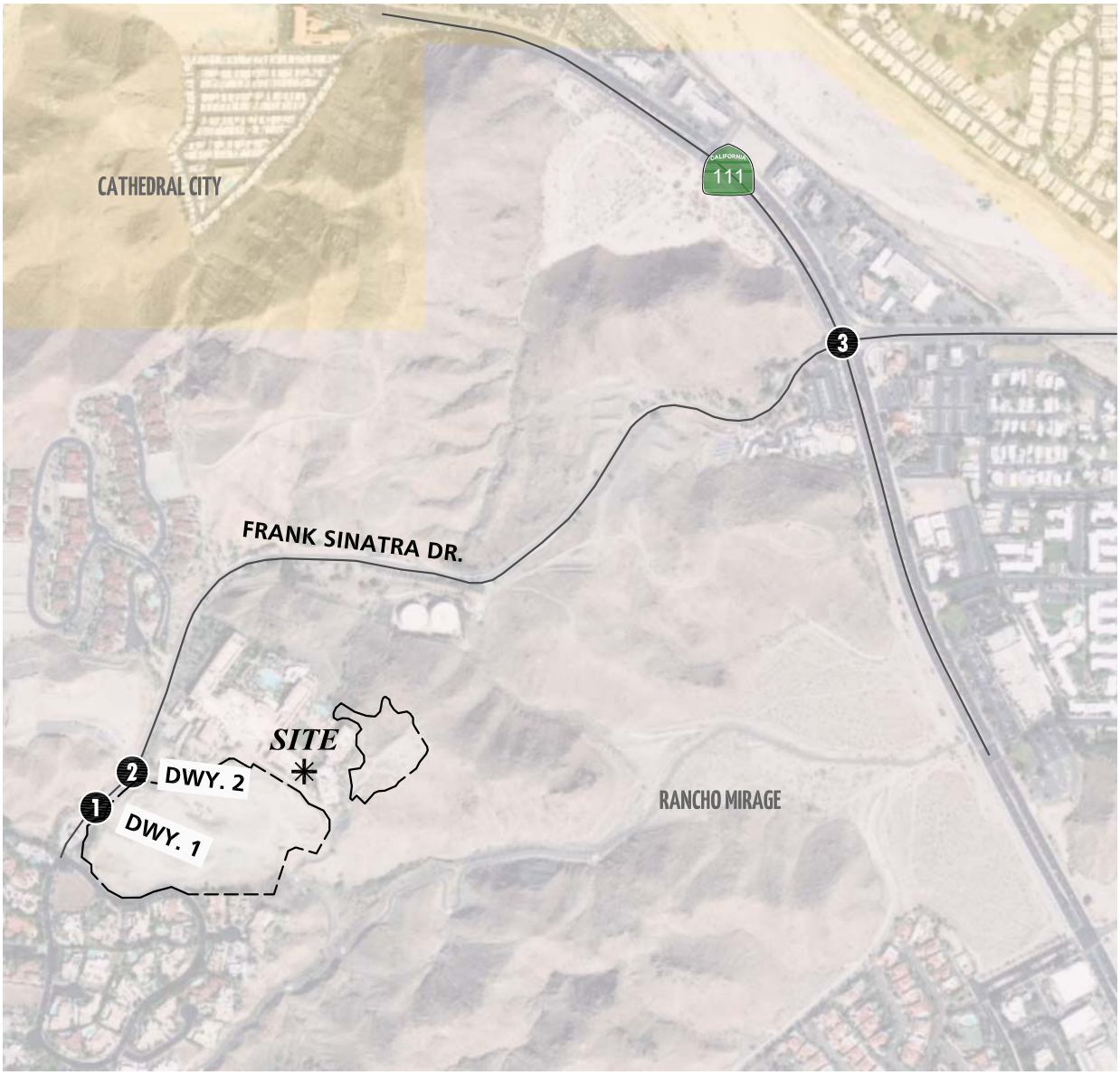
LEGEND:

10.0 = ACTUAL (COUNT-BASED) VEHICLES PER DAY (1000'S)
10.0 = ESTIMATED VEHICLES PER DAY (1000'S)
10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES

N

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EXHIBIT 3-8: EXISTING (2019) SATURDAY TRAFFIC VOLUMES



1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
Future Intersection	3 19 33 — 27 1 0 1 0 0 — 0 17 3	36 1171 188 — 160 28 141 19 42 11 — 48 1078 95

LEGEND:

10 = SATURDAY PEAK HOUR INTERSECTION VOLUMES

N

3.7 EXISTING CONDITIONS INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1 which indicates that all existing study area intersections are currently operating at an acceptable LOS (i.e., LOS D or better) during one or more of the peak hours.

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-9. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

3.8 EXISTING CONDITIONS TRAFFIC SIGNAL WARRANTS ANALYSIS

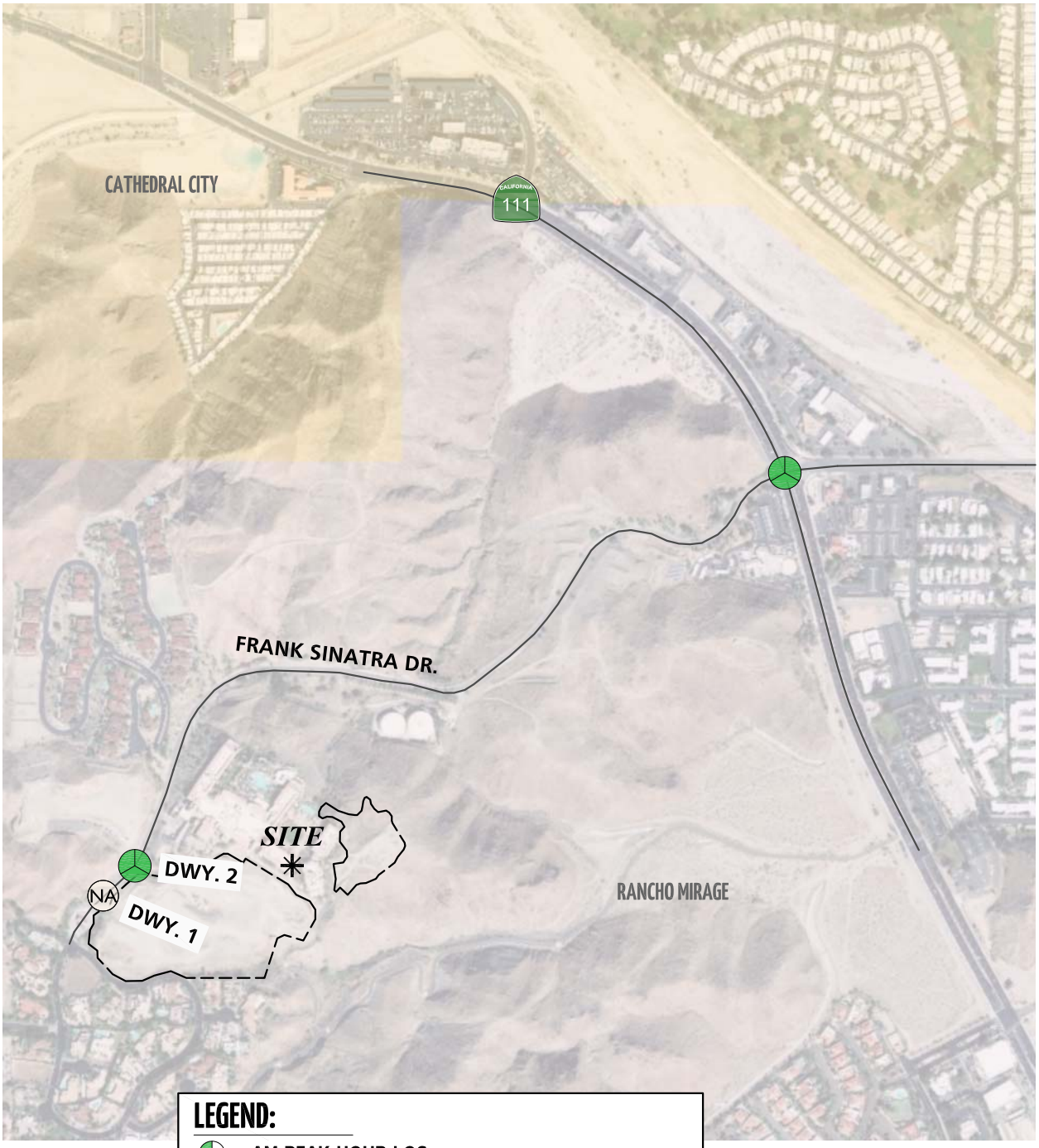
Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. For Existing (2019) traffic conditions, no existing study area intersections appear to currently warrant a traffic signal based on peak hour traffic flows (see Appendix 3.3).

3.9 QUEUING ANALYSIS

A queuing analysis was performed for study area intersection to assess vehicle queues along the roadways. Existing (2019) queuing analysis findings are presented in Table 3-2.

As shown on Table 3-2, no intersection turning movements are anticipated to experience periodic queuing issues during one or both peak hours based on the 95th percentile peak hour traffic flows. Worksheets for Existing (2019) conditions queuing analysis are provided in Appendix 3.4.

EXHIBIT 3-9: EXISTING (2019) SUMMARY OF LOS



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Table 3-1

Intersection Analysis for Existing (2019) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)			Level of Service		
			Northbound			Southbound			Eastbound			Westbound			Weekday			Weekday		
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	SAT	AM	PM	SAT
1	Frank Sinatra Dr. & Dwy. 1		Future Intersection																	
2	Frank Sinatra Dr. & Dwy. 2	CSS	1	1	0	1	1	0	0	1	0	0	1	0	9.0	9.4	9.7	A	A	A
3	Hwy. 111 & Frank Sinatra Dr.	TS	1	3	1	2	3	1	1	1	0	2	1	1	19.9	19.2	18.1	B	B	B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal

Table 3-2

Peak Hour Queuing Summary for Existing (2019) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)[2]			Acceptable?[1]		
			AM	PM	SAT	AM	PM	SAT
Frank Sinatra Dr. & Dwy. 1			Future Intersection					
Frank Sinatra Dr. & Dwy. 2	SBL	220	0	10	10	Yes	Yes	Yes
	WBL/R	200	34	28	45	Yes	Yes	Yes
Hwy. 111 & Frank Sinatra Dr.	NBL	260	66	59	82	Yes	Yes	Yes
	SBR	300	0	0	0	Yes	Yes	Yes
	EBL	170	35	60	43	Yes	Yes	Yes
	EBT/R	270	41	74	51	Yes	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] Maximum queue length for the approach reported.

4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network.

It is our understanding that the Project is to expand the existing Ritz-Carlton hotel by 106 residential dwelling units, a 6,966 restaurant, and a 23,843 square foot venue. For the purposes of this analysis, it is assumed that the Project will be constructed within a single phase of development with a projected Opening Year of 2023.

Access to the Project site will be provided via the following roadways:

- Frank Sinatra Drive on SR-111 (full access)

Regional access to the project site is provided via the SR-111 at Frank Sinatra Drive.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

Weekday trip generation rates used to estimate Project traffic and a summary of the Project's weekday trip generation are shown in Table 4-1. The weekend special event trip generation summary is shown in Table 4-2. The trip generation rates are based upon data collected by the Institute of Transportation Engineers (ITE) for Multifamily Housing (Low-Rise) (ITE Land Use Code 220) and Quality Restaurant (ITE Land Use Code 931) land uses in their published Trip Generation Manual, 10th Edition, 2017. (2) The ITE Trip Generation Manual does not provide trip generation rates for a venue since the use is very specific. As such, vehicle trips are calculated based on a maximum allowable occupancy of 0.8 per parking space.

As shown on Table 4-1, the proposed Project is anticipated to generate a net total of 1,068 trip-ends per day, 51 AM peak hour trips and 86 PM peak hour trips.

It should be noted that the venue will generate trips outside the weekday AM and PM peak hours. As shown on Table 4-2, the proposed Project (special event) is anticipated to generate a net total of 416 weekend peak hour trips.

4.2 PROJECT TRIP DISTRIBUTION

The trip distribution patterns for the proposed Project are graphically depicted on Exhibit 4-1. The trip distributions have been developed based on past work experience in the vicinity of the Project site and refined to reflect the roadway network and the surrounding uses in the vicinity of the proposed Project as they exist today.

Table 4-1

Project Trip Generation Summary - Typical Operations

Land Use	ITE LU Code	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:[1]									
Multifamily Housing (Low-Rise)	220	DU	0.11	0.35	0.46	0.35	0.21	0.56	7.32
Quality Restaurant	931	TSF	0.49	0.24	0.73	5.23	2.57	7.80	83.84

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary:									
Ritz-Carlton Residences	106	DU	11	38	49	37	22	59	776
Sky Mesa Restaurant	6.966	TSF	3	2	5	36	18	54	586
Internal Capture (50%)[3]			-2	-1	-3	-18	-9	-27	-294
Total			**12**	**39**	**51**	**55**	**31**	**86**	**1,068**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

[2] DU = Dwelling Units; TSF = Thousand Square Feet

[3] Internal capture reduction of 50% has been applied as a significant portion of the patrons would be internal to the existing hotel.

Table 4-2

Project Trip Generation Summary - Weekend Special Event

Land Use	ITE LU Code	Units[2]	Arrival Peak Hour			Departure Peak Hour		
			In	Out	Total	In	Out	Total
Project Trip Generation Rates:[1]								
Multifamily Housing (Low-Rise)	220	DU	0.35	0.35	0.70	0.35	0.35	0.70
Quality Restaurant	931	TSF	6.30	4.38	10.68	6.30	4.38	10.68
Venue	Not Available							

Land Use	Quantity	Units[2]	Arrival Peak Hour			Departure Peak Hour		
			In	Out	Total	In	Out	Total
Project Trip Generation Summary:								
Ritz-Carlton Residences	106	DU	37	37	74	37	37	74
Sky Mesa Restaurant	6.966	TSF	44	31	75	44	31	75
Internal Capture (50%)[3]			-22	-16	-38	-22	-16	-38
Venue[4]	381	Spaces	295	10	305	10	295	305
Total			**354**	**62**	**416**	**69**	**347**	**416**

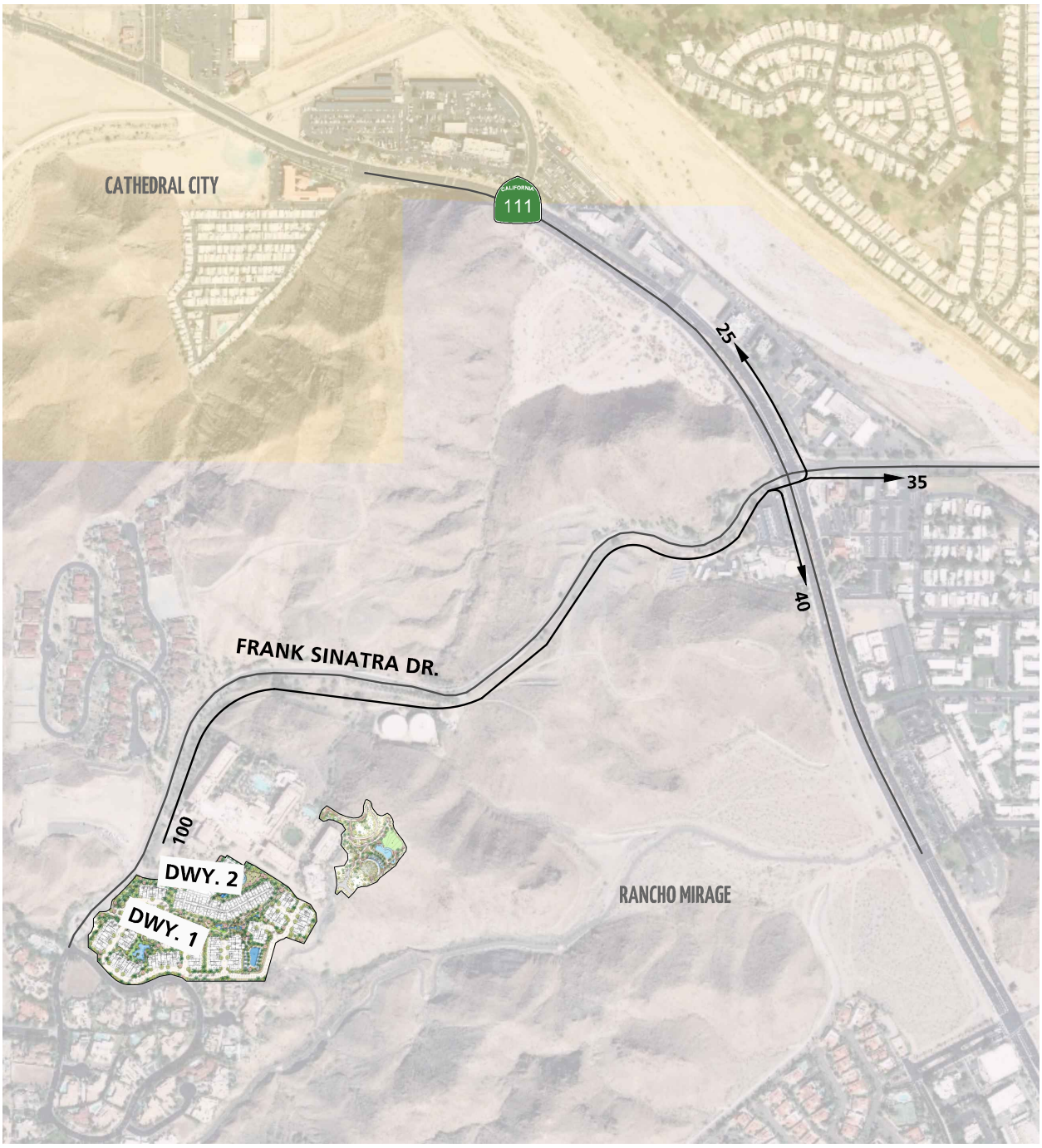
[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

[2] DU = Dwelling Units; TSF = Thousand Square Feet

[3] Internal capture reduction of 50% has been applied as a significant portion of the patrons would be internal to the existing hotel.

[4] Vehicle trips are calculated based on a maximum allowable occupancy of 0.8 per parking space.

EXHIBIT 4-1: PROJECT TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

N

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4.3 MODAL SPLIT

Although the use of public transit, walking, and/or bicycling have the potential to reduce Project-related traffic, such reductions have not been taken into considerations in this traffic study in order to provide a conservative analysis of the Project's potential to contribute to circulation system deficiencies.

4.4 TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project weekday ADT, weekday AM peak hour, and weekday PM peak hour peak hour intersection turning movement volumes are shown on Exhibit 4-2. Project (Special Event) weekend arrival and departure peak hour intersection turning movement volumes are shown on Exhibit 4-3.

4.5 CUMULATIVE GROWTH TRAFFIC

4.5.1 AMBIENT GROWTH RATE

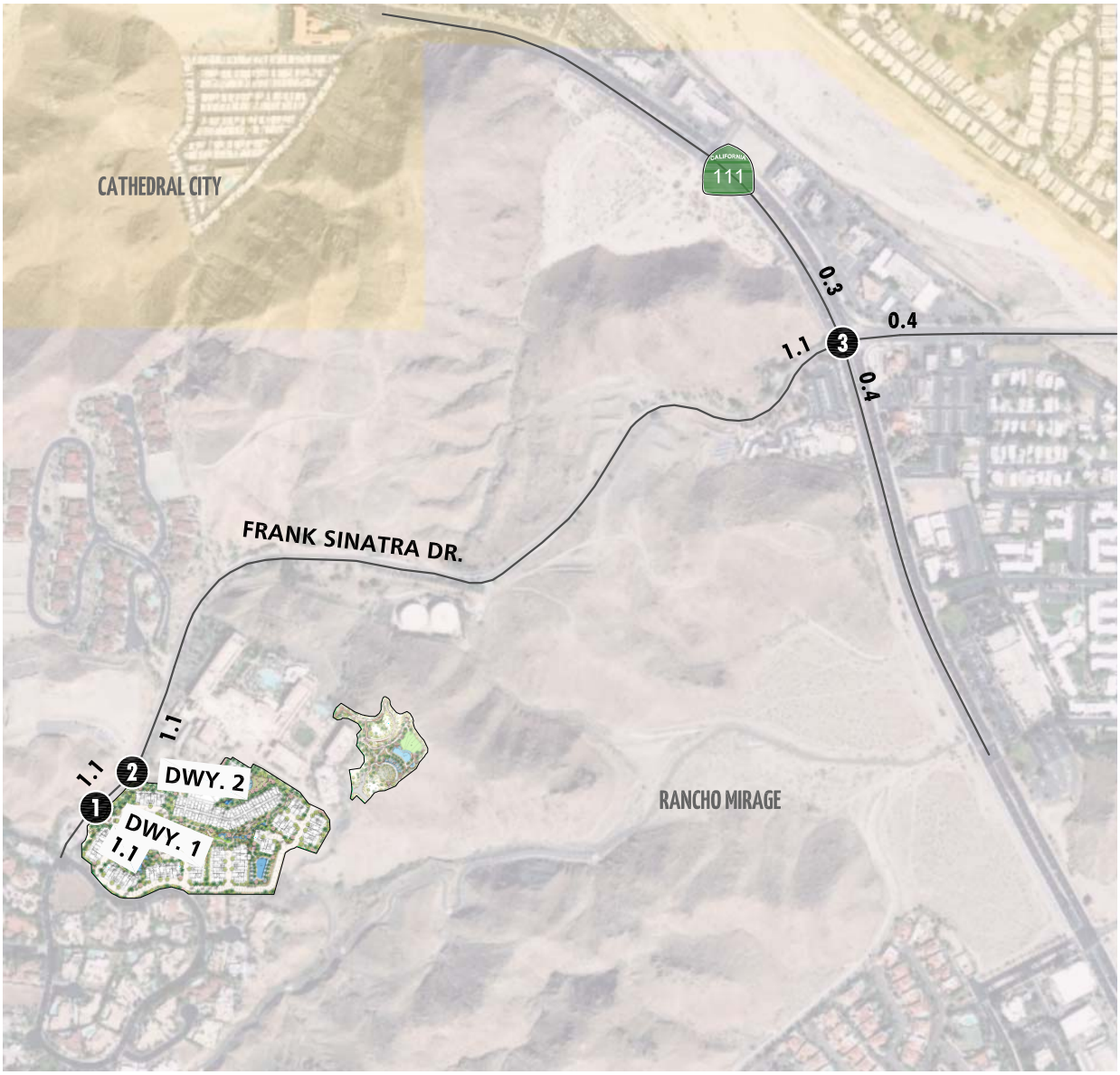
Future year traffic forecasts have been based upon background (ambient) growth at 8.24 percent (2 percent per year over 4 years) for EAP and EAPC traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies, for EAPC traffic conditions.

4.5.2 CUMULATIVE DEVELOPMENT TRAFFIC

California Environmental Quality Act (CEQA) guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Rancho Mirage.

Exhibit 4-3 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown on Table 4-3. If applicable, the traffic generated by individual cumulative projects was manually added to the Opening Year Cumulative forecasts to ensure that traffic generated by the listed cumulative development projects in Table 4-3 are reflected as part of the background traffic. Trip generation rates used to estimate cumulative development project traffic and a summary of the cumulative development project's weekday trip generation are shown in Table 4-4.

EXHIBIT 4-2: PROJECT ONLY WEEKDAY TRAFFIC VOLUMES



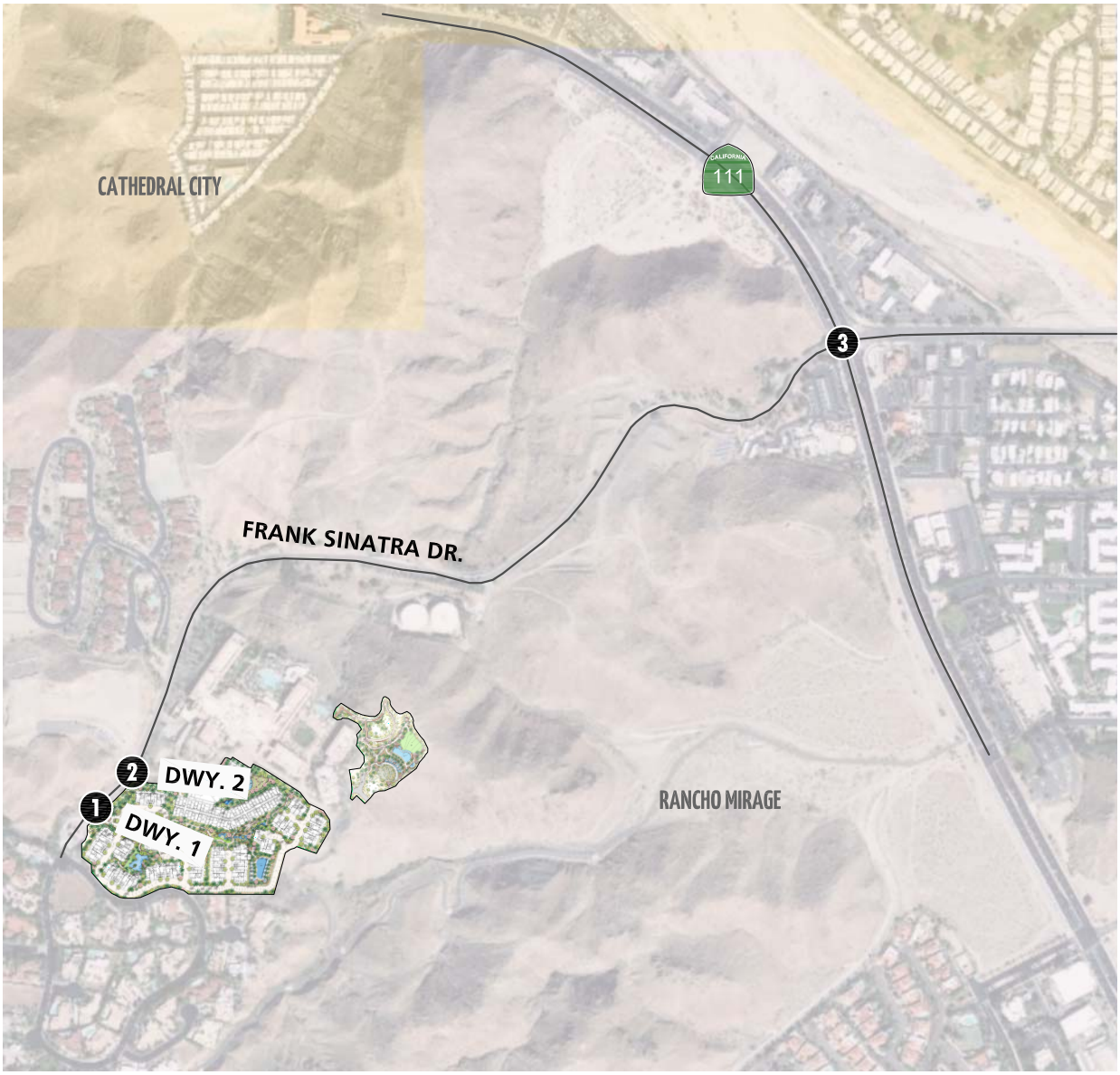
1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
0(0) 12(55) 39(31) 0(0)	0(0) 12(55) 0(0) 0(0) 0(0) 0(0)	3(14) 0(0) 0(0) 0(0) 4(19) 0(0)
0(0) 0(0)	0(0) 0(0) 0(0) 39(31) 0(0)	10(8) 14(11) 16(12) 5(22) 0(0) 0(0)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

N

EXHIBIT 4-3: PROJECT ONLY SATURDAY TRAFFIC VOLUMES



1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
0(0) 354(69) 62(347) 0(0)	0(0) 354(69) 0(0) 0(0) 0(0) 0(0)	89(17) 0(0) 0(0) 0(0) 124(24) 0(0)
0(0) 0(0)	0(0) 0(0) 0(0) 0(0) 62(347) 0(0)	16(87) 22(121) 25(139) 142(28) 0(0) 0(0)

LEGEND:

10(10) = ARRIVAL(DEPARTURE) PEAK HOUR INTERSECTION VOLUMES

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EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP

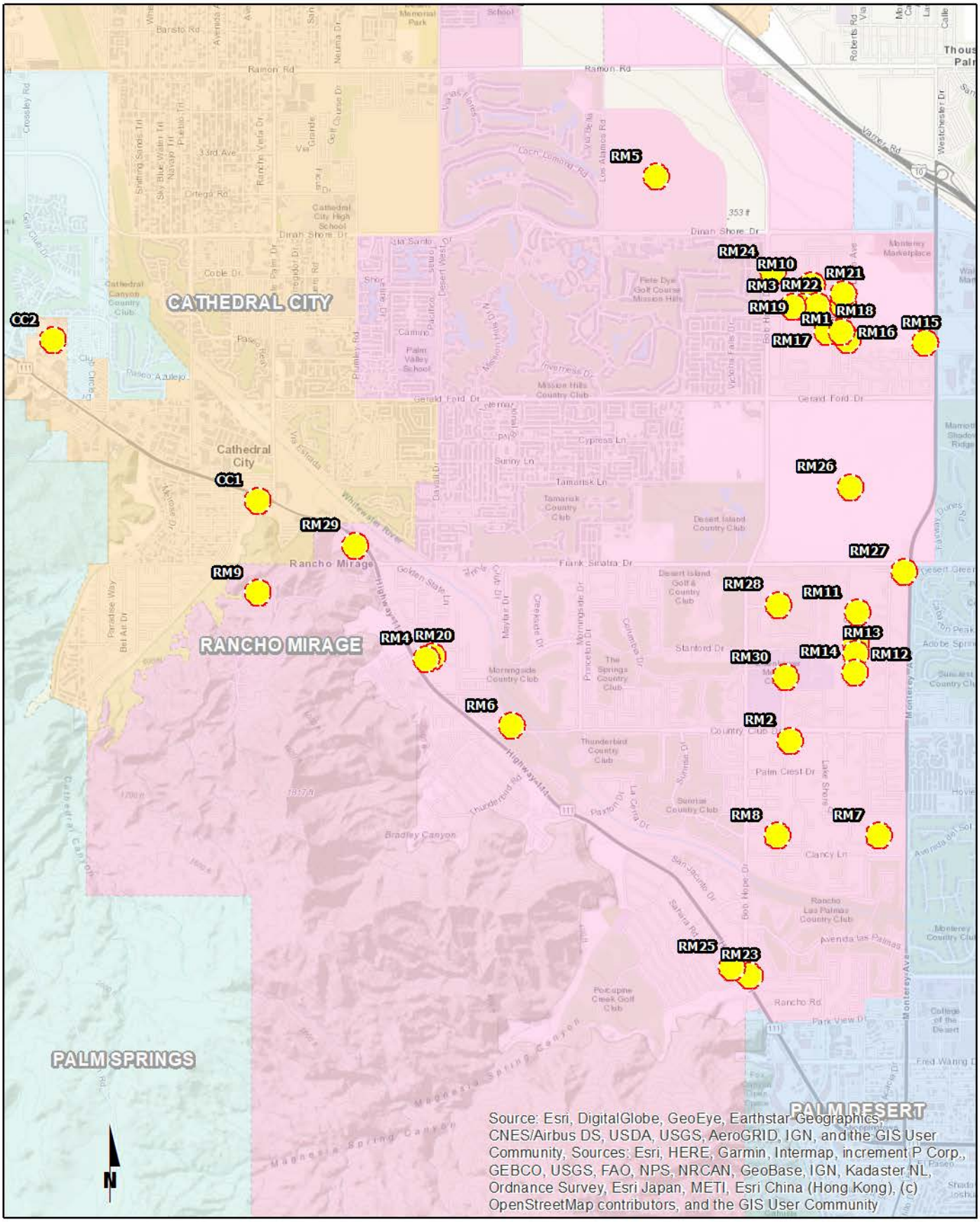


Table 4-3

Cumulative Development Land Use Summary

TAZ	Project	Case Number	Land Use	Quantity	Units[1]
City of Rancho Mirage					
RM1	RM 38 JV LLC	DA190002 / TTM36620	Residential	82	DU
RM2	Carefield Senior Living	PDP18004 / DA180003 / EA180002	Residential	84	DU
RM3	ECHO at Rancho Mirage	PDP18003	Residential	9	DU
RM4	Santa Barbara Cove Estates	PDP18001 / TTM35573	Residential	20	DU
RM5	Pulte Homes/ Del Webb	PDP17001 / TTM36809	Residential	1,200	DU
RM6	Veneto	MOD16019	Residential	34	DU
RM7	Revelle	PDP13003 / FDP13004	Residential	32	DU
RM8	Bella Clancy	ZTA05003 / EA050025 / MOD05016 / FDP04002 / PDP03015	Residential	20	DU
RM9	Mirada Villas	FDP05004 / PDP04011 / MOD06024 / MOD11040	Residential	46	DU
RM10	Estilo	PDP12003 / FDP12005	Residential	39	DU
RM11	RM Five-1 LLC/Kilani	TPM37222R / EA190008	Residential	4	DU
RM12	Heinrich/Steinberg	TPM34232 / TPPMX34232 / TPM34233 / TPMX34233	Residential	4	DU
RM13	Rancho Mirage LLC	TPM34741 / EA060009 / TPMX-34741 / PDPX34741	Residential	4	DU
RM14	La Paloma Homes, Inc.	TTM37637	Residential	13	DU
RM15	Monterey Medical Center	TTM37703 / PDP17002	Medical Office	75.164	TSF
RM16	38 JV, LLC c/o Meriwether Companies	TTM36621 / EA130007 / TTM3X36621	Residential	10	DU
RM17	38 JV, LLC c/o Meriwether Companies	TTM36620 / EA130006 / SPA13001 / TTM2X36620	Residential	97	DU
RM18	38 JV, LLC c/o Meriwether Companies	TTM36622 / EA130008 / TTM3X36622	Residential	10	DU
RM19	GRV Mirage, LLC (ECHO)	TTM35619 / EA070011	Residential	9	DU
RM20	Ken Catanzarite	TTM35573	Residential	20	DU
RM21	Miragedunes Properties	TTM05004 / TTM33329 / TTM2X33329	Residential	9	DU
RM22	AMS Development Group (Bellavia)	TTM35089	Residential	18	DU
RM23	IN-N-OUT Burgers	PDP19002 / EA190004 / CUP19007 / ZTA19002 / DA190001	Commercial	3.995	DU
RM24	DHO Medical Office Building	PDP19001 / EA190001	Medical Office	13.800	TSF
RM25	Chase Bank	PDP18005	Bank	3.470	TSF
RM26	Section 31 Specific Plan Project	SP180001 / EIR18001 / GPZMA18003	Hotel	400	Rooms
			Commercial	175.000	TSF
			Residential	1,932	DU
RM27	Tower Energy Group	CUP18004 / TPM37486 / EA180004	Commercial	5.565	TSF
RM28	Oasis Ranch LLC	PDP18002 / TTM37461	Hotel	60	Rooms
			Residential	108	DU
RM29	Horizon Pacific Rancho Cove MSA Consulting	PDP16003 / TTM37122	Commercial	20.000	TSF
			Hotel	100	Rooms
			Residential	35	DU
RM30	Hazelden Betty Ford Center	--	Hospital	56	Beds
			Office	6.399	TSF
Cathedral City					
CC1	Grove @ The Edge		Commercial	--	TSF
			Hotel	100	Rooms
			Residential	--	DU
CC2	Cathedral City Senior Living	CUP 16-051	Residential	140	DU

[1] DU = Dwelling Units; TSF = Thousand Square Feet

Table 4-4

Cumulative Development Project Trip Generation Summary

Land Use	ITE LU Code	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily	SAT Peak Hour		
			In	Out	Total	In	Out	Total		In	Out	Total
Project Trip Generation Rates:[1]												
Single-Family Detached Housing	210	DU	0.19	0.56	0.74	0.62	0.37	0.99	9.44	0.50	0.43	0.93
Hotel	310	Rooms	0.28	0.19	0.47	0.31	0.29	0.60	8.36	0.40	0.32	0.72
Shopping Center	820	TSF	0.58	0.36	0.94	1.83	1.98	3.81	37.75	2.34	2.16	4.50

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily	SAT Peak Hour		
			In	Out	Total	In	Out	Total		In	Out	Total
Project Trip Generation Summary:												
Mirada Villas - SFDU (75% Built)	9	DU	2	5	7	6	3	9	86	5	4	9
Horizon Pacific Rancho Cove MSA Consulting												
Commercial	20.000	TSF	12	7	19	37	40	77	756	47	43	90
Hotel	100	Rooms	28	19	47	31	29	60	836	40	32	72
SFDU	35	DU	6	19	25	22	13	35	332	18	15	33
		Total	**46**	**45**	**91**	**90**	**82**	**172**	**1,924**	**105**	**90**	**195**
Ken Catanzarite - SFDU	20	DU	4	11	15	12	7	19	190	10	9	19
Santa Barbara Cove Estates - SFDU	20	DU	4	11	15	12	7	19	190	10	9	19
		Total	**8**	**22**	**30**	**24**	**14**	**38**	**380**	**20**	**18**	**38**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

[2] DU = Dwelling Units; TSF = Thousand Square Feet

Cumulative development project weekday ADT, weekday AM peak hour, and weekday PM peak hour peak hour intersection turning movement volumes are shown on Exhibit 4-5. Cumulative development project weekend peak hour intersection turning movement volumes are shown on Exhibit 4-6.

4.5.3 NEAR-TERM TRAFFIC FORECASTS

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast EAP (2023) and EAPC (2023) traffic conditions. An ambient growth factor of 2% per year accounts for background (area-wide) traffic increases that occur over time up to the year 2023 from the year 2019 (compounded 2% per year growth over a 4-year period). Project traffic is added to assess both forecast EAP (2023) and EAPC (2023) traffic conditions. Traffic volumes generated by cumulative development projects are not included in the EAP (2023) traffic conditions.

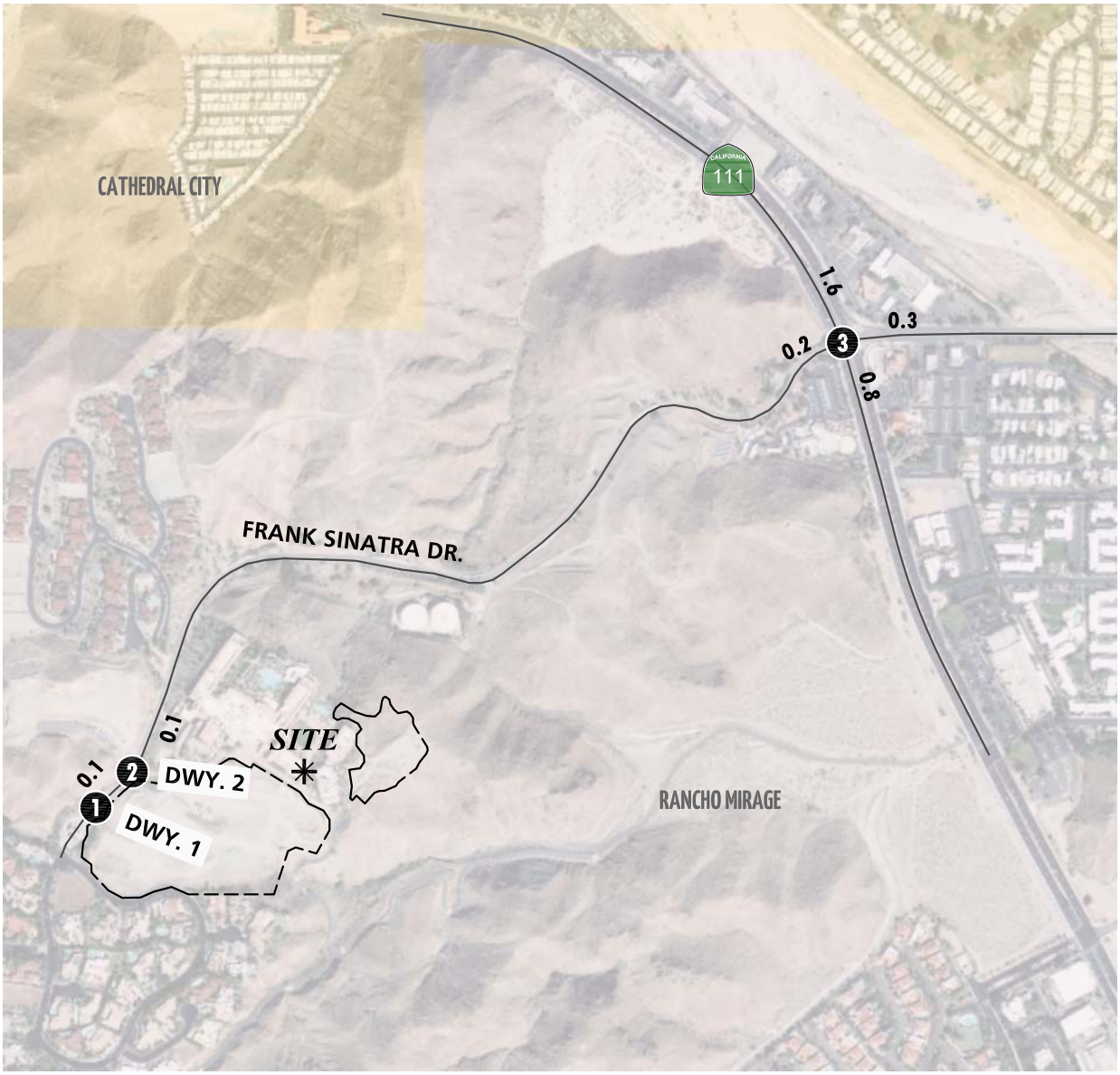
The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- EAP (2023)
    - Existing 2019 volumes
    - Ambient growth traffic (8.24%)
    - Typical Weekday or Saturday Special Event Project Traffic
- EAPC (2023)
    - Existing 2019 volumes
    - Ambient growth traffic (8.24%)
    - Cumulative Development traffic
    - Typical Weekday or Saturday Special Event Project Traffic

The currently adopted Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan (RTP) / Sustainable Communities Strategy (SCS) (April 2016) growth forecasts for the City of Rancho Mirage identifies projected growth in population of 49,800 in 2012 to 61,700 in 2040, or a 23.90 percent increase over the 28-year period. (6) The change in population equates to roughly a 0.77 percent annual growth rate, compounded annually. Similarly, growth over the same 28-year period in households is projected to increase by 34.19 percent, or a 1.06 percent annual growth rate. Finally, growth in employment over the same 28-year period is projected to increase by 45.26 percent, or a 1.34 percent annual growth rate. The average growth rate is 1.34%, compounded annually between Year 2012 and Year 2040.

The average growth rate is estimated at approximately 3.44%, compounded annually between Existing (2019) and EAPC (2023) traffic conditions. The annual growth rate at each individual intersection is not lower than 3.24% compounded annually to as high as 3.63% compounded annually over the same time period. Therefore, the annual growth rate utilized for the purposes of this analysis would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Rancho Mirage for EAPC (2023) traffic conditions, especially when considered along with the addition of project-related traffic.

EXHIBIT 4-5: CUMULATIVE ONLY WEEKDAY TRAFFIC VOLUMES



1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
Future Intersection	0(0) 2(4) 0(0) — 0(0) 0(0) 0(0); 0(0) 0(0) 0(0) — 0(0) 2(5) 0(0)	3(6) 29(65) 5(8) — 5(9) 1(2) 2(7); 4(5) 2(1) 2(1) — 1(2) 48(55) 7(4)

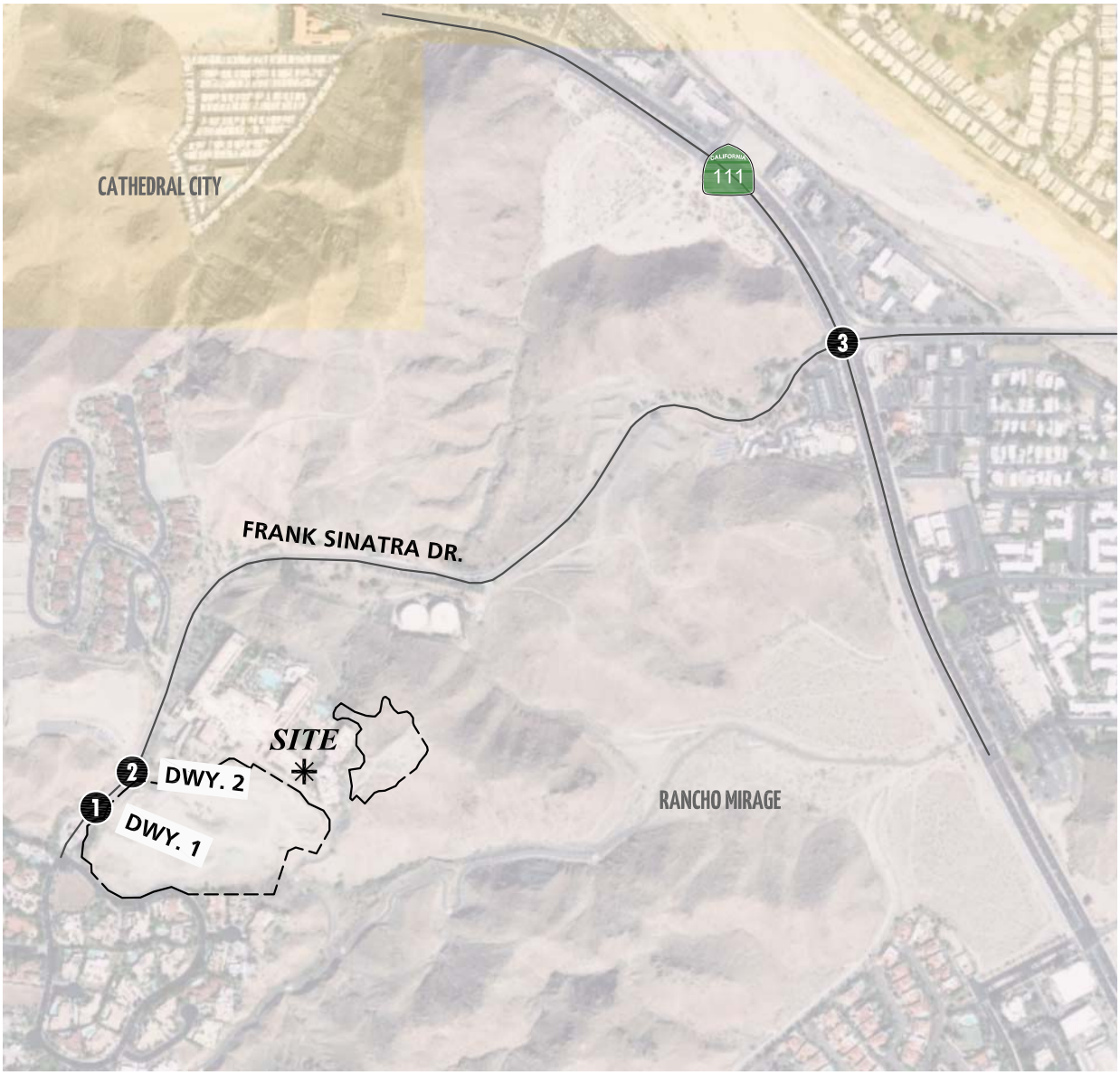
LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

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EXHIBIT 4-6: CUMULATIVE ONLY SATURDAY TRAFFIC VOLUMES



1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
Future Intersection	0 5 0 / 0 0 0 / 0 0 0 5 0	6 63 9 / 11 2 6 / 6 1 2 / 2 66 5

LEGEND:

10 = SATURDAY PEAK HOUR INTERSECTION VOLUMES

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4.6 HORIZON YEAR (2040) VOLUME DEVELOPMENT

Traffic projections for Horizon Year (2040) without Project conditions were derived from the Riverside Transportation Analysis Model (RivTAM) using accepted procedures for model forecast refinement and smoothing for study area intersections located within the County of Riverside. The current version of the RivTAM reflects the local input in the adopted 2016 SCAG RTP within the County of Riverside.

The traffic forecasts reflect the area-wide growth anticipated between Existing (2019) conditions and Horizon Year (2040) traffic conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year (2040) peak hour forecasts were refined using the model derived long range forecasts, base (validation) year model forecasts, along with existing peak hour traffic count data collected at each analysis location in December 2019. The RivTAM has a base (validation) year of 2012 and a horizon (future forecast) year of 2040. The difference in model volumes (2040-2012) defines the growth in traffic over the 28-year period.

The refined future peak hour approach and departure volumes obtained from the model output data are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

Typically, the model growth is prorated and is subsequently added to the existing (base validation) traffic volumes to represent Horizon Year traffic conditions. In an effort to conduct a conservative analysis, reductions to traffic forecasts from either Existing or Opening Year Cumulative traffic conditions were not assumed as part of this analysis. As such, in conjunction with the addition of cumulative projects that are not consistent with the General Plan, additional growth has also been applied on a movement-by-movement basis, where applicable, to estimate reasonable Horizon Year (2040) forecasts. Horizon Year (2040) turning volumes were compared to EAPC (2023) volumes in order to ensure a minimum growth as a part of the refinement process. The minimum growth includes any additional growth between EAPC (2023) and Horizon Year (2040) traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2019) and EAPC (2023) conditions. Adjustments have not been made to study area intersections that may be affected by new future roadway connections, where travel patterns would likely get affected and forecasts may potentially decrease from the EAPC conditions. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Horizon Year (2040) peak hour forecasts.

The future Horizon Year (2040) Without Project peak hour turning movements were then reviewed by Urban Crossroads, Inc. for reasonableness, and in some cases, were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel

routes. Flow conservation checks ensure that traffic flow between two closely spaced intersections, such as two adjacent driveway locations, is verified in order to make certain that vehicles leaving one intersection are entering the adjacent intersection and that there is no unexplained loss of vehicles. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis. Post-processing worksheets for Horizon Year (2040) without Project traffic conditions are provided in Appendix 4.1.

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5 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing Plus Project (E+P) traffic conditions and the resulting peak hour intersection operations, traffic signal warrant, and queuing analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for E+P conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

5.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. E+P weekday ADT, weekday AM and weekday PM peak hour intersection turning movement volumes are shown on Exhibit 5-1. Weekend special event peak hour intersection turning movement volumes are shown on Exhibit 5-2.

5.3 E+P INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicate that there are no intersections operating at an unacceptable LOS with the addition of Project traffic.

Consistent with Table 5-1, a summary of the peak hour intersection LOS for E+P conditions is shown on Exhibit 5-3. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TIA.

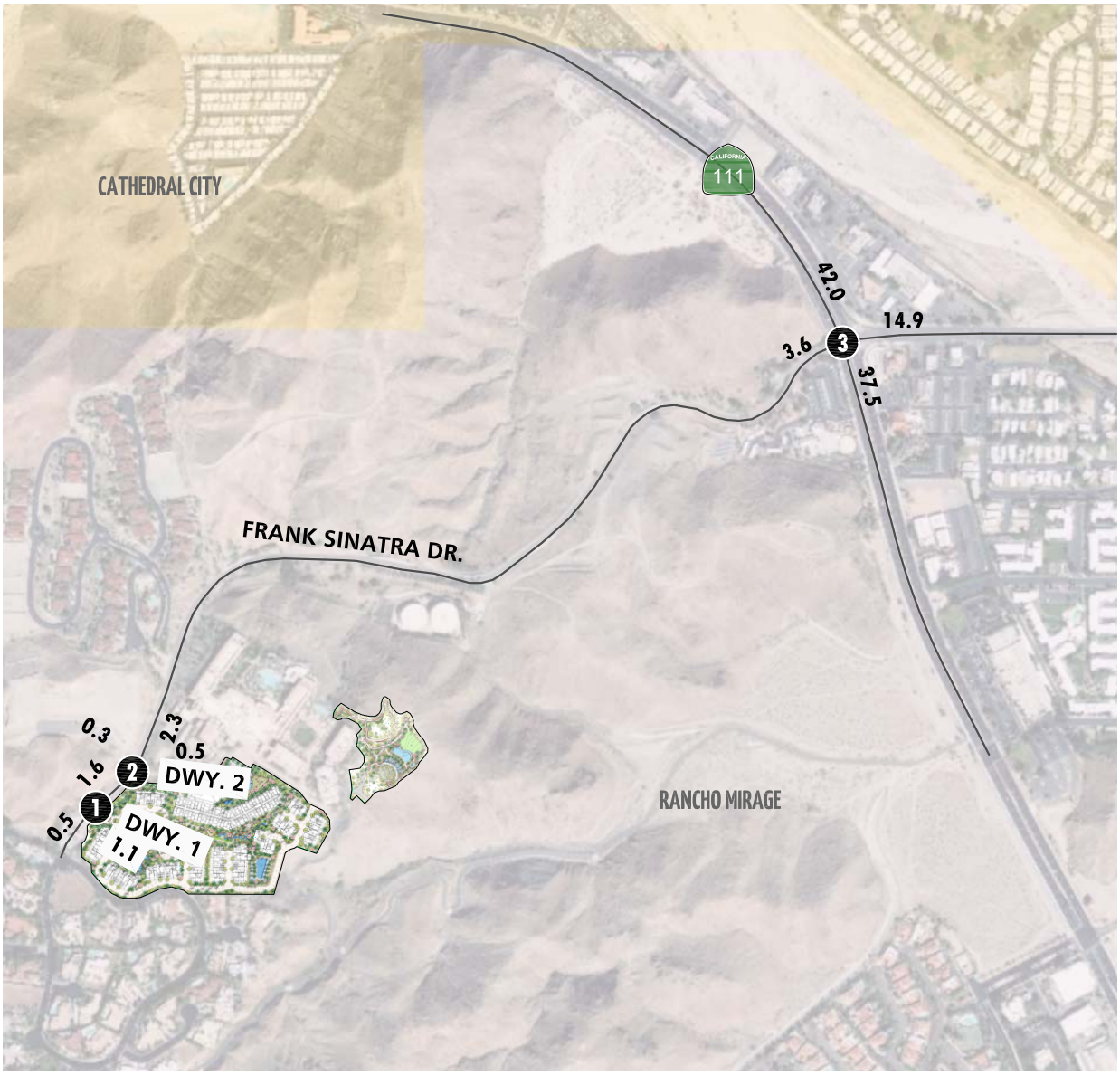
5.4 E+P TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for E+P traffic conditions are based on planning level (ADT) and peak hour intersection volumes. For E+P traffic conditions, no study area intersections are anticipated to warrant a traffic signal (see Appendix 5.2).

5.5 E+P QUEUING ANALYSIS

A queuing analysis was performed for study area intersections to assess vehicle queues that may potentially impact peak hour operations. Queuing analysis findings are presented in Table 5-2. It is important to note that lengths are consistent with the measured distance between the intersection and the end of the storage area.

EXHIBIT 5-1: E+P WEEKDAY TRAFFIC VOLUMES



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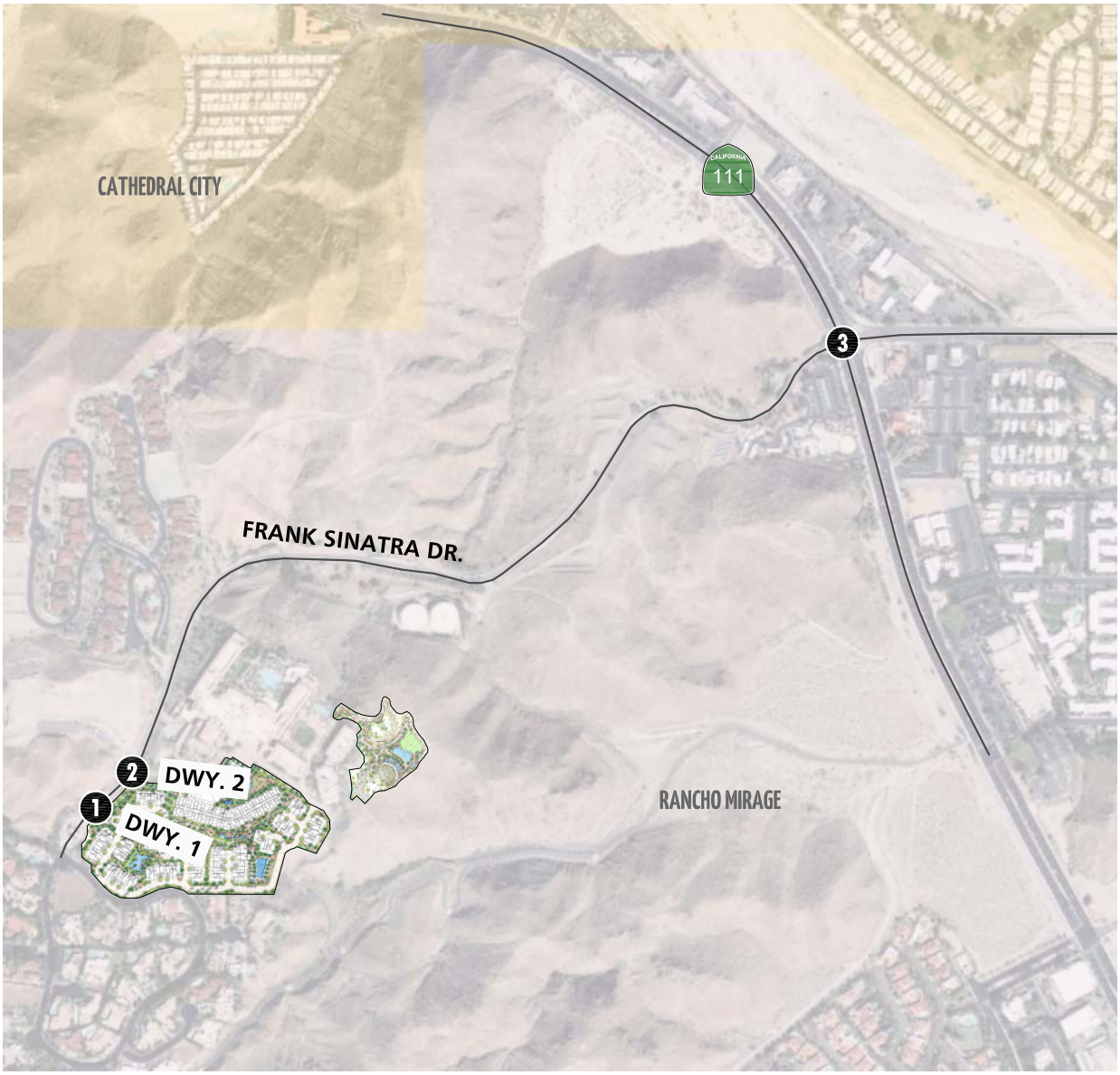
10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

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URBAN CROSSROADS

EXHIBIT 5-2: E+P SATURDAY TRAFFIC VOLUMES



1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
19(19) ↓ 354(69) ↓ 62(347) ← 0(0)	3(3) ↓ 373(88) ↓ 33(33) ← 27(27) ← 1(1) ← 0(0)	125(53) ↓ 1171(1171) ↓ 188(188) ← 160(160) ← 152(52) ← 141(141)
20(20) ↑ 0(0) →	1(1) → 0(0) → 0(0) → 0(0) ↑ 79(364) ↑ 3(3) →	35(106) → 64(163) → 36(150) → 190(76) ↑ 1078(1078) ↑ 95(95) →

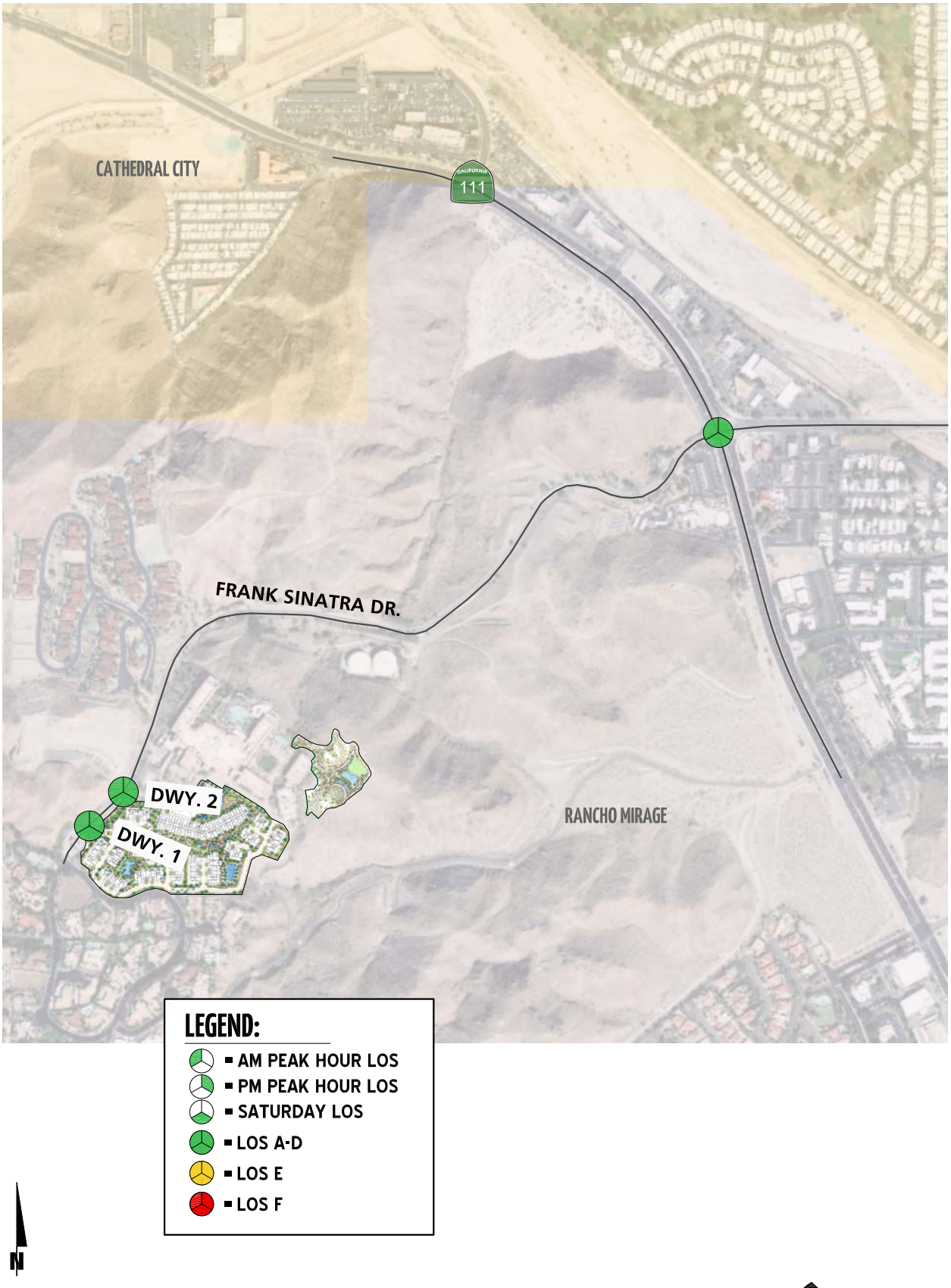
LEGEND:

10(10) = ARRIVAL(DEPARTURE) PEAK HOUR INTERSECTION VOLUMES

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EXHIBIT 5-3: E+P SUMMARY OF LOS



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Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[1]	Existing (2019)						E+P							
			Delay[2] (secs.)			Level of Service			Delay[2] (secs.)				Level of Service			
			Weekday			Weekday			Weekday		Saturday		Weekday		Saturday	
			AM	PM	SAT	AM	PM	SAT	AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
1	Frank Sinatra Dr. & Dwy. 1	--/**CSS**	Future Intersection						8.5	8.5	8.6	10.3	A	A	A	B
2	Frank Sinatra Dr. & Dwy. 2	CSS	9.0	9.4	9.7	A	A	A	9.2	10.2	15.5	15.8	A	B	C	C
3	Hwy. 111 & Frank Sinatra Dr.	TS	19.9	19.2	18.1	B	B	B	20.6	20.0	23.0	26.1	C	C	C	C

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] CSS = Cross-street Stop; TS = Traffic Signal

[3] Arr = Arrival Peak Hour; Dep = Departure Peak Hour

Table 5-2

Peak Hour Queuing Summary for E+P Conditions

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2019)						E+P							
			95th Percentile Queue (Feet)[2]			Acceptable?[1]			95th Percentile Queue (Feet)[2]				Acceptable?[1]			
			Weekday			Weekday			Weekday		Saturday		Weekday		Saturday	
			AM	PM	SAT	AM	PM	SAT	AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
Frank Sinatra Dr. & Dwy. 1	SBL/T	200	Future Intersection						0	0	36	0	Yes	Yes	Yes	Yes
	WBL/R	100							46	46	44	89	Yes	Yes	Yes	Yes
Frank Sinatra Dr. & Dwy. 2	SBL	220	0	10	10	Yes	Yes	Yes	0	14	9	39	Yes	Yes	Yes	Yes
	WBL/R	200	34	28	45	Yes	Yes	Yes	37	34	45	37	Yes	Yes	Yes	Yes
Hwy. 111 & Frank Sinatra Dr.	NBL	260	66	59	82	Yes	Yes	Yes	72	101[2]	**368**[2]	118	Yes	Yes	**No**	Yes
	SBR	300	0	0	0	Yes	Yes	Yes	0	0	0	0	Yes	Yes	Yes	Yes
	EBL	170	35	60	43	Yes	Yes	Yes	51	70	67	**233**[2]	Yes	Yes	Yes	**No**
	EBT/R	270	41	74	51	Yes	Yes	Yes	151	92	101	**325**	Yes	Yes	Yes	**No**

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] Arr = Arrival Peak Hour; Dep = Departure Peak Hour

As shown on Table 5-2 and consistent with Existing (2019) conditions, there are no potential queuing issues anticipated during the weekday peak 95th percentile traffic flows for E+P traffic conditions. However, the following movements are anticipated to exceed the available storage lengths based on the weekend special event 95th percentile peak hour traffic flow:

- Hwy. 111 & Frank Sinatra Dr. (#3) – NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – EBL movement

Worksheets for E+P conditions queuing analysis are provided in Appendix 5.3.

5.6 RECOMMENDED IMPROVEMENTS

5.6.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

No improvement strategies have been recommended for study area intersections as there no deficient intersections for E+P traffic conditions.

5.6.2 RECOMMENDED IMPROVEMENTS TO ADDRESS QUEUES

As shown previously on Table 5-2, there are no weekday peak hour queuing issues anticipated at the study area intersections for E+P traffic conditions. However, it is recommended that the following improvements be implemented to accommodate E+P weekend special event 95th percentile traffic flows:

- Hwy. 111 & Frank Sinatra Dr. (#3) – extend storage for the NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – extend storage for the EBL movement

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6 EAP (2023) TRAFFIC CONDITIONS

This section discusses the methods used to develop Existing plus Ambient Growth plus Project (EAP) (2023) traffic conditions and the resulting peak hour intersection operations, traffic signal warrant, and queuing analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAP conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAP conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

6.2 EAP (2023) TRAFFIC VOLUME FORECASTS

To account for background traffic growth, an ambient growth from Existing conditions of 8.24% (2 percent per year over 4 years, compounded annually) is included for EAP traffic conditions. Cumulative development projects are not included as part of the EAP analysis. EAP weekday ADT, weekday AM, and weekday PM peak hour intersection turning movement volumes are shown on Exhibit 6-1. Weekend special event peak hour intersection turning movement volumes are shown on Exhibit 6-2.

6.3 EAP (2023) INTERSECTION OPERATIONS ANALYSIS

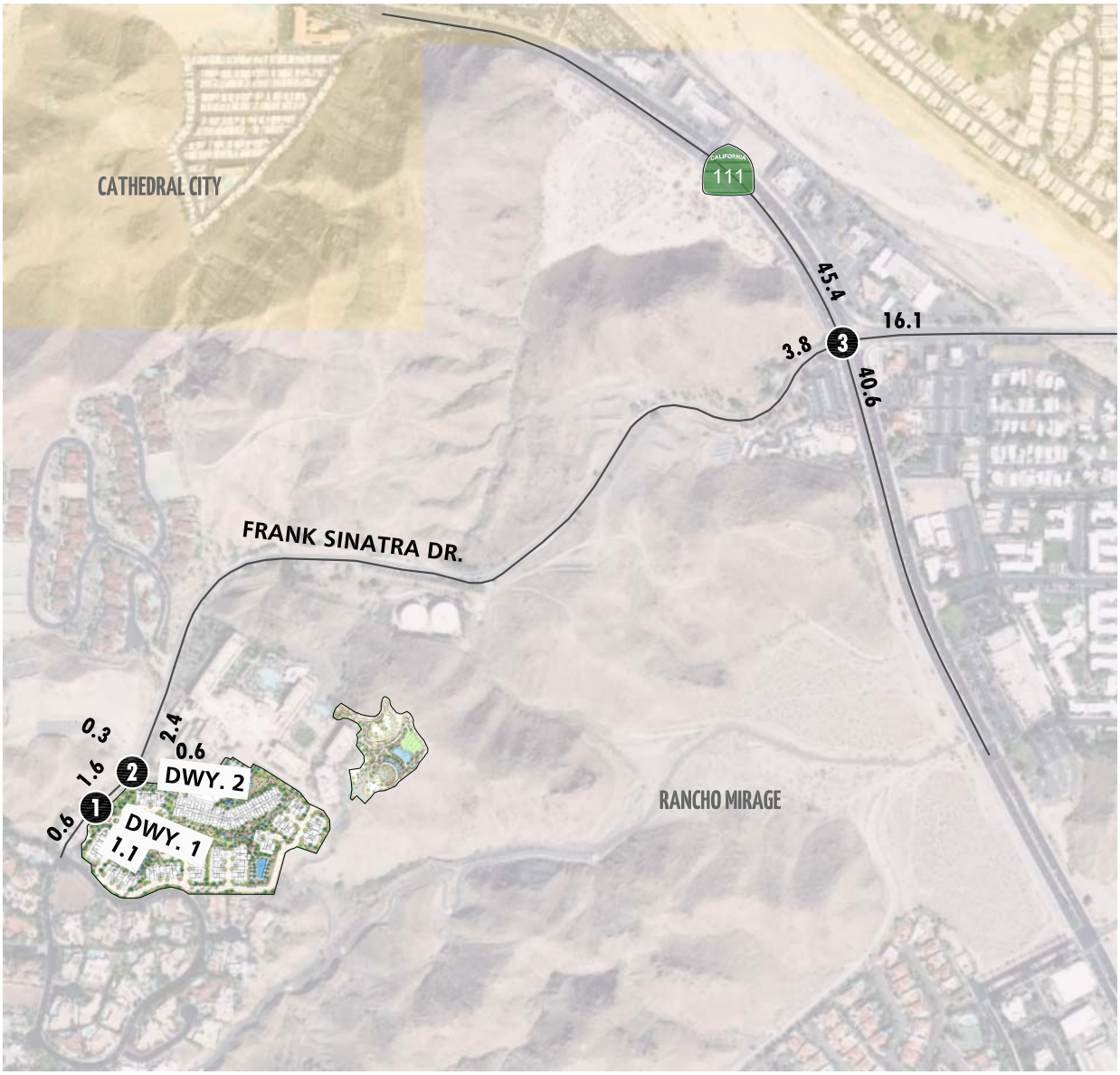
EAP peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 6-1, which indicate that there are no intersections operating at an unacceptable LOS with the addition of ambient growth and Project traffic.

Consistent with Table 6-1, a summary of the peak hour intersection LOS for EAP conditions is shown on Exhibit 6-3. The intersection operations analysis worksheets for EAP traffic conditions is included in Appendix 6.1 of this TIA.

6.4 EAP (2023) TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for EAP traffic conditions are based on planning level (ADT) and peak hour intersection volumes. For EAP traffic conditions, no study area intersections are anticipated to warrant a traffic signal (see Appendix 6.2).

EXHIBIT 6-1: EAP (2023) WEEKDAY TRAFFIC VOLUMES



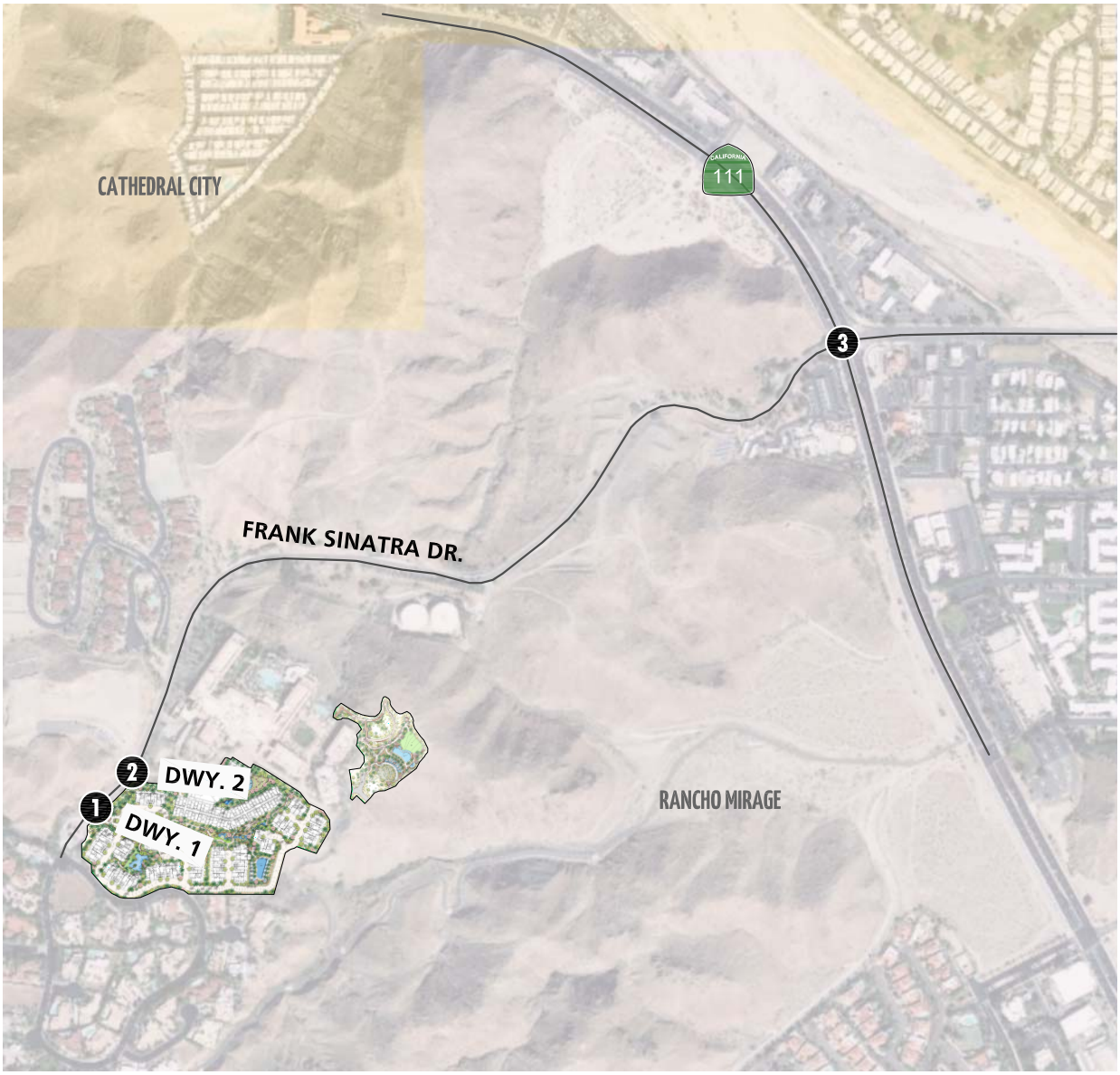
1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
40(19) ↓ 12(55) ↓ 39(31) ← 0(0)	0(1) ↓ 51(74) ↓ 13(27) ↓ 16(9) ← 0(4) ← 0(0)	44(35) ↓ 1221(1269) ↓ 290(398) ↓ 392(326) ← 64(51) ← 281(161)
19(22) ↑ 0(0)	0(17) → 1(2) → 1(0) → 1(0) ↑ 57(53) ↑ 0(0)	25(44) → 36(66) → 34(38) → 43(57) ↑ 773(1291) ↑ 94(188)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

N

EXHIBIT 6-2: EAP (2023) SATURDAY TRAFFIC VOLUMES



1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
21(21) → 354(69) → 62(347) ← 0(0) ←	3(3) → 375(90) → 36(36) → 29(29) ← 1(1) ← 0(0) ←	128(56) → 1268(1268) → 203(203) → 173(173) ← 154(54) ← 153(153) ←
22(22) → 0(0) ←	1(1) → 0(0) → 0(0) → 0(0) ← 80(365) ← 3(3) ←	37(108) → 67(166) → 37(151) → 194(80) ← 1167(1167) ← 103(103) ←

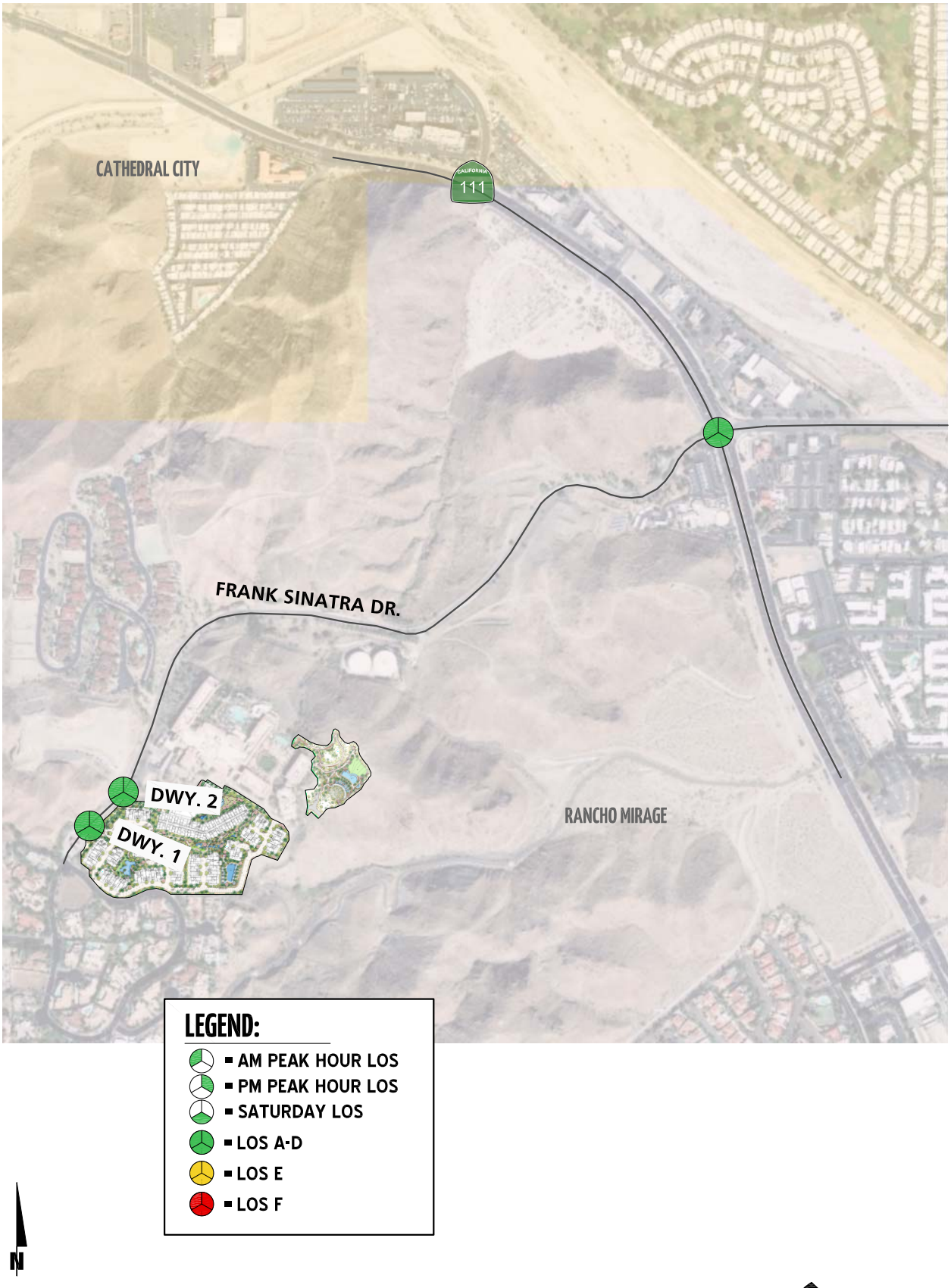
LEGEND:

10(10) = ARRIVAL(DEPARTURE) PEAK HOUR INTERSECTION VOLUMES

N

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EXHIBIT 6-3: EAP (2023) SUMMARY OF LOS



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Table 6-1

Intersection Analysis for EAP (2023) Conditions

#	Intersection	Traffic Control[1]	Existing (2019)						EAP (2023)							
			Delay[2] (secs.)			Level of Service			Delay[2] (secs.)				Level of Service			
			Weekday			Weekday			Weekday		Saturday		Weekday		Saturday	
			AM	PM	SAT	AM	PM	SAT	AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
1	Frank Sinatra Dr. & Dwy. 1	--/**CSS**	Future Intersection						8.6	8.5	8.7	10.3	A	A	A	B
2	Frank Sinatra Dr. & Dwy. 2	CSS	9.0	9.4	9.7	A	A	A	9.2	10.3	15.8	16.1	A	B	C	C
3	Hwy. 111 & Frank Sinatra Dr.	TS	19.9	19.2	18.1	B	B	B	21.5	20.8	24.1	28.3	C	C	C	C

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] CSS = Cross-street Stop; TS = Traffic Signal

[3] Arr = Arrival Peak Hour; Dep = Departure Peak Hour

6.5 EAP (2023) QUEUING ANALYSIS

A queuing analysis was performed for study area intersections that may potentially impact peak hour operations. Queuing analysis findings are presented in Table 6-2. It is important to note that lengths are consistent with the measured distance between the intersection and the end of the storage area. As shown on Table 6-2 and consistent with Existing (2019) conditions, there are no potential queuing issues anticipated during the peak 95th percentile traffic flows for EAP (2023) traffic conditions. However, the following movements are anticipated to exceed the available storage lengths based on the weekend special event 95th percentile peak hour traffic flow:

- Hwy. 111 & Frank Sinatra Dr. (#3) – NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – EBL movement

Worksheets for EAP (2023) conditions queuing analysis are provided in Appendix 6.3.

6.6 RECOMMENDED IMPROVEMENTS

6.6.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

No improvement strategies have been recommended for study area intersections as there no deficient intersections for EAP (2023) traffic conditions.

6.6.2 RECOMMENDED IMPROVEMENTS TO ADDRESS QUEUES

As shown previously on Table 6-2, there are no weekday peak hour queuing issues anticipated at the study area intersections for EAP (2023) traffic conditions. However, it is recommended that the following improvements be implemented to accommodate EAP (2023) weekend special event 95th percentile traffic flows:

- Hwy. 111 & Frank Sinatra Dr. (#3) – extend storage for the NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – extend storage for the EBL movement

Table 6-2

Peak Hour Queuing Summary for EAP (2023) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2019)						EAP (2023)							
			95th Percentile Queue (Feet)[2]			Acceptable?[1]			95th Percentile Queue (Feet)[2]				Acceptable?[1]			
			Weekday			Weekday			Weekday		Saturday		Weekday		Saturday	
			AM	PM	SAT	AM	PM	SAT	AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
Frank Sinatra Dr. & Dwy. 1	SBL/T	200	Future Intersection						0	18	27	9	Yes	Yes	Yes	Yes
	WBL/R	100							44	44	48	96	Yes	Yes	Yes	Yes
Frank Sinatra Dr. & Dwy. 2	SBL	220	0	10	10	Yes	Yes	Yes	10	22	0	33	Yes	Yes	Yes	Yes
	WBL/R	200	34	28	45	Yes	Yes	Yes	24	32	54	42	Yes	Yes	Yes	Yes
Hwy. 111 & Frank Sinatra Dr.	NBL	260	66	59	82	Yes	Yes	Yes	75	108[2]	**376**[2]	125[2]	Yes	Yes	**No**	Yes
	SBR	300	0	0	0	Yes	Yes	Yes	0	0	39	0	Yes	Yes	Yes	Yes
	EBL	170	35	60	43	Yes	Yes	Yes	53	74	70	**238**[2]	Yes	Yes	Yes	**No**
	EBT/R	270	41	74	51	Yes	Yes	Yes	62	96	106	**330**	Yes	Yes	Yes	**No**

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] Arr = Arrival Peak Hour; Dep = Departure Peak Hour

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7 EAPC (2023) TRAFFIC CONDITIONS

This section discusses the methods used to develop Existing Plus Ambient Growth Plus Cumulative Projects Plus Project (EAPC) (2023) traffic conditions and the resulting peak hour intersection operations, traffic signal warrant, and queuing analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAPC conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAPC conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for EAPC conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).

7.2 EAPC (2023) TRAFFIC VOLUME FORECASTS

To account for background traffic growth, other known cumulative development projects in the study area were included in addition to an ambient growth from Existing conditions of 8.24% (2 percent per year over 4 years, compounded annually) for EAPC traffic conditions. EAPC weekday ADT, weekday AM, and weekday PM peak hour intersection turning movement volumes are shown on Exhibit 7-1. Weekend peak hour intersection turning movement volumes are shown on Exhibit 7-2.

7.3 EAPC (2023) INTERSECTION OPERATIONS ANALYSIS

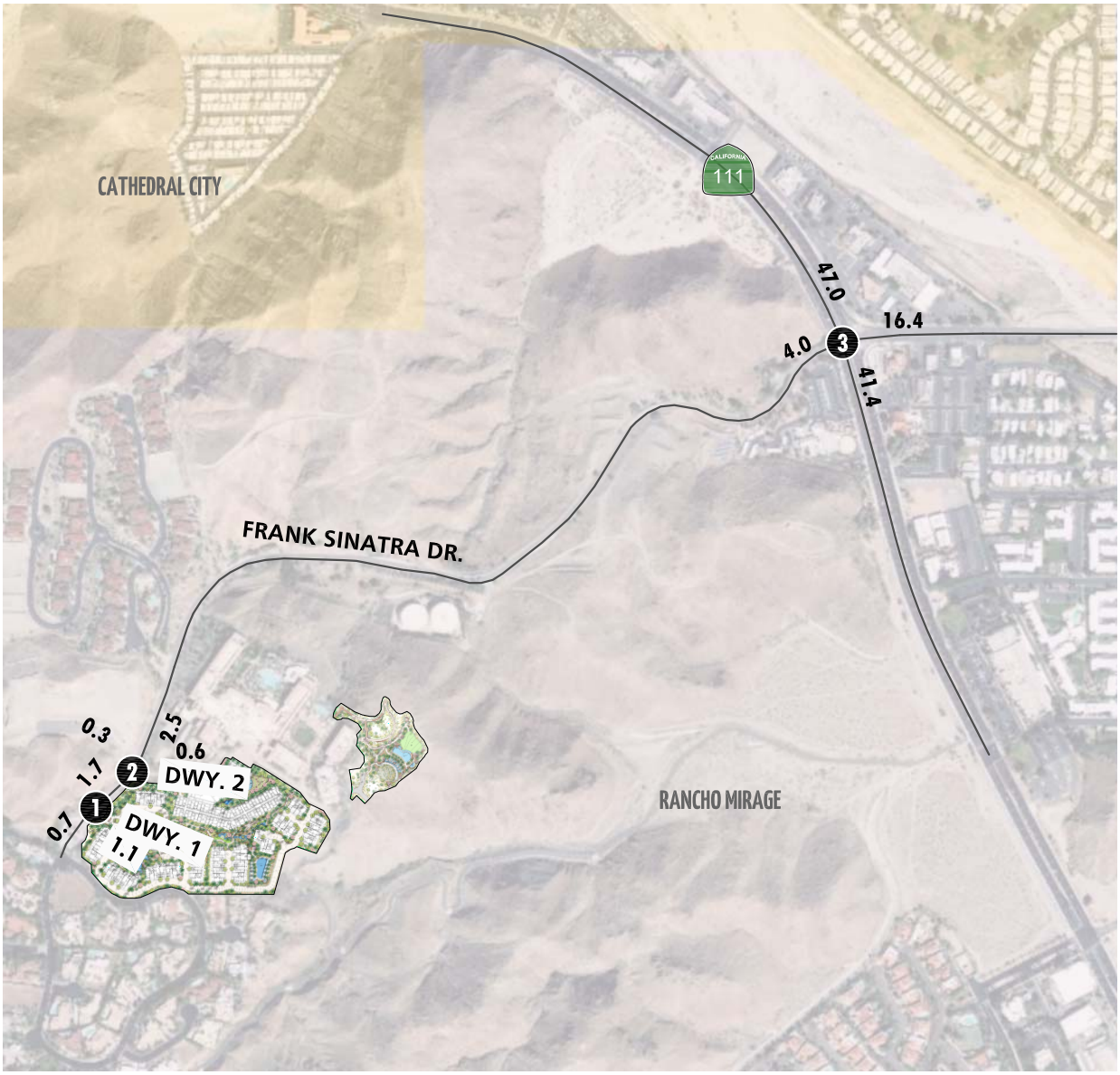
EAPC peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 7-1, which indicate that there are no intersections operating at an unacceptable LOS with the addition of ambient growth, cumulative projects, and Project traffic.

Consistent with Table 7-1, a summary of the peak hour intersection LOS for EAPC conditions is shown on Exhibit 7-3. The intersection operations analysis worksheets for EAPC traffic conditions is included in Appendix 7.1 of this TIA.

7.4 EAPC (2023) TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for EAPC traffic conditions are based on planning level (ADT) and peak hour intersection volumes. For EAPC traffic conditions, no study area intersections are anticipated to warrant a traffic signal (see Appendix 7.2).

EXHIBIT 7-1: EAPC (2023) WEEKDAY TRAFFIC VOLUMES



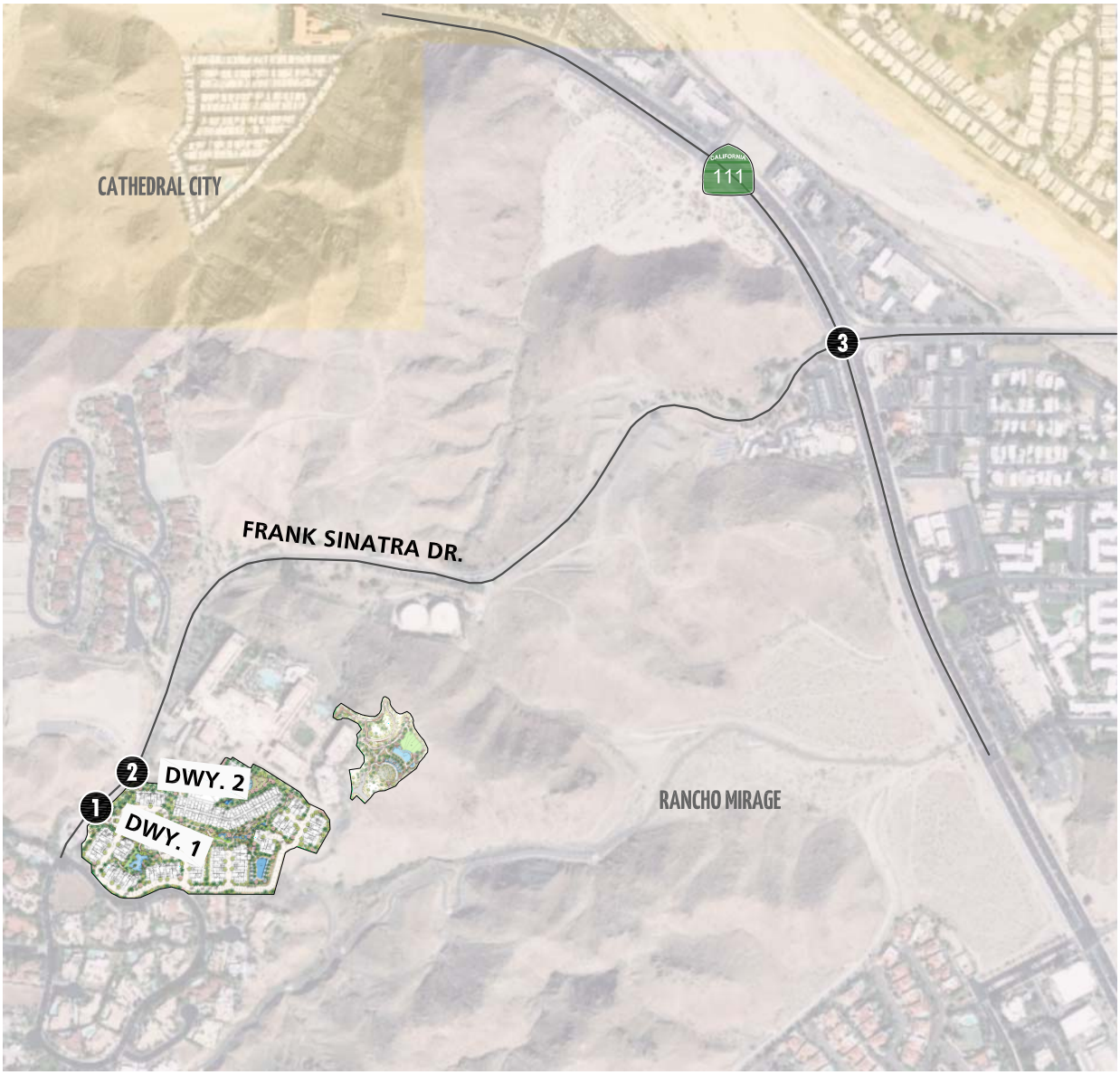
1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
42(23) 12(55) → 39(31) ← 0(0)	0(1) 53(78) 13(27) → 16(9) ← 0(4) ← 0(0)	47(41) 1250(1334) 295(406) → 397(335) ← 65(53) ← 283(168)
21(27) 0(0) ↑	0(17) → 1(2) → 1(0) 1(0) ↑ 59(58) ↑ 0(0)	29(49) → 38(67) → 36(39) 44(59) ↑ 821(1346) ↑ 101(192)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

N

EXHIBIT 7-2: EAPC (2023) SATURDAY TRAFFIC VOLUMES



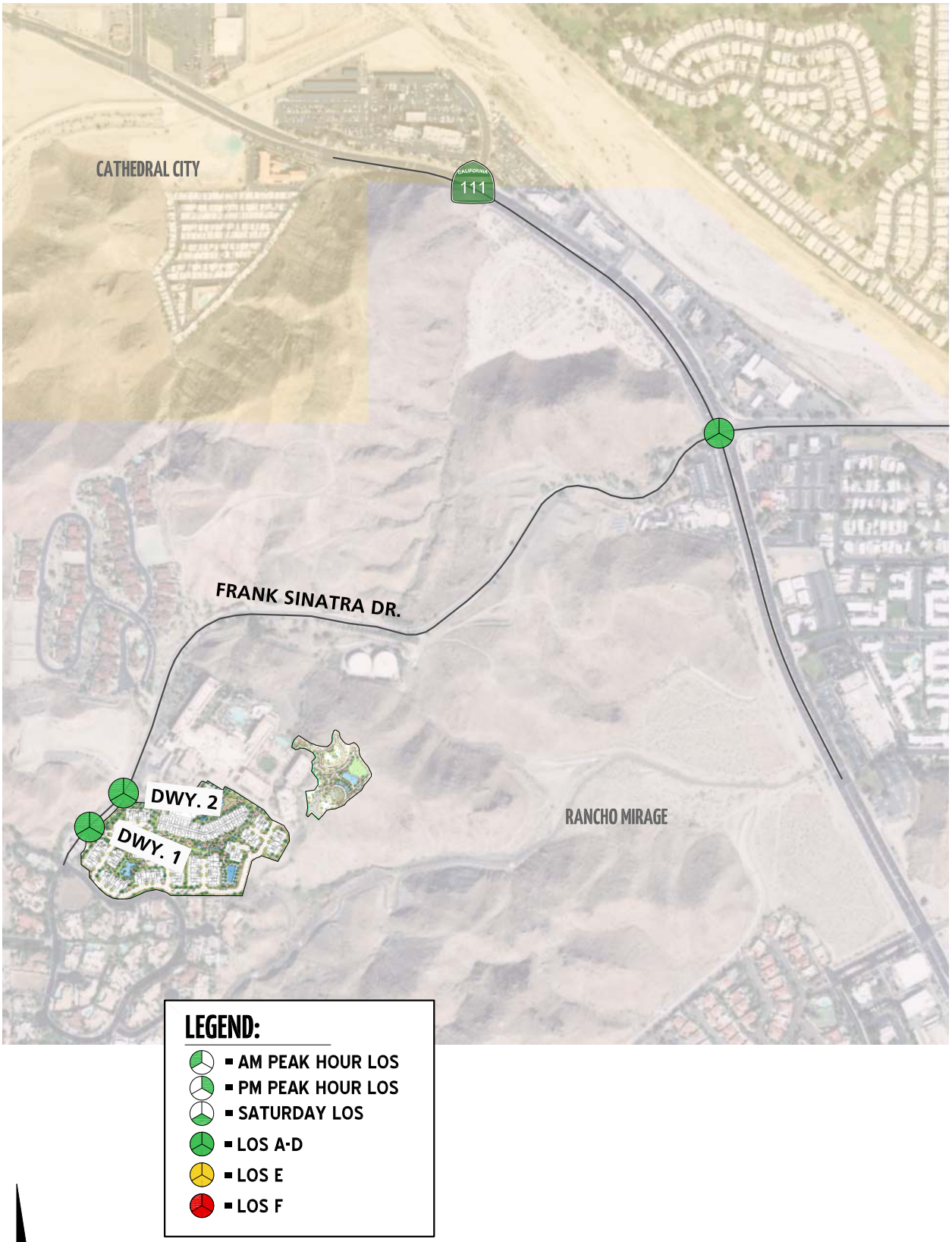
1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
26(26) → 354(69) → 62(347) ← 0(0) ←	3(3) → 380(95) → 36(36) → 29(29) ← 1(1) ← 0(0) ←	134(62) → 1331(1331) → 212(212) → 184(184) ← 156(56) ← 159(159) ←
27(27) ↑ 0(0) ↑	1(1) → 0(0) → 0(0) → 0(0) ↑ 85(370) ↑ 3(3) ↑	43(114) → 68(167) → 39(153) → 196(82) ↑ 1233(1233) ↑ 108(108) ↑

LEGEND:

10(10) = ARRIVAL(DEPARTURE) PEAK HOUR INTERSECTION VOLUMES

N

EXHIBIT 7-3: EAPC (2023) SUMMARY OF LOS



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Table 7-1

Intersection Analysis for EAPC (2023) Conditions

#	Intersection	Traffic Control[1]	Existing (2019)						EAPC (2023)							
			Delay[2] (secs.)			Level of Service			Delay[2] (secs.)				Level of Service			
			Weekday			Weekday			Weekday		Saturday		Weekday		Saturday	
			AM	PM	SAT	AM	PM	SAT	AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
1	Frank Sinatra Dr. & Dwy. 1	--/**CSS**	Future Intersection						8.6	8.6	8.7	10.4	A	A	A	B
2	Frank Sinatra Dr. & Dwy. 2	CSS	9.0	9.4	9.7	A	A	A	9.3	10.4	16.0	16.3	A	B	C	C
3	Hwy. 111 & Frank Sinatra Dr.	TS	19.9	19.2	18.1	B	B	B	21.7	21.3	24.9	30.5	C	C	C	C

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] CSS = Cross-street Stop; TS = Traffic Signal

[3] Arr = Arrival Peak Hour; Dep = Departure Peak Hour

7.5 EAPC (2023) QUEUING ANALYSIS

A queuing analysis was performed for study area intersections that may potentially impact peak hour operations. Queuing analysis findings are presented in Table 7-2. It is important to note that lengths are consistent with the measured distance between the intersection and the end of the storage area. As shown on Table 7-2 and consistent with Existing (2019) conditions, there are no potential queuing issues anticipated during the peak weekday 95th percentile traffic flows for EAPC (2023) traffic conditions. However, the following movements are anticipated to exceed the available storage lengths based on the weekend special event 95th percentile peak hour traffic flow:

- Hwy. 111 & Frank Sinatra Dr. (#3) – NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – EBL movement

Worksheets for EAPC (2023) conditions queuing analysis are provided in Appendix 7.3.

7.6 RECOMMENDED IMPROVEMENTS

7.6.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

No improvement strategies have been recommended for study area intersections as there no deficient intersections for EAPC (2023) traffic conditions.

7.6.2 RECOMMENDED IMPROVEMENTS TO ADDRESS QUEUES

As shown previously on Table 7-2, there are no weekday peak hour queuing issues anticipated at the study area intersections for EAPC (2023) traffic conditions. However, it is recommended that the following improvements be implemented to accommodate EAPC (2023) weekend special event 95th percentile traffic flows:

- Hwy. 111 & Frank Sinatra Dr. (#3) – extend storage for the NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – extend storage for the EBL movement

Table 7-2

Peak Hour Queuing Summary for EAPC (2023) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2019)						EAPC (2023)							
			95th Percentile Queue (Feet)[2]			Acceptable?[1]			95th Percentile Queue (Feet)[2]				Acceptable?[1]			
			Weekday			Weekday			Weekday		Saturday		Weekday		Saturday	
			AM	PM	SAT	AM	PM	SAT	AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
Frank Sinatra Dr. & Dwy. 1	SBL/T	200	Future Intersection						9	0	30	0	Yes	Yes	Yes	Yes
	WBL/R	100							44	45	43	79	Yes	Yes	Yes	Yes
Frank Sinatra Dr. & Dwy. 2	SBL	220	0	10	10	Yes	Yes	Yes	0	0	21	34	Yes	Yes	Yes	Yes
	WBL/R	200	34	28	45	Yes	Yes	Yes	28	29	40	48	Yes	Yes	Yes	Yes
Hwy. 111 & Frank Sinatra Dr.	NBL	260	66	59	82	Yes	Yes	Yes	77	113 [2]	**379** [2]	131 [2]	Yes	Yes	**No**	Yes
	SBR	300	0	0	0	Yes	Yes	Yes	0	0	0	0	Yes	Yes	Yes	Yes
	EBL	170	35	60	43	Yes	Yes	Yes	57	86 [2]	82 [2]	**251** [2]	Yes	Yes	Yes	**No**
	EBT/R	270	41	74	51	Yes	Yes	Yes	64	99	109	**336**	Yes	Yes	Yes	**No**

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] Arr = Arrival Peak Hour; Dep = Departure Peak Hour

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8 HORIZON YEAR (2040) TRAFFIC ANALYSIS

This section discusses the methods used to develop Horizon Year Without and With Project and the resulting intersection operations, traffic signal warrants, and queuing analysis.

8.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Horizon Year With Project conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Horizon Year conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).

8.2 HORIZON YEAR WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from the RivTAM (see Section 4.6 *Horizon Year (2040) Volume Development* of this TIA for a detailed discussion on the post-processing methodology). The weekday ADT, weekday AM, and weekday PM peak hour volumes which can be expected for Horizon Year (2040) Without Project traffic conditions are shown on Exhibit 8-1. Weekend peak hour intersection turning movement volumes are shown on Exhibit 8-2.

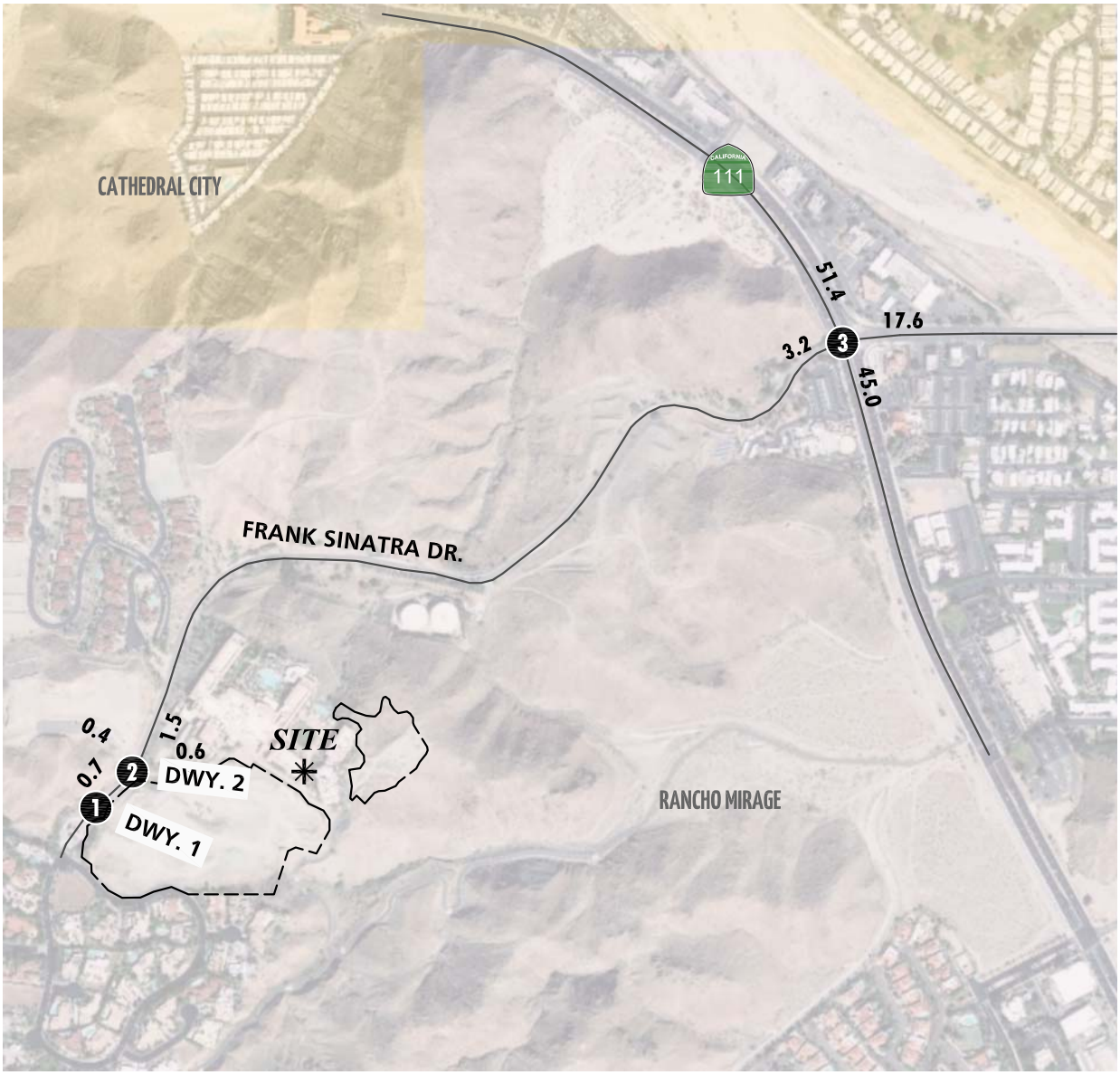
8.3 HORIZON YEAR WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from the RivTAM, plus the traffic generated by the proposed Project. Horizon Year (2040) With Project traffic forecasts assumes buildout of the Project. The weekday ADT, weekday AM, and weekday PM peak hour volumes which can be expected for Horizon Year (2040) With Project traffic conditions are shown on Exhibit 8-3. Weekend peak hour intersection turning movement volumes are shown on Exhibit 8-4.

8.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year (2040) Without Project conditions with roadway and intersection geometrics consistent with Existing conditions. As shown in Table 8-1, no study area intersections are anticipated to operate at unacceptable levels of service under Horizon Year (2040) Without Project conditions. With the addition of Project traffic, no additional study area intersections are anticipated to operate at unacceptable levels of service.

EXHIBIT 8-1: HORIZON YEAR (2040) WITHOUT PROJECT WEEKDAY TRAFFIC VOLUMES



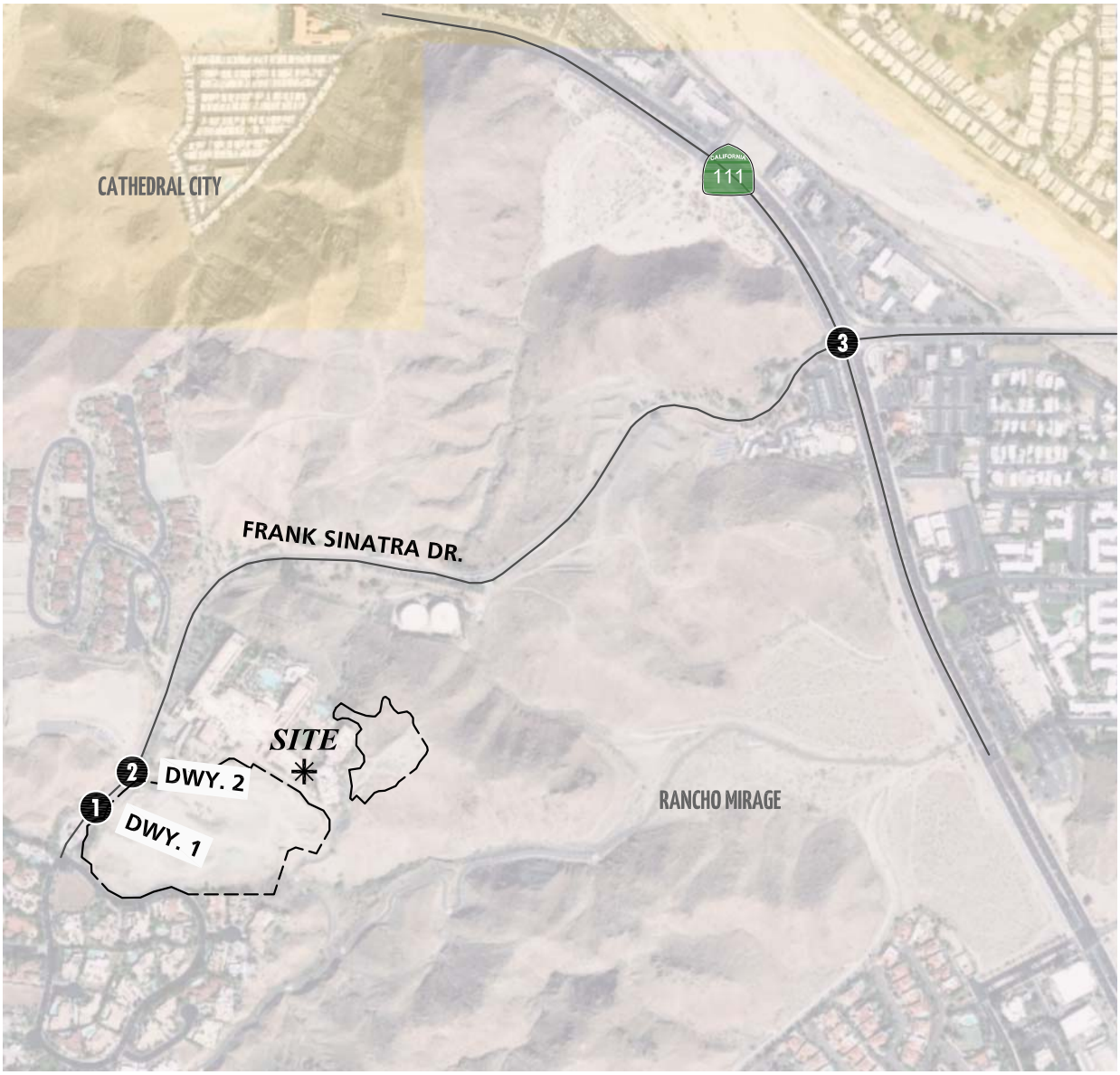
1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
Future Intersection	0(3) 45(95) 14(36) → 18(29) ← 0(1) ← 0(0) 0(1) → 1(0) → 1(0) → 1(0) 22(370) 0(3)	49(62) 1375(1331) 325(212) → 489(184) ← 62(56) ← 330(159) 21(114) → 26(167) → 22(153) → 43(82) 851(1233) 104(108)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

N

EXHIBIT 8-2: HORIZON YEAR (2040) WITHOUT PROJECT SATURDAY TRAFFIC VOLUMES



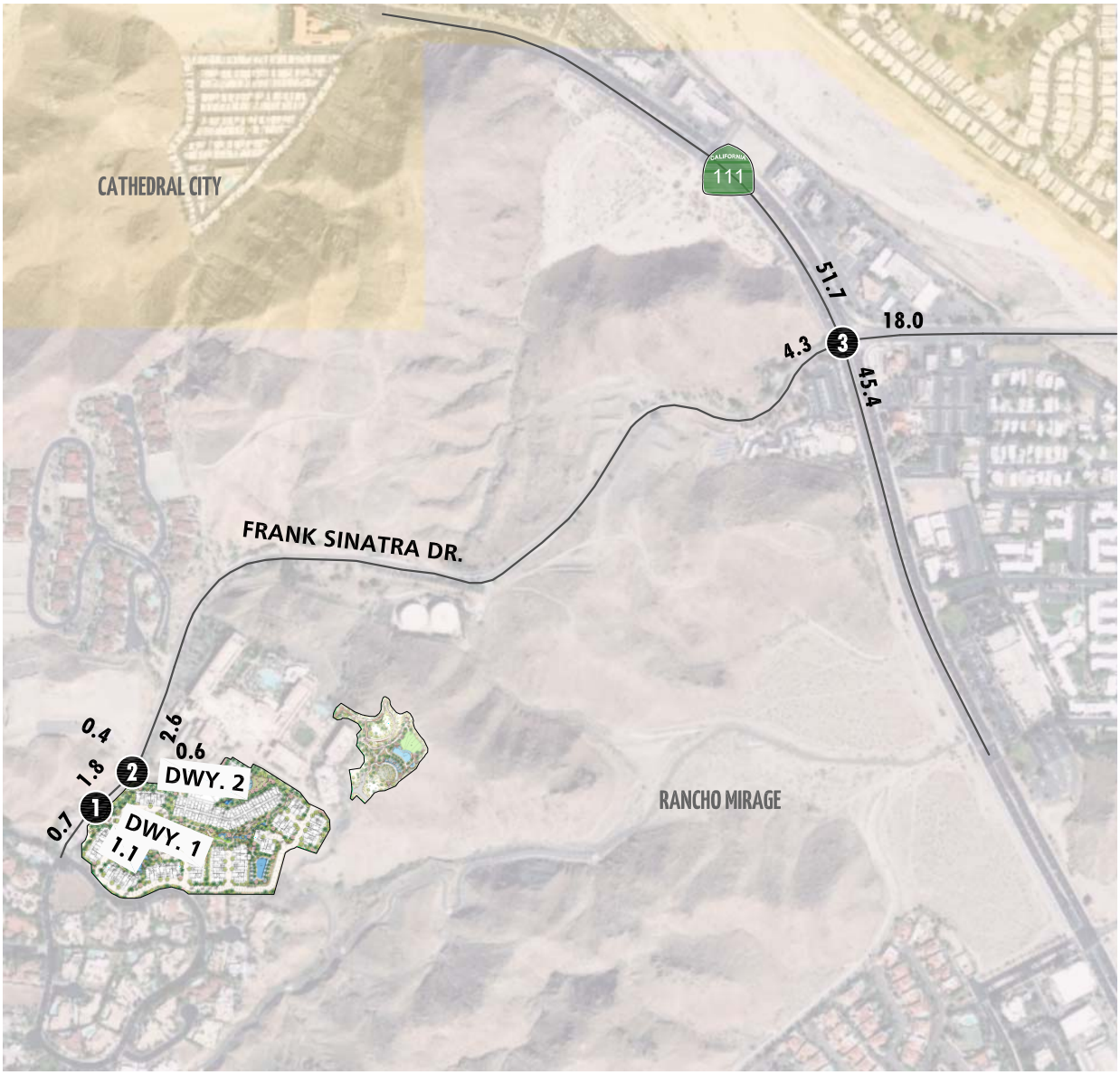
1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
28 ↓ 0 → 0 29 ↑ 0	4 ↓ 28 ← 39 ← 32 1 → 0 → 0 0 → 0 0 → 26 ↑ 4	45 ↓ 1464 ← 235 ← 200 35 ← 176 24 → 52 → 14 → 60 ↑ 1347 ↑ 119

LEGEND:

10 = SATURDAY PEAK HOUR INTERSECTION VOLUMES

N

EXHIBIT 8-3: HORIZON YEAR (2040) WITH PROJECT WEEKDAY TRAFFIC VOLUMES



1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
46(26) 12(55) → 39(31) ← 0(0)	0(1) 57(81) 14(30) → 18(10) ← 0(5) ← 0(0)	52(43) 1375(1467) 325(481) → 489(354) ← 66(57) ← 330(178)
24(29) 0(0) ↑	0(19) → 1(2) → 1(0) 1(0) 61(60) 0(0) ↑	31(53) → 40(73) → 38(42) → 48(62) 851(1481) 104(227) ↑

LEGEND:

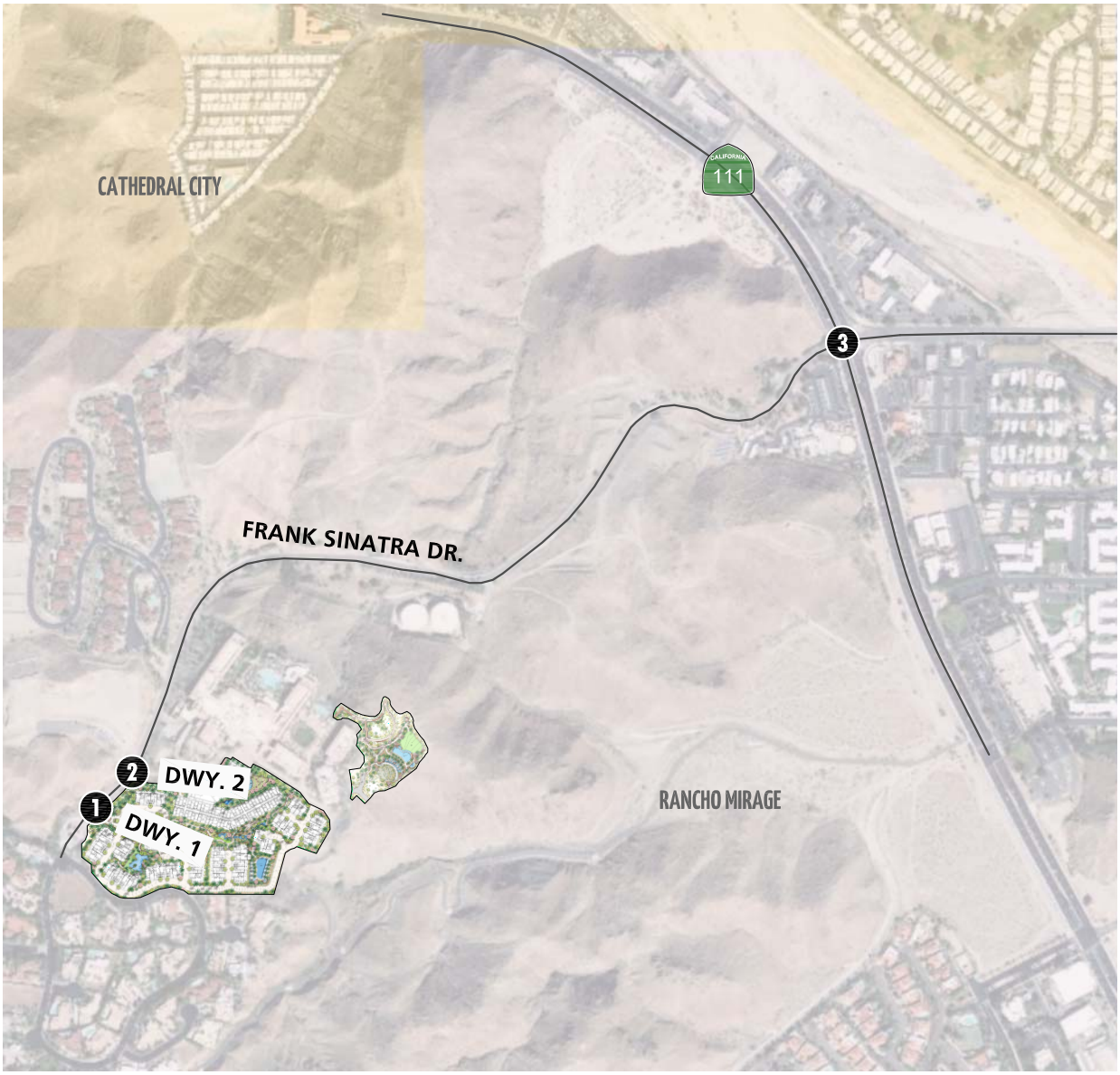
10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

N

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EXHIBIT 8-4: HORIZON YEAR (2040) WITH PROJECT SATURDAY TRAFFIC VOLUMES



1 Frank Sinatra Dr. & Dwy. 1	2 Frank Sinatra Dr. & Dwy. 2	3 Highway 111 & Frank Sinatra Dr.
28(28) ↓ 354(69) → 62(347) ← 0(0)	4(4) ↓ 382(97) → 39(39) ← 32(32) ← 1(1) ← 0(0)	134(62) ↓ 1464(1464) → 235(235) ← 200(200) ← 159(59) ← 176(176)
29(29) ↑ 0(0) →	1(1) → 0(0) → 0(0) → 0(0) ↑ 88(373) ↑ 4(4) ←	40(111) → 74(173) → 39(153) → 202(88) ↑ 1347(1347) ↑ 119(119) ←

LEGEND:

10(10) = ARRIVAL(DEPARTURE) PEAK HOUR INTERSECTION VOLUMES

N

Table 8-1

Intersection Analysis for Horizon Year (2040) Conditions

#	Intersection	Traffic Control[1]	2040 Without Project						2040 With Project							
			Delay[2] (secs.)			Level of Service			Delay[2] (secs.)				Level of Service			
			Weekday			Weekday			Weekday		Saturday		Weekday		Saturday	
			AM	PM	SAT	AM	PM	SAT	AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
1	Frank Sinatra Dr. & Dwy. 1	--/**CSS**	Future Intersection						8.6	8.6	8.7	10.4	A	A	A	B
2	Frank Sinatra Dr. & Dwy. 2	CSS	9.1	9.7	10.0	A	A	B	9.3	10.5	16.3	16.7	A	B	C	C
3	Hwy. 111 & Frank Sinatra Dr.	TS	22.7	22.6	20.3	C	C	C	23.2	23.2	27.1	34.1	C	C	C	C

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] CSS = Cross-street Stop; TS = Traffic Signal

[3] Arr = Arrival Peak Hour; Dep = Departure Peak Hour

A summary of the peak hour intersection LOS for Horizon Year (2040) Without and With Project traffic conditions are shown on Exhibits 8-5 and 8-6, respectively. The intersection operations analysis worksheets for Horizon Year (2040) Without Project conditions are included in Appendix 8.1 of this TIA. The intersection operations analysis worksheets for Horizon Year (2040) With Project conditions are included in Appendix 8.2 of this TIA.

8.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

A traffic signal warrant analysis was performed at the unsignalized driveways for Horizon Year (2040) Without and With Project traffic conditions. No study area intersections are anticipated to warrant a traffic signal under Horizon Year (2040) Without and With Project traffic conditions. Traffic signal warrants worksheets for Horizon Year (2040) Without and With Project conditions are provided in Appendix 8.3 and Appendix 8.4, respectively.

8.6 QUEUING ANALYSIS

A queuing analysis was performed for the study area intersections to assess vehicle queues along the roadways. Horizon Year (2040) Without and With Project queuing analysis findings are presented in Table 8-2.

As shown on Table 8-2, no intersection turning movements are anticipated to experience periodic queuing issues during one or both peak hours based on the weekday and weekend 95th percentile peak hour traffic flows for Horizon Year (2040) Without Project.

With the addition of Project traffic, no intersection turning movements are anticipated to experience periodic queuing issues during one or both peak hours based on the weekday 95th percentile peak hour traffic flows. However, the following movements are anticipated to exceed the available storage lengths based on the weekend special event 95th percentile peak hour traffic flow:

- Hwy. 111 & Frank Sinatra Dr. (#3) – NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – EBL movement

Worksheets for Horizon Year (2040) Without and With Project conditions queuing analysis are provided in Appendices 8.5 and 8.6, respectively.

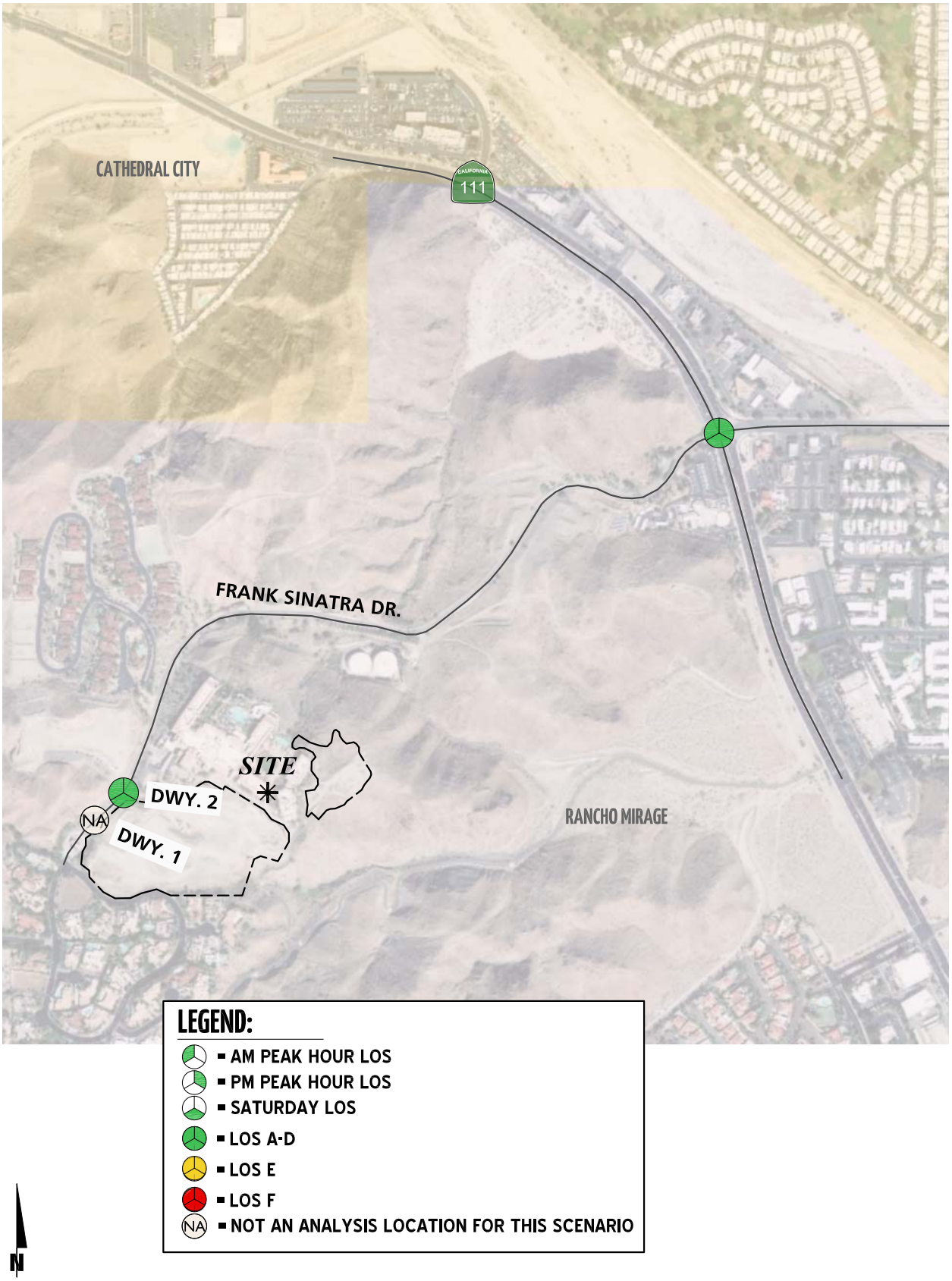
8.7 RECOMMENDED IMPROVEMENTS

8.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

The study area intersections are anticipated to operate at an acceptable LOS for Horizon Year (2040) Without Project conditions.

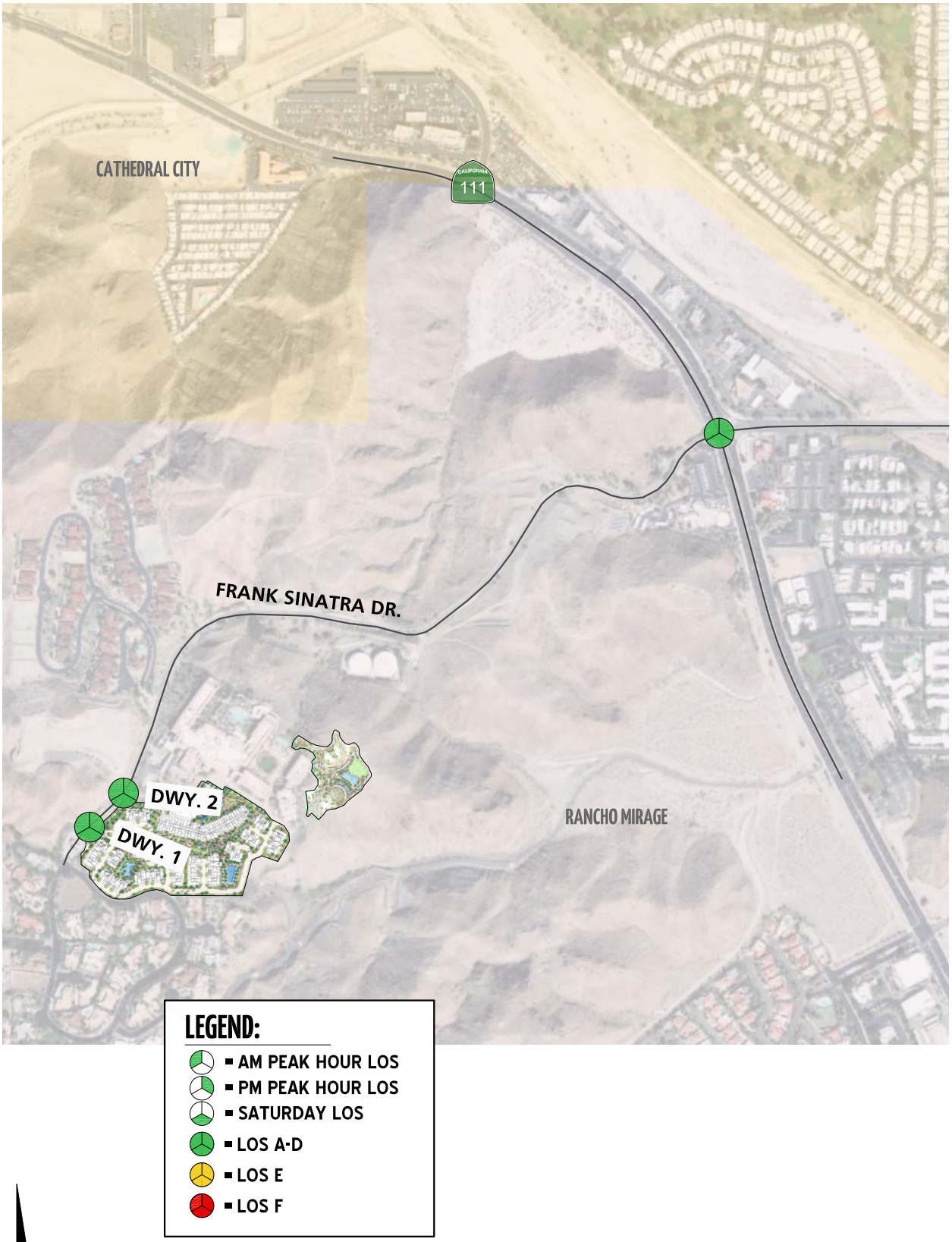
The study area intersections are anticipated to continue to operate at an acceptable LOS with the addition of Project traffic. As such, no improvements have been recommended for Horizon Year (2040) traffic conditions.

EXHIBIT 8-5: HORIZON YEAR (2040) WITHOUT PROJECT SUMMARY OF LOS



12609 - los.dwg

EXHIBIT 8-6: HORIZON YEAR (2040) WITH PROJECT SUMMARY OF LOS



12609 - los.dwg

Table 8-2

Peak Hour Queuing Summary for Horizon Year (2040) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	2040 Without Project						2040 With Project							
			95th Percentile Queue (Feet)[2]			Acceptable?[1]			95th Percentile Queue (Feet)[2]				Acceptable?[1]			
			Weekday		Saturday	Weekday		Saturday	Weekday		Saturday		Weekday		Saturday	
			AM	PM		AM	PM		AM	PM	Arr[3]	Dep[3]	AM	PM	Arr[3]	Dep[3]
Frank Sinatra Dr. & Dwy. 1	SBL/T	200	Future Intersection						10	24	37	15	Yes	Yes	Yes	Yes
	WBL/R	100							47	49	46	89	Yes	Yes	Yes	Yes
Frank Sinatra Dr. & Dwy. 2	SBL	220	0	0	14	Yes	Yes	Yes	0	10	14	51	Yes	Yes	Yes	Yes
	WBL/R	200	31	36	40	Yes	Yes	Yes	37	31	44	46	Yes	Yes	Yes	Yes
Hwy. 111 & Frank Sinatra Dr.	NBL	260	75	68	97	Yes	Yes	Yes	83	121 [2]	**392** [2]	146 [2]	Yes	Yes	**No**	Yes
	SBR	300	0	0	0	Yes	Yes	Yes	0	0	43	0	Yes	Yes	Yes	Yes
	EBL	170	46	75	51	Yes	Yes	Yes	61	97 [2]	74	**246** [2]	Yes	Yes	Yes	**No**
	EBT/R	270	48	89	75	Yes	Yes	Yes	68	107	115	**343**	Yes	Yes	Yes	**No**

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] Arr = Arrival Peak Hour; Dep = Departure Peak Hour

8.7.2 RECOMMENDED IMPROVEMENTS TO ADDRESS QUEUES

As shown previously on Table 8-2, there are no weekday peak hour queuing issues anticipated at the study area intersections for Horizon Year (2040) traffic conditions. However, it is recommended that the following improvements be implemented to accommodate Horizon Year (2040) weekend special event 95th percentile traffic flows:

- Hwy. 111 & Frank Sinatra Dr. (#3) – extend storage from 260' to 400' for the NBL movement
- Hwy. 111 & Frank Sinatra Dr. (#3) – extend storage from 170' to 250' for the EBL movement

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9 LOCAL AND REGIONAL FUNDING MECHANISMS

9.1 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The TUMF program is administered by CVAG based upon a regional Nexus Study most recently updated in 2009 to address major changes in right of way acquisition and improvement cost factors. CVAG is currently in the process of completing a current Nexus Study update to the program. Final changes to network facilities, network cost allocations, and fee changes were not available at the time this assessment was prepared. This regional program was put into place to ensure that development pays its fair share and that funding is in place for construction of facilities needed to maintain the requisite level of service and critical to mobility in the region. The CVAG TUMF boundary covers many of the municipalities in the Coachella Valley while WRCOG TUMF cover those found in Western Riverside County.

TUMF fees are imposed on new residential, industrial, and commercial development through application of the TUMF fee ordinance and fees are collected at the building or occupancy permit stage. In addition, an annual inflation adjustment is considered each year in February. In this way, TUMF fees are adjusted upwards on a regular basis to ensure that the development impact fees collected keep pace with construction and labor costs, etc.

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10 REFERENCES

1. **Riverside County Transportation Department.** *Traffic Impact Analysis Preparation Guide.* County of Riverside : s.n., Updated April 2008.

2. **Institute of Transportation Engineers.** *Trip Generation.* 10th Edition. 2017.

3. **Federal Highway Administration (FHWA).** *Managing Travel for Planned Special Events.* s.l. : FHWA, 2003.

4. **Transportation Research Board.** *Highway Capacity Manual (HCM).* s.l. : National Academy of Sciences, 2010.

5. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2014.

6. **Southern California Association of Governments.** *2016 Regional Transportation Plan/Sustainable Communities Strategy.* April 2016.

7. *City of Rancho Mirage General Plan.* **City of Rancho Mirage.** November 2005.

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APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

October 15, 2019

Mr. Bill Enos
City of Rancho Mirage
69825 Highway 111
Rancho Mirage, CA 92270

SUBJECT: SCOPING AGREEMENT FOR RITZ-CARLTON RESIDENCES TRAFFIC IMPACT AND PARKING ANALYSIS

Dear Mr. Bill Enos:

The firm of Urban Crossroads, Inc. is pleased to submit this scoping agreement for Ritz-Carlton Residences ("Project"), which is located north of Mirada Circle and east of Frank Sinatra Drive, in the City of Rancho Mirage. It is our understanding that the Project is to expand the existing Ritz-Carlton hotel by 106 residential dwelling units, a 6,966 restaurant, and a 23,843 square foot venue. The traffic analysis will be conducted for the buildout of the Project with an anticipated opening year of 2023.

Our goal is to obtain comments from City of Rancho Mirage staff, to ensure that the traffic study fully addresses the potential impacts of the proposed Project. The remainder of this letter describes the proposed analysis methodology, Project trip generation, trip distribution, and Project traffic assignment/project trips on the surrounding roadway network. The following scoping assumptions have been prepared in accordance with the County of Riverside's Traffic Impact Analysis Preparation Guide (April 2008) as the City of Rancho Mirage does not have its own traffic impact analysis guidelines.

The preliminary site plan for the proposed Project is shown on Exhibit 1.

Access to the Project site will be provided via the following roadways:

- Frank Sinatra Drive on SR-111 (full access)

Exhibit 2 depicts the location of the proposed Project in relation to the existing roadway network.

TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development, and is based upon the specific land uses planned for a given project. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for the proposed land use was used. The trip generation summary illustrating daily and peak hour trip generation estimates for the proposed Project are shown in Table 1. As shown on Table 1, the proposed Project (typical

operations) is anticipated to generate a net total of 1,068 trip-ends per day, 51 AM peak hour trips and 86 PM peak hour trips.

It should be noted that the venue will generate trips outside the weekday AM and PM peak hours. As shown on Table 2, the proposed Project (special event) is anticipated to generate a net total of 416 peak hour trips.

TRIP DISTRIBUTION

The trip distribution patterns for the Project are graphically depicted on Exhibit 3. The trip distributions have been developed based on past work experience in the vicinity of the Project site and refined to reflect the roadway network and the surrounding uses in the vicinity of the proposed Project as they exist today.

STUDY AREA

The traffic impact study area was defined in conformance with the requirements of County of Riverside's Traffic Impact Analysis Preparation Guide. Consistent with the County's TIA guidelines, study area intersections have been identified for the Project based on the contribution of 50 or more peak hour trips. Exhibit 2 presents the study area intersection analysis locations.

TRAFFIC COUNTS

Weekday traffic counts will be conducted during AM (7-9 AM) and PM (4-6 PM) peak hours once the scoping agreement has been approved during a typical Tuesday, Wednesday, or Thursday when local schools are in session and operating on a typical bell schedule. Weekend traffic counts will be conducted during the Saturday mid-day (10 AM to 2 PM) peak hours once the scoping agreement has been approved.

AMBIENT GROWTH ASSUMPTIONS

The ambient growth rate of 8.24% will be utilized for an opening year of 2023 (2% compounded over 4 years).

ANALYSIS SCENARIOS

The following analysis scenarios are proposed for this traffic study:

- Existing (2019)
- Existing Plus Project (E+P)
- Existing Plus Ambient Growth Plus Project (E+A+P) (2023)

- Existing Plus Ambient Growth Plus Cumulative Projects Plus Project (E+A+C+P) (2023)
- Horizon Year (2040) Without Project
- Horizon Year (2040) With Project

LEVEL OF SERVICE (LOS) CRITERIA

Per Goal 1, Policy 1 of the City of Rancho Mirage General Plan, the following LOS will be utilized for study area intersections located within the City: Require development to achieve a peak hour LOS D or better at intersections and roadway segments.

PREFERRED ANALYSIS METHODOLOGY

For the purposes of this analysis, signalized intersection operations analysis will be based on the methodology described in the Highway Capacity Manual (6th Edition). Intersection LOS operations are based on an intersection's average control delay. Unsignalized intersections will be evaluated using the methodology described in the HCM 6th Edition. At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane.

OPEN ITEMS - CUMULATIVE DEVELOPMENT PROJECTS

Please provide a list of cumulative projects to be included in the analysis. The City of Cathedral City will also be consulted for their input on cumulative projects within their jurisdiction.

SPECIAL ISSUES

The following issues will also be addressed as part of the TIA:

- *Site Access Evaluation:* Recommendations regarding site access and internal circulation features to accommodate peak hour traffic volumes will be included in the traffic study. Queuing analyses will be prepared for all turn lanes into the project site for "with project" scenarios.
- *Site Distance Evaluation:* Recommendations regarding stopping, passing and corner sight distance standards at the Project driveways will be included in the traffic study. The evaluation will be determined from the Caltrans Highway Design Manual and based on the posted speed limit on Frank Sinatra Drive.
- *Traffic Signal Warrant Analysis:* Signal warrant analysis will be prepared for unsignalized intersections for all study scenarios, except when an intersection is warranted in an earlier scenario. Peak hour volume based warrants (CA MUTCD Warrant 3) will be utilized for existing

conditions. For future scenarios, CA MUTCD Figure 4C-103, Traffic Signals Warrant Worksheet (Average Traffic Estimate Form) will be utilized.

- *Queuing Analysis:* Queuing analyses will be prepared for all study area intersections in each analysis scenario. The analysis will identify the necessary lengths of turn pockets with storage and appropriate turn pocket transitions which adheres to the General Plan roadway classifications for the site adjacent roadways.
- *Parking Analysis:* Parking analysis will be prepared as described below:
    - Review the parking policies in the City of Rancho Mirage Municipal Code and General Plan Circulation Element.
    - Identify parking requirements such as parking restrictions, minimum aisle widths, minimum turning radius, etc.
    - Calculate the parking requirements and peak parking demand based on the City of Rancho Mirage Zoning Code. Compare the City of Rancho Mirage parking requirements for the Project uses with typical parking rates.
    - Describe the historical monthly parking utilization at the project site based on a review of aerial photos.
    - Estimate the proposed Ritz-Carlton Residences Project parking supply requirements based on a review of the existing parking demand counts. This includes shared parking opportunities and potential parking demand reductions associated with project design features promoting ride-sharing as well as bicycle, pedestrian and transit activities.
    - Determine if adequate parking supply is available to support the proposed uses.
    - Summarize the findings of the parking analysis in a letter report.
- *Special Event Queuing Analysis:* Special Event Queuing analysis will be prepared as described below:
    - Determine trip generation for the Project during special events.
    - Develop the Project trip distribution patterns during special events.
    - Conduct a queuing analysis at the study area intersections to identify the storage necessary to accommodate queuing during peak hour traffic flows for special events.

If you have any questions, please contact me directly at (949) 336-5992.

Respectfully submitted,

URBAN CROSSROADS, INC.



Pranesh Tarikere, PE
Senior Engineer

Table 1

Project Trip Generation Summary - Typical Operations

Land Use	ITE LU Code	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:[1]									
Multifamily Housing (Low-Rise)	220	DU	0.11	0.35	0.46	0.35	0.21	0.56	7.32
Quality Restaurant	931	TSF	0.49	0.24	0.73	5.23	2.57	7.80	83.84

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary:									
Ritz-Carlton Residences	106	DU	11	38	49	37	22	59	776
Sky Mesa Restaurant	6.966	TSF	3	2	5	36	18	54	586
Internal Capture (50%)[3]			-2	-1	-3	-18	-9	-27	-294
Total			**12**	**39**	**51**	**55**	**31**	**86**	**1,068**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

[2] DU = Dwelling Units; TSF = Thousand Square Feet

[3] Internal capture reduction of 50% has been applied as a significant portion of the patrons would be internal to the existing hotel.

Table 2

Project Trip Generation Summary - Weekend Special Event

Land Use	ITE LU Code	Units[2]	Arrival Peak Hour			Departure Peak Hour		
			In	Out	Total	In	Out	Total
Project Trip Generation Rates:[1]								
Multifamily Housing (Low-Rise)	220	DU	0.35	0.35	0.70	0.35	0.35	0.70
Quality Restaurant	931	TSF	6.30	4.38	10.68	6.30	4.38	10.68
Venue	Not Available							

Land Use	Quantity	Units[2]	Arrival Peak Hour			Departure Peak Hour		
			In	Out	Total	In	Out	Total
Project Trip Generation Summary:								
Ritz-Carlton Residences	106	DU	37	37	74	37	37	74
Sky Mesa Restaurant	6.966	TSF	44	31	75	44	31	75
Internal Capture (50%)[3]			-22	-16	-38	-22	-16	-38
Venue[4]	381	Spaces	295	10	305	10	295	305
Total			**354**	**62**	**416**	**69**	**347**	**416**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

[2] DU = Dwelling Units; TSF = Thousand Square Feet

[3] Internal capture reduction of 50% has been applied as a significant portion of the patrons would be internal to the existing hotel.

[4] Vehicle trips are calculated based on a maximum allowable occupancy of 0.8 per parking space.

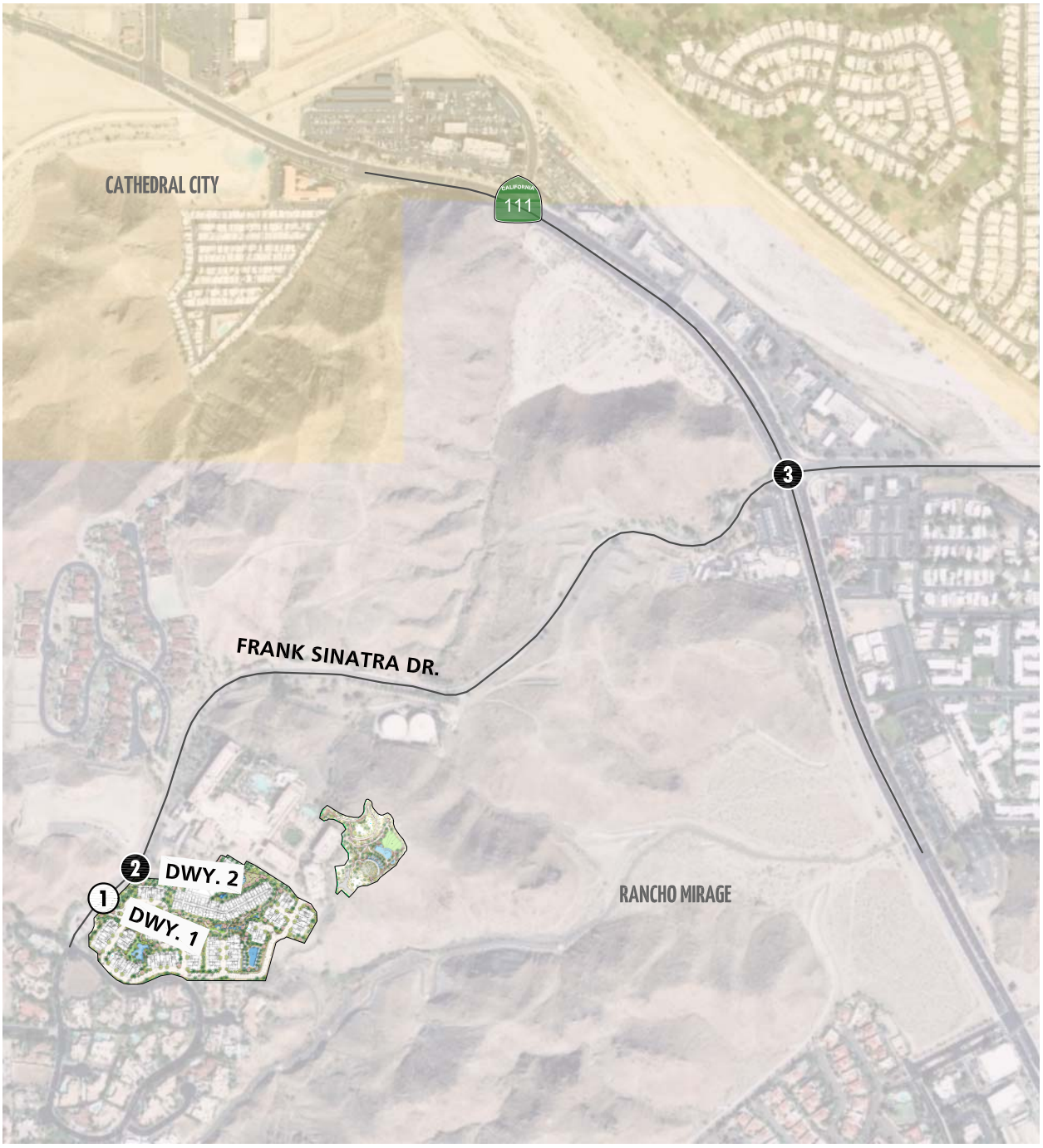
EXHIBIT 1: PRELIMINARY SITE PLAN



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EXHIBIT 2: LOCATION MAP



LEGEND:

0 = EXISTING INTERSECTION ANALYSIS LOCATION

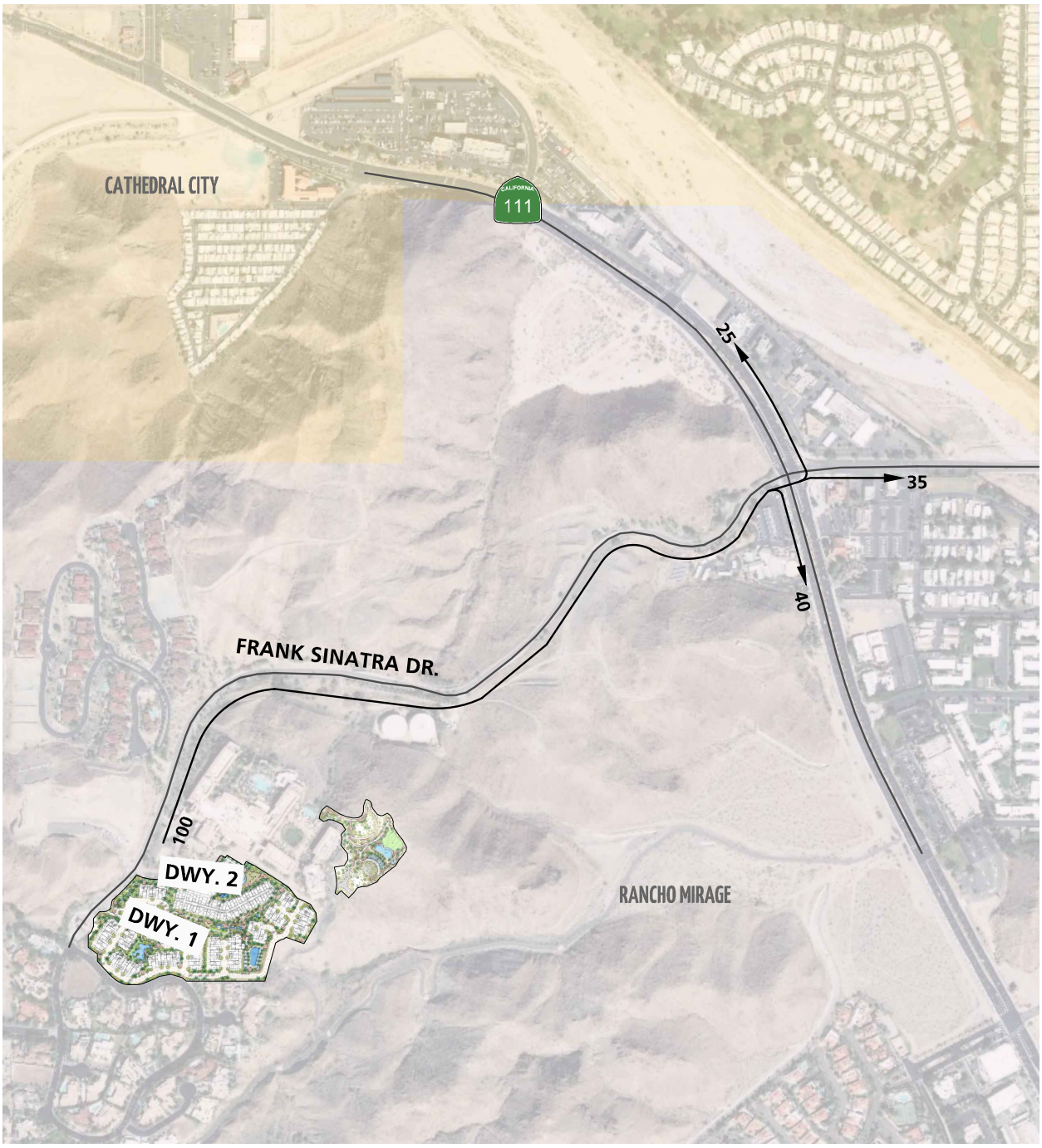
(0) = FUTURE INTERSECTION ANALYSIS LOCATION

N

12609 - locmap.dwg

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EXHIBIT 3: PROJECT TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

N

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APPENDIX 3.1:

EXISTING TRAFFIC COUNTS – DECEMBER 2019

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Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Frank Sinatra Drive
E/W: Driveway 2
Weather: Clear

File Name : 01_RNM_Frank Sinatra_DW2 AM
Site Code : 05119831
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

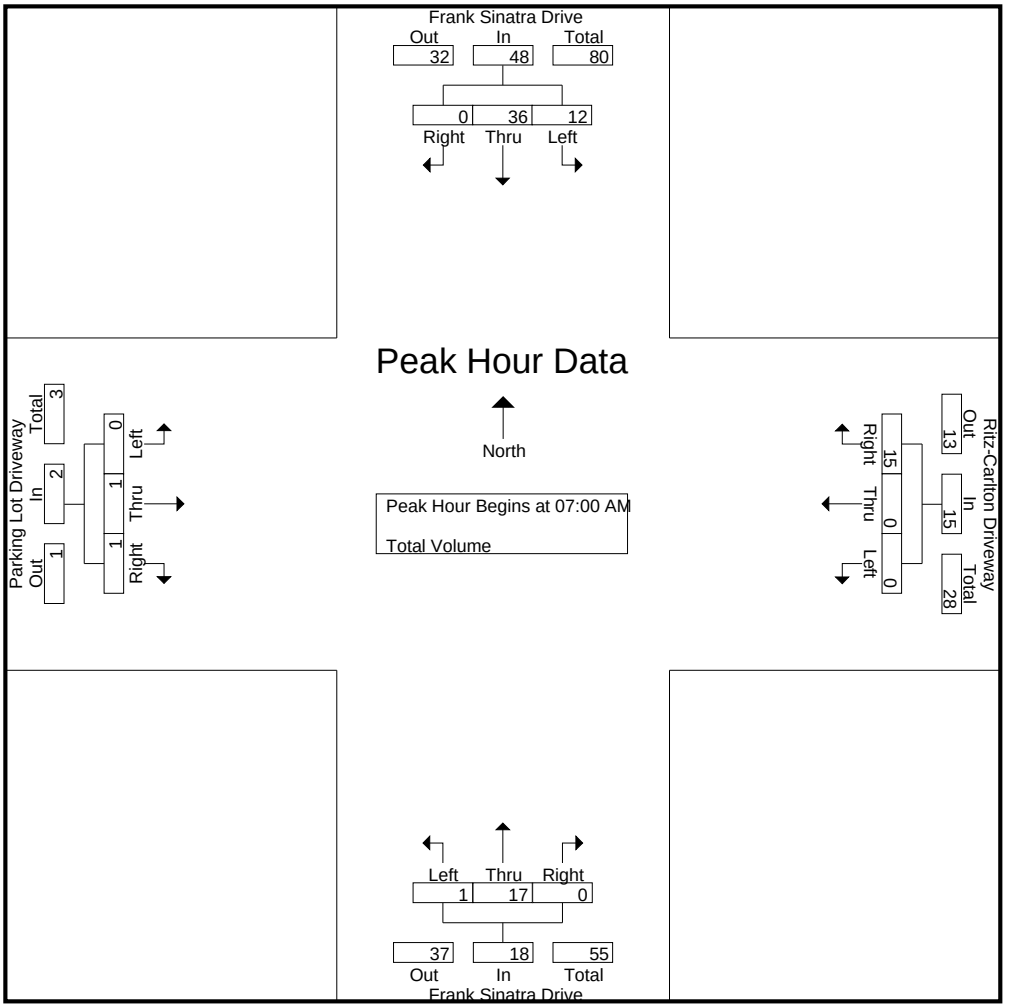
	Frank Sinatra Drive Southbound				Ritz-Carlton Driveway Westbound				Frank Sinatra Drive Northbound				Parking Lot Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	9	0	11	0	0	5	5	0	2	0	2	0	1	0	1	19
07:15 AM	4	11	0	15	0	0	3	3	0	5	0	5	0	0	0	0	23
07:30 AM	4	8	0	12	0	0	4	4	1	4	0	5	0	0	1	1	22
07:45 AM	2	8	0	10	0	0	3	3	0	6	0	6	0	0	0	0	19
Total	12	36	0	48	0	0	15	15	1	17	0	18	0	1	1	2	83
08:00 AM	0	7	0	7	0	0	2	2	0	5	0	5	0	0	0	0	14
08:15 AM	1	5	0	6	0	0	1	1	0	3	0	3	0	0	0	0	10
08:30 AM	3	6	0	9	0	0	0	0	0	9	0	9	0	0	0	0	18
08:45 AM	3	5	3	11	0	0	4	4	0	6	0	6	0	0	0	0	21
Total	7	23	3	33	0	0	7	7	0	23	0	23	0	0	0	0	63
Grand Total	19	59	3	81	0	0	22	22	1	40	0	41	0	1	1	2	146
Apprch %	23.5	72.8	3.7		0	0	100		2.4	97.6	0		0	50	50		
Total %	13	40.4	2.1	55.5	0	0	15.1	15.1	0.7	27.4	0	28.1	0	0.7	0.7	1.4	

	Frank Sinatra Drive Southbound				Ritz-Carlton Driveway Westbound				Frank Sinatra Drive Northbound				Parking Lot 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 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	2	9	0	11	0	0	**5**	**5**	0	2	0	2	0	**1**	0	**1**	19
07:15 AM	**4**	**11**	0	**15**	0	0	3	3	0	5	0	5	0	0	0	0	**23**
07:30 AM	4	8	0	12	0	0	4	4	**1**	4	0	5	0	0	**1**	1	22
07:45 AM	2	8	0	10	0	0	3	3	0	**6**	0	**6**	0	0	0	0	19
Total Volume	12	36	0	48	0	0	15	15	1	17	0	18	0	1	1	2	83
% App. Total	25	75	0		0	0	100		5.6	94.4	0		0	50	50		
PHF	.750	.818	.000	.800	.000	.000	.750	.750	.250	.708	.000	.750	.000	.250	.250	.500	.902

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Frank Sinatra Drive
E/W: Driveway 2
Weather: Clear

File Name : 01_RNM_Frank Sinatra_DW2 AM
Site Code : 05119831
Start Date : 12/11/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:45 AM				07:00 AM			
+0 mins.	2	9	0	11	0	0	**5**	**5**	0	6	0	6	0	**1**	0	**1**
+15 mins.	**4**	**11**	0	**15**	0	0	3	3	0	5	0	5	0	0	0	0
+30 mins.	4	8	0	12	0	0	4	4	0	3	0	3	0	0	**1**	1
+45 mins.	2	8	0	10	0	0	3	3	0	**9**	0	**9**	0	0	0	0
Total Volume	12	36	0	48	0	0	15	15	0	23	0	23	0	1	1	2
% App. Total	25	75	0		0	0	100		0	100	0		0	50	50	
PHF	.750	.818	.000	.800	.000	.000	.750	.750	.000	.639	.000	.639	.000	.250	.250	.500

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Frank Sinatra Drive
E/W: Driveway 2
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File Name : 01_RNM_Frank Sinatra_DW2 PM
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Groups Printed- Total Volume

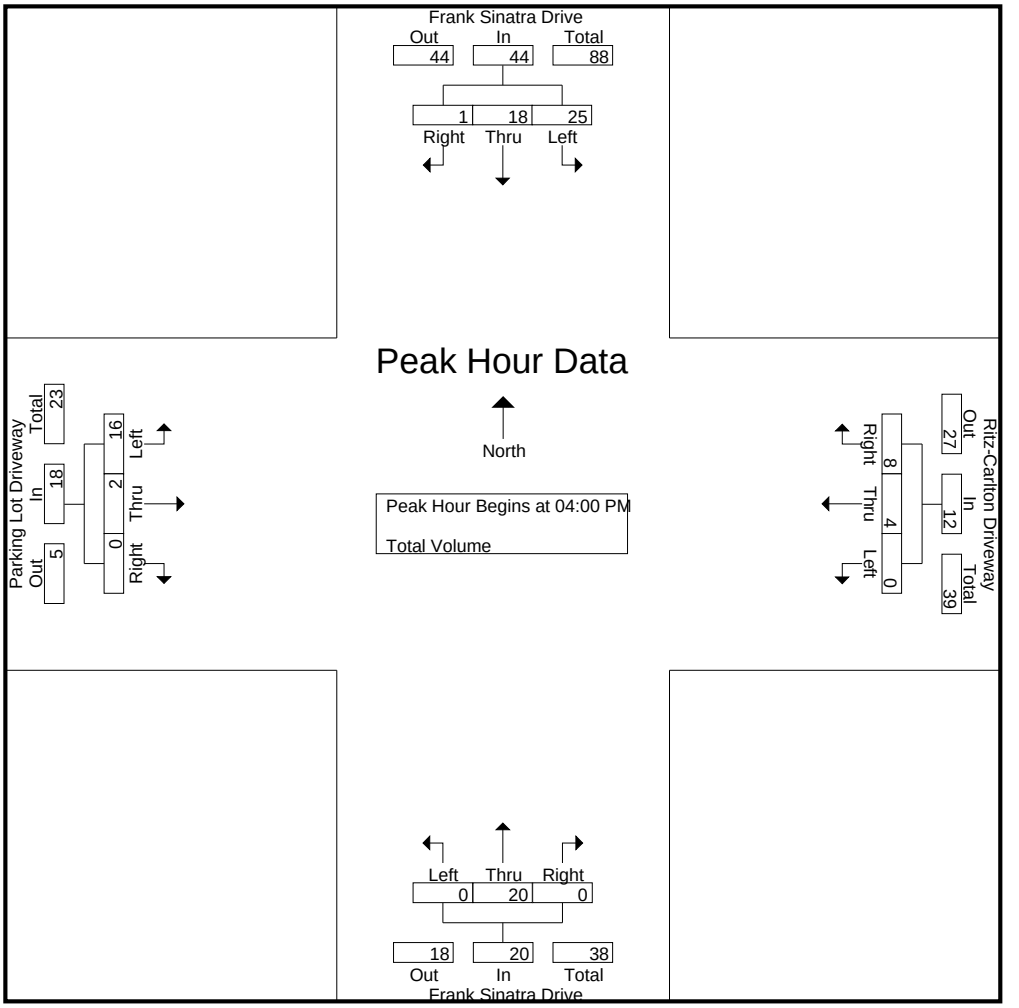
	Frank Sinatra Drive Southbound				Ritz-Carlton Driveway Westbound				Frank Sinatra Drive Northbound				Parking Lot Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	5	7	0	12	0	2	2	4	0	7	0	7	3	2	0	5	28
04:15 PM	7	5	0	12	0	1	2	3	0	3	0	3	1	0	0	1	19
04:30 PM	7	3	0	10	0	1	2	3	0	7	0	7	3	0	0	3	23
04:45 PM	6	3	1	10	0	0	2	2	0	3	0	3	9	0	0	9	24
Total	25	18	1	44	0	4	8	12	0	20	0	20	16	2	0	18	94
05:00 PM	8	2	1	11	0	0	6	6	0	4	0	4	1	0	0	1	22
05:15 PM	9	4	0	13	1	0	3	4	0	3	0	3	2	0	0	2	22
05:30 PM	4	4	0	8	0	0	3	3	1	2	0	3	2	0	0	2	16
05:45 PM	4	5	1	10	0	0	5	5	0	6	1	7	4	0	0	4	26
Total	25	15	2	42	1	0	17	18	1	15	1	17	9	0	0	9	86
Grand Total	50	33	3	86	1	4	25	30	1	35	1	37	25	2	0	27	180
Apprch %	58.1	38.4	3.5		3.3	13.3	83.3		2.7	94.6	2.7		92.6	7.4	0		
Total %	27.8	18.3	1.7	47.8	0.6	2.2	13.9	16.7	0.6	19.4	0.6	20.6	13.9	1.1	0	15	

	Frank Sinatra Drive Southbound				Ritz-Carlton Driveway Westbound				Frank Sinatra Drive Northbound				Parking Lot 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 04:00 PM																	
04:00 PM	5	**7**	0	**12**	0	**2**	**2**	**4**	0	**7**	0	**7**	3	**2**	0	5	**28**
04:15 PM	**7**	5	0	12	0	1	2	3	0	3	0	3	1	0	0	1	19
04:30 PM	7	3	0	10	0	1	2	3	0	7	0	7	3	0	0	3	23
04:45 PM	6	3	**1**	10	0	0	2	2	0	3	0	3	**9**	0	0	**9**	24
Total Volume	25	18	1	44	0	4	8	12	0	20	0	20	16	2	0	18	94
% App. Total	56.8	40.9	2.3		0	33.3	66.7		0	100	0		88.9	11.1	0		
PHF	.893	.643	.250	.917	.000	.500	1.00	.750	.000	.714	.000	.714	.444	.250	.000	.500	.839

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City of Rancho Mirage
N/S: Frank Sinatra Drive
E/W: Driveway 2
Weather: Clear

File Name : 01_RNM_Frank Sinatra_DW2 PM
Site Code : 05119831
Start Date : 12/11/2019
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				05:00 PM				04:00 PM				04:00 PM			
+0 mins.	5	**7**	0	**12**	0	0	**6**	**6**	0	**7**	0	**7**	3	**2**	0	5
+15 mins.	**7**	5	0	12	**1**	0	3	4	0	3	0	3	1	0	0	1
+30 mins.	7	3	0	10	0	0	3	3	0	7	0	7	3	0	0	3
+45 mins.	6	3	**1**	10	0	0	5	5	0	3	0	3	**9**	0	0	**9**
Total Volume	25	18	1	44	1	0	17	18	0	20	0	20	16	2	0	18
% App. Total	56.8	40.9	2.3		5.6	0	94.4		0	100	0		88.9	11.1	0	
PHF	.893	.643	.250	.917	.250	.000	.708	.750	.000	.714	.000	.714	.444	.250	.000	.500

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City of Rancho Mirage
N/S: Frank Sinatra Drive
E/W: Driveway 2
Weather: Clear

File Name : 01_RNM_Frank Sinatra_DW2 SAT
Site Code : 05119831
Start Date : 12/7/2019
Page No : 1

Groups Printed- Total Volume

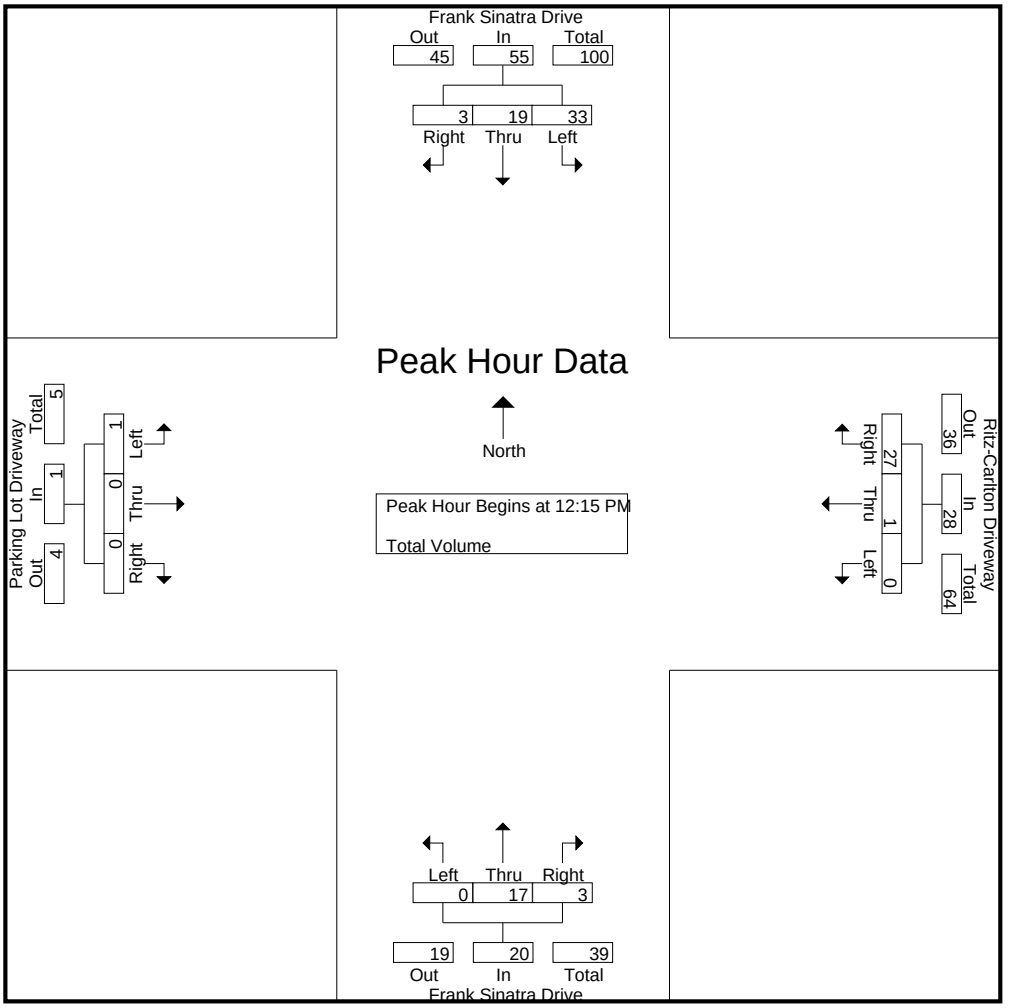
	Frank Sinatra Drive Southbound				Ritz-Carlton Driveway Westbound				Frank Sinatra Drive Northbound				Parking Lot Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
10:00 AM	3	3	1	7	0	0	5	5	0	6	0	6	0	0	0	0	18
10:15 AM	0	2	1	3	0	0	7	7	0	7	0	7	0	0	0	0	17
10:30 AM	3	1	0	4	0	0	6	6	0	2	0	2	0	0	0	0	12
10:45 AM	5	3	2	10	1	0	9	10	0	7	0	7	1	0	0	1	28
Total	11	9	4	24	1	0	27	28	0	22	0	22	1	0	0	1	75
11:00 AM	4	1	0	5	0	0	7	7	0	4	0	4	1	1	0	2	18
11:15 AM	7	1	1	9	2	0	8	10	1	3	0	4	1	0	0	1	24
11:30 AM	5	8	1	14	0	0	7	7	0	2	1	3	0	0	0	0	24
11:45 AM	7	4	2	13	0	0	5	5	0	4	0	4	0	0	0	0	22
Total	23	14	4	41	2	0	27	29	1	13	1	15	2	1	0	3	88
12:00 PM	5	5	1	11	1	0	5	6	0	4	0	4	0	0	0	0	21
12:15 PM	8	5	0	13	0	1	10	11	0	7	2	9	0	0	0	0	33
12:30 PM	4	3	1	8	0	0	6	6	0	3	0	3	0	0	0	0	17
12:45 PM	12	5	2	19	0	0	5	5	0	2	1	3	0	0	0	0	27
Total	29	18	4	51	1	1	26	28	0	16	3	19	0	0	0	0	98
01:00 PM	9	6	0	15	0	0	6	6	0	5	0	5	1	0	0	1	27
01:15 PM	5	5	4	14	0	1	6	7	0	0	1	1	2	0	0	2	24
01:30 PM	11	4	1	16	0	0	4	4	1	2	0	3	0	1	0	1	24
01:45 PM	8	4	0	12	0	0	10	10	0	1	0	1	2	0	1	3	26
Total	33	19	5	57	0	1	26	27	1	8	1	10	5	1	1	7	101
Grand Total	96	60	17	173	4	2	106	112	2	59	5	66	8	2	1	11	362
Apprch %	55.5	34.7	9.8		3.6	1.8	94.6		3	89.4	7.6		72.7	18.2	9.1		
Total %	26.5	16.6	4.7	47.8	1.1	0.6	29.3	30.9	0.6	16.3	1.4	18.2	2.2	0.6	0.3	3	

	Frank Sinatra Drive Southbound				Ritz-Carlton Driveway Westbound				Frank Sinatra Drive Northbound				Parking Lot 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 10:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:15 PM																	
12:15 PM	8	5	0	13	0	**1**	**10**	**11**	0	**7**	**2**	**9**	0	0	0	0	**33**
12:30 PM	4	3	1	8	0	0	6	6	0	3	0	3	0	0	0	0	17
12:45 PM	**12**	5	**2**	**19**	0	0	5	5	0	2	1	3	0	0	0	0	27
01:00 PM	9	**6**	0	15	0	0	6	6	0	5	0	5	**1**	0	0	**1**	27
Total Volume	33	19	3	55	0	1	27	28	0	17	3	20	1	0	0	1	104
% App. Total	60	34.5	5.5		0	3.6	96.4		0	85	15		100	0	0		
PHF	.688	.792	.375	.724	.000	.250	.675	.636	.000	.607	.375	.556	.250	.000	.000	.250	.788

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City of Rancho Mirage
N/S: Frank Sinatra Drive
E/W: Driveway 2
Weather: Clear

File Name : 01_RNM_Frank Sinatra_DW2 SAT
Site Code : 05119831
Start Date : 12/7/2019
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Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:45 PM				10:45 AM				10:00 AM				01:00 PM			
+0 mins.	**12**	5	2	**19**	1	0	**9**	**10**	0	6	0	6	1	0	0	1
+15 mins.	9	**6**	0	15	0	0	7	7	0	**7**	0	**7**	**2**	0	0	2
+30 mins.	5	5	**4**	14	**2**	0	8	10	0	2	0	2	0	**1**	0	1
+45 mins.	11	4	1	16	0	0	7	7	0	7	0	7	2	0	**1**	**3**
Total Volume	37	20	7	64	3	0	31	34	0	22	0	22	5	1	1	7
% App. Total	57.8	31.2	10.9		8.8	0	91.2		0	100	0		71.4	14.3	14.3	
PHF	.771	.833	.438	.842	.375	.000	.861	.850	.000	.786	.000	.786	.625	.250	.250	.583

Location: Rancho Mirage
N/S: Frank Sinatra Drive
E/W: Driveway 2

PEDESTRIANS

Date: 12/11/2019
Day: Wednesday

	North Leg Frank Sinatra Drive	East Leg Ritz-Carlton Driveway	South Leg Frank Sinatra Drive	West Leg Parking Lot Driveway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	2	2	0	0	4
8:15 AM	2	0	1	0	3
8:30 AM	0	0	2	0	2
8:45 AM	0	0	5	0	5
TOTAL VOLUMES:	4	2	9	0	15

Date: 12/11/2019
Day: Wednesday

	North Leg Frank Sinatra Drive	East Leg Ritz-Carlton Driveway	South Leg Frank Sinatra Drive	West Leg Parking Lot Driveway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	1	0	0	1	2
4:15 PM	0	0	0	0	0
4:30 PM	0	0	3	0	3
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	0	3	1	5

Date: 12/7/2019
Day: Saturday

	North Leg Frank Sinatra Drive	East Leg Ritz-Carlton Driveway	South Leg Frank Sinatra Drive	West Leg Parking Lot Driveway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
10:00 AM	3	0	0	0	3
10:15 AM	0	0	0	0	0
10:30 AM	0	0	2	0	2
10:45 AM	0	0	2	0	2
11:00 AM	4	0	0	0	4
11:15 AM	2	0	0	0	2
11:30 AM	0	0	7	0	7
11:45 AM	1	0	0	0	1
12:00 PM	1	0	0	0	1
12:15 PM	1	0	0	0	1
12:30 PM	0	0	0	0	0
12:45 PM	1	0	0	0	1
1:00 PM	1	0	0	0	1
1:15 PM	7	0	3	0	10
1:30 PM	0	0	0	0	0
1:45 PM	4	0	0	0	4
TOTAL VOLUMES:	25	0	14	0	39

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Location: Rancho Mirage
N/S: Frank Sinatra Drive
E/W: Driveway 2

BICYCLES

Date: 12/11/2019
Day: Wednesday

	Southbound Frank Sinatra Drive			Westbound Ritz-Carlton Driveway			Northbound Frank Sinatra Drive			Eastbound Parking Lot Driveway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

Date: 12/11/2019
Day: Wednesday

	Southbound Frank Sinatra Drive			Westbound Ritz-Carlton Driveway			Northbound Frank Sinatra Drive			Eastbound Parking Lot Driveway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

Date: 12/7/2019
Day: Saturday

	Southbound Frank Sinatra Drive			Westbound Ritz-Carlton Driveway			Northbound Frank Sinatra Drive			Eastbound Parking Lot Driveway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

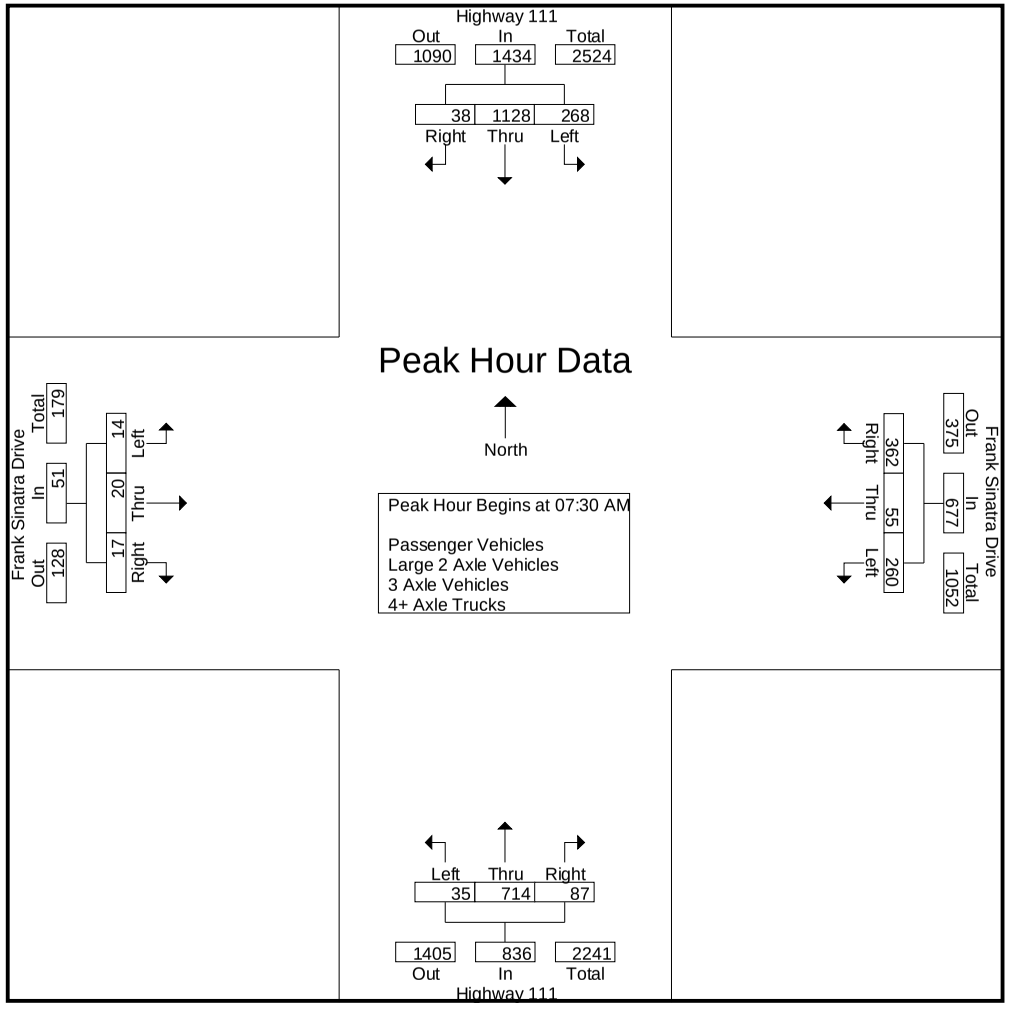
	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	36	136	8	1	180	33	13	39	0	85	6	145	18	0	169	6	3	1	1	10	2	444	446
07:15 AM	58	176	9	5	243	40	16	74	0	130	5	194	23	0	222	7	2	2	0	11	5	606	611
07:30 AM	83	262	11	6	356	57	13	100	0	170	8	170	21	0	199	4	4	8	1	16	7	741	748
07:45 AM	67	301	14	3	382	66	14	107	0	187	13	183	23	0	219	6	6	4	2	16	5	804	809
Total	244	875	42	15	1161	196	56	320	0	572	32	692	85	0	809	23	15	15	4	53	19	2595	2614
08:00 AM	58	270	7	3	335	69	14	77	0	160	6	177	17	0	200	2	4	4	2	10	5	705	710
08:15 AM	60	295	6	1	361	68	14	78	0	160	8	184	26	0	218	2	6	1	1	9	2	748	750
08:30 AM	62	220	8	5	290	55	6	90	0	151	6	221	13	0	240	2	9	4	1	15	6	696	702
08:45 AM	68	271	10	5	349	59	9	94	0	162	8	222	28	0	258	4	7	6	3	17	8	786	794
Total	248	1056	31	14	1335	251	43	339	0	633	28	804	84	0	916	10	26	15	7	51	21	2935	2956
Grand Total	492	1931	73	29	2496	447	99	659	0	1205	60	1496	169	0	1725	33	41	30	11	104	40	5530	5570
Apprch %	19.7	77.4	2.9			37.1	8.2	54.7			3.5	86.7	9.8			31.7	39.4	28.8					
Total %	8.9	34.9	1.3		45.1	8.1	1.8	11.9		21.8	1.1	27.1	3.1		31.2	0.6	0.7	0.5		1.9	0.7	99.3	
Passenger Vehicles	469	1829	67		2392	431	95	642		1168	57	1459	168		1684	30	41	28		109	0	0	5353
% Passenger Vehicles	95.3	94.7	91.8	93.1	94.7	96.4	96	97.4	0	96.9	95	97.5	99.4	0	97.6	90.9	100	93.3	90.9	94.8	0	0	96.1
Large 2 Axle Vehicles	20	90	6		118	15	3	15		33	3	32	0		35	2	0	2		5	0	0	191
% Large 2 Axle Vehicles	4.1	4.7	8.2	6.9	4.7	3.4	3	2.3	0	2.7	5	2.1	0	0	2	6.1	0	6.7	9.1	4.3	0	0	3.4
3 Axle Vehicles	2	5	0		7	1	0	1		2	0	4	0		4	1	0	0		1	0	0	14
% 3 Axle Vehicles	0.4	0.3	0	0	0.3	0.2	0	0.2	0	0.2	0	0.3	0	0	0.2	3	0	0	0	0.9	0	0	0.3
4+ Axle Trucks	1	7	0		8	0	1	1		2	0	1	1		2	0	0	0		0	0	0	12
% 4+ Axle Trucks	0.2	0.4	0	0	0.3	0	1	0.2	0	0.2	0	0.1	0.6	0	0.1	0	0	0	0	0	0	0	0.2

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**83**	262	11	356	57	13	100	170	8	170	21	199	4	4	**8**	**16**	741
07:45 AM	67	**301**	**14**	**382**	66	**14**	**107**	**187**	**13**	183	23	**219**	**6**	**6**	4	16	**804**
08:00 AM	58	270	7	335	**69**	14	77	160	6	177	17	200	2	4	4	10	705
08:15 AM	60	295	6	361	68	14	78	160	8	**184**	**26**	218	2	6	1	9	748
Total Volume	268	1128	38	1434	260	55	362	677	35	714	87	836	14	20	17	51	2998
% App. Total	18.7	78.7	2.6		38.4	8.1	53.5		4.2	85.4	10.4		27.5	39.2	33.3		
PHF	.807	.937	.679	.938	.942	.982	.846	.905	.673	.970	.837	.954	.583	.833	.531	.797	.932

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
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City of Rancho Mirage
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File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				08:00 AM				07:00 AM				
+0 mins.	**83**	262	11	356	57	13	100	170	6	177	17	200	6	3	1	10	
+15 mins.	67	**301**	**14**	**382**	66	**14**	**107**	**187**	**8**	184	26	218	**7**	2	2	11	
+30 mins.	58	270	7	335	**69**	14	77	160	6	221	13	240	4	4	**8**	**16**	
+45 mins.	60	295	6	361	68	14	78	160	8	**222**	**28**	**258**	6	**6**	4	16	
Total Volume	268	1128	38	1434	260	55	362	677	28	804	84	916	23	15	15	53	
% App. Total	18.7	78.7	2.6		38.4	8.1	53.5		3.1	87.8	9.2		43.4	28.3	28.3		
PHF	.807	.937	.679	.938	.942	.982	.846	.905	.875	.905	.750	.888	.821	.625	.469	.828	

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	35	117	6	0	158	29	12	38	0	79	6	142	18	0	166	6	3	1	1	10	1	413	414
07:15 AM	55	167	7	4	229	39	16	73	0	128	5	190	23	0	218	6	2	2	0	10	4	585	589
07:30 AM	81	245	11	6	337	55	12	99	0	166	8	168	21	0	197	4	4	7	0	15	6	715	721
07:45 AM	60	290	13	3	363	63	13	103	0	179	12	181	23	0	216	5	6	4	2	15	5	773	778
Total	231	819	37	13	1087	186	53	313	0	552	31	681	85	0	797	21	15	14	3	50	16	2486	2502
08:00 AM	55	253	7	3	315	66	14	77	0	157	5	172	17	0	194	2	4	4	2	10	5	676	681
08:15 AM	58	281	6	1	345	67	13	73	0	153	8	178	25	0	211	1	6	1	1	8	2	717	719
08:30 AM	57	211	8	5	276	54	6	89	0	149	6	216	13	0	235	2	9	4	1	15	6	675	681
08:45 AM	68	265	9	5	342	58	9	90	0	157	7	212	28	0	247	4	7	5	3	16	8	762	770
Total	238	1010	30	14	1278	245	42	329	0	616	26	778	83	0	887	9	26	14	7	49	21	2830	2851
Grand Total	469	1829	67	27	2365	431	95	642	0	1168	57	1459	168	0	1684	30	41	28	10	99	37	5316	5353
Apprch %	19.8	77.3	2.8			36.9	8.1	55			3.4	86.6	10			30.3	41.4	28.3					
Total %	8.8	34.4	1.3		44.5	8.1	1.8	12.1		22	1.1	27.4	3.2		31.7	0.6	0.8	0.5		1.9	0.7	99.3	

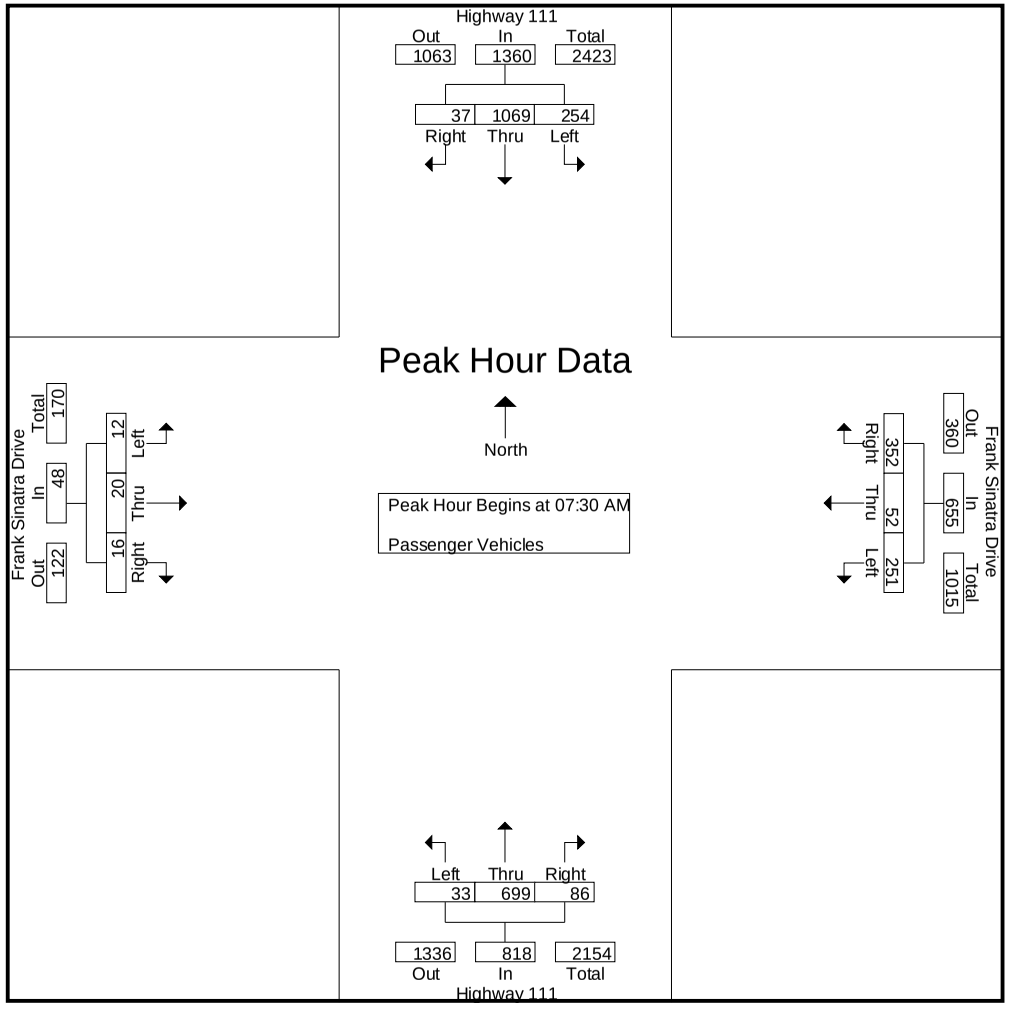
3.1-12

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**81**	245	11	337	55	12	99	166	8	168	21	197	4	4	**7**	**15**	715
07:45 AM	60	**290**	**13**	**363**	63	13	**103**	**179**	**12**	**181**	23	**216**	**5**	**6**	4	15	**773**
08:00 AM	55	253	7	315	66	**14**	77	157	5	172	17	194	2	4	4	10	676
08:15 AM	58	281	6	345	**67**	13	73	153	8	178	**25**	211	1	6	1	8	717
Total Volume	254	1069	37	1360	251	52	352	655	33	699	86	818	12	20	16	48	2881
% App. Total	18.7	78.6	2.7		38.3	7.9	53.7		4	85.5	10.5		25	41.7	33.3		
PHF	.784	.922	.712	.937	.937	.929	.854	.915	.688	.965	.860	.947	.600	.833	.571	.800	.932

Counts Unlimited
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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
Page No : 2



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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
Page No : 3

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	**81**	245	11	337	55	12	99	166	8	168	21	197	4	4	**7**	**15**	
+15 mins.	60	**290**	**13**	**363**	63	13	**103**	**179**	**12**	**181**	23	**216**	**5**	**6**	4	15	
+30 mins.	55	253	7	315	66	**14**	77	157	5	172	17	194	2	4	4	10	
+45 mins.	58	281	6	345	**67**	13	73	153	8	178	**25**	211	1	6	1	8	
Total Volume	254	1069	37	1360	251	52	352	655	33	699	86	818	12	20	16	48	
% App. Total	18.7	78.6	2.7		38.3	7.9	53.7		4	85.5	10.5		25	41.7	33.3		
PHF	.784	.922	.712	.937	.937	.929	.854	.915	.688	.965	.860	.947	.600	.833	.571	.800	

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	15	2	1	18	3	1	1	0	5	0	2	0	0	2	0	0	0	0	0	1	25	26
07:15 AM	3	9	2	1	14	1	0	1	0	2	0	3	0	0	3	0	0	0	0	0	1	19	20
07:30 AM	2	15	0	0	17	2	0	1	0	3	0	1	0	0	1	0	0	1	1	1	1	22	23
07:45 AM	6	10	1	0	17	3	1	4	0	8	1	2	0	0	3	1	0	0	0	1	0	29	29
Total	12	49	5	2	66	9	2	7	0	18	1	8	0	0	9	1	0	1	1	2	3	95	98
08:00 AM	3	13	0	0	16	3	0	0	0	3	1	5	0	0	6	0	0	0	0	0	0	25	25
08:15 AM	2	14	0	0	16	1	1	4	0	6	0	6	0	0	6	1	0	0	0	1	0	29	29
08:30 AM	3	8	0	0	11	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	16	16
08:45 AM	0	6	1	0	7	1	0	4	0	5	1	9	0	0	10	0	0	1	0	1	0	23	23
Total	8	41	1	0	50	6	1	8	0	15	2	24	0	0	26	1	0	1	0	2	0	93	93
Grand Total	20	90	6	2	116	15	3	15	0	33	3	32	0	0	35	2	0	2	1	4	3	188	191
Apprch %	17.2	77.6	5.2			45.5	9.1	45.5			8.6	91.4	0			50	0	50					
Total %	10.6	47.9	3.2		61.7	8	1.6	8		17.6	1.6	17	0		18.6	1.1	0	1.1		2.1	1.6	98.4	

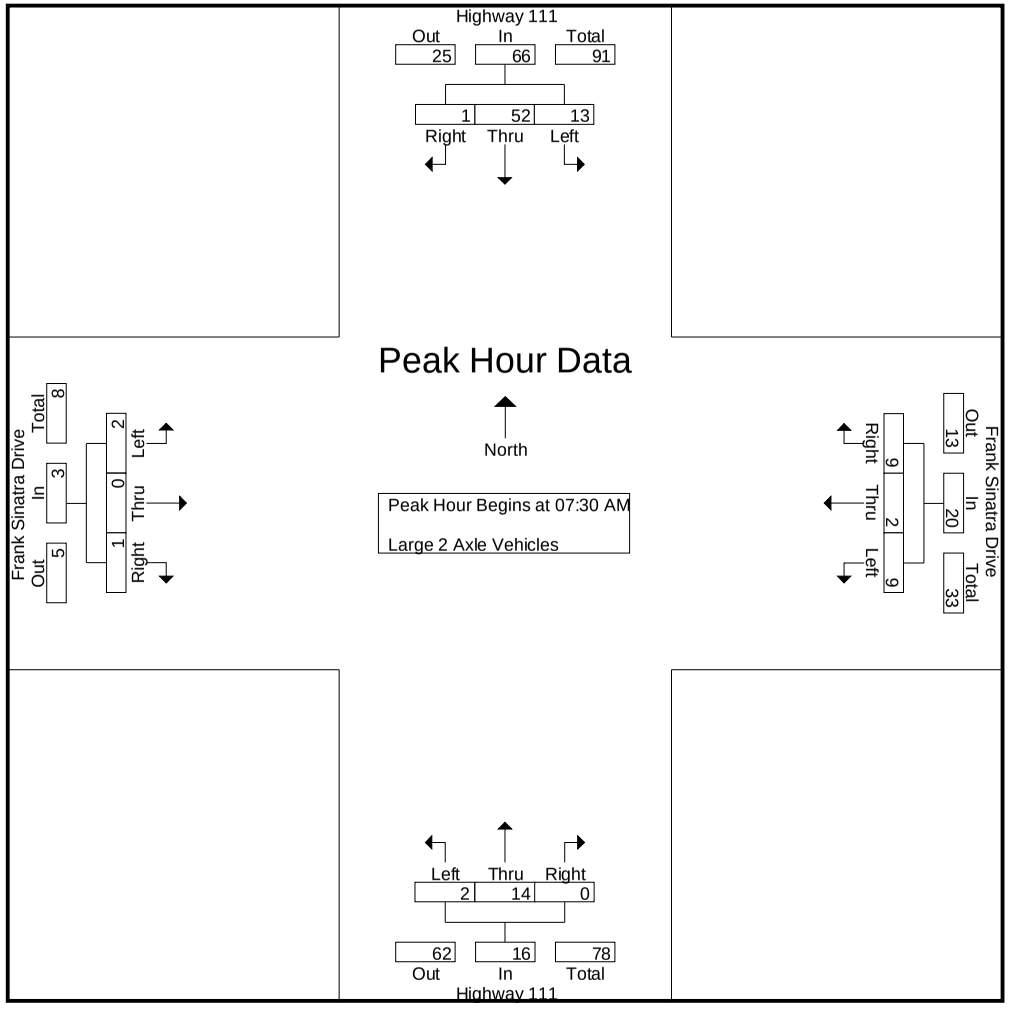
3.1-15

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	2	**15**	0	**17**	2	0	1	3	0	1	0	1	0	0	**1**	**1**	22
07:45 AM	**6**	10	**1**	17	**3**	**1**	**4**	**8**	**1**	2	0	3	**1**	0	0	1	**29**
08:00 AM	3	13	0	16	3	0	0	3	1	5	0	**6**	0	0	0	0	25
08:15 AM	2	14	0	16	1	1	4	6	0	**6**	0	6	1	0	0	1	29
Total Volume	13	52	1	66	9	2	9	20	2	14	0	16	2	0	1	3	105
% App. Total	19.7	78.8	1.5		45	10	45		12.5	87.5	0		66.7	0	33.3		
PHF	.542	.867	.250	.971	.750	.500	.563	.625	.500	.583	.000	.667	.500	.000	.250	.750	.905

Counts Unlimited
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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
Page No : 2



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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	2	**15**	0	**17**	2	0	1	3	0	1	0	1	0	0	**1**	**1**	
+15 mins.	**6**	10	**1**	17	**3**	**1**	**4**	**8**	**1**	2	0	3	**1**	0	0	1	
+30 mins.	3	13	0	16	3	0	0	3	1	5	0	**6**	0	0	0	0	
+45 mins.	2	14	0	16	1	1	4	6	0	**6**	0	6	1	0	0	1	
Total Volume	13	52	1	66	9	2	9	20	2	14	0	16	2	0	1	3	
% App. Total	19.7	78.8	1.5		45	10	45		12.5	87.5	0		66.7	0	33.3		
PHF	.542	.867	.250	.971	.750	.500	.563	.625	.500	.583	.000	.667	.500	.000	.250	.750	

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
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Groups Printed- 3 Axle Vehicles

	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	3	3
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	2	2
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	1	2	0	0	3	1	0	0	0	1	0	2	0	0	2	1	0	0	0	1	0	7	7
08:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
08:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
08:30 AM	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	3
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
Total	1	3	0	0	4	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	7	7
Grand Total	2	5	0	0	7	1	0	1	0	2	0	4	0	0	4	1	0	0	0	1	0	14	14
Apprch %	28.6	71.4	0			50	0	50			0	100	0			100	0	0					
Total %	14.3	35.7	0		50	7.1	0	7.1		14.3	0	28.6	0		28.6	7.1	0	0		7.1	0	100	

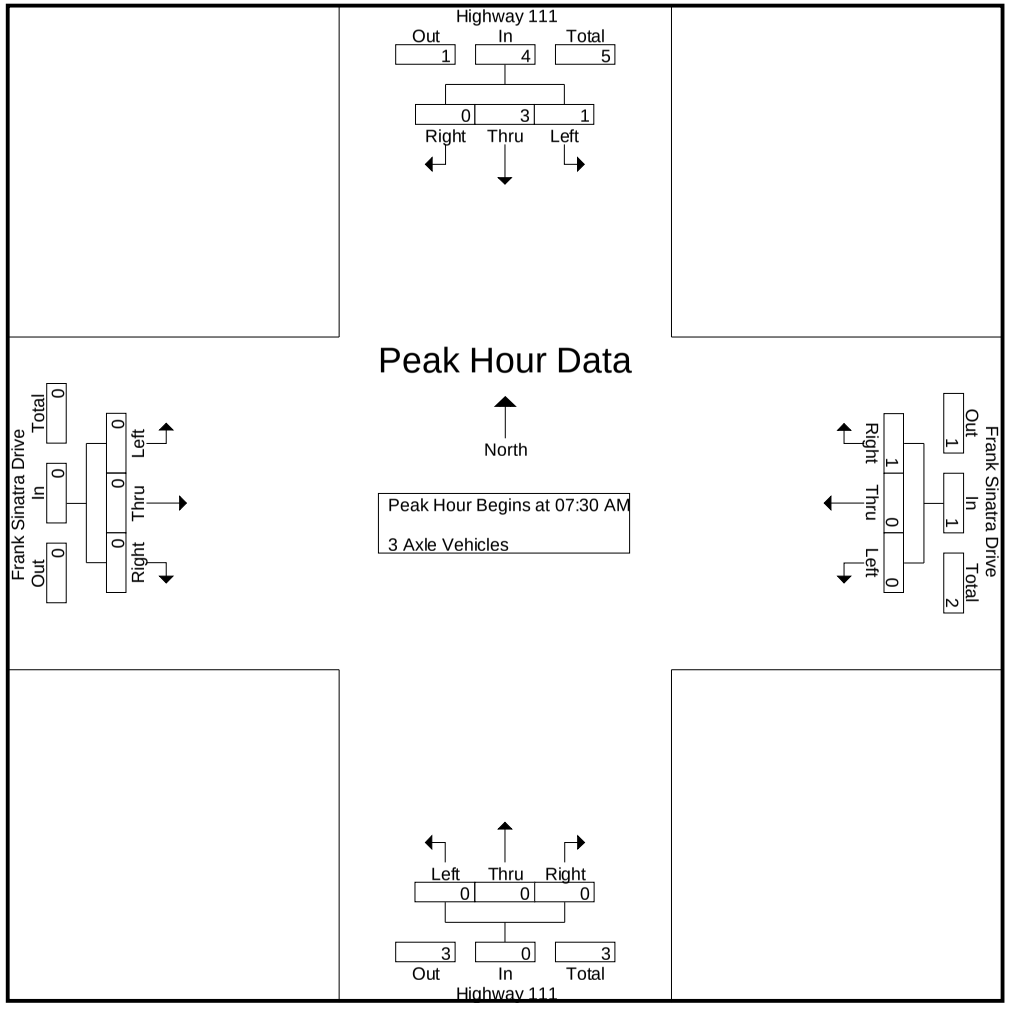
3.1-18

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	**1**	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	**2**	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	**2**
08:15 AM	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	1
Total Volume	1	3	0	4	0	0	1	1	0	0	0	0	0	0	0	0	5
% App. Total	25	75	0		0	0	100		0	0	0		0	0	0		
PHF	.250	.375	.000	.500	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.625

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	**1**	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	**2**	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	
Total Volume	1	3	0	4	0	0	1	1	0	0	0	0	0	0	0	0	
% App. Total	25	75	0		0	0	100		0	0	0		0	0	0		
PHF	.250	.375	.000	.500	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	3	3
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	5	0	0	5	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	7	7
08:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1
08:30 AM	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	2	0	0	3	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	5	5
Grand Total	1	7	0	0	8	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0	0	12	12
Apprch %	12.5	87.5	0			0	50	50			0	50	50			0	0	0					
Total %	8.3	58.3	0		66.7	0	8.3	8.3		16.7	0	8.3	8.3		16.7	0	0	0		0	0	100	

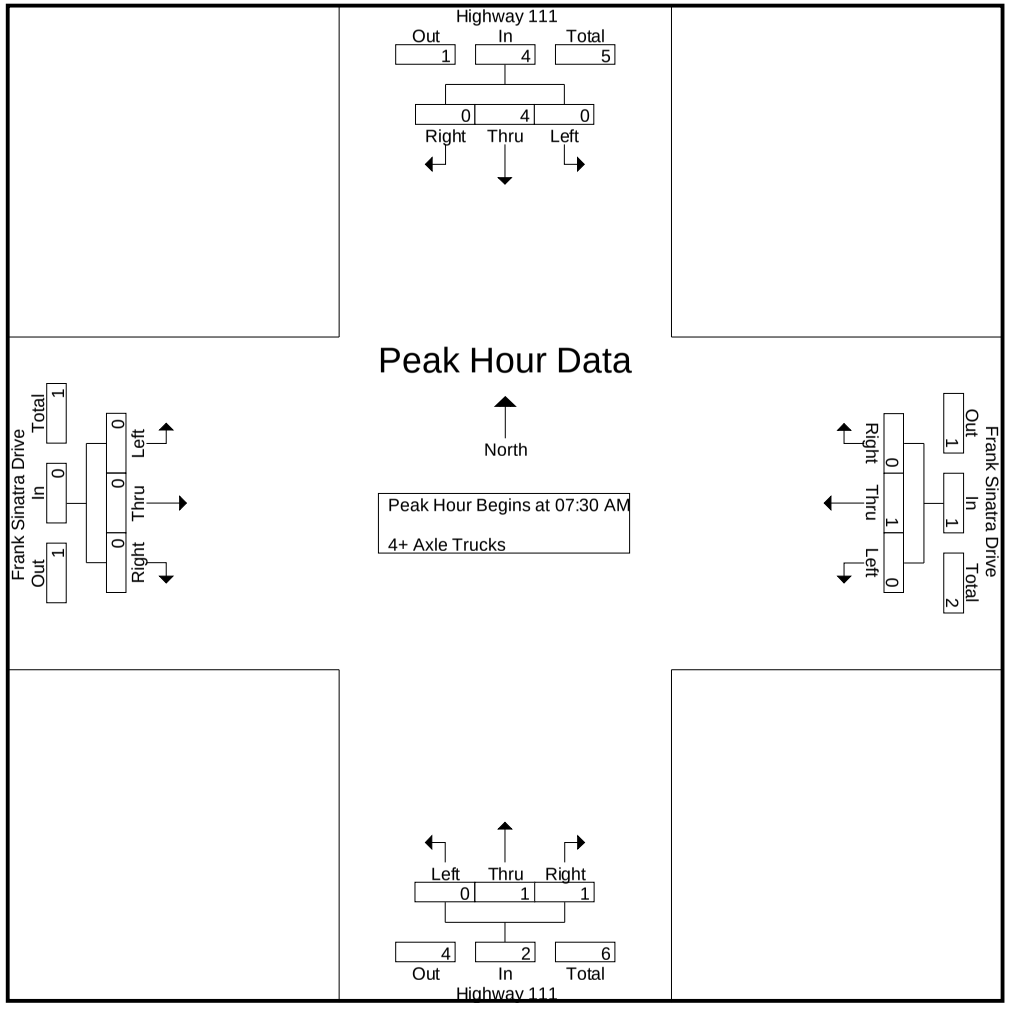
3.1-21

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	1	0	1	0	**1**	0	**1**	0	**1**	0	**1**	0	0	0	0	**3**
07:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	**2**	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	0	0	0	0	**1**	1	0	0	0	0	1
Total Volume	0	4	0	4	0	1	0	1	0	1	1	2	0	0	0	0	7
% App. Total	0	100	0		0	100	0		0	50	50		0	0	0		
PHF	.000	.500	.000	.500	.000	.250	.000	.250	.000	.250	.250	.500	.000	.000	.000	.000	.583

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra AM
Site Code : 05119831
Start Date : 12/11/2019
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City of Rancho Mirage
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File Name : 02_RNM_Hwy 111_Frank Sinatra AM
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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:30 AM				07:30 AM				07:30 AM				
+0 mins.	0	1	0	1	0	**1**	0	**1**	0	**1**	0	**1**	0	0	0	0	
+15 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	**2**	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	**1**	1	0	0	0	0	
Total Volume	0	4	0	4	0	1	0	1	0	1	1	2	0	0	0	0	
% App. Total	0	100	0		0	100	0		0	50	50		0	0	0		
PHF	.000	.500	.000	.500	.000	.250	.000	.250	.000	.250	.250	.500	.000	.000	.000	.000	

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City of Rancho Mirage
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File Name : 02_RNM_Hwy 111_Frank Sinatra PM
Site Code : 05119831
Start Date : 12/11/2019
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

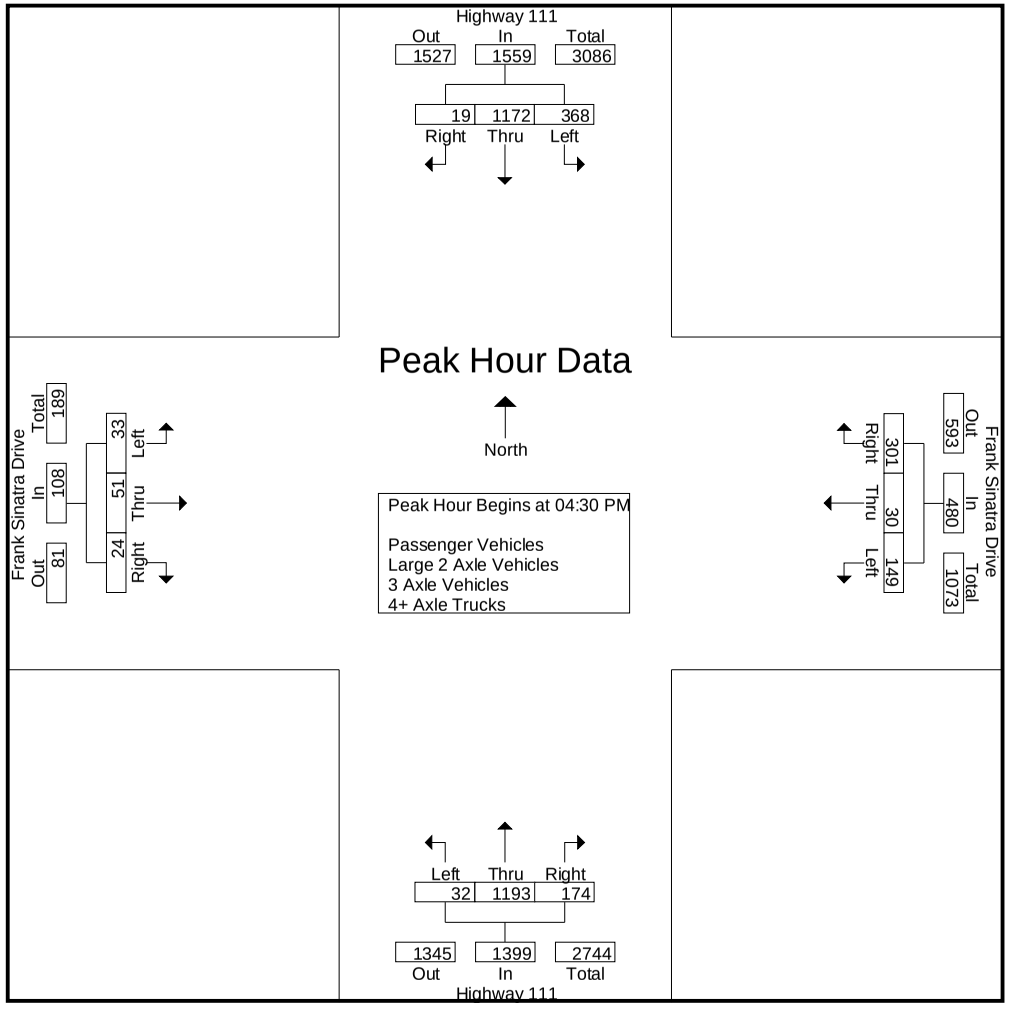
	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	77	275	4	1	356	40	9	82	0	131	7	339	48	0	394	7	7	7	0	21	1	902	903
04:15 PM	60	278	7	2	345	37	5	78	0	120	10	323	51	0	384	8	6	4	0	18	2	867	869
04:30 PM	106	289	4	1	399	43	10	80	0	133	8	274	52	0	334	5	8	5	1	18	2	884	886
04:45 PM	99	293	6	1	398	35	7	80	0	122	7	289	50	0	346	10	9	5	1	24	2	890	892
Total	342	1135	21	5	1498	155	31	320	0	506	32	1225	201	0	1458	30	30	21	2	81	7	3543	3550
05:00 PM	86	252	4	2	342	40	3	65	0	108	9	319	50	0	378	13	26	7	1	46	3	874	877
05:15 PM	77	338	5	2	420	31	10	76	0	117	8	311	22	1	341	5	8	7	3	20	6	898	904
05:30 PM	86	257	0	0	343	27	5	63	0	95	9	306	35	0	350	5	3	8	3	16	3	804	807
05:45 PM	49	222	5	2	276	22	3	42	0	67	10	268	23	0	301	5	5	7	1	17	3	661	664
Total	298	1069	14	6	1381	120	21	246	0	387	36	1204	130	1	1370	28	42	29	8	99	15	3237	3252
Grand Total	640	2204	35	11	2879	275	52	566	0	893	68	2429	331	1	2828	58	72	50	10	180	22	6780	6802
Apprch %	22.2	76.6	1.2			30.8	5.8	63.4			2.4	85.9	11.7			32.2	40	27.8					
Total %	9.4	32.5	0.5		42.5	4.1	0.8	8.3		13.2	1	35.8	4.9		41.7	0.9	1.1	0.7		2.7	0.3	99.7	
Passenger Vehicles	636	2177	35		2859	274	51	560		885	67	2380	323		2771	58	70	50		188	0	0	6703
% Passenger Vehicles	99.4	98.8	100	100	98.9	99.6	98.1	98.9	0	99.1	98.5	98	97.6	100	97.9	100	97.2	100	100	98.9	0	0	98.5
Large 2 Axle Vehicles	3	24	0		27	0	1	6		7	1	44	7		52	0	2	0		2	0	0	88
% Large 2 Axle Vehicles	0.5	1.1	0	0	0.9	0	1.9	1.1	0	0.8	1.5	1.8	2.1	0	1.8	0	2.8	0	0	1.1	0	0	1.3
3 Axle Vehicles	1	1	0		2	0	0	0		0	0	3	1		4	0	0	0		0	0	0	6
% 3 Axle Vehicles	0.2	0	0	0	0.1	0	0	0	0	0	0	0.1	0.3	0	0.1	0	0	0	0	0	0	0	0.1
4+ Axle Trucks	0	2	0		2	1	0	0		1	0	2	0		2	0	0	0		0	0	0	5
% 4+ Axle Trucks	0	0.1	0	0	0.1	0.4	0	0	0	0.1	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0.1

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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	**106**	289	4	399	**43**	**10**	**80**	**133**	8	274	**52**	334	5	8	5	18	884
04:45 PM	99	293	**6**	398	35	7	80	122	7	289	50	346	10	9	5	24	890
05:00 PM	86	252	4	342	40	3	65	108	**9**	**319**	50	**378**	**13**	**26**	**7**	**46**	874
05:15 PM	77	**338**	5	**420**	31	10	76	117	8	311	22	341	5	8	7	20	**898**
Total Volume	368	1172	19	1559	149	30	301	480	32	1193	174	1399	33	51	24	108	3546
% App. Total	23.6	75.2	1.2		31	6.2	62.7		2.3	85.3	12.4		30.6	47.2	22.2		
PHF	.868	.867	.792	.928	.866	.750	.941	.902	.889	.935	.837	.925	.635	.490	.857	.587	.987

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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 Each Approach Begins at:																	
	04:30 PM				04:00 PM				04:00 PM				04:30 PM				
+0 mins.	**106**	289	4	399	40	9	**82**	131	7	**339**	48	**394**	5	8	5	18	
+15 mins.	99	293	**6**	398	37	5	78	120	**10**	323	51	384	10	9	5	24	
+30 mins.	86	252	4	342	**43**	**10**	80	**133**	8	274	**52**	334	**13**	**26**	**7**	**46**	
+45 mins.	77	**338**	5	**420**	35	7	80	122	7	289	50	346	5	8	7	20	
Total Volume	368	1172	19	1559	155	31	320	506	32	1225	201	1458	33	51	24	108	
% App. Total	23.6	75.2	1.2		30.6	6.1	63.2		2.2	84	13.8		30.6	47.2	22.2		
PHF	.868	.867	.792	.928	.901	.775	.976	.951	.800	.903	.966	.925	.635	.490	.857	.587	

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Groups Printed- Passenger Vehicles

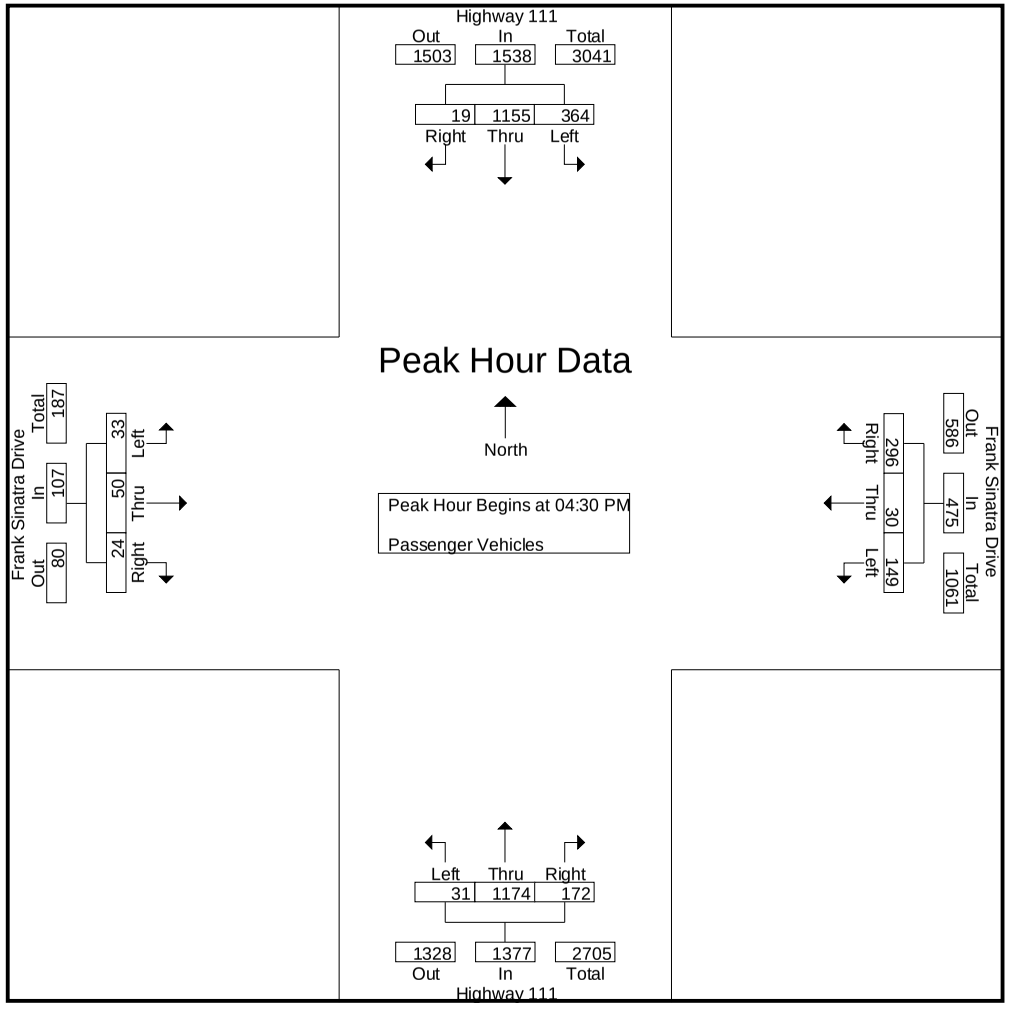
	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	77	273	4	1	354	39	9	81	0	129	7	329	47	0	383	7	7	7	0	21	1	887	888
04:15 PM	60	275	7	2	342	37	5	78	0	120	10	313	46	0	369	8	6	4	0	18	2	849	851
04:30 PM	104	282	4	1	390	43	10	79	0	132	8	270	51	0	329	5	7	5	1	17	2	868	870
04:45 PM	99	290	6	1	395	35	7	80	0	122	7	283	49	0	339	10	9	5	1	24	2	880	882
Total	340	1120	21	5	1481	154	31	318	0	503	32	1195	193	0	1420	30	29	21	2	80	7	3484	3491
05:00 PM	85	250	4	2	339	40	3	62	0	105	8	314	50	0	372	13	26	7	1	46	3	862	865
05:15 PM	76	333	5	2	414	31	10	75	0	116	8	307	22	1	337	5	8	7	3	20	6	887	893
05:30 PM	86	256	0	0	342	27	4	63	0	94	9	299	35	0	343	5	3	8	3	16	3	795	798
05:45 PM	49	218	5	2	272	22	3	42	0	67	10	265	23	0	298	5	4	7	1	16	3	653	656
Total	296	1057	14	6	1367	120	20	242	0	382	35	1185	130	1	1350	28	41	29	8	98	15	3197	3212
Grand Total	636	2177	35	11	2848	274	51	560	0	885	67	2380	323	1	2770	58	70	50	10	178	22	6681	6703
Apprch %	22.3	76.4	1.2			31	5.8	63.3			2.4	85.9	11.7			32.6	39.3	28.1					
Total %	9.5	32.6	0.5		42.6	4.1	0.8	8.4		13.2	1	35.6	4.8		41.5	0.9	1	0.7		2.7	0.3	99.7	

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**104**	282	4	390	**43**	**10**	79	**132**	**8**	270	**51**	329	5	7	5	17	868
04:45 PM	99	290	**6**	395	35	7	**80**	122	7	283	49	339	10	9	5	24	880
05:00 PM	85	250	4	339	40	3	62	105	8	**314**	50	**372**	**13**	**26**	**7**	**46**	862
05:15 PM	76	**333**	5	**414**	31	10	75	116	8	307	22	337	5	8	7	20	**887**
Total Volume	364	1155	19	1538	149	30	296	475	31	1174	172	1377	33	50	24	107	3497
% App. Total	23.7	75.1	1.2		31.4	6.3	62.3		2.3	85.3	12.5		30.8	46.7	22.4		
PHF	.875	.867	.792	.929	.866	.750	.925	.900	.969	.935	.843	.925	.635	.481	.857	.582	.986

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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	**104**	282	4	390	**43**	**10**	79	**132**	**8**	270	**51**	329	5	7	5	17	
+15 mins.	99	290	**6**	395	35	7	**80**	122	7	283	49	339	10	9	5	24	
+30 mins.	85	250	4	339	40	3	62	105	8	**314**	50	**372**	**13**	**26**	**7**	**46**	
+45 mins.	76	**333**	5	**414**	31	10	75	116	8	307	22	337	5	8	7	20	
Total Volume	364	1155	19	1538	149	30	296	475	31	1174	172	1377	33	50	24	107	
% App. Total	23.7	75.1	1.2		31.4	6.3	62.3		2.3	85.3	12.5		30.8	46.7	22.4		
PHF	.875	.867	.792	.929	.866	.750	.925	.900	.969	.935	.843	.925	.635	.481	.857	.582	

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Groups Printed- Large 2 Axle Vehicles

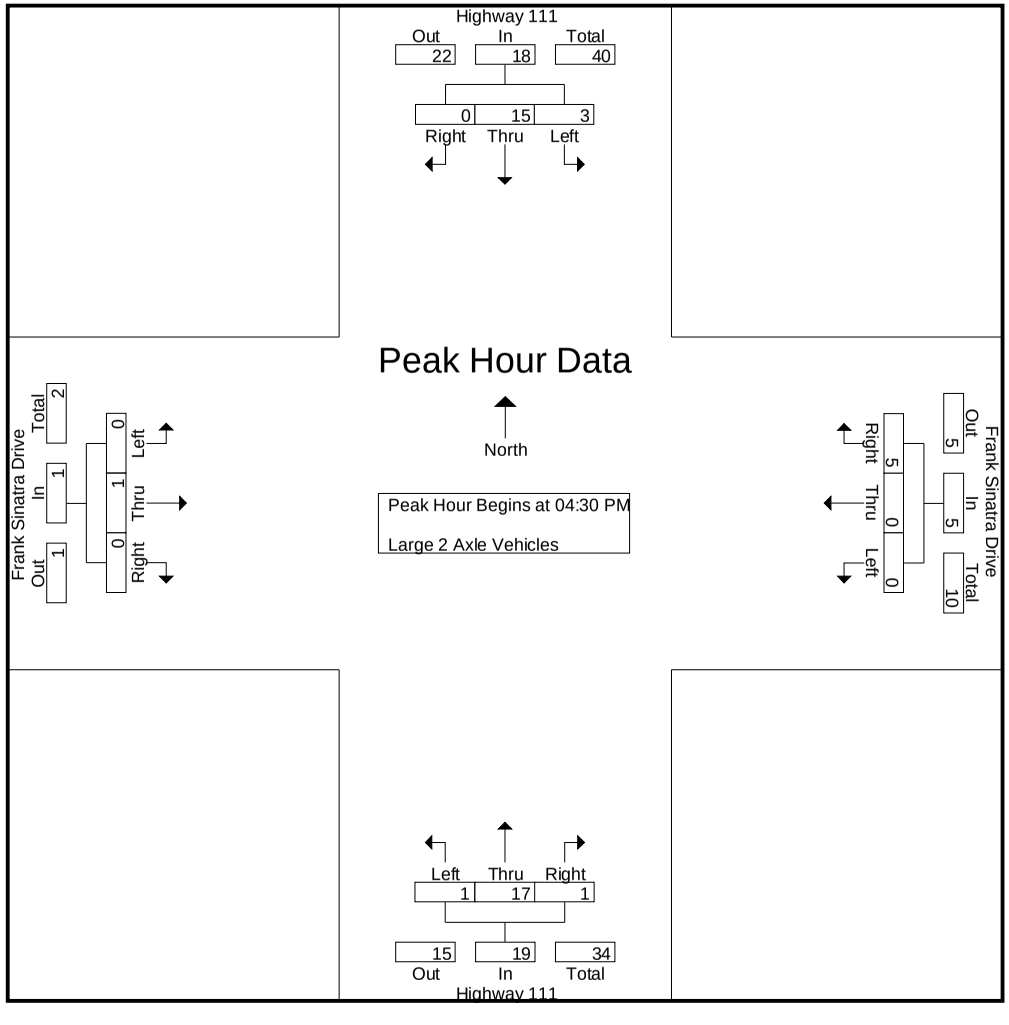
	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	1	0	0	1	0	0	1	0	1	0	10	1	0	11	0	0	0	0	0	0	13	13
04:15 PM	0	3	0	0	3	0	0	0	0	0	0	7	5	0	12	0	0	0	0	0	0	15	15
04:30 PM	1	7	0	0	8	0	0	1	0	1	0	4	0	0	4	0	1	0	0	1	0	14	14
04:45 PM	0	2	0	0	2	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	0	8	8
Total	1	13	0	0	14	0	0	2	0	2	0	26	7	0	33	0	1	0	0	1	0	50	50
05:00 PM	1	2	0	0	3	0	0	3	0	3	1	4	0	0	5	0	0	0	0	0	0	11	11
05:15 PM	1	4	0	0	5	0	0	1	0	1	0	4	0	0	4	0	0	0	0	0	0	10	10
05:30 PM	0	1	0	0	1	0	1	0	0	1	0	7	0	0	7	0	0	0	0	0	0	9	9
05:45 PM	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	0	8	8
Total	2	11	0	0	13	0	1	4	0	5	1	18	0	0	19	0	1	0	0	1	0	38	38
Grand Total	3	24	0	0	27	0	1	6	0	7	1	44	7	0	52	0	2	0	0	2	0	88	88
Apprch %	11.1	88.9	0			0	14.3	85.7			1.9	84.6	13.5			0	100	0					
Total %	3.4	27.3	0		30.7	0	1.1	6.8		8	1.1	50	8		59.1	0	2.3	0		2.3	0	100	

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**1**	**7**	0	**8**	0	0	1	1	0	4	0	4	0	**1**	0	**1**	**14**
04:45 PM	0	2	0	2	0	0	0	0	0	**5**	**1**	**6**	0	0	0	0	8
05:00 PM	1	2	0	3	0	0	**3**	**3**	**1**	4	0	5	0	0	0	0	11
05:15 PM	1	4	0	5	0	0	1	1	0	4	0	4	0	0	0	0	10
Total Volume	3	15	0	18	0	0	5	5	1	17	1	19	0	1	0	1	43
% App. Total	16.7	83.3	0		0	0	100		5.3	89.5	5.3		0	100	0		
PHF	.750	.536	.000	.563	.000	.000	.417	.417	.250	.850	.250	.792	.000	.250	.000	.250	.768

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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	**1**	**7**	0	**8**	0	0	1	1	0	4	0	4	0	**1**	0	**1**	
+15 mins.	0	2	0	2	0	0	0	0	0	**5**	**1**	**6**	0	0	0	0	
+30 mins.	1	2	0	3	0	0	**3**	**3**	**1**	4	0	5	0	0	0	0	
+45 mins.	1	4	0	5	0	0	1	1	0	4	0	4	0	0	0	0	
Total Volume	3	15	0	18	0	0	5	5	1	17	1	19	0	1	0	1	
% App. Total	16.7	83.3	0		0	0	100		5.3	89.5	5.3		0	100	0		
PHF	.750	.536	.000	.563	.000	.000	.417	.417	.250	.850	.250	.792	.000	.250	.000	.250	

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra PM
Site Code : 05119831
Start Date : 12/11/2019
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Groups Printed- 3 Axle Vehicles

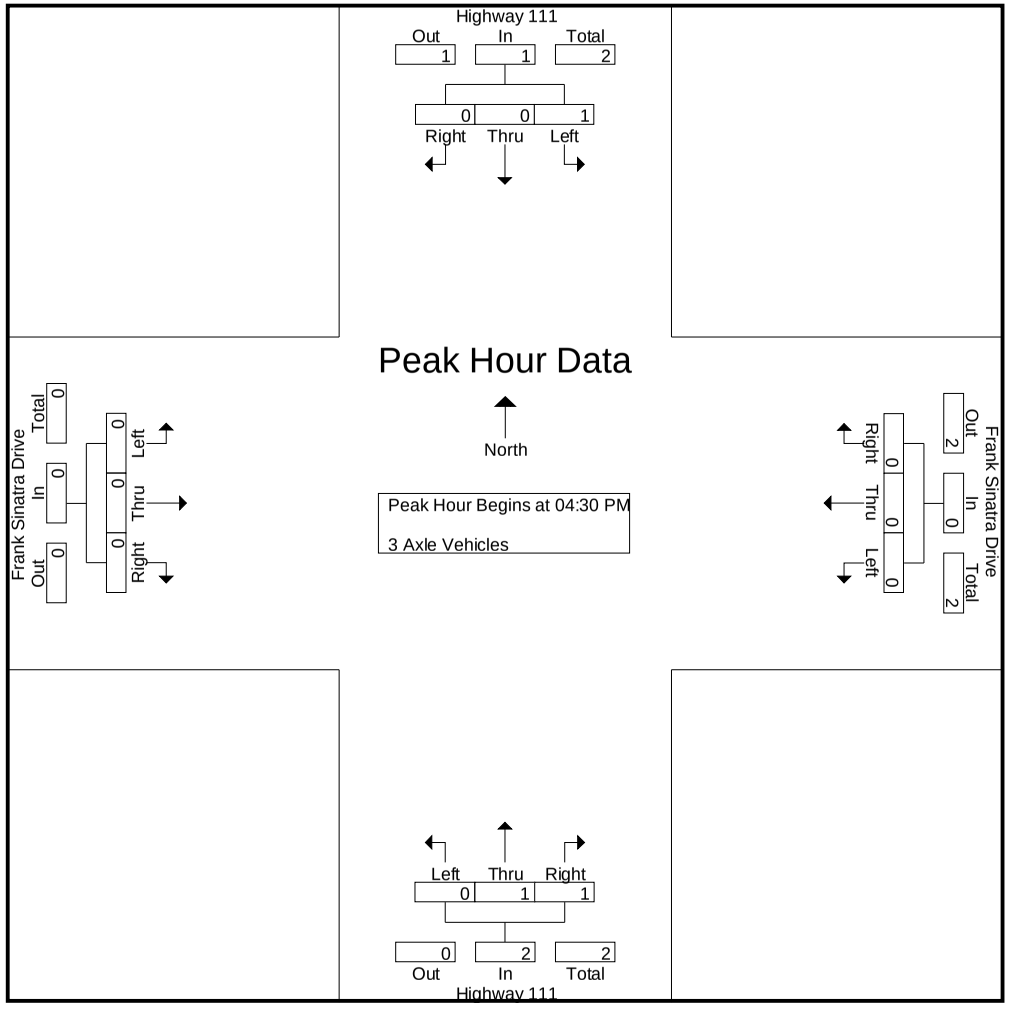
	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	2
04:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
Total	1	1	0	0	2	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	6	6
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	1	0	0	2	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	6	6
Apprch %	50	50	0			0	0	0			0	75	25			0	0	0					
Total %	16.7	16.7	0		33.3	0	0	0		0	0	50	16.7		66.7	0	0	0		0	0	100	

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**1**	0	0	**1**	0	0	0	0	0	0	**1**	**1**	0	0	0	0	**2**
04:45 PM	0	0	0	0	0	0	0	0	0	**1**	0	1	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	1	1	2	0	0	0	0	3
% App. Total	100	0	0		0	0	0		0	50	50		0	0	0		
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.250	.250	.500	.000	.000	.000	.000	.375

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E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra PM
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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	**1**	0	0	**1**	0	0	0	0	0	0	**1**	**1**	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	**1**	0	1	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	1	0	0	1	0	0	0	0	0	1	1	2	0	0	0	0	
% App. Total	100	0	0		0	0	0		0	50	50		0	0	0		
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.250	.250	.500	.000	.000	.000	.000	

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra PM
Site Code : 05119831
Start Date : 12/11/2019
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Groups Printed- 4+ Axle Trucks

	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	3	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
05:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	2
Grand Total	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	5	5
Apprch %	0	100	0			100	0	0			0	100	0			0	0	0					
Total %	0	40	0		40	20	0	0		20	0	40	0		40	0	0	0		0	0	100	

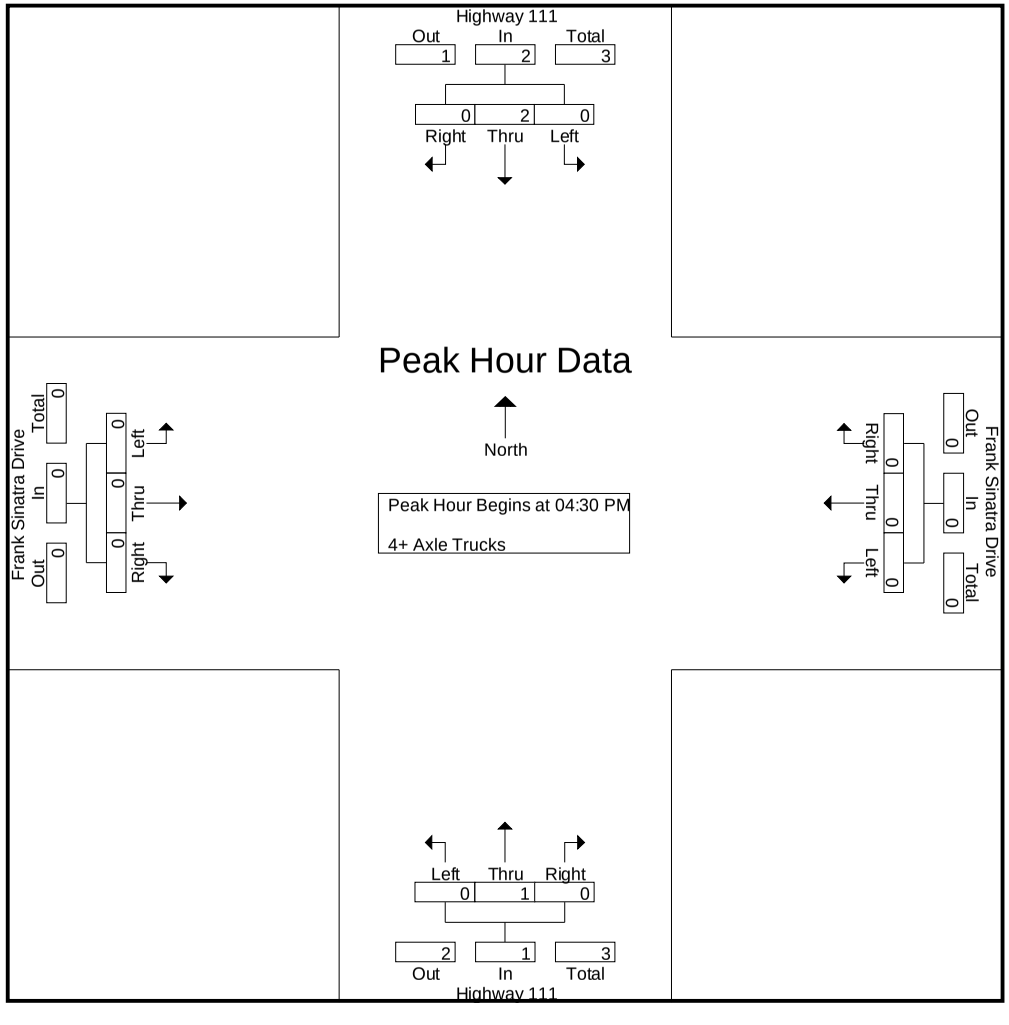
3.1-36

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
05:00 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
05:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.750

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City of Rancho Mirage
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Weather: Clear

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E/W: Frank Sinatra Drive
Weather: Clear

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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	
+45 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	

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Site Code : 05119831
Start Date : 12/7/2019
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
10:00 AM	48	236	5	1	289	35	1	61	50	97	2	194	24	6	220	8	9	8	0	25	57	631	688
10:15 AM	37	237	4	0	278	51	7	45	39	103	3	190	25	4	218	3	11	4	0	18	43	617	660
10:30 AM	33	265	4	2	302	30	1	55	46	86	5	202	22	2	229	9	7	4	0	20	50	637	687
10:45 AM	38	276	7	1	321	38	1	63	52	102	9	206	29	4	244	2	12	5	0	19	57	686	743
Total	156	1014	20	4	1190	154	10	224	187	388	19	792	100	16	911	22	39	21	0	82	207	2571	2778
11:00 AM	47	294	4	0	345	36	5	37	26	78	8	227	29	4	264	9	8	3	0	20	30	707	737
11:15 AM	49	277	8	0	334	36	5	59	52	100	8	255	26	3	289	6	10	4	0	20	55	743	798
11:30 AM	54	310	6	2	370	35	10	54	49	99	9	283	31	5	323	7	8	3	0	18	56	810	866
11:45 AM	44	291	7	1	342	37	8	47	44	92	12	252	31	2	295	7	5	3	0	15	47	744	791
Total	194	1172	25	3	1391	144	28	197	171	369	37	1017	117	14	1171	29	31	13	0	73	188	3004	3192
12:00 PM	45	277	5	0	327	32	4	44	42	80	7	245	39	4	291	9	4	2	0	15	46	713	759
12:15 PM	50	225	6	1	281	35	4	44	23	83	10	229	20	1	259	6	9	4	0	19	25	642	667
12:30 PM	51	288	9	0	348	39	3	55	45	97	8	268	49	3	325	8	8	3	0	19	48	789	837
12:45 PM	52	277	11	4	340	34	11	55	42	100	9	280	28	4	317	9	6	3	0	18	50	775	825
Total	198	1067	31	5	1296	140	22	198	152	360	34	1022	136	12	1192	32	27	12	0	71	169	2919	3088
01:00 PM	43	285	7	2	335	34	13	41	37	88	12	236	25	3	273	4	9	2	0	15	42	711	753
01:15 PM	43	281	10	1	334	38	7	50	41	95	11	265	17	3	293	7	7	3	0	17	45	739	784
01:30 PM	50	275	11	1	336	34	6	34	29	74	14	273	20	3	307	5	12	4	0	21	33	738	771
01:45 PM	52	330	8	0	390	35	2	35	31	72	11	304	33	3	348	3	14	2	0	19	34	829	863
Total	188	1171	36	4	1395	141	28	160	138	329	48	1078	95	12	1221	19	42	11	0	72	154	3017	3171
Grand Total	736	4424	112	16	5272	579	88	779	648	1446	138	3909	448	54	4495	102	139	57	0	298	718	11511	12229
Apprch %	14	83.9	2.1			40	6.1	53.9			3.1	87	10			34.2	46.6	19.1					
Total %	6.4	38.4	1		45.8	5	0.8	6.8		12.6	1.2	34	3.9		39	0.9	1.2	0.5		2.6	5.9	94.1	
Passenger Vehicles	729	4373	110		5226	575	85	771		2074	138	3859	444		4495	100	136	55		291	0	0	12086
% Passenger Vehicles	99	98.8	98.2	87.5	98.8	99.3	96.6	99	99.2	99	100	98.7	99.1	100	98.8	98	97.8	96.5	0	97.7	0	0	98.8
Large 2 Axle Vehicles	7	44	2		55	4	3	6		17	0	37	4		41	2	3	2		7	0	0	120
% Large 2 Axle Vehicles	1	1	1.8	12.5	1	0.7	3.4	0.8	0.6	0.8	0	0.9	0.9	0	0.9	2	2.2	3.5	0	2.3	0	0	1
3 Axle Vehicles	0	1	0		1	0	0	2		3	0	3	0		3	0	0	0		0	0	0	7
% 3 Axle Vehicles	0	0	0	0	0	0	0	0.3	0.2	0.1	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0.1
4+ Axle Trucks	0	6	0		6	0	0	0		0	0	10	0		10	0	0	0		0	0	0	16
% 4+ Axle Trucks	0	0.1	0	0	0.1	0	0	0	0	0	0	0.3	0	0	0.2	0	0	0	0	0	0	0	0.1

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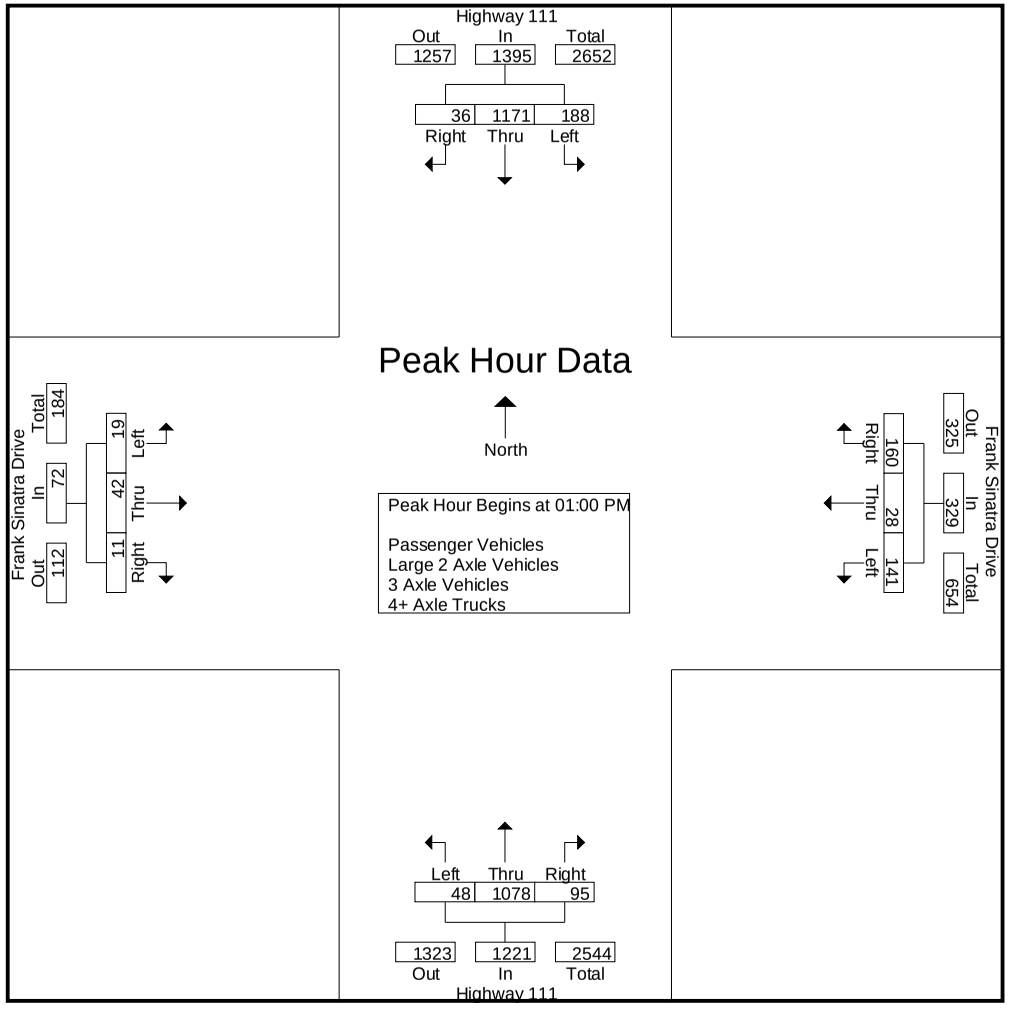
File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	43	285	7	335	34	**13**	41	88	12	236	25	273	4	9	2	15	711
01:15 PM	43	281	10	334	**38**	7	**50**	**95**	11	265	17	293	**7**	7	3	17	739
01:30 PM	50	275	**11**	336	34	6	34	74	**14**	273	20	307	5	12	**4**	**21**	738
01:45 PM	**52**	**330**	8	**390**	35	2	35	72	11	**304**	**33**	**348**	3	**14**	2	19	**829**
Total Volume	188	1171	36	1395	141	28	160	329	48	1078	95	1221	19	42	11	72	3017
% App. Total	13.5	83.9	2.6		42.9	8.5	48.6		3.9	88.3	7.8		26.4	58.3	15.3		
PHF	.904	.887	.818	.894	.928	.538	.800	.866	.857	.887	.720	.877	.679	.750	.688	.857	.910

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Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 10:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				10:00 AM				01:00 PM				10:00 AM				
+0 mins.	43	285	7	335	35	1	61	97	12	236	25	273	8	9	**8**	**25**	
+15 mins.	43	281	10	334	**51**	**7**	45	**103**	11	265	17	293	3	11	4	18	
+30 mins.	50	275	**11**	336	30	1	55	86	**14**	273	20	307	**9**	7	4	20	
+45 mins.	**52**	**330**	8	**390**	38	1	**63**	102	11	**304**	**33**	**348**	2	**12**	5	19	
Total Volume	188	1171	36	1395	154	10	224	388	48	1078	95	1221	22	39	21	82	
% App. Total	13.5	83.9	2.6		39.7	2.6	57.7		3.9	88.3	7.8		26.8	47.6	25.6		
PHF	.904	.887	.818	.894	.755	.357	.889	.942	.857	.887	.720	.877	.611	.813	.656	.820	

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Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
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Groups Printed- Passenger Vehicles

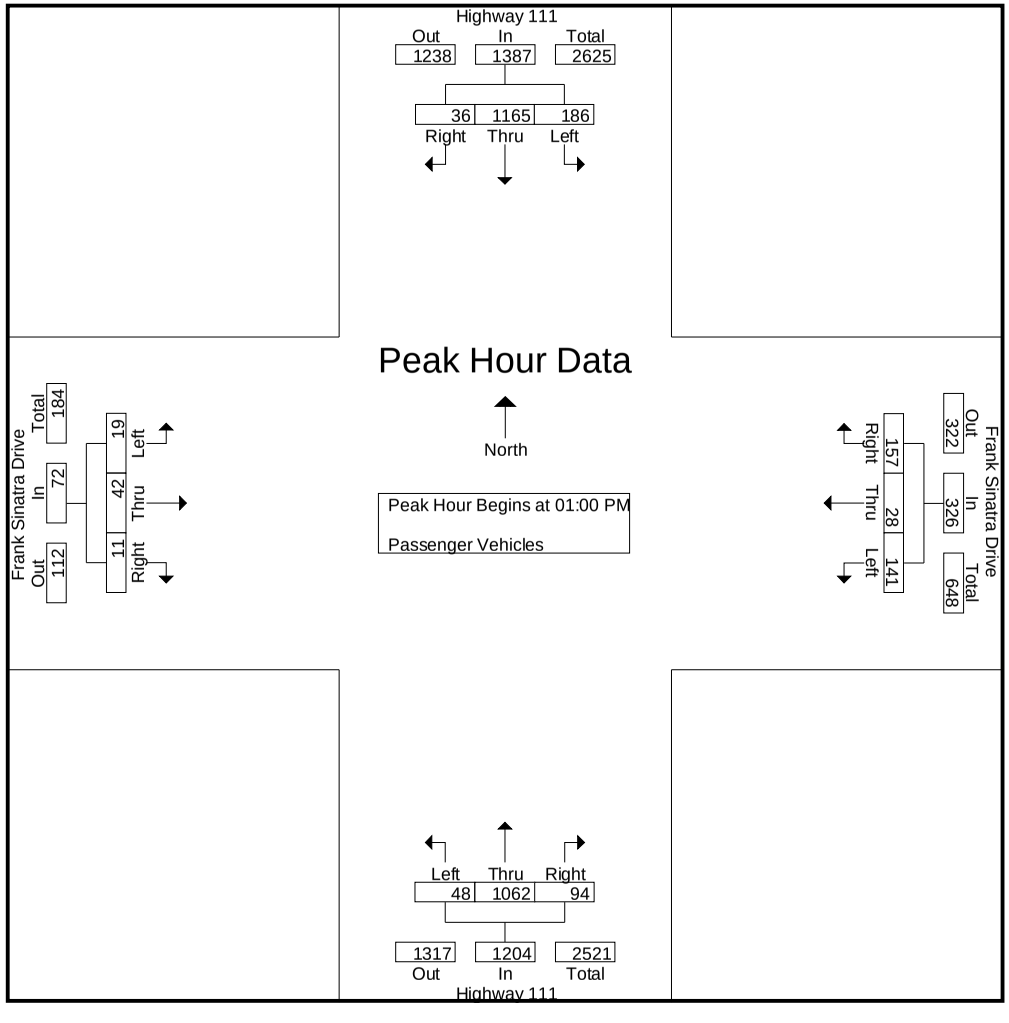
	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
10:00 AM	47	223	5	1	275	35	1	60	50	96	2	191	24	6	217	7	8	7	0	22	57	610	667
10:15 AM	37	233	4	0	274	51	7	45	39	103	3	188	25	4	216	3	11	4	0	18	43	611	654
10:30 AM	33	262	3	1	298	28	1	54	46	83	5	199	21	2	225	9	6	3	0	18	49	624	673
10:45 AM	38	273	7	1	318	38	0	63	52	101	9	204	29	4	242	2	12	5	0	19	57	680	737
Total	155	991	19	3	1165	152	9	222	187	383	19	782	99	16	900	21	37	19	0	77	206	2525	2731
11:00 AM	47	291	4	0	342	36	5	37	26	78	8	225	29	4	262	9	8	3	0	20	30	702	732
11:15 AM	47	275	8	0	330	35	5	59	52	99	8	253	26	3	287	6	10	4	0	20	55	736	791
11:30 AM	54	307	6	2	367	34	10	54	49	98	9	280	31	5	320	7	8	3	0	18	56	803	859
11:45 AM	44	287	7	1	338	37	8	46	43	91	12	251	31	2	294	7	5	3	0	15	46	738	784
Total	192	1160	25	3	1377	142	28	196	170	366	37	1009	117	14	1163	29	31	13	0	73	187	2979	3166
12:00 PM	45	274	5	0	324	32	3	44	42	79	7	240	38	4	285	9	4	2	0	15	46	703	749
12:15 PM	49	225	5	0	279	35	3	43	22	81	10	228	20	1	258	6	9	4	0	19	23	637	660
12:30 PM	51	285	9	0	345	39	3	55	45	97	8	262	48	3	318	7	8	3	0	18	48	778	826
12:45 PM	51	273	11	4	335	34	11	54	42	99	9	276	28	4	313	9	5	3	0	17	50	764	814
Total	196	1057	30	4	1283	140	20	196	151	356	34	1006	134	12	1174	31	26	12	0	69	167	2882	3049
01:00 PM	42	283	7	2	332	34	13	40	36	87	12	232	25	3	269	4	9	2	0	15	41	703	744
01:15 PM	43	280	10	1	333	38	7	49	40	94	11	261	17	3	289	7	7	3	0	17	44	733	777
01:30 PM	49	274	11	1	334	34	6	34	29	74	14	269	20	3	303	5	12	4	0	21	33	732	765
01:45 PM	52	328	8	0	388	35	2	34	30	71	11	300	32	3	343	3	14	2	0	19	33	821	854
Total	186	1165	36	4	1387	141	28	157	135	326	48	1062	94	12	1204	19	42	11	0	72	151	2989	3140
Grand Total	729	4373	110	14	5212	575	85	771	643	1431	138	3859	444	54	4441	100	136	55	0	291	711	11375	12086
Apprch %	14	83.9	2.1			40.2	5.9	53.9			3.1	86.9	10			34.4	46.7	18.9					
Total %	6.4	38.4	1		45.8	5.1	0.7	6.8		12.6	1.2	33.9	3.9		39	0.9	1.2	0.5		2.6	5.9	94.1	

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	42	283	7	332	34	**13**	40	87	12	232	25	269	4	9	2	15	703
01:15 PM	43	280	10	333	**38**	7	**49**	**94**	11	261	17	289	**7**	7	3	17	733
01:30 PM	49	274	**11**	334	34	6	34	74	**14**	269	20	303	5	12	**4**	**21**	732
01:45 PM	**52**	**328**	8	**388**	35	2	34	71	11	**300**	**32**	**343**	3	**14**	2	19	**821**
Total Volume	186	1165	36	1387	141	28	157	326	48	1062	94	1204	19	42	11	72	2989
% App. Total	13.4	84	2.6		43.3	8.6	48.2		4	88.2	7.8		26.4	58.3	15.3		
PHF	.894	.888	.818	.894	.928	.538	.801	.867	.857	.885	.734	.878	.679	.750	.688	.857	.910

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
Site Code : 05119831
Start Date : 12/7/2019
Page No : 2



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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
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File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
Site Code : 05119831
Start Date : 12/7/2019
Page No : 3

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	42	283	7	332	34	**13**	40	87	12	232	25	269	4	9	2	15	
+15 mins.	43	280	10	333	**38**	7	**49**	**94**	11	261	17	289	**7**	7	3	17	
+30 mins.	49	274	**11**	334	34	6	34	74	**14**	269	20	303	5	12	**4**	**21**	
+45 mins.	**52**	**328**	8	**388**	35	2	34	71	11	**300**	**32**	**343**	3	**14**	2	19	
Total Volume	186	1165	36	1387	141	28	157	326	48	1062	94	1204	19	42	11	72	
% App. Total	13.4	84	2.6		43.3	8.6	48.2		4	88.2	7.8		26.4	58.3	15.3		
PHF	.894	.888	.818	.894	.928	.538	.801	.867	.857	.885	.734	.878	.679	.750	.688	.857	

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
Site Code : 05119831
Start Date : 12/7/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

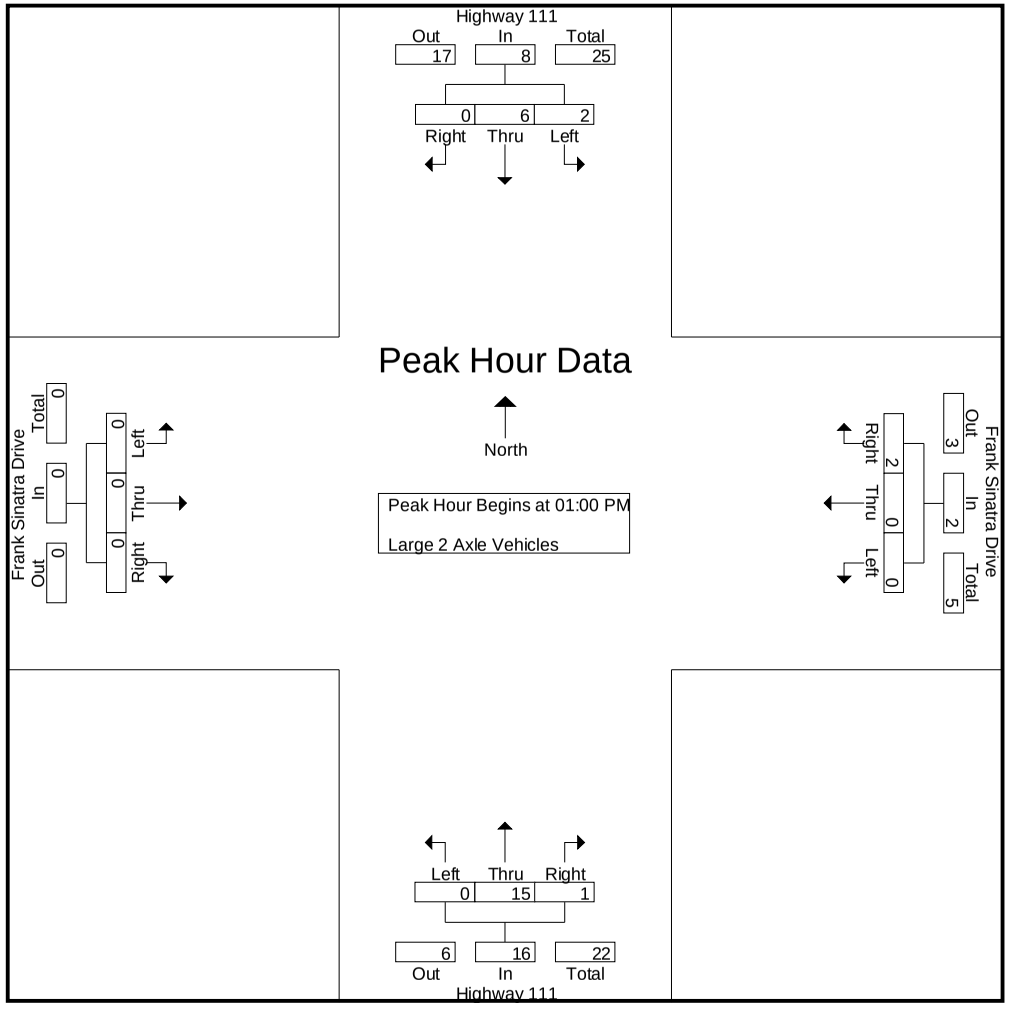
	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
10:00 AM	1	12	0	0	13	0	0	0	0	0	0	2	0	0	2	1	1	1	0	3	0	18	18
10:15 AM	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	5	5
10:30 AM	0	3	1	1	4	2	0	1	0	3	0	2	1	0	3	0	1	1	0	2	1	12	13
10:45 AM	0	2	0	0	2	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	5	5
Total	1	21	1	1	23	2	1	1	0	4	0	7	1	0	8	1	2	2	0	5	1	40	41
11:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
11:15 AM	2	1	0	0	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	4
11:30 AM	0	2	0	0	2	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	6	6
11:45 AM	0	3	0	0	3	0	0	1	1	1	0	1	0	0	1	0	0	0	0	0	1	5	6
Total	2	8	0	0	10	2	0	1	1	3	0	4	0	0	4	0	0	0	0	0	1	17	18
12:00 PM	0	3	0	0	3	0	1	0	0	1	0	3	1	0	4	0	0	0	0	0	0	8	8
12:15 PM	1	0	1	1	2	0	1	1	1	2	0	1	0	0	1	0	0	0	0	0	2	5	7
12:30 PM	0	3	0	0	3	0	0	0	0	0	0	4	1	0	5	1	0	0	0	1	0	9	9
12:45 PM	1	3	0	0	4	0	0	1	0	1	0	3	0	0	3	0	1	0	0	1	0	9	9
Total	2	9	1	1	12	0	2	2	1	4	0	11	2	0	13	1	1	0	0	2	2	31	33
01:00 PM	1	2	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	7	7
01:15 PM	0	1	0	0	1	0	0	1	1	1	0	4	0	0	4	0	0	0	0	0	1	6	7
01:30 PM	1	1	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	6	6
01:45 PM	0	2	0	0	2	0	0	1	1	1	0	3	1	0	4	0	0	0	0	0	1	7	8
Total	2	6	0	0	8	0	0	2	2	2	0	15	1	0	16	0	0	0	0	0	2	26	28
Grand Total	7	44	2	2	53	4	3	6	4	13	0	37	4	0	41	2	3	2	0	7	6	114	120
Apprch %	13.2	83	3.8			30.8	23.1	46.2			0	90.2	9.8			28.6	42.9	28.6					
Total %	6.1	38.6	1.8		46.5	3.5	2.6	5.3		11.4	0	32.5	3.5		36	1.8	2.6	1.8		6.1	5	95	

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	**1**	**2**	0	**3**	0	0	0	0	0	**4**	0	**4**	0	0	0	0	**7**
01:15 PM	0	1	0	1	0	0	**1**	**1**	0	4	0	4	0	0	0	0	6
01:30 PM	1	1	0	2	0	0	0	0	0	4	0	4	0	0	0	0	6
01:45 PM	0	2	0	2	0	0	1	1	0	3	**1**	4	0	0	0	0	7
Total Volume	2	6	0	8	0	0	2	2	0	15	1	16	0	0	0	0	26
% App. Total	25	75	0		0	0	100		0	93.8	6.2		0	0	0		
PHF	.500	.750	.000	.667	.000	.000	.500	.500	.000	.938	.250	1.00	.000	.000	.000	.000	.929

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
Site Code : 05119831
Start Date : 12/7/2019
Page No : 2



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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
Site Code : 05119831
Start Date : 12/7/2019
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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	**1**	**2**	0	**3**	0	0	0	0	0	**4**	0	**4**	0	0	0	0	
+15 mins.	0	1	0	1	0	0	**1**	**1**	0	4	0	4	0	0	0	0	
+30 mins.	1	1	0	2	0	0	0	0	0	4	0	4	0	0	0	0	
+45 mins.	0	2	0	2	0	0	1	1	0	3	**1**	4	0	0	0	0	
Total Volume	2	6	0	8	0	0	2	2	0	15	1	16	0	0	0	0	
% App. Total	25	75	0		0	0	100		0	93.8	6.2		0	0	0		
PHF	.500	.750	.000	.667	.000	.000	.500	.500	.000	.938	.250	1.000	.000	.000	.000	.000	

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
Site Code : 05119831
Start Date : 12/7/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

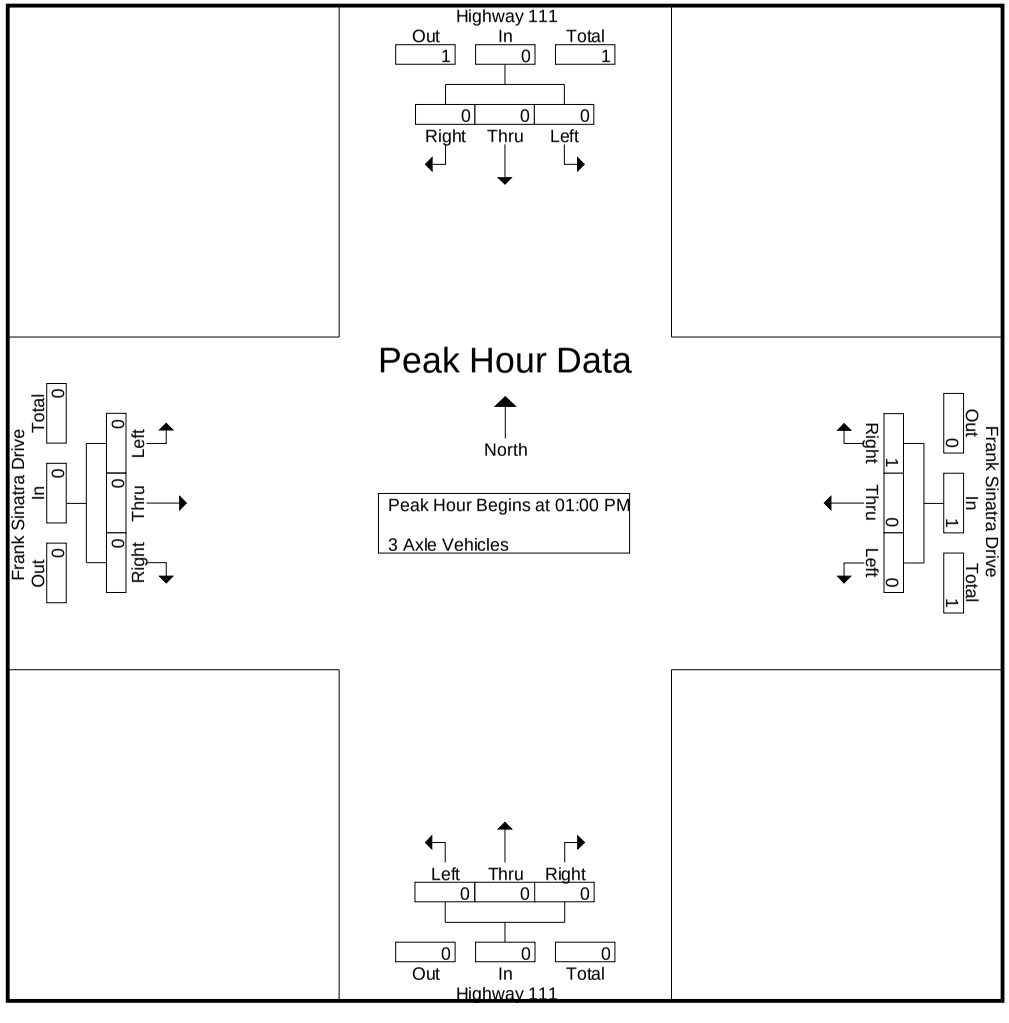
	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
10:00 AM	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	3	3
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	3	3
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
01:00 PM	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	2
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	2
Grand Total	0	1	0	0	1	0	0	2	1	2	0	3	0	0	3	0	0	0	0	0	1	6	7
Apprch %	0	100	0			0	0	100			0	100	0			0	0	0					
Total %	0	16.7	0		16.7	0	0	33.3		33.3	0	50	0		50	0	0	0		0	14.3	85.7	

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	**1**
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0		0	0	100		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
Site Code : 05119831
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	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	
% App. Total	0	0	0		0	0	100		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	

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File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
Site Code : 05119831
Start Date : 12/7/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

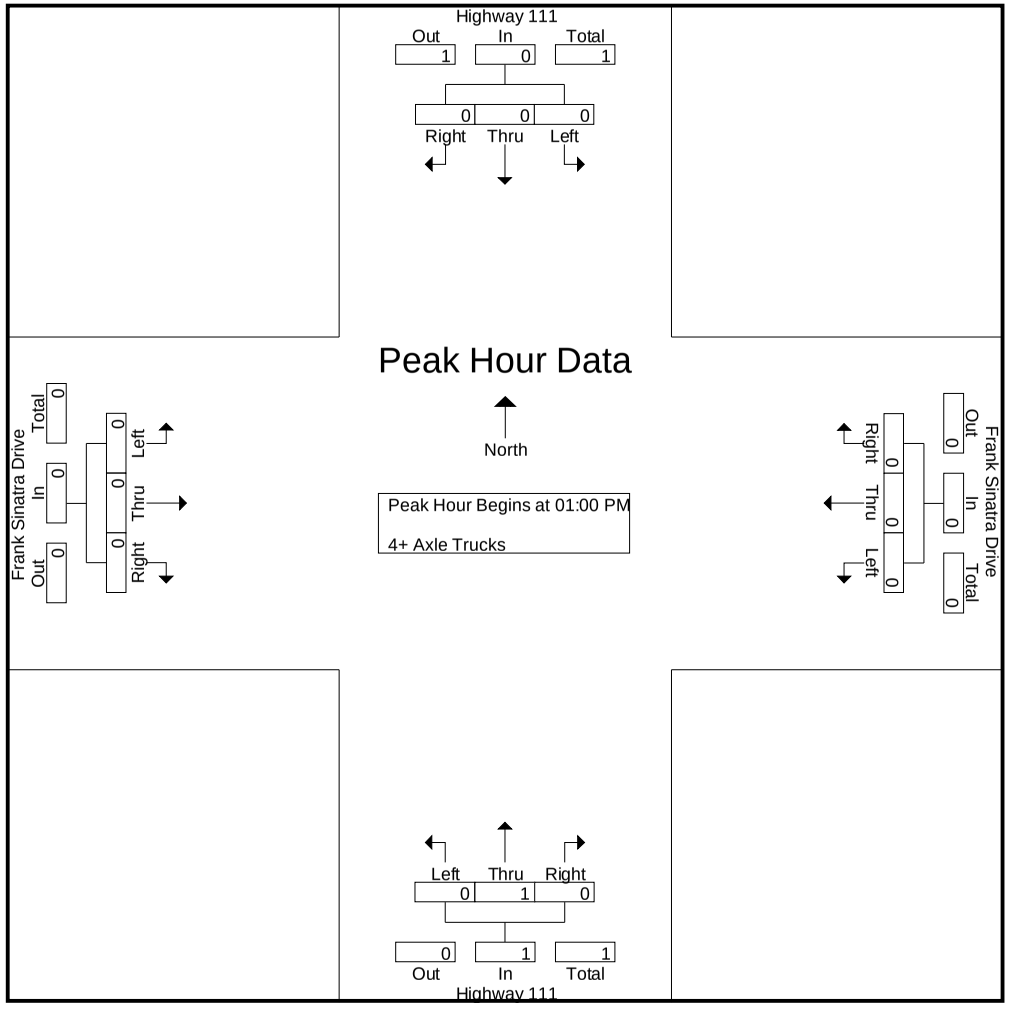
	Highway 111 Southbound					Frank Sinatra Drive Westbound					Highway 111 Northbound					Frank Sinatra Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
10:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	3
11:00 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	3
11:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	2
11:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
11:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	7	7
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	2
12:45 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	2
Total	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	5	5
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
Grand Total	0	6	0	0	6	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	16	16
Apprch %	0	100	0			0	0	0			0	100	0			0	0	0					
Total %	0	37.5	0		37.5	0	0	0		0	0	62.5	0		62.5	0	0	0		0	0	100	

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**1**
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250

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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
Site Code : 05119831
Start Date : 12/7/2019
Page No : 2



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City of Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive
Weather: Clear

File Name : 02_RNM_Hwy 111_Frank Sinatra SAT
Site Code : 05119831
Start Date : 12/7/2019
Page No : 3

	Highway 111 Southbound				Frank Sinatra Drive Westbound				Highway 111 Northbound				Frank Sinatra 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 01:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	01:00 PM				01:00 PM				01:00 PM				01:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	

Location: Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive

PEDESTRIANS

Date: 12/11/2019
Day: Wednesday

	North Leg Highway 111	East Leg Frank Sinatra Drive	South Leg Highway 111	West Leg Frank Sinatra Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	4	4	0	8
7:15 AM	0	0	0	0	0
7:30 AM	0	1	2	0	3
7:45 AM	0	3	3	0	6
8:00 AM	0	2	0	0	2
8:15 AM	0	2	0	0	2
8:30 AM	0	2	1	0	3
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	14	10	0	24

Date: 12/11/2019
Day: Wednesday

	North Leg Highway 111	East Leg Frank Sinatra Drive	South Leg Highway 111	West Leg Frank Sinatra Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	1	0	1
4:15 PM	0	0	1	0	1
4:30 PM	0	1	0	0	1
4:45 PM	0	0	0	0	0
5:00 PM	0	0	1	0	1
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	1	3	0	4

Date: 12/7/2019
Day: Saturday

	North Leg Highway 111	East Leg Frank Sinatra Drive	South Leg Highway 111	West Leg Frank Sinatra Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
10:00 AM	0	0	0	0	0
10:15 AM	0	0	4	0	4
10:30 AM	0	0	0	0	0
10:45 AM	0	0	0	0	0
11:00 AM	0	3	3	0	6
11:15 AM	0	4	4	0	8
11:30 AM	0	1	1	0	2
11:45 AM	0	0	0	0	0
12:00 PM	0	0	5	0	5
12:15 PM	0	0	0	0	0
12:30 PM	0	0	0	0	0
12:45 PM	0	2	2	0	4
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	3	0	0	3	6
TOTAL VOLUMES:	3	10	19	3	35

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Location: Rancho Mirage
N/S: Highway 111
E/W: Frank Sinatra Drive

BICYCLES

Date: 12/11/2019
Day: Wednesday

	Southbound Highway 111			Westbound Frank Sinatra Drive			Northbound Highway 111			Eastbound Frank Sinatra Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	1	0	0	0	0	1	0	1	0	0	0	0	3

Date: 12/11/2019
Day: Wednesday

	Southbound Highway 111			Westbound Frank Sinatra Drive			Northbound Highway 111			Eastbound Frank Sinatra Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	0	0	0	0	0	1	0	0	3

Date: 12/7/2019
Day: Saturday

	Southbound Highway 111			Westbound Frank Sinatra Drive			Northbound Highway 111			Eastbound Frank Sinatra Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1	0	0	1	0	0	0	0	3

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City of Rancho Mirage
Frank Sinatra Drive
W/ Highway 111
24 Hour Directional Volume Count

RNMFSW111
Site Code: 051-19831

Start Time	12/7/2019 Sat	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		9	16			4	17				
12:15		7	21			2	25				
12:30		4	18			1	17				
12:45		2	19	22	74	2	30	9	89	31	163
01:00		1	16			0	29				
01:15		0	22			4	27				
01:30		1	24			0	30				
01:45		2	22	4	84	1	18	5	104	9	188
02:00		2	13			1	25				
02:15		1	18			0	26				
02:30		0	14			1	30				
02:45		1	20	4	65	1	29	3	110	7	175
03:00		1	11			0	28				
03:15		1	16			1	26				
03:30		0	**23**			1	**31**				
03:45		0	**20**	2	70	1	**28**	3	113	5	183
04:00		2	**16**			1	**30**				
04:15		0	**28**			0	**32**				
04:30		1	18			0	19				
04:45		2	10	5	72	6	24	7	105	12	177
05:00		6	24			2	22				
05:15		4	24			3	16				
05:30		0	18			7	15				
05:45		4	20	14	86	10	10	22	63	36	149
06:00		2	18			7	14				
06:15		5	18			7	13				
06:30		2	19			8	18				
06:45		8	16	17	71	21	13	43	58	60	129
07:00		12	15			15	10				
07:15		7	13			13	9				
07:30		12	16			**16**	12				
07:45		19	8	50	52	**33**	12	77	43	127	95
08:00		9	12			**17**	8				
08:15		16	9			**20**	10				
08:30		14	11			7	8				
08:45		16	20	55	52	20	20	64	46	119	98
09:00		**26**	15			20	12				
09:15		**16**	3			17	14				
09:30		**16**	13			10	8				
09:45		**22**	8	80	39	21	6	68	40	148	79
10:00		17	16			8	13				
10:15		20	17			10	12				
10:30		16	16			12	7				
10:45		19	20	72	69	14	11	44	43	116	112
11:00		20	8			12	5				
11:15		20	11			23	5				
11:30		16	16			20	4				
11:45		13	2	69	37	22	2	77	16	146	53
Total		394	771	394	771	422	830	422	830	816	1601
Combined Total		1165		1165		1252		1252		2417	
AM Peak	-	09:00	-	-	-	07:30	-	-	-	-	-
Vol.	-	80	-	-	-	86	-	-	-	-	-
P.H.F.		0.769				0.652					
PM Peak	-	-	03:30	-	-	-	03:30	-	-	-	-
Vol.	-	-	87	-	-	-	121	-	-	-	-
P.H.F.			0.777				0.945				
Percentage		33.8%	66.2%			33.7%	66.3%				

Counts Unlimited, Inc.

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City of Rancho Mirage
Frank Sinatra Drive
W/ Highway 111
24 Hour Directional Volume Count

RNMFSW111
Site Code: 051-19831

Start Time	12/8/2019 Sun	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		3	**24**			2	14				
12:15		3	**21**			3	5				
12:30		6	**15**			0	14				
12:45		6	**18**	18	78	0	20	5	53	23	131
01:00		0	24			2	20				
01:15		3	15			1	10				
01:30		1	11			0	20				
01:45		2	18	6	68	0	21	3	71	9	139
02:00		1	12			0	9				
02:15		0	17			0	16				
02:30		0	16			1	22				
02:45		2	18	3	63	1	23	2	70	5	133
03:00		1	22			1	**28**				
03:15		0	16			0	**16**				
03:30		0	15			0	**34**				
03:45		1	21	2	74	3	**36**	4	114	6	188
04:00		4	9			2	10				
04:15		1	14			2	16				
04:30		3	18			0	19				
04:45		2	10	10	51	6	12	10	57	20	108
05:00		4	13			5	7				
05:15		5	12			1	9				
05:30		4	14			6	10				
05:45		5	19	18	58	8	11	20	37	38	95
06:00		2	17			3	6				
06:15		1	17			5	10				
06:30		4	11			6	8				
06:45		7	20	14	65	16	11	30	35	44	100
07:00		3	21			9	6				
07:15		2	8			7	7				
07:30		16	6			**18**	3				
07:45		14	5	35	40	**22**	12	56	28	91	68
08:00		12	12			**21**	7				
08:15		18	6			**20**	5				
08:30		10	3			12	4				
08:45		9	6	49	27	20	5	73	21	122	48
09:00		16	12			7	8				
09:15		14	7			12	14				
09:30		18	14			18	15				
09:45		24	10	72	43	18	6	55	43	127	86
10:00		22	13			8	8				
10:15		**20**	3			12	7				
10:30		**21**	10			10	2				
10:45		**25**	10	88	36	17	4	47	21	135	57
11:00		**24**	10			8	5				
11:15		16	8			11	1				
11:30		24	5			12	1				
11:45		16	1	80	24	7	0	38	7	118	31
Total		395	627	395	627	343	557	343	557	738	1184
Combined Total		1022		1022		900		900		1922	
AM Peak	-	10:15	-	-	-	07:30	-	-	-	-	-
Vol.	-	90	-	-	-	81	-	-	-	-	-
P.H.F.		0.900				0.920					
PM Peak	-	-	12:00	-	-	-	03:00	-	-	-	-
Vol.	-	-	78	-	-	-	114	-	-	-	-
P.H.F.			0.813				0.792				
Percentage		38.6%	61.4%			38.1%	61.9%				

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City of Rancho Mirage
Frank Sinatra Drive
W/ Highway 111
24 Hour Directional Volume Count

RNMFSW111
Site Code: 051-19831

Start Time	12/9/2019 Mon	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		1	24			0	26				
12:15		1	18			1	12				
12:30		2	22			1	19				
12:45		0	27	4	91	0	22	2	79	6	170
01:00		1	16			2	12				
01:15		1	14			1	24				
01:30		2	24			0	35				
01:45		1	19	5	73	0	16	3	87	8	160
02:00		0	18			0	26				
02:15		0	20			0	28				
02:30		0	22			0	28				
02:45		2	15	2	75	2	30	2	112	4	187
03:00		1	44			1	37				
03:15		0	30			1	34				
03:30		2	25			2	22				
03:45		4	25	7	124	4	38	8	131	15	255
04:00		1	34			3	33				
04:15		1	24			2	22				
04:30		1	18			1	28				
04:45		4	12	7	88	11	21	17	104	24	192
05:00		5	35			5	28				
05:15		4	24			2	22				
05:30		8	16			10	23				
05:45		6	16	23	91	16	20	33	93	56	184
06:00		6	16			9	**39**				
06:15		4	20			4	**52**				
06:30		8	18			13	**38**				
06:45		13	8	31	62	30	**28**	56	157	87	219
07:00		14	12			20	19				
07:15		14	4			14	19				
07:30		12	6			12	12				
07:45		16	8	56	30	**34**	11	80	61	136	91
08:00		12	6			**28**	8				
08:15		18	8			**18**	4				
08:30		12	9			**30**	10				
08:45		14	13	56	36	11	4	87	26	143	62
09:00		26	30			13	5				
09:15		20	38			24	16				
09:30		14	**27**			18	13				
09:45		20	**36**	80	131	22	10	77	44	157	175
10:00		21	**50**			21	21				
10:15		21	**42**			22	8				
10:30		14	19			20	4				
10:45		23	13	79	124	29	2	92	35	171	159
11:00		**26**	7			18	4				
11:15		**24**	7			28	1				
11:30		**30**	6			22	1				
11:45		**28**	3	108	23	34	0	102	6	210	29
Total		458	948	458	948	559	935	559	935	1017	1883
Combined Total		1406		1406		1494		1494		2900	
AM Peak	-	11:00	-	-	-	07:45	-	-	-	-	-
Vol.	-	108	-	-	-	110	-	-	-	-	-
P.H.F.		0.900				0.809					
PM Peak	-	-	09:30	-	-	-	06:00	-	-	-	-
Vol.	-	-	155	-	-	-	157	-	-	-	-
P.H.F.			0.775				0.755				
Percentage		32.6%	67.4%			37.4%	62.6%				

Counts Unlimited, Inc.

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City of Rancho Mirage
Frank Sinatra Drive
W/ Highway 111
24 Hour Directional Volume Count

RNMFSW111
Site Code: 051-19831

Start	12/10/2019	Eastbound		Hour Totals		Westbound		Hour Totals		Combined Totals	
Time	Tue	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	28			2	22				
12:15		2	36			0	26				
12:30		2	30			1	24				
12:45		0	28	4	122	0	36	3	108	7	230
01:00		1	20			1	22				
01:15		0	24			0	18				
01:30		3	28			0	26				
01:45		2	30	6	102	0	**41**	1	107	7	209
02:00		1	18			1	**29**				
02:15		1	32			0	**30**				
02:30		0	**34**			0	**42**				
02:45		0	**31**	2	115	0	30	1	131	3	246
03:00		1	**23**			2	16				
03:15		1	**36**			2	31				
03:30		1	31			2	24				
03:45		3	20	6	110	2	26	8	97	14	207
04:00		0	18			1	18				
04:15		2	26			2	36				
04:30		1	19			3	11				
04:45		3	20	6	83	8	15	14	80	20	163
05:00		8	42			4	26				
05:15		2	34			7	22				
05:30		1	20			5	16				
05:45		7	14	18	110	18	15	34	79	52	189
06:00		6	18			6	18				
06:15		4	16			5	10				
06:30		6	12			14	9				
06:45		12	16	28	62	26	4	51	41	79	103
07:00		18	4			32	6				
07:15		20	18			26	9				
07:30		26	8			24	12				
07:45		18	3	82	33	**35**	9	117	36	199	69
08:00		17	4			**42**	2				
08:15		18	16			**38**	12				
08:30		22	14			**28**	6				
08:45		23	7	80	41	32	10	140	30	220	71
09:00		17	6			29	10				
09:15		22	12			22	14				
09:30		30	10			34	5				
09:45		23	10	92	38	42	12	127	41	219	79
10:00		27	8			43	6				
10:15		23	8			18	14				
10:30		28	6			32	1				
10:45		17	3	95	25	18	4	111	25	206	50
11:00		**21**	7			28	1				
11:15		**24**	7			20	2				
11:30		**44**	3			21	3				
11:45		**46**	4	135	21	45	1	114	7	249	28
Total		554	862	554	862	721	782	721	782	1275	1644
Combined Total		1416		1416		1503		1503		2919	
AM Peak	-	11:00	-	-	-	07:45	-	-	-	-	-
Vol.	-	135	-	-	-	143	-	-	-	-	-
P.H.F.		0.734				0.851					
PM Peak	-	-	02:30	-	-	-	01:45	-	-	-	-
Vol.	-	-	124	-	-	-	142	-	-	-	-
P.H.F.			0.861				0.845				
Percentage		39.1%	60.9%			48.0%	52.0%				

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City of Rancho Mirage
Frank Sinatra Drive
W/ Highway 111
24 Hour Directional Volume Count

RNMFSW111
Site Code: 051-19831

Start Time	12/11/2019 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		2	12			1	15				
12:15		4	20			4	20				
12:30		4	26			2	23				
12:45		3	20	13	78	2	21	9	79	22	157
01:00		2	42			1	14				
01:15		0	16			0	14				
01:30		0	20			0	19				
01:45		1	16	3	94	0	33	1	80	4	174
02:00		6	18			6	**28**				
02:15		0	16			0	**26**				
02:30		0	**36**			0	**30**				
02:45		0	**30**	6	100	0	**43**	6	127	12	227
03:00		0	**25**			1	14				
03:15		1	**30**			3	24				
03:30		2	29			1	30				
03:45		0	12	3	96	3	25	8	93	11	189
04:00		2	22			0	18				
04:15		0	18			0	21				
04:30		2	22			4	20				
04:45		2	22	6	84	4	18	8	77	14	161
05:00		5	47			4	28				
05:15		8	20			9	18				
05:30		4	17			15	12				
05:45		2	21	19	105	18	16	46	74	65	179
06:00		2	25			7	10				
06:15		6	14			5	15				
06:30		4	18			6	9				
06:45		12	12	24	69	32	8	50	42	74	111
07:00		14	10			**29**	10				
07:15		15	8			**29**	8				
07:30		18	10			**32**	10				
07:45		22	10	69	38	**46**	6	136	34	205	72
08:00		15	6			28	12				
08:15		12	7			26	14				
08:30		16	6			19	6				
08:45		20	6	63	25	27	8	100	40	163	65
09:00		24	8			21	9				
09:15		22	7			18	8				
09:30		22	10			16	8				
09:45		23	4	91	29	16	4	71	29	162	58
10:00		21	8			12	9				
10:15		22	5			24	5				
10:30		15	14			25	6				
10:45		**31**	6	89	33	28	4	89	24	178	57
11:00		**24**	11			14	4				
11:15		**27**	7			20	4				
11:30		**44**	0			34	1				
11:45		26	5	121	23	26	0	94	9	215	32
Total		507	774	507	774	618	708	618	708	1125	1482
Combined Total		1281		1281		1326		1326		2607	
AM Peak	-	10:45	-	-	-	07:00	-	-	-	-	-
Vol.	-	126	-	-	-	136	-	-	-	-	-
P.H.F.		0.716				0.739					
PM Peak	-	-	02:30	-	-	-	02:00	-	-	-	-
Vol.	-	-	121	-	-	-	127	-	-	-	-
P.H.F.			0.720				0.738				
Percentage		39.6%	60.4%			46.6%	53.4%				
ADT/AADT		ADT 2,553		AADT 2,553							

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APPENDIX 3.2:

EXISTING (2019) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	0	1	1	0	0	15	1	17	0	12	36	0
Future Vol, veh/h	0	1	1	0	0	15	1	17	0	12	36	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	1	0	0	17	1	19	0	13	40	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	96	87	40	88	87	19	40	0	0	19	0	0
Stage 1	66	66	-	21	21	-	-	-	-	-	-	-
Stage 2	30	21	-	67	66	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	887	803	1031	897	803	1059	1570	-	-	1597	-	-
Stage 1	945	840	-	998	878	-	-	-	-	-	-	-
Stage 2	987	878	-	943	840	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	867	796	1031	889	796	1059	1570	-	-	1597	-	-
Mov Cap-2 Maneuver	867	796	-	889	796	-	-	-	-	-	-	-
Stage 1	944	833	-	997	877	-	-	-	-	-	-	-
Stage 2	971	877	-	933	833	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	8.5	0.4	1.8
HCM LOS	A	A		

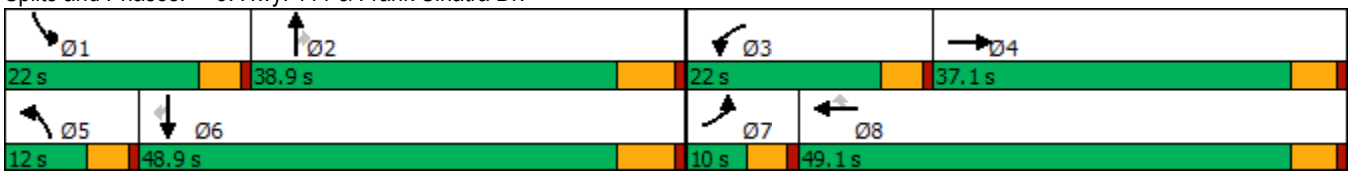
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1570	-	-	898	1059	1597	-	-
HCM Lane V/C Ratio	0.001	-	-	0.002	0.016	0.008	-	-
HCM Control Delay (s)	7.3	-	-	9	8.5	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

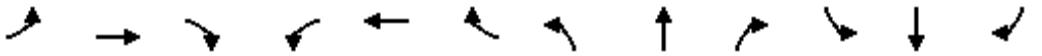
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	14	20	260	55	362	35	714	87	268	1128	38
Future Volume (vph)	14	20	260	55	362	35	714	87	268	1128	38
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	10.0	37.1	22.0	49.1	49.1	12.0	38.9	38.9	22.0	48.9	48.9
Total Split (%)	8.3%	30.9%	18.3%	40.9%	40.9%	10.0%	32.4%	32.4%	18.3%	40.8%	40.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 73.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	20	17	260	55	362	35	714	87	268	1128	38
Future Volume (veh/h)	14	20	17	260	55	362	35	714	87	268	1128	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	22	12	280	59	0	38	768	0	288	1213	27
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	33	168	92	398	458		69	1494		405	1896	589
Arrive On Green	0.02	0.15	0.15	0.12	0.25	0.00	0.04	0.29	0.00	0.12	0.37	0.37
Sat Flow, veh/h	1781	1135	619	3456	1870	1585	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	15	0	34	280	59	0	38	768	0	288	1213	27
Grp Sat Flow(s),veh/h/ln	1781	0	1753	1728	1870	1585	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	0.5	0.0	1.1	4.9	1.5	0.0	1.3	7.9	0.0	5.0	12.3	0.7
Cycle Q Clear(g_c), s	0.5	0.0	1.1	4.9	1.5	0.0	1.3	7.9	0.0	5.0	12.3	0.7
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	33	0	260	398	458		69	1494		405	1896	589
V/C Ratio(X)	0.46	0.00	0.13	0.70	0.13		0.55	0.51		0.71	0.64	0.05
Avail Cap(c_a), veh/h	153	0	894	958	1312		210	2661		958	3475	1079
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	0.0	23.2	26.7	18.5	0.0	29.6	18.5	0.0	26.7	16.3	12.6
Incr Delay (d2), s/veh	3.7	0.0	0.2	0.9	0.1	0.0	2.6	0.3	0.0	0.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.9	0.6	0.0	0.6	2.6	0.0	1.9	3.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	0.0	23.4	27.6	18.6	0.0	32.2	18.8	0.0	27.5	16.6	12.6
LnGrp LOS	C	A	C	C	B		C	B		C	B	B
Approach Vol, veh/h		49			339	A		806	A		1528	
Approach Delay, s/veh		26.7			26.0			19.4			18.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	24.6	11.8	14.4	7.0	29.5	5.8	20.5
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	17.4	32.7	17.4	32.0	7.4	42.7	5.4	44.0
Max Q Clear Time (g_c+I1), s	7.0	9.9	6.9	3.1	3.3	14.3	2.5	3.5
Green Ext Time (p_c), s	0.4	4.8	0.4	0.1	0.0	9.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	19.9
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	16	2	0	0	4	8	0	20	0	25	18	1
Future Vol, veh/h	16	2	0	0	4	8	0	20	0	25	18	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	2	0	0	5	10	0	24	0	30	21	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	114	106	22	107	106	24	22	0	0	24	0	0
Stage 1	82	82	-	24	24	-	-	-	-	-	-	-
Stage 2	32	24	-	83	82	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	863	784	1055	872	784	1052	1593	-	-	1591	-	-
Stage 1	926	827	-	994	875	-	-	-	-	-	-	-
Stage 2	984	875	-	925	827	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	839	769	1055	857	769	1052	1593	-	-	1591	-	-
Mov Cap-2 Maneuver	839	769	-	857	769	-	-	-	-	-	-	-
Stage 1	926	811	-	994	875	-	-	-	-	-	-	-
Stage 2	970	875	-	905	811	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	8.9	0	4.2
HCM LOS	A	A		

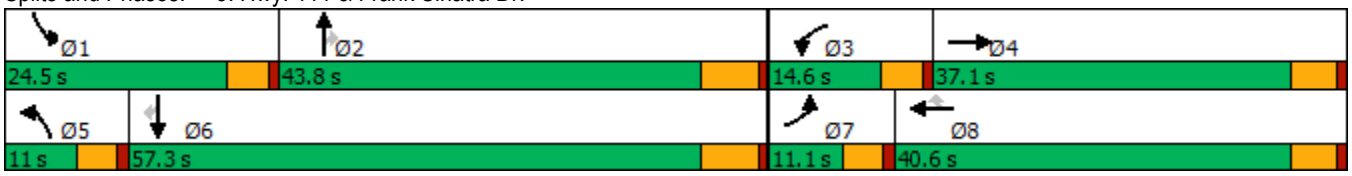
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1593	-	-	831	937	1591	-	-
HCM Lane V/C Ratio	-	-	-	0.026	0.015	0.019	-	-
HCM Control Delay (s)	0	-	-	9.4	8.9	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.1	-	-

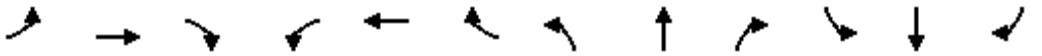
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	33	51	149	30	301	32	1193	174	368	1172	19
Future Volume (vph)	33	51	149	30	301	32	1193	174	368	1172	19
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.1	37.1	14.6	40.6	40.6	11.0	43.8	43.8	24.5	57.3	57.3
Total Split (%)	9.3%	30.9%	12.2%	33.8%	33.8%	9.2%	36.5%	36.5%	20.4%	47.8%	47.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 84.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	51	24	149	30	301	32	1193	174	368	1172	19
Future Volume (veh/h)	33	51	24	149	30	301	32	1193	174	368	1172	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	52	18	151	30	0	32	1205	0	372	1184	13
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	61	184	64	240	325		59	1782		486	2330	708
Arrive On Green	0.03	0.14	0.14	0.07	0.17	0.00	0.03	0.35	0.00	0.14	0.46	0.46
Sat Flow, veh/h	1781	1327	459	3456	1870	1585	1781	5106	1585	3456	5106	1552
Grp Volume(v), veh/h	33	0	70	151	30	0	32	1205	0	372	1184	13
Grp Sat Flow(s),veh/h/ln	1781	0	1787	1728	1870	1585	1781	1702	1585	1728	1702	1552
Q Serve(g_s), s	1.2	0.0	2.4	2.9	0.9	0.0	1.2	13.6	0.0	7.0	11.1	0.3
Cycle Q Clear(g_c), s	1.2	0.0	2.4	2.9	0.9	0.0	1.2	13.6	0.0	7.0	11.1	0.3
Prop In Lane	1.00		0.26	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	61	0	248	240	325		59	1782		486	2330	708
V/C Ratio(X)	0.54	0.00	0.28	0.63	0.09		0.54	0.68		0.77	0.51	0.02
Avail Cap(c_a), veh/h	171	0	843	509	979		168	2831		1014	3847	1169
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	0.0	26.2	30.7	23.5	0.0	32.3	18.8	0.0	28.1	13.0	10.1
Incr Delay (d2), s/veh	2.8	0.0	0.6	1.0	0.1	0.0	2.8	0.5	0.0	1.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	1.0	1.2	0.4	0.0	0.5	4.5	0.0	2.6	3.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.0	0.0	26.8	31.7	23.6	0.0	35.1	19.3	0.0	29.0	13.2	10.1
LnGrp LOS	D	A	C	C	C		D	B		C	B	B
Approach Vol, veh/h		103			181	A		1237	A		1569	
Approach Delay, s/veh		29.4			30.4			19.7			16.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	29.9	9.3	14.5	6.9	37.2	6.9	16.9
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	19.9	37.6	10.0	32.0	6.4	51.1	6.5	35.5
Max Q Clear Time (g_c+I1), s	9.0	15.6	4.9	4.4	3.2	13.1	3.2	2.9
Green Ext Time (p_c), s	0.5	8.0	0.1	0.3	0.0	9.3	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	1	0	0	0	1	27	0	17	3	33	19	3
Future Vol, veh/h	1	0	0	0	1	27	0	17	3	33	19	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	1	34	0	22	4	42	24	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	152	136	26	134	136	24	28	0	0	26	0	0
Stage 1	110	110	-	24	24	-	-	-	-	-	-	-
Stage 2	42	26	-	110	112	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	815	755	1050	838	755	1052	1585	-	-	1588	-	-
Stage 1	895	804	-	994	875	-	-	-	-	-	-	-
Stage 2	972	874	-	895	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	772	735	1050	821	735	1052	1585	-	-	1588	-	-
Mov Cap-2 Maneuver	772	735	-	821	735	-	-	-	-	-	-	-
Stage 1	895	783	-	994	875	-	-	-	-	-	-	-
Stage 2	939	874	-	871	782	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	8.6	0	4.4
HCM LOS	A	A		

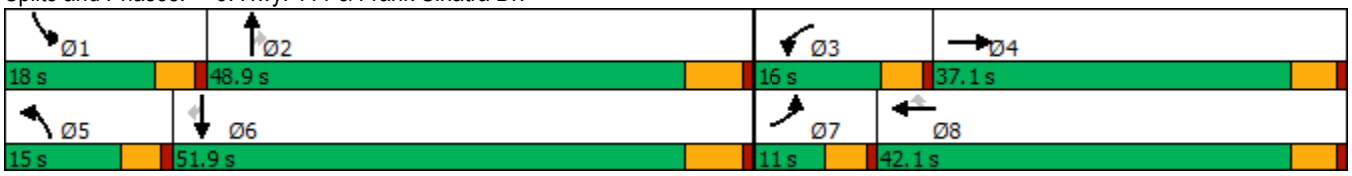
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1585	-	-	772	1036	1588	-	-
HCM Lane V/C Ratio	-	-	-	0.002	0.034	0.026	-	-
HCM Control Delay (s)	0	-	-	9.7	8.6	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

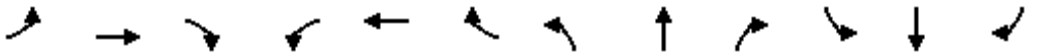
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	19	42	141	28	160	48	1078	95	188	1171	36
Future Volume (vph)	19	42	141	28	160	48	1078	95	188	1171	36
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.0	37.1	16.0	42.1	42.1	15.0	48.9	48.9	18.0	51.9	51.9
Total Split (%)	9.2%	30.9%	13.3%	35.1%	35.1%	12.5%	40.8%	40.8%	15.0%	43.3%	43.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 78.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	42	11	141	28	160	48	1078	95	188	1171	36
Future Volume (veh/h)	19	42	11	141	28	160	48	1078	95	188	1171	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	46	12	155	31	0	53	1185	0	207	1287	36
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	209	54	257	366		86	1851		313	2068	640
Arrive On Green	0.02	0.15	0.15	0.07	0.20	0.00	0.05	0.36	0.00	0.09	0.40	0.40
Sat Flow, veh/h	1781	1430	373	3456	1870	1585	1781	5106	1585	3456	5106	1579
Grp Volume(v), veh/h	21	0	58	155	31	0	53	1185	0	207	1287	36
Grp Sat Flow(s),veh/h/ln	1781	0	1803	1728	1870	1585	1781	1702	1585	1728	1702	1579
Q Serve(g_s), s	0.7	0.0	1.8	2.7	0.9	0.0	1.8	12.1	0.0	3.6	12.6	0.9
Cycle Q Clear(g_c), s	0.7	0.0	1.8	2.7	0.9	0.0	1.8	12.1	0.0	3.6	12.6	0.9
Prop In Lane	1.00		0.21	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	44	0	263	257	366		86	1851		313	2068	640
V/C Ratio(X)	0.48	0.00	0.22	0.60	0.08		0.62	0.64		0.66	0.62	0.06
Avail Cap(c_a), veh/h	182	0	920	628	1103		295	3476		738	3720	1151
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	0.0	23.6	28.1	20.6	0.0	29.3	16.6	0.0	27.6	14.8	11.4
Incr Delay (d2), s/veh	3.1	0.0	0.4	0.9	0.1	0.0	2.7	0.4	0.0	0.9	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.7	1.1	0.4	0.0	0.8	3.8	0.0	1.4	3.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	0.0	24.1	29.0	20.7	0.0	32.0	17.0	0.0	28.5	15.2	11.4
LnGrp LOS	C	A	C	C	C		C	B		C	B	B
Approach Vol, veh/h		79			186	A		1238	A		1530	
Approach Delay, s/veh		26.5			27.6			17.6			16.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	28.9	9.3	14.2	7.6	31.6	6.1	17.4
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	13.4	42.7	11.4	32.0	10.4	45.7	6.4	37.0
Max Q Clear Time (g_c+I1), s	5.6	14.1	4.7	3.8	3.8	14.6	2.7	2.9
Green Ext Time (p_c), s	0.2	8.6	0.1	0.3	0.0	10.1	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	18.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	1	0	0	0	1	27	0	17	3	33	19	3
Future Vol, veh/h	1	0	0	0	1	27	0	17	3	33	19	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	1	34	0	22	4	42	24	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	152	136	26	134	136	24	28	0	0	26	0	0
Stage 1	110	110	-	24	24	-	-	-	-	-	-	-
Stage 2	42	26	-	110	112	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	815	755	1050	838	755	1052	1585	-	-	1588	-	-
Stage 1	895	804	-	994	875	-	-	-	-	-	-	-
Stage 2	972	874	-	895	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	772	735	1050	821	735	1052	1585	-	-	1588	-	-
Mov Cap-2 Maneuver	772	735	-	821	735	-	-	-	-	-	-	-
Stage 1	895	783	-	994	875	-	-	-	-	-	-	-
Stage 2	939	874	-	871	782	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	8.6	0	4.4
HCM LOS	A	A		

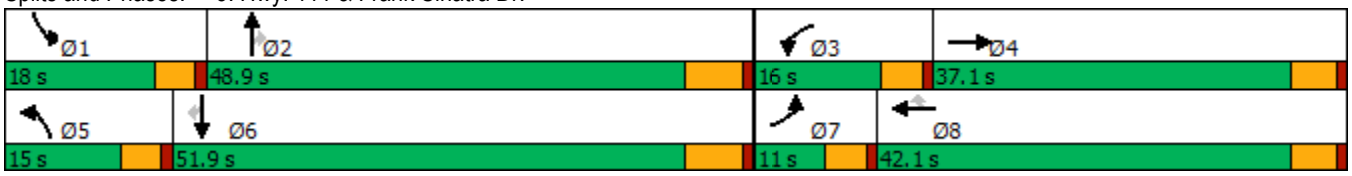
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1585	-	-	772	1036	1588	-	-
HCM Lane V/C Ratio	-	-	-	0.002	0.034	0.026	-	-
HCM Control Delay (s)	0	-	-	9.7	8.6	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

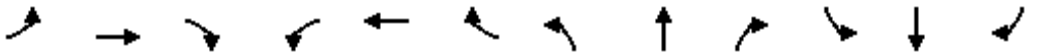
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	19	42	141	28	160	48	1078	95	188	1171	36
Future Volume (vph)	19	42	141	28	160	48	1078	95	188	1171	36
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.0	37.1	16.0	42.1	42.1	15.0	48.9	48.9	18.0	51.9	51.9
Total Split (%)	9.2%	30.9%	13.3%	35.1%	35.1%	12.5%	40.8%	40.8%	15.0%	43.3%	43.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 78.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	42	11	141	28	160	48	1078	95	188	1171	36
Future Volume (veh/h)	19	42	11	141	28	160	48	1078	95	188	1171	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	46	12	155	31	0	53	1185	0	207	1287	36
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	209	54	257	366		86	1851		313	2068	640
Arrive On Green	0.02	0.15	0.15	0.07	0.20	0.00	0.05	0.36	0.00	0.09	0.40	0.40
Sat Flow, veh/h	1781	1430	373	3456	1870	1585	1781	5106	1585	3456	5106	1579
Grp Volume(v), veh/h	21	0	58	155	31	0	53	1185	0	207	1287	36
Grp Sat Flow(s),veh/h/ln	1781	0	1803	1728	1870	1585	1781	1702	1585	1728	1702	1579
Q Serve(g_s), s	0.7	0.0	1.8	2.7	0.9	0.0	1.8	12.1	0.0	3.6	12.6	0.9
Cycle Q Clear(g_c), s	0.7	0.0	1.8	2.7	0.9	0.0	1.8	12.1	0.0	3.6	12.6	0.9
Prop In Lane	1.00		0.21	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	44	0	263	257	366		86	1851		313	2068	640
V/C Ratio(X)	0.48	0.00	0.22	0.60	0.08		0.62	0.64		0.66	0.62	0.06
Avail Cap(c_a), veh/h	182	0	920	628	1103		295	3476		738	3720	1151
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	0.0	23.6	28.1	20.6	0.0	29.3	16.6	0.0	27.6	14.8	11.4
Incr Delay (d2), s/veh	3.1	0.0	0.4	0.9	0.1	0.0	2.7	0.4	0.0	0.9	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.7	1.1	0.4	0.0	0.8	3.8	0.0	1.4	3.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	0.0	24.1	29.0	20.7	0.0	32.0	17.0	0.0	28.5	15.2	11.4
LnGrp LOS	C	A	C	C	C		C	B		C	B	B
Approach Vol, veh/h		79			186	A		1238	A		1530	
Approach Delay, s/veh		26.5			27.6			17.6			16.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	28.9	9.3	14.2	7.6	31.6	6.1	17.4
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	13.4	42.7	11.4	32.0	10.4	45.7	6.4	37.0
Max Q Clear Time (g_c+I1), s	5.6	14.1	4.7	3.8	3.8	14.6	2.7	2.9
Green Ext Time (p_c), s	0.2	8.6	0.1	0.3	0.0	10.1	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	18.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 3.3:

EXISTING (2019) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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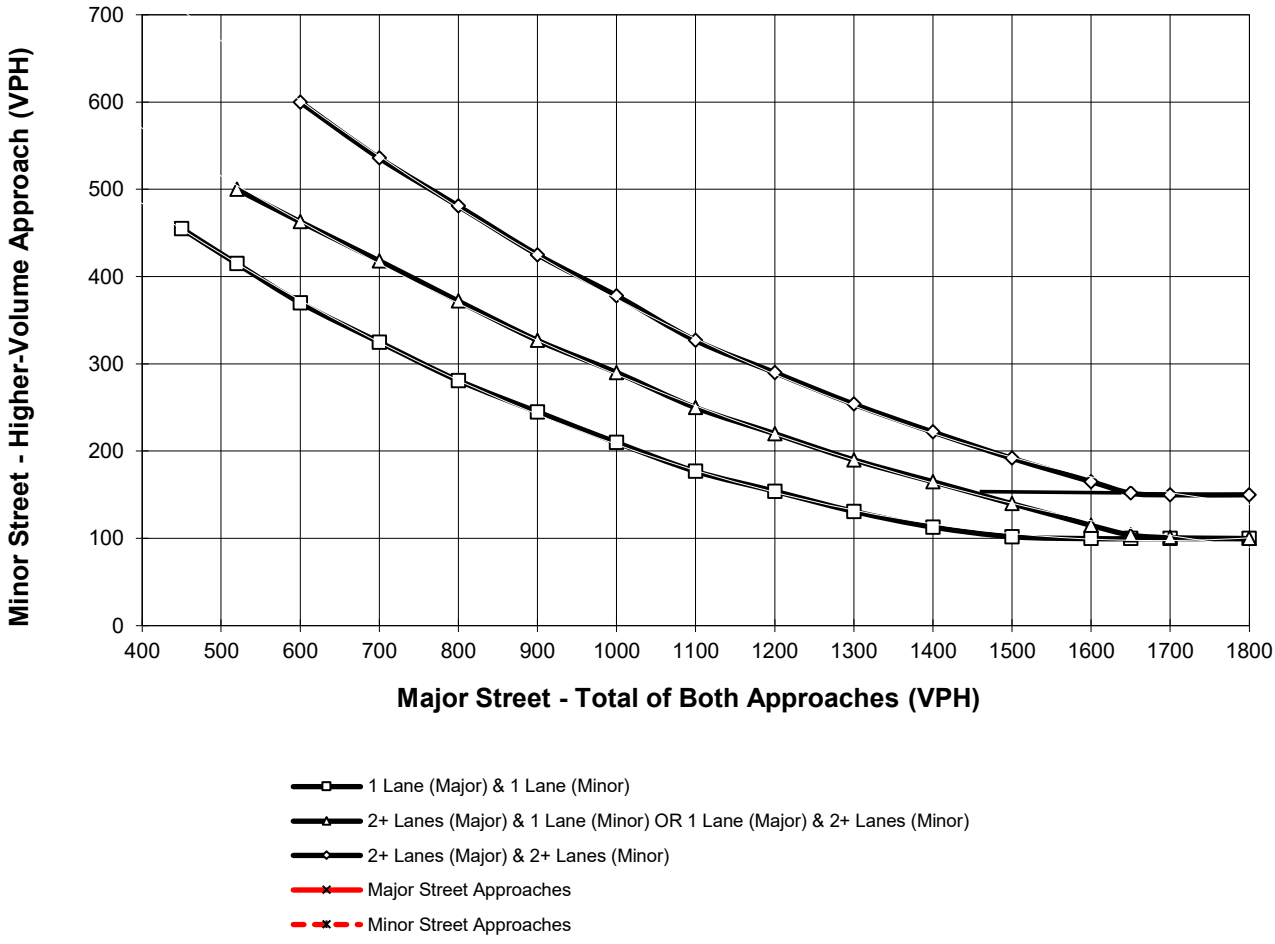
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2019) Conditions - Weekday PM Peak Hour**

Major Street Name = **Frank Sinatra Dr.**
Total of Both Approaches (VPH) = **64**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Driveway 2**
High Volume Approach (VPH) = **18**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 3.4:

EXISTING (2019) CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	25	28
Average Queue (ft)	3	12
95th Queue (ft)	17	34
Link Distance (ft)	353	358
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	15	40	280	59	389	38	768	94	288	1213	41
v/c Ratio	0.11	0.12	0.45	0.11	0.54	0.24	0.54	0.17	0.54	0.55	0.05
Control Delay	46.8	22.3	35.3	21.2	6.5	45.7	25.8	0.6	37.2	20.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	22.3	35.3	21.2	6.5	45.7	25.8	0.6	37.2	20.6	0.1
Queue Length 50th (ft)	7	9	63	18	8	17	108	0	65	169	0
Queue Length 95th (ft)	35	41	151	60	83	66	231	0	155	341	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	148	866	929	1275	1198	203	2587	873	929	3378	1100
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.05	0.30	0.05	0.32	0.19	0.30	0.11	0.31	0.36	0.04

Intersection Summary

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	25	28	30
Average Queue (ft)	8	7	1
95th Queue (ft)	27	28	10
Link Distance (ft)	353	358	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			210
Storage Blk Time (%)			
Queuing Penalty (veh)			



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	33	76	151	30	304	32	1205	176	372	1184	19
v/c Ratio	0.26	0.25	0.37	0.08	0.53	0.25	0.68	0.27	0.65	0.46	0.02
Control Delay	50.4	29.3	43.9	31.3	7.6	50.3	27.5	5.4	41.5	16.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	29.3	43.9	31.3	7.6	50.3	27.5	5.4	41.5	16.7	0.1
Queue Length 50th (ft)	17	27	38	14	0	16	189	0	93	153	0
Queue Length 95th (ft)	60	74	94	40	65	59	363	51	193	292	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	146	732	444	843	882	144	2436	839	870	3311	1045
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.10	0.34	0.04	0.34	0.22	0.49	0.21	0.43	0.36	0.02

Intersection Summary

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	WB	SB
Directions Served	LTR	L
Maximum Queue (ft)	48	30
Average Queue (ft)	21	1
95th Queue (ft)	45	10
Link Distance (ft)	358	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		210
Storage Blk Time (%)		
Queuing Penalty (veh)		



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	21	58	155	31	176	53	1185	104	207	1287	40
v/c Ratio	0.16	0.18	0.35	0.06	0.33	0.32	0.66	0.16	0.49	0.56	0.05
Control Delay	46.5	28.2	40.6	26.9	6.8	46.0	24.6	2.2	41.1	20.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	28.2	40.6	26.9	6.8	46.0	24.6	2.2	41.1	20.0	0.1
Queue Length 50th (ft)	9	20	35	10	0	24	165	0	46	173	0
Queue Length 95th (ft)	43	62	94	41	51	82	332	16	119	352	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	156	802	539	949	881	253	2992	979	633	3202	1027
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.07	0.29	0.03	0.20	0.21	0.40	0.11	0.33	0.40	0.04

Intersection Summary

APPENDIX 4.1:

POST PROCESSING WORKSHEETS

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Project:	Ritz-Carleton Residences Project	Job #:	12609
Scenario:	Horizon Year (2040) Without Project	Analyst:	RV
		Date:	01/24/20

LOCATION: Hwy. 111 & Frank Sinatra Dr.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	35	35	0	0%	32	29	-3	-9%
	Through	714	851	137	19%	1,193	1,108	-85	-7%
	Right	87	104	17	20%	174	227	53	30%
	NB Total	836	990	154	18%	1,399	1,364	-35	-3%
SOUTH BOUND	Left	268	287	19	7%	368	481	113	31%
	Through	1,128	1,129	1	0%	1,172	1,111	-61	-5%
	Right	38	34	-4	-11%	19	17	-2	-11%
	SB Total	1,434	1,450	16	1%	1,559	1,609	50	3%
EAST BOUND	Left	14	14	0	0%	33	28	-5	-15%
	Through	20	20	0	0%	51	62	11	22%
	Right	17	16	-1	-6%	24	21	-3	-13%
	EB Total	51	50	-1	-2%	108	111	3	3%
WEST BOUND	Left	260	330	70	27%	149	178	29	19%
	Through	55	62	7	13%	30	34	4	13%
	Right	362	489	127	35%	301	354	53	18%
	WB Total	677	881	204	30%	480	566	86	18%
TOTAL ENTERING VOLUME		2,998	3,371	373	12%	3,546	3,650	104	3%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	1,450	1,609			
North Leg	Outbound	1,354	1,490			
North Leg	**TOTAL**	**2,804**	**3,099**	**7%**	**8%**	**40,509**
South Leg	Inbound	990	1,364			
South Leg	Outbound	1,475	1,310			
South Leg	**TOTAL**	**2,465**	**2,674**	**7%**	**8%**	**35,484**
East Leg	Inbound	881	566			
East Leg	Outbound	411	770			
East Leg	**TOTAL**	**1,292**	**1,336**	**8%**	**9%**	**15,663**
West Leg	Inbound	50	111			
West Leg	Outbound	131	80			
West Leg	**TOTAL**	**181**	**191**	**7%**	**7%**	**2,553**
OVERALL TOTAL		***6,742***	***7,300***	***7%***	***8%***	***94,209***

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APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	39	18	0	12	37
Future Vol, veh/h	0	39	18	0	12	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	42	20	0	13	40

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	86	20	0	0	20	0
Stage 1	20	-	-	-	-	-
Stage 2	66	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	915	1058	-	-	1596	-
Stage 1	1003	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	908	1058	-	-	1596	-
Mov Cap-2 Maneuver	908	-	-	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	949	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	1.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1058	1596	-
HCM Lane V/C Ratio	-	-	0.04	0.008	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1	1	0	0	15	1	56	0	12	48	0
Future Vol, veh/h	0	1	1	0	0	15	1	56	0	12	48	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	1	0	0	17	1	62	0	13	53	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	152	143	53	144	143	62	53	0	0	62	0	0
Stage 1	79	79	-	64	64	-	-	-	-	-	-	-
Stage 2	73	64	-	80	79	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	815	748	1014	825	748	1003	1553	-	-	1541	-	-
Stage 1	930	829	-	947	842	-	-	-	-	-	-	-
Stage 2	937	842	-	929	829	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	796	741	1014	818	741	1003	1553	-	-	1541	-	-
Mov Cap-2 Maneuver	796	741	-	818	741	-	-	-	-	-	-	-
Stage 1	929	822	-	946	841	-	-	-	-	-	-	-
Stage 2	921	841	-	919	822	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	8.7	0.1	1.5
HCM LOS	A	A		

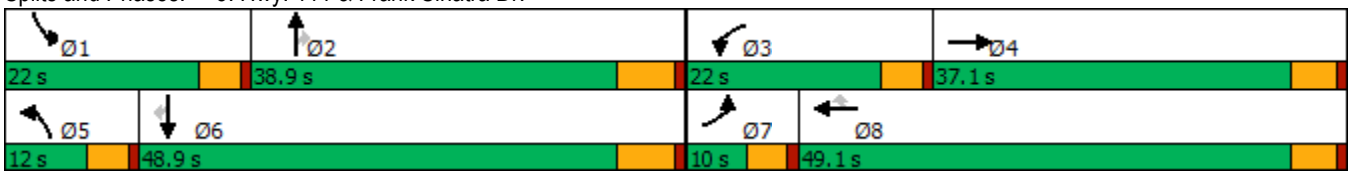
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1553	-	-	856	1003	1541	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.017	0.009	-	-
HCM Control Delay (s)	7.3	-	-	9.2	8.7	7.4	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

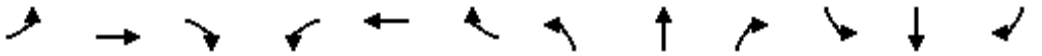
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	24	34	260	59	362	40	714	87	268	1128	41
Future Volume (vph)	24	34	260	59	362	40	714	87	268	1128	41
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	10.0	37.1	22.0	49.1	49.1	12.0	38.9	38.9	22.0	48.9	48.9
Total Split (%)	8.3%	30.9%	18.3%	40.9%	40.9%	10.0%	32.4%	32.4%	18.3%	40.8%	40.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 77.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	34	33	260	59	362	40	714	87	268	1128	41
Future Volume (veh/h)	24	34	33	260	59	362	40	714	87	268	1128	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	37	29	280	63	0	43	768	0	288	1213	30
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	153	120	395	456		74	1495		402	1877	583
Arrive On Green	0.03	0.16	0.16	0.11	0.24	0.00	0.04	0.29	0.00	0.12	0.37	0.37
Sat Flow, veh/h	1781	968	759	3456	1870	1585	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	26	0	66	280	63	0	43	768	0	288	1213	30
Grp Sat Flow(s),veh/h/ln	1781	0	1727	1728	1870	1585	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	0.9	0.0	2.2	5.0	1.7	0.0	1.5	8.1	0.0	5.2	12.7	0.8
Cycle Q Clear(g_c), s	0.9	0.0	2.2	5.0	1.7	0.0	1.5	8.1	0.0	5.2	12.7	0.8
Prop In Lane	1.00		0.44	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	0	273	395	456		74	1495		402	1877	583
V/C Ratio(X)	0.51	0.00	0.24	0.71	0.14		0.58	0.51		0.72	0.65	0.05
Avail Cap(c_a), veh/h	149	0	858	934	1278		205	2593		934	3385	1051
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	23.7	27.5	19.1	0.0	30.3	19.0	0.0	27.4	16.9	13.1
Incr Delay (d2), s/veh	2.8	0.0	0.5	0.9	0.1	0.0	2.6	0.3	0.0	0.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.9	2.0	0.7	0.0	0.6	2.7	0.0	1.9	4.1	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	0.0	24.2	28.4	19.2	0.0	33.0	19.2	0.0	28.3	17.3	13.2
LnGrp LOS	C	A	C	C	B		C	B		C	B	B
Approach Vol, veh/h		92			343	A		811	A		1531	
Approach Delay, s/veh		26.9			26.7			20.0			19.3	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.1	25.1	12.0	15.3	7.3	29.9	6.5	20.8
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	17.4	32.7	17.4	32.0	7.4	42.7	5.4	44.0
Max Q Clear Time (g_c+I1), s	7.2	10.1	7.0	4.2	3.5	14.7	2.9	3.7
Green Ext Time (p_c), s	0.4	4.8	0.4	0.3	0.0	9.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	5.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	31	20	0	55	18
Future Vol, veh/h	0	31	20	0	55	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	34	22	0	60	20

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	162	22	0	0	22	0
Stage 1	22	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	829	1055	-	-	1593	-
Stage 1	1001	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	797	1055	-	-	1593	-
Mov Cap-2 Maneuver	797	-	-	-	-	-
Stage 1	1001	-	-	-	-	-
Stage 2	853	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	5.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1055	1593	-
HCM Lane V/C Ratio	-	-	0.032	0.038	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	2	0	0	4	8	0	51	0	25	73	1
Future Vol, veh/h	16	2	0	0	4	8	0	51	0	25	73	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	2	0	0	5	10	0	61	0	30	87	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	217	209	88	210	209	61	88	0	0	61	0	0
Stage 1	148	148	-	61	61	-	-	-	-	-	-	-
Stage 2	69	61	-	149	148	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	739	688	970	747	688	1004	1508	-	-	1542	-	-
Stage 1	855	775	-	950	844	-	-	-	-	-	-	-
Stage 2	941	844	-	854	775	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	718	675	970	734	675	1004	1508	-	-	1542	-	-
Mov Cap-2 Maneuver	718	675	-	734	675	-	-	-	-	-	-	-
Stage 1	855	760	-	950	844	-	-	-	-	-	-	-
Stage 2	927	844	-	835	760	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	9.2	0	1.9
HCM LOS	B	A		

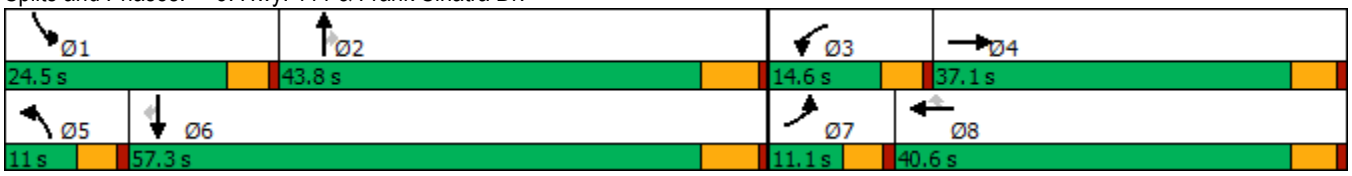
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1508	-	-	713	864	1542	-	-
HCM Lane V/C Ratio	-	-	-	0.03	0.017	0.019	-	-
HCM Control Delay (s)	0	-	-	10.2	9.2	7.4	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	-	-

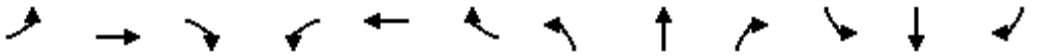
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	41	62	149	49	301	54	1193	174	368	1172	33
Future Volume (vph)	41	62	149	49	301	54	1193	174	368	1172	33
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.1	37.1	14.6	40.6	40.6	11.0	43.8	43.8	24.5	57.3	57.3
Total Split (%)	9.3%	30.9%	12.2%	33.8%	33.8%	9.2%	36.5%	36.5%	20.4%	47.8%	47.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 85.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	62	36	149	49	301	54	1193	174	368	1172	33
Future Volume (veh/h)	41	62	36	149	49	301	54	1193	174	368	1172	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	63	30	151	49	0	55	1205	0	372	1184	27
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	173	82	239	325		84	1774		485	2249	683
Arrive On Green	0.04	0.14	0.14	0.07	0.17	0.00	0.05	0.35	0.00	0.14	0.44	0.44
Sat Flow, veh/h	1781	1197	570	3456	1870	1585	1781	5106	1585	3456	5106	1552
Grp Volume(v), veh/h	41	0	93	151	49	0	55	1205	0	372	1184	27
Grp Sat Flow(s),veh/h/ln	1781	0	1766	1728	1870	1585	1781	1702	1585	1728	1702	1552
Q Serve(g_s), s	1.6	0.0	3.3	2.9	1.5	0.0	2.1	13.8	0.0	7.1	11.6	0.7
Cycle Q Clear(g_c), s	1.6	0.0	3.3	2.9	1.5	0.0	2.1	13.8	0.0	7.1	11.6	0.7
Prop In Lane	1.00		0.32	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	70	0	255	239	325		84	1774		485	2249	683
V/C Ratio(X)	0.58	0.00	0.36	0.63	0.15		0.65	0.68		0.77	0.53	0.04
Avail Cap(c_a), veh/h	169	0	824	504	968		166	2798		1002	3803	1156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	0.0	26.5	31.1	24.0	0.0	32.1	19.1	0.0	28.4	14.0	10.9
Incr Delay (d2), s/veh	2.8	0.0	0.9	1.0	0.2	0.0	3.2	0.5	0.0	1.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.4	1.2	0.7	0.0	0.9	4.6	0.0	2.7	3.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.2	0.0	27.4	32.1	24.2	0.0	35.3	19.6	0.0	29.4	14.2	11.0
LnGrp LOS	D	A	C	C	C		D	B		C	B	B
Approach Vol, veh/h		134			200	A		1260	A		1583	
Approach Delay, s/veh		29.8			30.2			20.3			17.7	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.2	30.0	9.3	15.0	7.8	36.4	7.3	17.0
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	19.9	37.6	10.0	32.0	6.4	51.1	6.5	35.5
Max Q Clear Time (g_c+I1), s	9.1	15.8	4.9	5.3	4.1	13.6	3.6	3.5
Green Ext Time (p_c), s	0.5	8.0	0.1	0.5	0.0	9.4	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	20.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	7.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	62	20	0	354	19
Future Vol, veh/h	0	62	20	0	354	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	67	22	0	385	21

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	813	22	0	0	22	0
Stage 1	22	-	-	-	-	-
Stage 2	791	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	348	1055	-	-	1593	-
Stage 1	1001	-	-	-	-	-
Stage 2	447	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	263	1055	-	-	1593	-
Mov Cap-2 Maneuver	263	-	-	-	-	-
Stage 1	1001	-	-	-	-	-
Stage 2	338	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	7.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1055	1593	-
HCM Lane V/C Ratio	-	-	0.064	0.242	-
HCM Control Delay (s)	-	-	8.6	8	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.9	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	1	0	0	0	1	27	0	79	3	33	373	3
Future Vol, veh/h	1	0	0	0	1	27	0	79	3	33	373	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	1	34	0	100	4	42	472	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	678	662	474	660	662	102	476	0	0	104	0	0
Stage 1	558	558	-	102	102	-	-	-	-	-	-	-
Stage 2	120	104	-	558	560	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	366	382	590	376	382	953	1086	-	-	1488	-	-
Stage 1	514	512	-	904	811	-	-	-	-	-	-	-
Stage 2	884	809	-	514	511	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	344	371	590	368	371	953	1086	-	-	1488	-	-
Mov Cap-2 Maneuver	344	371	-	368	371	-	-	-	-	-	-	-
Stage 1	514	498	-	904	811	-	-	-	-	-	-	-
Stage 2	851	809	-	499	497	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.5	9.2	0	0.6
HCM LOS	C	A		

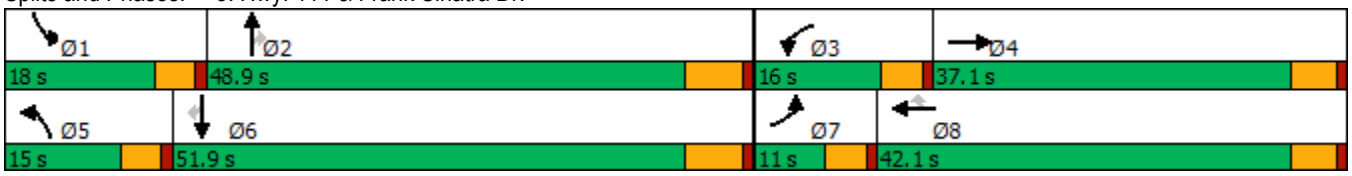
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1086	-	-	344	902	1488	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.039	0.028	-	-
HCM Control Delay (s)	0	-	-	15.5	9.2	7.5	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

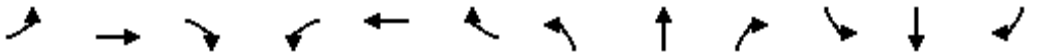
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	35	64	141	152	160	190	1078	95	188	1171	125
Future Volume (vph)	35	64	141	152	160	190	1078	95	188	1171	125
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.0	37.1	16.0	42.1	42.1	15.0	48.9	48.9	18.0	51.9	51.9
Total Split (%)	9.2%	30.9%	13.3%	35.1%	35.1%	12.5%	40.8%	40.8%	15.0%	43.3%	43.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 83.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	64	36	141	152	160	190	1078	95	188	1171	125
Future Volume (veh/h)	35	64	36	141	152	160	190	1078	95	188	1171	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	70	40	155	167	0	209	1185	0	207	1287	133
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	160	91	239	329		248	2179		299	1909	590
Arrive On Green	0.04	0.14	0.14	0.07	0.18	0.00	0.14	0.43	0.00	0.09	0.37	0.37
Sat Flow, veh/h	1781	1117	638	3456	1870	1585	1781	5106	1585	3456	5106	1579
Grp Volume(v), veh/h	38	0	110	155	167	0	209	1185	0	207	1287	133
Grp Sat Flow(s),veh/h/ln	1781	0	1755	1728	1870	1585	1781	1702	1585	1728	1702	1579
Q Serve(g_s), s	1.6	0.0	4.3	3.3	6.0	0.0	8.5	12.9	0.0	4.3	15.8	4.3
Cycle Q Clear(g_c), s	1.6	0.0	4.3	3.3	6.0	0.0	8.5	12.9	0.0	4.3	15.8	4.3
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	65	0	251	239	329		248	2179		299	1909	590
V/C Ratio(X)	0.58	0.00	0.44	0.65	0.51		0.84	0.54		0.69	0.67	0.23
Avail Cap(c_a), veh/h	153	0	753	528	927		248	2921		620	3126	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	29.2	33.9	27.8	0.0	31.3	16.0	0.0	33.1	19.6	16.0
Incr Delay (d2), s/veh	3.1	0.0	1.2	1.1	1.2	0.0	21.2	0.2	0.0	1.1	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.8	1.3	2.7	0.0	4.8	4.2	0.0	1.7	5.3	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	30.5	35.0	29.1	0.0	52.5	16.2	0.0	34.2	20.0	16.2
LnGrp LOS	D	A	C	C	C		D	B		C	B	B
Approach Vol, veh/h		148			322	A		1394	A		1627	
Approach Delay, s/veh		32.5			31.9			21.6			21.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	38.1	9.8	15.8	15.0	34.1	7.3	18.2
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	13.4	42.7	11.4	32.0	10.4	45.7	6.4	37.0
Max Q Clear Time (g_c+I1), s	6.3	14.9	5.3	6.3	10.5	17.8	3.6	8.0
Green Ext Time (p_c), s	0.2	8.6	0.1	0.6	0.0	10.2	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	347	20	0	69	19
Future Vol, veh/h	0	347	20	0	69	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	377	22	0	75	21

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	193	22	0	0	22	0
Stage 1	22	-	-	-	-	-
Stage 2	171	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	796	1055	-	-	1593	-
Stage 1	1001	-	-	-	-	-
Stage 2	859	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	758	1055	-	-	1593	-
Mov Cap-2 Maneuver	758	-	-	-	-	-
Stage 1	1001	-	-	-	-	-
Stage 2	818	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	5.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1055	1593	-
HCM Lane V/C Ratio	-	-	0.358	0.047	-
HCM Control Delay (s)	-	-	10.3	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0.1	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	1	0	0	0	1	27	0	364	3	33	88	3
Future Vol, veh/h	1	0	0	0	1	27	0	364	3	33	88	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	1	34	0	461	4	42	111	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	678	662	113	660	662	463	115	0	0	465	0	0
Stage 1	197	197	-	463	463	-	-	-	-	-	-	-
Stage 2	481	465	-	197	199	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	366	382	940	376	382	599	1474	-	-	1096	-	-
Stage 1	805	738	-	579	564	-	-	-	-	-	-	-
Stage 2	566	563	-	805	736	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	334	367	940	365	367	599	1474	-	-	1096	-	-
Mov Cap-2 Maneuver	334	367	-	365	367	-	-	-	-	-	-	-
Stage 1	805	710	-	579	564	-	-	-	-	-	-	-
Stage 2	533	563	-	774	708	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.8	11.5	0	2.2
HCM LOS	C	B		

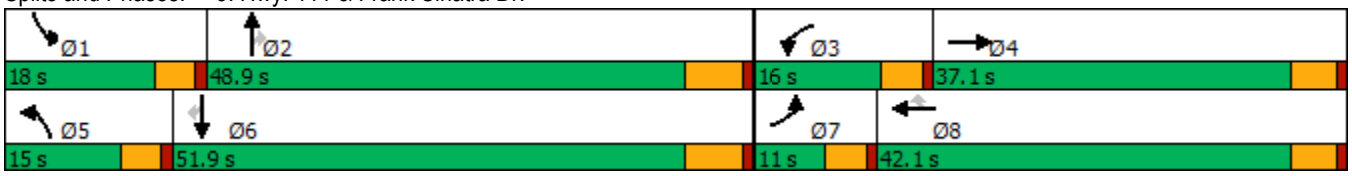
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1474	-	-	334	586	1096	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.06	0.038	-	-
HCM Control Delay (s)	0	-	-	15.8	11.5	8.4	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-	-

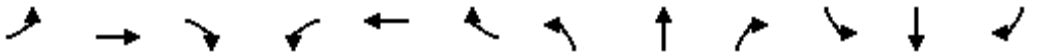
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	106	163	141	52	160	76	1078	95	188	1171	53
Future Volume (vph)	106	163	141	52	160	76	1078	95	188	1171	53
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.0	37.1	16.0	42.1	42.1	15.0	48.9	48.9	18.0	51.9	51.9
Total Split (%)	9.2%	30.9%	13.3%	35.1%	35.1%	12.5%	40.8%	40.8%	15.0%	43.3%	43.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 95
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	163	150	141	52	160	76	1078	95	188	1171	53
Future Volume (veh/h)	106	163	150	141	52	160	76	1078	95	188	1171	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	179	165	155	57	0	84	1185	0	207	1287	54
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	219	202	237	431		108	1732		295	1858	574
Arrive On Green	0.08	0.24	0.24	0.07	0.23	0.00	0.06	0.34	0.00	0.09	0.36	0.36
Sat Flow, veh/h	1781	896	826	3456	1870	1585	1781	5106	1585	3456	5106	1579
Grp Volume(v), veh/h	116	0	344	155	57	0	84	1185	0	207	1287	54
Grp Sat Flow(s),veh/h/ln	1781	0	1722	1728	1870	1585	1781	1702	1585	1728	1702	1579
Q Serve(g_s), s	5.0	0.0	14.7	3.4	1.9	0.0	3.6	15.6	0.0	4.5	16.7	1.8
Cycle Q Clear(g_c), s	5.0	0.0	14.7	3.4	1.9	0.0	3.6	15.6	0.0	4.5	16.7	1.8
Prop In Lane	1.00		0.48	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	146	0	420	237	431		108	1732		295	1858	574
V/C Ratio(X)	0.79	0.00	0.82	0.65	0.13		0.78	0.68		0.70	0.69	0.09
Avail Cap(c_a), veh/h	146	0	706	505	887		237	2794		593	2990	924
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.2	0.0	27.9	35.4	23.8	0.0	36.1	22.2	0.0	34.7	21.1	16.3
Incr Delay (d2), s/veh	23.5	0.0	4.0	1.1	0.1	0.0	4.4	0.5	0.0	1.1	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	6.3	1.4	0.8	0.0	1.6	5.5	0.0	1.8	5.8	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.7	0.0	31.8	36.6	24.0	0.0	40.6	22.7	0.0	35.9	21.6	16.4
LnGrp LOS	E	A	C	D	C		D	C		D	C	B
Approach Vol, veh/h		460			212	A		1269	A		1548	
Approach Delay, s/veh		38.6			33.2			23.9			23.3	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	32.7	9.9	24.2	9.3	34.6	11.0	23.1
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	13.4	42.7	11.4	32.0	10.4	45.7	6.4	37.0
Max Q Clear Time (g_c+I1), s	6.5	17.6	5.4	16.7	5.6	18.7	7.0	3.9
Green Ext Time (p_c), s	0.2	8.3	0.1	1.9	0.0	9.7	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		E+P
				CALC RV	DATE	01/09/19
Jurisdiction: City of Rancho Mirage				CHK RV	DATE	01/09/19
Major Street: Frank Sinatra Dr.				Critical Approach Speed (Major)		30 mph
Minor Street: Driveway 1				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **1,919** vpd Minor Street Future ADT = **264** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. [ ]

or **URBAN (U)**

In built up area of isolated community of < 10,000 population …….. [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied: XX / Not Satisfied: XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **1,919** / 1 **264**	8,000	5,600	2,400	1,680
2 + / 1	9,600	6,720	2,400	1,680
2 + / 2 +	9,600	6,720	3,200	2,240
1 / 2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **1,919** / 1 **264**	12,000	8,400	1,200	850
2 + / 1	14,400	10,080	1,200	850
2 + / 2 +	14,400	10,080	1,600	1,120
1 / 2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 11% B: 16%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

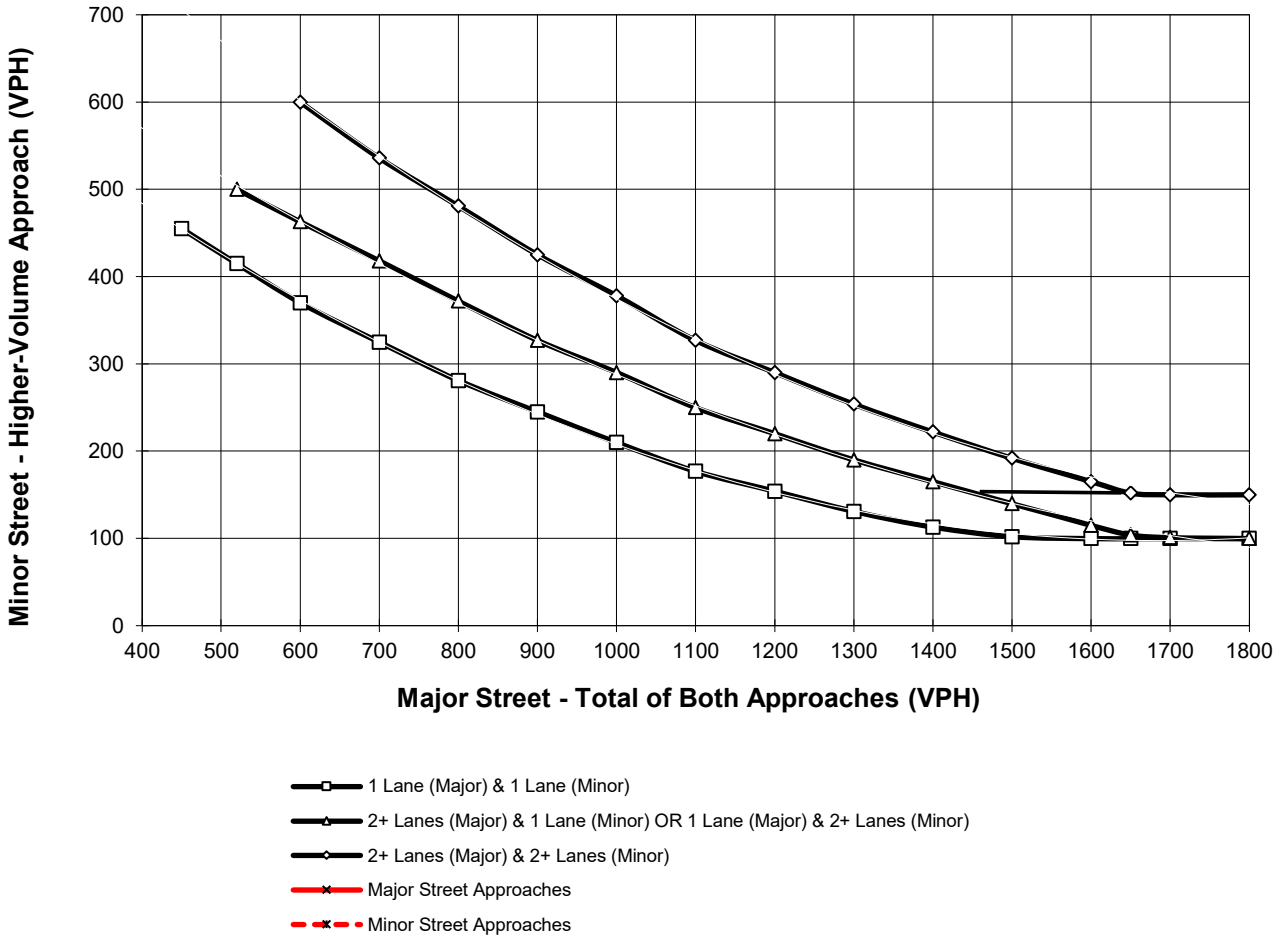
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **Frank Sinatra Dr.**
Total of Both Approaches (VPH) = **150**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Driveway 2**
High Volume Approach (VPH) = **18**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 5.3:

E+P CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB
Directions Served	LR
Maximum Queue (ft)	48
Average Queue (ft)	21
95th Queue (ft)	46
Link Distance (ft)	453
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	25	28
Average Queue (ft)	4	14
95th Queue (ft)	19	37
Link Distance (ft)	353	358
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	26	72	280	63	389	43	768	94	288	1213	44
v/c Ratio	0.20	0.21	0.49	0.11	0.54	0.28	0.55	0.17	0.55	0.58	0.06
Control Delay	47.9	20.8	37.5	23.2	7.9	46.9	27.3	0.7	38.9	21.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	20.8	37.5	23.2	7.9	46.9	27.3	0.7	38.9	21.9	0.1
Queue Length 50th (ft)	12	16	63	20	14	19	108	0	65	171	0
Queue Length 95th (ft)	51	59	151	64	99	72	231	0	155	341	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	137	806	858	1178	1127	188	2390	821	858	3120	1027
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.09	0.33	0.05	0.35	0.23	0.32	0.11	0.34	0.39	0.04

Intersection Summary

Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB
Directions Served	LR
Maximum Queue (ft)	54
Average Queue (ft)	20
95th Queue (ft)	46
Link Distance (ft)	453
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	25	28	30
Average Queue (ft)	12	11	2
95th Queue (ft)	32	34	14
Link Distance (ft)	353	358	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			210
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	99	151	49	304	55	1205	176	372	1184	33
v/c Ratio	0.32	0.32	0.38	0.12	0.53	0.42	0.67	0.27	0.64	0.49	0.04
Control Delay	52.1	30.8	44.2	31.6	7.5	55.3	27.5	5.3	41.6	18.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.1	30.8	44.2	31.6	7.5	55.3	27.5	5.3	41.6	18.1	0.1
Queue Length 50th (ft)	21	37	38	23	0	28	189	0	93	154	0
Queue Length 95th (ft)	70	92	94	58	65	#101	363	51	193	292	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	143	712	433	824	869	141	2382	824	851	3237	1024
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.14	0.35	0.06	0.35	0.39	0.51	0.21	0.44	0.37	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	48	73
Average Queue (ft)	25	7
95th Queue (ft)	44	36
Link Distance (ft)	453	178
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	WB	SB
Directions Served	LTR	L
Maximum Queue (ft)	52	28
Average Queue (ft)	15	1
95th Queue (ft)	45	9
Link Distance (ft)	358	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		210
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	38	110	155	167	176	209	1185	104	207	1287	137
v/c Ratio	0.29	0.34	0.38	0.40	0.36	0.90	0.60	0.15	0.51	0.68	0.20
Control Delay	50.6	30.2	42.7	33.0	7.2	80.3	23.7	2.1	43.4	25.0	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	30.2	42.7	33.0	7.2	80.3	23.7	2.1	43.4	25.0	4.3
Queue Length 50th (ft)	18	40	38	77	0	105	171	0	50	194	0
Queue Length 95th (ft)	67	101	94	158	51	#368	332	16	119	352	36
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	142	724	493	869	822	232	2740	908	580	2932	952
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.15	0.31	0.19	0.21	0.90	0.43	0.11	0.36	0.44	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB
Directions Served	LR
Maximum Queue (ft)	121
Average Queue (ft)	59
95th Queue (ft)	89
Link Distance (ft)	453
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	24	28	52
Average Queue (ft)	1	14	13
95th Queue (ft)	8	37	39
Link Distance (ft)	353	358	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			210
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	116	344	155	57	176	84	1185	104	207	1287	58
v/c Ratio	0.94	0.79	0.49	0.12	0.33	0.54	0.69	0.17	0.56	0.66	0.08
Control Delay	115.5	45.4	50.4	28.9	6.4	59.8	30.3	2.2	49.7	27.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	115.5	45.4	50.4	28.9	6.4	59.8	30.3	2.2	49.7	27.7	0.2
Queue Length 50th (ft)	72	176	47	26	0	50	224	0	62	245	0
Queue Length 95th (ft)	#233	325	94	64	51	118	332	16	119	352	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	124	633	430	758	739	202	2387	811	505	2555	849
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.54	0.36	0.08	0.24	0.42	0.50	0.13	0.41	0.50	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 6.1:

EAP (2023) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	39	19	0	12	40
Future Vol, veh/h	0	39	19	0	12	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	42	21	0	13	43

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	90	21	0	0	21	0
Stage 1	21	-	-	-	-	-
Stage 2	69	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	910	1056	-	-	1595	-
Stage 1	1002	-	-	-	-	-
Stage 2	954	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	903	1056	-	-	1595	-
Mov Cap-2 Maneuver	903	-	-	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	946	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	1.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1056	1595	-
HCM Lane V/C Ratio	-	-	0.04	0.008	-
HCM Control Delay (s)	-	-	8.6	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	0	1	1	0	0	16	1	57	0	13	51	0
Future Vol, veh/h	0	1	1	0	0	16	1	57	0	13	51	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	1	0	0	18	1	63	0	14	57	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	159	150	57	151	150	63	57	0	0	63	0	0
Stage 1	85	85	-	65	65	-	-	-	-	-	-	-
Stage 2	74	65	-	86	85	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	807	742	1009	816	742	1002	1547	-	-	1540	-	-
Stage 1	923	824	-	946	841	-	-	-	-	-	-	-
Stage 2	935	841	-	922	824	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	787	735	1009	808	735	1002	1547	-	-	1540	-	-
Mov Cap-2 Maneuver	787	735	-	808	735	-	-	-	-	-	-	-
Stage 1	922	817	-	945	840	-	-	-	-	-	-	-
Stage 2	918	840	-	911	817	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	8.7	0.1	1.5
HCM LOS	A	A		

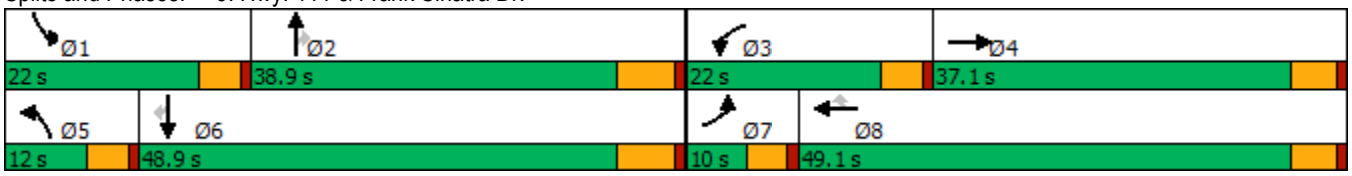
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1547	-	-	850	1002	1540	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.018	0.009	-	-
HCM Control Delay (s)	7.3	-	-	9.2	8.7	7.4	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

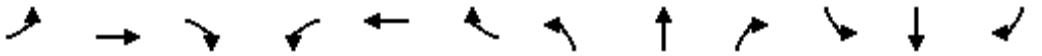
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	25	36	281	64	392	43	773	94	290	1221	44
Future Volume (vph)	25	36	281	64	392	43	773	94	290	1221	44
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	10.0	37.1	22.0	49.1	49.1	12.0	38.9	38.9	22.0	48.9	48.9
Total Split (%)	8.3%	30.9%	18.3%	40.9%	40.9%	10.0%	32.4%	32.4%	18.3%	40.8%	40.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 80.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	36	34	281	64	392	43	773	94	290	1221	44
Future Volume (veh/h)	25	36	34	281	64	392	43	773	94	290	1221	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	39	31	302	69	0	46	831	0	312	1313	33
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	147	117	412	454		76	1560		421	1964	610
Arrive On Green	0.03	0.15	0.15	0.12	0.24	0.00	0.04	0.31	0.00	0.12	0.38	0.38
Sat Flow, veh/h	1781	961	764	3456	1870	1585	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	27	0	70	302	69	0	46	831	0	312	1313	33
Grp Sat Flow(s),veh/h/ln	1781	0	1726	1728	1870	1585	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	1.0	0.0	2.4	5.8	2.0	0.0	1.7	9.2	0.0	5.9	14.5	0.9
Cycle Q Clear(g_c), s	1.0	0.0	2.4	5.8	2.0	0.0	1.7	9.2	0.0	5.9	14.5	0.9
Prop In Lane	1.00		0.44	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	52	0	264	412	454		76	1560		421	1964	610
V/C Ratio(X)	0.52	0.00	0.27	0.73	0.15		0.61	0.53		0.74	0.67	0.05
Avail Cap(c_a), veh/h	141	0	810	882	1207		193	2448		882	3197	992
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	0.0	25.5	29.0	20.3	0.0	32.1	19.6	0.0	28.9	17.4	13.2
Incr Delay (d2), s/veh	2.9	0.0	0.5	1.0	0.2	0.0	2.9	0.3	0.0	1.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.0	2.3	0.8	0.0	0.7	3.1	0.0	2.3	4.7	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.5	0.0	26.0	29.9	20.5	0.0	35.0	19.9	0.0	29.9	17.8	13.2
LnGrp LOS	D	A	C	C	C		C	B		C	B	B
Approach Vol, veh/h		97			371	A		877	A		1658	
Approach Delay, s/veh		28.7			28.2			20.7			20.0	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	27.0	12.7	15.5	7.5	32.4	6.6	21.7
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	17.4	32.7	17.4	32.0	7.4	42.7	5.4	44.0
Max Q Clear Time (g_c+I1), s	7.9	11.2	7.8	4.4	3.7	16.5	3.0	4.0
Green Ext Time (p_c), s	0.4	5.2	0.4	0.3	0.0	9.7	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	5.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	31	22	0	55	19
Future Vol, veh/h	0	31	22	0	55	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	34	24	0	60	21

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	165	24	0	0	24	0
Stage 1	24	-	-	-	-	-
Stage 2	141	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	826	1052	-	-	1591	-
Stage 1	999	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	795	1052	-	-	1591	-
Mov Cap-2 Maneuver	795	-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	852	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	5.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1052	1591	-
HCM Lane V/C Ratio	-	-	0.032	0.038	-
HCM Control Delay (s)	-	-	8.5	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	17	2	0	0	4	9	0	53	0	27	74	1
Future Vol, veh/h	17	2	0	0	4	9	0	53	0	27	74	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	2	0	0	5	11	0	63	0	32	88	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	224	216	89	217	216	63	89	0	0	63	0	0
Stage 1	153	153	-	63	63	-	-	-	-	-	-	-
Stage 2	71	63	-	154	153	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	732	682	969	739	682	1002	1506	-	-	1540	-	-
Stage 1	849	771	-	948	842	-	-	-	-	-	-	-
Stage 2	939	842	-	848	771	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	709	668	969	725	668	1002	1506	-	-	1540	-	-
Mov Cap-2 Maneuver	709	668	-	725	668	-	-	-	-	-	-	-
Stage 1	849	755	-	948	842	-	-	-	-	-	-	-
Stage 2	924	842	-	828	755	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	9.2	0	2
HCM LOS	B	A		

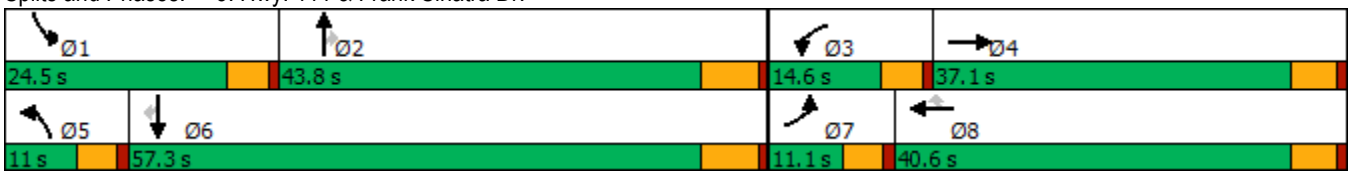
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1506	-	-	704	868	1540	-	-
HCM Lane V/C Ratio	-	-	-	0.032	0.018	0.021	-	-
HCM Control Delay (s)	0	-	-	10.3	9.2	7.4	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	-	-

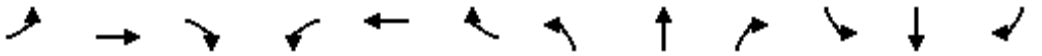
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	44	66	161	51	326	57	1291	188	398	1269	35
Future Volume (vph)	44	66	161	51	326	57	1291	188	398	1269	35
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.1	37.1	14.6	40.6	40.6	11.0	43.8	43.8	24.5	57.3	57.3
Total Split (%)	9.3%	30.9%	12.2%	33.8%	33.8%	9.2%	36.5%	36.5%	20.4%	47.8%	47.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 89
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	66	38	161	51	326	57	1291	188	398	1269	35
Future Volume (veh/h)	44	66	38	161	51	326	57	1291	188	398	1269	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	67	32	163	52	0	58	1304	0	402	1282	29
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	165	79	249	317		84	1846		509	2355	716
Arrive On Green	0.04	0.14	0.14	0.07	0.17	0.00	0.05	0.36	0.00	0.15	0.46	0.46
Sat Flow, veh/h	1781	1195	571	3456	1870	1585	1781	5106	1585	3456	5106	1552
Grp Volume(v), veh/h	44	0	99	163	52	0	58	1304	0	402	1282	29
Grp Sat Flow(s),veh/h/ln	1781	0	1766	1728	1870	1585	1781	1702	1585	1728	1702	1552
Q Serve(g_s), s	1.8	0.0	3.7	3.3	1.7	0.0	2.3	16.0	0.0	8.2	13.2	0.7
Cycle Q Clear(g_c), s	1.8	0.0	3.7	3.3	1.7	0.0	2.3	16.0	0.0	8.2	13.2	0.7
Prop In Lane	1.00		0.32	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	0	243	249	317		84	1846		509	2355	716
V/C Ratio(X)	0.61	0.00	0.41	0.65	0.16		0.69	0.71		0.79	0.54	0.04
Avail Cap(c_a), veh/h	159	0	776	474	912		157	2636		944	3582	1089
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	0.0	28.7	32.9	25.8	0.0	34.2	19.9	0.0	30.0	14.1	10.8
Incr Delay (d2), s/veh	3.1	0.0	1.1	1.1	0.2	0.0	3.7	0.5	0.0	1.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.6	1.4	0.8	0.0	1.0	5.4	0.0	3.1	4.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	29.8	34.0	26.1	0.0	37.8	20.4	0.0	31.0	14.3	10.8
LnGrp LOS	D	A	C	C	C		D	C		C	B	B
Approach Vol, veh/h		143			215	A		1362	A		1713	
Approach Delay, s/veh		32.1			32.1			21.2			18.2	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	32.5	9.9	15.1	8.1	39.8	7.5	17.4
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	19.9	37.6	10.0	32.0	6.4	51.1	6.5	35.5
Max Q Clear Time (g_c+I1), s	10.2	18.0	5.3	5.7	4.3	15.2	3.8	3.7
Green Ext Time (p_c), s	0.5	8.4	0.1	0.5	0.0	10.4	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	7.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	62	22	0	354	21
Future Vol, veh/h	0	62	22	0	354	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	67	24	0	385	23

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	817	24	0	0	24	0
Stage 1	24	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	346	1052	-	-	1591	-
Stage 1	999	-	-	-	-	-
Stage 2	446	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	261	1052	-	-	1591	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	337	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	7.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1052	1591	-
HCM Lane V/C Ratio	-	-	0.064	0.242	-
HCM Control Delay (s)	-	-	8.7	8	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	1	0	0	0	1	29	0	80	3	36	375	3
Future Vol, veh/h	1	0	0	0	1	29	0	80	3	36	375	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	1	37	0	101	4	46	475	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	691	674	477	672	674	103	479	0	0	105	0	0
Stage 1	569	569	-	103	103	-	-	-	-	-	-	-
Stage 2	122	105	-	569	571	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	359	376	588	370	376	952	1083	-	-	1486	-	-
Stage 1	507	506	-	903	810	-	-	-	-	-	-	-
Stage 2	882	808	-	507	505	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	336	364	588	361	364	952	1083	-	-	1486	-	-
Mov Cap-2 Maneuver	336	364	-	361	364	-	-	-	-	-	-	-
Stage 1	507	490	-	903	810	-	-	-	-	-	-	-
Stage 2	847	808	-	491	489	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.8	9.2	0	0.7
HCM LOS	C	A		

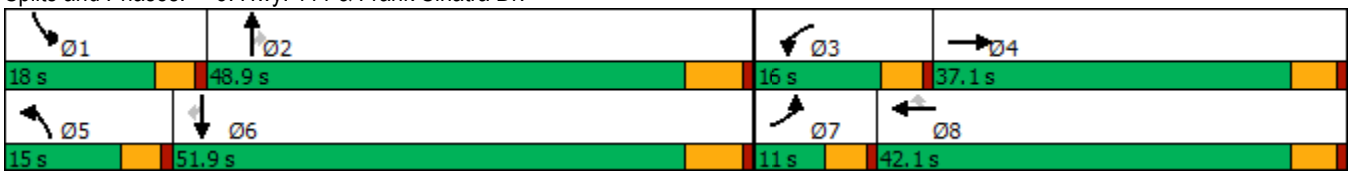
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1083	-	-	336	903	1486	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.042	0.031	-	-
HCM Control Delay (s)	0	-	-	15.8	9.2	7.5	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

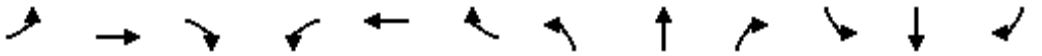
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	37	67	153	154	173	194	1167	103	203	1268	128
Future Volume (vph)	37	67	153	154	173	194	1167	103	203	1268	128
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.0	37.1	16.0	42.1	42.1	15.0	48.9	48.9	18.0	51.9	51.9
Total Split (%)	9.2%	30.9%	13.3%	35.1%	35.1%	12.5%	40.8%	40.8%	15.0%	43.3%	43.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 89.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	67	37	153	154	173	194	1167	103	203	1268	128
Future Volume (veh/h)	37	67	37	153	154	173	194	1167	103	203	1268	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	74	41	168	169	0	213	1282	0	223	1393	137
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	155	86	252	323		238	2228		312	2007	621
Arrive On Green	0.04	0.14	0.14	0.07	0.17	0.00	0.13	0.44	0.00	0.09	0.39	0.39
Sat Flow, veh/h	1781	1131	627	3456	1870	1585	1781	5106	1585	3456	5106	1579
Grp Volume(v), veh/h	41	0	115	168	169	0	213	1282	0	223	1393	137
Grp Sat Flow(s),veh/h/ln	1781	0	1758	1728	1870	1585	1781	1702	1585	1728	1702	1579
Q Serve(g_s), s	1.8	0.0	4.7	3.7	6.4	0.0	9.2	14.7	0.0	4.9	17.7	4.5
Cycle Q Clear(g_c), s	1.8	0.0	4.7	3.7	6.4	0.0	9.2	14.7	0.0	4.9	17.7	4.5
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	67	0	242	252	323		238	2228		312	2007	621
V/C Ratio(X)	0.61	0.00	0.48	0.67	0.52		0.90	0.58		0.71	0.69	0.22
Avail Cap(c_a), veh/h	146	0	722	506	888		238	2799		594	2995	926
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	0.0	31.0	35.2	29.3	0.0	33.2	16.5	0.0	34.5	19.7	15.7
Incr Delay (d2), s/veh	3.3	0.0	1.5	1.1	1.3	0.0	31.5	0.2	0.0	1.1	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	2.0	1.5	2.9	0.0	5.7	4.8	0.0	1.9	6.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.2	0.0	32.5	36.3	30.6	0.0	64.7	16.8	0.0	35.6	20.2	15.9
LnGrp LOS	D	A	C	D	C		E	B		D	C	B
Approach Vol, veh/h		156			337	A		1495	A		1753	
Approach Delay, s/veh		34.5			33.5			23.6			21.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	40.2	10.3	15.8	15.0	36.8	7.5	18.5
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	13.4	42.7	11.4	32.0	10.4	45.7	6.4	37.0
Max Q Clear Time (g_c+I1), s	6.9	16.7	5.7	6.7	11.2	19.7	3.8	8.4
Green Ext Time (p_c), s	0.2	9.3	0.1	0.6	0.0	10.9	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	8.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	347	22	0	69	21
Future Vol, veh/h	0	347	22	0	69	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	377	24	0	75	23

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	197	24	0	0	24	0
Stage 1	24	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	792	1052	-	-	1591	-
Stage 1	999	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	754	1052	-	-	1591	-
Mov Cap-2 Maneuver	754	-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	816	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	5.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1052	1591	-
HCM Lane V/C Ratio	-	-	0.359	0.047	-
HCM Control Delay (s)	-	-	10.3	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0.1	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	1	0	0	0	1	29	0	365	3	36	90	3
Future Vol, veh/h	1	0	0	0	1	29	0	365	3	36	90	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	1	37	0	462	4	46	114	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	691	674	116	672	674	464	118	0	0	466	0	0
Stage 1	208	208	-	464	464	-	-	-	-	-	-	-
Stage 2	483	466	-	208	210	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	359	376	936	370	376	598	1470	-	-	1095	-	-
Stage 1	794	730	-	578	564	-	-	-	-	-	-	-
Stage 2	565	562	-	794	728	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	325	360	936	358	360	598	1470	-	-	1095	-	-
Mov Cap-2 Maneuver	325	360	-	358	360	-	-	-	-	-	-	-
Stage 1	794	699	-	578	564	-	-	-	-	-	-	-
Stage 2	529	562	-	761	697	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.1	11.6	0	2.4
HCM LOS	C	B		

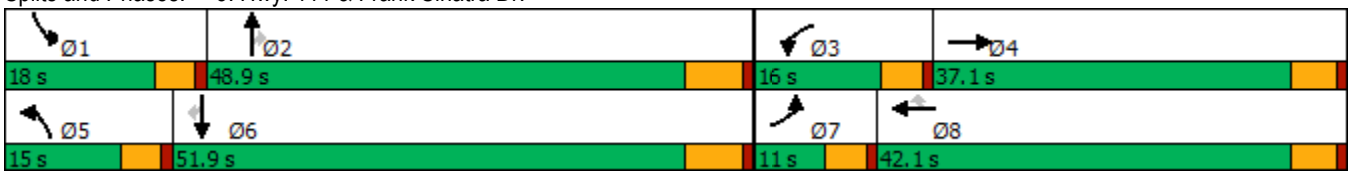
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1470	-	-	325	585	1095	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.065	0.042	-	-
HCM Control Delay (s)	0	-	-	16.1	11.6	8.4	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-	-

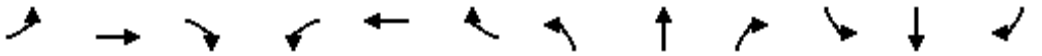
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	108	166	153	54	173	80	1167	103	203	1268	56
Future Volume (vph)	108	166	153	54	173	80	1167	103	203	1268	56
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.0	37.1	16.0	42.1	42.1	15.0	48.9	48.9	18.0	51.9	51.9
Total Split (%)	9.2%	30.9%	13.3%	35.1%	35.1%	12.5%	40.8%	40.8%	15.0%	43.3%	43.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 99.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	166	151	153	54	173	80	1167	103	203	1268	56
Future Volume (veh/h)	108	166	151	153	54	173	80	1167	103	203	1268	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	119	182	166	168	59	0	88	1282	0	223	1393	58
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	218	199	247	444		113	1805		306	1933	598
Arrive On Green	0.08	0.24	0.24	0.07	0.24	0.00	0.06	0.35	0.00	0.09	0.38	0.38
Sat Flow, veh/h	1781	901	822	3456	1870	1585	1781	5106	1585	3456	5106	1579
Grp Volume(v), veh/h	119	0	348	168	59	0	88	1282	0	223	1393	58
Grp Sat Flow(s),veh/h/ln	1781	0	1722	1728	1870	1585	1781	1702	1585	1728	1702	1579
Q Serve(g_s), s	5.6	0.0	16.1	4.0	2.1	0.0	4.1	18.2	0.0	5.3	19.6	2.0
Cycle Q Clear(g_c), s	5.6	0.0	16.1	4.0	2.1	0.0	4.1	18.2	0.0	5.3	19.6	2.0
Prop In Lane	1.00		0.48	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	136	0	418	247	444		113	1805		306	1933	598
V/C Ratio(X)	0.88	0.00	0.83	0.68	0.13		0.78	0.71		0.73	0.72	0.10
Avail Cap(c_a), veh/h	136	0	656	469	824		221	2597		551	2779	859
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	0.0	30.2	38.1	25.2	0.0	38.7	23.4	0.0	37.3	22.3	16.8
Incr Delay (d2), s/veh	41.6	0.0	5.3	1.2	0.1	0.0	4.3	0.5	0.0	1.3	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	7.1	1.7	0.9	0.0	1.8	6.5	0.0	2.1	6.9	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.0	0.0	35.5	39.3	25.3	0.0	43.0	24.0	0.0	38.5	22.8	16.9
LnGrp LOS	E	A	D	D	C		D	C		D	C	B
Approach Vol, veh/h		467			227	A		1370	A		1674	
Approach Delay, s/veh		46.8			35.7			25.2			24.7	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	35.9	10.6	25.5	9.9	38.0	11.0	25.1
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	13.4	42.7	11.4	32.0	10.4	45.7	6.4	37.0
Max Q Clear Time (g_c+I1), s	7.3	20.2	6.0	18.1	6.1	21.6	7.6	4.1
Green Ext Time (p_c), s	0.2	8.7	0.1	1.8	0.0	10.2	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 6.2:

EAP (2023) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAP 2023
				CALC RV	DATE	01/09/19
Jurisdiction: City of Rancho Mirage				CHK RV	DATE	01/09/19
Major Street: Frank Sinatra Dr.				Critical Approach Speed (Major)		30 mph
Minor Street: Driveway 1				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **1,090** vpd Minor Street Future ADT = **534** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……..

URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	Urban	Rural	Urban	Rural
CONDITION A - Minimum Vehicular Volume				
Satisfied / Not Satisfied: XX / XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **1,090** / 1 **534**	8,000	5,600	2,400	1,680
2 + / 1	9,600	6,720	2,400	1,680
2 + / 2 +	9,600	6,720	3,200	2,240
1 / 2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street	Urban	Rural	Urban	Rural
1 **1,090** / 1 **534**	12,000	8,400	1,200	850
2 + / 1	14,400	10,080	1,200	850
2 + / 2 +	14,400	10,080	1,600	1,120
1 / 2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 14% B: 9%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

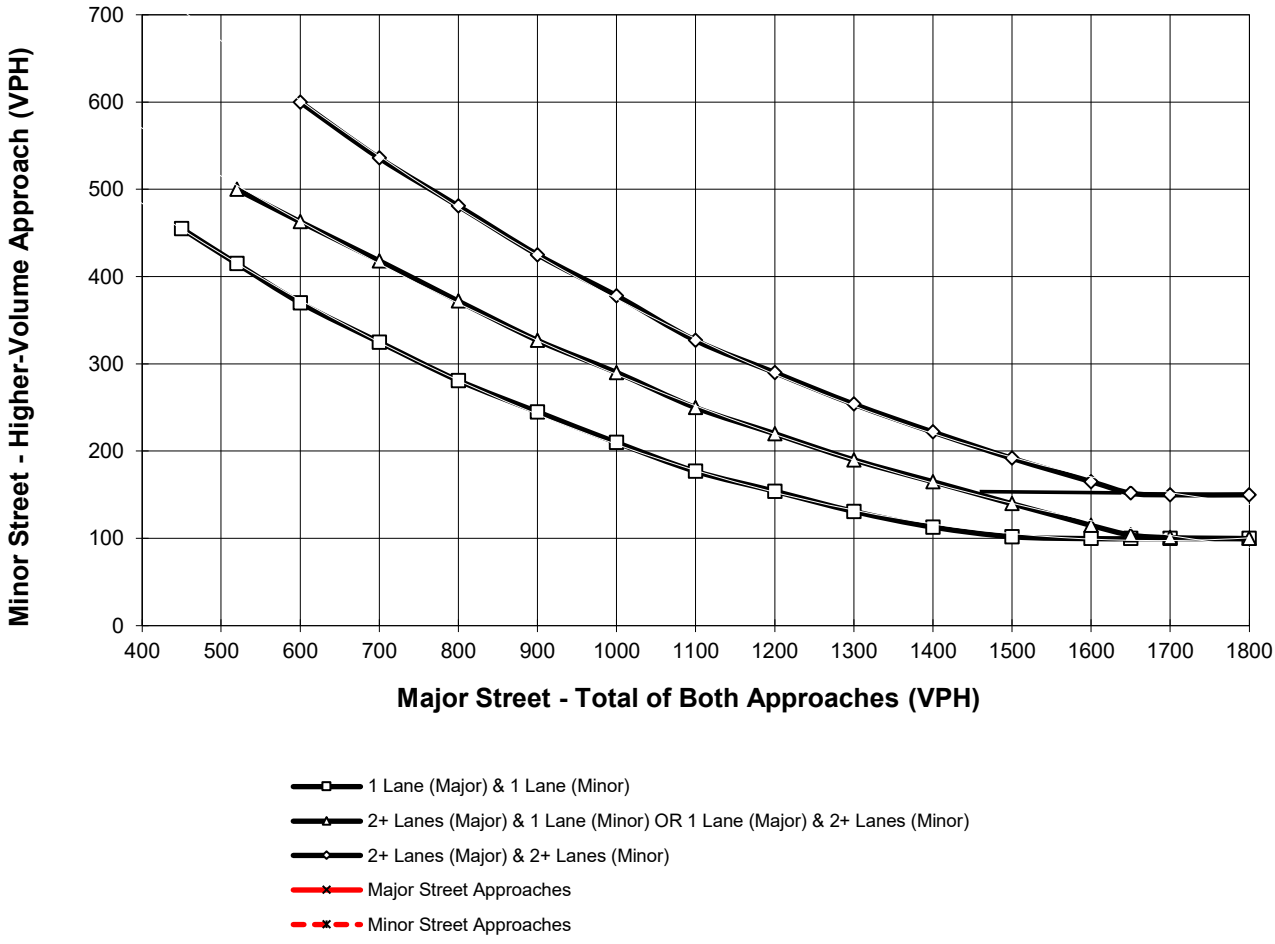
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAP 2023 Conditions - Weekday PM Peak Hour**

Major Street Name = **Frank Sinatra Dr.**
Total of Both Approaches (VPH) = **155**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Driveway 2**
High Volume Approach (VPH) = **19**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 6.3:

EAP (2023) CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB
Directions Served	LR
Maximum Queue (ft)	48
Average Queue (ft)	20
95th Queue (ft)	44
Link Distance (ft)	453
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	25	28	29
Average Queue (ft)	2	6	1
95th Queue (ft)	15	24	10
Link Distance (ft)	353	358	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			210
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	76	302	69	422	46	831	101	312	1313	47
v/c Ratio	0.21	0.23	0.52	0.12	0.59	0.31	0.57	0.18	0.58	0.60	0.06
Control Delay	49.5	21.6	38.9	24.1	10.1	48.8	27.9	0.7	40.3	22.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	21.6	38.9	24.1	10.1	48.8	27.9	0.7	40.3	22.3	0.2
Queue Length 50th (ft)	13	18	73	24	29	22	123	0	75	195	0
Queue Length 95th (ft)	53	62	162	68	133	75	251	0	167	376	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	132	778	825	1133	1095	181	2298	796	825	3002	993
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.10	0.37	0.06	0.39	0.25	0.36	0.13	0.38	0.44	0.05

Intersection Summary

Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	53	31
Average Queue (ft)	19	3
95th Queue (ft)	44	18
Link Distance (ft)	453	178
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	46	28	50
Average Queue (ft)	15	10	4
95th Queue (ft)	36	32	22
Link Distance (ft)	353	358	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			210
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	44	105	163	52	329	58	1304	190	402	1282	35
v/c Ratio	0.36	0.35	0.42	0.13	0.56	0.46	0.70	0.27	0.69	0.51	0.04
Control Delay	55.1	32.8	46.1	32.8	8.2	59.1	28.3	5.2	44.0	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	32.8	46.1	32.8	8.2	59.1	28.3	5.2	44.0	18.2	0.1
Queue Length 50th (ft)	24	43	44	26	2	32	216	0	108	173	0
Queue Length 95th (ft)	74	96	100	61	72	#108	400	53	208	323	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	136	679	412	783	853	134	2265	800	809	3078	979
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.15	0.40	0.07	0.39	0.43	0.58	0.24	0.50	0.42	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	53	56
Average Queue (ft)	29	5
95th Queue (ft)	48	27
Link Distance (ft)	453	178
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	65
Average Queue (ft)	26
95th Queue (ft)	54
Link Distance (ft)	358
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	115	168	169	190	213	1282	113	223	1393	141
v/c Ratio	0.34	0.38	0.49	0.37	0.36	1.00	0.65	0.16	0.56	0.72	0.21
Control Delay	53.8	31.9	46.4	33.4	6.8	106.3	25.3	2.6	45.9	26.3	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.8	31.9	46.4	33.4	6.8	106.3	25.3	2.6	45.9	26.3	4.4
Queue Length 50th (ft)	21	46	44	84	0	115	195	0	58	219	0
Queue Length 95th (ft)	70	106	102	159	53	#376	365	22	127	389	39
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	131	667	452	797	776	212	2511	845	531	2687	885
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.17	0.37	0.21	0.24	1.00	0.51	0.13	0.42	0.52	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	115	29
Average Queue (ft)	59	1
95th Queue (ft)	96	9
Link Distance (ft)	453	178
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	24	47	30
Average Queue (ft)	1	18	10
95th Queue (ft)	8	42	33
Link Distance (ft)	353	358	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			210
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	119	348	168	59	190	88	1282	113	223	1393	62
v/c Ratio	1.01	0.80	0.53	0.12	0.35	0.58	0.72	0.18	0.60	0.69	0.09
Control Delay	137.2	48.1	53.1	30.0	6.3	64.2	31.7	2.7	52.5	28.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	137.2	48.1	53.1	30.0	6.3	64.2	31.7	2.7	52.5	28.8	0.2
Queue Length 50th (ft)	~88	194	55	29	0	56	261	0	73	284	0
Queue Length 95th (ft)	#238	330	102	66	53	#125	365	22	127	389	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	118	604	410	722	721	192	2275	779	481	2435	815
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.58	0.41	0.08	0.26	0.46	0.56	0.15	0.46	0.57	0.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 7.1:

EAPC (2023) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	39	21	0	12	42
Future Vol, veh/h	0	39	21	0	12	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	42	23	0	13	46

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	95	23	0	0	23	0
Stage 1	23	-	-	-	-	-
Stage 2	72	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	905	1054	-	-	1592	-
Stage 1	1000	-	-	-	-	-
Stage 2	951	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	898	1054	-	-	1592	-
Mov Cap-2 Maneuver	898	-	-	-	-	-
Stage 1	1000	-	-	-	-	-
Stage 2	943	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1592	-
HCM Lane V/C Ratio	-	-	0.04	0.008	-
HCM Control Delay (s)	-	-	8.6	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	0	1	1	0	0	16	1	59	0	13	53	0
Future Vol, veh/h	0	1	1	0	0	16	1	59	0	13	53	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	1	0	0	18	1	66	0	14	59	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	164	155	59	156	155	66	59	0	0	66	0	0
Stage 1	87	87	-	68	68	-	-	-	-	-	-	-
Stage 2	77	68	-	88	87	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	801	737	1007	810	737	998	1545	-	-	1536	-	-
Stage 1	921	823	-	942	838	-	-	-	-	-	-	-
Stage 2	932	838	-	920	823	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	781	730	1007	802	730	998	1545	-	-	1536	-	-
Mov Cap-2 Maneuver	781	730	-	802	730	-	-	-	-	-	-	-
Stage 1	920	816	-	941	837	-	-	-	-	-	-	-
Stage 2	915	837	-	909	816	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.3	8.7	0.1	1.5
HCM LOS	A	A		

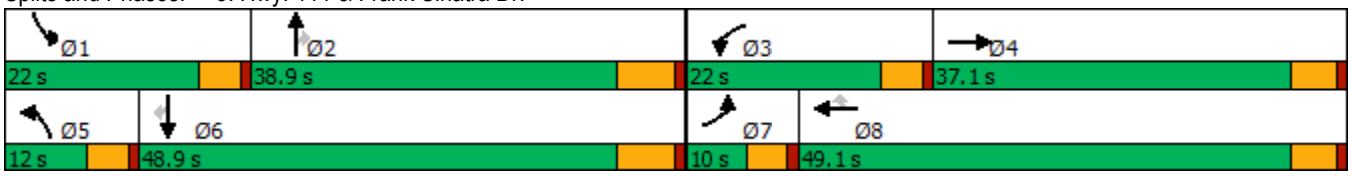
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1545	-	-	846	998	1536	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.018	0.009	-	-
HCM Control Delay (s)	7.3	-	-	9.3	8.7	7.4	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

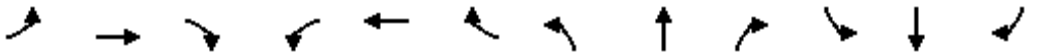
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	29	38	283	65	397	44	821	101	295	1250	47
Future Volume (vph)	29	38	283	65	397	44	821	101	295	1250	47
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	10.0	37.1	22.0	49.1	49.1	12.0	38.9	38.9	22.0	48.9	48.9
Total Split (%)	8.3%	30.9%	18.3%	40.9%	40.9%	10.0%	32.4%	32.4%	18.3%	40.8%	40.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 80.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	38	36	283	65	397	44	821	101	295	1250	47
Future Volume (veh/h)	29	38	36	283	65	397	44	821	101	295	1250	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	41	33	304	70	0	47	883	0	317	1344	37
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	145	117	412	446		77	1583		425	1992	618
Arrive On Green	0.03	0.15	0.15	0.12	0.24	0.00	0.04	0.31	0.00	0.12	0.39	0.39
Sat Flow, veh/h	1781	956	769	3456	1870	1585	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	31	0	74	304	70	0	47	883	0	317	1344	37
Grp Sat Flow(s),veh/h/ln	1781	0	1725	1728	1870	1585	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	1.2	0.0	2.6	5.9	2.1	0.0	1.8	10.0	0.0	6.1	15.1	1.0
Cycle Q Clear(g_c), s	1.2	0.0	2.6	5.9	2.1	0.0	1.8	10.0	0.0	6.1	15.1	1.0
Prop In Lane	1.00		0.45	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	58	0	262	412	446		77	1583		425	1992	618
V/C Ratio(X)	0.54	0.00	0.28	0.74	0.16		0.61	0.56		0.75	0.67	0.06
Avail Cap(c_a), veh/h	139	0	797	868	1188		190	2410		868	3147	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	0.0	26.0	29.5	20.9	0.0	32.6	19.9	0.0	29.3	17.5	13.2
Incr Delay (d2), s/veh	2.9	0.0	0.6	1.0	0.2	0.0	3.0	0.3	0.0	1.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.1	2.4	0.9	0.0	0.8	3.4	0.0	2.3	4.9	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.9	0.0	26.6	30.4	21.0	0.0	35.5	20.2	0.0	30.3	17.9	13.2
LnGrp LOS	D	A	C	C	C		D	C		C	B	B
Approach Vol, veh/h		105			374	A		930	A		1698	
Approach Delay, s/veh		29.4			28.7			21.0			20.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	27.7	12.9	15.6	7.6	33.2	6.8	21.6
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	17.4	32.7	17.4	32.0	7.4	42.7	5.4	44.0
Max Q Clear Time (g_c+I1), s	8.1	12.0	7.9	4.6	3.8	17.1	3.2	4.1
Green Ext Time (p_c), s	0.4	5.5	0.4	0.4	0.0	9.9	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	4.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	31	27	0	55	23
Future Vol, veh/h	0	31	27	0	55	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	34	29	0	60	25

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	174	29	0	0	29	0
Stage 1	29	-	-	-	-	-
Stage 2	145	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	816	1046	-	-	1584	-
Stage 1	994	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	785	1046	-	-	1584	-
Mov Cap-2 Maneuver	785	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	848	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	5.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1046	1584	-
HCM Lane V/C Ratio	-	-	0.032	0.038	-
HCM Control Delay (s)	-	-	8.6	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	2	0	0	4	9	0	58	0	27	78	1
Future Vol, veh/h	17	2	0	0	4	9	0	58	0	27	78	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	2	0	0	5	11	0	69	0	32	93	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	235	227	94	228	227	69	94	0	0	69	0	0
Stage 1	158	158	-	69	69	-	-	-	-	-	-	-
Stage 2	77	69	-	159	158	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	720	672	963	727	672	994	1500	-	-	1532	-	-
Stage 1	844	767	-	941	837	-	-	-	-	-	-	-
Stage 2	932	837	-	843	767	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	697	658	963	713	658	994	1500	-	-	1532	-	-
Mov Cap-2 Maneuver	697	658	-	713	658	-	-	-	-	-	-	-
Stage 1	844	751	-	941	837	-	-	-	-	-	-	-
Stage 2	917	837	-	823	751	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	9.3	0	1.9
HCM LOS	B	A		

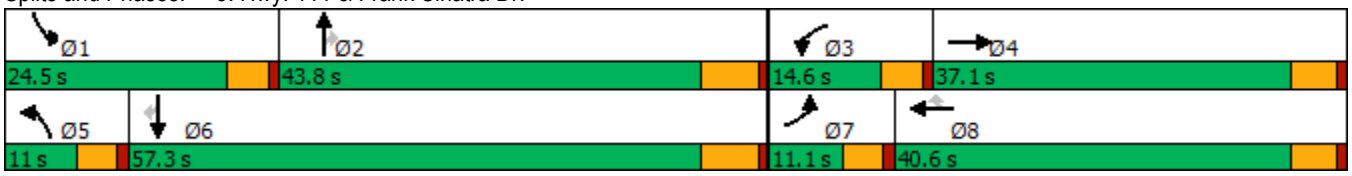
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1500	-	-	693	859	1532	-	-
HCM Lane V/C Ratio	-	-	-	0.033	0.018	0.021	-	-
HCM Control Delay (s)	0	-	-	10.4	9.3	7.4	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	-	-

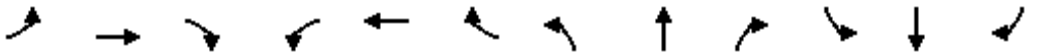
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	49	67	168	53	335	59	1346	192	406	1334	41
Future Volume (vph)	49	67	168	53	335	59	1346	192	406	1334	41
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.1	37.1	14.6	40.6	40.6	11.0	43.8	43.8	24.5	57.3	57.3
Total Split (%)	9.3%	30.9%	12.2%	33.8%	33.8%	9.2%	36.5%	36.5%	20.4%	47.8%	47.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 92.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	67	39	168	53	335	59	1346	192	406	1334	41
Future Volume (veh/h)	49	67	39	168	53	335	59	1346	192	406	1334	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	68	33	170	54	0	60	1360	0	410	1347	35
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	160	78	255	310		85	1885		514	2401	730
Arrive On Green	0.04	0.13	0.13	0.07	0.17	0.00	0.05	0.37	0.00	0.15	0.47	0.47
Sat Flow, veh/h	1781	1188	577	3456	1870	1585	1781	5106	1585	3456	5106	1552
Grp Volume(v), veh/h	49	0	101	170	54	0	60	1360	0	410	1347	35
Grp Sat Flow(s),veh/h/ln	1781	0	1765	1728	1870	1585	1781	1702	1585	1728	1702	1552
Q Serve(g_s), s	2.0	0.0	3.9	3.6	1.9	0.0	2.5	17.2	0.0	8.6	14.2	0.9
Cycle Q Clear(g_c), s	2.0	0.0	3.9	3.6	1.9	0.0	2.5	17.2	0.0	8.6	14.2	0.9
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	76	0	238	255	310		85	1885		514	2401	730
V/C Ratio(X)	0.64	0.00	0.42	0.67	0.17		0.71	0.72		0.80	0.56	0.05
Avail Cap(c_a), veh/h	155	0	754	461	886		152	2562		918	3482	1058
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	0.0	29.8	33.8	26.8	0.0	35.2	20.3	0.0	30.8	14.3	10.8
Incr Delay (d2), s/veh	3.4	0.0	1.2	1.1	0.3	0.0	4.0	0.6	0.0	1.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.7	1.5	0.8	0.0	1.1	5.9	0.0	3.3	4.4	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.7	0.0	31.0	34.9	27.1	0.0	39.2	21.0	0.0	31.9	14.5	10.8
LnGrp LOS	D	A	C	C	C		D	C		C	B	B
Approach Vol, veh/h		150			224	A		1420	A		1792	
Approach Delay, s/veh		33.5			33.0			21.7			18.4	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.7	33.9	10.1	15.2	8.2	41.4	7.8	17.5
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	19.9	37.6	10.0	32.0	6.4	51.1	6.5	35.5
Max Q Clear Time (g_c+I1), s	10.6	19.2	5.6	5.9	4.5	16.2	4.0	3.9
Green Ext Time (p_c), s	0.5	8.5	0.1	0.5	0.0	11.1	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	21.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	7.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	62	27	0	354	26
Future Vol, veh/h	0	62	27	0	354	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	67	29	0	385	28

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	827	29	0	0	29	0
Stage 1	29	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	341	1046	-	-	1584	-
Stage 1	994	-	-	-	-	-
Stage 2	443	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	257	1046	-	-	1584	-
Mov Cap-2 Maneuver	257	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	334	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	7.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1046	1584	-
HCM Lane V/C Ratio	-	-	0.064	0.243	-
HCM Control Delay (s)	-	-	8.7	8	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	1	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	1	0	0	0	1	29	0	85	3	36	380	3
Future Vol, veh/h	1	0	0	0	1	29	0	85	3	36	380	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	1	37	0	108	4	46	481	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	704	687	483	685	687	110	485	0	0	112	0	0
Stage 1	575	575	-	110	110	-	-	-	-	-	-	-
Stage 2	129	112	-	575	577	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	352	370	584	362	370	943	1078	-	-	1478	-	-
Stage 1	503	503	-	895	804	-	-	-	-	-	-	-
Stage 2	875	803	-	503	502	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	329	359	584	353	359	943	1078	-	-	1478	-	-
Mov Cap-2 Maneuver	329	359	-	353	359	-	-	-	-	-	-	-
Stage 1	503	487	-	895	804	-	-	-	-	-	-	-
Stage 2	840	803	-	487	486	-	-	-	-	-	-	-

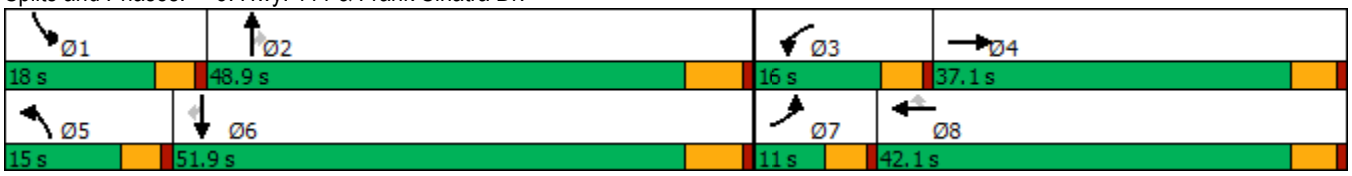
Approach	EB	WB	NB	SB
HCM Control Delay, s	16	9.2	0	0.6
HCM LOS	C	A		

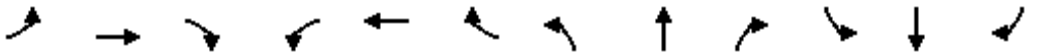
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1078	-	-	329	894	1478	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.042	0.031	-	-
HCM Control Delay (s)	0	-	-	16	9.2	7.5	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	43	68	159	156	184	196	1233	108	212	1331	134
Future Volume (vph)	43	68	159	156	184	196	1233	108	212	1331	134
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.0	37.1	16.0	42.1	42.1	15.0	48.9	48.9	18.0	51.9	51.9
Total Split (%)	9.2%	30.9%	13.3%	35.1%	35.1%	12.5%	40.8%	40.8%	15.0%	43.3%	43.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 91.5
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	68	39	159	156	184	196	1233	108	212	1331	134
Future Volume (veh/h)	43	68	39	159	156	184	196	1233	108	212	1331	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	47	75	43	175	171	0	215	1355	0	233	1463	143
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	150	86	258	314		232	2259		320	2069	640
Arrive On Green	0.04	0.13	0.13	0.07	0.17	0.00	0.13	0.44	0.00	0.09	0.41	0.41
Sat Flow, veh/h	1781	1116	640	3456	1870	1585	1781	5106	1585	3456	5106	1579
Grp Volume(v), veh/h	47	0	118	175	171	0	215	1355	0	233	1463	143
Grp Sat Flow(s),veh/h/ln	1781	0	1755	1728	1870	1585	1781	1702	1585	1728	1702	1579
Q Serve(g_s), s	2.1	0.0	5.0	3.9	6.7	0.0	9.6	16.1	0.0	5.2	19.1	4.7
Cycle Q Clear(g_c), s	2.1	0.0	5.0	3.9	6.7	0.0	9.6	16.1	0.0	5.2	19.1	4.7
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	0	235	258	314		232	2259		320	2069	640
V/C Ratio(X)	0.65	0.00	0.50	0.68	0.54		0.93	0.60		0.73	0.71	0.22
Avail Cap(c_a), veh/h	142	0	702	492	865		232	2725		579	2917	902
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.8	0.0	32.2	36.1	30.5	0.0	34.4	16.9	0.0	35.3	19.8	15.6
Incr Delay (d2), s/veh	3.7	0.0	1.6	1.2	1.5	0.0	39.4	0.3	0.0	1.2	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.2	1.7	3.0	0.0	6.3	5.3	0.0	2.1	6.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	0.0	33.8	37.3	31.9	0.0	73.8	17.2	0.0	36.5	20.3	15.7
LnGrp LOS	D	A	C	D	C		E	B		D	C	B
Approach Vol, veh/h		165			346	A		1570	A		1839	
Approach Delay, s/veh		36.0			34.6			24.9			22.0	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	41.6	10.6	15.8	15.0	38.6	7.8	18.6
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	13.4	42.7	11.4	32.0	10.4	45.7	6.4	37.0
Max Q Clear Time (g_c+I1), s	7.2	18.1	5.9	7.0	11.6	21.1	4.1	8.7
Green Ext Time (p_c), s	0.2	9.7	0.1	0.6	0.0	11.3	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	8.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	347	27	0	69	26
Future Vol, veh/h	0	347	27	0	69	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	377	29	0	75	28

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	207	29	0	0	29	0
Stage 1	29	-	-	-	-	-
Stage 2	178	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	781	1046	-	-	1584	-
Stage 1	994	-	-	-	-	-
Stage 2	853	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	744	1046	-	-	1584	-
Mov Cap-2 Maneuver	744	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	812	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	5.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1046	1584	-
HCM Lane V/C Ratio	-	-	0.361	0.047	-
HCM Control Delay (s)	-	-	10.4	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.7	0.1	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	1	0	0	0	1	29	0	370	3	36	95	3
Future Vol, veh/h	1	0	0	0	1	29	0	370	3	36	95	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	1	37	0	468	4	46	120	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	703	686	122	684	686	470	124	0	0	472	0	0
Stage 1	214	214	-	470	470	-	-	-	-	-	-	-
Stage 2	489	472	-	214	216	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	352	370	929	363	370	594	1463	-	-	1090	-	-
Stage 1	788	725	-	574	560	-	-	-	-	-	-	-
Stage 2	561	559	-	788	724	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	319	354	929	351	354	594	1463	-	-	1090	-	-
Mov Cap-2 Maneuver	319	354	-	351	354	-	-	-	-	-	-	-
Stage 1	788	695	-	574	560	-	-	-	-	-	-	-
Stage 2	525	559	-	755	694	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.3	11.6	0	2.3
HCM LOS	C	B		

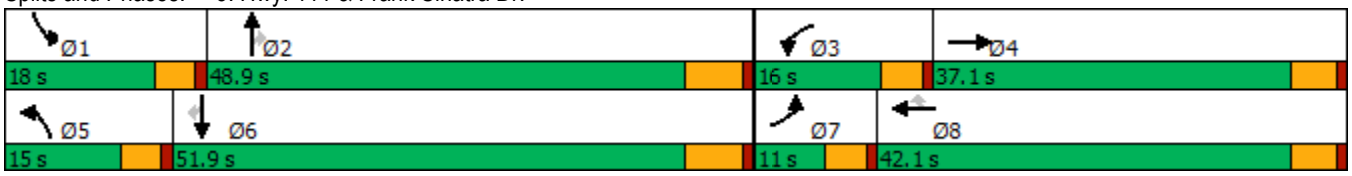
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1463	-	-	319	581	1090	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.065	0.042	-	-
HCM Control Delay (s)	0	-	-	16.3	11.6	8.4	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-	-

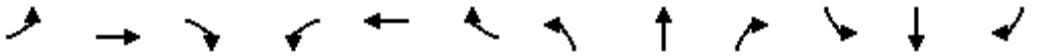
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	114	167	159	56	184	82	1233	108	212	1331	62
Future Volume (vph)	114	167	159	56	184	82	1233	108	212	1331	62
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.0	37.1	16.0	42.1	42.1	15.0	48.9	48.9	18.0	51.9	51.9
Total Split (%)	9.2%	30.9%	13.3%	35.1%	35.1%	12.5%	40.8%	40.8%	15.0%	43.3%	43.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 102.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	167	153	159	56	184	82	1233	108	212	1331	62
Future Volume (veh/h)	114	167	153	159	56	184	82	1233	108	212	1331	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	125	184	168	175	62	0	90	1355	0	233	1463	64
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	218	199	251	453		115	1845		313	1976	611
Arrive On Green	0.07	0.24	0.24	0.07	0.24	0.00	0.06	0.36	0.00	0.09	0.39	0.39
Sat Flow, veh/h	1781	900	822	3456	1870	1585	1781	5106	1585	3456	5106	1579
Grp Volume(v), veh/h	125	0	352	175	62	0	90	1355	0	233	1463	64
Grp Sat Flow(s),veh/h/ln	1781	0	1722	1728	1870	1585	1781	1702	1585	1728	1702	1579
Q Serve(g_s), s	6.2	0.0	17.1	4.3	2.3	0.0	4.4	20.3	0.0	5.8	21.6	2.3
Cycle Q Clear(g_c), s	6.2	0.0	17.1	4.3	2.3	0.0	4.4	20.3	0.0	5.8	21.6	2.3
Prop In Lane	1.00		0.48	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	130	0	417	251	453		115	1845		313	1976	611
V/C Ratio(X)	0.96	0.00	0.84	0.70	0.14		0.78	0.73		0.75	0.74	0.10
Avail Cap(c_a), veh/h	130	0	627	448	787		211	2480		527	2654	821
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	31.7	39.8	26.1	0.0	40.5	24.4	0.0	39.0	23.1	17.2
Incr Delay (d2), s/veh	67.3	0.0	6.6	1.3	0.1	0.0	4.3	0.8	0.0	1.3	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	7.7	1.8	1.0	0.0	1.9	7.4	0.0	2.4	7.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	108.0	0.0	38.3	41.1	26.2	0.0	44.8	25.2	0.0	40.3	23.9	17.3
LnGrp LOS	F	A	D	D	C		D	C		D	C	B
Approach Vol, veh/h		477			237	A		1445	A		1760	
Approach Delay, s/veh		56.6			37.2			26.4			25.8	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	38.0	11.0	26.4	10.3	40.2	11.0	26.4
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	13.4	42.7	11.4	32.0	10.4	45.7	6.4	37.0
Max Q Clear Time (g_c+I1), s	7.8	22.3	6.3	19.1	6.4	23.6	8.2	4.3
Green Ext Time (p_c), s	0.2	8.9	0.1	1.8	0.0	10.4	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 7.2:

EAPC (2023) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAPC 2023
				CALC RV	DATE	01/09/19
Jurisdiction: City of Rancho Mirage				CHK RV	DATE	01/09/19
Major Street: Frank Sinatra Dr.				Critical Approach Speed (Major)		30 mph
Minor Street: Driveway 1				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **1,186** vpd Minor Street Future ADT = **534** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……..

URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,186**	*1* **534**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,186**	*1* **534**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	A 15% B 10%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

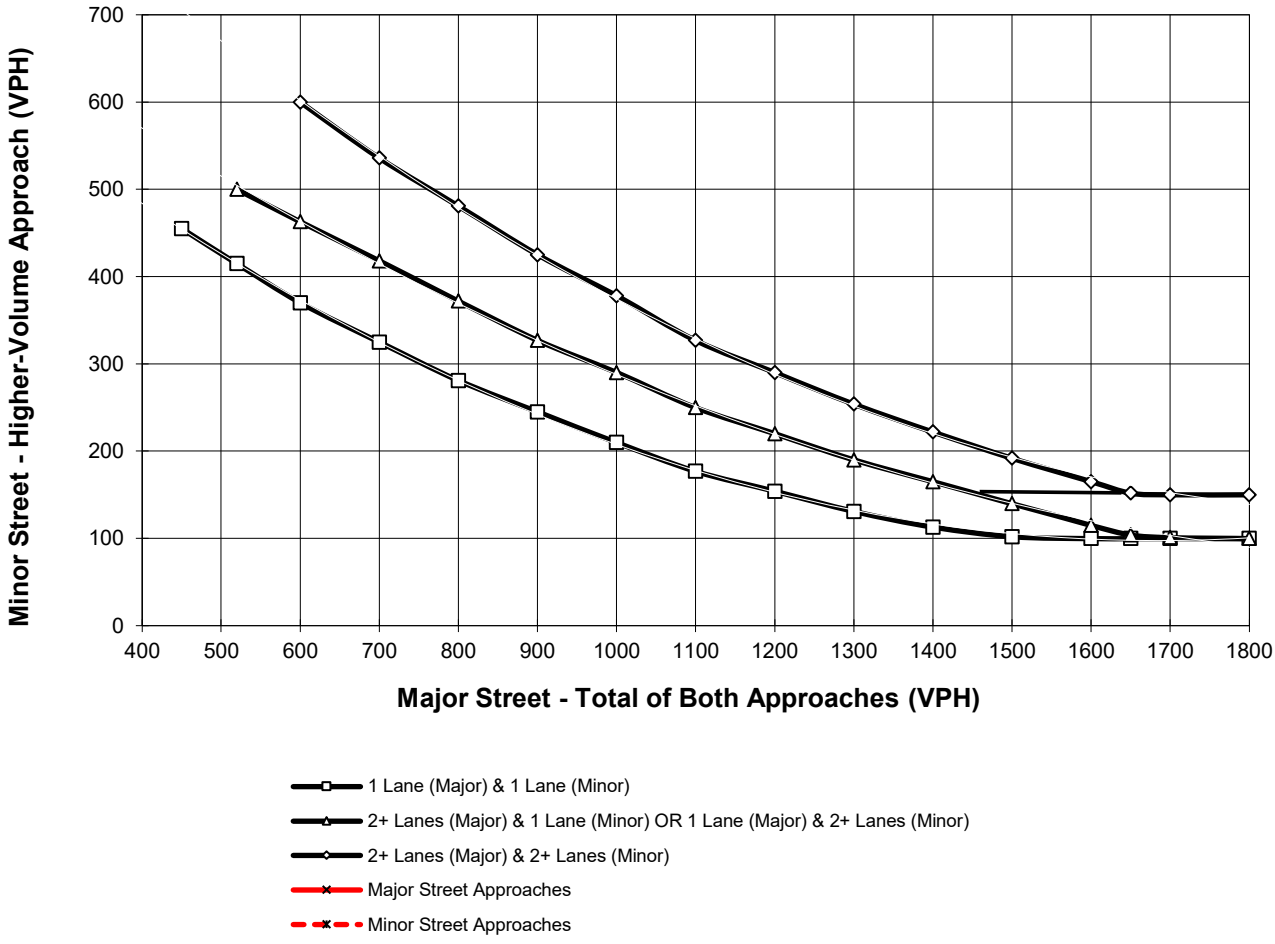
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAPC 2023 Conditions - Weekday PM Peak Hour**

Major Street Name = **Frank Sinatra Dr.**
Total of Both Approaches (VPH) = **164**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Driveway 2**
High Volume Approach (VPH) = **19**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 7.3:

EAPC (2023) CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	53	29
Average Queue (ft)	20	1
95th Queue (ft)	44	9
Link Distance (ft)	453	178
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	25	28
Average Queue (ft)	4	7
95th Queue (ft)	19	28
Link Distance (ft)	353	358
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	31	80	304	70	427	47	883	109	317	1344	51
v/c Ratio	0.25	0.24	0.53	0.14	0.64	0.32	0.60	0.19	0.59	0.61	0.07
Control Delay	50.5	21.9	39.4	26.1	12.2	49.5	28.3	0.7	40.8	22.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	21.9	39.4	26.1	12.2	49.5	28.3	0.7	40.8	22.4	0.2
Queue Length 50th (ft)	15	19	74	29	42	23	134	0	77	202	0
Queue Length 95th (ft)	57	64	163	69	145	77	269	0	169	388	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	130	770	815	1118	1082	178	2269	789	815	2963	982
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.10	0.37	0.06	0.39	0.26	0.39	0.14	0.39	0.45	0.05

Intersection Summary

Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB
Directions Served	LR
Maximum Queue (ft)	53
Average Queue (ft)	20
95th Queue (ft)	45
Link Distance (ft)	453
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	25	28
Average Queue (ft)	11	8
95th Queue (ft)	31	29
Link Distance (ft)	353	358
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	49	107	170	54	338	60	1360	194	410	1347	41
v/c Ratio	0.42	0.38	0.53	0.14	0.58	0.50	0.74	0.28	0.72	0.55	0.05
Control Delay	58.1	33.2	49.6	34.2	9.5	62.2	30.0	5.6	46.4	19.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	33.2	49.6	34.2	9.5	62.2	30.0	5.6	46.4	19.1	0.1
Queue Length 50th (ft)	28	46	48	28	10	34	231	2	115	186	0
Queue Length 95th (ft)	#86	99	104	63	85	#113	422	57	212	343	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	128	638	381	735	818	126	2127	761	760	2891	925
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.17	0.45	0.07	0.41	0.48	0.64	0.25	0.54	0.47	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	48	53
Average Queue (ft)	27	6
95th Queue (ft)	43	30
Link Distance (ft)	453	178
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	24	28	30
Average Queue (ft)	1	19	4
95th Queue (ft)	8	40	21
Link Distance (ft)	353	358	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			210
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	47	118	175	171	202	215	1355	119	233	1463	147
v/c Ratio	0.40	0.40	0.52	0.38	0.38	1.04	0.67	0.17	0.59	0.73	0.21
Control Delay	57.0	33.0	47.7	34.3	6.8	117.0	25.8	3.1	47.4	26.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.0	33.0	47.7	34.3	6.8	117.0	25.8	3.1	47.4	26.5	4.5
Queue Length 50th (ft)	25	49	47	89	0	~125	215	0	63	237	0
Queue Length 95th (ft)	#82	109	105	162	54	#379	392	26	133	415	42
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	127	648	440	775	767	207	2442	826	517	2613	866
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.18	0.40	0.22	0.26	1.04	0.55	0.14	0.45	0.56	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB
Directions Served	LR
Maximum Queue (ft)	79
Average Queue (ft)	57
95th Queue (ft)	79
Link Distance (ft)	453
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	25	52	30
Average Queue (ft)	2	20	11
95th Queue (ft)	12	48	34
Link Distance (ft)	353	358	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			210
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	125	352	175	62	202	90	1355	119	233	1463	68
v/c Ratio	1.10	0.81	0.55	0.13	0.36	0.59	0.75	0.18	0.62	0.71	0.10
Control Delay	160.1	49.6	54.6	30.4	6.5	65.8	32.7	3.2	54.2	29.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	160.1	49.6	54.6	30.4	6.5	65.8	32.7	3.2	54.2	29.5	0.3
Queue Length 50th (ft)	~105	208	60	32	1	60	291	0	80	314	0
Queue Length 95th (ft)	#251	336	105	69	55	#131	392	26	133	415	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	114	586	396	698	710	186	2201	759	466	2356	794
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.60	0.44	0.09	0.28	0.48	0.62	0.16	0.50	0.62	0.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 8.1:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1	1	0	0	18	1	22	0	14	45	0
Future Vol, veh/h	0	1	1	0	0	18	1	22	0	14	45	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	1	0	0	20	1	24	0	16	50	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	118	108	50	109	108	24	50	0	0	24	0	0
Stage 1	82	82	-	26	26	-	-	-	-	-	-	-
Stage 2	36	26	-	83	82	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	858	782	1018	870	782	1052	1557	-	-	1591	-	-
Stage 1	926	827	-	992	874	-	-	-	-	-	-	-
Stage 2	980	874	-	925	827	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	835	773	1018	861	773	1052	1557	-	-	1591	-	-
Mov Cap-2 Maneuver	835	773	-	861	773	-	-	-	-	-	-	-
Stage 1	925	819	-	991	873	-	-	-	-	-	-	-
Stage 2	961	873	-	913	819	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	8.5	0.3	1.7
HCM LOS	A	A		

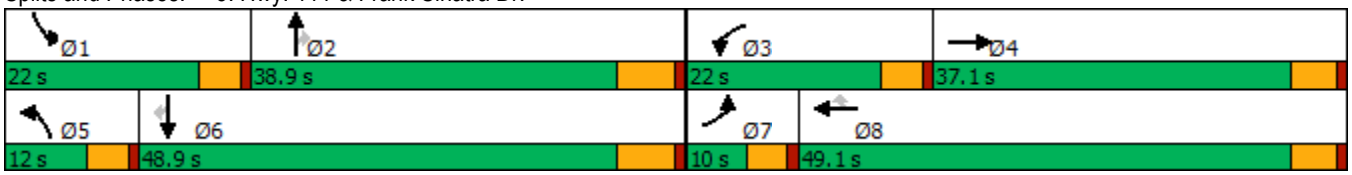
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1557	-	-	879	1052	1591	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.019	0.01	-	-
HCM Control Delay (s)	7.3	-	-	9.1	8.5	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

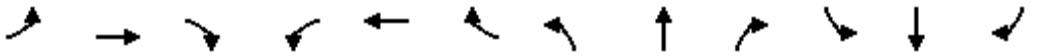
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	21	26	330	62	489	43	851	104	325	1375	49
Future Volume (vph)	21	26	330	62	489	43	851	104	325	1375	49
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	10.0	37.1	22.0	49.1	49.1	12.0	38.9	38.9	22.0	48.9	48.9
Total Split (%)	8.3%	30.9%	18.3%	40.9%	40.9%	10.0%	32.4%	32.4%	18.3%	40.8%	40.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 86.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	26	22	330	62	489	43	851	104	325	1375	49
Future Volume (veh/h)	21	26	22	330	62	489	43	851	104	325	1375	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	28	18	355	67	0	46	915	0	349	1478	39
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	148	95	458	461		74	1641		450	2096	651
Arrive On Green	0.03	0.14	0.14	0.13	0.25	0.00	0.04	0.32	0.00	0.13	0.41	0.41
Sat Flow, veh/h	1781	1060	681	3456	1870	1585	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	23	0	46	355	67	0	46	915	0	349	1478	39
Grp Sat Flow(s),veh/h/ln	1781	0	1741	1728	1870	1585	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	0.9	0.0	1.7	7.4	2.1	0.0	1.9	11.0	0.0	7.2	17.8	1.1
Cycle Q Clear(g_c), s	0.9	0.0	1.7	7.4	2.1	0.0	1.9	11.0	0.0	7.2	17.8	1.1
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	45	0	242	458	461		74	1641		450	2096	651
V/C Ratio(X)	0.51	0.00	0.19	0.78	0.15		0.63	0.56		0.78	0.71	0.06
Avail Cap(c_a), veh/h	130	0	752	811	1110		178	2253		811	2942	913
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	0.0	28.2	31.1	21.8	0.0	35.0	20.8	0.0	31.2	18.1	13.2
Incr Delay (d2), s/veh	3.2	0.0	0.4	1.1	0.1	0.0	3.2	0.3	0.0	1.1	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.7	3.0	0.9	0.0	0.8	3.8	0.0	2.8	5.9	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	0.0	28.6	32.2	22.0	0.0	38.2	21.1	0.0	32.3	18.6	13.2
LnGrp LOS	D	A	C	C	C		D	C		C	B	B
Approach Vol, veh/h		69			422	A		961	A		1866	
Approach Delay, s/veh		32.0			30.5			21.9			21.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	30.0	14.4	15.4	7.7	36.6	6.5	23.3
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	17.4	32.7	17.4	32.0	7.4	42.7	5.4	44.0
Max Q Clear Time (g_c+I1), s	9.2	13.0	9.4	3.7	3.9	19.8	2.9	4.1
Green Ext Time (p_c), s	0.4	5.6	0.5	0.2	0.0	10.6	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↰	↱		↰	↱	
Traffic Vol, veh/h	19	2	0	0	5	10	0	29	0	30	26	1
Future Vol, veh/h	19	2	0	0	5	10	0	29	0	30	26	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	2	0	0	6	12	0	35	0	36	31	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	148	139	32	140	139	35	32	0	0	35	0	0
Stage 1	104	104	-	35	35	-	-	-	-	-	-	-
Stage 2	44	35	-	105	104	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	820	752	1042	830	752	1038	1580	-	-	1576	-	-
Stage 1	902	809	-	981	866	-	-	-	-	-	-	-
Stage 2	970	866	-	901	809	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	791	735	1042	813	735	1038	1580	-	-	1576	-	-
Mov Cap-2 Maneuver	791	735	-	813	735	-	-	-	-	-	-	-
Stage 1	902	790	-	981	866	-	-	-	-	-	-	-
Stage 2	952	866	-	878	790	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	9	0	3.9
HCM LOS	A	A		

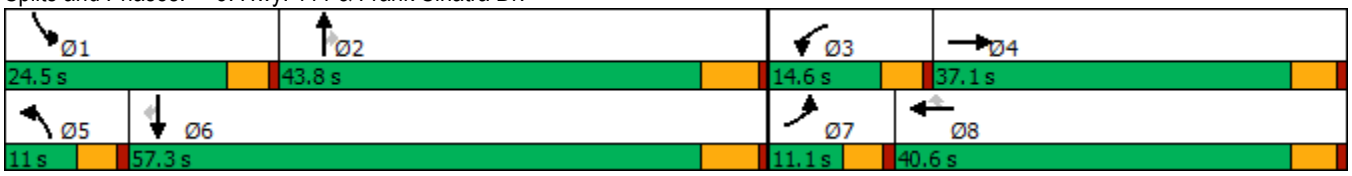
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1580	-	-	785	913	1576	-	-
HCM Lane V/C Ratio	-	-	-	0.032	0.02	0.023	-	-
HCM Control Delay (s)	0	-	-	9.7	9	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	-	-

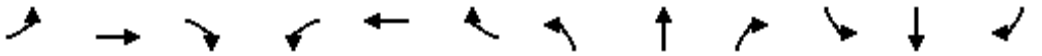
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	45	62	178	38	354	40	1481	227	481	1467	29
Future Volume (vph)	45	62	178	38	354	40	1481	227	481	1467	29
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.1	37.1	14.6	40.6	40.6	11.0	43.8	43.8	24.5	57.3	57.3
Total Split (%)	9.3%	30.9%	12.2%	33.8%	33.8%	9.2%	36.5%	36.5%	20.4%	47.8%	47.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 94.7
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	62	30	178	38	354	40	1481	227	481	1467	29
Future Volume (veh/h)	45	62	30	178	38	354	40	1481	227	481	1467	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	63	24	180	38	0	40	1496	0	486	1482	23
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	159	61	261	298		65	1950		580	2620	797
Arrive On Green	0.04	0.12	0.12	0.08	0.16	0.00	0.04	0.38	0.00	0.17	0.51	0.51
Sat Flow, veh/h	1781	1289	491	3456	1870	1585	1781	5106	1585	3456	5106	1552
Grp Volume(v), veh/h	45	0	87	180	38	0	40	1496	0	486	1482	23
Grp Sat Flow(s),veh/h/ln	1781	0	1781	1728	1870	1585	1781	1702	1585	1728	1702	1552
Q Serve(g_s), s	2.0	0.0	3.7	4.1	1.4	0.0	1.8	20.9	0.0	11.1	16.2	0.6
Cycle Q Clear(g_c), s	2.0	0.0	3.7	4.1	1.4	0.0	1.8	20.9	0.0	11.1	16.2	0.6
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	70	0	219	261	298		65	1950		580	2620	797
V/C Ratio(X)	0.64	0.00	0.40	0.69	0.13		0.61	0.77		0.84	0.57	0.03
Avail Cap(c_a), veh/h	142	0	699	424	815		140	2357		844	3203	974
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	0.0	32.9	36.7	29.4	0.0	38.7	22.0	0.0	32.8	13.6	9.8
Incr Delay (d2), s/veh	3.7	0.0	1.2	1.2	0.2	0.0	3.5	1.3	0.0	3.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.6	1.7	0.6	0.0	0.8	7.4	0.0	4.5	5.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	0.0	34.1	38.0	29.6	0.0	42.1	23.3	0.0	36.2	13.8	9.8
LnGrp LOS	D	A	C	D	C		D	C		D	B	A
Approach Vol, veh/h		132			218	A		1536	A		1991	
Approach Delay, s/veh		36.9			36.5			23.8			19.2	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	37.3	10.7	15.1	7.6	48.0	7.8	18.1
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	19.9	37.6	10.0	32.0	6.4	51.1	6.5	35.5
Max Q Clear Time (g_c+I1), s	13.1	22.9	6.1	5.7	3.8	18.2	4.0	3.4
Green Ext Time (p_c), s	0.6	8.2	0.1	0.4	0.0	12.3	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	22.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	0	1	32	0	26	4	39	28	4
Future Vol, veh/h	1	0	0	0	1	32	0	26	4	39	28	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	1	41	0	33	5	49	35	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	193	174	38	172	174	36	40	0	0	38	0	0
Stage 1	136	136	-	36	36	-	-	-	-	-	-	-
Stage 2	57	38	-	136	138	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	767	719	1034	791	719	1037	1570	-	-	1572	-	-
Stage 1	867	784	-	980	865	-	-	-	-	-	-	-
Stage 2	955	863	-	867	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	719	697	1034	772	697	1037	1570	-	-	1572	-	-
Mov Cap-2 Maneuver	719	697	-	772	697	-	-	-	-	-	-	-
Stage 1	867	760	-	980	865	-	-	-	-	-	-	-
Stage 2	916	863	-	840	758	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	8.7	0	4
HCM LOS	B	A		

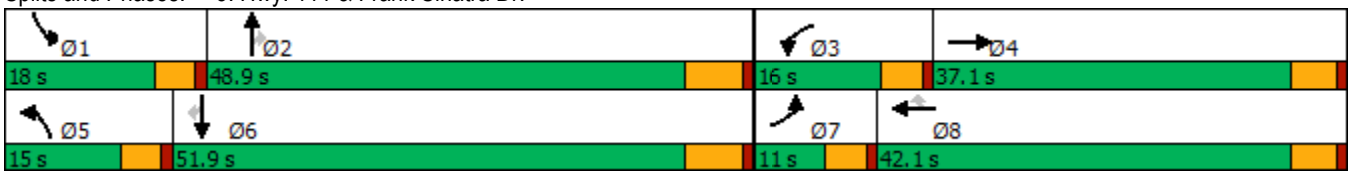
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1570	-	-	719	1022	1572	-	-
HCM Lane V/C Ratio	-	-	-	0.002	0.041	0.031	-	-
HCM Control Delay (s)	0	-	-	10	8.7	7.4	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

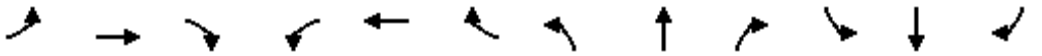
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	24	52	176	35	200	60	1347	119	235	1464	45
Future Volume (vph)	24	52	176	35	200	60	1347	119	235	1464	45
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.0	37.1	16.0	42.1	42.1	15.0	48.9	48.9	18.0	51.9	51.9
Total Split (%)	9.2%	30.9%	13.3%	35.1%	35.1%	12.5%	40.8%	40.8%	15.0%	43.3%	43.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 88.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	52	14	176	35	200	60	1347	119	235	1464	45
Future Volume (veh/h)	24	52	14	176	35	200	60	1347	119	235	1464	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	57	15	193	38	0	66	1480	0	258	1609	45
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	50	193	51	282	353		89	2081		352	2347	726
Arrive On Green	0.03	0.14	0.14	0.08	0.19	0.00	0.05	0.41	0.00	0.10	0.46	0.46
Sat Flow, veh/h	1781	1427	376	3456	1870	1585	1781	5106	1585	3456	5106	1580
Grp Volume(v), veh/h	26	0	72	193	38	0	66	1480	0	258	1609	45
Grp Sat Flow(s),veh/h/ln	1781	0	1803	1728	1870	1585	1781	1702	1585	1728	1702	1580
Q Serve(g_s), s	1.1	0.0	2.7	4.1	1.3	0.0	2.7	18.1	0.0	5.4	18.6	1.2
Cycle Q Clear(g_c), s	1.1	0.0	2.7	4.1	1.3	0.0	2.7	18.1	0.0	5.4	18.6	1.2
Prop In Lane	1.00		0.21	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	50	0	244	282	353		89	2081		352	2347	726
V/C Ratio(X)	0.52	0.00	0.30	0.68	0.11		0.74	0.71		0.73	0.69	0.06
Avail Cap(c_a), veh/h	152	0	771	526	924		247	2912		619	3117	964
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	0.0	29.2	33.4	25.1	0.0	35.1	18.5	0.0	32.6	16.0	11.3
Incr Delay (d2), s/veh	3.1	0.0	0.7	1.1	0.1	0.0	4.5	0.5	0.0	1.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.2	1.7	0.5	0.0	1.2	6.0	0.0	2.1	5.9	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.0	0.0	29.8	34.5	25.3	0.0	39.6	19.0	0.0	33.7	16.4	11.3
LnGrp LOS	D	A	C	C	C		D	B		C	B	B
Approach Vol, veh/h		98			231	A		1546	A		1912	
Approach Delay, s/veh		32.3			33.0			19.9			18.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	36.7	10.7	15.2	8.3	40.6	6.7	19.2
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	13.4	42.7	11.4	32.0	10.4	45.7	6.4	37.0
Max Q Clear Time (g_c+I1), s	7.4	20.1	6.1	4.7	4.7	20.6	3.1	3.3
Green Ext Time (p_c), s	0.2	10.4	0.2	0.3	0.0	12.3	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

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APPENDIX 8.2:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	39	24	0	12	46
Future Vol, veh/h	0	39	24	0	12	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	42	26	0	13	50

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	102	26	0	0	26	0
Stage 1	26	-	-	-	-	-
Stage 2	76	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	896	1050	-	-	1588	-
Stage 1	997	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	889	1050	-	-	1588	-
Mov Cap-2 Maneuver	889	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	939	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	1.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1050	1588	-
HCM Lane V/C Ratio	-	-	0.04	0.008	-
HCM Control Delay (s)	-	-	8.6	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	0	1	1	0	0	18	1	61	0	14	57	0
Future Vol, veh/h	0	1	1	0	0	18	1	61	0	14	57	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	1	0	0	20	1	68	0	16	63	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	175	165	63	166	165	68	63	0	0	68	0	0
Stage 1	95	95	-	70	70	-	-	-	-	-	-	-
Stage 2	80	70	-	96	95	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	788	728	1002	798	728	995	1540	-	-	1533	-	-
Stage 1	912	816	-	940	837	-	-	-	-	-	-	-
Stage 2	929	837	-	911	816	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	766	720	1002	789	720	995	1540	-	-	1533	-	-
Mov Cap-2 Maneuver	766	720	-	789	720	-	-	-	-	-	-	-
Stage 1	911	808	-	939	836	-	-	-	-	-	-	-
Stage 2	910	836	-	899	808	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.3	8.7	0.1	1.5
HCM LOS	A	A		

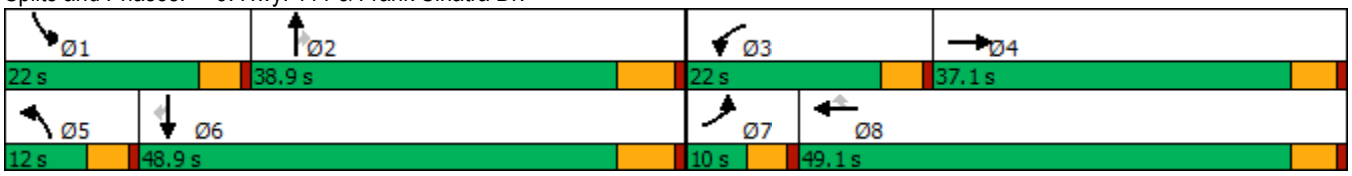
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1540	-	-	838	995	1533	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.02	0.01	-	-
HCM Control Delay (s)	7.3	-	-	9.3	8.7	7.4	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

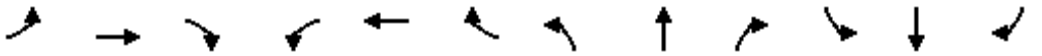
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	31	40	330	66	489	48	851	104	325	1375	52
Future Volume (vph)	31	40	330	66	489	48	851	104	325	1375	52
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	10.0	37.1	22.0	49.1	49.1	12.0	38.9	38.9	22.0	48.9	48.9
Total Split (%)	8.3%	30.9%	18.3%	40.9%	40.9%	10.0%	32.4%	32.4%	18.3%	40.8%	40.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 88.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	40	38	330	66	489	48	851	104	325	1375	52
Future Volume (veh/h)	31	40	38	330	66	489	48	851	104	325	1375	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	43	35	355	71	0	52	915	0	349	1478	42
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	135	110	456	451		79	1647		449	2085	647
Arrive On Green	0.03	0.14	0.14	0.13	0.24	0.00	0.04	0.32	0.00	0.13	0.41	0.41
Sat Flow, veh/h	1781	950	773	3456	1870	1585	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	33	0	78	355	71	0	52	915	0	349	1478	42
Grp Sat Flow(s),veh/h/ln	1781	0	1723	1728	1870	1585	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	1.4	0.0	3.1	7.5	2.2	0.0	2.2	11.1	0.0	7.3	18.1	1.2
Cycle Q Clear(g_c), s	1.4	0.0	3.1	7.5	2.2	0.0	2.2	11.1	0.0	7.3	18.1	1.2
Prop In Lane	1.00		0.45	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	0	246	456	451		79	1647		449	2085	647
V/C Ratio(X)	0.56	0.00	0.32	0.78	0.16		0.66	0.56		0.78	0.71	0.06
Avail Cap(c_a), veh/h	128	0	735	801	1096		176	2224		801	2904	902
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	0.0	28.9	31.5	22.5	0.0	35.3	21.0	0.0	31.6	18.5	13.5
Incr Delay (d2), s/veh	3.1	0.0	0.7	1.1	0.2	0.0	3.5	0.3	0.0	1.1	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	1.3	3.0	1.0	0.0	0.9	3.9	0.0	2.9	6.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.8	0.0	29.6	32.6	22.6	0.0	38.9	21.3	0.0	32.7	19.0	13.5
LnGrp LOS	D	A	C	C	C		D	C		C	B	B
Approach Vol, veh/h		111			426	A		967	A		1869	
Approach Delay, s/veh		32.4			31.0			22.2			21.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	30.4	14.5	15.8	7.9	36.9	7.1	23.2
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	17.4	32.7	17.4	32.0	7.4	42.7	5.4	44.0
Max Q Clear Time (g_c+I1), s	9.3	13.1	9.5	5.1	4.2	20.1	3.4	4.2
Green Ext Time (p_c), s	0.4	5.6	0.5	0.4	0.0	10.6	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	23.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	31	29	0	55	26
Future Vol, veh/h	0	31	29	0	55	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	34	32	0	60	28

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	180	32	0	0	32	0
Stage 1	32	-	-	-	-	-
Stage 2	148	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	810	1042	-	-	1580	-
Stage 1	991	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	778	1042	-	-	1580	-
Mov Cap-2 Maneuver	778	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	846	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1042	1580	-
HCM Lane V/C Ratio	-	-	0.032	0.038	-
HCM Control Delay (s)	-	-	8.6	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	19	2	0	0	5	10	0	60	0	30	81	1
Future Vol, veh/h	19	2	0	0	5	10	0	60	0	30	81	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	2	0	0	6	12	0	71	0	36	96	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	249	240	97	241	240	71	97	0	0	71	0	0
Stage 1	169	169	-	71	71	-	-	-	-	-	-	-
Stage 2	80	71	-	170	169	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	705	661	959	713	661	991	1496	-	-	1529	-	-
Stage 1	833	759	-	939	836	-	-	-	-	-	-	-
Stage 2	929	836	-	832	759	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	679	645	959	698	645	991	1496	-	-	1529	-	-
Mov Cap-2 Maneuver	679	645	-	698	645	-	-	-	-	-	-	-
Stage 1	833	741	-	939	836	-	-	-	-	-	-	-
Stage 2	911	836	-	810	741	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	9.4	0	2
HCM LOS	B	A		

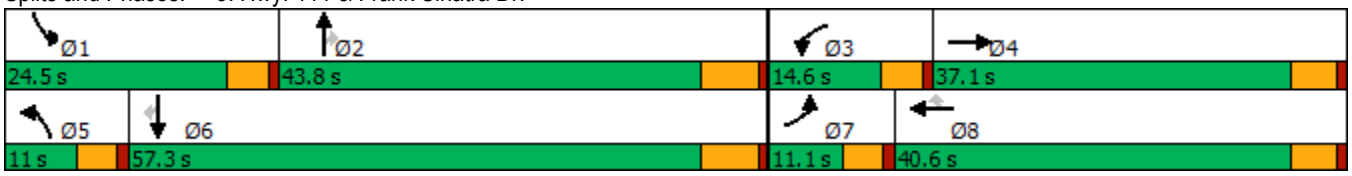
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1496	-	-	676	841	1529	-	-
HCM Lane V/C Ratio	-	-	-	0.037	0.021	0.023	-	-
HCM Control Delay (s)	0	-	-	10.5	9.4	7.4	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	-	-

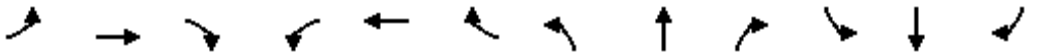
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	53	73	178	57	354	62	1481	227	481	1467	43
Future Volume (vph)	53	73	178	57	354	62	1481	227	481	1467	43
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.1	37.1	14.6	40.6	40.6	11.0	43.8	43.8	24.5	57.3	57.3
Total Split (%)	9.3%	30.9%	12.2%	33.8%	33.8%	9.2%	36.5%	36.5%	20.4%	47.8%	47.8%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 98.4
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	73	42	178	57	354	62	1481	227	481	1467	43
Future Volume (veh/h)	53	73	42	178	57	354	62	1481	227	481	1467	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	74	36	180	58	0	63	1496	0	486	1482	37
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	148	72	260	293		83	1947		580	2566	780
Arrive On Green	0.04	0.12	0.12	0.08	0.16	0.00	0.05	0.38	0.00	0.17	0.50	0.50
Sat Flow, veh/h	1781	1187	578	3456	1870	1585	1781	5106	1585	3456	5106	1552
Grp Volume(v), veh/h	54	0	110	180	58	0	63	1496	0	486	1482	37
Grp Sat Flow(s),veh/h/ln	1781	0	1765	1728	1870	1585	1781	1702	1585	1728	1702	1552
Q Serve(g_s), s	2.4	0.0	4.8	4.2	2.2	0.0	2.9	20.9	0.0	11.1	16.6	1.0
Cycle Q Clear(g_c), s	2.4	0.0	4.8	4.2	2.2	0.0	2.9	20.9	0.0	11.1	16.6	1.0
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	0	220	260	293		83	1947		580	2566	780
V/C Ratio(X)	0.70	0.00	0.50	0.69	0.20		0.76	0.77		0.84	0.58	0.05
Avail Cap(c_a), veh/h	142	0	691	423	813		140	2349		842	3193	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	0.0	33.4	36.9	30.0	0.0	38.5	22.1	0.0	32.9	14.2	10.4
Incr Delay (d2), s/veh	4.3	0.0	1.8	1.2	0.3	0.0	5.3	1.3	0.0	3.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	2.1	1.7	1.0	0.0	1.3	7.5	0.0	4.5	5.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	0.0	35.1	38.1	30.3	0.0	43.8	23.4	0.0	36.4	14.5	10.4
LnGrp LOS	D	A	D	D	C		D	C		D	B	B
Approach Vol, veh/h		164			238	A		1559	A		2005	
Approach Delay, s/veh		37.7			36.2			24.2			19.7	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	37.4	10.8	15.3	8.4	47.3	8.1	17.9
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	19.9	37.6	10.0	32.0	6.4	51.1	6.5	35.5
Max Q Clear Time (g_c+I1), s	13.1	22.9	6.2	6.8	4.9	18.6	4.4	4.2
Green Ext Time (p_c), s	0.6	8.2	0.1	0.6	0.0	12.4	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	23.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	7.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	62	29	0	354	28
Future Vol, veh/h	0	62	29	0	354	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	67	32	0	385	30

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	832	32	0	0	32	0
Stage 1	32	-	-	-	-	-
Stage 2	800	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	339	1042	-	-	1580	-
Stage 1	991	-	-	-	-	-
Stage 2	442	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	255	1042	-	-	1580	-
Mov Cap-2 Maneuver	255	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	332	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	7.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1042	1580	-
HCM Lane V/C Ratio	-	-	0.065	0.244	-
HCM Control Delay (s)	-	-	8.7	8	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	1	0	0	0	1	32	0	88	4	39	382	4
Future Vol, veh/h	1	0	0	0	1	32	0	88	4	39	382	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	1	41	0	111	5	49	484	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	720	701	487	699	701	114	489	0	0	116	0	0
Stage 1	585	585	-	114	114	-	-	-	-	-	-	-
Stage 2	135	116	-	585	587	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	343	363	581	354	363	939	1074	-	-	1473	-	-
Stage 1	497	498	-	891	801	-	-	-	-	-	-	-
Stage 2	868	800	-	497	497	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	319	351	581	345	351	939	1074	-	-	1473	-	-
Mov Cap-2 Maneuver	319	351	-	345	351	-	-	-	-	-	-	-
Stage 1	497	482	-	891	801	-	-	-	-	-	-	-
Stage 2	829	800	-	480	481	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.3	9.2	0	0.7
HCM LOS	C	A		

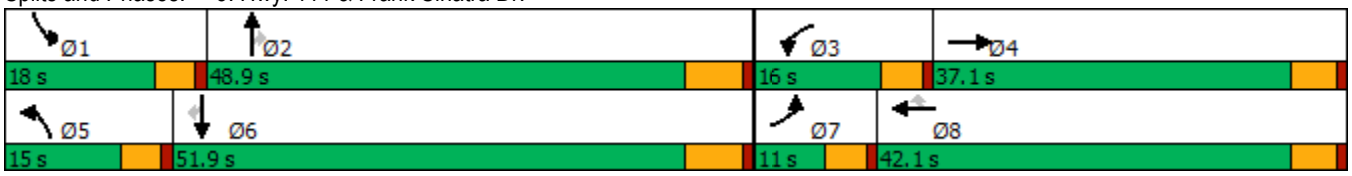
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1074	-	-	319	894	1473	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.047	0.034	-	-
HCM Control Delay (s)	0	-	-	16.3	9.2	7.5	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

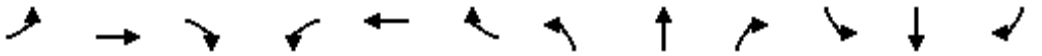
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	40	74	176	159	200	202	1347	119	235	1464	134
Future Volume (vph)	40	74	176	159	200	202	1347	119	235	1464	134
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.0	37.1	16.0	42.1	42.1	15.0	48.9	48.9	18.0	51.9	51.9
Total Split (%)	9.2%	30.9%	13.3%	35.1%	35.1%	12.5%	40.8%	40.8%	15.0%	43.3%	43.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 95.6
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	74	39	176	159	200	202	1347	119	235	1464	134
Future Volume (veh/h)	40	74	39	176	159	200	202	1347	119	235	1464	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	81	43	193	175	0	222	1480	0	258	1609	143
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	147	78	273	316		220	2304		341	2178	674
Arrive On Green	0.04	0.13	0.13	0.08	0.17	0.00	0.12	0.45	0.00	0.10	0.43	0.43
Sat Flow, veh/h	1781	1150	610	3456	1870	1585	1781	5106	1585	3456	5106	1579
Grp Volume(v), veh/h	44	0	124	193	175	0	222	1480	0	258	1609	143
Grp Sat Flow(s),veh/h/ln	1781	0	1760	1728	1870	1585	1781	1702	1585	1728	1702	1579
Q Serve(g_s), s	2.1	0.0	5.6	4.6	7.2	0.0	10.4	18.9	0.0	6.1	22.2	4.8
Cycle Q Clear(g_c), s	2.1	0.0	5.6	4.6	7.2	0.0	10.4	18.9	0.0	6.1	22.2	4.8
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	68	0	225	273	316		220	2304		341	2178	674
V/C Ratio(X)	0.65	0.00	0.55	0.71	0.55		1.01	0.64		0.76	0.74	0.21
Avail Cap(c_a), veh/h	135	0	668	467	821		220	2587		549	2769	856
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	0.0	34.5	37.9	32.1	0.0	36.9	17.9	0.0	37.0	20.2	15.2
Incr Delay (d2), s/veh	3.8	0.0	2.1	1.3	1.5	0.0	63.3	0.5	0.0	1.3	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.5	1.9	3.3	0.0	8.1	6.4	0.0	2.5	7.7	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	0.0	36.6	39.1	33.7	0.0	100.2	18.3	0.0	38.3	21.0	15.4
LnGrp LOS	D	A	D	D	C		F	B		D	C	B
Approach Vol, veh/h		168			368	A		1702	A		2010	
Approach Delay, s/veh		38.5			36.5			29.0			22.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	44.2	11.3	15.9	15.0	42.2	7.8	19.3
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	13.4	42.7	11.4	32.0	10.4	45.7	6.4	37.0
Max Q Clear Time (g_c+I1), s	8.1	20.9	6.6	7.6	12.4	24.2	4.1	9.2
Green Ext Time (p_c), s	0.2	10.2	0.1	0.6	0.0	11.7	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	27.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	8.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	347	29	0	69	28
Future Vol, veh/h	0	347	29	0	69	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	377	32	0	75	30

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	212	32	0	0	32	0
Stage 1	32	-	-	-	-	-
Stage 2	180	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	776	1042	-	-	1580	-
Stage 1	991	-	-	-	-	-
Stage 2	851	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	739	1042	-	-	1580	-
Mov Cap-2 Maneuver	739	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	810	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	5.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1042	1580	-
HCM Lane V/C Ratio	-	-	0.362	0.047	-
HCM Control Delay (s)	-	-	10.4	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.7	0.1	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	0	1	32	0	373	4	39	97	4
Future Vol, veh/h	1	0	0	0	1	32	0	373	4	39	97	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	210	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	1	41	0	472	5	49	123	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	720	701	126	699	701	475	128	0	0	477	0	0
Stage 1	224	224	-	475	475	-	-	-	-	-	-	-
Stage 2	496	477	-	224	226	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	343	363	924	354	363	590	1458	-	-	1085	-	-
Stage 1	779	718	-	570	557	-	-	-	-	-	-	-
Stage 2	556	556	-	779	717	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	308	347	924	342	347	590	1458	-	-	1085	-	-
Mov Cap-2 Maneuver	308	347	-	342	347	-	-	-	-	-	-	-
Stage 1	779	686	-	570	557	-	-	-	-	-	-	-
Stage 2	517	556	-	744	685	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.7	11.7	0	2.4
HCM LOS	C	B		

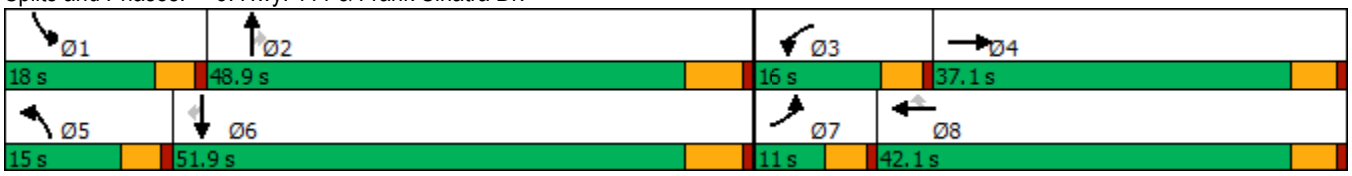
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1458	-	-	308	578	1085	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.072	0.045	-	-
HCM Control Delay (s)	0	-	-	16.7	11.7	8.5	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	111	173	176	59	200	88	1347	119	235	1464	62
Future Volume (vph)	111	173	176	59	200	88	1347	119	235	1464	62
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	37.1	9.6	15.1	15.1	9.6	23.2	23.2	9.6	16.2	16.2
Total Split (s)	11.0	37.1	16.0	42.1	42.1	15.0	48.9	48.9	18.0	51.9	51.9
Total Split (%)	9.2%	30.9%	13.3%	35.1%	35.1%	12.5%	40.8%	40.8%	15.0%	43.3%	43.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 106.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Hwy. 111 & Frank Sinatra Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	173	153	176	59	200	88	1347	119	235	1464	62
Future Volume (veh/h)	111	173	153	176	59	200	88	1347	119	235	1464	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	122	190	168	193	65	0	97	1480	0	258	1609	64
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	220	195	264	469		123	1909		331	2045	632
Arrive On Green	0.07	0.24	0.24	0.08	0.25	0.00	0.07	0.37	0.00	0.10	0.40	0.40
Sat Flow, veh/h	1781	915	809	3456	1870	1585	1781	5106	1585	3456	5106	1579
Grp Volume(v), veh/h	122	0	358	193	65	0	97	1480	0	258	1609	64
Grp Sat Flow(s),veh/h/ln	1781	0	1725	1728	1870	1585	1781	1702	1585	1728	1702	1579
Q Serve(g_s), s	6.4	0.0	19.1	5.3	2.6	0.0	5.2	24.6	0.0	7.0	26.5	2.4
Cycle Q Clear(g_c), s	6.4	0.0	19.1	5.3	2.6	0.0	5.2	24.6	0.0	7.0	26.5	2.4
Prop In Lane	1.00		0.47	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	0	415	264	469		123	1909		331	2045	632
V/C Ratio(X)	1.03	0.00	0.86	0.73	0.14		0.79	0.78		0.78	0.79	0.10
Avail Cap(c_a), veh/h	119	0	574	410	720		193	2268		482	2428	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.9	0.0	35.0	43.4	28.0	0.0	44.0	26.5	0.0	42.5	25.2	18.0
Incr Delay (d2), s/veh	90.5	0.0	9.6	1.5	0.1	0.0	4.5	1.5	0.0	2.7	1.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	9.0	2.3	1.2	0.0	2.3	9.2	0.0	3.0	9.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	135.3	0.0	44.6	44.9	28.1	0.0	48.5	28.0	0.0	45.2	26.7	18.1
LnGrp LOS	F	A	D	D	C		D	C		D	C	B
Approach Vol, veh/h		480			258	A		1577	A		1931	
Approach Delay, s/veh		67.6			40.7			29.2			28.9	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	42.1	11.9	28.2	11.2	44.7	11.0	29.2
Change Period (Y+Rc), s	4.6	6.2	4.6	5.1	4.6	6.2	4.6	5.1
Max Green Setting (Gmax), s	13.4	42.7	11.4	32.0	10.4	45.7	6.4	37.0
Max Q Clear Time (g_c+I1), s	9.0	26.6	7.3	21.1	7.2	28.5	8.4	4.6
Green Ext Time (p_c), s	0.2	8.6	0.1	1.7	0.0	10.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	34.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX 8.3:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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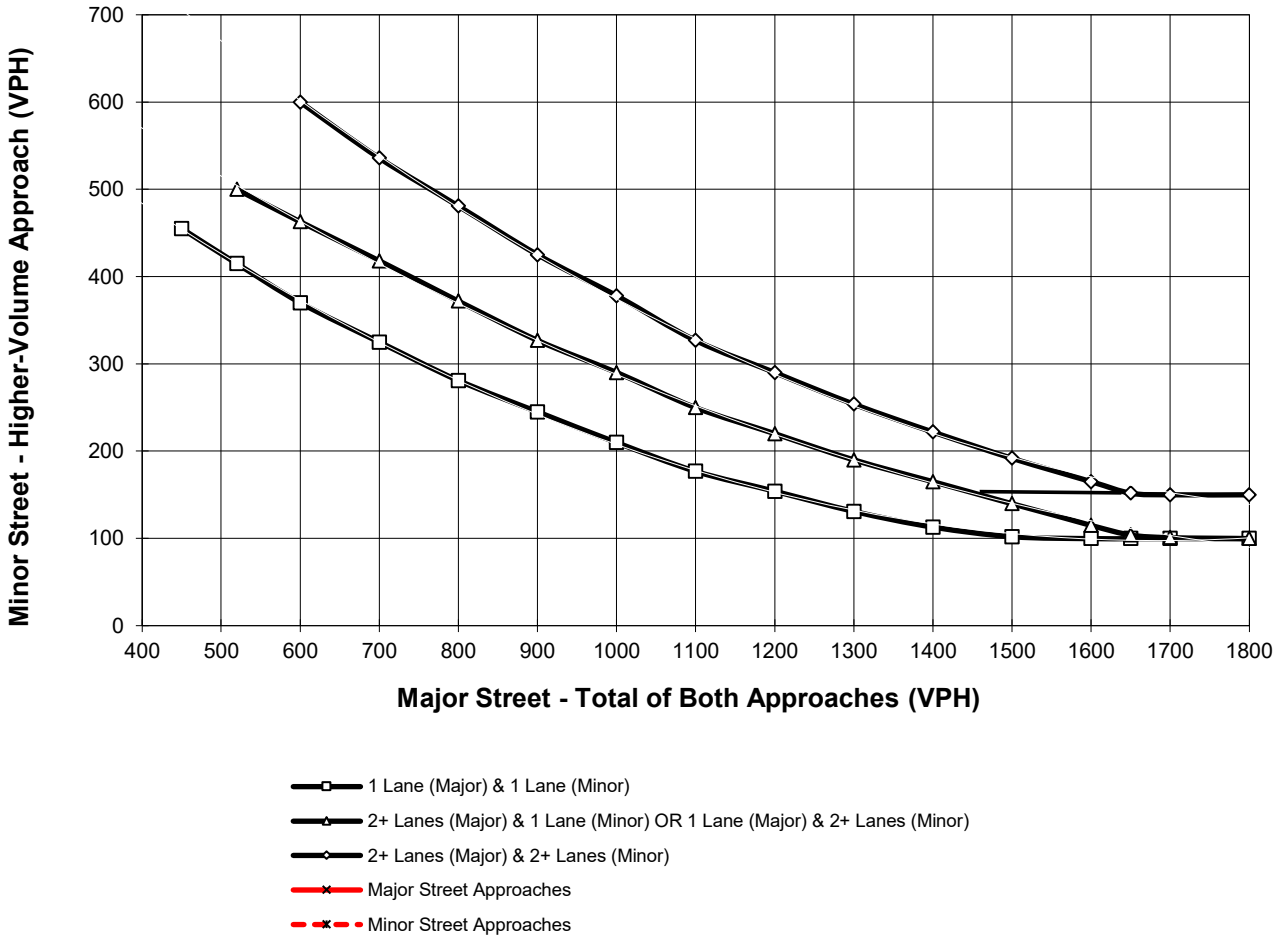
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Horizon Year (2040) Without Project Conditions - Weekday PM Peak Hour**

Major Street Name = **Frank Sinatra Dr.**
Total of Both Approaches (VPH) = **166**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Driveway 2**
High Volume Approach (VPH) = **19**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 8.4:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		2040 WP
				CALC RV	DATE	01/09/19
Jurisdiction: City of Rancho Mirage				CHK RV	DATE	01/09/19
Major Street: Frank Sinatra Dr.				Critical Approach Speed (Major)		30 mph
Minor Street: Driveway 1				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **1,251** vpd Minor Street Future ADT = **534** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……..

URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	Urban	Rural	Urban	Rural
CONDITION A - Minimum Vehicular Volume				
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **1,251** / *1* **534**	8,000	5,600	2,400	1,680
2 + / *1*	9,600	6,720	2,400	1,680
2 + / *2* +	9,600	6,720	3,200	2,240
1 / *2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street	Urban	Rural	Urban	Rural
1 **1,251** / *1* **534**	12,000	8,400	1,200	850
2 + / *1*	14,400	10,080	1,200	850
2 + / *2* +	14,400	10,080	1,600	1,120
1 / *2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 16% B: 10%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

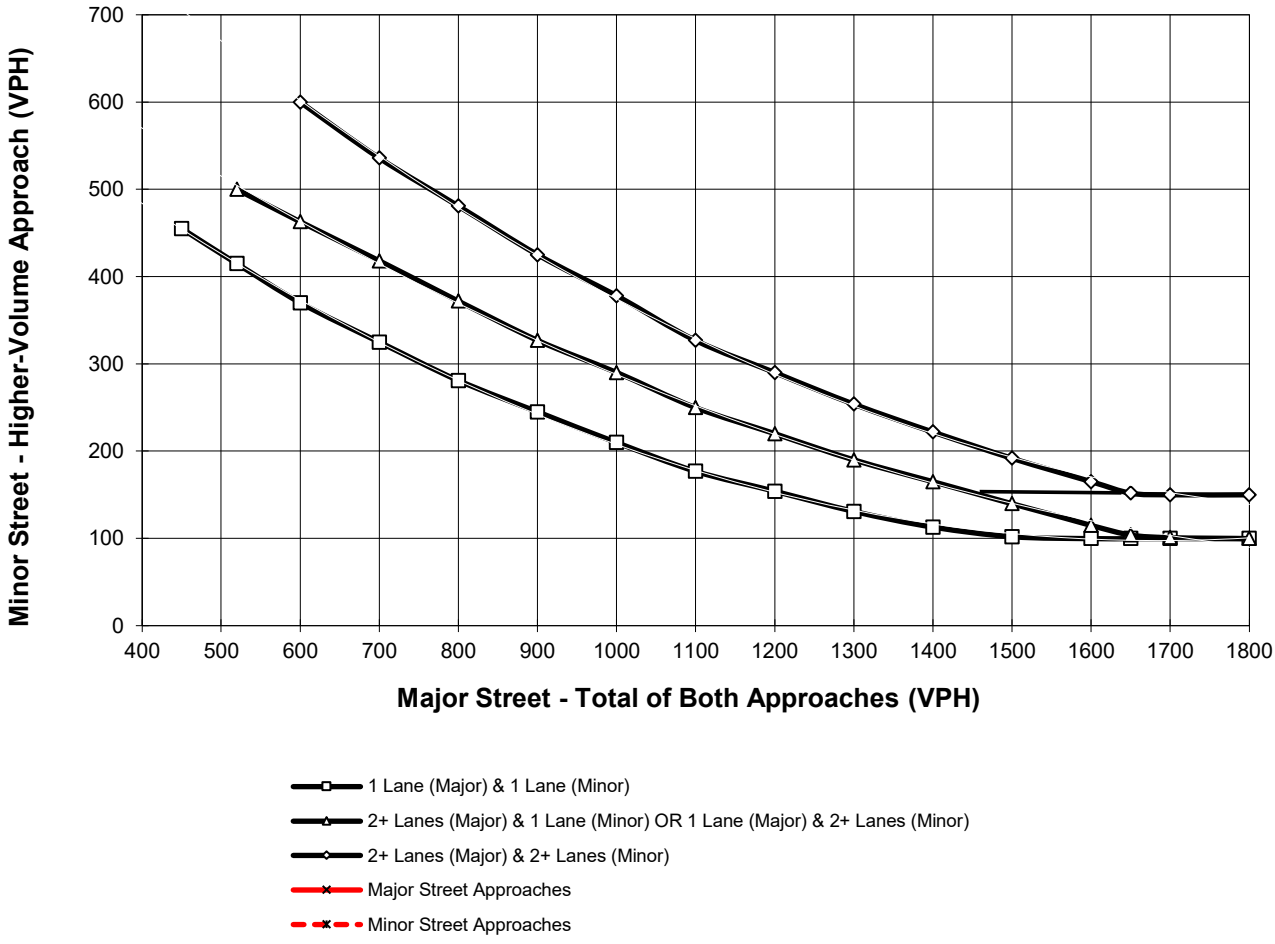
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Horizon Year (2040) With Project Conditions - Weekday PM Peak Hour**

Major Street Name = **Frank Sinatra Dr.**
Total of Both Approaches (VPH) = **172**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Driveway 2**
High Volume Approach (VPH) = **19**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 8.5:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	25	28
Average Queue (ft)	2	9
95th Queue (ft)	15	31
Link Distance (ft)	353	358
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	52	355	67	526	46	915	112	349	1478	53
v/c Ratio	0.20	0.16	0.61	0.12	0.73	0.33	0.61	0.19	0.64	0.65	0.07
Control Delay	53.0	23.1	42.9	25.1	17.1	53.3	29.6	0.7	44.2	24.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	23.1	42.9	25.1	17.1	53.3	29.6	0.7	44.2	24.0	0.2
Queue Length 50th (ft)	12	14	96	26	82	25	148	0	94	240	0
Queue Length 95th (ft)	46	48	189	66	242	75	279	0	186	439	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	122	721	767	1053	1043	168	2150	757	767	2790	934
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.07	0.46	0.06	0.50	0.27	0.43	0.15	0.46	0.53	0.06

Intersection Summary

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	25	28
Average Queue (ft)	11	13
95th Queue (ft)	32	36
Link Distance (ft)	353	358
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	45	93	180	38	358	40	1496	229	486	1482	29
v/c Ratio	0.39	0.33	0.49	0.10	0.63	0.35	0.77	0.32	0.77	0.53	0.03
Control Delay	58.6	34.8	49.3	34.1	11.5	57.4	30.9	6.8	47.8	17.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	34.8	49.3	34.1	11.5	57.4	30.9	6.8	47.8	17.1	0.1
Queue Length 50th (ft)	27	43	54	21	20	24	282	10	144	215	0
Queue Length 95th (ft)	75	89	109	49	100	68	#509	75	#276	389	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	126	632	381	725	813	124	2097	762	749	2932	937
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.15	0.47	0.05	0.44	0.32	0.71	0.30	0.65	0.51	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	WB	SB
Directions Served	LTR	L
Maximum Queue (ft)	29	30
Average Queue (ft)	19	2
95th Queue (ft)	40	14
Link Distance (ft)	358	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		210
Storage Blk Time (%)		
Queuing Penalty (veh)		



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	26	72	193	38	220	66	1480	131	258	1609	49
v/c Ratio	0.22	0.25	0.46	0.09	0.41	0.42	0.72	0.18	0.60	0.67	0.06
Control Delay	52.0	33.9	45.7	30.4	7.0	53.1	26.2	3.9	46.9	22.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	33.9	45.7	30.4	7.0	53.1	26.2	3.9	46.9	22.7	0.1
Queue Length 50th (ft)	14	32	54	16	0	36	243	0	72	253	0
Queue Length 95th (ft)	51	75	114	48	57	97	441	34	146	472	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	136	701	470	828	816	221	2610	872	553	2801	916
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.10	0.41	0.05	0.27	0.30	0.57	0.15	0.47	0.57	0.05

Intersection Summary

APPENDIX 8.6:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	52	31
Average Queue (ft)	22	1
95th Queue (ft)	47	10
Link Distance (ft)	453	178
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	24	29
Average Queue (ft)	2	14
95th Queue (ft)	15	37
Link Distance (ft)	353	358
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	33	84	355	71	526	52	915	112	349	1478	56
v/c Ratio	0.28	0.25	0.62	0.13	0.77	0.37	0.59	0.19	0.66	0.69	0.07
Control Delay	55.6	23.2	44.2	26.9	20.5	55.4	29.7	0.7	45.8	26.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.6	23.2	44.2	26.9	20.5	55.4	29.7	0.7	45.8	26.1	0.2
Queue Length 50th (ft)	19	23	101	33	114	29	156	0	99	257	0
Queue Length 95th (ft)	61	68	189	69	256	83	279	0	186	439	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	119	711	749	1028	1019	164	2098	743	749	2724	915
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.12	0.47	0.07	0.52	0.32	0.44	0.15	0.47	0.54	0.06

Intersection Summary

Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	66	31
Average Queue (ft)	20	5
95th Queue (ft)	49	24
Link Distance (ft)	453	178
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	25	28	30
Average Queue (ft)	15	9	1
95th Queue (ft)	34	31	10
Link Distance (ft)	353	358	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			210
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	54	116	180	58	358	63	1496	229	486	1482	43
v/c Ratio	0.49	0.42	0.58	0.16	0.64	0.57	0.79	0.32	0.79	0.57	0.05
Control Delay	63.6	35.5	53.2	35.7	12.1	68.6	32.5	6.8	50.1	19.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.6	35.5	53.2	35.7	12.1	68.6	32.5	6.8	50.1	19.3	0.1
Queue Length 50th (ft)	33	55	55	32	24	38	286	11	146	218	0
Queue Length 95th (ft)	#97	107	109	66	107	#121	#509	75	#276	389	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	118	594	354	682	778	117	1973	728	705	2681	865
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.20	0.51	0.09	0.46	0.54	0.76	0.31	0.69	0.55	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	48	55
Average Queue (ft)	26	10
95th Queue (ft)	46	37
Link Distance (ft)	453	178
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	WB	SB
Directions Served	LTR	L
Maximum Queue (ft)	47	30
Average Queue (ft)	25	2
95th Queue (ft)	44	14
Link Distance (ft)	358	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		210
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	44	124	193	175	220	222	1480	131	258	1609	147
v/c Ratio	0.39	0.43	0.56	0.40	0.41	1.13	0.71	0.18	0.64	0.76	0.20
Control Delay	58.8	35.6	50.4	36.0	6.9	145.5	26.9	3.9	50.2	27.2	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.8	35.6	50.4	36.0	6.9	145.5	26.9	3.9	50.2	27.2	4.5
Queue Length 50th (ft)	26	58	57	99	0	~155	249	0	76	274	1
Queue Length 95th (ft)	74	115	114	165	57	#392	441	34	146	472	43
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	121	618	418	737	750	196	2324	793	491	2485	829
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.20	0.46	0.24	0.29	1.13	0.64	0.17	0.53	0.65	0.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 1: Frank Sinatra Dr. & Driveway 1

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	108	32
Average Queue (ft)	62	2
95th Queue (ft)	89	15
Link Distance (ft)	453	178
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Frank Sinatra Dr. & Driveway/Driveway 2

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	24	50	52
Average Queue (ft)	1	23	20
95th Queue (ft)	8	46	51
Link Distance (ft)	353	358	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			210
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	122	358	193	65	220	97	1480	131	258	1609	68
v/c Ratio	1.13	0.83	0.61	0.13	0.39	0.64	0.79	0.20	0.69	0.81	0.10
Control Delay	172.8	52.5	57.7	31.1	8.3	70.3	34.9	4.1	57.9	33.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	172.8	52.5	57.7	31.1	8.3	70.3	34.9	4.1	57.9	33.8	0.3
Queue Length 50th (ft)	~111	227	71	36	12	70	345	0	94	373	0
Queue Length 95th (ft)	#246	343	114	71	71	#146	441	34	146	472	0
Internal Link Dist (ft)		282		711			925			922	
Turn Bay Length (ft)	100		220			170			330		260
Base Capacity (vph)	108	557	376	662	682	177	2092	728	442	2234	760
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.64	0.51	0.10	0.32	0.55	0.71	0.18	0.58	0.72	0.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Appendix F2
Vehicle Miles Travelled Analysis

August 19, 2020

Mr. Michael Kao
Kam Sang Company, Inc.
411 E. Huntington Dr., #305
Arcadia, CA 91006

SUBJECT: RITZ-CARLTON RESIDENCES VEHICLE MILES TRAVELED (VMT) ANALYSIS

Dear Mr. Michael Kao:

The following vehicle miles traveled (VMT) analysis has been prepared for the proposed Ritz-Carlton (**Project**), which is located north of Mirada Circle and east of Frank Sinatra Drive in the City of Rancho Mirage.

PROJECT OVERVIEW

The Project proposes to expand the existing Ritz-Carlton hotel by 106 residential dwelling units, a 6,966 square foot restaurant, and an outdoor venue that includes an additional pool and open grass area. Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017. (1) Consistent with the Project traffic study findings, the expanded uses are anticipated to generate a total of 1,068 vehicle trip-ends per day (see Attachment A). (2)

BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which require all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate took effect July 1, 2020. To aid in this transition, the Governor's Office of Planning and Research (OPR) released a Technical Advisory on Evaluating Transportation Impacts in CEQA (December of 2018) (**Technical Advisory**). (3) Based on OPR's Technical Advisory, the Western Riverside Council of Governments (WRCOG) prepared a WRCOG SB 743 Implementation Pathway Document Package (March 2019) to assist its member agencies with implementation tools necessary to adopt analysis methodology, impact thresholds and mitigation approaches for VMT. To add to the previous work effort, WRCOG in February 2020 released its Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment (**WRCOG Guidelines**), which provides specific procedures for complying with the new CEQA requirements for VMT analysis. (4)

At the time of study preparation, the Riverside County Transportation Division was still in development of Countywide VMT guidelines, screening maps and thresholds that would be applicable to

unincorporated areas Riverside County, and provide additional guidance to local agencies in the Coachella Valley. As a result, the City of Rancho Mirage adopted its own set of VMT thresholds and guidelines as described in the Transportation Analysis Policy for the City or Rancho Mirage dated June 18, 2020 (**City Guidelines**).

PROJECT SCREENING

The City Guidelines Section I.A *Project Screening* provides details on appropriate screening thresholds that can be used to identify when a proposed land use project is anticipated to result in a less than significant impact without conducting a more detailed VMT analysis. Screening thresholds are broken into three types:

- Project Type Screening
- Low VMT Area Screening
- Transit Priority Area (TPA) Screening

A land use project need only meet one of the above screening thresholds to result in a less-than-significant impact.

PROJECT TYPE SCREENING

The following projects may be presumed to have a less-than-significant impact on VMT – barring substantial evidence to the contrary:

- Local Serving Retail project less than 50,000 square feet
- Day Care Centers
- Local Parks
- Local-Serving Public Facilities
- Ministerial Projects
- Small Infill Projects
- Restricted Affordable, Transit Supportive Residential Projects in
- Planned Growth Areas with High-Quality Transit
- Transit Supportive Projects in Planned Growth Areas with Low VMT and High-Quality Transit
- Transportation Projects that do not increase VMT
- Projects that generate less than 110 daily vehicle trips

The proposed 6,966 square foot restaurant component of the Project is well within the 50,000 square foot threshold for local serving retail and anticipated to provide an additional dining option to hotel guests and the local community. The swimming pool and adjacent open space area are also expected to

be complementary components to hotel guests and would therefore also meet the intent of the local serving screening criteria.

The 106 new residential units would not be deemed as a local serving use, and would generate daily vehicle trips in excess of the 110 trips per day threshold for project type screening as described in the City Guidelines.

The Project Type screening threshold is met for the restaurant and pool/open space components of the Project only.

LOW VMT AREA SCREENING

As described in the City Guidelines, "Residential and office projects located in low VMT areas may be considered to have a less than significant impact unless substantial evidence is submitted to the contrary. Other employment-related and/or mixed-use projects may qualify for similar screening if it can be reasonably concluded that the Project is expected to generate VMT outputs that are similar to the existing land uses in the low VMT area." [1] The City of Rancho Mirage does not currently have Citywide low VMT area screening maps indicating areas of low VMT based on current RIVTAM model data. In addition, for this screening criteria to be applicable, a project must demonstrate consistency with the underlying land use assumptions contained within the travel demand model used to create low VMT area screening maps.

The Low VMT Area screening threshold is not met.

TPA SCREENING

Consistent with guidance identified in the Technical Advisory, projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing "major transit stop"[2] or an existing stop along a "high-quality transit corridor"[3]) may be presumed to have a less than significant impact absent substantial evidence to the contrary.

However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);

[1] Transportation Analysis Policy for the City of Rancho Mirage.
[2] Pub. Resources Code, § 21064.3 ("'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.").
[3] Pub. Resources Code, § 21155 ("For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.").

- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

Based on the current transit in the study area, the Project site is not located within ½ mile of an existing major transit stop, or along a high-quality transit corridor.

The TPA screening threshold is not met.

PROJECT GENERATED VMT

City Guidelines Section I.B. *VMT Analysis for Non-Screened Projects* states "projects that are not screened out based on the foregoing sections will be required to complete a VMT analysis using the RIVTAM/RIVCOM travel forecasting model." The Riverside Transportation Analysis Model (RIVTAM) is a useful tool to estimate VMT as it considers interaction between different land uses based on socio-economic data such as population, households, and employment. The City Guidelines state that both project generated VMT and project effect on VMT should be calculated for the traffic analysis zone (TAZ) in which the project is located.

Project generated VMT has been calculated using the City of Rancho Mirage General Plan Update version of RIVTAM, which was updated in 2017 as part of the City's General Plan update. Adjustments to socio-economic data (SED) (i.e., population and households) have been made to a separate TAZ to reflect the Project's proposed 106 residential dwelling units. Table 1 summarizes the land use to SED conversion factor and resulting SED used to reflect the Project in the RIVTAM model.

TABLE 1: SED CONVERSION FACTORS

Land Use	Quantity	Units	Conversion Factor	Estimated Population
Residential	106	dwelling units	2.06 population per household[4]	+ 218 population

Adjustments to population and households for the Project's TAZ were made to both the base year model (2012) and the cumulative year model (2040). Project-generated VMT was then calculated for both the base year (2012) and cumulative year (2040) conditions and linear interpolation was used to determine the Project generated VMT for baseline (2019) conditions. The Project generated VMT total is then divided by the number residents to obtain the Project generated VMT per resident value. As shown in Table 2, the Project generated VMT per resident is 8.60 for baseline (2019) conditions.

[4] State of California Department of Finance**.** *E-5 Population and Housing Estimates for Cities, Counties, and the State.* January 2019

TABLE 2: PROJECT VMT PER RESIDENT

	Baseline 2012	Cumulative 2040	Baseline 2019
VMT	1,909	1,775	1,876
Residents	218	218	218
VMT per resident	8.76	8.14	**8.60**

PROJECT VMT IMPACT ASSESSMENT

The thresholds of significance used to measure a potential VMT impact are described by project type in Section I.B. *Thresholds of Significance* of the City Guidelines. Thresholds for determination of significant transportation impact for residential uses are described as VMT per resident which is:

- 15 percent below the Citywide per resident VMT, OR
- 15 percent below the regional[5] VMT per resident.

As the City is currently still in development of their Citywide per resident VMT value for purposes of determining a project generated VMT impact, the regional VMT per resident value was utilized instead. As shown in Table 3, the Project generated VMT per resident would not exceed the City's threshold of 15 percent below the regional VMT per resident. Project generated VMT is less than significant.

TABLE 3: PROJECT VMT PER RESIDENT COMPARISON TO THRESHOLD

	Baseline (2019)	Cumulative (2040)
Regional VMT per resident[6]	15.2	15.2
Project Generated VMT per resident	8.60	8.14
Percent Change	-43%	-46%

PROJECT EFFECT ON VMT

Consistent with City Guidelines Section I.B. *VMT Analysis for Non-Screened Projects*, in addition to project generated VMT, there is also a requirement to evaluate a project's effect on VMT. A project's effect on VMT is calculated using the "boundary method", which includes all vehicle trips with one or both trip-ends within the designated boundary of interest (e.g., the City of Rancho Mirage). Once the total link-level VMT within the boundary area is calculated, VMT is then normalized by dividing by the boundary area's service population (i.e., residents + employees), which allows VMT values to be easily compared between two different land use alternatives (e.g., "without project" and "with project" conditions). Citywide link-level VMT was extracted from the RIVTAM cumulative (2040) traffic model for both "without Project" and "with Project" model runs. In other words, the only changes made within the

[5] City Guidelines state that for the purposes of this Policy, the region is the County of Riverside boundaries.

[6] Regional VMT per resident for unincorporated areas of the Coachella Valley was obtained from the County of Riverside.

model was the addition of the Project's 106 residential units being evaluated.

Table 4 presents a comparison of total link-level VMT calculated for the City of Rancho Mirage for cumulative (2040) "without project" and "with project" conditions. As illustrated in Table 4, the proposed Project is not forecast to cause in an increase in citywide VMT per service population as compared to the "without project" condition. The Project's effect on VMT is less than significant.

TABLE 4: RANCHO MIRAGE CITYWIDE VMT PER SERVICE POPULATION

	Cumulative 2040 Without Project	Cumulative 2040 With Project
Population	26,821	27,049
Employment	21,694	21,694
Service Population	48,515	48,733
VMT	838,759	840,179
VMT per Service Population	17.29	17.22

CONCLUSION

In summary, the Project's local serving land use components such as the restaurant and swimming pool with open space area meet applicable project screening criteria as identified in the City Guidelines and are presumed to result in a less than significant impact. The residential component of the Project did not meet applicable screening criteria and was therefore evaluated based on the procedures described in City Guidelines. The residential component of the Project was found to be less than significant for both project generated VMT per resident and project effect on VMT evaluations, therefore, the Project residential component's impact to VMT is also considered less than significant.

If you have any questions, please contact me directly at (949) 336-5978.

Respectfully submitted,

URBAN CROSSROADS, INC.

Aric Evatt, PTP
President

Robert Vu, PE
Transportation Engineer

REFERENCES

1. **Institute of Transportation Engineers.** *Trip Generation Manual.* 10th Edition. 2017.
2. **Urban Crossroads, Inc.** *Ritz-Carlton Residences Traffic Impact Analysis.* July 2020.
3. **Office of Planning and Research.** *Technical Advisory on Evaluating Transportation Impacts in CEQA.* State of California : s.n., December 2018.
4. **Western Riverside Council of Governments (WRCOG).** *Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment.* February 13, 2020.

ATTACHMENT A
PROJECT TRIP GENERATION

Project Trip Generation Summary - Typical Operations

Land Use	ITE LU Code	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:[1]									
Multifamily Housing (Low-Rise)	220	DU	0.11	0.35	0.46	0.35	0.21	0.56	7.32
Quality Restaurant	931	TSF	0.49	0.24	0.73	5.23	2.57	7.80	83.84

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary:									
Ritz-Carlton Residences	106	DU	11	38	49	37	22	59	776
Sky Mesa Restaurant	6.966	TSF	3	2	5	36	18	54	586
Internal Capture (50%)[3]			-2	-1	-3	-18	-9	-27	-294
Total			**12**	**39**	**51**	**55**	**31**	**86**	**1,068**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

[2] DU = Dwelling Units; TSF = Thousand Square Feet

[3] Internal capture reduction of 50% has been applied as a significant portion of the patrons would be internal to the existing hotel.

Appendix G
Parking Evaluation

URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

January 31, 2020

Mr. Michael Kao
Kan Sang Company
411 E. Huntington Dr., #305
Arcadia, CA 91006

SUBJECT: RITZ-CARLTON RESIDENCES PARKING EVALUATION

Dear Mr. Michael Kao:

We are pleased to submit the following Parking Evaluation for the proposed Ritz-Carlton Residences development(referred to as "Project"). The Project is located at north of Mirada Circle and east of Frank Sinatra Drive in the City of Rancho Mirage as shown on Exhibit A. This Parking Evaluation was developed to ensure that the proposed Project provides adequate parking supply to support the planned uses.

EXHIBIT A: LOCATION MAP



INTRODUCTION

The proposed project is to expand the existing Ritz-Carlton hotel by 106 residential dwelling units, a 6,966 restaurant, and a 23,843 square foot venue, as shown on Exhibit B.

EXHIBIT B: PROPOSED SITE PLAN



PARKING REQUIREMENTS

To demonstrate that adequate parking supply exists for the proposed Ritz-Carlton Residences, this parking assessment provides a review of the City of Rancho Mirage Municipal Code parking requirements and an estimate of the peak parking demands. Section 17.26 of the City of Rancho Mirage Municipal Code describes the Parking Requirements by Land Use. Section 17.26.040 identifies the parking stalls required for the land uses with the Ritz-Carlton Residences. According the Municipal Code use descriptions, the proposed Project is best described under residential developments, membership organization facilities, and restaurants as shown on Table 1.

TABLE 1: CITY OF RANCHO MIRAGE MUNICIPAL CODE PARKING REQUIREMENTS

Land Use Type	Vehicle Spaces Required
Multifamily housing and other attached dwellings	1 bedroom unit – 1 covered for each unit and 1 off-street guest space for every two units
	2 bedrooms or more – 2 covered for each unit and 1 off-street guest space for every two units
Membership organization facilities, meeting halls, performance theaters, including auditoriums	1 space for each 3 seats, or 1 space for every 50 sq. ft. of gross assembly or viewing area, plus ancillary uses (e.g., bar restaurant)
Restaurants, cafes, cafeterias, nightclubs, bars, taverns, lounges, or similar establishments for the consumption of food and beverages on the premises	1 space for each 80 sq. ft. of gross floor area

Using the City of Rancho Mirage Municipal Code parking rates, it is possible to calculate the parking requirements for the proposed Project. As shown on Table 2, the proposed Project requires 829 spaces.

TABLE 2: RITZ-CARLTON RESIDENCES MUNICIPAL CODE PARKING SPACE REQUIREMENTS

Land Use	Quantity	Unit	Parking Rate[1]	Required Parking
2+ Bedrooms	106	DU	2 spaces within an enclosed garage and 1 off-street guest parking space for every 2 units	265
Meeting Halls	23.843	TSF	1 space for each 3 seats, or 1 space for every 50 sq. ft. of gross assembly or viewing area, plus ancillary uses (e.g., bar restaurant)	477
Restaurants	6.966	TSF	1 space for each 80 sq. ft. of gross floor area	87
			Total	**829**

[1] Based on the City of Rancho Mirage Municipal Code §17.26.040 Number of parking spaces required

The proposed Project plan prepared on September 28, 2018 indicates that the available parking supply will be 510 spaces. The parking spaces provided will include 381 subterranean parking and 129 residential parking.

PARKING ANALYSIS

Urban Crossroads, Inc. collected two parking count surveys to assess actual parking demands based on existing conditions at this location. The parking survey counts included in Appendix A, suggest a parking supply of 403 spaces with no fewer than 28% parking occupancy and no more than 78% parking occupancy. Peak parking demands ranged from 211 vehicles at 10:00 am on Wednesday, December 11, 2019 to 314 vehicles at 5:00 pm on Saturday, December 7, 2019. While this analysis is based on the peak parking demands, it is important to recognize that the average parking demands are much lower.

The typical average daily parking demands range from 163 spaces on the weekday to 237 spaces on the

weekend. Table 4 presents a summary of the parking count surveys. As shown on Table 4, peak parking demands at the existing Ritz-Carlton represent no more than 78% of the available parking supply. The existing parking survey counts show an average peak parking utilization rate of 65%. Parking utilization represents the number of parking stalls required (parking demand) expressed as a percentage of the number of parking stalls provided.

TABLE 4: EXISTING ON-SITE PEAK PARKING DEMANDS

Parking Count Date[1]	Peak Parking Demand	Peak Hour	Available Parking	Parking Surplus	Parking Utilization
Saturday, December 7, 2019	314	5:00 PM	403	89	78%
Wednesday, December 11, 2019	211	10:00 AM	403	192	52%
Average	263		403	58	65%

The parking counts clearly show an excess of available parking supply.

Based on a review of the occupied use and the actual parking demand counts, it is possible to calculate the actual parking demand rate at existing Ritz-Carlton. This parking rate accounts for all the existing land uses including 244 rooms, two ballrooms, a conference and events center with extensive meeting rooms, a gourmet restaurant, a gift shop, and a small spa treatment facility. Table 5 suggests that the calculated shared parking demand represents an average of 1.08 spaces per room. The observed parking demand using the calculated parking demand rate of 1.08 spaces per room is lower than the typical parking rate of approximately 2.5 spaces per dwelling unit.

TABLE 5: ACTUAL PARKING DEMAND RATES

Count Date	Total Use[1]	Parking Demand[2]	Calculated Parking Demand Rate[3]
Saturday, December 7, 2019	244 Rooms	314 spaces	1.29 space per room
Wednesday, December 11, 2019	244 Rooms	211 spaces	0.86 space per room
		Average:	1.08 space per room

[1] Amount of rooms available at the Ritz-Carlton
[2] Observed parking demand (actual number of vehicles parked on-site) at the Ritz-Carlton
[3] Calculated parking demand rate based total rooms and actual parking demand

Using the calculated parking demand rate of 1.08 spaces per room, it is possible to estimate the estimated parking demand. Table 6 suggests that the actual parking demand at Ritz-Carlton Residences is 378 spaces with 535 spaces of surplus.

TABLE 6: RITZ-CARLTON RESIDENCES PARKING DEMAND

Use	Quantity[1]	Parking Rate[2]	Parking Demand[3]	Parking Supply[4]	Parking Surplus[5]
Ritz-Carlton Expansion	106 DU	1.08 spaces per room	115	510	+395
		Observed Parking:	263	403	+140
		Totals:	378	913	+535

[1] DU: dwelling unit
[2] Calculated Parking Rate (Table 5).
[3] Estimated parking park requirements based on existing parking rates (Total Rooms x Parking Rates).
[4] Total parking supply proposed.
[5] Parking surplus based on the difference between parking supply and estimated parking demand.

PARKING STRATEGIES

Changing economic and demographic conditions will continue to influence future parking needs. Self-driving cars, parking guidance, peer-to-peer vehicle sharing, telecommuting, transportation network companies such as such as Uber and Lyft and other forward-looking technologies will continue to shape future parking demands. Other parking technologies such as smart vehicle detection sensors, smart parking management systems are also available and provide opportunities to actively manage parking resources real-time.

In addition, on-demand transportation increases the need to promote accessible drop-off and pick-up areas. Convenient and accessible drop-off and pick-up areas should be provided to promote ride-sharing and reduce parking demands. This can be accomplished with short-term parking time restrictions and/or staging areas for ridesharing vehicles.

Implementation of valet parking during peak parking demands (i.e., special events) can also substantially increase the available on-site parking capacity. In addition, valet parking services provide for convenient accessible parking even during peak parking demands at Ritz-Carlton Residences.

PARKING RESTRICTIONS

Per Section 17.26.070 Development Standards, driveways providing ingress and egress to off-street parking spaces in residential zoning districts shall be a minimum width of fourteen feet for a one-way driveway and twenty feet for a two-way driveway. A residential driveway providing direct access to a garage shall be maintained free and clear of all obstructions for its entire width. As such, parking will be restricted to off-street parking only (i.e., garage parking). Minimum parking dimensions for parking spaces are identified in Table 7.

TABLE 7: MINIMUM PARKING DIMENSIONS

Stall Dimensions			Aisle Widths	
Parking Angle	**Width**	**Depth**	**One-Way**	**Two-Way**
Parallel	9	26	12	20
30°	9	17	14	20
45°	9	19	16	20
60°	9	20	17	20
90°	9	18	24	24

[1] Based on the City of Rancho Mirage Municipal Code §17.26.070 Development Standards

Per Section 17.08.020 Residential Districts General Development Standards, driveway approaches must have a 28-foot minimum turning radius.

CONCLUSIONS

Our evaluation indicates that the proposed parking will provide sufficient capacity to accommodate the parking demands for the proposed Ritz-Carlton Residences development. A parking survey at the existing Ritz-Carlton Residences shows a surplus of parking spaces during peak demand. Based on actual observed average parking demand rate of 1.08 space per room, and accounting for shared parking between complementary uses, the estimated parking demand at Ritz-Carlton Residences is 378 spaces, resulting in a surplus of 535 spaces.

This Parking Evaluation suggests that Ritz-Carlton Residences can accommodate parking demands at full occupancy with additional parking strategies recommended in the Parking Management Plan. Additional parking strategies can be applied to increase the parking supply.

If you have any questions, please contact me directly at (949) 336-5992.

URBAN CROSSROADS, INC.

Pranesh Tarikere, PE
Senior Engineer

Robert Vu, PE
Transportation Engineer

APPENDIX A:

EXISTING SURVEY (RITZ-CARLTON)

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Rancho Mirage, CA
Ritz Carlton
68900 Frank Sinatra Dr

Saturday, December 7th, 2019

		Inventory	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
1st Floor	Regular	115	29	43	72	95	98	104	115	115	111	115	113	99	78	76	73	62	56	36
	Handicap	2	0	0	1	1	2	2	2	2	2	2	1	2	1	1	0	0	0	0
	Subtotal	**117**	**29**	**43**	**73**	**96**	**100**	**106**	**117**	**117**	**113**	**117**	**114**	**101**	**79**	**77**	**73**	**62**	**56**	**36**
	Total Occupancy	117	29	43	73	96	100	106	117	117	113	117	114	101	79	77	73	62	56	36
	Total Percent		**25%**	**37%**	**62%**	**82%**	**85%**	**91%**	**100%**	**100%**	**97%**	**100%**	**97%**	**86%**	**68%**	**66%**	**62%**	**53%**	**48%**	**31%**

		Inventory	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
2nd Floor	Regular	112	43	40	39	39	35	26	25	28	40	54	69	75	89	89	89	92	93	91
	Handicap	2	1	1	1	1	1	1	0	1	1	1	1	2	2	2	2	2	2	2
	Reserved	11	3	3	3	3	3	1	6	6	3	5	4	4	4	6	6	7	6	5
	Electric Vehicle	2	1	1	1	2	2	2	2	2	2	1	1	1	1	1	2	2	2	2
	Subtotal	**127**	**48**	**45**	**44**	**45**	**41**	**30**	**33**	**37**	**46**	**61**	**75**	**82**	**96**	**98**	**99**	**103**	**103**	**100**
	Total Occupancy	127	48	45	44	45	41	30	33	37	46	61	75	82	96	98	99	103	103	100
	Total Percent		**38%**	**35%**	**35%**	**35%**	**32%**	**24%**	**26%**	**29%**	**36%**	**48%**	**59%**	**65%**	**76%**	**77%**	**78%**	**81%**	**81%**	**79%**

		Inventory	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
3rd Floor	Regular	83	66	62	58	56	45	36	29	31	35	52	73	80	78	78	79	83	83	83
	Electric Vehicle	3	0	0	0	0	0	0	0	0	0	1	1	1	3	2	1	1	1	1
	Subtotal	**86**	**66**	**62**	**58**	**56**	**45**	**36**	**29**	**31**	**35**	**53**	**74**	**81**	**81**	**80**	**80**	**84**	**84**	**84**
	Total Occupancy	86	66	62	58	56	45	36	29	31	35	53	74	81	81	80	80	84	84	84
	Total Percent		**77%**	**72%**	**67%**	**65%**	**52%**	**42%**	**34%**	**36%**	**41%**	**62%**	**86%**	**94%**	**94%**	**93%**	**93%**	**98%**	**98%**	**98%**

		Inventory	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
Trail Parking Lot	Trail Lot Pavement	73	1	2	10	13	18	21	21	17	20	33	33	36	27	24	21	16	13	17
	Dirt Overflow	-	0	0	0	0	2	3	5	6	6	10	11	14	12	10	10	10	9	7
	Subtotal	**73**	**1**	**2**	**10**	**13**	**20**	**24**	**26**	**23**	**26**	**43**	**44**	**50**	**39**	**34**	**31**	**26**	**22**	**24**
	Total Occupancy	73	1	2	10	13	20	24	26	23	26	43	44	50	39	34	31	26	22	24
	Total Percent		**1%**	**3%**	**14%**	**18%**	**27%**	**33%**	**36%**	**32%**	**36%**	**59%**	**60%**	**68%**	**53%**	**47%**	**42%**	**36%**	**30%**	**33%**
	Grand Total Occupancy	403	144	152	185	210	206	196	205	208	220	274	307	314	295	289	283	275	265	244
	Grand Total Percent		**36%**	**38%**	**46%**	**52%**	**51%**	**49%**	**51%**	**52%**	**55%**	**68%**	**76%**	**78%**	**73%**	**72%**	**70%**	**68%**	**66%**	**61%**

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Rancho Mirage, CA
Ritz Carlton
68900 Frank Sinatra Dr

Wednesday, December 11th, 2019

		Inventory	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
1st Floor	Regular	115	44	59	90	111	114	110	112	110	98	100	98	79	68	50	48	45	36	28
	Handicap	2	0	0	1	2	2	2	2	2	1	1	1	0	0	0	0	0	0	0
	Subtotal	**117**	**44**	**59**	**91**	**113**	**116**	**112**	**114**	**112**	**99**	**101**	**99**	**79**	**68**	**50**	**48**	**45**	**36**	**28**
	Total Occupancy	117	44	59	91	113	116	112	114	112	99	101	99	79	68	50	48	45	36	28
	Total Percent		**38%**	**50%**	**78%**	**97%**	**99%**	**96%**	**97%**	**96%**	**85%**	**86%**	**85%**	**68%**	**58%**	**43%**	**41%**	**38%**	**31%**	**24%**

		Inventory	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
2nd Floor	Regular	112	35	36	32	35	28	22	28	26	22	24	22	23	23	18	17	18	18	18
	Handicap	2	2	2	2	2	1	1	2	1	0	1	1	1	2	1	1	2	1	1
	Reserved	11	4	1	0	1	4	4	2	3	4	3	4	6	5	10	9	9	9	9
	Electric Vehicle	2	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1
	Subtotal	**127**	**42**	**40**	**35**	**39**	**34**	**28**	**33**	**31**	**26**	**28**	**27**	**30**	**31**	**30**	**28**	**30**	**29**	**29**
	Total Occupancy	127	42	40	35	39	34	28	33	31	26	28	27	30	31	30	28	30	29	29
	Total Percent		**33%**	**31%**	**28%**	**31%**	**27%**	**22%**	**26%**	**24%**	**20%**	**22%**	**21%**	**24%**	**24%**	**24%**	**22%**	**24%**	**23%**	**23%**

		Inventory	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
3rd Floor	Regular	83	39	37	36	35	30	28	24	18	17	20	23	30	37	31	33	41	45	45
	Electric Vehicle	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
	Subtotal	**86**	**42**	**40**	**39**	**38**	**33**	**31**	**27**	**21**	**17**	**20**	**23**	**30**	**37**	**31**	**33**	**41**	**45**	**45**
	Total Occupancy	86	42	40	39	38	33	31	27	21	17	20	23	30	37	31	33	41	45	45
	Total Percent		**49%**	**47%**	**45%**	**44%**	**38%**	**36%**	**31%**	**24%**	**20%**	**23%**	**27%**	**35%**	**43%**	**36%**	**38%**	**48%**	**52%**	**52%**

		Inventory	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
Trail Parking Lot	Trail Lot Pavement	73	2	3	15	15	22	24	24	21	23	23	22	15	8	6	6	5	7	5
	Dirt Overflow	-	0	2	6	6	6	8	7	7	10	11	11	6	6	4	4	6	3	4
	Subtotal	**73**	**2**	**5**	**21**	**21**	**28**	**32**	**31**	**28**	**33**	**34**	**33**	**21**	**14**	**10**	**10**	**11**	**10**	**9**
	Total Occupancy	73	2	5	21	21	28	32	31	28	33	34	33	21	14	10	10	11	10	9
	Total Percent		**3%**	**7%**	**29%**	**29%**	**38%**	**44%**	**42%**	**38%**	**45%**	**47%**	**45%**	**29%**	**19%**	**14%**	**14%**	**15%**	**14%**	**12%**
	Grand Total Occupancy	403	130	144	186	211	211	203	205	192	175	183	182	160	150	121	119	127	120	111
	Grand Total Percent		**32%**	**36%**	**46%**	**52%**	**52%**	**50%**	**51%**	**48%**	**43%**	**45%**	**45%**	**40%**	**37%**	**30%**	**30%**	**32%**	**30%**	**28%**

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Appendix H
Geotechnical Report

TERRA NOVA PLANNING AND RESEARCH, INC.
400 SOUTH FARRELL DRIVE, SUITE B-205
PALM SPRINGS, CALIFORNIA 92262

PLANNING-LEVEL
GEOTECHNICAL FEASIBILITY REPORT
PROPOSED EXPANSION PROJECT
THE LODGE AT RANCHO MIRAGE
FRANK SINATRA DRIVE
RANCHO MIRAGE, CALIFORNIA

March 15, 2006

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File No.: 10530-01
06-03-804

Earth Systems
Southwest

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FAX (760) 345-7315

March 15, 2006

File No.: 10530-01
06-03-804

Terra Nova Planning and Research, Inc.
400 South Farrell Drive, Suite B-205
Palm Springs, California 92262

Attention: Mr. John Criste

Subject: **Planning-Level Geotechnical Feasibility Report**

Project: **Proposed Expansion Project**
The Lodge at Rancho Mirage
Frank Sinatra Drive
Rancho Mirage, California

Dear Mr. Criste:

We take pleasure in presenting this planning-level geotechnical feasibility report prepared for the proposed hotel and facilities expansion project of The Lodge at Rancho Mirage located at the western terminus of Frank Sinatra Dive in the City of Rancho Mirage, California.

This report presents our preliminary findings and recommendations regarding various geotechnical and geologic constraints that will affect the proposed project, incorporating the information provided to our office. The site is suitable for the proposed development, provided the recommendations in this report and subsequent design-level geotechnical investigations are followed in design and construction. This report should stand as a whole and no part of the report should be excerpted or used to the exclusion of any other part.

This report completes our scope of services in accordance with our agreement, dated January 30, 2006. Other services that may be required, such as plan review and grading observation, are additional services and will be billed according to our Fee Schedule in effect at the time services are provided. Unless requested in writing, the client is responsible for distributing this report to the appropriate governing agency or other members of the design team.

We appreciate the opportunity to provide our professional services. Please contact our office if there are any questions or comments concerning this report or its recommendations.

Respectfully submitted,
EARTH SYSTEMS SOUTHWEST

KAH

Karl A. Harmon
EG 2243

Reviewed by:

CSH

Craig S. Hill
CE 38234

REGISTERED PROFESSIONAL ENGINEER
CRAIG S. HILL
4.26.06
CE 38234
Exp. 03/31/07
CIVIL
STATE OF CALIFORNIA

SER/kah/csh/reh

Distribution: 6/Terra Nova Planning and Research, Inc.
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PLANNING-LEVEL
GEOTECHNICAL FEASIBILITY REPORT
PROPOSED EXPANSION PROJECT
THE LODGE AT RANCHO MIRAGE
FRANK SINATRA DRIVE
RANCHO MIRAGE, CALIFORNIA

Section 1
INTRODUCTION

1.1 Project Description

This planning-level geotechnical feasibility report has been prepared for the proposed expansion project of the existing hotel and facilities of The Lodge at Rancho Mirage. New developments are proposed for several portions of the approximately 37.5-acre planning area. The site is located at the western terminus of Frank Sinatra Drive in the City of Rancho Mirage, California.

The existing hotel will be renovated and expanded, and will also include a free-standing addition of rooms and suites, including new spa suites and facilities. The proposed expansion plans include the conversion of the existing tennis facilities to tennis villas. The project will result in the construction of an additional four hotel rooms and include up to 154 hotel/condominium units of primarily one- and two-story construction.

1.2 Site Description

The project site consists of approximately 37.5 acres of developed and undeveloped land surrounding the existing resort located at 68-900 Frank Sinatra Dive in the City of Rancho Mirage, California. The site location is shown on Figure 1 in Appendix A.

The project is situated in an area of rugged foothills and canyons near the base of the Santa Rosa Mountains. The area's site topography is generally dominated by northeast to southwest trending ridges and canyons. Total relief at the project site is on the order of approximately 60 feet.

The proposed expansion project is divided into five sub-areas as described below:

- The **Hotel Renovation** sub-area consists of approximately 15.55 acres of mostly developed land and is the current location of the hotel. Landscaping exists over much of the undeveloped portions and a grass-covered retention basin is present on the eastern side of the hotel. Steep, naturally vegetated slopes are present on the northwestern and northeastern sides of the hotel.

- The **Tennis Villas** sub-area consists of approximately 6.42 acres of mostly developed land and is currently the location of the tennis courts and clubhouse. A grass lawn, a concrete patio, and a sand volleyball court are also present in this sub-area. Two steep, naturally vegetated hills are present on the northern and southern sides of the tennis courts and the ground surface slopes steeply away on the northeastern side of the sub-area.

- The **Spa & Suites** sub-area is adjacent to the eastern boundary of the Hotel Renovation sub-area. It consists of approximately 2.28 acres of naturally vegetated hills.

- The **T-Wing** sub-area consists of approximately 2.28 acres south of the existing hotel. A portion of this sub-area has been cleared and graded and the rest is undeveloped, naturally vegetated hills.

- The **Hotel Villas** sub-area consists of approximately 10.95 acres along the southern boundary of the site. A paved road has been cut into the hills on the eastern side of the sub-area and a portion in the northeast corner has been cleared and graded flat. A northeast-southwest trending, unpaved road divides the sub-area approximately in half and a portion near the center of the sub-area has been cleared and lightly graded. The rest of the sub-area consists of naturally vegetated rolling hills. A paved road of the adjacent Mirada residential development defines the southern boundary of this sub-area.

The history of past use and development of the property was not investigated as part of our scope of services. Indications of buried utilities were not observed during the site visit, but may be expected around the existing structures.

1.3 Purpose and Scope of Work

The purpose for our services was to evaluate the site soil and bedrock conditions and to provide professional opinions and preliminary recommendations regarding the proposed development of the site. The scope of work included the following:

- A review of relevant geotechnical and geological literature and maps, including maps from the United States Geological Survey, the California Division of Mines and Geology, United States Department of Agriculture – Soil Conservation Service (USDA-SCS), previous Earth Systems reports in the site vicinity, and other relevant information.
- Examination and interpretation of selected vertical stereo aerial photographs.
- Site reconnaissance of the subject property based on our literature and photo reviews.
- A review of the referenced seismic refraction survey prepared by Terra Geosciences by our in-house geophysicist to evaluate the subsurface bedrock conditions and correlate these results to similar survey lines performed by ESSW on adjacent sites.
- An evaluation of surface drainage conditions and flooding potential by our in-house geologist based on literature and photo reviews as well as field investigation.
- Field infiltration testing for storm water retention using a double-ring infiltrometer.
- An engineering analysis and evaluation of the acquired data from our reconnaissance.
- A summary of our findings and recommendations in this written report.

This report contains the following:

- Discussions on subsurface soil/bedrock and groundwater conditions.
- Discussions on regional and local geologic conditions.
- Discussions on geologic and seismic hazards.
- Preliminary recommendations regarding:
  - Site development and grading criteria.
  - Excavation conditions and buried utility installations.
  - Seismic design parameters.

Not Contained in This Report: Although available through Earth Systems Southwest, the current scope of our services does not include:

- A site-specific design-level geotechnical investigation.
- A corrosive study to determine cathodic protection of concrete or buried pipes.
- An environmental assessment.
- An investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater, or air on, below, or adjacent to the subject property.
- A geologic fault-rupture hazard evaluation.

The client did not direct ESSW to provide any service to investigate or detect the presence of moisture, mold, or other biological contaminates in or around any structure, or any service that was designed or intended to prevent or lower the risk or the occurrence of the amplification of the same. Client acknowledges that mold is ubiquitous to the environment, with mold amplification occurring when building materials are impacted by moisture. Client further acknowledges that site conditions are outside of ESSW's control and that mold amplification will likely occur or continue to occur in the presence of moisture. As such, ESSW cannot and shall not be held responsible for the occurrence or recurrence of mold amplification.

Section 2
METHODS OF INVESTIGATION

2.1 Field Reconnaissance

Because of shallow bedrock conditions over the entire project site, as well as the abundance of large cobbles and boulders, subsurface exploration of the site with the use of conventional soil boring equipment is not feasible.

As an alternative to soil borings, a surface geologic reconnaissance was performed by an ESSW geologist on February 23 and March 9, 2006, as well as a review of geotechnical reports performed by ESSW on nearby projects and seismic refraction surveys conducted by Terra Geosciences in October 2004 and by ESSW on February 23, 2006.

2.2 Infiltration Testing

We conducted an open, double-ring infiltrometer test on March 1, 2006. The test was conducted at about 13 to 15 inches below existing grade and in general accordance with ASTM D3385. The purpose of the testing was to determine the appropriate infiltration rate to be used in design of the storm water retention basins. Several attempts were made to set the infiltrometer rings at various sites. Most attempts failed due to shallow bedrock and/or rocky soil conditions. The sites were chosen based on the cut/fill map dated February 10, 2006 and produced by MSA Consulting, Inc. We attempted to locate the test sites in areas that would remain at existing grade. Ultimately, only one of five sites was amenable to double-ring infiltrometer testing. The infiltration test location is shown on the attached location map (Figure 2).

An outer steel ring (24-inch diameter) and an inner steel ring (12-inch diameter) were driven about 13 to 15 centimeters into undisturbed soil. The purpose of the outer ring is to create a hydraulic barrier so that the recorded drop in water level of the inner ring measures the vertical infiltration without lateral spreading. Both rings were filled with water to a depth of about 6 inches and maintained with a float control valve or periodic refilling. Successive readings of infiltration flow were made over 15- to 60-minute periods until a stabilized flow was recorded. A plot of infiltration rates over time is presented on the attached test results.

The infiltration rate measured is presented in the following table in metric and equivalent English units.

Test ID	Depth (cm)	Infiltration Rate (cm/hr)	(in/hr)	(gal/sf/day)
P-1	13-15	8.2	3.2	49

The designer of the storm water retention basin should decide on an appropriate factor of safety to apply to reported infiltration rates. Infiltration of storm water through the bottom of the basin may be significantly less than the values given over time because of siltation of the basin bottom and development of a film from road oils from paved streets. Maintenance of the retention basin is crucial if no factor of safety is applied. Maintenance may include periodically scarifying the bottom of basin to open soil pores clogged by siltation, oils, or vegetation growth. A silt and oil

trap placed at influent points may be considered to reduce the potential for reduction in the infiltration rate of soils.

2.3 Seismic Refraction

A seismic refraction survey was performed by Terra Geosciences in the proposed Hotel Villas area in November 2004. The seismic P-wave velocities reported from this survey agreed with other similar surveys performed by ESSW in February 2006 on adjacent sites in the same rock units.

The results indicate a thin (approximately 2- to 4-foot) soil layer underlain by a 5- to 15-foot thick weathered bedrock zone that is, in turn, underlain by bedrock. The soil layer should excavate with no difficulty. The weathered bedrock zone should excavate with moderate difficulty to difficulty, with some zones requiring drilling and blasting. Lateral variations in rippability will occur due to variations in fracture density. The bedrock unit will require drilling and blasting.

Section 3
DISCUSSION

3.1 Earth Materials

The field exploration indicates that site materials consist generally of outcropping pre-Cretaceous metasedimentary rocks overlain in the T-Wing and Hotel Villas areas by an approximately 1- to 5-foot layer of gravelly sand with silt to silty sand with gravel (Unified Soils Classification System symbols SW-SM and SM).

The soil matrix is visually classified to be in the very low expansion (EI < 20) category in accordance with Table 18A-I-B of the California (Uniform) Building Code.

Fine particulate matter (PM_{10}) can create an air quality hazard if dust is blowing. Watering the surface, planting grass or landscaping, or placing hardscape normally mitigates this hazard.

3.2 Groundwater

The depth to groundwater in the vicinity of the project site is believed to be greater than 200 feet. Groundwater levels may fluctuate with precipitation, irrigation, drainage, regional pumping from wells, and site grading. The absence of shallow groundwater levels may not represent an accurate or permanent condition; minor localized and seasonal perched groundwater conditions may occur within and adjacent to well defined drainages on the site.

The bedrock that underlies the site is considered to be essentially non-water-bearing and does not form a continuous aquifer. However, some groundwater is likely to be contained at depth within intermittent joints and fractures of the bedrock. No seeps or springs were observed at the site during our field reconnaissance. However, after periods of heavy rainfall, seeps may form where bedrock discontinuities containing groundwater intersect the ground surface or in canyon bottoms where water flows within the alluvial deposits.

The potential for seeps may increase where fill soils are placed over canyons and drainages. Sub-drains placed at the bottoms of canyon fills may be required in order to reduce the potential for saturation of the fill soils and possible settlement or other ground failures that could result.

3.3 Geologic Setting

3.3.1 Regional Geology

The site is located at the northern edge of the Santa Rosa Mountains, which border the southwest part of the Coachella Valley. The site is located within the Peninsular Ranges geomorphic province, at the boundary of the Colorado Desert geomorphic province. The Peninsular Ranges are characterized by fault-controlled, elongated northwest-trending valleys and ranges. These ranges and valleys extend from the southern end of Baja California to the Los Angeles basin. The rocks underlying this province consist of ancient sedimentary and metasedimentary (partially metamorphosed sedimentary rocks) that mantle a core of granitic rocks that comprise the Southern California Batholith.

The dominant feature of the Colorado Desert province is the Salton Trough, a large northwest-trending structural depression that extends approximately 180 miles from San Gorgonio Pass, near Palm Springs, to the head of the Gulf of California. Much of this depression in the area of the Salton Sea is below sea level.

The Coachella Valley forms the northerly portion of the Salton Sea basin. The valley contains a thick sequence of sedimentary rocks that are Miocene to Holocene in age. Mountains surrounding the Coachella Valley include the Little San Bernardino Mountains on the northeast, foothills of the San Bernardino Mountains on the west, and the San Jacinto and Santa Rosa Mountains on the southwest.

The San Andreas fault zone is the most significant potential seismic source in the site vicinity. In the upper portion of the Coachella Valley, the San Andreas fault zone is comprised of the Garnet Hill, the Banning, and the Mission Creek faults, which are located 5, 7.5, and 9.5 miles to the northeast of the site, respectively. These faults trend northwest to southeast. The San Andreas fault in the Coachella Valley is believed to be capable of generating a magnitude 7.5 to 8 earthquake. The larger value would be expected if the Coachella Valley segment ruptured concurrently with the San Bernardino Mountains segment (WGCEP, 1995). The San Jacinto fault is located approximately 17 miles to the southwest of the site and is believed to be capable of producing a magnitude 7 earthquake.

3.3.2 Local Geology

The on-site geology reflects a typical contact metamorphic zone along an igneous/sedimentary contact. The metamorphic contact zone contains pegmatitic marble and various calc-silicates. These rocks were formed by the modification of previously existing sediments by the intense heat associated with the intrusion of the igneous rocks. Several baked zones and feldspar and quartz rich gneiss mark the contact zone. Minor quartzite and schist are found; however, marble and marbleized limestone dominate the area. These metamorphic rocks are designated "ms" on Figure 4 in the appendix. In the vicinity of the proposed Tennis Villas, the predominant rocks are strongly folded metasediments. Toward the east, the metamorphism grades into foliated migmatites. This is the predominant rock type in the vicinity of the proposed Spa and Suites.

Several inactive faults were observed in outcroppings and on cut-slopes in the vicinity of the proposed Spa and Suites and Tennis Villas areas. Large (1m) gouge zones are typical, as are abundant auxiliary faults. Folds ranging from isoclinal to chevron in structure were also observed across the site. The following observations were made regarding these faults:

- There are fault gouge and slickensides, but the gouge and adjacent zones on some faults are deeply weathered and oxidized, as evidenced by the orange color. This deep weathering implies antiquity.

- They are not shown on the Santa Ana Sheet of the California Geologic Map.

- They are neither in a California State designated Alquist-Priolo fault study zone nor in a Riverside County fault study zone.

- There is evidence for 6 to 10 centimeters of offset in Pre-Cretaceous metasediments – very little movement for faults that are millions of years old.
- There are no surface topographic expressions of the structures.
- They are probably related to orogenic deformation during the creation of the San Jacinto and Santa Rosa Mountains.

Based on the above evidence, it is our professional opinion that the faults are pre-Holocene and inactive. They are probably older than one million years.

Many of the bedrock areas are highly fractured. The predominant fracture orientation dips about 50 degrees to the northeast with a less predominate orientation dipping 45 degrees to the northwest. Fractures range is size from 1 cm to 1m.

Veins consisting of quartz and calcite are scattered throughout the area, following the orientation of the fractures described above. Veins range from 1cm to 1m thick.

Surface drainage in the Tennis Villas area is generally to the west and into one of two deep canyons. In the southeastern portion of this area, runoff is to the east and into gutters along Frank Sinatra Drive.

In the T-Wing and Hotel Villas areas, runoff is mostly to the west and into gutters along Frank Sinatra Drive. Runoff at the extreme east end of this area is into a deep canyon to the east. This area is characterized by an approximately 15- to 20-foot high plateau with a thin (2- to 5-foot) veneer of soil/regolith. The plateau is dissected by numerous shallow drainages flowing mostly toward the west.

In the proposed Spa and Suites area, drainage off the hillside is toward the west and into a grass-covered retention basin. This basin drains into a deep canyon to the north, which then flows past two CVWD water tanks.

3.3.3 Descriptive Geology

Site geology is presented in Figure 4. Geology was mapped from existing geologic maps, aerial and satellite photographs, and field verification. Contacts shown are approximate. A more detailed geologic map is beyond the scope of this preliminary report. Geologic units encountered during our site reconnaissance include the following:

Pre-Cenozoic Metamorphic Rocks (ms): Palm Canyon Complex – interbedded crystalline limestone, quartzite, quartz-mica schist, and granitic gneiss; in many places intruded lit-par-lit by granitic rocks. These rocks underlie the entire project site. Metamorphism grades from folded metasediments to the west to strongly foliated migmatites to the east.

Artificial Fill (af): Man-made fill deposits.

3.4 Geologic Hazards

Geologic hazards that may affect the region include seismic hazards (ground shaking, surface fault rupture, soil liquefaction, and other secondary earthquake-related hazards), slope instability, flooding, ground subsidence, and erosion. A discussion follows on the specific hazards to this site.

3.4.1 Seismic Hazards

Seismic Sources: Several active faults or seismic zones lie within 62 miles (100 kilometers) of the project site as shown on Table 1 in Appendix A. The primary seismic hazard to the site is strong ground shaking from earthquakes along the San Andreas and San Jacinto faults. The Maximum Magnitude Earthquake (M_{max}) listed is from published geologic information available for each fault (Cao et al., CGS, 2003). The M_{max} corresponds to the maximum earthquake believed to be tectonically possible.

Surface Fault Rupture: The project site does not lie within a currently delineated State of California, *Alquist-Priolo* Earthquake Fault Zone (Hart, 1997). Well-delineated fault lines cross through this region as shown on California Geological Survey (CGS) maps (Jennings, 1994).

No active or potentially active faults are known to exist on or immediately adjacent to the site. Regional maps (Rogers, 1965 and Jennings, 1994) do indicate a bedrock fault crossing approximately ½ mile south of the site. Jennings (1994) shows this fault as being without recognized Quaternary movement and is apparently an inactive fault within the ancient bedrock complex. Several small faults can be observed within the bedrock units in the area, but do not disrupt overlying Pleistocene terrace deposits and do not otherwise display features that would suggest recent movement. No evidence exists that would suggest that active faulting exists along the southern margins of the Coachella Valley.

While fault rupture would most likely occur along previously established fault traces, future fault rupture could occur at other locations. The nearest known active fault to the site is the San Andreas fault, as discussed previously in the Regional Geology section of this report. Active fault rupture is therefore unlikely to occur at the project site.

Historic Seismicity: Six historic seismic events (5.9 M or greater) have significantly affected the Coachella Valley in the last 100 years. They are as follows:

- *Desert Hot Springs Earthquake* – On December 4, 1948, a magnitude 6.5 M_L (6.0M_W) earthquake occurred east of Desert Hot Springs. This event was strongly felt in the Palm Springs area.
- *Palm Springs Earthquake* – A magnitude 5.9 M_L (6.2M_W) earthquake occurred on July 8, 1986 in the Painted Hills, causing minor surface creep of the Banning segment of the San Andreas fault. This event was strongly felt in the Palm Springs area and caused structural damage, as well as injuries.
- *Joshua Tree Earthquake* – On April 22, 1992, a magnitude 6.1 M_L (6.1M_W) earthquake occurred in the mountains 9 miles east of Desert Hot Springs. Structural damage and minor injuries occurred in the Palm Springs area as a result of this earthquake.

- *Landers and Big Bear Earthquakes* – Early on June 28, 1992, a magnitude 7.5 M_S (7.3M_W) earthquake occurred near Landers, the largest seismic event in Southern California for 40 years. Surface rupture occurred just south of the town of Yucca Valley and extended some 43 miles toward Barstow. About three hours later, a magnitude 6.6 M_S (6.4M_W) earthquake occurred near Big Bear Lake. No significant structural damage from these earthquakes was reported in the Palm Springs area.
- *Hector Mine Earthquake* – On October 16, 1999, a magnitude 7.1M_W earthquake occurred on the Lavic Lake and Bullion Mountain faults north of Twentynine Palms. While this event was widely felt, no significant structural damage has been reported in the Coachella Valley.

Seismic Risk: While accurate earthquake predictions are not possible, various agencies have conducted statistical risk analyses. In 2002, the California Geological Survey (CGS) and the United States Geological Survey (USGS) completed the latest generation of probabilistic seismic hazard maps. We have used these maps in our evaluation of the seismic risk at the site. The Working Group of California Earthquake Probabilities (WGCEP, 1995) estimated a 22% conditional probability that a magnitude 7 or greater earthquake may occur between 1994 and 2024 along the Coachella segment of the San Andreas fault.

The primary seismic risk at the site is a potential earthquake along the San Andreas fault. Geologists believe that the San Andreas fault has characteristic earthquakes that result from rupture of each fault segment. The estimated characteristic earthquake is magnitude 7.7 for the Southern Segment of the fault (USGS, 2002). This segment has the longest elapsed time since rupture of any part of the San Andreas fault. The last rupture occurred about 1690 AD, based on dating by the USGS near Indio (WGCEP, 1995). This segment has also ruptured on about 1020, 1300, and 1450 AD, with an average recurrence interval of about 220 years. The San Andreas fault may rupture in multiple segments, producing a higher magnitude earthquake. Recent paleoseismic studies suggest that the San Bernardino Mountain Segment to the north and the Coachella Segment may have ruptured together in 1450 and 1690 AD (WGCEP, 1995).

3.4.2 Secondary Hazards

Secondary seismic hazards related to ground shaking include soil liquefaction, ground subsidence, tsunamis, and seiches. The site is far inland, so the hazard from tsunamis is non-existent. At the present time, no water storage reservoirs are located in the immediate vicinity of the site. Therefore, hazards from seiches are considered negligible at this time.

Soil Liquefaction: Liquefaction is the loss of soil strength from sudden shock (usually earthquake shaking), causing the soil to become a fluid mass. In general, for the effects of liquefaction to be manifested at the surface, groundwater levels must be within 50 feet of the ground surface and the soils within the saturated zone must also be susceptible to liquefaction. The potential for liquefaction to occur at this site is considered essentially nil because the site is underlain by non-water-bearing crystalline bedrock. In addition, the project does not lie within a County or State liquefaction hazard zone.

Ground Subsidence: Non-tectonic ground deformation consists of cracking of the ground with little to no displacement. This type of deformation is generally associated with differential shaking of two or more geologic units with differing engineering characteristics. Ground

deformation may also be caused by liquefaction. The potential for this type of ground deformation is considered to be low because the site is not vulnerable to liquefaction and is underlain by relatively uniform bedrock.

The potential for seismically induced ground subsidence is considered low at the site because of the underlying dense bedrock. Uncompacted fill areas may be susceptible to seismically induced settlement.

Slope Instability: Cut and fill slopes are proposed at the site. Cut slopes in the on-site bedrock at a maximum inclination of 2:1 (horizontal:vertical) are expected to be grossly stable. However, discontinuities present in the rock, such as bedding planes, joints, or faults, may affect the slope's stability. The potentially adverse effect of these discontinuities would depend on their orientation in relation to the orientation of the slope face.

Properly constructed fill slopes are expected to be grossly stable, using the recommendations contained within this report and a subsequent design-level geotechnical engineering report. Surficial stability will be dependent on proper drainage design and erosion protection.

Flooding and Erosion: The project site does not lie within a designated FEMA 100- or 500-year flood plain. The project site is situated in an area where sheet flooding, flash flooding, and erosion may occur.

The need for and design of flood control devices and erosion protection is within the purview of the design civil engineer. In general, erosion should be mitigated by proper drainage design including collecting and disposal (conveyance) of water to approved points of discharge. Appropriate project design, construction, and maintenance will be necessary to mitigate the site flooding hazards.

3.4.3 Site Acceleration and Seismic Coefficients

Site Acceleration: The potential intensity of ground motion may be estimated by the horizontal peak ground acceleration (PGA), measured in "g" forces. Included in Table 1 are deterministic estimates of site acceleration from possible earthquakes at nearby faults. Ground motions are dependent primarily on the earthquake magnitude and distance to the seismogenic (rupture) zone. Accelerations are also dependent upon attenuation by rock and soil deposits, direction of rupture, and type of fault. For these reasons, ground motions may vary considerably in the same general area. This variability can be expressed statistically by a standard deviation about a mean relationship.

The PGA alone is an inconsistent scaling factor to compare to the CBC Z factor and is generally a poor indicator of potential structural damage during an earthquake. Important factors influencing the structural performance are the duration and frequency of strong ground motion, local subsurface conditions, soil-structure interaction, and structural details.

The following table provides the probabilistic estimate of the PGA taken from the 2002 CGS/USGS seismic hazard maps.

Estimate of PGA from 2002 CGS/USGS Probabilistic Seismic Hazard Maps

Risk	Equivalent Return Period (years)	PGA (g) [1]
10% exceedance in 50 years	475	0.48

Notes:
1. Based on a soft rock site, $S_{B/C}$, and soil amplification factor of 1.0 for Soil Profile Type S_B.

2001 CBC Seismic Coefficients: The California Building Code (CBC) seismic design criteria are based on a Design Basis Earthquake (DBE) that has an earthquake ground motion with a 10% probability of occurrence in 50 years. The PGA estimate given above is provided for information on the seismic risk inherent in the CBC design. The seismic and site coefficients given in Chapter 16 of the 2001 California Building Code are provided in Section 5.5 of this report and below.

2001 CBC Seismic Coefficients for Chapter 16 Seismic Provisions

			Reference
Seismic Zone:	4		Figure 16-2
Seismic Zone Factor, Z:	0.4		Table 16-I
Soil Profile Type:	S_B		Table 16-J
Seismic Source Type:	A		Table 16-U
Closest Distance to Known Seismic Source:	11.7 km = 7.3 miles		(San Andreas fault)
Near Source Factor, Na:	1.00		Table 16-S
Near Source Factor, Nv:	1.13		Table 16-T
Seismic Coefficient, Ca:	0.40	= 0.40Na	Table 16-Q
Seismic Coefficient, Cv:	0.45	= 0.40Nv	Table 16-R

Seismic Hazard Zones: The site does not lie within a liquefaction, landslide, or fault rupture hazard area or zone established by the 2003 Riverside County Integrated Project. This part of Riverside County has not yet been mapped by the California Seismic Hazard Mapping Act (Ca. PRC 2690 to 2699).

Section 4
CONCLUSIONS

The following is a summary of our conclusions and professional opinions based on the data obtained from a review of selected technical literature and the site evaluation.

General:

- From a geotechnical perspective, the site is suitable for the proposed development, provided the recommendations in this report and subsequent design-level geotechnical investigations are followed in the design and construction of this project.

Geotechnical Constraints and Mitigation:

- The primary geologic hazard is severe ground shaking from earthquakes originating on nearby faults. A major earthquake above magnitude 7 originating on the local segment of the San Andreas fault zone would be the critical seismic event that may affect the site within the design life of the proposed development. Engineered design and earthquake-resistant construction increase safety and allow development of seismic areas.

- The project site is in seismic Zone 4, is of soil profile Type S_B, and is about 11.7 km from a Type A seismic source as defined in the California Building Code. A qualified professional should design any permanent structure constructed on the site. The *minimum* seismic design should comply with the 2001 edition of the California Building Code.

- The project site is situated in an area where sheet flooding, flash flooding, and erosion may occur. Preventative measures to reduce seasonal flooding and erosion should be incorporated into site grading plans.

- Other geologic hazards, including fault rupture, liquefaction, seismically induced flooding, and landslides, are considered low or negligible on this site.

- The project site does not lie within a currently delineated State of California, *Alquist-Priolo* Earthquake Fault Zone; active fault rupture is unlikely to occur at the project site.

- Groundwater-related issues should not be a factor in design or construction at this site, with the exception of possible need for sub-drains in deep canyon fills.

- The potential for undesirable differential settlements may exist at the site resulting from variable depths to bedrock across proposed building pads. This potential hazard can be reduced by either grading uniform mats of compacted fill or by deepening foundations to bear completely on competent bedrock. Deepening the foundation to bedrock will result in a variable depth foundation to mirror the irregular depth to bedrock. Foundations founded on a structural mats of recompacted soil will require moisture conditioning, verification compaction testing, and possible over-excavation and recompaction in the building area and, in particular, bedrock areas.

- Excavation in shallow bedrock will likely require special grading equipment. Although preliminary rippability studies indicate heavy-duty grading equipment may be feasible, blasting could be necessary for deeper cuts. Difficulty may also be experienced in areas of deeper excavation such as utility trenches, swimming pools, and spas.

Section 5
PRELIMINARY RECOMMENDATIONS

5.1 Summary of Preliminary Recommendations

Based upon the data collected to date, the following preliminary recommendations are provided relative to the proposed development and noted geologic and geotechnical constraints.

- All proposed structures should be designed in accordance with at least minimum building code standards for Seismic Zone 4 as described in the 2001 California Building Code Vol. 2. The minimum seismic design should comply with the 2001 edition of the California Building Code.

- Measures to minimize sheet flooding and erosion should be incorporated into the overall project design. The need for and design of flood control devices and erosion protection is within the purview of the design civil engineer. In general, erosion should be mitigated by proper drainage design, including collecting and disposal (conveyance) of water to approved points of discharge.

- The entire project area consists essentially of shallow or exposed bedrock with deep proposed cuts that will significantly impact the grading and subsequent construction of the proposed site improvements. Site grading will require specialized equipment to properly handle the large anticipated volume of oversized rock and rock fragments.

- Construction proposed within or adjacent to hillside areas of the site may require site-specific detailed geotechnical studies incorporated with specific design parameters to evaluate slope stability of existing and planned slopes and to provide additional mitigation measures, if necessary. Appropriate structure setbacks from ascending and descending slopes, per code requirements, should be incorporated into site design.

- Additional geotechnical engineering studies are recommended to evaluate design-level engineering properties of the subsurface earth materials and to develop recommendations for remedial site grading and foundation design. Site-specific geotechnical issues, including slope instability, collapse potentials, corrosion potentials, and differential settlement due to unlike bearing materials, should be addressed.

5.2 Site Development – Grading

The following preliminary recommendations are for planning and feasibility purposes only; actual grading recommendation should be based on site-specific geotechnical constraints obtained during a design-level evaluation of the site tailored to the final proposed site development.

Clearing and Grubbing: At the start of site grading, existing vegetation, trees, large roots, pavements, foundations, non-engineered fill, construction debris, trash, and abandoned underground utilities should be removed from the proposed building, structural, and pavement areas. The surface should be stripped of organic growth and removed from the construction area.

Areas disturbed during demolition and clearing should be properly backfilled and compacted as described below.

Dust control should also be implemented during construction. Site grading should be in strict compliance with the requirements of the South Coast Air Quality Management District (SCAQMD).

Mass Grading: Because of the shallow depth to bedrock and resulting accumulation of cobbles and boulder-sized rock fragments, conventional earthmoving equipment such as scrapers and other light equipment may not be suitable for grading portions of the site. Heavy equipment such as large bulldozers and loaders equipped with a rock "bucket" will likely be necessary.

Disposal of Oversize Rock: Rock greater than 6 inches in maximum dimension should not be placed within the upper 3 feet of finish grade within building areas, where they may interfere with footing trenches, or in areas where they may interfere with the installation of underground utilities. Rock up to 12 inches in size may be incorporated in deeper structural fill or non-structural areas. A portable crusher could be brought to the job site to break down the boulders for use in fill areas. Crushed materials no greater than 6 inches in maximum dimension may be used for structural fill.

It may also be feasible to dispose of boulders (>12-inch size) within the deeper portions of nonstructural fill and passive use areas to be landscaped. Boulders that are buried below nonstructural fills should be placed in neat windrows and in a manner to avoid nesting and then covered with on-site or imported granular soils. The soil cover should then be thoroughly watered and wheel-rolled to fill voids between the boulders. These rock disposal areas should be designated on the grading plans.

Building Pad Preparation: In order to limit the potential for differential settlement between adjacent load-bearing members, proposed structures should be founded on either a uniformly thick structural mat of recompacted soil or deepened foundations bearing on competent bedrock.

In areas where proposed building pads result in transitional lots of cut into bedrock and fill, footings should bear on a mat of soil at least 4 feet thick. Additional over-excavation and replacement of soil may be required beneath footings where shallow rock is encountered. This is particularly true where proposed structures encroach on the existing rock outcrops.

Subgrade Preparation: In areas to receive pavements or hardscape, the ground surface should be scarified, moisture conditioned, and compacted to at least 90% relative compaction (ASTM D 1557) for a depth of 12 inches below finished subgrades.

Engineered Fill Soils: The native soil (after processing to remove rocks greater than 6 inches in size) is suitable for use as engineered fill and utility trench backfill. The native soil should be placed in maximum 8-inch lifts (loose) and compacted to at least 90% relative compaction (ASTM D1557) near its optimum moisture content.

Imported fill soils (if required) should be non-expansive, granular soils meeting the USCS classifications of SM, SP-SM, or SW-SM with a maximum rock size of 3 inches and 5 to 35%

passing the No. 200 sieve. The geotechnical engineer should evaluate the import fill soils before hauling to the site. However, because of the potential variations within the borrow source, import soil will not be prequalified by ESSW. The imported fill should be placed in lifts no greater than 8 inches in loose thickness and compacted to at least 90% relative compaction (ASTM D1557) near optimum moisture content.

Shrinkage/Bulking and Loss: The shrinkage factor of the soil (additional to the loss of oversize rocks) is expected to range from 10 to 20 percent for the upper excavated or scarified site soils. This estimate is based on compactive effort to achieve an average relative compaction of about 92% and may vary with contractor methods. Subsidence is estimated to be less than 0.2 foot. Losses from site clearing and removal of oversize rock will affect earthwork quantity calculations and should be considered.

An accurate estimation of the shrinkage/bulking of materials generated in bedrock excavations is extremely difficult. This fact, combined with the volume of proposed grading, could result in the job being out of balance. Because most of the excavated materials will be dense bedrock, it is more likely that bulking will occur, rather than shrinkage. Careful monitoring of cut/fill quantities during grading will be necessary so that adjustments to final design grades can be made relatively early in the grading operation.

Site Drainage: Positive drainage should be maintained away from the structures (5% for 5 feet minimum) to prevent ponding and subsequent saturation of the foundation soils. Gutters and downspouts should be considered as a means to convey water away from foundations if adequate drainage is not provided. Drainage should be maintained for paved areas. Water should not pond on or near paved areas.

5.3 Excavations and Utility Trenches

Excavations should be made in accordance with CalOSHA requirements. Our site exploration and knowledge of the general area indicates there is a potential for caving of site excavations (utilities, footings, etc.). Excavations within sandy soil should be kept moist, but not saturated, to reduce the potential of caving or sloughing. Where excavations over 4 feet deep are planned, lateral bracing or appropriate cut slopes should be provided. No surcharge loads from stockpiled soils or construction materials should be allowed within a horizontal distance measured from the top of the excavation slope and equal to the depth of the excavation.

Utility Trenches: Backfill of utilities within roads or public right-of-ways should be placed in conformance with the requirements of the governing agency (water district, public works department, etc.). Utility trench backfill within private property should be placed in conformance with the provisions of this report. In general, service lines extending inside of property may be backfilled with native soils compacted to a minimum of 90% relative compaction. Backfill operations should be observed and tested to monitor compliance with these recommendations.

Some blasting may be necessary in the deeper cut areas of the site, and may be desirable from an efficiency standpoint even where ripping with heavy equipment is feasible. Excavation of on-site bedrock materials will most likely generate a significant quantity of oversize material (rocks over 12 inches in average diameter). These materials are unsuitable for use in compacted fill near

final street or pad grades because of the difficulty in achieving uniform compaction and difficulties in subsequent excavations for utilities and foundations. Recommendations for disposal of oversized rock in deep fill areas are provided in Section 5.2; however, it should be recognized that oversized rock disposal will result in inefficiencies during grading.

5.4 Slope Stability of Graded Slopes

Unprotected, permanent graded slopes should not be steeper than 3:1 (horizontal:vertical) to reduce wind and rain erosion. Protected slopes with ground cover may be as steep as 2:1. However, maintenance with motorized equipment may not be possible at this inclination. Fill slopes should be overfilled and trimmed back to competent material.

5.5 Seismic Design Criteria

This site is subject to strong ground shaking due to potential fault movements along the San Andreas and San Jacinto faults. Engineered design and earthquake-resistant construction increase safety and allow development of seismic areas. The *minimum* seismic design should comply with the 2001 edition of the California Building Code using the seismic coefficients given in the table below.

2001 CBC Seismic Coefficients for Chapter 16 Seismic Provisions

			Reference
Seismic Zone:	4		Figure 16-2
Seismic Zone Factor, Z:	0.4		Table 16-I
Soil Profile Type:	S_B		Table 16-J
Seismic Source Type:	A		Table 16-U
Closest Distance to Known Seismic Source:	11.7 km = 7.3 miles		(San Andreas fault)
Near Source Factor, Na:	1.00		Table 16-S
Near Source Factor, Nv:	1.13		Table 16-T
Seismic Coefficient, Ca:	0.40	= 0.40Na	Table 16-Q
Seismic Coefficient, Cv:	0.45	= 0.40Nv	Table 16-R

The CBC seismic coefficients are based on scientific knowledge, engineering judgment, and compromise. If further information on seismic design is needed, a site-specific probabilistic seismic analysis should be conducted.

The intent of the CBC lateral force requirements is to provide a structural design that will resist collapse to provide reasonable life safety from a major earthquake, but may experience some structural and nonstructural damage. A fundamental tenet of seismic design is that inelastic yielding is allowed to adapt to the seismic demand on the structure. In other words, *damage is allowed.* The CBC lateral force requirements should be considered a *minimum* design. The owner and the designer should evaluate the level of risk and performance that is acceptable. Performance based criteria could be set in the design. The design engineer should exercise special care so that all components of the design are fully met with attention to providing a continuous load path. An adequate quality assurance and control program is urged during project

construction to verify that the design plans and good construction practices are followed. This is especially important for sites lying close to the major seismic sources.

5.6 Mitigation of Soil Corrosivity on Concrete

Chemical analyses for corrosivity were *not* conducted during this preliminary study. The native soils should have a negligible to moderate sulfate ion concentration, but a moderate to high chloride ion concentration. Sulfate ions can attack the cementitious material in concrete, causing weakening of the cement matrix and eventual deterioration by raveling. Chloride ions can cause corrosion of reinforcing steel.

A minimum concrete cover of three (3) inches should be provided around steel reinforcing or embedded components exposed to native soil or landscape water. Additionally, the concrete should be thoroughly vibrated during placement.

The site soils may present a moderate to high potential for metal loss from electrochemical corrosion processes. Corrosion protection of steel can be achieved by using epoxy corrosion inhibitors, asphalt coatings, cathodic protection, or encapsulating with densely consolidated concrete.

Testing of site soils for corrosivity should be performed for the design-level geotechnical engineering report.

Earth Systems does not practice corrosion engineering. We recommend that a qualified corrosion engineer evaluate the corrosion potential on metal construction materials and concrete at the site to provide mitigation of corrosive effects, if further guidance is desired.

or toxic materials in the soil, surface water, groundwater, or air on, below, or adjacent to the subject property.

6.2 Additional Services

This report is based on the assumption that an adequate program of client consultation, construction monitoring, and testing will be performed during the final design and construction phases to check compliance with these recommendations. Maintaining ESSW as the geotechnical consultant from beginning to end of the project will provide continuity of services. *The geotechnical engineering firm providing tests and observations shall assume the responsibility of Geotechnical Engineer of Record.*

Construction monitoring and testing would be additional services provided by our firm. The costs of these services are not included in our present fee arrangements, but can be obtained from our office. The recommended review, tests, and observations include, but are not necessarily limited to, the following:

- Consultation during the final design stages of the project.
- A review of the building and grading plans to observe that recommendations of our report have been properly implemented into the design.
- Observation and testing during site preparation, grading, and placement of engineered fill as required by CBC Sections 1701 and 3317 or local grading ordinances.
- Consultation as needed during construction.

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Appendices as cited are attached and complete this report.

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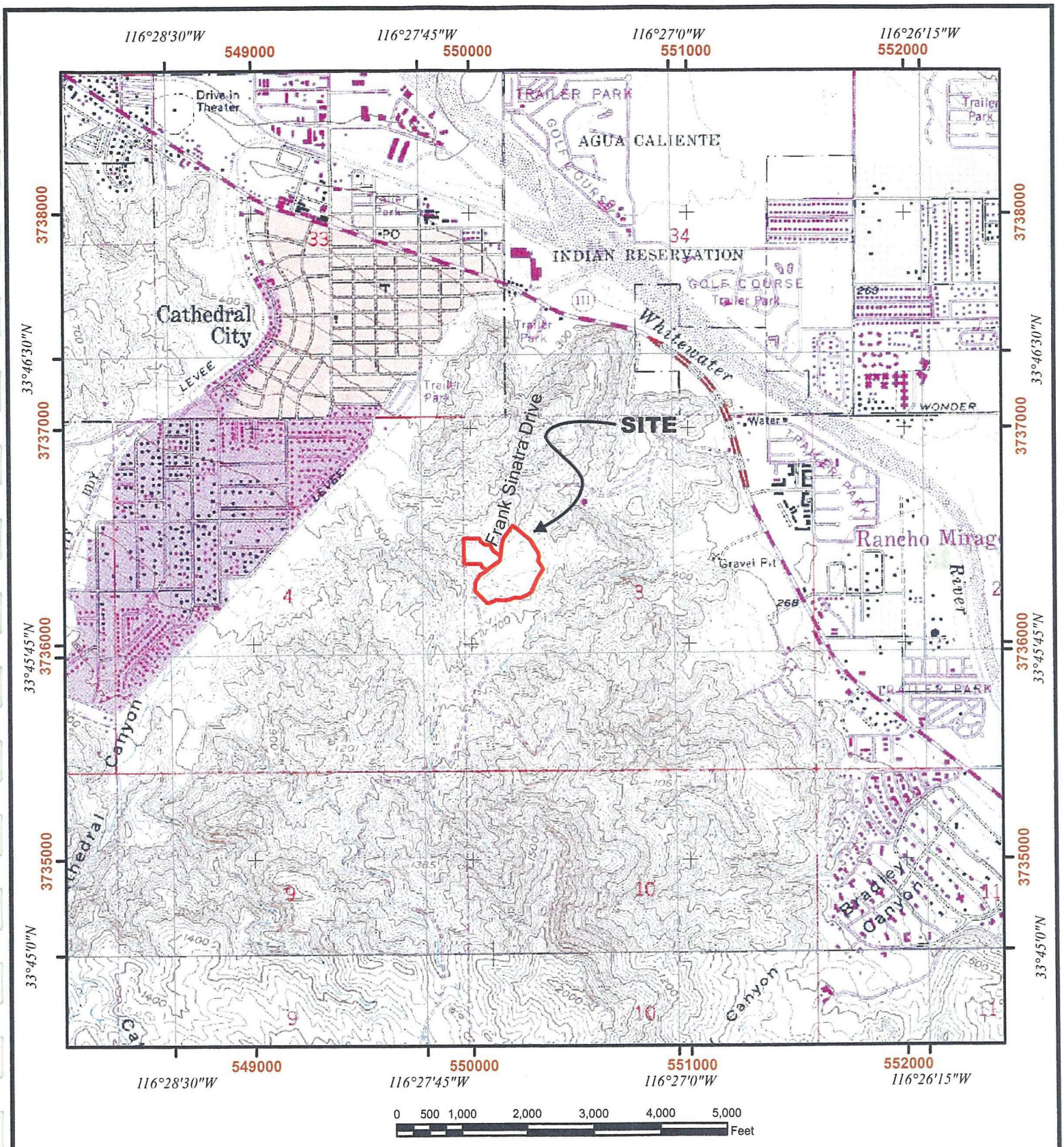
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APPENDIX A

Figure 1 – Site Location Map
Figure 2 – Percolation Test and Seismic Refraction Line Location Map
Figure 3 – Regional Fault Map
Figure 4 – Geologic Map
Figure 5 – Conceptual Site Plan
Double Ring Infiltration Test Data
Table 1 – Fault Parameters



LEGEND

Site Boundary

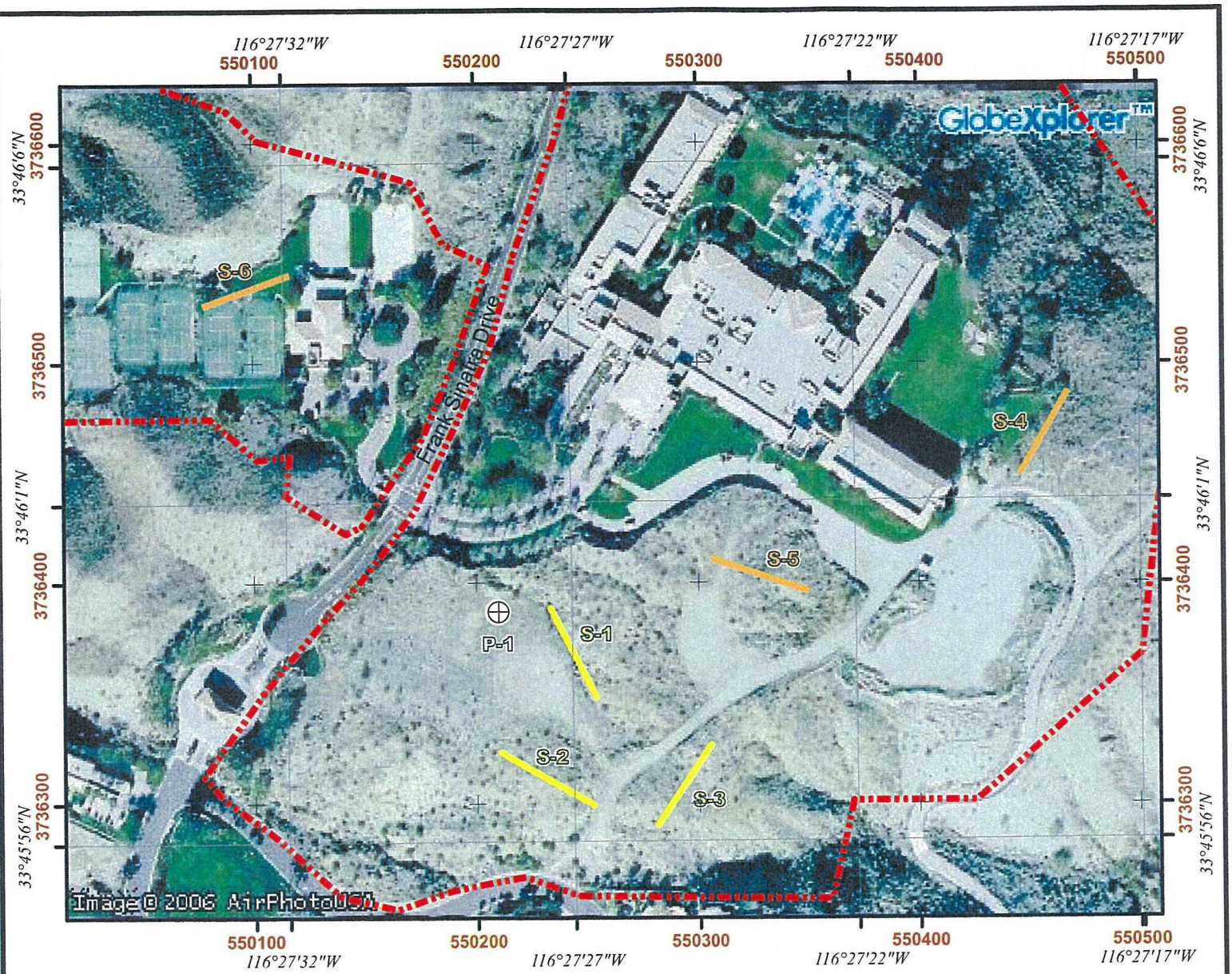
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Figure 1
Site Location Map

The Lodge at Rancho Mirage - Expansion
Frank Sinatra Drive
Rancho Mirage, California

Earth Systems Southwest

03/15/06 | File No.: 10530-01



LEGEND

- Infiltration Test
- Site Boundary
- Seismic Refraction Line
- Seismic Line, Terra Geosciences

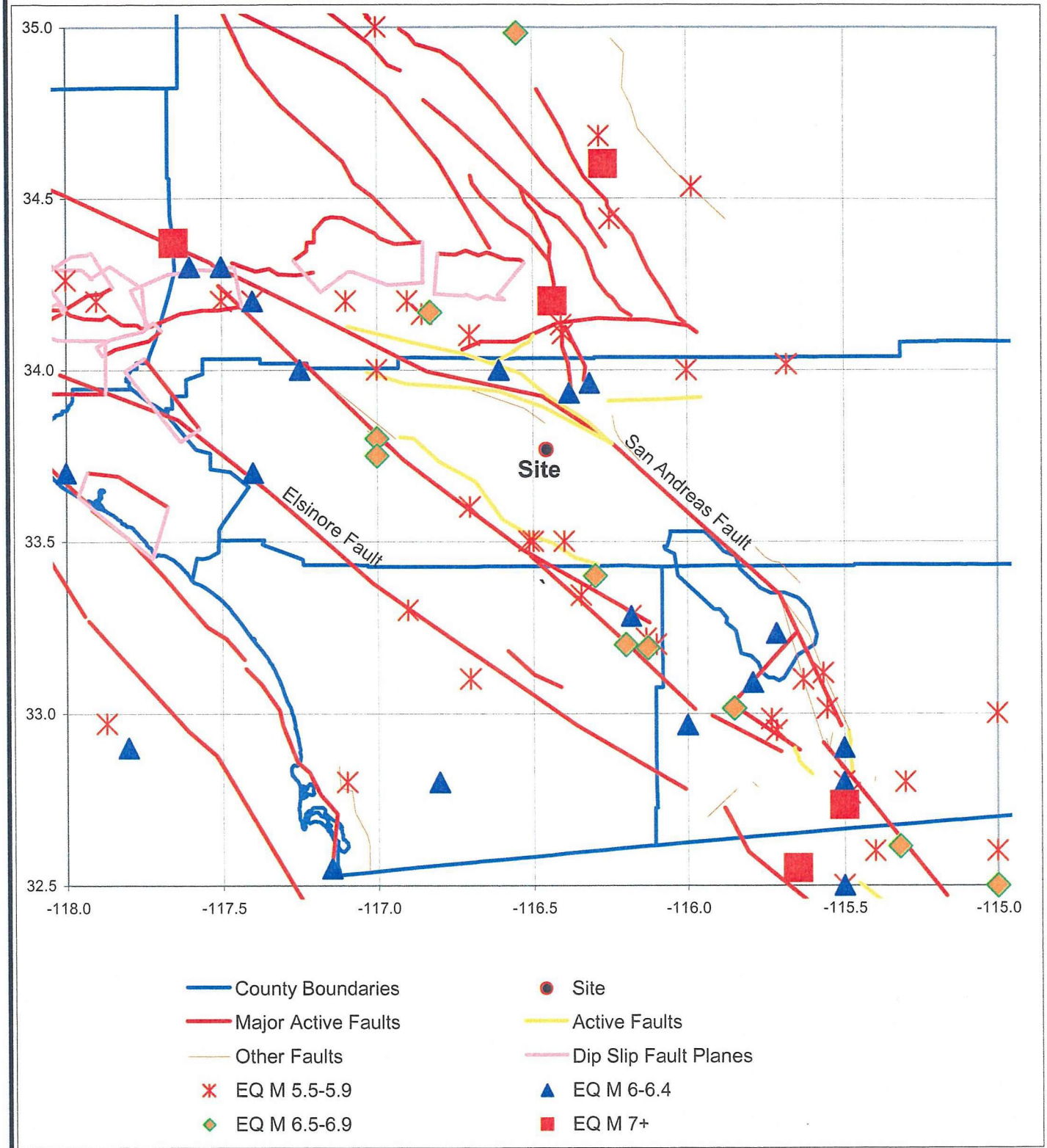
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Figure 2 - Percolation Test & Seismic Refraction Line Location Map

The Lodge at Rancho Mirage - Expansion
Frank Sinatra Drive
Rancho Mirage, California

Earth Systems Southwest

03/15/06 | File No.: 10530-01

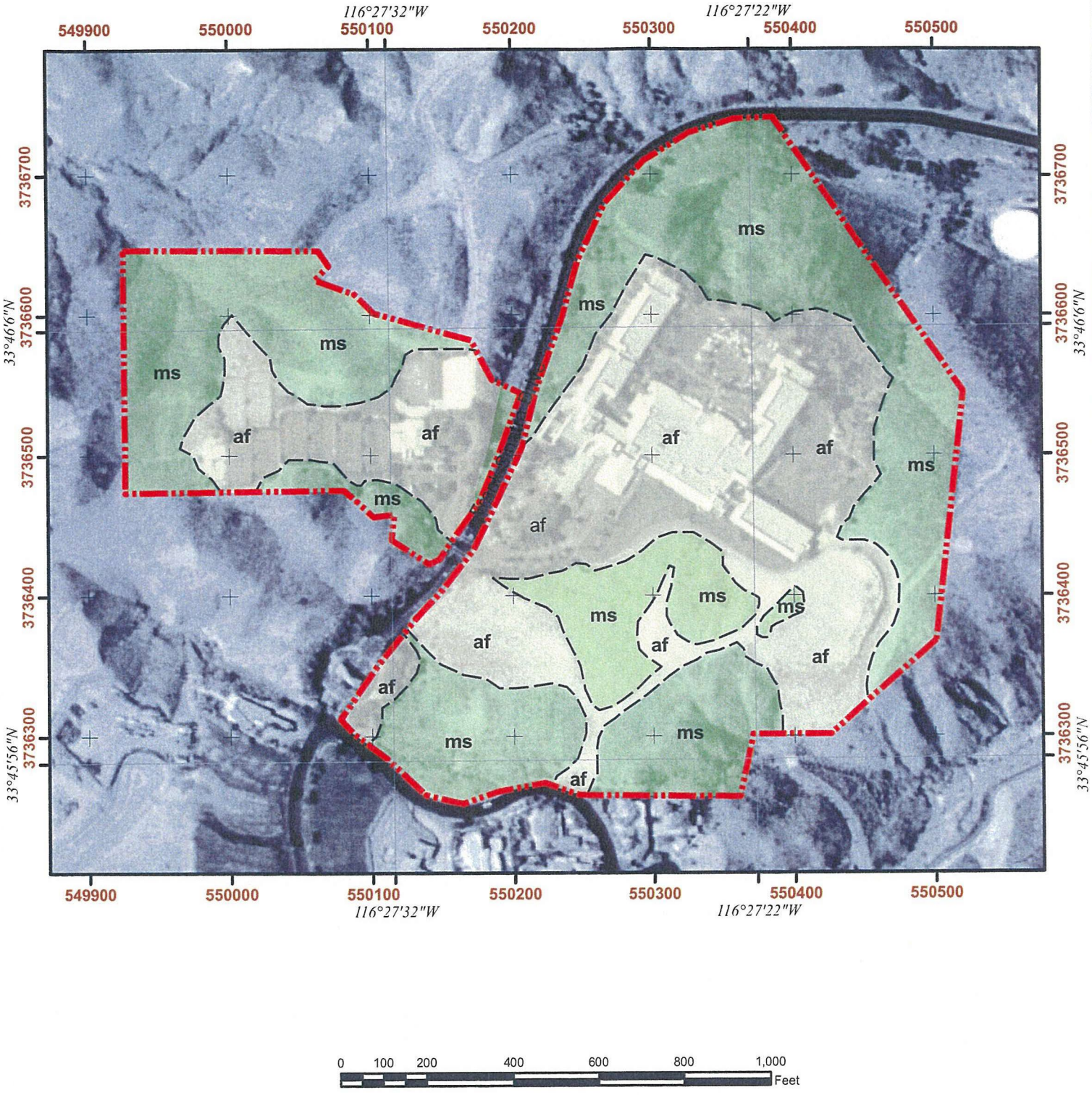


Magnitude 5.5 or greater since 1800 are plotted based on CGS database

Figure 3 - Regional Fault Map

Project: The Lodge Renovation Project, Rancho Mirage, CA
File No.: 10530-01

Earth Systems
Southwest



LEGEND

- Site Boundary
- Contact (Dashed Where Approximate)
- af — Artificial Fill
- ms — Pre-Cretaceous Metasedimentary Rocks

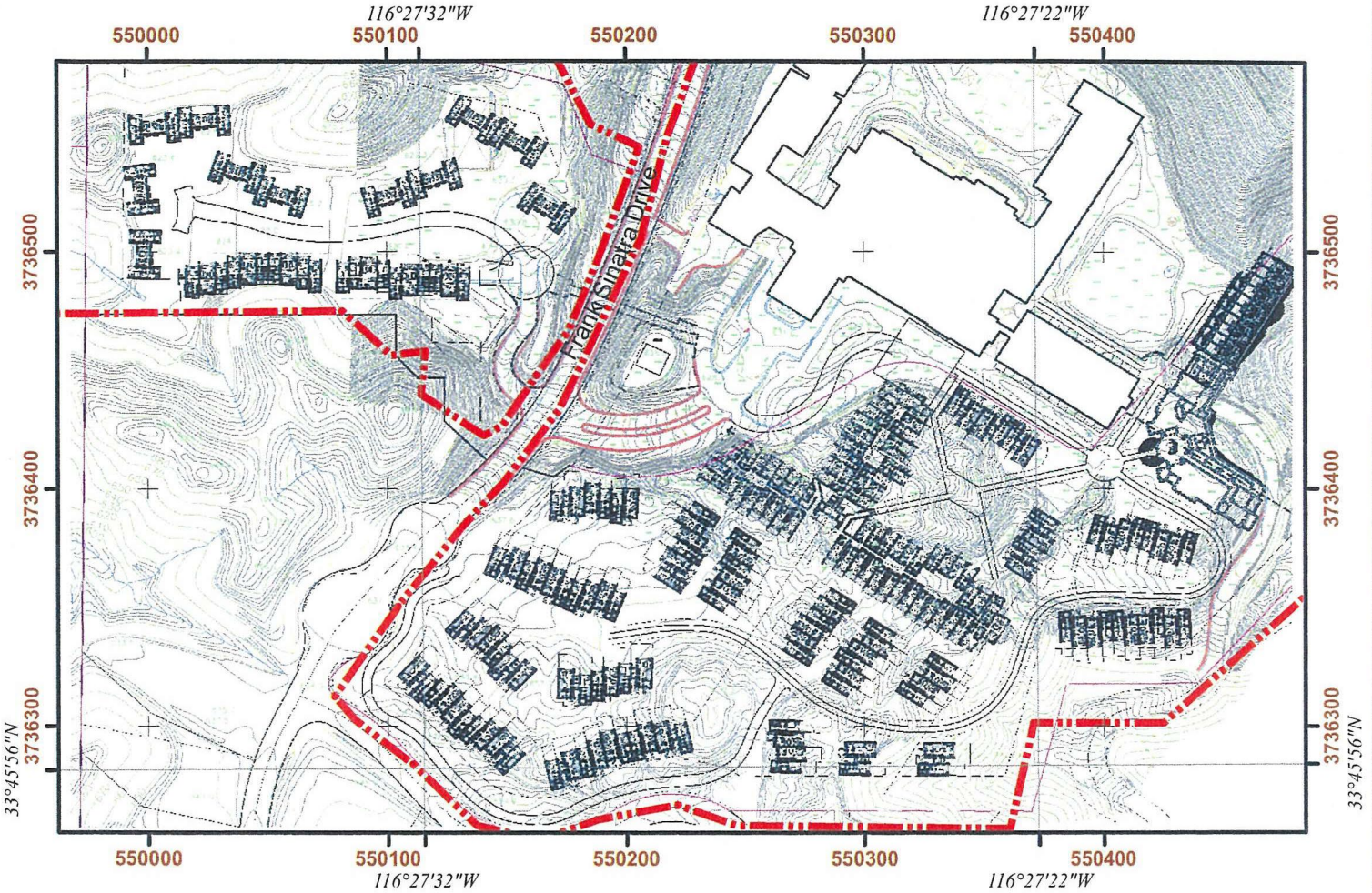
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Figure 4
Geologic Map

The Lodge at Rancho Mirage - Expansion
Frank Sinatra Drive
Rancho Mirage, California

Earth Systems Southwest

03/15/06 | File No.: 10530-01



0 80 160 320 480 640 800 Feet

LEGEND

Site Boundary

N

Figure 5
Conceptual Site Plan

The Lodge at Rancho Mirage - Expansion
Frank Sinatra Drive
Rancho Mirage, California

Earth Systems Southwest

03/15/06 | File No.: 10530-01

EARTH SYSTEMS SOUTHWEST
DOUBLE RING INFILTRATION TEST DATA (ASTM D3385)

PROJECT: **The Lodge**
JOB NO: 10530-01
LOCATION: **P-1**

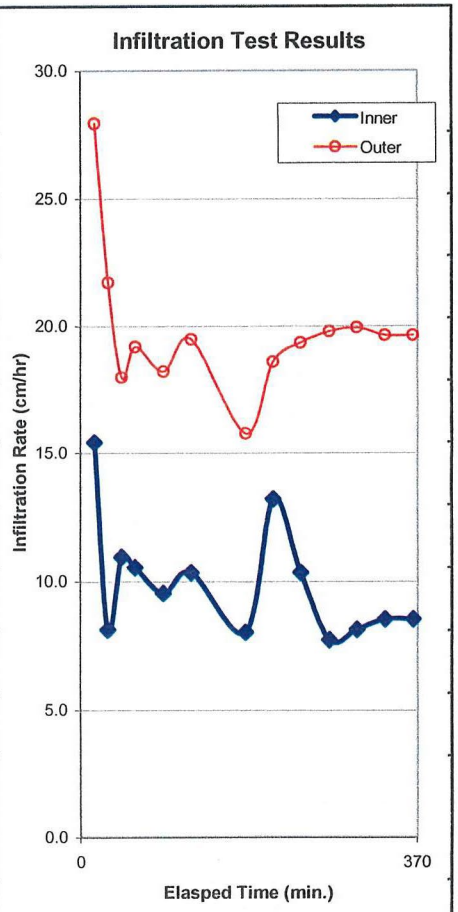
Constants	O.D. (in.)	I.D. (in.)	Area (sq cm)	Depth of Liquid (cm)	Volume Constant (cc/cm)
Inner Ring	12.4	12.0	730	15	740
Outer Ring	23.8	23.4	1993	13	740

Conversions:
1 in/hr = 2.54 cm/hr
5.89 gal/sf/day = 1 cm/hr

Infiltration Rate (cm/hr): [Flow (cc) x (60 min/hr)]/[Area (sq cm) x Incr Time (min)]

Test By: JS Penetration of rings (cm): Inner: 13 Outer: 15

Trial No.		Date	Time	Elapsed Time Incr. (min)	Elapsed Time Total (min)	Flow Readings Inner Reading (cm)	Flow Readings Inner Flow (cc)	Flow Readings Outer Reading (cm)	Flow Readings Outer Flow (cc)	Liquid Temp (F)	Incr. Infiltr. Rate Inner (cm/hr)	Incr. Infiltr. Rate Outer (cm/hr)
1	S	3/1/05	8:55 AM			45.2		48.3				
	E		9:10 AM	15	15	41.4	2812	29.5	13912		15.4	27.9
2	S		9:10 AM			41.4		48.0				
	E		9:25 AM	15	30	39.4	1480	33.4	10804		8.1	21.7
3	S		9:25 AM			39.4		33.4				
	E		9:40 AM	15	45	36.7	1998	21.3	8954		11.0	18.0
4	S		9:40 AM			36.7		36.6				
	E		9:55 AM	15	60	34.1	1924	23.7	9546		10.5	19.2
5	S		9:56 AM			34.1		44.7				
	E		10:26 AM	30	91	29.4	3478	20.2	18130		9.5	18.2
6	S		10:26 AM			46.9		48.2				
	E		10:56 AM	30	121	41.8	3774	22.0	19388		10.3	19.5
7	S		10:56 AM			41.8		48.1				
	E		11:56 AM	60	181	33.9	5846	5.7	31376		8.0	15.7
8	S		11:56 AM			48.7		44.9				
	E		12:26 PM	30	211	42.2	4810	19.9	18500		13.2	18.6
9	S		12:26 PM			42.2		49.0				
	E		12:56 PM	30	241	37.1	3774	23.0	19240		10.3	19.3
10	S		12:58 PM			45.7		49.2				
	E		1:28 PM	30	273	41.9	2812	22.6	19684		7.7	19.8
11	S		1:28 PM			41.9		49.2				
	E		1:58 PM	30	303	37.9	2960	22.4	19832		8.1	19.9
12	S		1:59 PM			48.6		48.2				
	E		2:29 PM	30	334	44.6	2960	21.5	19758		8.1	19.8
13	S		2:30 PM			44.6		47.7				
	E		3:00 PM	30	365	40.4	3108	21.3	19536		8.5	19.6



Stabilized Infiltration Rate: 8.2 cm/hr = 3.2 in/hr = 49 gal/sf/day

Table 1
Fault Parameters
& Deterministic Estimates of Mean Peak Ground Acceleration (PGA)

Fault Name or Seismic Zone	Distance from Site (mi)	(km)	Fault Type		Maximum Magnitude Mmax (Mw)	Avg Slip Rate (mm/yr)	Avg Return Period (yrs)	Fault Length (km)	Mean Site PGA (g)
Reference Notes: (1)			(2)	(3)	(4)	(2)	(2)	(2)	(5)
San Andreas - Banning Branch	**7.3**	11.7	SS	A	**7.2**	10	220	98	**0.31**
San Andreas - Southern	**8.4**	13.5	SS	A	**7.7**	24	220	199	**0.35**
San Andreas - Mission Crk. Branch	**9.1**	14.7	SS	A	**7.2**	25	220	95	**0.26**
Burnt Mtn.	**13.1**	21.2	SS	B	**6.5**	0.6	5000	21	**0.13**
San Jacinto (Hot Spgs - Buck Ridge)	**14.4**	23.2	SS	C	**6.5**	2	354	70	**0.12**
Blue Cut	**15.2**	24.5	SS	C	**6.8**	1	760	30	**0.13**
Eureka Peak	**15.5**	25.0	SS	B	**6.4**	0.6	5000	19	**0.10**
San Jacinto-Anza	**18.6**	29.9	SS	A	**7.2**	12	250	91	**0.14**
Morongo	**20.1**	32.4	SS	C	**6.5**	0.6	1170	23	**0.08**
San Jacinto-Coyote Creek	**21.6**	34.8	SS	B	**6.8**	4	175	41	**0.09**
Pinto Mountain	**22.4**	36.1	SS	B	**7.2**	2.5	499	74	**0.11**
San Jacinto-San Jacinto Valley	**26.5**	42.6	SS	B	**6.9**	12	83	43	**0.08**
Landers	**27.5**	44.2	SS	B	**7.3**	0.6	5000	83	**0.10**
North Frontal Fault Zone (East)	**31.1**	50.1	RV	B	**6.7**	0.5	1727	27	**0.08**
Emerson So. - Copper Mtn.	**31.5**	50.7	SS	B	**7.0**	0.6	5000	54	**0.07**
Pisgah-Bullion Mtn.-Mesquite Lk	**36.3**	58.4	SS	B	**7.3**	0.6	5000	89	**0.07**
Johnson Valley (Northern)	**38.0**	61.2	SS	B	**6.7**	0.6	5000	35	**0.05**
North Frontal Fault Zone (West)	**40.3**	64.9	RV	B	**7.2**	1	1314	50	**0.08**
Earthquake Valley	**41.0**	66.0	SS	B	**6.5**	2	351	20	**0.04**
Elsinore-Julian	**41.4**	66.6	SS	A	**7.1**	5	340	76	**0.06**
Lenwood-Lockhart-Old Woman Sprgs	**41.8**	67.2	SS	B	**7.5**	0.6	5000	145	**0.07**
Elsinore-Temecula	**41.8**	67.3	SS	B	**6.8**	5	240	43	**0.05**
San Jacinto - Borrego	**42.0**	67.5	SS	B	**6.6**	4	175	29	**0.04**
Calico - Hidalgo	**42.3**	68.1	SS	B	**7.3**	0.6	5000	95	**0.06**
Helendale - S. Lockhardt	**47.9**	77.1	SS	B	**7.3**	0.6	5000	97	**0.05**
San Jacinto-San Bernardino	**47.9**	77.1	SS	B	**6.7**	12	100	36	**0.04**
Elsinore-Glen Ivy	**51.9**	83.5	SS	B	**6.8**	5	340	36	**0.04**
Brawley Seismic Zone	**52.0**	83.7	SS	B	**6.4**	25	24	42	**0.03**
Elsinore-Coyote Mountain	**55.6**	89.5	SS	B	**6.8**	4	625	39	**0.03**
Cleghorn	**55.7**	89.6	SS	B	**6.5**	3	216	25	**0.03**
Elmore Ranch	**60.1**	96.8	SS	B	**6.6**	1	225	29	**0.03**
Superstition Mtn. (San Jacinto)	**61.7**	99.3	SS	B	**6.6**	5	500	24	**0.03**

Notes:

1. Jennings (1994) and California Geologic Survey (CGS) (2003)
2. CGS (2003), SS = Strike-Slip, RV = Reverse, DS = Dip Slip (normal), BT = Blind Thrust
3. 2001 CBC, where Type A faults: Mmax > 7 & slip rate >5 mm/yr & Type C faults: Mmax <6.5 & slip rate < 2 mm/yr
4. CGS (2003)
5. The estimates of the mean Site PGA are based on the following attenuation relationships:
   Average of: (1) 1997 Boore, Joyner & Fumal; (2) 1997 Sadigh et al; (3) 1997 Campbell , (4) 1997 Abrahamson & Silva (mean plus sigma values are about 1.5 to 1.6 times higher)
   Based on Site Coordinates: 33.767 N Latitude, 116.457 W Longtude and Site Soil Type B

Appendix I
Phase I ESA



ENVIRONMENTAL
ASSESSMENT

Ladder Capital Finance LLC
345 Park Avenue, 8th Floor
New York, New York 10154
Matt Jacobs



PHASE I ENVIRONMENTAL SITE ASSESSMENT
of
The Ritz-Carlton Rancho Mirage
68-900 Frank Sinatra Drive
Rancho Mirage, California 92270

Prepared By:

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EMG Project #: 100132.11R - 001.135
Date of Report: January 10, 2012
On Site Date: November 28, 2011

EMG
DECISION INTELLIGENCE
25th ANNIVERSARY

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PROJECT SUMMARY TABLE

Report Section	Acceptable	Routine Solution	Phase II	REC	Estimated Cost
Historical Review	Yes				
Operational Activities	Yes			No	N/A (1)
Hazardous Materials / Petroleum Products	Yes				
Wastes	Yes				
Polychlorinated Biphenyls (PCBs)	Yes				
Asbestos-Containing Materials (ACM)	No	Yes (2)		No	$495 for O&M (2)
Radon Gas	Yes				
Lead-Based Paint (LBP)	Yes				
Lead in Drinking Water	Yes				
Storage Tanks / Pipelines	Yes				
Surface Areas	Yes				
Mold	No		Yes (3)	No	N/A (3)
Vapor Encroachment	Yes				
Regulatory Review	Yes				
Adjacent Properties	Yes				

Conditions noted in the Project Summary Table are representative of the overall conditions of the property. There may be more detail on specific assessment components in the report text, therefore the Project Summary Table should not be used as a stand alone document. Costs depicted are for investigation/program development activities. Remediation costs, if required, will be identified as a result of the activities.

Footnotes:

(1) An inactive dry cleaning machine is located in the commercial laundry at the Project. The dry cleaning machine is identified as an Aero-Tech Green Jet Dry-Wetcleaning Machine, Model #DWC-45. The dry cleaning machine uses DWX-44 Dry-Cleaning Solution, a water-based, non-toxic solution, instead of perchloroethylene (PCE). Currently available information indicates the use of DWX-44 Dry-Cleaning Solution is highly unlikely to impact the Project when properly used. DWX-44 Dry-Cleaning Solution does not contain chlorinated hydrocarbons (such as PCE) and wastes generated in the process would not be classified as hazardous. Material Safety Data Sheet (MSDS) information for DWX-44 confirms that this substance contains no ingredients identified as Hazardous Substances according to SARA Hazard Title III, Section 313 - CFR-355. The existing dry cleaning machine is associated with the ongoing renovation, is new equipment which has never been used, and appeared to be empty at the time of EMG's site visit. In addition, the laundry facility is underlain by two levels of parking garage and the concrete floor beneath the unit is not underlain by the earth. No information was identified to confirm whether dry cleaning was previously conducted on-site between 1988 and the time of closure in 2006. Based on the historical use as a full-service Ritz Carlton, it is somewhat likely that a dry cleaning plant, which possibly operated an older PCE machine, was formerly located on-site. By its chemical nature, PCE has the potential to penetrate through concrete and impact subsurface conditions. However, any such dry cleaning facility would have operated since the promulgation of RCRA in 1986, the legislation that regulates the handling and disposal of hazardous materials and wastes. As such, waste handling and disposal practices would have been regulated since the facility's inception. Furthermore, because the laundry is underlain by two levels of parking garage (as previously noted) and not the earth, it is unlikely that subsurface conditions would have been impacted as a result of any historical dry cleaning plant operations in this area. Therefore, no further action or assessment is recommended regarding the inactive dry cleaning machine or potential former on-site dry cleaning operations at this time.

(2) Presumed ACM identified as part of the assessment were not sampled. The wallboard/joint compound in the Main Hotel Building (which was constructed in 1988) suffered widespread water damage as the result of a roof leak, is undergoing removal/replacement, and is in poor condition. A Water Damage Remediation Report for the Project was prepared by ET&T in June 2011. A comprehensive asbestos survey was not conducted as part of ET&T's scope of work. However, ET&T conducted limited asbestos sampling as part of its own Job Hazard Analysis. Two samples each were collected from drywall material, surface dust and fire proofing materials. EMG was also provided with a copy of the laboratory report for this asbestos sampling conducted at the Project, prepared by Micron Environmental Labs and dated July 19, 2011. This report states that the samples, collected on May 26, 2011, were submitted to their laboratory for asbestos analysis on May 27, 2011. The materials sampled and analyzed included fireproofing, drywall/ceiling, joint compound/ceiling, drywall/wall and joint compound/wall. All of the samples were negative for asbestos.

The remaining materials are in good condition and can be maintained in place, if an Operations and Maintenance (O&M) Program is developed and implemented. A properly designed O&M Program is sufficient to maintain the Project in accordance with current regulatory standards.

(3) Suspect mold and evidence of water damage were observed throughout the Main Hotel Building. It should be noted that according to the POC, a mold survey and remediation recommendations were previously prepared for the Project. Furthermore, identified areas of concern were observed to have been marked with paint and were undergoing removal at the time of EMG's site visit. Additional information about the source of the moisture and cost to correct the issue is included in EMG's Property Condition Assessment (PCA) report (EMG Project Number 100132.11R-001.042).

1 CERTIFICATION

EMG has completed a Phase I Environmental Site Assessment of The Ritz-Carlton Rancho Mirage (the "Project"), located at 68-900 Frank Sinatra Drive in Rancho Mirage, California 92270. The assessment was performed at the Client's request, using the methods and procedures consistent with good commercial and customary practice designed to conform with acceptable industry standards.

The independent conclusions represent our professional judgment based on information and data available to us during the course of this assignment. Factual information regarding operations, conditions, and test data provided by the Client, or their representative, has been assumed to be correct and complete. The conclusions presented are based on the data provided, observations, and conditions that existed on the date of the on-site visit.

In expressing the opinions stated in this report, EMG has exercised the degree of skill and care ordinarily exercised by a reasonable prudent environmental professional in the same community and in the same time-frame, given the same or similar facts and circumstances. Documentation and data provided by the Client, designated representatives of the Client, or other interested third parties, or from the public domain, and referred to in the preparation of this assessment, have been used and referenced with the understanding that EMG assumes no responsibility or liability for their accuracy.

If you have any questions regarding this report, please contact the Senior Environmental Consultant listed on the Cover Page of this Report.

Surveyed By: Tina French, Project Manager

Written By: Tina French, Project Manager

Reviewed By: Sarah C. Sweeney *On Behalf Of LaNeicia Stone - Senior Environmental Technical Advisor*
Sarah Sweeney
Technical Report Reviewer

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Project. I have developed and performed the all appropriate inquiries in conformance with the standard and practices set forth in 40 CFR Part 312.

LaNeicia A. Stone

LaNeicia A. Stone - Senior Environmental Technical Advisor

1.1 RELIANCE

This report has been prepared to assist in the determination of whether to make a loan or loans evidenced by a note or notes (the "Notes") secured by the property referred to in the report or by a pledge of the equity interests in the borrower. With no prior approval, this report may be relied upon by (i) Ladder Capital Finance LLC, its employees, agents, servicers, legal counsel, successors and/or assigns and affiliates, (ii) the trustee of the trust created in connection with a securitization which includes any of the Notes of an interest therein, (iii) any purchaser or assignee of the Notes or an interest therein in determining whether to acquire the Notes or an interest therein, (iv) any rating agency involved in rating securities which represent a beneficial ownership interest in a trust fund that consists of mortgage loans or mezzanine loans including any of the Notes or an interest therein, (v) any investors purchasing securities issued by a trust or otherwise purchasing a loan with an ownership interest, either directly or indirectly, in the Notes, and (vi) any bank, financial institution or other company or firm providing any financing for which the Notes, or any interest therein, are the collateral for such financing, and their respective successors and/or assigns. This report may be used in connection with the offering materials for sale of the Notes, or an interest in the Notes, and in presentations to any rating agency, investors or lenders and EMG agrees to cooperate in answering questions by any of the above parties in connection with a securitization, sale or other transaction involving the Notes, or any portion thereof, and/or such securities. EXCEPT AS DESCRIBED ABOVE, NO OTHER PERSON OR ENTITY MAY RELY ON THE REPORT WITHOUT THE PRIOR WRITTEN CONSENT OF EMG, AND NO OTHER THIRD PARTY BENEFICIARIES ARE INTENDED. ANY UNAUTHORIZED REUSE OR REDISTRIBUTION OF CONSULTANT'S WORK PRODUCTS OR REPORTS SHALL RESULT IN NO ADDITIONAL LIABILITY OF EMG.

This report is not for the use or benefit of, nor may it be relied upon by any other person or entity, for any purpose without the advance written consent of EMG.

2.0 EXECUTIVE SUMMARY

EMG performed a Phase I Environmental Site Assessment, that included on-site observations of the accessible areas of The Ritz-Carlton Rancho Mirage (the "Project"), on November 28, 2011. The Project is located at 68-900 Frank Sinatra Drive in Rancho Mirage, California 92270, and consists of approximately 40.40 acres.

The Project, originally constructed in phases between 1988 and 2007 and currently undergoing additional construction, is a full-service hospitality property. No environmentally significant operations are currently conducted at the Project. Prior to the current use, the Project was undeveloped land (dating back to at least 1944). Properties in the general vicinity of the Project include undeveloped land as well as residential land uses.

The following statements summarize the independent conclusions representing EMG's best professional judgment based on information and data available to us during the course of this assignment. Factual information regarding operations, conditions, and test data provided by the Client, owner, or their representatives, has been assumed to be correct and complete. Additionally, the conclusions presented are based on the conditions that existed at the time of the assessment.

The assessment was conducted utilizing generally accepted Phase I industry standards, using the American Society for Testing and Materials (ASTM) Practice E 1527-05 and the Ladder Capital Scope of Work.

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-05 of 68-900 Frank Sinatra Drive in Rancho Mirage, Riverside County, California 92270. Any exceptions to, or deletions from, this practice are described in Section 3 of this report. This assessment has revealed no evidence of Recognized Environmental Conditions (RECs) or Historic Recognized Environmental Conditions (HRECs) in connection with the Project.

However, the following on-site environmental items of note were identified:

Operational Activities (Section 7.1)

- Review of the operational activities at the Project identified an inactive dry cleaning machine in the commercial laundry facility. Refer to the Operational Activities heading in Section 2.1 for further discussion.

Asbestos-Containing Materials (Section 7.5)

- Suspect ACM was identified. Refer to the **Asbestos-Containing Materials** heading in Section 2.1 for further discussion.

Mold (Section 7.11)

- Suspect mold and water damage were observed at the Project. Refer to the **Mold** heading in Section 2.1 for further discussion.

2.1 Findings and Conclusions

Historical Review

The review of the historical data available for the Project and surrounding area revealed no evidence that may have led to an environmental impact to the Project. No further action or investigation is recommended regarding historical uses.

Operational Activities

An inactive dry cleaning machine is located in the commercial laundry at the Project. The dry cleaning machine is identified as an Aero-Tech Green Jet Dry-Wetcleaning Machine, Model #DWC-45. The dry cleaning machine uses DWX-44 Dry-Cleaning Solution, a water-based, non-toxic solution, instead of perchloroethylene (PCE). Currently available information indicates the use of DWX-44 Dry-Cleaning Solution is highly unlikely to impact the Project when properly used. DWX-44 Dry-Cleaning Solution does not contain chlorinated hydrocarbons (such as PCE) and wastes generated in the process would not be classified as hazardous. Material Safety Data Sheet (MSDS) information for DWX-44 confirms that this substance contains no ingredients identified as Hazardous Substances according to SARA Hazard Title III, Section 313 - CFR-355. The existing dry cleaning machine is associated with the ongoing renovation, is new equipment which has never been used, and appeared to be empty at the time of EMG's site visit. Based on the above information, the presence of this equipment is not anticipated to have adversely impacted the environmental integrity of the Project and no further action or investigation regarding the dry cleaning machine is recommended.

No information was identified to confirm whether dry cleaning was previously conducted on-site between 1988 and the time of hotel closure in 2006. Based on the historical use as a full-service Ritz Carlton, the potential exists for a dry cleaning plant, which possibly operated an older PCE machine, to have been located on-site. By its chemical nature, PCE has the potential to penetrate through concrete and impact subsurface conditions. However, any such dry cleaning facility would have operated since the promulgation of RCRA in 1986, the legislation that regulates the handling and disposal of hazardous materials and wastes. As such, waste handling and disposal practices would have been regulated since the facility's inception. In addition, the Project is connected to the municipal sewer system. Furthermore, because the laundry is underlain by two levels of parking garage and not the earth, it is unlikely that subsurface conditions would have been impacted as a result of any historical dry cleaning plant operations in this area. Therefore, no further action or assessment is recommended regarding potential former on-site dry cleaning operations at this time.

Hazardous Materials / Petroleum Products

The Project is involved in the use of hazardous materials and petroleum products in the form of construction supplies (i.e. adhesives, sealants, etc), diesel fuel, and cooling system water treatment chemicals. The identified materials appear to be properly stored. The materials observed do not appear to pose a hazard to the Project, provided they continue to be used as designed, are properly handled, and all regulations regarding their use are followed. To note, the existing dry cleaning machine is associated with the ongoing renovation, is new equipment which has never been used, and appeared to be empty at the time of EMG's site visit. No further action or investigation is recommended regarding the use of the identified materials.

Wastes

The Project generates non-hazardous solid and liquid wastes. These materials appear to be stored and disposed of properly. The existing dry cleaning machine is associated with the ongoing renovation, is new equipment which has never been used, and appeared to be empty at the time of EMG's site visit. No associated wastes were observed. No further action or investigation is recommended regarding the identified materials.

Polychlorinated Biphenyls (PCBs)

EMG identified utility-owned electrical transformer equipment at the Project. This equipment appeared to be in good condition with no evidence of leaks. The transformers are designated as the property of the public utility and are classified as "Non-PCB". The utility is the financially responsible party for maintenance of this equipment. No further action or investigation is recommended regarding the transformer equipment.

The Project contains hydraulic elevator equipment. No indication of leakage was observed in the area of this equipment. This equipment should be periodically inspected for leakage. If leakage is identified, the unit should

be repaired, and any fluid or fluid-soaked waste disposed of in accordance with applicable federal, state, and local regulations. No further action or investigation is recommended regarding this equipment.

The Project contains hydraulic trash compactor and cardboard baler equipment. No indication of leakage was observed in the area of this equipment. This equipment should be periodically inspected for leakage. If leakage is identified, the unit should be repaired and any fluid or fluid-soaked waste disposed of in accordance with applicable federal, state, and local regulations. No further action or investigation is recommended regarding this equipment.

Asbestos-Containing Materials (ACM)

Presumed ACM identified as part of the assessment were not sampled. The wallboard/joint compound in the Main Hotel Building (which was constructed in 1988) suffered widespread water damage as the result of a roof leak, is undergoing removal/replacement, and is in poor condition. A Water Damage Remediation Report for the Project was prepared by ET&T in June 2011. A comprehensive asbestos survey was not conducted as part of ET&T's scope of work. However, ET&T conducted limited asbestos sampling as part of its own Job Hazard Analysis. Two samples each were collected from drywall material, surface dust and fire proofing materials. EMG was also provided with a copy of the laboratory report for this asbestos sampling conducted at the Project, prepared by Micron Environmental Labs and dated July 19, 2011. This report states that the samples, collected on May 26, 2011, were submitted to their laboratory for asbestos analysis on May 27, 2011. The materials sampled and analyzed included fireproofing, drywall/ceiling, joint compound/ceiling, drywall/wall and joint compound/wall. All of the samples were negative for asbestos.

The remaining materials are in good condition and can be maintained in place, if an Operations and Maintenance (O&M) Program is developed and implemented. A properly designed O&M Program is sufficient to maintain the Project in accordance with current regulatory standards.

Radon Gas

Review of the USEPA's Radon Map, indicated that the Project is located in Zone 2, areas with a predicted average indoor radon screening level between 2 and 4 pCi/L (picoCuries per liter of air). In addition, based on the type of construction, the presence of commercial HVAC systems, and the non-residential use of the Project, there is reduced potential for the build-up of radon gas at the Project. No further action or investigation is recommended with regard to radon gas levels at the Project.

Lead-Based Paint (LBP)

Considering the dates of construction (1988-2007 and ongoing), LBP is unlikely to have been used at the Project. No further action or investigation is recommended regarding LBP at the Project.

Lead in Drinking Water

Based on information from the water utility company, the water at the Project is not expected to contain elevated levels of lead. No further action or investigation is recommended regarding lead in drinking water at the Project.

Storage Tanks / Pipelines

No evidence of underground storage tanks or pipelines was identified. However, one aboveground storage tank (AST) is located at the Project. Review of available information indicates that the AST is used for storage of diesel fuel for the backup generator installation. There was no visual indication of releases from the AST. The AST appears to be operated in accordance with current regulatory requirements and is not anticipated to adversely impact the Project. No further action or investigation is recommended regarding the AST.

Surface Areas

No issues associated with surface areas were identified. No further action or investigation is recommended regarding surface areas at the Project.

Visual observation of the storm water system did not identify any abnormal accumulation of petroleum run-off or foreign material. No unusual blockages of the storm water control system were observed. No unusual ponding of storm waters was observed. No further action or investigation is recommended regarding storm water systems at the Project.

Mold

EMG performed a limited visual and olfactory assessment for the presence of mold, conditions conducive to mold, and evidence of moisture in readily accessible interior areas of the Project. Suspect mold and evidence of water damage was observed in the following areas:

- Guest room closets in wing B of the Main Hotel Building. The area affected by the suspect mold was approximately 200 square feet in size.
- Widespread evidence of prior moisture intrusion at drywall and masonry surfaces throughout the Main Hotel Building. Most areas have been marked and drywall has been removed.

It should be noted that according to the POC, a mold survey and remediation recommendations were previously prepared for the Project. Furthermore, identified areas of concern were observed to have been marked with paint and were undergoing removal at the time of EMG's site visit. Additional information about the source of the moisture and costs to correct the issues are included in EMG's Property Condition Assessment (PCA) report (EMG Project Number 100132.11R-001.042).

Vapor Encroachment

No potential vapor encroachment issues were identified. No further action or assessment is recommended regarding potential vapor issues.

Regulatory Review

Based on review of the regulatory database report, the Project is listed on the CHMIRS and RCRA-SQG databases. Information contained in the CHMIRS database indicates that the California Office of Emergency Services (OES) was notified of a release at the Project on November 10, 2003 (Incident #03-5821). Based on review of the information provided, the Riverside County Fire Department responded to a solo vehicle accident on the road in front of the Project that resulted in the release of approximately one gallon of diesel fuel from a truck's saddle tank. Based on the small-scale nature of the incident, the time passed, and the fact that emergency responders were alerted to and handled the release, the CHMIRS listing does not constitute a Recognized Environmental Condition (REC). Information in the RCRA-Generators database indicates that the Project was identified as a Small Quantity Generator of hazardous wastes in 1992; likely related to wastes generated from construction/renovation. The database indicates that there are no violations associated with the RCRA-Generator listing. The RCRA-Generator database is a listing of facilities that are required to register for tracking purposes due to the amount of hazardous waste generated and are not necessarily sites with reported contamination incidents. Based on the above information, no further action or investigation is recommended regarding the on-site regulatory review.

In addition, there are no off-site facilities anticipated to have negatively impacted the environmental integrity of the Project. No further action or investigation is recommended regarding the off-site regulatory review.

Adjacent Properties

EMG identified no current adjacent property uses that are anticipated to have a negative impact on the environmental integrity of the Project. No further action or investigation is recommended regarding the adjacent properties.

2.2 Recommendations

The development and implementation of an Asbestos O&M Program. Costs indicated are for O&M Program Document development only. Comprehensive survey costs, if required, will be identified as a result of O&M Program implementation.

- **Associated cost estimate to develop the O&M Program only:** $495

According to the POC, a mold survey and remediation recommendations were previously prepared for the Project. Furthermore, identified areas of concern were observed to have been marked with paint and were undergoing removal at the time of EMG's site visit. Additional information about the source of the moisture and costs to correct the issues are included in EMG's Property Condition Assessment (PCA) report (EMG Project Number 100132.11R-001.042).

3 SURVEY APPROACH/PURPOSE

EMG conducted a Phase I Environmental Site Assessment of the Project that consisted of a walk-through observation of the accessible areas and interviews with facility personnel and local agency representatives.

The user informed EMG that the reason for the assessment is for financing purposes.

On-site activities and/or interviews were conducted by Tina French, EMG Project Manager, with:

- Jake Cormier, Director of Engineering, On-site Point of Contact (POC) and Property Manager

A completed copy of the Key Site Manager Questionnaire had not been returned to EMG as of the time this assessment was prepared.

Areas accessed included:
- Approximately 10% of the hotel guest rooms (Unit #s B120; B131; B201; B204; B205; B302; B303; B304; B305; B315; B332; A360; A354; C382; C383; C389; C273; C284; Spa Suite 103; Spa Suite 101; Spa Suite 203; Spa Suite 201; Spa Suite 305; and Spa Suite 307)
- All common areas
- The roofs
- The Project boundaries
- Pipe chases in the mechanical room

Specific areas to which access was limited include the following:
- Behind walls

According to the POC, the areas not assessed were similar in construction and conditions to the areas assessed. The POC also stated that he is unaware of any practices in the unaccessed areas (such as the improper handling of hazardous materials or the generation of hazardous, medical, or regulated wastes) that would constitute a material threat or release to the environment, or a hazard to human health. Based on a review of tenant activities and interviews with knowledgeable personnel, it is unlikely that the operations in the unaccessed areas have had an adverse impact on the environmental integrity of the Project.

Weather conditions at the time of the Project assessment were partly cloudy, with temperatures in the 70s (F) and light winds.

EMG reviewed available federal, state, and local records in an effort to identify sites of known or suspected hazardous waste activity located at or near the Project that could have an adverse impact on the Project. In an attempt to determine whether historical uses of the Project and the surrounding area have had an environmental impact on the Project, EMG interviewed individuals knowledgeable about the Project and reviewed available pertinent records and documents. This assessment is based on the evaluation of the information gathered, laboratory analyses of samples collected (when required), and accessibility at the time of the assessment.

The purpose of this report is to provide the Client an assessment concerning environmental conditions (limited to those issues identified in the report), as they existed at the Project. The assessment was conducted utilizing generally accepted Phase I industry standards, set forth in the American Society for Testing and Materials (ASTM) Standard Practice E 1527-05 and the Ladder Capital Scope of Work. The Scope of Work included an evaluation of:

- The Project history in an attempt to identify any possible ownership(s) and/or uses that would suggest an impact to the environmental integrity of the Project, as identified through review of reasonably ascertainable standard historical sources.

- The physical characteristics of the Project, as identified through review of reasonably ascertainable topographic data.

- Current Project conditions (as applicable), including compliance with appropriate regulations, as they pertain to the presence or absence of: facility storage tanks, drums, containers (above or below ground), etc., transformers and other electrical equipment which utilize fluid which may potentially contain PCBs, the use of hazardous materials/chemicals and petroleum products, and/or the generation, treatment, storage, or disposal of hazardous, regulated, or medical wastes.

- An evaluation of information contained in programs such as the NPL, CERCLIS, SHWS, RCRIS, SWF, LUST, and other governmental information systems within specific search distances of the Project. This evaluation was performed to identify sites that would have the potential to impact the environmental integrity of the Project. The regulatory agency report provided is based on an evaluation of the data collected and compiled by a contracted data research company. The report is based on a radius search that focuses on both the Project and neighboring sites that might impact the Project. Neighboring sites listed in governmental environmental records are identified within a specific search distance. The search distance varies depending upon the particular government record being checked. The search is designed to meet the requirements of ASTM Standard E 1527-05. The information provided is assumed to be correct and complete.

- Visual observation of the adjacent properties to identify high-risk neighbors and the potential for known or suspected contamination to migrate onto the Project.

In addition, at the Client's request, the assessment included a screening approach for the potential existence of:

- The physical characteristics of the Project, as identified through review of reasonably ascertainable topographic, wetlands, flood plain, soils, geology, and groundwater data.

- Mold, including the visual and olfactory identification of mold growth, conditions conducive for mold growth, and evidence of moisture in accessible areas of the Project. In addition, EMG interviewed Project personnel regarding any known or suspected mold contamination, water intrusion, or mildew like odor problems. Sampling was not performed as a part of this assessment. EMG notes that this assessment does not constitute a comprehensive mold survey of the Project, and the conclusions made are based solely on observable conditions in readily accessible interior areas of the Project on the assessment date.

- Asbestos, including the identification of all suspect materials in accessible areas (interior and exterior). These materials are considered suspect, until tested and proven otherwise. Friable materials are those that can be easily crumbled or pulverized by hand pressure.

  This screening approach is not a comprehensive (i.e., AHERA-Style) asbestos survey, nor is it intended to fulfill the NESHAP requirements for demolition/renovation purposes, but it is intended to identify the potential for an asbestos hazard in accessible areas. This screening is not intended to be used for demolition, abatement, renovation, or repair work.

  The basis for "suspect" determination is taken from the materials listed in Appendix G of the United States Environmental Protection Agency (USEPA) publication *Managing Asbestos in Plac*e (the "Green Book"). Therefore, all materials listed in the Green Book are considered suspect regardless of installation date. Unless presented with satisfactory documentation in the form of comprehensive asbestos survey demonstrating that no ACM is present or an asbestos abatement report showing that all identified ACM has been abated in compliance with environmental laws, buildings constructed prior to 1989 are presumed to contain ACM.

- Radon gas propensity, through the review of the USEPA's Map of Radon Zones for all properties.

- Lead-based paint for all properties constructed prior to 1978. The basis for this determination is taken from the Lead Paint Poisoning Act passed by the Congress of the United States that banned the use of lead paint starting January 1, 1978. Therefore, all paint applied prior to 1978 is considered suspect.

- Lead in water, based on information provided by the municipal water provider.

3.1 DATA GAPS

Data gaps in information exist and are addressed in the appropriate sections of this report. However, because the data gaps were not determined to be material in identifying Recognized Environmental Conditions (RECs), they are not considered by ASTM standards to be *significant* and, therefore, are not individually addressed in this section.

4 USER PROVIDED INFORMATION

This Section documents whether the user reported to EMG information pursuant to the responsibilities described in Section 6 of the ASTM Standard E 1527-05.

EMG submitted a User Questionnaire to the user to assist the user and EMG in gathering information from the user that may be material to identifying RECs. A copy of the User Questionnaire is appended (Section 11).

Litigation

Question: *Are you aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property?*

Response: The user indicated that he/she is not aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property.

Administrative Proceedings

Question: *Are you aware of any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on or from the property?*

Response: The user indicated that he/she is not aware of any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on or from the property.

Notices From Governmental Entities

Question: *Are you aware of any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products?*

Response: The user indicated that he/she is not aware of any notices regarding possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.

Environmental Cleanup Liens

Question: *Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?*

Response: The user indicated that he/she is not aware of any environmental cleanup liens against the property.

Activity and Use Limitations

Question: *Are you aware of any Activity and Use Limitations, such as engineering controls, land use restrictions or institutional controls, that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?*

Response: The user did not provide a response to this question or responded "Unknown/No Response". The lack of, or inability to obtain, this information represents a data gap. However, based on the findings of this report, the absence of this information is not considered a *significant* data gap.

Specialized Knowledge

Question: *As the user of this ESA, do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or of an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?*

Response: The user indicated that he/she does not have any specialized knowledge or experience related to the property or nearby properties.

Relationship of Purchase Price

Question: *Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?*

Response: The user did not provide a response to this question or responded "Unknown/No Response". The lack of, or inability to obtain, this information represents a data gap. However, based on the findings of this report, the absence of this information is not considered a *significant* data gap.

Commonly Known Information

Question: *Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user:*

- *Do you know the past uses of the property?*
- *Do you know of specific chemicals that are present, or once were present, at the property?*
- *Do you know of spills or other chemical releases that have taken place at the property?*
- *Do you know of any environmental cleanups that have taken place at the property?*

Response: The user provided the following information regarding commonly known or reasonably ascertainable information:

- The User indicated that they are aware of past uses of the Property. Specifically, that User indicated that the Project was an operating hotel resort prior to closure in 2006.
- The User indicated that they are aware of specific chemicals that are present or once were present at the Project. Specifically, the User indicated that the HVAC systems (chillers) require the use of chemicals which are biodegradable and environmentally friendly. The User indicated that there are currently no combustible materials stored on site.

Obvious Indicators of Contamination

Question: *As the user of this ESA, based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property?*

Response: The user indicated that he/she is not aware of any obvious indicators that point to the presence or likely presence of contamination at the Project.

Environmental Lien and AUL Review

The user did not engage EMG to review title and judicial records for environmental liens or Activity and Use Limitations (AULs) recorded against the Project. Furthermore, these documents were not provided to EMG for review. The lack of or inability to obtain this information represents a data gap. However, based on the findings of this report, the absence of this information is not considered a *significant* data gap.

5 PROJECT LOCATION/DESCRIPTION

The Project is located at 68-900 Frank Sinatra Drive in Rancho Mirage, Riverside County, California 92270. The Project lands consist of approximately 40.40 acres.

5.1 Project Description

The Project is currently a full-service hospitality property and contains 261 guest rooms. The Project was constructed in phases between 1988 and 2007, and is currently undergoing additional construction. The Project improvements include three two and three-story buildings containing a total of 455,009 square feet, landscaping, and surface-level asphalt paved parking/drive areas. The Main Hotel Building (previously known as the Lodge at Rancho Mirage) was built in 1988, and closed in 2006 for the renovation and conversion into the proposed Ritz-Carlton. The renovation encompasses 100% of the existing 371,873 square foot building with 37,873 additional square feet of space for a total of 409,746 square feet. The Residential Suite Building (23,147 square feet) and the Spa Services Building (22,116 square feet) were under construction at the time of EMG's site visit. On-site amenities consist of four swimming pools, two spa pools, a luxury spa facility, a fitness center, a business center, two restaurants, two bar/lounges, meeting rooms, ballrooms, two retail shops, and guest laundry facilities.

The Project is serviced by public water and sanitary sewer systems. The Project is supplied with water from the Coachella Valley Water District. Domestic hot water for the common areas and guest rooms is generated by six rooftop, natural gas-fired boilers.

HVAC systems observed consisted of the following:

- Heat and air-conditioning are supplied to the Project from a central plant with recirculating heated and chilled water system. Hot water for the central heating system is supplied by natural gas-fired hot water boilers located on the roof of the main hotel and the spa building. Chilled water for the central cooling system at the Main Hotel Building is supplied by three water-cooled chillers located at grade in an exterior enclosure. The chillers are cooled by a two-cell stainless steel cooling tower. The chilled water for the central cooling system at the Spa and Spa Suites Buildings is supplied by two water-cooled chillers located at an interior mechanical room in the spa building. The chillers are cooled by two roof mounted stainless steel cooling towers.

- Circulating pumps provide hot and chilled water to each temperature-controlled space by a four-pipe distribution system. The hot and chilled water supplies the fan coil units and the air handling units located in the ceiling plenum spaces and on the roof of the buildings.

- Heated and cooled air in each guest room are provided by fan coil units located in mechanical closets. The fan coil units are supplied with hot and chilled water by the central system. Air distribution is provided to supply air registers by ducts concealed above the ceilings. Return air grilles are located adjacent to the fan coil units.

- The stair wells, bathrooms, and other areas are ventilated by large capacity ventilation fans mounted on the roof and connected by ducts to each ventilated space.

Based on an interview with Mr. Cormier, (POC), there have been no air-quality complaints, odors, or any other problems reports that are typically associated with Chinese drywall. Furthermore, no visual evidence of common indications of Chinese drywall such as black discoloration of metallic surfaces, or olfactory evidence such as sulfur-like (rotten egg) odors, were noted at the Project during EMG's site visit. As such, Chinese drywall is not likely to have been installed at the Project.

5.2 Miscellaneous Systems

- **Emergency Generator** - One emergency generator is located at the Project. Diesel fuel is stored in an aboveground tank. See Section 7.9 for a further discussion of the aboveground tank associated with the emergency generator.
- **Hydraulic Elevators** - Thirteen hydraulic elevators are located at the Project. See Section 7.4 for a further discussion.
- **Hydraulic Trash Compactor** - One hydraulic trash compactor is located at the Project. See Section 7.4 for a further discussion.
- **Hydraulic Cardboard Baler** - One hydraulic cardboard baler is located at the Project. See Section 7.4 for a further discussion.
- **Grease Traps and Interceptor** - Two grease traps and one sand-oil interceptor are located at the Project. See Section 7.3 for a further discussion.
- **Dry Cleaning Equipment** - Dry cleaning equipment is located at the Project. See Sections 7.1, 7.2 and 7.3 for a further discussion.

5.3 Environmental Setting

5.3.1 Topography

Review of the Cathedral City, California Topographic Quadrangle, published by the United States Geological Survey (USGS) and dated 1958 (photorevised in 1981), indicated the following:

- The Project has an average elevation of approximately 600 feet above mean sea level. Elevations range from approximately 660 feet in the southwestern portions of the Project to approximately 500 feet in the northeastern portion of the Project. The slope of the Project is estimated between 5 and 15 percent in a northeasterly direction.
- Slope in the general area of the Project trends to the northeast, towards the Whitewater River. The nearest surface water feature, an unidentified intermittent drainage, is located approximately 250 feet southeast of the Project and drains to the northeast.
- The Project is shown as unimproved land with a road crossing through the Project from north to south.

A copy of the topographic map is included in Appendix C.

5.3.2 Wetlands

Review of National Wetlands Inventory (NWI) data provided by the United States Fish and Wildlife Service, indicated the following:

- No wetland areas are indicated at the Project or adjacent properties.

A copy of the wetland map is included in Appendix C.

5.3.3 Floodplain

Review of the Flood Insurance Rate Map (Community/Panel No. 06065C1589G), published by the Federal Emergency Management Agency (FEMA) and dated August 28, 2008 indicated the following:

- The Project is located in Zone X (unshaded), areas of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level.

A copy of the flood zone map is included in Appendix C.

5.3.4 Soils/Geology

Review of the United States Natural Resources Conservation Service's Web Soil Survey website indicated the following:

- The Project is located in an area comprised of two soil types known as Rock Outcrop and Rock Outcrop-Lithic Torripsamments complex.
- Rock Outcrop is described as unweathered bedrock with estimated slopes between 15 and 75 percent. Depth to lithic bedrock is "zero". Capacity to transmit water is low to very high.
- Lithic Torripsamments are described as somewhat excessively drained, with depths of four inches. General characteristics of the Lithic Torripsamments include a moderately high to very high capacity to transmit water. Depth to the seasonal high water table is greater than 80 inches. The Lithic Torripsamments occur on mountain flanks and are derived from residuum weathered from metasedimentary rock.

Review of the Ground Water Atlas of the United States - Segment I, published by the US Geological Survey and dated 1995, indicated the following:

- The Project is located in the Coachella Valley Basin of the Basin & Range Physiographic Providence. The Basin & Range physiographic province of southwestern California. The Basin & Range province is characterized by elongated mountain ranges trending northwest to southeast and separated by broad alluvial valleys. The Coachella Valley in the northwestern part of the Salton Trough extends from the east end of San Gorgonio Pass southeastward to the Salton Sea. It is bordered on the north and east by the Little San Bernardino Mountains and on the southwest by the San Jacinto and the Santa Rosa Mountains. The Whitewater River is the main drainage in the valley.

5.3.5 Groundwater Hydrology

Review of the Ground Water Atlas of the United States - Segment I, published by the US Geological Survey and dated 1995 in addition to the Coachella Valley Water District Engineer's Report on the Water Supply and Replenishment Assessment of the Lower Whitewater River Sub-Basin Area of Benefit, published by the Coachella Valley Water District's Environmental Services Division and dated 2010-2011, indicated the following:

- The Project is situated within the boundaries of Palm Springs subarea of the Coachella Valley Groundwater Basin. Estimated depth to groundwater is approximately 400 to 500 feet below ground surface (bgs).

Shallow groundwater flow is expected to follow the ground level slope of surface elevations towards the nearest open body of water or intermittent stream. The direction of this flow at the Project is anticipated to be toward the northeast.

Estimated groundwater levels may vary due to seasonal fluctuations in precipitation, local usage demands, geology, underground structures, or dewatering operations.

6 HISTORICAL REVIEW

Review of online information from the Riverside County Tax Assessor's website indicated that the Project is shown as Assessor Parcel Numbers (APNs) 689-330-011, 689-330-018, 689-330-019, 689-330-023, 689-330-024, and 689-330-025.

A copy of the tax map is included in Appendix C.

6.1 Chain of Title

Based on an interview by telephone with a representative of the Riverside County Tax Assessor's Office, the current owner is identified as Rancho California Inv.

No prior ownership information was available via telephone.

6.2 Prior Use Interviews

EMG met with Jake Cormier, Director of Engineering, On-site Point of Contact (POC) and Director of Engineering with Ritz-Carlton Rancho Mirage, who was cooperative and provided information that appeared to be accurate, based upon our subsequent site observations. It is EMG's opinion that the POC was knowledgeable about the Project and about questions EMG posed during the interview process. According to the POC, the Project was developed in phases between 1988 and 2007, and is currently undergoing renovation and new construction. The Main Hotel Building was originally built in 1988 and closed in 2006. The POC has been associated with the Project since 2007.

6.3 Local and/or State Government Agency Record Review/Interviews

The following information was identified at the Rancho Mirage Building Department:

- This review indicated that the present Main Hotel Building at the Project was originally completed as a Ritz-Carlton Hotel in 1988. General building permits for the Project were on file, but they did not reveal any information or condition that could impact the environmental integrity of the Project. A copy of the original Certificate of Occupancy has been appended as a supporting document (Appendix G).

- No permits for previous uses were found in the file for the Project address. The absence of permits for previous uses suggests no official development of the Project took place prior to the current use.

- No environmentally significant information was identified.

EMG contacted the Riverside County Fire Department. However, based on a conversation with Mr. James Aldridge, Rancho Mirage Specialist, records are not reasonably ascertainable, as defined by ASTM 1527. Furthermore, based on the historical and current research already performed, the files at this department are not anticipated to yield any additional information not already obtained through other resources. Therefore, these records were not reviewed, and a FOIA request was not submitted to this department.

The following information was identified at the City of Rancho Mirage Planning Department:

- Review of the available zoning records indicates that the Project is currently zoned Resort Hotel (RSH).

- No environmentally significant information was identified.

Based on the research completed at the local agencies, no institutional controls or engineering controls were identified for the Project.

6.4 Historical Maps

Historical Sanborn Maps:

Historical Sanborn maps are detailed scale drawings that show the location and use of buildings and structures that occupied a given area. EMG contacted Environmental Data Resources (EDR) in an attempt to determine if there were any historical Sanborn maps in the EDR Historic Map Collection. However, there was no historical Sanborn map coverage for the Project in the EDR Historical Sanborn Map Collection for the period covering the years 1867 to present.

Historical Topographic Maps:

Historical topographic maps show the location of buildings and structures that occupied a given area, as well as other physical features. EMG reviewed historical topographic maps as available from online historical topographic map repositories, such as the Perry-Castaneda Map Library and the University of Alabama Map Library. EMG's historical topographic map search results are discussed below.

Review of the 1944 historical topographic map indicated the following:

- **Project:** The scale of the map prevents the specific Project location from being identified; however, the general vicinity of the Project appears to be undeveloped land.
- **Off-site:** The surrounding areas appear to be generally undeveloped.

A copy of the historical topographic map is included in Appendix C.

6.5 City Directories

EMG attempted to review historical city directories at the City of Rancho Mirage Library. However, no historic city directories were identified.

6.6 Aerial Photography

EMG contacted EDR in an attempt to determine if there were any historical aerial photographs available for the area of the Project. EMG also reviewed a current aerial photograph provided by Google Earth. EMG's historical aerial search results are discussed below.

Review of the 1953 historical aerial photograph indicated the following:

- **Project:** The Project is shown as undeveloped. Vehicular access is not available.
- **Off-site:** The adjoining areas to the north, east, south and west are shown as undeveloped.

The 1967 historical aerial photograph differs from the previous aerial photograph in that:

- **Project:** Vehicular access is available from unpaved jeep trails.

The 1978 historical aerial photographs differ from the previous aerial photograph in that:

- **Off-site:** One of two water tanks observed near the Project during EMG's current site visit is shown a short distance to the northeast of the Project.

The 1984 historical aerial photograph differs from the previous aerial photograph in that:

- **Off-site:** Both of the water tanks observed near the Project during EMG's current site visit are shown a short distance to the northeast of the Project.

The 1996 historical aerial photograph differs from the previous aerial photograph in that:

- **Project:** The Project is shown as developed with the existing Main Hotel Building, a large swimming pool area, landscaping, and associated parking/drive areas. Vehicular access is available via improved roads to the west and southeast. Apparent tennis courts, a small building, and associated parking/drive areas and landscaping are shown on the western portion of the Project.

- **Off-site:** New single-family residential development is shown to the south.

The 2002 historical aerial photograph differs from the previous aerial photograph in that:

- **Off-site:** Additional single-family residential development is shown to the south of the Project.

The 2005 historical aerial photograph differs from the previous aerial photograph in that:

- **Off-site:** Grading and new construction activities are apparent to the northwest of the Project.

The 2011 historical aerial photograph differs from the previous aerial photograph in that:

- **Project:** The existing Residential Suite and Spa Services Buildings are shown on the eastern portion of the Project. The tennis courts and associated building formerly shown on the western portion of the Project are no longer apparent and the area is shown as a cleared, vacant lot. The southern portion of the Project is shown as cleared for development.

- **Off-site:** New single-family residences are shown to the northwest of the Project.

Copies of representative historical aerial photographs are included in Appendix C.

6.7 Previous Investigations

EMG was provided a copy of a previous Water Damage Remediation Report for the Project, prepared by ET&T Indoor Environmental Surveys and dated June 14, 2011. Pertinent information identified in that report is as follows:

- The Project was occupied by the current improvements at the time of the previous assessment.

- In 2008-2009, a new wing was under construction when hotel operations shut down and the hotel has been vacant since that time. Water intrusion into the building and HVAC system occurred during this vacant period. Heavy rains caused roof leaks and window leaks. On-site personnel have been cutting out wet drywall and removing water damaged ceiling materials in order to prevent subsequent mold growth and to determine water intrusion areas and pathways.

- ET&T conducted a visual inspection for mold growth and water damaged materials. ET&T was then to develop a remediation protocol for the remediation contractor and to perform post remediation verification once the repairs are completed. ET&T surveyed the building between May 26, 2011 and June 3, 2011.

- According to ET&T, all sources of the moisture intrusion have to be identified and repaired, which reportedly included openings in the roof assembly of The Suites Building, roofs in general, sliding doors, windows, plumbing and drainage issues.

- A comprehensive asbestos survey was not conducted as part of ET&T's scope of work. However, ET&T conducted limited asbestos sampling as part of its own Job Hazard Analysis. Two samples each were collected from drywall material, surface dust and fire proofing materials. No asbestos was detected in any of the six samples.

EMG was provided with a copy of the laboratory report for the asbestos sampling conducted at the Project for ET&T, prepared by Micron Environmental Labs and dated July 19, 2011. This report states that 10 samples, collected on May 26, 2011, were submitted to their laboratory for asbestos analysis on May 27, 2011. The materials sampled and analyzed included fireproofing, drywall/ceiling, joint compound/ceiling, drywall/wall and joint compound/wall. EMG notes that the drywall and joint compound samples discussed in the laboratory report were submitted to the laboratory as one sample each, with a total of six samples submitted. The laboratory separated the drywall from the joint compound and reported results for a total of 10 samples.

EMG was also provided with an Air Sample Analysis Summary for the Project prepared by Micron Environmental Labs and dated July 5, 2011. The two air samples were collected from the B-Wing's second and third floors on May 26, 2011 and analyzed on May 27, 2011. The results for both air samples were 0.002 fibers/cubic centimeter (f/cc), which is below the regulatory (AHERA and NESHAP) clearance level of <0.01 f/cc.

6.8 Plans and Specifications

As-built/renovation-site plans, drawings, and specifications were reviewed at the Project. Documents reviewed included:

- Building plans prepared by SB Architects and dated January 13, 2006, and amended in October 4, 2010
- Site plan
- Floor plans

Environmentally significant improvements identified during this review included a diesel-fired backup generator with an integral AST (Section 7.9); a dry cleaning machine (Section 7.1); and two grease interceptors as well as a sand-oil interceptor (Section 7.3).

6.9 Historical Summary

Based upon historical review, the previous Project use includes undeveloped land (dating back to at least 1944) prior to the development of the current Project improvements in phases between 1988 and 2007. In addition, the western portion of the Project was occupied by multiple tennis courts and an apparent clubhouse from approximately 1993 to 2005.

EMG was not able to obtain standard historical sources that document the Project history in five year intervals. Furthermore, EMG was also not able to document the use of the Project back to the first developed use, or back to 1940, whichever is earlier. This data failure represents a data gap; however, this data gap is not considered a *significant* data gap, and therefore, it is not addressed in Section 3.1.

7 PROJECT RECONNAISSANCE

7.1 Operational Activities/Noteworthy Tenants

The Project is currently a vacant full service hospitality facility and is undergoing renovation and new construction activities. No noteworthy tenants occupy the Project and no environmentally significant operations are conducted at the Project.

Considering the current operations assessed at the Project, no environmental permits, registrations, or notifications appear to be required.

An inactive dry cleaning machine is located in the commercial laundry at the Project. The dry cleaning machine is identified as an Aero-Tech Green Jet Dry-Wetcleaning Machine, Model #DWC-45. The dry cleaning machine uses DWX-44 Dry-Cleaning Solution, a water-based, non-toxic solution, instead of perchloroethylene (PCE). Currently available information indicates the use of DWX-44 Dry-Cleaning Solution is highly unlikely to impact the Project when properly used. DWX-44 Dry-Cleaning Solution does not contain chlorinated hydrocarbons (such as PCE) and wastes generated in the process would not be classified as hazardous. Material Safety Data Sheet (MSDS) information for DWX-44 confirms that this substance contains no ingredients identified as Hazardous Substances according to SARA Hazard Title III, Section 313 - CFR-355. The existing dry cleaning machine is associated with the ongoing renovation, is new equipment which has never been used, and appeared to be empty at the time of EMG's site visit. Copies of a specification sheet and brochure for the Green jet Dry-Wetcleaning Machine, as well as the MSDS sheet for DWX-44 and a Laundry Plan showing the location of the dry cleaning machine, have been appended as supporting documents (Appendix G).

No information was identified to confirm whether dry cleaning was previously conducted on-site between 1988 and the time of closure in 2006. Based on the historical use as a full-service Ritz Carlton, it is somewhat likely that a dry cleaning plant, which possibly operated an older PCE machine, was formerly located on-site. By its chemical nature, PCE has the potential to penetrate through concrete and impact subsurface conditions. However, any such dry cleaning facility would have operated since the promulgation of RCRA in 1986, the legislation that regulates the handling and disposal of hazardous materials and wastes. As such, waste handling and disposal practices would have been regulated since the facility's inception. Furthermore, because the laundry is underlain by two levels of parking garage (as previously noted) and not the earth, it is unlikely that subsurface conditions would have been impacted as a result of any historical dry cleaning plant operations in this area.

7.2 Hazardous Materials/Petroleum Products Storage and Handling

Visual observation for the use and/or storage of hazardous materials and petroleum products was performed. The following hazardous materials and petroleum products were identified:

- Routine construction and maintenance supplies (i.e. adhesives, sealants, paints, etc. were observed at the Project in retail-sized containers.
- Diesel fuel is stored in an integral belly tank associated with the backup generator. Refer to Section 7.9 for further discussion of the diesel tank.
- Cooling system water treatment chemicals are maintained in poly drums located in the central plant and cooling tower areas in association with routine operation and upkeep of the cooling equipment.

The identified chemicals, materials, and products were observed in their sealed, original containers and in designated storage areas. Materials appeared to be properly stored. No evidence of spills or staining was observed. In addition, the concrete surfaces appeared intact, and no cracks were observed in the areas of product storage/usage.

The swimming pools and spas were dry at the time of EMG's site visit; no swimming pool chemicals were observed.

7.3 Waste Generation, Treatment, Storage and Disposal

Visual observation for the generation, treatment, storage, and disposal of wastes was performed. The following wastes were identified:

- Municipal trash is stored in the compactor or roll-off debris boxes (when appropriate) and disposed of by contracted waste haulers.
- Domestic sewage is disposed of to the municipal sanitary sewer system.

No evidence of spills or staining was observed in the area of waste generation or pre-disposal storage. In addition, the concrete surfaces appeared intact, and no cracks were observed in the areas of waste generation or pre-disposal storage.

Review of information available at the Project indicated that the waste disposal operations appear to be appropriate.

No excessive odors or overflowing/excessive ground trash were noted in the vicinity of the compactor or debris boxes. No hazardous, regulated, or medical wastes were noted in the compactor or debris boxes.

One empty 55-gallon drum labeled "Salvage Drum" and apparently used for recycling was observed in the service area.

Two grease traps were identified at the Project, including one 15,000-gallon grease trap located in the service area near the southwest corner of the Main Hotel Building and one 8,000-gallon grease trap located near the northeast corner of the Main Hotel Building. In addition, a 320-gallon sand interceptor was identified adjacent to the 15,000-gallon grease trap. Because the Project is currently inactive, the grease traps and interceptor are maintained on an as-needed basis. No bulk waste grease recycling drums or bins were observed.

No wastewater discharge that would require permitting though local or state regulatory agencies was identified at the Project.

No current or former septic systems or drywells were identified at the Project.

7.4 Polychlorinated Biphenyls (PCBs)

The Project is supplied with underground secondary electrical service from pad-mounted electrical transformers. The transformers are designated as the property of Southern California Edison (SCE), the public utility. The transformers at the Project are not labeled as to PCB content. However, based on the dates of installation (post-1977) in addition to information provided by SCE, the units are considered highly unlikely to contain PCBs. The units should be periodically inspected for leakage. If leakage is visible, the Project owner/manager should contact the public utility, which will remediate the situation. Should the units have to be replaced, the utility is responsible, provided the cause is equipment failure, not customer misuse. No leakage of the transformers was observed at the time of the assessment.

The Project also obtains secondary electrical service from privately owned, "dry type," step-down, transformers. Dry type transformers do not use oils for cooling purposes; therefore, these transformer are not expected to contain PCBs.

Thirteen hydraulic lift elevators are located at the Project. PCB-containing hydraulic fluid has not been manufactured since 1977. Therefore, based on the dates of installations, PCB-containing hydraulic fluid is not likely to be found in the elevator operating systems. No visual indication of leakage was observed in the areas of the elevator operating equipment. The hydraulic elevator units at the Project should be inspected periodically for leakage. If leakage is identified, the unit should be repaired, and any fluid or fluid-soaked waste should be disposed of in accordance with applicable federal, state, and local regulations.

A hydraulic trash compactor is located at the Project. PCB-containing hydraulic fluid has not been manufactured since 1977. Therefore, based on the date of installation (post-1977), PCB-containing hydraulic fluid is not likely to be found in the trash compactor operating system. No visual indication of leakage was observed in the area of the hydraulic trash compactor equipment.

A hydraulic cardboard baler is located at the Project. PCB-containing hydraulic fluid has not been manufactured since 1977. Therefore, based on the date of installation (post-1977), PCB-containing hydraulic fluid is not likely to be found in the cardboard baler operating system. No visual indication of leakage was observed in the area of the hydraulic baler equipment.

Visual observation of the Project did not identify any areas of patched concrete that might suggest locations of former lift equipment.

7.5 Asbestos-Containing Materials (ACM)

As-built/renovation-site plans, drawings, and specifications were reviewed at the Project. Documents reviewed included Building plans prepared by SB Architects and dated January 13, 2006, and amended in October 4, 2010, a site plan, and floor plans. Review of these documents did not identify building material specifications requiring the use of ACM. However, this does not preclude or prevent the potential use of ACM.

Suspect friable and non-friable ACM in the form of wallboard/joint compound (in the Spa Services Building and Residential Suite Building) and roofing materials (on all three buildings) were identified at the Project. The wallboard/joint compound materials were observed to be friable in some areas due to cutting/replacement activities.

Roofing materials at the Main Hotel Building were reportedly replaced in 2008 and are thus considered suspect and not presumed ACM.

Presumed ACM in the form of wallboard/joint compound were identified in the Main Hotel Building. The wallboard/joint compound materials were observed to be in poor condition due to cutting/replacement activities associated with ongoing replacement of water damaged and moldy materials. As previously discussed in Section 6.7, a Water Damage Remediation Report for the Project was prepared by ET&T in June 2011. A comprehensive asbestos survey was not conducted as part of ET&T's scope of work. However, ET&T conducted limited asbestos sampling as part of its own Job Hazard Analysis. Two samples each were collected from drywall material, surface dust and fire proofing materials. No asbestos was detected in any of the six samples. EMG was also provided with a copy of the laboratory report for this asbestos sampling conducted at the Project, prepared by Micron Environmental Labs and dated July 19, 2011. This report states that 10 samples, collected on May 26, 2011, were submitted to their laboratory for asbestos analysis on May 27, 2011. The materials sampled and analyzed included fireproofing, drywall/ceiling, joint compound/ceiling, drywall/wall and joint compound/wall. EMG notes that the drywall and joint compound samples discussed in the laboratory report were submitted to the laboratory as one sample each, with a total of six samples submitted. The laboratory separated the drywall from the joint compound and reported results for a total of 10 samples. All of the samples were negative for asbestos.

Where observed, floor tile and suspended ceiling tile consisted of stone and fiberglass, respectively. These materials were not considered suspect for the purposes of this assessment.

Asbestos Screening Sampling Table						
Sample No.	Material	Location	Friable	Condition	Analytical Results	Estimated Quantity
N/A	Drywall/Joint Compound	Throughout interior of Main Hotel Building	Yes	Poor	Not Sampled	615,000 SF
N/A	Drywall/Joint Compound	Throughout interior of Spa Services and Residential Suite Buildings	No	Fair	Not Sampled	68,000 SF
N/A	Roofing materials	Roof areas of all three buildings	No	Good	Not Sampled	158,000 SF

7.6 Radon Gas

Review of the USEPA's Radon Map for Riverside County, California indicated that the Project is located in Zone 2, areas with a predicted average indoor radon screening level between 2 and 4 pCi/L (picoCuries per liter of air).

In addition, based on the type of construction, the presence of commercial HVAC systems, and the commercial use of the buildings, there is reduced potential for the build-up of radon gas in the buildings at the Project

7.7 Lead-Based Paint (LBP)

The buildings at the Project were originally constructed in stages (1988-2007 and ongoing). Generally, due to the date of construction (post-1977), the potential use of LBP was minimized due to regulatory requirements and sound business practice. Based on the date of construction, no suspect LBP was observed, and no samples were collected.

7.8 Lead in Drinking Water

Based on review of the Coachella Valley Water District's most recent Drinking Water Quality Report, the water supplied to the Project is within federal, state, and local drinking water quality standards. In addition, the building was constructed after the 1986 ban on lead drinking water piping, lead solder, and flux on copper drinking water piping.

The City main water pipes leading to the Project were not visible. EMG is not aware of any issues or conditions that would lead to a concern that there might be lead pipes or lead in the water.

7.9 Facility Storage Tanks and Pipelines (above or below ground)

Visual observations for manways, vent pipes, fill connections, concrete pads, and saw cuts in paved areas did not identify any surface connections or disturbances that would indicate the potential for an underground storage tank (UST) installation at the Project.

The Project contains the aboveground storage tank (AST) listed in the table below.

The AST is an integral belly tank associated with a backup generator installation, and contains a maximum of approximately 750 gallons of diesel fuel. Current California regulations do not require registration of this type of tank. Mr. Cormier was unaware of any releases from the AST. The AST appeared to be in good condition, with no evidence of releases such as staining. Secondary containment was observed around the AST in the form of integral double-walled construction.

The manways and surface caps observed at the Project were for site services (i.e., domestic water, storm water, and sanitary sewer system).

Review of currently installed mechanical equipment identified the use of alternate fuel sources (i.e., electric, natural gas), thereby eliminating the need for additional on-site fuel storage at the Project.

Based on the review of the state list of registered USTs, no USTs are registered for the Project.

Interviews with persons knowledgeable of the Project did not identify evidence of additional current or historic storage tanks (above or below ground) at the Project.

Visual observations did not identify surface markings indicating the existence of subsurface product pipelines at the Project.

Storage Tank Table	
Tank Number	1
Type	AST
Location	Service area near southwest corner of Main Hotel Building
Construction Material	Steel
Year Installed	Not identified
Tank Size/Capacity	Approximately 750-gallons
Contents	Diesel
Use of Contents	Fuel for backup generator
Tank Status	Active
Registered	N/R
LUST List	N/A

7.10 Surface Areas

Observations during EMG's assessment identified that the Project lands are graded to provide slope and swale to direct storm water away from the on-site buildings.

Visual observation of the Project and adjacent properties did not identify evidence of distressed vegetation, staining, or surface migration of petroleum releases or hazardous materials onto or off the Project.

Visual observations did not identify evidence of on-site surface impoundment facilities, pits, dry wells, or dumping of apparent hazardous substances at the Project.

Visual observations did not identify surface water features, including lagoons, ponds, or other bodies of water at the Project.

Minor oil discharges were observed on the parking areas; however, the discharges are incidental in nature, and corrective action is neither practical nor warranted.

Storm water from the roofs flows to the ground surface via internal and external drains. Storm water from landscaped areas and paved areas flows across the surface into an on-site stormwater management detention basin located just southwest of the Main Hotel Building's front entrance, or to the adjacent public right of way. Storm water from vegetated surface areas generally infiltrates into the subsurface.

Visual observation of the Project identified a stormwater detention basin located just southwest of the Main Hotel Building's front entrance. The detention area was dry at the time of the assessment. Visual observations performed in the area of this pond did not identify any stained or stressed vegetation, sheens on the water, or apparent dumping of hazardous wastes.

No groundwater monitoring wells were identified at the Project.

7.11 Mold

EMG performed a limited visual and olfactory assessment for the presence of mold, conditions conducive to mold, and evidence of moisture in readily accessible interior areas of the Project. Suspect mold and evidence of water damage was observed in the following areas:

- Guest room closets in wing B of the Main Hotel Building. The area affected by the suspect mold was approximately 200 square feet in size.
- Widespread evidence of prior moisture intrusion at drywall and masonry surfaces throughout the Main Hotel Building. Most areas have been marked and drywall has been removed.

It should be noted that according to the POC, a mold survey and remediation recommendations were previously prepared for the Project. Furthermore, identified areas of concern were observed to have been marked with paint and were undergoing removal at the time of EMG's site visit. Refer to Section 6.7 for additional information.

This assessment does not constitute a comprehensive mold survey of the Project. The reported observations and conclusions are based solely on interviews with Project personnel and on conditions as observed in readily accessible interior areas of the Project on the assessment date.

7.13 Vapor Encroachment

The following list of questions was used to assess potential vapor encroachment issues at the Project:

- Are known or suspect contamination sources in the area of concern?
- Is there a hydraulic/physical barrier?
- Are contaminants of concern likely present?
- Is the source up-gradient, down gradient, or cross gradient from the Project?
- Is the source beyond the critical distance?

No potential vapor encroachment issues were identified during preparation of this assessment.

8 INTERVIEWS

8.1 Key Site Manager

EMG had not been provided with a completed copy of the Key Site Manager Questionnaire as of the time this assessment was completed.

The lack of, or inability to obtain, this information represents a data gap. However, based on the findings of this report, the absence of this information is not considered a significant data gap.

8.2 Owner

EMG submitted an Owner Questionnaire to the user in an effort to identify the owner of the Project who could be interviewed to provide information regarding proceedings involving the Project. The Owner Questionnaire was completed by Mr. Blythe Edwards, designated representative of the owner. Mr. Edwards indicated that he was not aware of any pending, threatened, or past litigation or administrative proceedings, relevant to hazardous substances or petroleum products, or notices from any governmental entity regarding possible violation of environmental laws, or possible liability related to hazardous substances or petroleum products.

8.3 User

EMG submitted a User Questionnaire in an effort to obtain information regarding proceedings involving the Project. Refer to Section 4, for discussion of the User Questionnaire.

8.4 Occupants

No occupants of the Project were available or would agree to an interview.

The lack, of or inability to obtain, this information represents a data gap. However, based on the findings of this report, the absence of this information is not considered a significant data gap.

8.5 Past Owners, Operators, and Occupants

No past owners, operators, or occupants of the Project, who likely would have material information regarding the potential for contamination at the Project, were identified.

8.6 Owners or Occupants of Adjacent or Nearby Properties

The Project was not an abandoned property with evidence of unauthorized uses or uncontrolled access; therefore, interviews were not conducted with adjacent or nearby property owners or occupants.

8.7 Interviews with Others

The following individuals were interviewed as part of this assessment:

Name and Title	Organization	Phone Number
Jake Cormier, Director of Engineering	Ritz Carlton Rancho Mirage	760.321.8282
Steven Buchanan, Building Official	Rancho Mirage Building Department	760.202.9253
Greg Trousdell, Associate Planner	Rancho Mirage Planning Department	760.328.2266
James Aldridge, Rancho Mirage Specialist	Riverside County Fire Department	760.250.0856

9 REGULATORY DATABASE REVIEW

EMG obtained a regulatory database report from Environmental Data Resources, Inc. (EDR) in an effort to determine if the Project is a listed regulatory site and whether there are any mappable regulatory database sites. The regulatory database search was run in accordance with the Scope of Work for this assessment. In addition, EMG reviewed the unmappable sites in the database report, cross-referencing addresses and site names. Unmappable sites are environmental risk sites that cannot be plotted with confidence, but can be located by zip code or city name. In general, a site cannot be geocoded because of inaccurate or missing location information in the record provided by the agency. A copy of the regulatory database report is included in Appendix F.

Based on review of the regulatory database report, and by cross-referencing name, address, and zip code, EMG concludes that the Project is a listed site. Details regarding any listings for the Project are discussed in Section 9.1.

The search for sites listed on regulatory databases in the area surrounding the Project identified various sites within the specified search radii, which are discussed in Section 9.2. In order to accommodate the Project's size and irregular shape, the database search radius was extended by 0.25 mile. The sites discussed in Section 9.2 are based on the actual corrected distance from the Project.

The following are some of the databases which were reviewed for this assessment. See the appended regulatory database report for a complete listing of databases reviewed for this assessment:

- **NPL** - The National Priority List (NPL) is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program.

- **Proposed NPL** - A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

- **NPL LIENS** - Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability.

- **Delisted NPL** - In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

- **CERCLIS** - The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) contains sites that are either proposed to or on the National Priorities List (NPL) and sites that are in the screening and assessment phase for possible inclusion on the NPL.

- **CERCLIS-NFRAP** - CERCLIS No Further Remedial Action Planned (NFRAP) sites are sites that the EPA has determined that no further steps will be taken to list the sites on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

- **CORRACTS** - Corrective Action Report (CORRACTS) identifies hazardous waste handlers with RCRA corrective action activity.

- **RCRA-TSDF** - Resource Conservation and Recovery Act (RCRA) - Transporters, Storage and Disposal (TSDF) database includes information on sites that generate, transport, store, treat and/or dispose of hazardous waste as defined by the RCRA.

- **RCRA-LQG** - The RCRA - Large Quantity Generators (LQG) database includes information on sites that generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA. Large quantity generators generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

- **RCRA-SQG** - The RCRA - Small Quantity Generators (SQG) database includes information on sites that generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA. Small quantity generators generate between 100 kg and 1,000 kg of hazardous waste per month.

- **RCRA-CESQG** - The RCRA - Conditionally Exempt Small Quantity Generators (CESQG) database includes information on sites that generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA. Conditionally exempt small quantity generators generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

- **US ENG CONTROLS** - A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

- **US INST CONTROL** - A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

- **ERNS** - The Emergency Response Notification System records and stores information on reported releases of oil and hazardous substances.

- **FINDS** - The Facility Index System (FINDS) contains both facility information and 'pointers' to other sources that contain more detail.

- **SWF** - The Solid Waste Facilities (SWF) database contains an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps.

- **LUST** - Leaking underground storage tank (LUST) records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

- **INDIAN LUST** - The Indian LUST database contains information about leaking underground storage tanks on Indian land.

- **UST** - Registered Underground Storage Tank (UST) facilities.

- **AST** - Registered Aboveground Storage Tank (AST) facilities.

- **US BROWNFIELDS** - This database contains information on brownfield sites.

- **ENVIROSTOR** - The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

- **SLIC** - The California Spill, Leak, Investigation, and Cleanup (SLIC) database is maintained by the individual California Regional California Water Quality Control Boards (RWQCB) to track sites where releases have been reported outside of the Leaking Underground Storage Tank program. These sites typically include miscellaneous releases, not necessarily related to underground storage tanks.

- **RESPONSE** - State Response Sites are confirmed release sites where the DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

- **VCP** - The Voluntary Cleanup Program (VCP) database contains low threat level properties with either confirmed or unconfirmed releases, and where the project proponents have requested that the DTSC oversee investigation and/or cleanup activities and also have agreed to provide coverage for DTSC's costs.

- **HIST CAL-SITES** - The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. This database is no longer updated by the state agency. It has been replaced by ENVIROSTOR.

- **TOXIC PITS** - The Toxic Pits database identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

- **Notify 65** - The Notify 65 database contains listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is not longer updated by the reporting agency.

- **Indian Reserv** - This database portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Database List	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1.25	0	0	0	0	0	0
DELISTED NPL		1.25	0	0	0	0	0	0
CERCLIS		0.75	0	0	0	NR	NR	0
CERCLIS-NFRAP		0.75	0	0	0	NR	NR	0
CORRACTS		1.25	0	0	0	0	0	0
RCRA-TSDF		0.75	0	0	0	NR	NR	0
RCRA-LQG		0.375	0	0	NR	NR	NR	0
RCRA-SQG	X	0.375	1	0	NR	NR	NR	1
US ENG CONTROLS		0.25	0	0	NR	NR	NR	0
US INST CONTROL		0.25	0	0	NR	NR	NR	0
US BROWNFIELDS		0.75	0	0	0	NR	NR	0
ERNS		0.25	0	0	NR	NR	NR	0
LUST		0.75	0	0	0	7	NR	7
UST		0.375	0	0	NR	NR	NR	0
AST		0.25	0	0	NR	NR	NR	0
VCP		0.75	0	0	0	NR	NR	0
CHMIRS	X	0.25	1	0	NR	NR	NR	1
NOTIFY 65		1.25	0	0	0	1	0	1
HAZNET		TP	NR	NR	NR	NR	NR	0
INDIAN LUST		0.75	0	0	0	1	NR	1
INDIAN UST		0.375	0	0	NR	NR	NR	0
INDIAN VCP		0.5	0	0	0	NR	NR	0
INDIAN RESERV		1	0	0	0	1	NR	1

9.1 Project Regulatory Database Discussion

Regulatory database listings for the Project are discussed below.

Hospitality Dental Group Ranch Mirage
68-730 Highway 111, Suite 105
Database Listed On: HAZNET

This facility was identified as the "Target Property" in the EDR Radius Map Report. However, based on review of available information and observations made during EMG's site visit, this facility is actually located more than 2,500 feet to the northeast of the Project and is situated down-gradient of the Project with respect to estimated direction of groundwater flow. Furthermore, this facility was not identified on any listing, such as the CERCLIS, LUST or SHWS listings, that reports spills, incidents or releases. Based on distance from the Project, estimated direction of groundwater flow, and the absence of reported releases, this facility is not anticipated to have adversely impacted the environmental integrity of the Project.

68900 Frank Sinatra Drive
Database Listed On: CHMIRS

Ritz Carlton
68900 Frank Sinatra Drive
Database Listed On: RCRA-SQG

Based on review of the regulatory database report, the Project is listed on the CHMIRS and RCRA-SQG databases. Information contained in the CHMIRS database indicates that the California Office of Emergency Services (OES) was notified of a release at the Project on November 10, 2003 (Incident #03-5821). Based on review of the information provided, the Riverside County Fire Department responded to a solo vehicle accident on the road in front of the Project that resulted in the release of approximately one gallon of diesel fuel from a truck's saddle tank. Based on the small-scale nature of the incident, the time elapsed, and the fact that emergency responders were alerted to and handled the release, the CHMIRS listing does not constitute a Recognized Environmental Condition (REC). Information in the RCRA-Generators database indicates that the Project was identified as a Small Quantity Generator of hazardous wastes in 1992; likely related to wastes generated during construction or renovation activities. The type of hazardous waste generated was not identified in the database listing. The database indicates that there are no violations associated with the RCRA-Generator listing. The RCRA-Generator database is a listing of facilities that are required to register for tracking purposes due to the amount of hazardous waste generated and are not necessarily sites with reported contamination incidents.

9.2 Off-Site Regulatory Database Discussion

Palm Springs Motor/Palm Springs Ford Motors
69200 Highway 111
Distance: Approximately 2,600 feet (corrected)
Direction: North-northeast
Database Listed On: LUST

Based on review of the USGS Topographic Map, this site is located topographically down-gradient from the Project, and the estimated groundwater flow in the area of the site is to the southeast, which is away from the Project. Information in the LUST listing indicates that regulatory authorities granted this facility case closure for a "soil-only" gasoline release on June 9, 1994. The regulatory agency awards a case-closed status only when contamination, if any, has been investigated and/or remediated in accordance with the regulatory standards accepted at the time closure was granted. Based on distance from the Project, topographic relations, estimated direction of groundwater flow, the absence of reported impact to groundwater, and the reported "case-closed" regulatory status, this facility is not anticipated to have adversely impacted the environmental integrity of the Project.

All of the remaining off-site listed properties are located over 2,700 feet from the Project. In addition, there are no open release cases located within the specified search radii and all of the identified off-site listed properties are situated down-gradient of the Project with respect to estimated direction of groundwater flow. Based on various factors such as distance, topographic relations, estimated groundwater flow direction, and/or regulatory status, the remaining off-site listed properties are not anticipated to have adversely impacted the environmental integrity of the Project.

10 ADJACENT PROPERTIES

The general vicinity of the Project consists of undeveloped land and residential land uses. The following adjacent properties were identified:

- The Project is bordered to the north undeveloped land and the Villas of Mirada Luxury Homes (single-family residences). Two municipal water tanks are situated farther northeast, beyond the adjoining undeveloped land.
- The Project is bordered to the south by the Mirada Estates (single-family residences).
- The Project is bordered to the east by undeveloped land.
- The Project is bordered to the west by undeveloped land.

Based on observations and available regulatory information, the adjacent property uses are not anticipated to adversely impact the environmental integrity of the Project.

Appendix A:

Photographic Documentation



1 : Main entrance drive and front of Main Hotel Building



2 : North side of Project



3 : East side of Project



4 : South side of Project



5 : West side of hotel



6 : Residential Suite Building



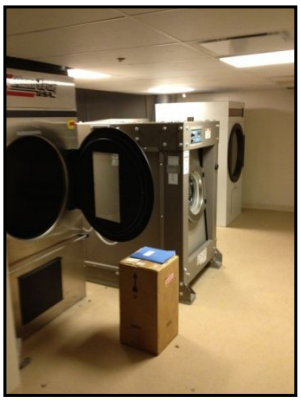
7 : Spa Services Building



8 : Representative utility-owned, pad-mounted transformer



9 : Diesel-fired backup generator



10 : Commercial laundry and "Green Jet" dry cleaning machine



11 : Grease trap and interceptor to southwest of Main Hotel Building



12 : Cooling tower



13 : Cooling system water treatment chemicals



14 : Empty salvage drum



15 : Loading dock



16 : Hydraulic trash compactor



17 : Hydraulic cardboard baler



18 : Lobby



19 : Restaurant



20 : Kitchen



21 : Representative guest room



22 : Residential Suite Building - Interior



23 : Ballroom



24 : Spa Building - Interior



25 : Parking garage



26 : Maintenance shop



27 : Construction material storage in garage



28 : Pool equipment



29 : Chillers



30 : Representative hydraulic elevator equipment



31 : Suspect mold growth (orange paint indicates materials have been identified for removal)



32 : Suspect mold



33 : Water damage



34 : Water damaged wallboard



35 : Adjacent property to the north - Villas of Miranda Luxury Homes (single-family residences) beyond Frank Sinatra Drive



36 : Adjacent property to the north - undeveloped land and water tanks



37 : Adjacent property to the east - Undeveloped land

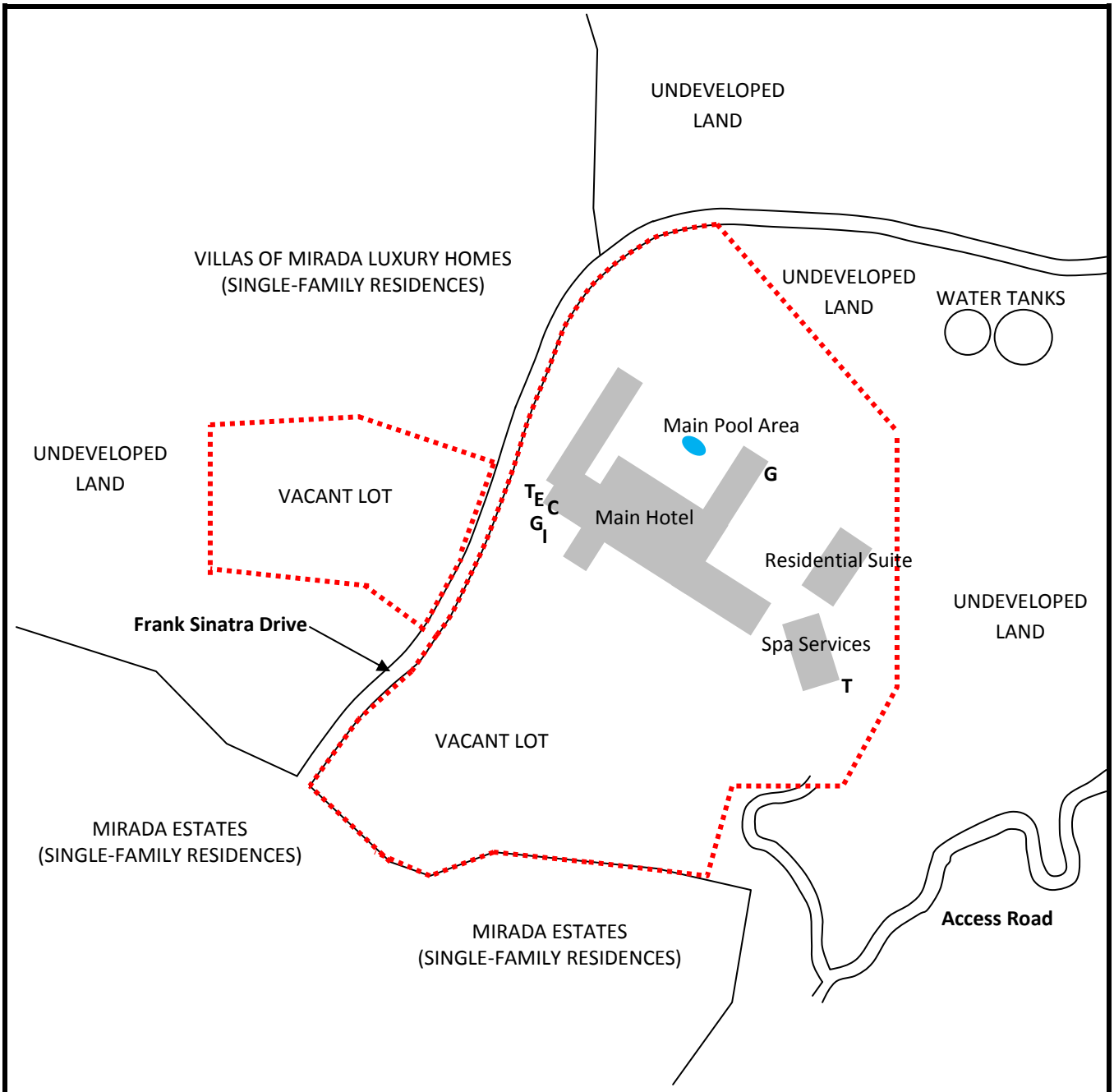


38 : Adjacent property to the south - Miranda Estates (single family residences)

Appendix B:

Field Sketch

Field Sketch



EMG

Key:

– - Project Boundary
T – Electrical Transformer
C - Trash Compactor
E – Emergency Generator
G – Grease Trap
I – Sand Interceptor

Not drawn to scale. The north arrow indicator is an approximation of 0° North.

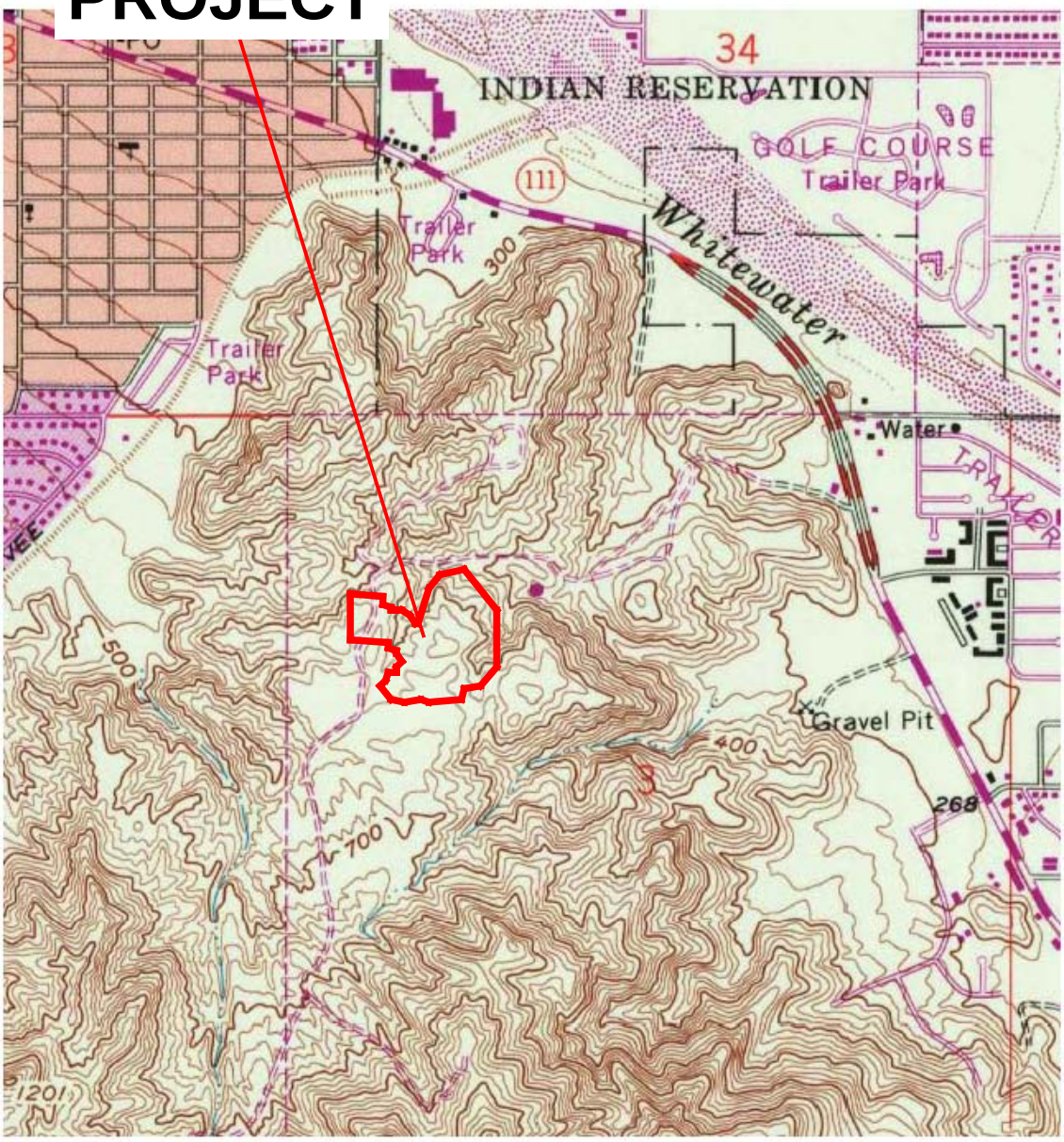
Project Number:
100132.11R-001.135

Project Name:
The Ritz-Carlton Rancho Mirage

On-Site Date:
November 28, 2011

Appendix C:

Maps and Aerial Photographs

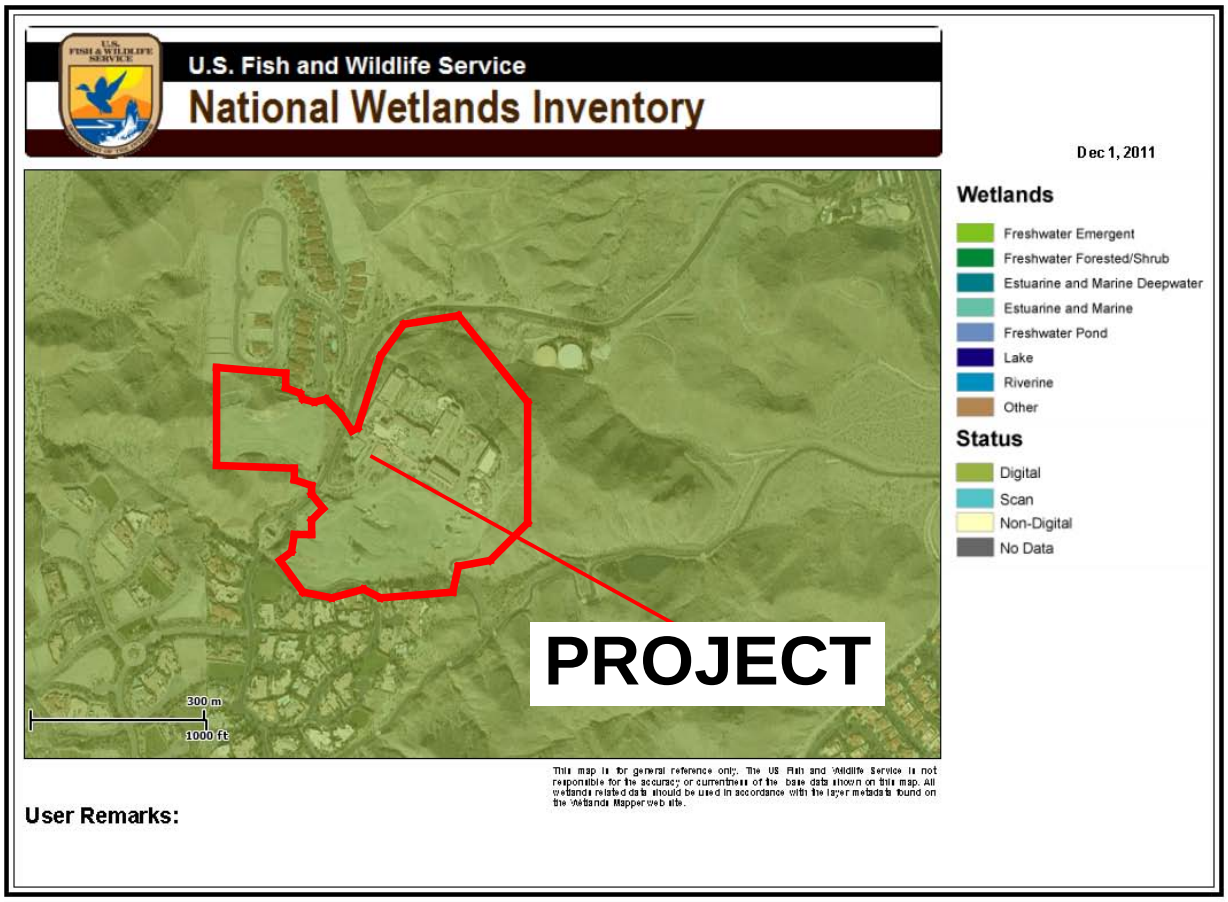


N

EMG

1958 Topographic Map
The Ritz-Carlton Rancho Mirage
68-900 Frank Sinatra Drive, Rancho Mirage, California

DRAWN BY:	**Clarissa Lobaugh**
DATE:	**12/30/2011**
PROJ. #:	**100132.11R-001.135**

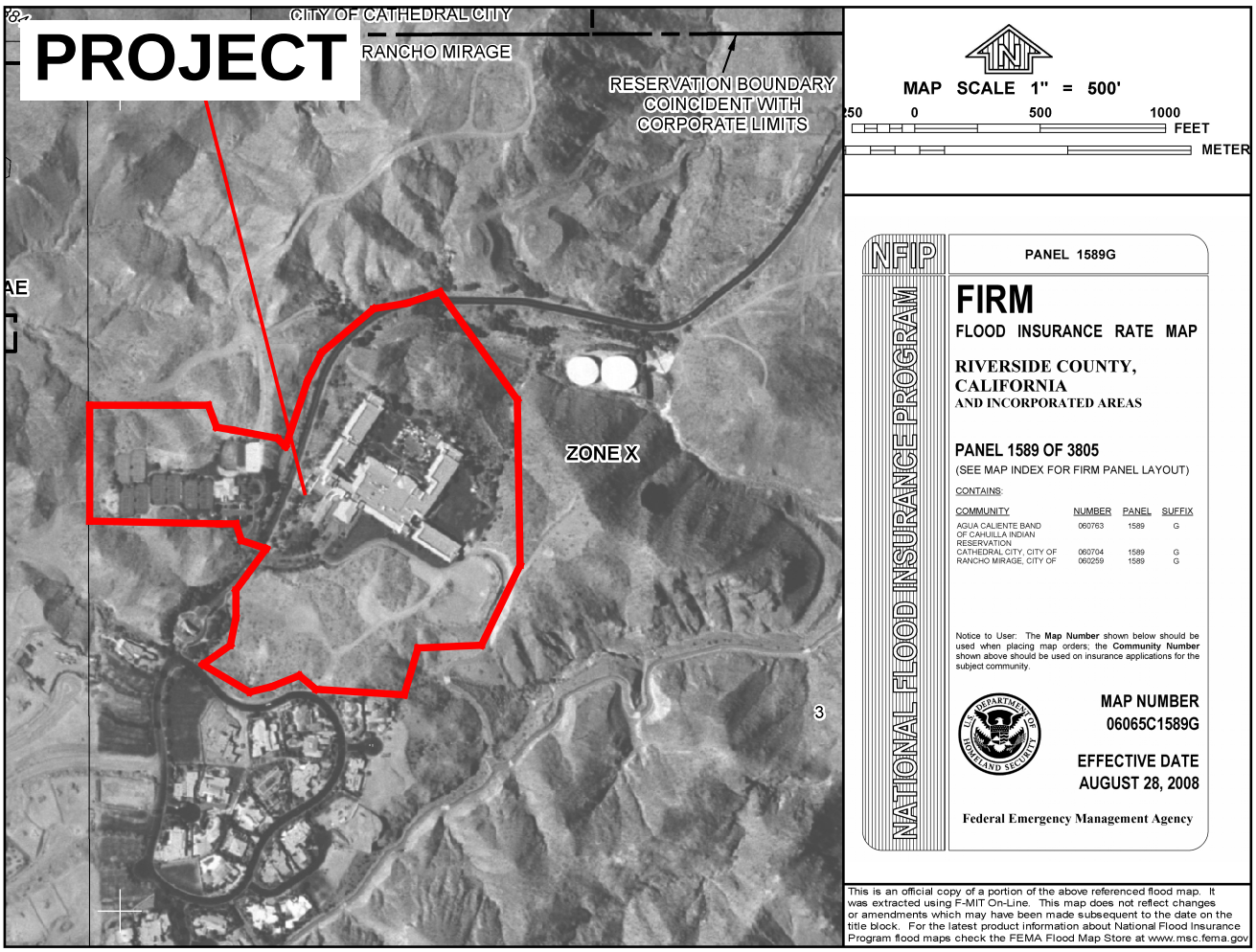




EMG

Wetlands Map
The Ritz-Carlton Rancho Mirage
68-900 Frank Sinatra Drive, Rancho Mirage, California

DRAWN BY:	**Clarissa Lobaugh**
DATE:	**12/30/2011**
PROJ. #:	**100132.11R-001.135**



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EMG

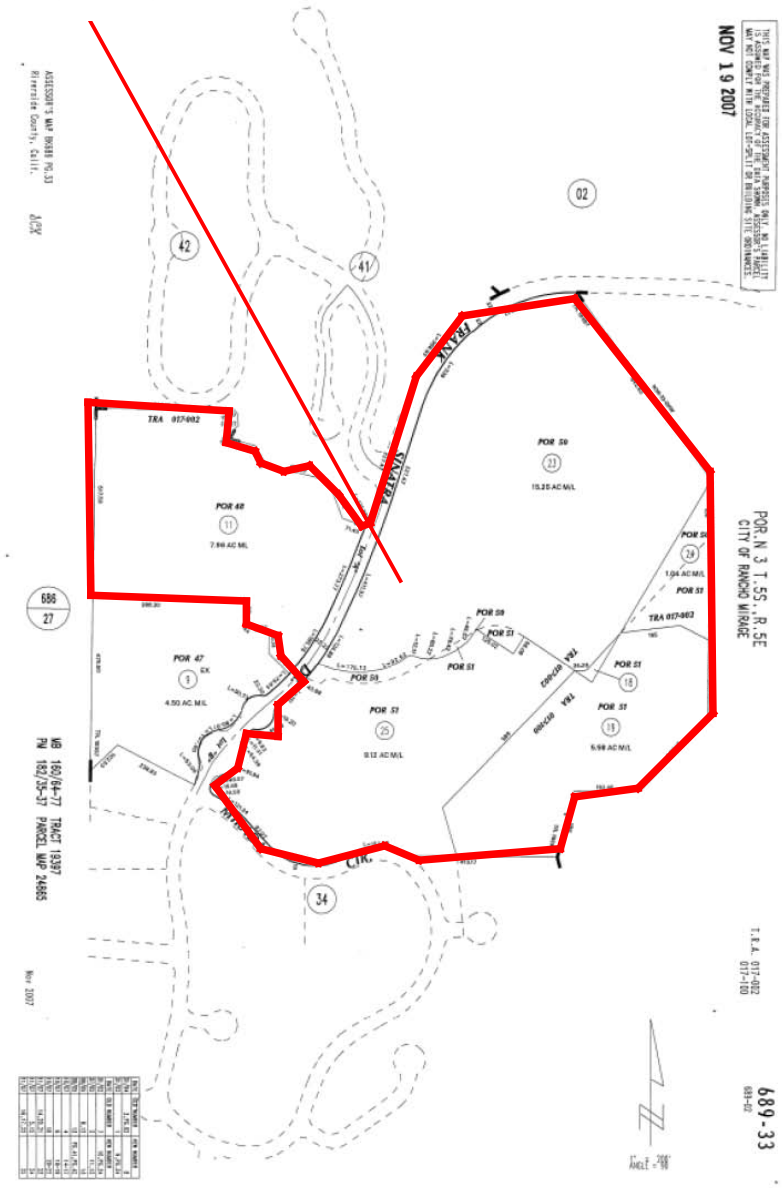
Flood Map
The Ritz-Carlton Rancho Mirage
68-900 Frank Sinatra Drive, Rancho Mirage, California

DRAWN BY: Clarissa Lobaugh

DATE: 12/30/2011

PROJ. #: 100132.11R-001.135

PROJECT

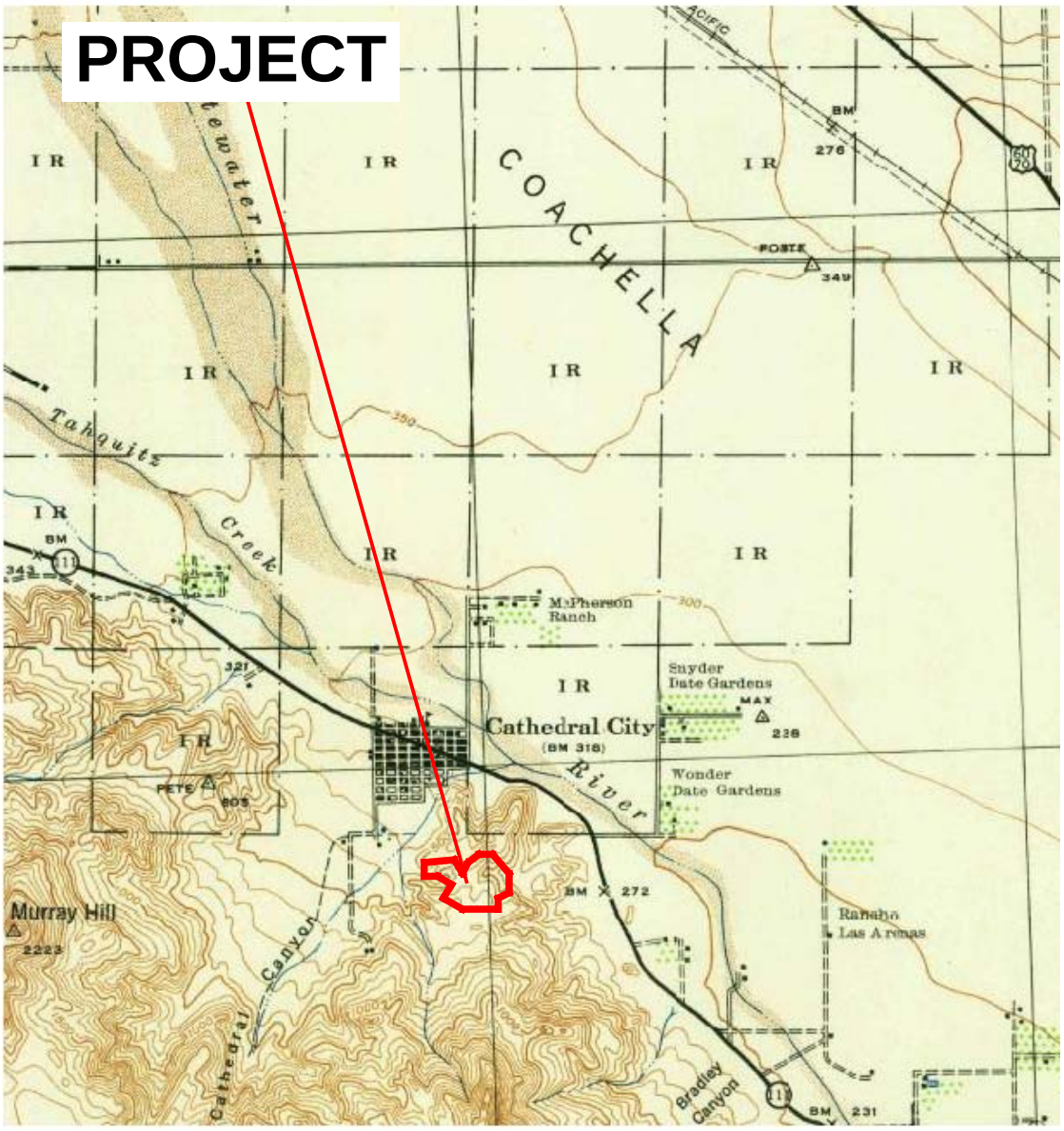


N

EMG

Parcel Map
The Ritz-Carlton Rancho Mirage
68-900 Frank Sinatra Drive, Rancho Mirage, California

DRAWN BY:	**Clarissa Lobaugh**
DATE:	**12/30/2011**
PROJ. #:	**100132.11R-001.135**

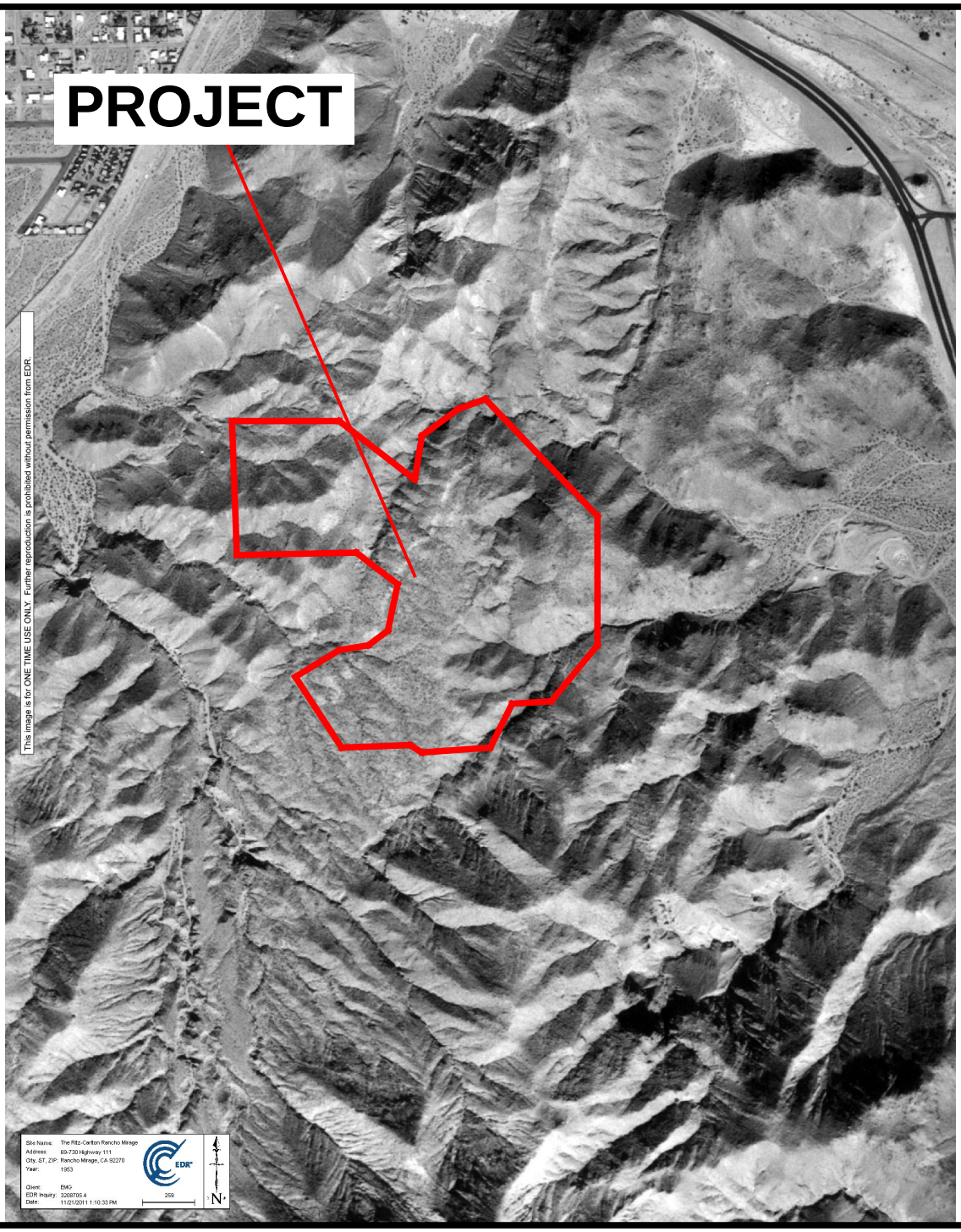


N

EMG

1944 Historical Topo
The Ritz-Carlton Rancho Mirage
68-900 Frank Sinatra Drive, Rancho Mirage, California

DRAWN BY:	**Clarissa Lobaugh**
DATE:	**12/30/2011**
PROJ. #:	**100132.11R-001.135**

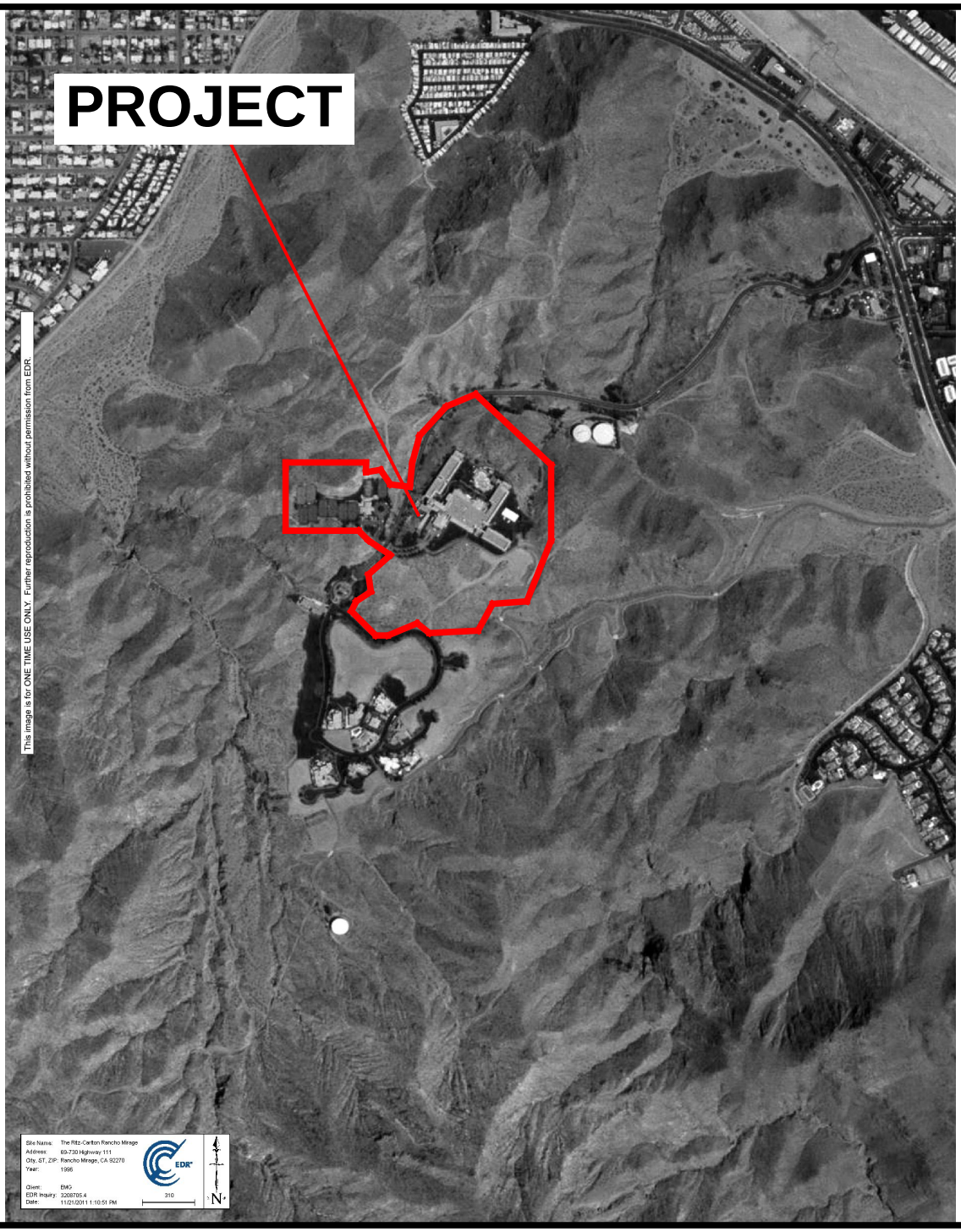


N

EMG

1953 Aerial Photo
The Ritz-Carlton Rancho Mirage
68-900 Frank Sinatra Drive, Rancho Mirage, California

DRAWN BY:	**Clarissa Lobaugh**
DATE:	**12/30/2011**
PROJ. #:	**100132.11R-001.135**



N

EMG

1996 Aerial Photo
The Ritz-Carlton Rancho Mirage
68-900 Frank Sinatra Drive, Rancho Mirage, California

DRAWN BY:	**Clarissa Lobaugh**
DATE:	**12/30/2011**
PROJ. #:	**100132.11R-001.135**



N

EMG

2005 Aerial Photo
The Ritz-Carlton Rancho Mirage
68-900 Frank Sinatra Drive, Rancho Mirage, California

DRAWN BY:	**Clarissa Lobaugh**
DATE:	**12/30/2011**
PROJ. #:	**100132.11R-001.135**

Appendix D:

Questionnaires

KEY SITE MANAGER PRE-SURVEY QUESTIONNAIRE

Date:
Name of person completing questionnaire: Not returned to EMG
Company Name:
Association with the property:
Length of association with property:
Phone Number:
Property Name/Address: 68-900 Frank Sinatra Drive, Rancho Mirage, California 92270
EMG Project Number: 100132.11R-001.135

Directions: Please answer all questions to the best of your knowledge and in good faith. Mark the column corresponding to the appropriate response. Additional details necessary to explain any yes or unknown responses should be provided in the "Comments" column.
Note: U/NR indicates "Unknown" or "No Response", and "N/A" indicates not applicable.

QUESTION		RESPONSE			COMMENTS
		Y	N	U/NR	
1	Is the Project used for an industrial use?				
1B	Are any adjoining properties used for an industrial use?				
2a	To the best of your knowledge, has the Project been used for an industrial use in the past?				
2b	To the best of your knowledge, has any adjoining properties been used for an industrial use in the past?				
3a	Is the Project used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?				
3b	Is any adjoining property used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?				
4a	To the best of your knowledge, has the Project been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?				
4b	To the best of your knowledge, has any adjoining property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?				
5a	Are there currently any automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of greater than five gallons in volume or fifty gallons in the aggregate, stored on or used at the Project?				
5b	To the best of your knowledge, have there been previously any automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of greater than five gallons in volume or fifty gallons in the aggregate, stored on or used at the Project?				
6a	Are there currently any industrial drums (typically 55 gallon) or sacks of chemicals located on the Project?				
6b	To the best of your knowledge, have there been previously any industrial drums (typically 55 gallon) or sacks of chemicals located on the Project?				
7a	Are there currently any groundwater monitoring wells or other groundwater wells (i.e., potable drinking water wells) located on the Project?				
7b	To the best of your knowledge, have there been previously any groundwater monitoring wells or other groundwater wells (i.e., potable drinking water wells) located on the Project?				

QUESTION		RESPONSE			COMMENTS
		Y	N	U/NR	
8a	Has fill dirt been brought onto the Project which originated from a contaminated site?				
8b	Has fill dirt been brought onto the Project which is of an unknown origin?				
9a	Are there currently any pits, ponds or lagoons located on the Project in connection with waste treatment or waste disposal?				
9b	To the best of your knowledge, have there been previously any pits, ponds or lagoons located on the Project in connection with waste treatment or waste disposal?				
10a	Is there currently, any stained soil on the Project?				
10b	To the best of your knowledge, has there been previously any stained soil on the Project?				
11a	Are there currently any registered or unregistered storage tanks (above or underground) located on the Project?				
11b	To the best of your knowledge, have there been previously any registered or unregistered storage tanks (above or underground) located on the Project?				
12a	Are there currently any vent pipes, fill pipes or access ways indicating a fill pipe protruding from the ground on the Project or adjacent to any structure located on the Project?				
12b	To the best of your knowledge, have there been previously any vent pipes, fill pipes or access ways indicating a fill pipe protruding from the ground on the Project or adjacent to any structure located on the Project?				
13a	Are there currently any flooring, drains, or walls located at the Project that are stained by substances other than water or are emitting foul odors?				
13b	To the best of your knowledge, have there been previously any flooring, drains, or walls located at the Project that are stained by substances other than water or are emitting foul odors?				
14a	If the Project is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system?				
14b	If the Project is served by a private well or non-public water system, has the well been designated as contaminated by any government environmental/health agency?				
15a	Have you been informed of the past existence of hazardous substances or petroleum products with respect to the Project or any facility located on the Project?				
15b	Have you been informed of the current existence of hazardous substances or petroleum products with respect to the Project or any facility located on the Project?				
16a	Are there any environmental liens or governmental notification relating to past or current violations of environmental laws with respect to the Project or any facility located on the Project?				
16b	Have you been informed of the past existence of environmental violations with respect to the Project or any facility located on the Project?				
16c	Are you aware of any pending, threatened, or past litigation relevant to hazardous substances of petroleum products in, on or from the property?				
16d	Are you aware of any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on or from the property?				
16e	Are you aware of any notices from any governmental entity regarding any possible violation or environmental laws or possible liability relating to hazardous substances or petroleum products?				

	QUESTION	RESPONSE			COMMENTS
		Y	N	U/NR	
17	Have there been any environmental site assessments of the Project that indicated the presence of hazardous substances or petroleum products on, or contamination of, the Project or recommended further assessment of the Project?				
18	Does the Project discharge waste water on or adjacent to the project, other than storm water, into a storm water sewer system?				
19	Does the Project discharge waste water on or adjacent to the project, other than storm water, or into a sanitary system?				
20	Have any hazardous substances or petroleum products, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the Project?				
21	Is there a transformer, capacitor or any hydraulic equipment for which there are any records indicating the presence of PCBs?				
22	Is there now or has there ever been any asbestos-containing materials (ACM), in any application, on the Project?				
23	Has there ever been any ACM testing conducted on the Project?				
24	Is there an asbestos Operations and Maintenance (O&M) program in place at the Project?				
25	Is there now or has there ever been any lead-based paint (LBP) applications on the Project?				
26	Has there ever been LBP testing conducted on the Project?				
27	Is there a Lead Paint Operations and Maintenance (O&M) Program in place at the Project?				
28	Has the water at the Project ever been tested for lead?				
29	Has Radon testing ever been conducted at the Project?				
30	Are there any other Operations and Maintenance (O&M) programs in place that we should be made aware of?				
31	Is the Project or any portion of the Project located or involved in any environmentally sensitive areas (i.e., wetlands, coastal barrier resource areas, coastal barrier improvement act areas, flood plains, endangered species, etc.)?				
32	Do you know or suspect that mold was or is present in the building(s) or HVAC system? - If "Yes", proceed to question #33. - If "No"", skip question #33 and proceed to question #34.				
33	Are there reliable procedures that specify the actions (i.e. operations and maintenance) to be taken to prevent and/or respond to mold or mold producing problems?				
34	Is there a mold Operations and Maintenance (O&M) program in place at the Project?				
35	Is the HVAC system inspected at least annually?				
36	Have identified HVAC problems been corrected in a timely manner?				
37	Is there now, or has there ever been evidence of mold or mildew present at the building(s)? If so, when?				
38	Is there now, or has there ever been any water damage in the building(s), whether from flooding, plumbing, roof leaks, or other sources? If so, when?				
39	Has there ever been any sort of Indoor Air Quality (IAQ) or mold testing conducted in the building(s)?				
	Summarize Historical Use:				

ASTM E1527-05 USER QUESTIONNAIRE
PHASE I ENVIRONMENTAL SITE ASSESSMENT

EMG has been retained to conduct a Phase I Environmental Site Assessment (ESA) on your behalf as agreed in our contract for the subject transaction. The Phase I ESA will involve site observations, interviews, and a review of available documentation. To ensure the success of the assessment, and in accordance with the ASTM E1527-05 Scope of Work, we are required to ask the following questions to the User of the report seeking to fulfill the User Requirements of the Standard. Please complete and return via email to ENTER EMAIL HERE or by fax to 410-785-6220 (within one day of receipt).

Date: 11-18-2011

Company name:	Rancho California Investments, LLC		
Property Name/Street Address:	68-900 Frank Sinatra Drive, Rancho Mirage, CA 92270		
Property City/State/Zip:	Rancho Mirage, CA 92270		
Name of person completing questionnaire:	Blythe Edwards	**Phone Number:**	305-416-4571
Role/Title:	Vice President	**Fax Number:**	305-442-9809
Length of association with property:	5 years	**E-mail address:**	bedwards@gencomgrp.com
Please check one:	**User:** ☐	**User Representative:** ☒	

Directions: Please answer all questions to the best of your knowledge and in good faith. Mark the column corresponding to the appropriate response. Additional details necessary to explain any yes or unknown responses should be provided in the "Comments" column. Note: *U/NR* indicates *"Unknown"* or *"No Response"*, and *"N/A"* indicates not applicable.

	QUESTION		RESPONSE			COMMENTS
			Y	N	U/ NR	
1	Are you aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property?		☐	☒	☐	
2	Are you aware of any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on or from the property?		☐	☒	☐	
3	Are you aware of any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products?		☐	☒	☐	
4	Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?		☐	☒	☐	
5	Are you aware of any Activity and Use Limitations, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?		☐	☐	☒	
6	As the user of this ESA do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?		☐	☒	☐	
7	Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?		☐	☐	☒	
8	Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user		☐	☐	☒	
	8 (a)	Do you know the past uses of the property?	☒	☐	☐	Operating hotel resort prior to closure in 2006

USER QUESTIONNAIRE
PHASE I ENVIRONMENTAL SITE ASSESSMENT

QUESTION			RESPONSE			COMMENTS
			Y	N	U/ NR	
	8 (b)	Do you know of specific chemicals that are present or once were present at the property?	☒	☐	☐	HVAC systems (chillers) require use of chemicals, which are biodegradable and environmentally friendly. There are currently no combustible materials stored onsite.
	8 (c)	Do you know of spills or other chemical releases that have taken place at the property?	☐	☒	☐	
	8 (d)	Do you know of any environmental cleanups that have taken place at the property?	☐	☒	☐	
9	As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property?		☐	☒	☐	

If you have access to any of the following helpful documents, please indicate them below and then send them to EMG via standard mail or e-mail along with this questionnaire. Mailing address: 222 Schilling Circle, Suite 275, Hunt Valley, MD 21031

☐ **Helpful Documents to be forwarded EMG:**

☒ Environmental site assessment reports (i.e., Phase I, Phase II, tank testing results, radon, lead paint, or asbestos testing, etc.)

☐ Environmental compliance audit reports; risk assessments; and recorded Activity and Use Limitations (AULs)

☐ Environmental permits (i.e., solid waste disposal, hazardous waste disposal, wastewater, NPDES, underground injection, etc.)

☐ Registrations for underground storage tanks (USTs) and aboveground storage tanks (ASTs)

☐ Registrations for underground injection systems

☐ Material safety data sheets

☐ Community right-to-know plan

☐ Safety plans; preparedness and prevention plans; spill prevention, countermeasure, and control plans, etc

☒ Reports regarding hydrogeological or geotechnical conditions on the property and surrounding area

☐ Notices/correspondence from any agency relating to past/current violations of environmental laws, or liens encumbering the property

☐ Hazardous waste generator notices or reports

☐ Other:

ASTM E1527-05 OWNER QUESTIONNAIRE
PHASE I ENVIRONMENTAL SITE ASSESSMENT

EMG has been retained to conduct a Phase I Environmental Site Assessment (ESA) of your facilities as part of our Client's transactional due diligence process. The Phase I ESA will involve site observations, interviews, and a review of available documentation. To ensure the success of the assessment, and in accordance with the ASTM E1527-05 Scope of Work, we are required to ask the following questions to the Owner or Owner representative. Please complete and return via email to ENTER EMAIL HERE or by fax to 410-785-6220 (within one day of receipt).

Date: 11-18-11

Company name:	Rancho California Investments, LLC		
Property Name/Street Address:	Ritz-Carlton Rancho Mirage, 68-900 Frank Sinatra Drive		
Property City/State/Zip:	Rancho Mirage, CA 92270		
Name of person completing questionnaire:	Blythe Edwards	**Phone Number:**	305-416-4571
Role/Title:	Vice President	**Fax Number:**	305-442-9809
Length of association with property:	5 years	**E-mail address:**	bedwards@gencomgrp.com
Please check one:	**Owner:** ☐	**Owner Representative:** ☒	

Directions: Please answer all questions to the best of your knowledge and in good faith. Mark the column corresponding to the appropriate response. Additional details necessary to explain any yes or unknown responses should be provided in the "Comments" column. Note: *U/NR* indicates *"Unknown"* or *"No Response"*, and *"N/A"* indicates not applicable.

	QUESTION	RESPONSE			COMMENTS
		Y	N	U/ NR	
1	Are you aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property?	☐	☒	☐	
2	Are you aware of any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on or from the property?	☐	☒	☐	
3	Are you aware of any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products?	☐	☒	☐	

Interviews with Owners and Occupants: Section 10 of the ASTM E1527-05 Standard recommends that in addition to the three specific questions above, the Environmental Professional shall attempt to interview owners, operators, and occupants of the property to obtain information indicating recognized environmental conditions in connection with the property. As such, EMG is providing a Pre-Survey Questionnaire under separate cover to the Key Site Manager or other site representative as designated by either the current owner or the intended User of the assessment data.

If you have access to any of the following helpful documents, please indicate them below and then send them to EMG via standard mail or e-mail along with this questionnaire. Mailing address: 222 Schilling Circle, Suite 275; Hunt Valley, MD 21031.

☐ **Helpful Documents to be forwarded EMG:**

☒ Environmental site assessment reports (i.e., Phase I, Phase II, tank testing results, radon, lead paint, or asbestos testing, etc.)

☐ Environmental compliance audit reports; risk assessments; and recorded Activity and Use Limitations (AULs)

☐ Environmental permits (i.e., solid waste disposal, hazardous waste disposal, wastewater, NPDES, underground injection, etc.)

☐ Registrations for underground storage tanks (USTs) and aboveground storage tanks (ASTs)

☐ Registrations for underground injection systems

☐ Material safety data sheets

☐ Community right-to-know plan

☐ Safety plans; preparedness and prevention plans; spill prevention, countermeasure, and control plans, etc

☒ Reports regarding hydrogeological or geotechnical conditions on the property and surrounding area

☐ Notices/correspondence from any agency relating to past/current violations of environmental laws, or liens encumbering the property

☐ Hazardous waste generator notices or reports

☐ Other:

Appendix E:

Laboratory Analytical Results

No documents have been associated with this appendix.

Appendix F:

Regulatory Database Report

Project #: 100132.001.135
The Ritz-Carlton Rancho Mirage
69-730 Highway 111
Rancho Mirage, CA 92270

Inquiry Number: 3208705.2s
November 16, 2011

The EDR Radius Map™ Report

Prepared for EMG

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

69-730 HIGHWAY 111
RANCHO MIRAGE, CA 92270

COORDINATES

Latitude (North):	33.766500 - 33° 45' 59.4''
Longitude (West):	116.458000 - 116° 27' 28.8''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	550190.5
UTM Y (Meters):	3736204.8

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	33116-G4 CATHEDRAL CITY, CA
Most Recent Revision:	1981

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	2009, 2010
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
HOSPITALITY DENTAL GROUP RANCHO M 69-730 HIGHWAY 111 STE 105 RANCHO MIRAGE, CA 92270	HAZNET	N/A

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR ---------- EnviroStor Database

EXECUTIVE SUMMARY

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Information System

State and tribal leaking storage tank lists

SLIC ---------- Statewide SLIC Cases

State and tribal registered storage tank lists

UST ---------- Active UST Facilities
AST ---------- Aboveground Petroleum Storage Tank Facilities
INDIAN UST ---------- Underground Storage Tanks on Indian Land
FEMA UST ---------- Underground Storage Tank Listing

State and tribal voluntary cleanup sites

VCP ---------- Voluntary Cleanup Program Properties
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
ODI ---------- Open Dump Inventory
WMUDS/SWAT ---------- Waste Management Unit Database
SWRCY ---------- Recycler Database
HAULERS ---------- Registered Waste Tire Haulers Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ---------- Clandestine Drug Labs
HIST Cal-Sites ---------- Historical Calsites Database
SCH ---------- School Property Evaluation Program
Toxic Pits ---------- Toxic Pits Cleanup Act Sites
CDL ---------- Clandestine Drug Labs
US HIST CDL ---------- National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

CA FID UST ---------- Facility Inventory Database
HIST UST ---------- Hazardous Substance Storage Container Database
SWEEPS UST ---------- SWEEPS UST Listing

Local Land Records

LIENS 2 ---------- CERCLA Lien Information

LUCIS	Land Use Control Information System
LIENS	Environmental Liens Listing
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing

Other Ascertainable Records

RCRA-NonGen	RCRA - Non Generators
DOT OPS	Incident and Accident Data
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
CA BOND EXP. PLAN	Bond Expenditure Plan
WDS	Waste Discharge System
NPDES	NPDES Permits Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE	Hazardous Waste & Substance Site List
DRYCLEANERS	Cleaner Facilities
WIP	Well Investigation Program Case List
ENF	Enforcement Action Listing
EMI	Emissions Inventory Data
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
PROC	Certified Processors Database
FINANCIAL ASSURANCE	Financial Assurance Information Listing
HWP	EnviroStor Permitted Facilities Listing
PCB TRANSFORMER	PCB Transformer Registration Database
MWMP	Medical Waste Management Program Listing
COAL ASH DOE	Sleam-Electric Plan Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
HWT	Registered Hazardous Waste Transporter Database

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants	EDR Proprietary Manufactured Gas Plants

EXECUTIVE SUMMARY

EDR Historical Auto Stations EDR Proprietary Historic Gas Stations
EDR Historical Cleaners EDR Proprietary Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/15/2011 has revealed that there is 1 RCRA-SQG site within approximately 0.375 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
RITZ CARLTON	***68900 FRANK SINATRA DR***	***0 - 1/8 (0.086 mi.) WSW***	***A3***	***11***

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 09/19/2011 has revealed that there are 7 LUST sites within approximately 0.75 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
PALM SPRINGS MOTOR	69200 HWY 111	1/2 - 1 (0.727 mi.) NNE	B4	12
PALM SPRINGS FORD MOTORS Status: Completed - Case Closed	69200 HIGHWAY 111	1/2 - 1 (0.729 mi.) NNE	B5	12
RANCHO MIRAGE HAND CAR WASH Status: Completed - Case Closed	69800 HIGHWAY 111	1/2 - 1 (0.735 mi.) ENE	C6	13
RANCHO MIRAGE HAND CAR WASH	69800 HWY 111	1/2 - 1 (0.735 mi.) ENE	C7	15
EXXON STATION #7-3156 Status: Completed - Case Closed	***69800 111***	***1/2 - 1 (0.735 mi.) ENE***	***C8***	***15***
SHELL STATION Status: Completed - Case Closed	69010 HIGHWAY 111	1/2 - 1 (0.748 mi.) N	D10	17
SHELL STATION Status: Completed - Case Closed	***69010 111***	***1/2 - 1 (0.748 mi.) N***	***D11***	***18***

INDIAN LUST: A listing of leaking underground storage tank locations on Indian Land.

A review of the INDIAN LUST list, as provided by EDR, and dated 10/01/2011 has revealed that there is 1 INDIAN LUST site within approximately 0.75 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
CATHEDRAL CITY OIL (NOW EQUILI	69010 HWY 111	1/2 - 1 (0.748 mi.) N	D9	16

ADDITIONAL ENVIRONMENTAL RECORDS

Records of Emergency Release Reports

CHMIRS: The California Hazardous Material Incident Report System contains information on reported hazardous material incidents, i.e., accidental releases or spills. The source is the California Office of Emergency Services.

A review of the CHMIRS list, as provided by EDR, and dated 12/31/2010 has revealed that there is 1 CHMIRS site within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
Not reported	68900 FRANK SINATRA DR.	0 - 1/8 (0.086 mi.) WSW	A2	9

Other Ascertainable Records

Notify 65: Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

A review of the Notify 65 list, as provided by EDR, and dated 10/21/1993 has revealed that there is 1 Notify 65 site within approximately 1.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
SHELL OIL SERVICE STATION	69010 HWY 111 @ DATE PL	1/2 - 1 (0.828 mi.) N	12	23

INDIAN RESERV: This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

A review of the INDIAN RESERV list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 INDIAN RESERV site within approximately 1 mile of the target property.

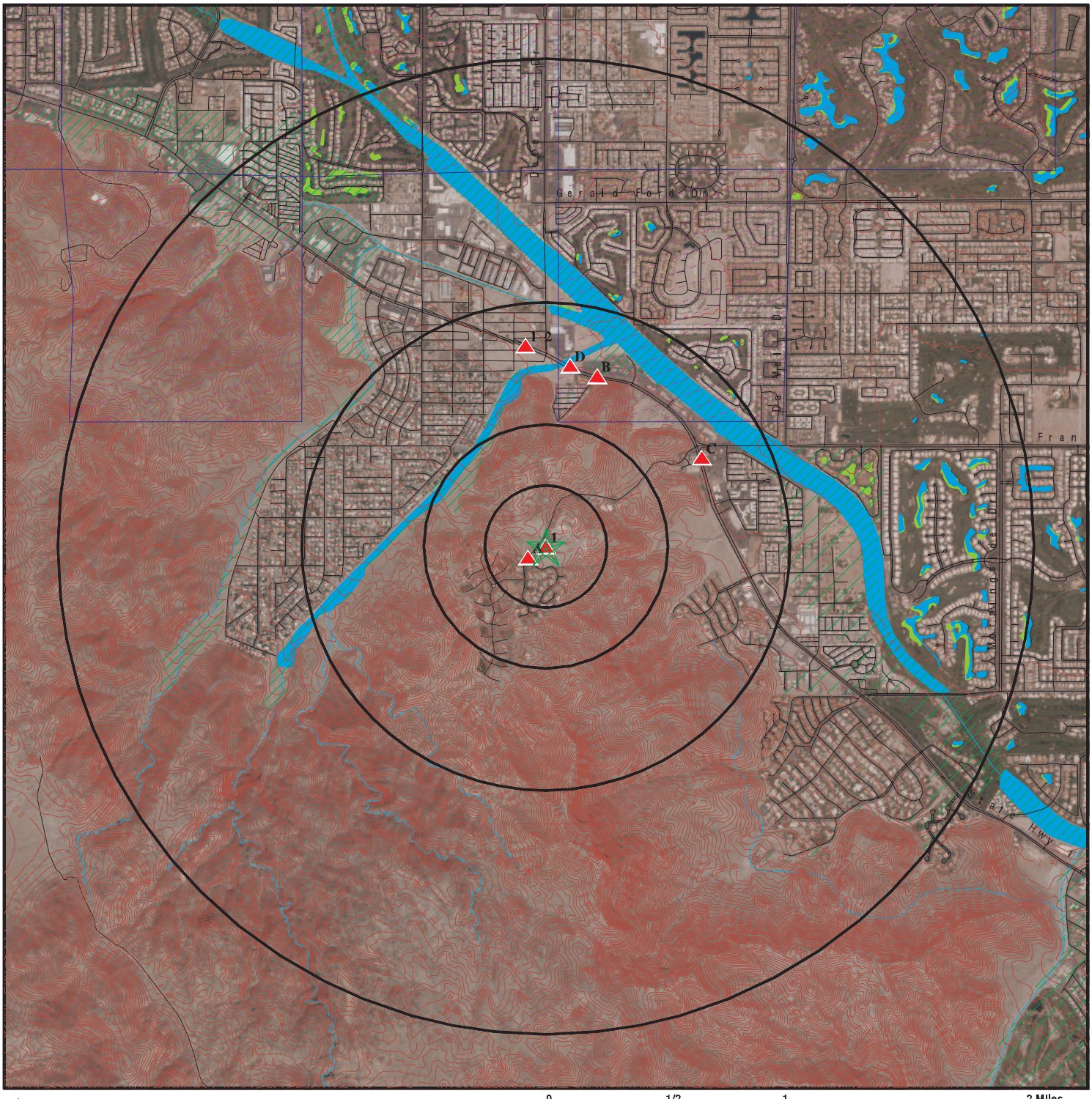
Site	Address	Dist / Dir	Map ID	Page
AGUA CALIENTE INDIAN RESERVATI		1/2 - 1 (0.513 mi.) N	0	9

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 20 records.

Site Name	Database(s)
CA PARKS & REC SALTON SEA	HIST CORTESE
NAVAL AIR FACILITY EL CENTRO	CERCLIS-NFRAP,RCRA-LQG,FINDS
KAY OLESEN	LUST SAN MATEO
WASH (THE)	LUST SAN MATEO
JESSUP AUTO PLAZA	AST
CITY OF RANCHO MIRAGE	HAZNET
AMERICAN INDUSTRIAL MFG	RCRA-SQG,FINDS,HAZNET
GLIDDEN COMPANY	RCRA-SQG,FINDS
DESERT SHADOWS RV RESORT	RCRA-CESQG
RANCHO MIRAGE ELEMENTARY	FINDS
AUDREY LYNN MINE	MINES
ROBERTSONS READY MIX, INC.	MINES
TXI RIVERSIDE CEMENT	MINES
ELSINORE READY MIX CO., INC.	MINES
GRANITE CONSTRUCTION CO.	MINES
FOSTER SAND & GRAVEL CO.	MINES
WHITEWATER ROCK & SUPPLY CO	MINES
PACIFIC CLAY PRODS CO	MINES
WHITEWATER ROCK & SUPPLY CO.	MINES
WYROC, INC.	MINES

OVERVIEW MAP - 3208705.2s



0 1/2 1 2 Miles

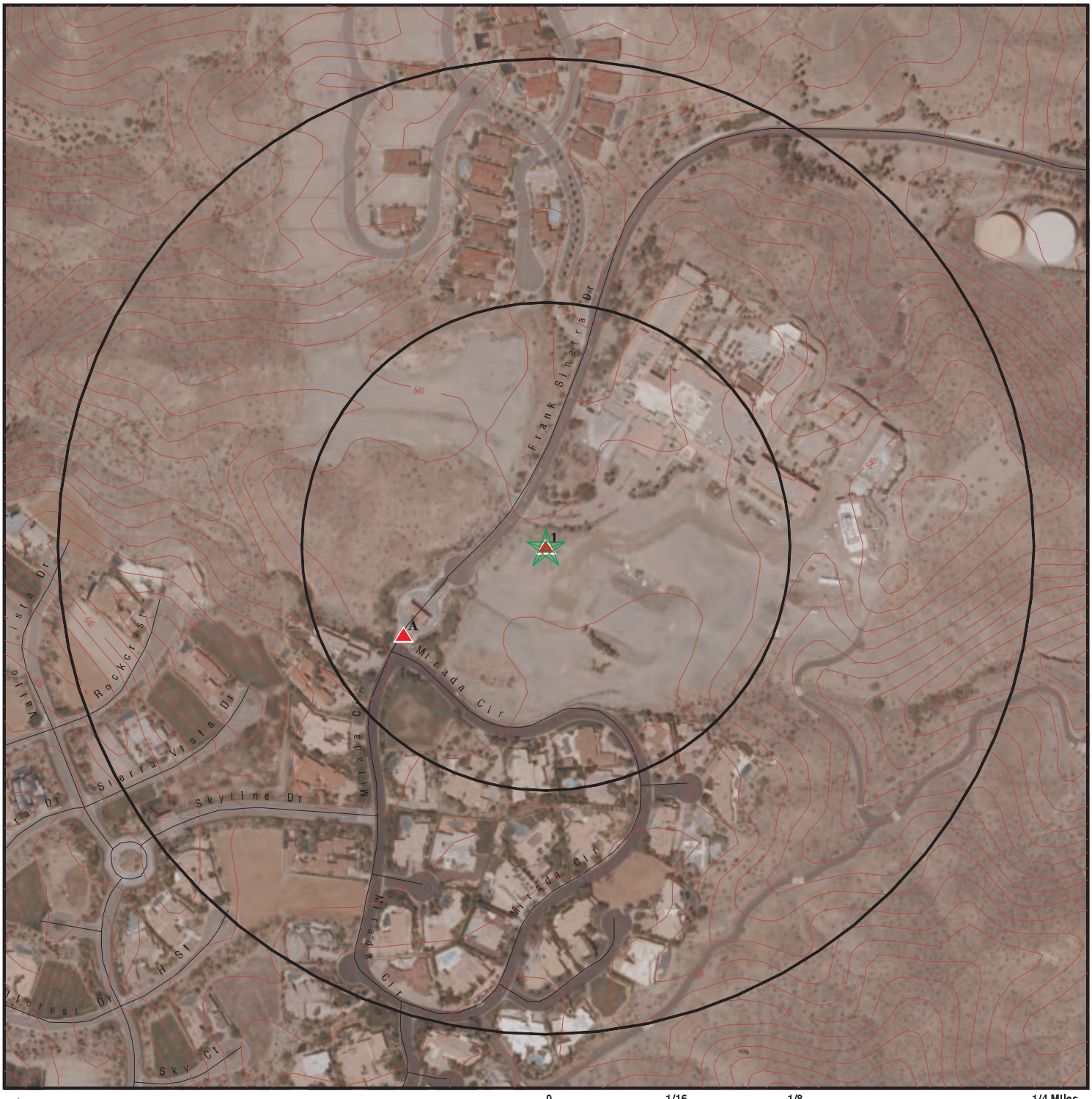
- Target Property
- Toxic Sites
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	The Ritz-Carlton Rancho Mirage	CLIENT:	EMG
ADDRESS:	69-730 Highway 111 Rancho Mirage CA 92270	CONTACT:	Jason Swam
		INQUIRY #:	3208705.2s
LAT/LONG:	33.7665 / 116.4580	DATE:	November 16, 2011 4:35 pm

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DETAIL MAP - 3208705.2s



- Target Property
- Toxic Sites
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	The Ritz-Carlton Rancho Mirage	CLIENT:	EMG
ADDRESS:	69-730 Highway 111 Rancho Mirage CA 92270	CONTACT:	Jason Swam
LAT/LONG:	33.7665 / 116.4580	INQUIRY #:	3208705.2s
		DATE:	November 16, 2011 4:36 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL		1.250	0	0	0	0	0	0
Proposed NPL		1.250	0	0	0	0	0	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL		1.250	0	0	0	0	0	0
Federal CERCLIS list								
CERCLIS		0.750	0	0	0	0	NR	0
FEDERAL FACILITY		1.000	0	0	0	0	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP		0.750	0	0	0	0	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS		1.250	0	0	0	0	0	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF		0.750	0	0	0	0	NR	0
Federal RCRA generators list								
RCRA-LQG		0.375	0	0	0	NR	NR	0
RCRA-SQG		0.375	1	0	0	NR	NR	1
RCRA-CESQG		0.375	0	0	0	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS		0.250	0	0	NR	NR	NR	0
US INST CONTROL		0.250	0	0	NR	NR	NR	0
Federal ERNS list								
ERNS		0.250	0	0	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE		1.000	0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR		1.000	0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF		0.750	0	0	0	0	NR	0
State and tribal leaking storage tank lists								
LUST		0.750	0	0	0	7	NR	7
SLIC		0.500	0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST		0.750	0	0	0	1	NR	1
State and tribal registered storage tank lists								
UST		0.375	0	0	0	NR	NR	0
AST		0.250	0	0	NR	NR	NR	0
INDIAN UST		0.375	0	0	0	NR	NR	0
FEMA UST		0.250	0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP		0.750	0	0	0	0	NR	0
INDIAN VCP		0.500	0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS		0.750	0	0	0	0	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
WMUDS/SWAT		0.750	0	0	0	0	NR	0
SWRCY		0.750	0	0	0	0	NR	0
HAULERS		TP	NR	NR	NR	NR	NR	0
INDIAN ODI		0.500	0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL		TP	NR	NR	NR	NR	NR	0
HIST Cal-Sites		1.000	0	0	0	0	NR	0
SCH		0.250	0	0	NR	NR	NR	0
Toxic Pits		1.250	0	0	0	0	0	0
CDL		TP	NR	NR	NR	NR	NR	0
US HIST CDL		TP	NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST		0.500	0	0	0	NR	NR	0
HIST UST		0.500	0	0	0	NR	NR	0
SWEEPS UST		0.500	0	0	0	NR	NR	0
Local Land Records								
LIENS 2		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
LIENS		TP	NR	NR	NR	NR	NR	0
DEED		0.500	0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS		TP	NR	NR	NR	NR	NR	0
CHMIRS		0.250	1	0	NR	NR	NR	1
LDS		TP	NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS		TP	NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen		TP	NR	NR	NR	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN		1.250	0	0	0	0	0	0
WDS		TP	NR	NR	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
Cortese		0.750	0	0	0	0	NR	0
HIST CORTESE		0.500	0	0	0	NR	NR	0
Notify 65		1.250	0	0	0	1	0	1
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
WIP		0.250	0	0	NR	NR	NR	0
ENF		TP	NR	NR	NR	NR	NR	0
HAZNET	X	TP	NR	NR	NR	NR	NR	0
EMI		TP	NR	NR	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	1	NR	1
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
PROC		0.500	0	0	0	NR	NR	0
FINANCIAL ASSURANCE		TP	NR	NR	NR	NR	NR	0
HWP		1.000	0	0	0	0	NR	0
PCB TRANSFORMER		TP	NR	NR	NR	NR	NR	0
MWMP		0.250	0	0	NR	NR	NR	0
COAL ASH DOE		TP	NR	NR	NR	NR	NR	0
COAL ASH EPA		0.500	0	0	0	NR	NR	0
HWT		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0
EDR Historical Auto Stations		0.250	0	0	NR	NR	NR	0
EDR Historical Cleaners		0.250	0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1 HOSPITALITY DENTAL GROUP RANCHO MIRAGE **HAZNET** **S103957955**
Target 69-730 HIGHWAY 111 STE 105 **N/A**
Property RANCHO MIRAGE, CA 92270

HAZNET:

Year:	2010
Gepaid:	CAL000157220
Contact:	DEBBIE BOTTROFF OFFICE MANAGER
Telephone:	7603218869
Mailing Name:	Not reported
Mailing Address:	69730 US HIGHWAY 111 STE 105
Mailing City,St,Zip:	RANCHO MIRAGE, CA 922700000
Gen County:	Not reported
TSD EPA ID:	TXD077603371
TSD County:	Not reported
Waste Category:	Off-specification, aged or surplus organics
Disposal Method:	FUEL BLENDING PRIOR TO ENERGY RECOVERY AT ANOTHER SITE
Tons:	0.02
Facility County:	Riverside

Year:	2010
Gepaid:	CAL000157220
Contact:	DEBBIE BOTTROFF OFFICE MANAGER
Telephone:	7603218869
Mailing Name:	Not reported
Mailing Address:	69730 US HIGHWAY 111 STE 105
Mailing City,St,Zip:	RANCHO MIRAGE, CA 922700000
Gen County:	Not reported
TSD EPA ID:	CAT000613893
TSD County:	Not reported
Waste Category:	Not reported
Disposal Method:	STORAGE, BULKING, AND/OR TRANSFER OFF SITE--NO TREATMENT/REOVERY (H010-H129) OR (H131-H135)
Tons:	Not reported
Facility County:	Riverside

Year:	2010
Gepaid:	CAL000157220
Contact:	DEBBIE BOTTROFF OFFICE MANAGER
Telephone:	7603218869
Mailing Name:	Not reported
Mailing Address:	69730 US HIGHWAY 111 STE 105
Mailing City,St,Zip:	RANCHO MIRAGE, CA 922700000
Gen County:	Not reported
TSD EPA ID:	TXD077603371
TSD County:	Not reported
Waste Category:	Off-specification, aged or surplus organics
Disposal Method:	FUEL BLENDING PRIOR TO ENERGY RECOVERY AT ANOTHER SITE
Tons:	0.0125
Facility County:	Riverside

Year:	2010
Gepaid:	CAL000157220
Contact:	DEBBIE BOTTROFF OFFICE MANAGER
Telephone:	7603218869
Mailing Name:	Not reported
Mailing Address:	69730 US HIGHWAY 111 STE 105
Mailing City,St,Zip:	RANCHO MIRAGE, CA 922700000
Gen County:	Not reported

HOSPITALITY DENTAL GROUP RANCHO MIRAGE (Continued) **S103957955**

TSD EPA ID: CAT000613893
TSD County: Not reported
Waste Category: Not reported
Disposal Method: STORAGE, BULKING, AND/OR TRANSFER OFF SITE--NO TREATMENT/REOVERY (H010-H129) OR (H131-H135)
Tons: 0.03336
Facility County: Riverside

Year: 2010
Gepaid: CAL000157220
Contact: DEBBIE BOTTROFF OFFICE MANAGER
Telephone: 7603218869
Mailing Name: Not reported
Mailing Address: 69730 US HIGHWAY 111 STE 105
Mailing City,St,Zip: RANCHO MIRAGE, CA 922700000
Gen County: Not reported
TSD EPA ID: CAT000613893
TSD County: Not reported
Waste Category: Not reported
Disposal Method: STORAGE, BULKING, AND/OR TRANSFER OFF SITE--NO TREATMENT/REOVERY (H010-H129) OR (H131-H135)
Tons: 0.04
Facility County: Riverside

Click this hyperlink while viewing on your computer to access
32 additional CA_HAZNET: record(s) in the EDR Site Report.

IND RES **AGUA CALIENTE INDIAN RESERVATION** **INDIAN RESERV** **CIND100449**
Region **N/A**
North **AGUA CALIENTE INDIAN RESE (County), CA**
1/2-1
2707 ft.

INDIAN RESERV:
Feature: Indian Reservation
Name: Agua Caliente Indian Reservation
Agency: BIA
State: CA

A2 **CHMIRS** **S106396428**
WSW **68900 FRANK SINATRA DR.** **N/A**
< 1/8 **RANCHO MIRAGE, CA**
0.086 mi.
454 ft. **Site 1 of 2 in cluster A**

CHMIRS:
OES Incident Number: 03-5821
OES notification: 11/10/200306:59:18 AM
OES Date: Not reported
OES Time: Not reported
Incident Date: Not reported
Date Completed: **Not reported**
Property Use: Not reported
Agency Id Number: Not reported
Agency Incident Number: Not reported
Time Notified: Not reported

(Continued) **S106396428**

Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
Special Studies 1:	Not reported
Special Studies 2:	Not reported
Special Studies 3:	Not reported
Special Studies 4:	Not reported
Special Studies 5:	Not reported
Special Studies 6:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA/DOT/PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Comments:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	Not reported
Waterway:	Storm Drain
Spill Site:	Not reported
Cleanup By:	Co. Health
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	2003
Agency:	Riverside Co. Fire
Incident Date:	11/10/200312:00:00 AM
Admin Agency:	Riverside County Environmental Health
Amount:	Not reported
Contained:	Yes
Site Type:	Road
E Date:	Not reported
Substance:	Diesel
Quantity Released:	Not reported
BBLS:	0
Cups:	0
CUFT:	0
Gallons:	1
Grams:	0
Pounds:	0
Liters:	0
Ounces:	0
Pints:	0
Quarts:	0

(Continued) **S106396428**

Sheen:	0
Tons:	0
Unknown:	0
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
Description:	Released from a truck's saddle tank, due to a solo vehicle accident.

A3 **RITZ CARLTON** **RCRA-SQG** **1000685878**
WSW **68900 FRANK SINATRA DR** **CAD983626011**
< 1/8 **RANCHO MIRAGE, CA 92270**
0.086 mi.
454 ft. **Site 2 of 2 in cluster A**

RCRA-SQG:

Date form received by agency:	03/25/1992
Facility name:	RITZ CARLTON
Facility address:	68900 FRANK SINATRA DR RANCHO MIRAGE, CA 92270
EPA ID:	CAD983626011
Contact:	NELSON TICMAN
Contact address:	68900 FRANK SINATRA DR RANCHO MIRAGE, CA 92270
Contact country:	US
Contact telephone:	(619) 321-8282
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	RITZ CARLTON CORP
Owner/operator address:	68900 FRANK SINATRA DR RANCHO MIRAGE, CA 92270
Owner/operator country:	Not reported
Owner/operator telephone:	(619) 321-8282
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No

RITZ CARLTON (Continued) **1000685878**

Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

B4 **PALM SPRINGS MOTOR** **LUST** **S103820968**
NNE **69200 HWY 111** **N/A**
1/2-1 **CATHEDRAL CITY, CA**
0.727 mi.
3839 ft. **Site 1 of 2 in cluster B**

RIVERSIDE CO. LUST:
Region: RIVERSIDE
Facility ID: 94180
Site Closed: Yes
Date Closed: 6/9/1994
Case Type: Soil only

B5 **PALM SPRINGS FORD MOTORS** **LUST** **S106152961**
NNE **69200 HIGHWAY 111** **N/A**
1/2-1 **CATHEDRAL CITY, CA 92234**
0.729 mi.
3851 ft. **Site 2 of 2 in cluster B**

LUST:
Region: STATE
Global Id: T0606500917
Latitude: 33.7764445
Longitude: -116.4534234
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 09/06/1994
Lead Agency: RIVERSIDE COUNTY LOP
Case Worker: RIV
Local Agency: RIVERSIDE COUNTY LOP
RB Case Number: 7T2234013
LOC Case Number: 94180
File Location: Local Agency Warehouse
Potential Media Affect: Soil
Potential Contaminants of Concern: Gasoline
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

LUST:
Global Id: T0606500917
Contact Type: Regional Board Caseworker
Contact Name: Phan Le
Organization Name: COLORADO RIVER BASIN RWQCB (REGION 7)
Address: 73720 FRED WARING DRIVE SUITE #100
City: PALM DESERT
Email: ple@waterboards.ca.gov
Phone Number: Not reported

Global Id: T0606500917
Contact Type: Local Agency Caseworker

PALM SPRINGS FORD MOTORS (Continued) **S106152961**

Contact Name: Riverside County LOP Closed Cases
Organization Name: RIVERSIDE COUNTY LOP
Address: PO Box 1280
City: RIVERSIDE
Email: Not reported
Phone Number: 9519558982

LUST:
Global Id: T0606500917
Action Type: Other
Date: 1950-01-01 00:00:00
Action: Leak Reported

Global Id: T0606500917
Action Type: ENFORCEMENT
Date: 1994-06-08 00:00:00
Action: File review - #RCDEH Upload Site File 7/28/2010

Global Id: T0606500917
Action Type: Other
Date: 1950-01-01 00:00:00
Action: Leak Stopped

Global Id: T0606500917
Action Type: ENFORCEMENT
Date: 1994-06-09 00:00:00
Action: Closure/No Further Action Letter - #Riv Co Closure

Global Id: T0606500917
Action Type: Other
Date: 1950-01-01 00:00:00
Action: Leak Discovery

LUST REG 7:
Region: 7
Status: 9 - Case Closed
Case Num: 7T2234013
Substance: Gasoline - Automotive
ID: 1060
Global ID: T0606500917
Lead Agency: Local Agency
Case Worker: KO

C6 **RANCHO MIRAGE HAND CAR WASH** **LUST** **S107619892**
ENE **69800 HIGHWAY 111** **N/A**
1/2-1 **RANCHO MIRAGE, CA 92270**
0.735 mi.
3883 ft. **Site 1 of 3 in cluster C**

LUST:
Region: STATE
Global Id: T0606521582
Latitude: 33.772112
Longitude: -116.446681
Case Type: LUST Cleanup Site
Status: Completed - Case Closed

RANCHO MIRAGE HAND CAR WASH (Continued) **S107619892**

Status Date:	10/15/2007
Lead Agency:	RIVERSIDE COUNTY LOP
Case Worker:	LS
Local Agency:	RIVERSIDE COUNTY LOP
RB Case Number:	Not reported
LOC Case Number:	200622177
File Location:	Local Agency
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

LUST:

Global Id:	T0606521582
Contact Type:	Local Agency Caseworker
Contact Name:	LINDA SHURLOW
Organization Name:	RIVERSIDE COUNTY LOP
Address:	47950 Arabia Street, Suite A
City:	Indio
Email:	lshurlow@rivcocha.org
Phone Number:	7608637570

Global Id:	T0606521582
Contact Type:	Regional Board Caseworker
Contact Name:	Phan Le
Organization Name:	COLORADO RIVER BASIN RWQCB (REGION 7)
Address:	73720 FRED WARING DRIVE SUITE #100
City:	PALM DESERT
Email:	ple@waterboards.ca.gov
Phone Number:	Not reported

LUST:

Global Id:	T0606521582
Action Type:	ENFORCEMENT
Date:	2006-07-10 00:00:00
Action:	Staff Letter - #071006

Global Id:	T0606521582
Action Type:	ENFORCEMENT
Date:	2006-09-28 00:00:00
Action:	Staff Letter - #092806

Global Id:	T0606521582
Action Type:	Other
Date:	1950-01-01 00:00:00
Action:	Leak Reported

Global Id:	T0606521582
Action Type:	RESPONSE
Date:	2006-10-07 00:00:00
Action:	Verbal Communication

Global Id:	T0606521582
Action Type:	ENFORCEMENT
Date:	2007-10-15 00:00:00
Action:	Closure/No Further Action Letter - #RCDEH 101507

RANCHO MIRAGE HAND CAR WASH (Continued) **S107619892**

Global Id: T0606521582
Action Type: REMEDIATION
Date: 1950-01-01 00:00:00
Action: Not reported

Global Id: T0606521582
Action Type: Other
Date: 1950-01-01 00:00:00
Action: Leak Stopped

Global Id: T0606521582
Action Type: RESPONSE
Date: 2000-09-10 00:00:00
Action: Preliminary Site Assessment Workplan

Global Id: T0606521582
Action Type: Other
Date: 1950-01-01 00:00:00
Action: Leak Discovery

C7 **RANCHO MIRAGE HAND CAR WASH** **LUST** **U003865001**
ENE **69800 HWY 111** **N/A**
1/2-1 **RANCHO MIRAGE, CA**
0.735 mi.
3883 ft. **Site 2 of 3 in cluster C**

RIVERSIDE CO. LUST:
Region: RIVERSIDE
Facility ID: 200622177
Site Closed: Yes
Date Closed: 10/15/2007
Case Type: Soil only

C8 **EXXON STATION #7-3156** **LUST** **S105025670**
ENE **69800 111** **N/A**
1/2-1 **RANCHO MIRAGE, CA 92270**
0.735 mi.
3883 ft. **Site 3 of 3 in cluster C**

LUST:
Region: STATE
Global Id: T0606501061
Latitude: 33.7707317
Longitude: -116.4431382
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 07/16/1991
Lead Agency: COLORADO RIVER BASIN RWQCB (REGION 7)
Case Worker: PL
Local Agency: RIVERSIDE COUNTY LOP
RB Case Number: 7T2270003
LOC Case Number: Not reported
File Location: Not reported
Potential Media Affect: Soil
Potential Contaminants of Concern: Gasoline

EXXON STATION #7-3156 (Continued) **S105025670**

Site History: Not reported

Click here to access the California GeoTracker records for this facility:

LUST:
Global Id: T0606501061
Contact Type: Regional Board Caseworker
Contact Name: Phan Le
Organization Name: COLORADO RIVER BASIN RWQCB (REGION 7)
Address: 73720 FRED WARING DRIVE SUITE #100
City: PALM DESERT
Email: ple@waterboards.ca.gov
Phone Number: Not reported

Global Id: T0606501061
Contact Type: Local Agency Caseworker
Contact Name: Riverside County LOP Closed Cases
Organization Name: RIVERSIDE COUNTY LOP
Address: PO Box 1280
City: RIVERSIDE
Email: Not reported
Phone Number: 9519558982

LUST:
Global Id: T0606501061
Action Type: Other
Date: 1950-01-01 00:00:00
Action: Leak Reported

LUST REG 7:
Region: 7
Status: 9 - Case Closed
Case Num: 7T2270003
Substance: Gasoline - Automotive
ID: 740
Global ID: T0606501061
Lead Agency: Local Agency
Case Worker: KO

D9 **CATHEDRAL CITY OIL (NOW EQUILION WAS SHELL)** **INDIAN LUST** **1011869667**
North **69010 HWY 111** **N/A**
1/2-1 **CATHEDRAL CITY, CA 92234**
0.748 mi.
3949 ft. **Site 1 of 3 in cluster D**

INDIAN LUST:
Facility ID: 610
Region: 9
Alt Facility ID: AGUA006
Tribe Name: AGUA CALIENTE
LUST Status: CLEANUP COMPLETED
LUST Status Date: 2/25/2004

Facility ID: 610
Region: 9
Alt Facility ID: AGUA006

CATHEDRAL CITY OIL (NOW EQUILION WAS SHELL) (Continued) **1011869667**

Tribe Name: AGUA CALIENTE
LUST Status: CLEANUP INITIATED
LUST Status Date: 2/23/2004

Facility ID: 610
Region: 9
Alt Facility ID: AGUA006
Tribe Name: AGUA CALIENTE
LUST Status: CONFIRMED RELEASE
LUST Status Date: 2/23/2004

D10 **SHELL STATION** **LUST** **S106152983**
North **69010 HIGHWAY 111** **N/A**
1/2-1 **CATHEDRAL CITY, CA 92234**
0.748 mi.
3949 ft. **Site 2 of 3 in cluster D**

LUST:
Region: STATE
Global Id: T0606500910
Latitude: 33.7781965
Longitude: -116.4581485
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 09/13/1996
Lead Agency: RIVERSIDE COUNTY LOP
Case Worker: RIV
Local Agency: RIVERSIDE COUNTY LOP
RB Case Number: 7T2234006
LOC Case Number: 89936
File Location: Local Agency Warehouse
Potential Media Affect: Soil
Potential Contaminants of Concern: Gasoline
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

LUST:
Global Id: T0606500910
Contact Type: Regional Board Caseworker
Contact Name: Phan Le
Organization Name: COLORADO RIVER BASIN RWQCB (REGION 7)
Address: 73720 FRED WARING DRIVE SUITE #100
City: PALM DESERT
Email: ple@waterboards.ca.gov
Phone Number: Not reported

Global Id: T0606500910
Contact Type: Local Agency Caseworker
Contact Name: Riverside County LOP Closed Cases
Organization Name: RIVERSIDE COUNTY LOP
Address: PO Box 1280
City: RIVERSIDE
Email: Not reported
Phone Number: 9519558982

LUST:
Global Id: T0606500910

SHELL STATION (Continued) **S106152983**

Action Type:	Other
Date:	1950-01-01 00:00:00
Action:	Leak Reported
Global Id:	T0606500910
Action Type:	Other
Date:	1950-01-01 00:00:00
Action:	Leak Stopped
Global Id:	T0606500910
Action Type:	ENFORCEMENT
Date:	1997-04-20 00:00:00
Action:	File review - #RCDEH Upload Site File 10/19/2010
Global Id:	T0606500910
Action Type:	ENFORCEMENT
Date:	1997-04-21 00:00:00
Action:	Closure/No Further Action Letter - #Riv Co Closure
Global Id:	T0606500910
Action Type:	Other
Date:	1950-01-01 00:00:00
Action:	Leak Discovery

LUST REG 7:

Region:	7
Status:	9 - Case Closed
Case Num:	7T2234006
Substance:	Gasoline - Automotive
ID:	1142
Global ID:	T0606500910
Lead Agency:	Local Agency
Case Worker:	KO

D11 **SHELL STATION** **LUST** **S105023150**
North **69010 111** **N/A**
1/2-1 **CATHEDRAL CITY, CA 92234**
0.748 mi.
3949 ft. **Site 3 of 3 in cluster D**

LUST:

Region:	STATE
Global Id:	T0606512976
Latitude:	33.778092686
Longitude:	-116.457633778
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	08/26/2010
Lead Agency:	RIVERSIDE COUNTY LOP
Case Worker:	LS
Local Agency:	RIVERSIDE COUNTY LOP
RB Case Number:	7t2234032
LOC Case Number:	200420469
File Location:	Local Agency
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline

SHELL STATION (Continued) **S105023150**

Site History: ***Data prior to 2005 does not appear in GeoTracker. Consult agency file for all site data*** On February 23, 2004, 3-12K gasoline and 1-500 gallon waste oil tank were removed. Up to 1400 ppm TPHg was detected at 3? under dispenser 5, 36 ppb MTBE at 14? in the tank pit, 42 ppm TBA at 14? in the tank pit and 1.5 ppm ethanol at 14? in the tank pit. On March 13, 2004 the tank pit was over excavated down to 19?. Up to 51 ppm TBA was detected at the bottom of the pit. 5 borings were drilled October 24-28, 2005 to 100-140?. All borings had TPHd, up to 53 ppm. All borings had TPHg, up to 7.8 ppm. All borings had MTBE, up to 13 ppm, and all borings had TBA, up to 52 ppm. Detectable concentrations of hydrocarbons were detected to 140? where the boring was terminated. Two borings were converted to dual nested vapor wells. VE-1 was screened from 15-25? and 30-45?. VE-2 was screened from 15-30? and 35-45?. Monitoring well MW-1 was drilled March 23-24, 2006. Groundwater was encountered at 193?. Up to 0.21 ppm MTBE was detected in the soil. A grab water sample was obtained prior to development and 48 ppb MTBE was detected. A water sample was taken on March 29, 2006 and showed 11 ppb MTBE. Based on the results of the grab sample, one additional boring and two additional wells were installed March 30 through April 5, 2006. Up to 8.6 ppm MTBE and 210 ppm TBA was detected in the soils. An additional boring was drilled June 5, 2006 to 100? near the north property line. 10 ppm TPHd was detected at 10? and 2.5 ppm naphthalene was detected at 35?. Another boring was drilled in the old tank pit to 45? and a nested SVE well was installed, screened from 22-27 and 35-45?. A maximum of 2.4 ppm TPHg was detected at 35?, MTBE was detected to a maximum of 0.82 to 30? and TBA was detected t a maximum of 90 ppm at 30?. SVE-4 was installed April 14, 2006 as a dual nested SVE well screened from 15-30? and 35-45?. TPHg was detected in the 30-45? samples with a maximum of 4.8 ppm. Benzene was detected at 40? at 4.6 ppb. MTBE was detected from 25-45? with a maximum of 0.3 ppm. TBA was detected from 30-45? with a maximum of 2.4 ppm. Low levels of VOC?s were detected. The SVE system began operating September 25, 2006 using all 4 SVE wells and was run until June 25, 2007 when a rebound test was successfully completed. Influent TPHg went from 74 ppmv to ND<3 ppm. MTBE went from 56 ppmv to 0.07 ppmv. TBA went from 15 ppmv to ND<0.002 ppmv. Ethanol went from 0.014 to 0.0084 ppmv. Case closed 08/26/2010 following well abandonments

Click here to access the California GeoTracker records for this facility:

LUST:

Global Id:	T0606512976
Contact Type:	Local Agency Caseworker
Contact Name:	LINDA SHURLOW
Organization Name:	RIVERSIDE COUNTY LOP
Address:	47950 Arabia Street, Suite A
City:	Indio
Email:	lshurlow@rivcocha.org
Phone Number:	7608637570

Global Id:	T0606512976
Contact Type:	Regional Board Caseworker
Contact Name:	KAI DUNN
Organization Name:	COLORADO RIVER BASIN RWQCB (REGION 7)
Address:	73-720 FRED WARING DR. STE 100
City:	PALM DESERT

SHELL STATION (Continued) **S105023150**

Email: kdunn@waterboards.ca.gov
Phone Number: Not reported

LUST:

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2008-07-11 00:00:00
Action: File review

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2008-03-21 00:00:00
Action: Staff Letter - #032108

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2008-01-09 00:00:00
Action: Staff Letter - #010908

Global Id: T0606512976
Action Type: Other
Date: 1950-01-01 00:00:00
Action: Leak Reported

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2007-07-22 00:00:00
Action: Staff Letter - #072307

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2008-04-29 00:00:00
Action: File review

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2007-04-24 00:00:00
Action: File review

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2008-01-24 00:00:00
Action: File review

Global Id: T0606512976
Action Type: RESPONSE
Date: 2008-08-15 00:00:00
Action: Other Report / Document

Global Id: T0606512976
Action Type: RESPONSE
Date: 2007-11-18 00:00:00
Action: Other Workplan

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2009-07-14 00:00:00

SHELL STATION (Continued) **S105023150**

Action: File review

Global Id: T0606512976
Action Type: RESPONSE
Date: 2010-01-15 00:00:00
Action: Monitoring Report - Quarterly

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2010-06-02 00:00:00
Action: Staff Letter - #RCDEH 060210

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2008-10-29 00:00:00
Action: Technical Correspondence / Assistance / Other

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2009-04-29 00:00:00
Action: Staff Letter - #RCDEH042909

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2007-03-14 00:00:00
Action: Staff Letter - #031407

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2007-11-26 00:00:00
Action: Staff Letter - #112607

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2007-10-15 00:00:00
Action: File review

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2009-04-08 00:00:00
Action: File review

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2009-08-04 00:00:00
Action: Staff Letter - #Riv Co 080409

Global Id: T0606512976
Action Type: REMEDIATION
Date: 1950-01-01 00:00:00
Action: Soil Vapor Extraction w/Other

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2004-07-15 00:00:00
Action: Technical Correspondence / Assistance / Other

SHELL STATION (Continued) **S105023150**

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2007-07-30 00:00:00
Action: File review

Global Id: T0606512976
Action Type: RESPONSE
Date: 2010-08-06 00:00:00
Action: Well Destruction Report

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2010-08-26 00:00:00
Action: Closure/No Further Action Letter - #RCDEH Closure

Global Id: T0606512976
Action Type: Other
Date: 1950-01-01 00:00:00
Action: Leak Stopped

Global Id: T0606512976
Action Type: RESPONSE
Date: 2008-01-15 00:00:00
Action: Other Workplan

Global Id: T0606512976
Action Type: RESPONSE
Date: 2010-06-10 00:00:00
Action: Request for Closure

Global Id: T0606512976
Action Type: RESPONSE
Date: 2007-09-23 00:00:00
Action: Other Report / Document

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2007-10-03 00:00:00
Action: Staff Letter - #100307

Global Id: T0606512976
Action Type: ENFORCEMENT
Date: 2009-01-12 00:00:00
Action: File review

Global Id: T0606512976
Action Type: RESPONSE
Date: 2009-10-15 00:00:00
Action: Monitoring Report - Quarterly

Global Id: T0606512976
Action Type: RESPONSE
Date: 2010-04-15 00:00:00
Action: Monitoring Report - Annually

Global Id: T0606512976
Action Type: ENFORCEMENT

SHELL STATION (Continued) **S105023150**

Date: 2008-10-15 00:00:00
Action: File review

Global Id: T0606512976
Action Type: Other
Date: 1950-01-01 00:00:00
Action: Leak Discovery

RIVERSIDE CO. LUST:
Region: RIVERSIDE
Facility ID: 200420469
Site Closed: Yes
Date Closed: 8/26/2010
Case Type: Drinking Water Aquifer affected

Region: RIVERSIDE
Facility ID: 89936
Site Closed: Yes
Date Closed: 4/21/1997
Case Type: Soil only

12
North
1/2-1
0.828 mi.
4373 ft.

SHELL OIL SERVICE STATION **Notify 65** **S100178944**
69010 HWY 111 @ DATE PLAM **N/A**
CATHEDRAL CITY, CA 92234

Notify 65:
Date Reported: Not reported
Staff Initials: Not reported
Board File Number: Not reported
Facility Type: Not reported
Discharge Date: Not reported
Incident Description: 92234-1423

Count: 20 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
EL CENTRO	1000168872	NAVAL AIR FACILITY EL CENTRO	1605 THIRD STREET BLDG 504	92243	CERCLIS-NFRAP,RCRA-LQG,FINDS
RANCHO	1000360734	AMERICAN INDUSTRIAL MFG	28780 SINGLE OAK DR	92390	RCRA-SQG,FINDS,HAZNET
PALM DESERT	1005415592	GLIDDEN COMPANY	41 905 BOARDWALK M 1	92264	RCRA-SQG,FINDS
RANCHO MIRAGE	1008303088	RANCHO MIRAGE ELEMENTARY	42-985 INDIAN TRAIL ROAD	92270	FINDS
CATHEDRAL CITY	1012175452	DESERT SHADOWS RV RESORT	69-8011 RAMON ROAD	92234	RCRA-CESQG
CATHEDRAL CITY	A100324092	JESSUP AUTO PLAZA	66-111 HIGHWAY 111	92234	AST
	M300000942	TXI RIVERSIDE CEMENT	CRESTMORE PLANT		MINES
	M300001891	WHITEWATER ROCK & SUPPLY CO	PAINTED HILLS OPERATION		MINES
	M300002115	AUDREY LYNN MINE	AUDREY LYNN MINE		MINES
	M300002452	PACIFIC CLAY PRODS CO	RIVERSIDE COUNTY PITS (5 OPERA		MINES
	M300003129	FOSTER SAND & GRAVEL CO.	MAITRI CANYON PLANT		MINES
	M300003130	WHITEWATER ROCK & SUPPLY CO.	SAND & GRAVEL OPERATION		MINES
	M300003131	GRANITE CONSTRUCTION CO.	INDIO AGGREGATE PLANT		MINES
	M300003132	ELSINORE READY MIX CO., INC.	ELSINORE PIT		MINES
	M300003133	ROBERTSONS READY MIX, INC.	CABAZON PIT		MINES
	M300003144	WYROC, INC.	WYROC LAKE STREET PLANT		MINES
CATHEDRAL CITY	S103820748	KAY OLESEN	68384 HWY 111		LUST SAN MATEO
CATHEDRAL CITY	S103821044	WASH (THE)	67790 HWY 111		LUST SAN MATEO
RANCHO MIRAGE	S105025669	CA PARKS & REC SALTON SEA	HWY 111		HIST CORTESE
RANCHO MIRAGE	S108202282	CITY OF RANCHO MIRAGE	71939 HWY 111/71842 SAHARA RD	92270	HAZNET

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 06/30/2011
Date Data Arrived at EDR: 07/12/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 79

Source: EPA
Telephone: N/A
Last EDR Contact: 10/12/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 06/30/2011
Date Data Arrived at EDR: 07/12/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 79

Source: EPA
Telephone: N/A
Last EDR Contact: 10/12/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 06/30/2011
Date Data Arrived at EDR: 07/12/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 79

Source: EPA
Telephone: N/A
Last EDR Contact: 10/12/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 10/14/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/09/2011
Date Data Arrived at EDR: 03/15/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 91

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/16/2011
Date Data Arrived at EDR: 03/25/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/16/2011
Date Data Arrived at EDR: 03/25/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 10/03/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 10/04/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 09/13/2011
Date Data Arrived at EDR: 09/15/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/08/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 09/13/2011
Date Data Arrived at EDR: 09/15/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/08/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 08/22/2011
Date Data Arrived at EDR: 08/24/2011
Date Made Active in Reports: 10/03/2011
Number of Days to Update: 40

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/24/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Quarterly

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 09/19/2011
Date Data Arrived at EDR: 09/20/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 34

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 11/10/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/19/2011
Date Data Arrived at EDR: 09/20/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 34

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 11/10/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/02/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 7
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/01/2011
Date Data Arrived at EDR: 11/01/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 10
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 11/01/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 25
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 08/11/2011
Date Data Arrived at EDR: 08/12/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 32
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Semi-Annually

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/31/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 48
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 02/16/2011
Date Data Arrived at EDR: 06/02/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 103
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/19/2011
Date Data Arrived at EDR: 09/20/2011
Date Made Active in Reports: 10/19/2011
Number of Days to Update: 29

Source: SWRCB
Telephone: 916-480-1028
Last EDR Contact: 11/10/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 916-341-5712
Last EDR Contact: 10/11/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/02/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 7

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 08/04/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 39

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 25

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/01/2011
Date Data Arrived at EDR: 06/01/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 13

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011
Date Data Arrived at EDR: 05/11/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 34

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 07/01/2011
Date Data Arrived at EDR: 08/26/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 18

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 08/11/2011
Date Data Arrived at EDR: 08/12/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 32

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/01/2011
Date Data Arrived at EDR: 11/01/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 10

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/17/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 09/13/2011
Date Data Arrived at EDR: 09/15/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/08/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 08/04/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 10/04/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 06/27/2011
Date Data Arrived at EDR: 06/27/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/28/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/20/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 34

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/20/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 09/14/2011
Date Data Arrived at EDR: 09/15/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 39

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 06/08/2011
Date Data Arrived at EDR: 09/16/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 13

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 09/07/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 09/13/2011
Date Data Arrived at EDR: 09/15/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/08/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2011
Date Data Arrived at EDR: 08/11/2011
Date Made Active in Reports: 09/09/2011
Number of Days to Update: 29

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 10/03/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8
Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18
Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35
Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 09/09/2011
Date Data Arrived at EDR: 09/16/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 13
Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

LUCIS: Land Use Control Information System
LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31
Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 07/11/2011
Next Scheduled EDR Contact: 09/05/2011
Data Release Frequency: Varies

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 09/19/2011
Date Data Arrived at EDR: 09/20/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 34
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 24

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/13/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 10/04/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 10/04/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 05/03/2011
Date Made Active in Reports: 06/15/2011
Number of Days to Update: 43

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 09/19/2011
Date Data Arrived at EDR: 09/20/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 34

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 11/10/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 09/19/2011
Date Data Arrived at EDR: 09/20/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 34

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 11/10/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/29/2011
Date Data Arrived at EDR: 08/09/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 94

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 11/08/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/20/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 08/12/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 112

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/01/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 41

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 10/03/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/31/2011
Date Data Arrived at EDR: 09/14/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 15

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/14/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/21/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 99

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 09/08/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 21

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 09/08/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 94

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/27/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/07/2011
Date Data Arrived at EDR: 01/21/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 59

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 11/10/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 98

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/19/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/21/2011
Date Data Arrived at EDR: 07/15/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 60

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/11/2011
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/13/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/14/2010
Date Data Arrived at EDR: 04/16/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 41

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/13/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Quarterly

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 08/23/2011
Date Data Arrived at EDR: 08/24/2011
Date Made Active in Reports: 10/03/2011
Number of Days to Update: 40

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/24/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

Date of Government Version: 10/03/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 10/25/2011
Number of Days to Update: 21

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 10/04/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES].

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 06/28/2011
Date Data Arrived at EDR: 07/21/2011
Date Made Active in Reports: 08/11/2011
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Annually

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 10/03/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 08/15/2011
Date Data Arrived at EDR: 08/23/2011
Date Made Active in Reports: 10/03/2011
Number of Days to Update: 41

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 07/19/2011
Date Made Active in Reports: 08/16/2011
Number of Days to Update: 28

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 10/17/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 10/18/2010
Number of Days to Update: 19

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/30/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/20/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 10/24/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Varies

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/20/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 34

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/20/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 09/09/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 10/10/2011
Number of Days to Update: 27

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 10/18/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/16/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/20/2011
Date Data Arrived at EDR: 10/21/2011
Date Made Active in Reports: 11/08/2011
Number of Days to Update: 18

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/21/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/09/2010
Date Data Arrived at EDR: 08/11/2010
Date Made Active in Reports: 08/20/2010
Number of Days to Update: 9
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Quarterly

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 09/14/2011
Date Data Arrived at EDR: 09/16/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 38
Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 09/14/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 06/01/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 28
Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 11/04/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339
Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/20/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: N/A

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 01/01/2008
Date Data Arrived at EDR: 02/18/2009
Date Made Active in Reports: 05/29/2009
Number of Days to Update: 100
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 11/04/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 10/10/2011
Date Data Arrived at EDR: 10/11/2011
Date Made Active in Reports: 11/09/2011
Number of Days to Update: 29

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 10/03/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/10/2011
Date Data Arrived at EDR: 10/11/2011
Date Made Active in Reports: 11/14/2011
Number of Days to Update: 34

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 10/03/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Semi-Annually

BUTTE COUNTY:

CUPA Facility Listing
Cupa facility list.

Date of Government Version: 03/29/2011
Date Data Arrived at EDR: 04/20/2011
Date Made Active in Reports: 05/17/2011
Number of Days to Update: 27

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Varies

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 12/01/2010
Date Data Arrived at EDR: 04/20/2011
Date Made Active in Reports: 05/17/2011
Number of Days to Update: 27

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 08/30/2011
Date Data Arrived at EDR: 08/31/2011
Date Made Active in Reports: 09/19/2011
Number of Days to Update: 19

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Semi-Annually

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 09/09/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/03/2011
Number of Days to Update: 24

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 10/17/2011
Date Data Arrived at EDR: 10/18/2011
Date Made Active in Reports: 11/08/2011
Number of Days to Update: 21

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 10/17/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 02/08/2011
Date Data Arrived at EDR: 03/03/2011
Date Made Active in Reports: 03/24/2011
Number of Days to Update: 21

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 10/27/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 10/03/2011
Number of Days to Update: 20

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 09/30/2010
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county?s Certified Unified Program Agency database. California?s Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 06/09/2011
Date Data Arrived at EDR: 06/09/2011
Date Made Active in Reports: 07/08/2011
Number of Days to Update: 29

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/28/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 24
Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 10/17/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/25/2011
Date Data Arrived at EDR: 07/27/2011
Date Made Active in Reports: 08/11/2011
Number of Days to Update: 15
Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/25/2011
Next Scheduled EDR Contact: 11/07/2011
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29
Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 08/23/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 02/09/2011
Date Data Arrived at EDR: 02/09/2011
Date Made Active in Reports: 03/04/2011
Number of Days to Update: 23
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 10/24/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/08/2011
Date Made Active in Reports: 03/03/2011
Number of Days to Update: 23
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/24/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34
Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/17/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 11/14/2011
Number of Days to Update: 26
Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 10/17/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List

A listing of sites included in the county?s Certified Unified Program Agency database. California?s Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 09/13/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 10/04/2011
Number of Days to Update: 21

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 10/17/2011
Date Data Arrived at EDR: 10/25/2011
Date Made Active in Reports: 11/14/2011
Number of Days to Update: 20

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 10/11/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 09/23/2011
Date Data Arrived at EDR: 09/23/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 31

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 09/19/2011
Date Data Arrived at EDR: 09/20/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 34

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 07/09/2008
Date Data Arrived at EDR: 07/09/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 22

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 08/22/2011
Date Data Arrived at EDR: 08/23/2011
Date Made Active in Reports: 09/19/2011
Number of Days to Update: 27

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 11/08/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 08/01/2011
Date Data Arrived at EDR: 08/23/2011
Date Made Active in Reports: 09/19/2011
Number of Days to Update: 27

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 08/02/2011
Date Data Arrived at EDR: 08/23/2011
Date Made Active in Reports: 10/03/2011
Number of Days to Update: 41

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 08/01/2011
Date Data Arrived at EDR: 08/23/2011
Date Made Active in Reports: 09/16/2011
Number of Days to Update: 24

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 10/18/2011
Number of Days to Update: 35

Source: Placer County Health and Human Services
Telephone: 530-889-7312
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/20/2011
Date Data Arrived at EDR: 10/21/2011
Date Made Active in Reports: 11/08/2011
Number of Days to Update: 18
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/20/2011
Date Data Arrived at EDR: 10/21/2011
Date Made Active in Reports: 11/14/2011
Number of Days to Update: 24
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/26/2012
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 08/02/2011
Date Data Arrived at EDR: 10/12/2011
Date Made Active in Reports: 11/08/2011
Number of Days to Update: 27
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/07/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/02/2011
Date Data Arrived at EDR: 10/14/2011
Date Made Active in Reports: 11/08/2011
Number of Days to Update: 25
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/07/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 08/26/2011
Date Data Arrived at EDR: 08/31/2011
Date Made Active in Reports: 09/19/2011
Number of Days to Update: 19
Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/09/2010
Date Data Arrived at EDR: 09/15/2010
Date Made Active in Reports: 09/29/2010
Number of Days to Update: 14

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 09/16/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Quarterly

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/01/2010
Date Data Arrived at EDR: 11/16/2010
Date Made Active in Reports: 01/25/2011
Number of Days to Update: 70

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 09/27/2011
Date Data Arrived at EDR: 09/28/2011
Date Made Active in Reports: 10/19/2011
Number of Days to Update: 21

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 24

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 07/13/2011
Date Data Arrived at EDR: 07/15/2011
Date Made Active in Reports: 08/11/2011
Number of Days to Update: 27

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/12/2012
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 09/20/2011
Date Data Arrived at EDR: 09/22/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 32

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 09/06/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 10/10/2011
Number of Days to Update: 27

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 09/01/2011
Date Data Arrived at EDR: 09/01/2011
Date Made Active in Reports: 10/03/2011
Number of Days to Update: 32

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 08/31/2011
Date Data Arrived at EDR: 08/31/2011
Date Made Active in Reports: 09/09/2011
Number of Days to Update: 9

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 08/31/2011
Date Data Arrived at EDR: 08/31/2011
Date Made Active in Reports: 09/19/2011
Number of Days to Update: 19

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 09/20/2011
Date Data Arrived at EDR: 09/28/2011
Date Made Active in Reports: 10/25/2011
Number of Days to Update: 27

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/20/2011
Date Data Arrived at EDR: 09/28/2011
Date Made Active in Reports: 10/19/2011
Number of Days to Update: 21

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SONOMA COUNTY:

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/05/2011
Date Data Arrived at EDR: 04/06/2011
Date Made Active in Reports: 05/12/2011
Number of Days to Update: 36

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 10/03/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 10/19/2011
Number of Days to Update: 36

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 07/26/2011
Date Data Arrived at EDR: 08/26/2011
Date Made Active in Reports: 09/19/2011
Number of Days to Update: 24

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/23/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 09/14/2011
Date Data Arrived at EDR: 09/15/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 39

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/23/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 07/26/2011
Date Data Arrived at EDR: 08/08/2011
Date Made Active in Reports: 09/09/2011
Number of Days to Update: 32

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/30/2011
Date Data Arrived at EDR: 09/20/2011
Date Made Active in Reports: 10/19/2011
Number of Days to Update: 29
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/20/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 08/15/2011
Date Data Arrived at EDR: 08/23/2011
Date Made Active in Reports: 09/16/2011
Number of Days to Update: 24
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 10/11/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 08/23/2011
Date Data Arrived at EDR: 08/26/2011
Date Made Active in Reports: 09/19/2011
Number of Days to Update: 24
Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/26/2009
Date Made Active in Reports: 09/11/2009
Number of Days to Update: 16
Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 10/28/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 07/20/2011
Date Made Active in Reports: 08/11/2011
Number of Days to Update: 22
Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/18/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 08/01/2011
Date Data Arrived at EDR: 08/09/2011
Date Made Active in Reports: 09/16/2011
Number of Days to Update: 38

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 11/08/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 12/01/2009
Date Made Active in Reports: 12/14/2009
Number of Days to Update: 13

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 06/24/2011
Date Made Active in Reports: 06/30/2011
Number of Days to Update: 6

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/15/2011
Number of Days to Update: 27

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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Appendix G:

Supporting Documentation

The Ritz-Carlton Rancho Mirage
69-730 Highway 111
Rancho Mirage, CA 92270
Project #: 100132.11R-001.135

Inquiry Number: 3208705.3
November 16, 2011

Certified Sanborn® Map Report

Prepared for EMG

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

11/16/11

Site Name:
The Ritz-Carlton Rancho
69-730 Highway 111
Rancho Mirage, CA 92270

Client Name:
EMG
222 Schilling Circle
Hunt Valley, MD 21031

EDR Inquiry # 3208705.3

Contact: Jason Swam

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by EMG were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: The Ritz-Carlton Rancho Mirage
Address: 69-730 Highway 111
City, State, Zip: Rancho Mirage, CA 92270
Cross Street:
P.O. # 100132.11R-001.135
Project: 100132.001.135
Certification # 063A-4F54-951B

Sanborn® Library search results
Certification # 063A-4F54-951B

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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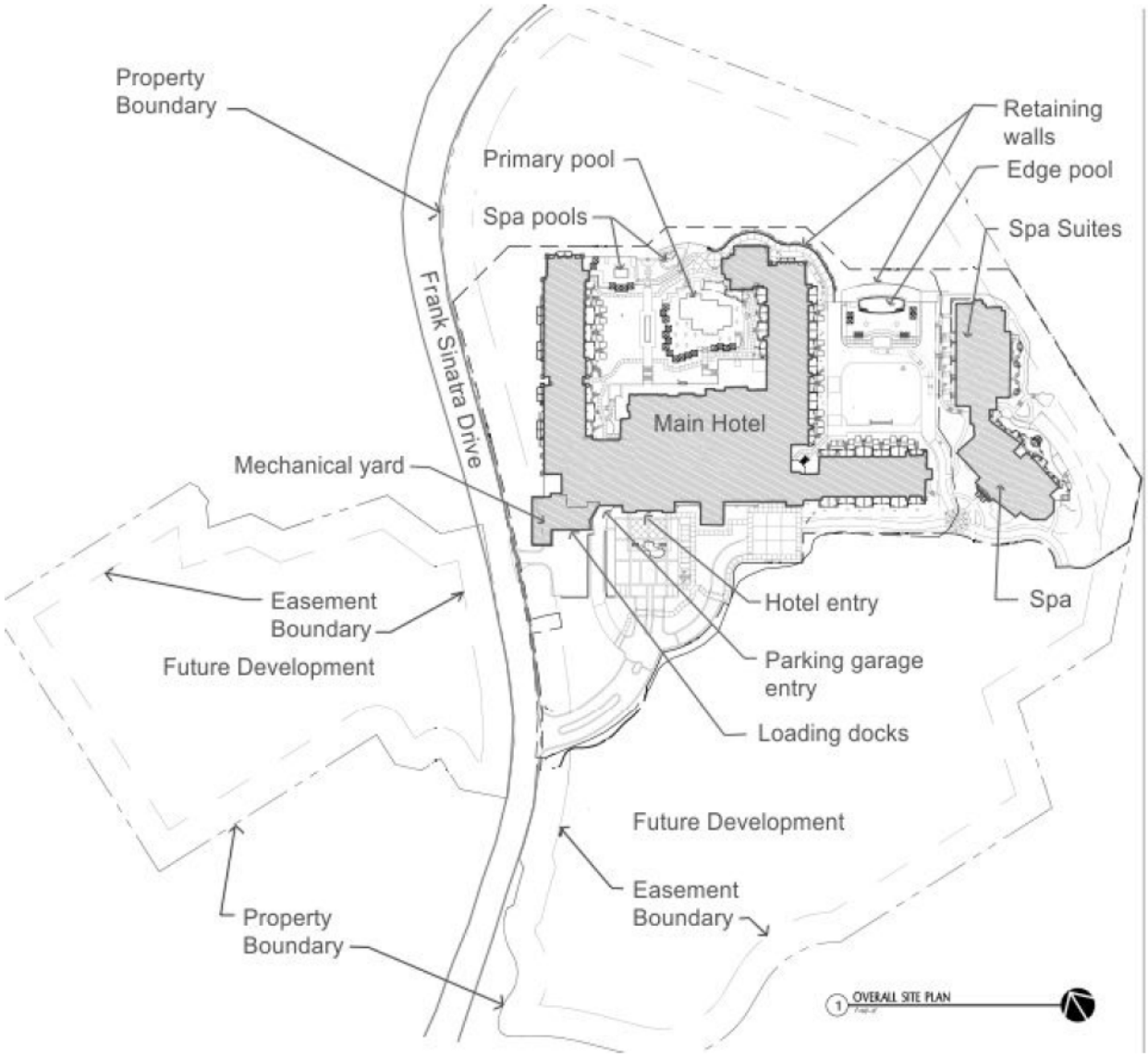
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Property Boundary
Primary pool
Spa pools
Retaining walls
Edge pool
Spa Suites
Frank Sinatra Drive
Main Hotel
Mechanical yard
Easement Boundary
Future Development
Hotel entry
Spa
Parking garage entry
Loading docks
Future Development
Easement Boundary
Property Boundary
1 OVERALL SITE PLAN

Certificate of Occupancy

City of Rancho Mirage Department of Building and Safety

This Certificate issued pursuant to the requirements of Section 306 of the Uniform Building Code certifying that at the time of issuance this structure was in compliance with the various ordinances of the City regulating building construction or use. For the following:

Group R - 1 Type Construction I - F.R. Fire Zone 0 Zone 0

Building Permit No. 22535 Land Use Case No. _____

Building Address 68-900 Frank Sinatra Drive (Hotel) Rancho Mirage, CA 92270

Owner of Building Ritz-Carlton Hotel

Owner Address 3414 Peachtree Road, Atlanta, GA

Ronald L. Espalier
Building Official

August 11, 1988
Date:

POST IN A CONSPICUOUS PLACE

The Ritz-Carlton, Rancho Mirage
Property Overview

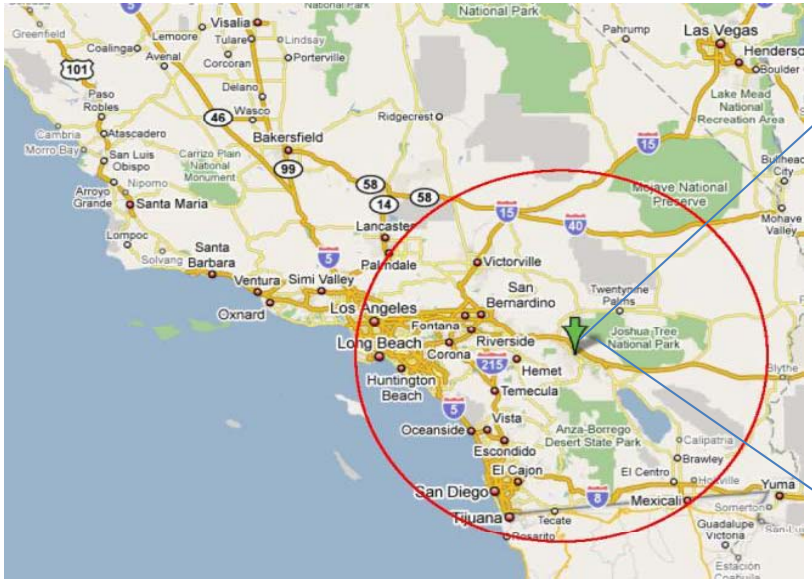
Property Overview

The Ritz-Carlton Rancho Mirage

Location

- The Resort is located on a 650-foot bluff along Frank Sinatra Drive west of State Highway 111, centrally located to the affluent cities of Palm Springs, Palm Desert, Indian Wells and La Quinta.

- The City of Rancho Mirage was incorporated in 1973 and achieved its national notoriety shortly after World War II, when Walter Annenberg began to host parties at his “Sunnylands” winter estate in Rancho Mirage. Today, the area boasts come of the best private golf clubs and residential communities in the world, and is home to 17,000 permanent residents and 11,000 part-time and seasonal residents.





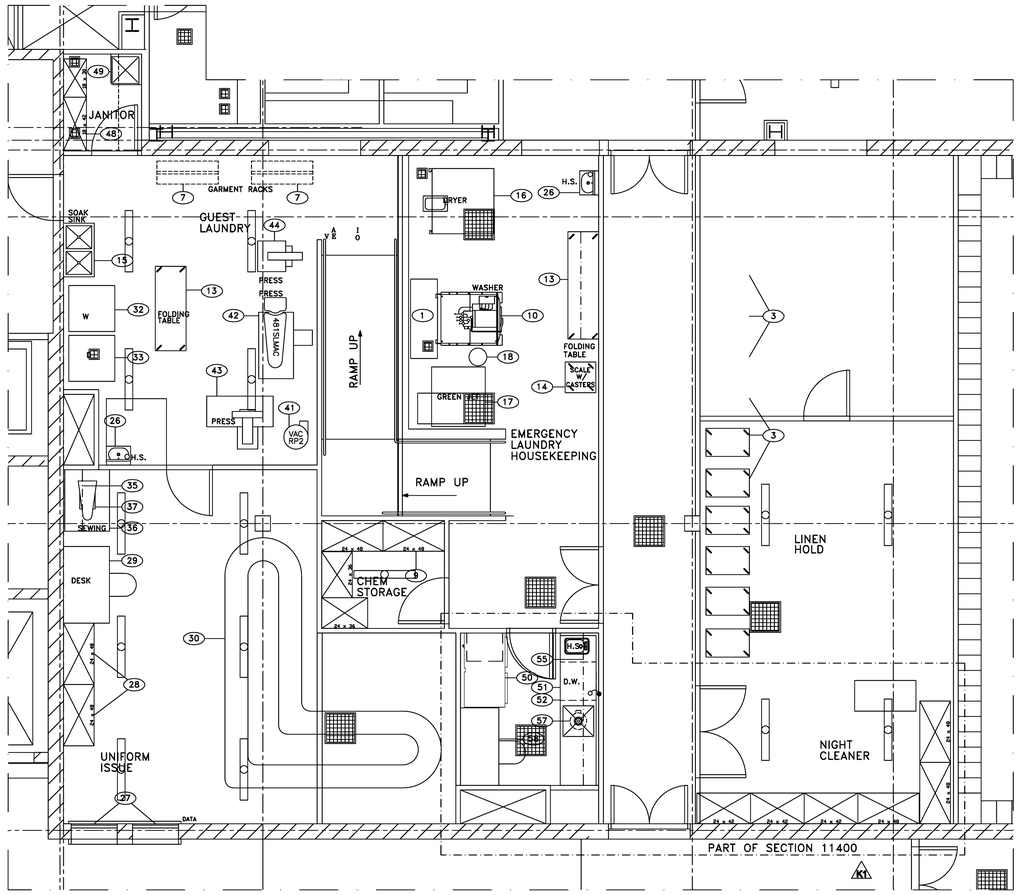
Property Overview

The Ritz-Carlton Rancho Mirage

Development Aerial and Site Plan







LAUNDRY AREA
EQUIPMENT PLAN
LEVEL 1
SCALE: 1/4" = 1'-0"

LAUNDRY EQUIPMENT SCHEDULE

	NO.	DESCRIPTION	QTY.	REMARKS	NOT IN LAUNDRY EQUIPMENT CONTRACT PROVIDED BY:
	1	TRENCH COVERS, FRAME, & LINT SCREEN	LOT	CUSTOM FABRICATED (SEE DETAIL ON L1.2)	BY GENERAL CONTRACTOR
	2	SPARE NUMBER	–		
K1	3	LAUNDRY CART	8	3 CLEAN, 5 BOILED, POLY BASKET	
	4	SPARE NUMBER	–		
	5	SPARE NUMBER	–		
	6	SPARE NUMBER	–		
	7	GARMENT RACK (2 SHOWN)	10	48"L	
	8	SPARE NUMBER	–		
K1	9	CHEMICAL SHELVING & DISPENSING SYSTEM	LOT	WITH PUMPS, RACKS, TUBING, ETC.	BY CHEMICAL PURVEYOR
	10	WASHER/EXTRACTOR, 60 LB.	1	RIGID MOUNT, FRONT LOAD, STEAM INJECT	
	11	SPARE NUMBER	–		
	12	SPARE NUMBER	–		
	13	FOLDING TABLE	2	OPEN BASE, (1) WITH SHELF	BY GENERAL CONTRACTOR
	14	BASKET SCALE	1	PORTABLE W/ DIAL INDICATOR	
	15	SOAK SINK (ONE DOUBLE)	1	INCLUDED W/ FAUCET	BY PLUMBING CONTRACTOR
	16	DRYER, 75 L.B.	1	GAS HEAT W/ REVERSE	
	17	GREEN JET MACHINE	1	DRY-WET CLEANING MACHINE	
	18	CHEMICAL BUCKET	1		BY OWNER
	19	SPARE NUMBER	–		
	20	SPARE NUMBER	–		
	21	SPARE NUMBER	–		
	22	SPARE NUMBER	–		
	23	SPARE NUMBER	–		
	24	SPARE NUMBER	–		
	25	SPARE NUMBER	–		
	26	HANDSINK WITH EYEWASH	2	WITH SOAP/TOWEL DISPENSER	BY PLUMBING CONTRACTOR
K1	27	UNIFORM ISSUE COUNTER	2	CUSTOM FABRICATED, SPECIFIED BY ARCHITECT	BY MILLWORK CONTRACTOR
	28	STORAGE SHELVING	2	FIVE TIER	
	29	OFFICE FURNITURE	LOT		BY OWNER
	30	UNIFORM CAROUSEL	1	DOUBLE SIDE	
	31	SPARE NUMBER	–		
	32	WASHER	1	FRONT LOAD	
	33	DRYER	1	FRONT LOAD, ELECTRIC HEAT	
	34	SPARE NUMBER	–		
K1	35	WALL SHELF	LOT	STAINLESS STEEL, CUSTOM FABRICATED, SPEC. BY ARCH.	BY GENERAL CONTRACTOR
	36	WORKTABLE	1	CUSTOM FABRICATED W/ STORAGE BELOW, SPEC. BY ARCH	BY MILLWORK CONTRACTOR
	37	SEWING MACHINE	1	TAILOR TYPE	BY OWNER
	38	SPARE NUMBER	–		
	39	SPARE NUMBER	–		
	40	SPARE NUMBER	–		
K1	41	VACUUM UNIT	1	FOR ITEM #42	
	42	PANT PRESS	1	STEAM HEATED	
	43	SHIRT PRESS	1	LAY DOWN MODEL	
	44	MUSHROOM PRESS	1		
	45	SPARE NUMBER	–		
	46	SPARE NUMBER	–		
	47	SPARE NUMBER	–		
		REMAINING ITEMS, PART OF SECTION 11400, FOODSERVICE			
K1	48	STORAGE SHELVING	2	FOUR TIER	
	49	MOP SINK & RACK	1	WITH HOSE BIBB	BY PLUMBING CONTRACTOR
	50	REACH-IN REFRIGERATOR	1	TWO SECTION	BY KEC
	51	GLASS WASHER	1	COMMERCIAL TYPE	BY KEC
	52	WORKTABLE	1	CUSTOM FABRICATED, WITH SINKS	BY KEC
	53	SPARE NUMNER	–		
	54	SPARE NUMBER	–		
	55	WALL SHELF	1	CUSTOM FABRICATED	BY KEC
	56	SPARE NUMBER	–		
	57	DISPOSER W/ PRE-RINSE	1		BY KEC
	58	DESK & CHAIR	1		BY OWNER

Ricca Newmark
DESIGN
Foodservice Laundry Interiors
6857 South Spruce St.
Centennial, Colorado 80112
Tel. (303) 221-0500
Fax (303) 221-0600
PROJECT#00000

Existing Hotel Renovation

THE RITZ-CARLTON

Bulletin O Construction Set October 4, 2010

The Ritz-Carlton Rancho Mirage

Rancho Mirage, California

Rancho California Investments LLC

LAUNDRY EQUIPMENT PLAN

DATE	10/04/10
PROJECT NUMBER	2929
DRAWN BY	
SCALE	

NO	REV. DESCRIPTION	DATE

SHEET NUMBER
LD 1.1

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File Name & Location: P:\2005_Projects\052900.F01 The Lodge at Rancho Mirage\The-Cast\LD1.dwg Layout: LD 1.1 Printed: Mon, 04 Oct 2010 - 16:03



A Technological And Ecological Breakthrough For The Dry Cleaning Industry!

GREEN JET®

CLEANING MACHINE

From

AERO-TECH® USA INC.



The **Green Jet® Cleaning Machine** (patent pend.) not only cleans garments efficiently, it also eliminates the health, environmental, customer, landlord and governmental problems associated with traditional Perc dry cleaning...and the zoning, flammability, odor and cost issues that trouble the other alternative solvents and cleaning processes.

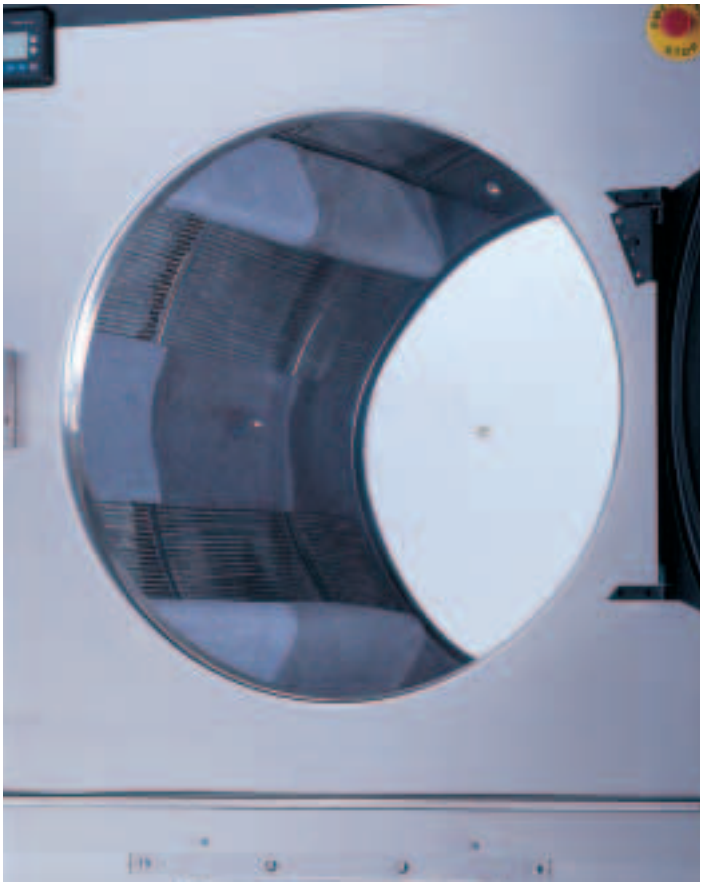
Compact. Powerful. Extremely economical. Easy to operate. Practically an environmental movement by itself. And while the **Green Jet® Cleaning Machine** may not change the world, it's nothing short of an engineering and ecological breakthrough for dry cleaners.

The new **Green Jet® Cleaning Machine** not only addresses environmental problems troubling the industry, it beautifully cleans all types of fabrics, garments and colors together in the same load, including problem garments and bleeders. This helps eliminate the splitting of customer orders, misassembly and lost garments while greatly reducing assembly and finishing time. And it does it all in a small space, with solvent costs at about 3.7 cents per pound, less than half the cost of other widely used processes!

HOW THE NEW GREEN JET® CLEANING PROCESS WORKS USING DWX-44®, DRY-WETCLEANING SOLUTION

The Green Jet® Cleaning Machine (patent pend.) cleans and dries garments in a single computerized unit operated by regular cleaning personnel. The machine uses a unique air pulsating system to first dislodge dirt and soil from the weave of the fabric, then, filter it out and then inject ***DWX-44®*** Dry-Wetcleaning Solution, a water-based, ecologically correct, non-toxic, non-flammable, non-polluting, solution to clean the garments, and finally tumble dry the load. The ribs and part of the interior chamber of the machine are lined with specially designed, reusable osmosis "blotters" or pads (patent pend.) that filter out the dirt and soil during the process. The process removes all surface and most embedded soil as well as minor spots from the garments. Redeposition of soil is extremely minimal.

The gentle action and temperatures that facilitates the cleaning process doesn't allow spots and wrinkles to "set" into the garments, nor does the process leave harmful residue on the garments. Colors stay bright, fabrics stay soft with good hand, manufacturers' finishes remain intact.



The ribs and part of the cylinder are lined with specially designed reusable osmosis pads that attract and absorb dirt and soil.

THE GREEN JET® CLEANING MACHINE OFFERS:

- Full high grade, non-porous Stainless Steel construction that prolongs the life of the machine, reduces drying time and helps eliminate the lint that clings to the porous shells of regular steel machines.
- Very compact, small enough to get into tight spaces.
- Requires no special piping.
- Long life - far less down time.
- All U.L. listed electrical components.
- Huge cylinder for great cleaning action.
- **Cleans all fabrics: wool, silk, spandex, leather, fur, etc.**
- Reusable, cleanable filters.
- Sealed, long life bearings.
- Automatic temperature control insures low temp drying.
- Quiet, simple and easy operation.
- Utilities: Requires only compressed air and three-phase electric.
- No fire hazard (no flash point).
- No odors in plant or garments.
- **No stills to clean.**
- No water chiller, boiler room or steam source is required.
- **No special handling for buttons, trim, sequins, or other difficult garments.**

PLUS SUBSTANTIAL SAVINGS

- Save over 50% on cost of machine as compared to Perc and Hydrocarbon units.
- Save on installation costs.
- **No barrier rooms around machine required.**
- Save 50% of electrical costs (due to less heat and no refrigeration or chiller).
- No steam costs (saves gas or oil).
- Save with increased productivity (full loads, no classifying, clean by lot or customer order).
- Save with decreased labor costs (less finishing, sorting and assembly time).
- **No disposal costs.**
- Save about 50% of solvent and additives costs.
- Save on the cost of claims (damaged garments and misassembly).



ALLEN-BRADLEY PANELVIEW 300 MICRO COMPUTER

- With flashing safety and trouble-shooting LED back lit graphic display.
- Pre-set cleaning programs for all types of garments and load sizes.
- Additional custom programs easily added.
- **Special Dry-Only Program allows machine to be used as a gentle cycle, low temperature wet-cleaning dryer.**

WHO CAN USE THE GREEN JET® CLEANING MACHINE?

EXISTING DRY CLEANERS

- Can replace solvent machines not allowed by landlords or others. May save your business when lease renews.
- **Need additional capacity?** The Green Jet® also makes an ideal second machine. Can be added to existing solvent machines and assume much of the loads. Perc and Hydrocarbon plants using the Green Jet® as a second machine will probably clean 50% to 75% of all their garments in it, and 100% of all garments when the boiler is off and there is no steam. It is often compared to the Valclene® (Fluorocarbon) machines many cleaners loved and used for their fine garments a few years ago, without any of the environmental problems.

NEW DRY CLEANERS

- Environmentally safe process makes it much easier to get a lease.
- Since a solvent machine isn't necessary and the Green Jet® Cleaning Machine is smaller and requires no boiler room, much less store space is needed.
- Can be paired with wetcleaning.

HOSPITALITY INDUSTRY

- Perfect for smaller space requirements on cruise ships, in hotels and motels.
- Ideal for cleaning employee garments, valet services blankets, spreads and drapes.
- Easier to use than traditional dry cleaning equipment.
- No fire hazard.
- Eliminates risk of fines for dumping hazardous wastes.
- No contamination problems.

DROP-OFF DRY CLEANING STORES

- Can be converted to full service plants, eliminating trucking costs to central plants and offering faster service to customers.
- Requires smaller, more easily trained staff to operate a plant in space as small as 800 Sq. Ft.
- No boiler room is required, no steam is necessary.

COIN LAUNDRIES

- Can add dry cleaning service with or without finishing.



All AERO-TECH® cleaning machines are started-up at your plant by trained technicians to insure proper operation and training in their use and maintenance.

N.Y. APPROVED, MEA# 65-02-E

AERO-TECH® USA INC.

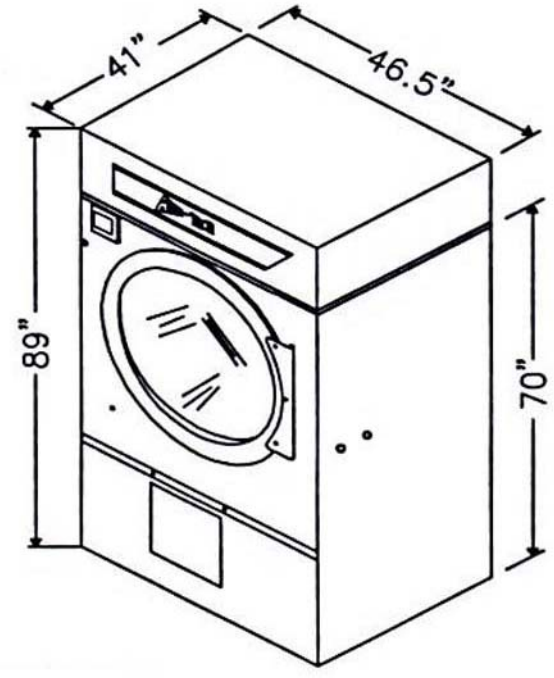
290 N.E. 68th Street, Miami, FL 33138
Phone: 800-333-8883 Fax: (305) 751-8390
E-Mail: sales@drywetcleaning.com
Website: www.drywetcleaning.com

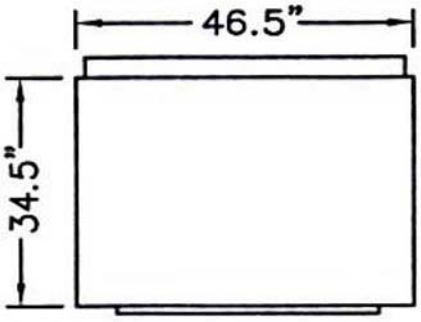
AERO-TECH GREEN JET

DRY-WETCLEANING MACHINE: MODEL DWC-45

ELECTRICAL: 208/60/3 50 Maximum Running AMPS 240/60/3 44 Maximum Running AMPS Circuit Breaker, 3 Phase		60 AMPS
COMPRESSED AIR: ½ Inch NPT Pipe		5 HP 90 PSI (18 cfm min.)
VENT DUCT:		6 in. diameter *
DIMENSIONS: Width (Including hose connections) Depth (Including back, door, and bumper) Height		48 in. (121.9 cm) 41 in. (104.1 cm) 89 in. (226.1 cm)
DIMENSIONS STRIPPED: Width Depth Height		46.5 in. (118.1 cm) 34.5 in. (87.6 cm) 70.0 in. (177.8 cm)
WEIGHT: Empty Shipping		1020 LBS. 1100 LBS.

* Use 8 inch diameter duct for exhausts that exceed 20 feet with 2 or more elbows.





TOP VIEW

MATERIAL SAFETY DATA SHEET

(Prepared According to 29 CFR 1910.1200) Date Prepared: November 14, 2001 Revised: February, 02
Prepared by: Robert V. Johnson Date Printed: February 6, 2002

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION:

Company Name: KLEERWITE CHEMICAL 24 Hour Emergency Phone: 1-800-535-5053 (InfoTrac)

P. O. BOX 10428, BURKE, VA 22009-0428, 703-451-3964; FAX: 703-451-7362

Trade Name: DWX-44 **Product Type: DETERGENT**

SECTION 2 - INGREDIENT INFORMATION: Not considered hazardous under 29 CFR 1910.1200

This product is 100% Biodegradable. Contains no petroleum solvents or V.O.C.'s. Contains no products on the Federal H.A.P. list.

CHEMICAL NAME/COMMON NAME	CAS NO.	PERCENTAGE
WATER	7732-18-5	75 – 85%
SURFACTANT BLEND – NON HAZARDOUS	MIXTURE	15 – 25%

SARA HAZARD TITLE III, SECTION 313-Contains no ingredient listed as a Hazardous Substance (40 CFR-355)

SECTION 3 - HEALTH HAZARD DATA:

Primary Routes of Exposure Eye [X] [X] Skin [X] Oral [ ] Inhalation [ ] Other

Overexposure Effects: Irritating to mucous membranes, eyes and skin. May cause slight eye irritation.

Threshold Limit Value: Not Established.

H.M.I.S Values: Health (Blue) -1; Flammability (Red) - 0; Reactivity (Yellow) -0; Personal Protection – A

Carcinogen or Suspect Carcinogen Ingredients [ ] NTP [ ] IARC [ ] OSHA [X] None

SECTION 4 - FIRST AID MEASURES:

Eyes: Remove contact lenses. Flush eyes with water for 15 minutes, get prompt medical attention.

Skin: Flush skin with water. Remove contaminated clothing.

Ingestion: Rinse mouth and give several glasses of water. Do not induce vomiting. NEVER give anything by mouth to an unconscious person. Get medical attention.

Inhalation: Seek well-ventilated area. If irritation persists seek medical attention.

SECTION 5 - FIREFIGHTING MEASURES:

Flash Point (T.C.C.) Not applicable Flammable Limits Upper: Not Flammable; Lower: Not Flammable

Extinguishing Media: Foam, CO_2, Water fog, BC/ABC Extinguisher may be used in area where material is stored.

Special Firefighting Procedures: None known

Unusual Fire and Explosion Hazards: None known

SECTION 6 - ACCIDENTAL RELEASE MEASURES:

If Released or Spilled: Stop leaks. Soak up spill with rags or towels.

Waste Disposal Methods: Dispose of spill byproducts according to State and Federal Regulations. Not a hazardous waste under CERCLA or RCRA, 40CFR; 261

SECTION 7 - STORAGE AND HANDLING INFORMATION:

Store in a cool, dry area. Do not allow product to freeze. Do not get in the eyes, on skin or on clothing. Do not take internally.

SECTION 8 - SPECIAL PROTECTION INFORMATION

Respiratory Protection: Not needed under normal condition of use. Ventilation Requirements: [X] Local Exhaust [ ] Mechanical

Protective Gloves: Recommended for prolonged contact Eye Protection: Not necessary Other protective Clothing: None needed

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES:

Boiling point (^{0}F.) Above 200°F Density (lb/gl) 8.34 Specific Gravity (H_2O = 1) 1.0 pH (1%) = 8.5

Vapor Pressure (mm Hg) <0.01 mm Hg Vapor Density (Air = 1) >1.0 Evaporation Rate (vs. Ether): [ ] Faster [X] Slower

Solubility in water: [X] Complete [ ] Insoluble [ ] Emulsifiable (or Dispersible) [ ] Slight (or Partial)

Appearance and Odor: Odorless, clear liquid.

SECTION 10 - STABILITY AND REACTIVITY:

Stability: Stable Incompatibility: Oxidizers Hazardous Decomposition Products: None known.

SECTION 11 - TRANSPORTATION INFORMATION:

Proper Shipping Name: COMPOUNDS, CLEANING LIQUID

D.O.T. Hazard Class: NOT REGULATED UN Number: N/A Packaging Group: N/A Label Required: NONE

This information is provided without any representation or warranty, express or implied, regarding its accuracy or correctness. Conditions or methods of handling, storage, use and disposal of the product are beyond our knowledge. **For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage and expense arising out of or in any way connected with the handing, storage, use or disposal of the product.**

WATER DAMAGE REMEDIATION REPORT

Ritz Carlton Hotel
68900 Frank Sinatra Drive
Rancho Mirage, CA 92270



Conducted for
RANCHO CALIFORNIA INVESTORS, LLC,
68900 FRANK SINATRA DRIVE
RANCHO MIRAGE, CA 92270

Report Date
June 14, 2011

ET&T Project Number 113321

Submitted by

ET&T INDOOR ENVIRONMENTAL SURVEYS
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BACKGROUND INFORMATION

The Ritz Carlton Hotel was built in 1986 to 1987. A new wing was being constructed in 2008-2009, when the entire hotel operation was closed down. The building is vacant and is currently undergoing major renovation with completion of the new Spa and Suites Building. During the vacancy period water intrusions into the building and HVAC system have occurred. According to building management, during heavy rains, the water intrusions were due to roof leaks, window leaks and surface water.

The action of Ritz Carlton's Chief Engineer, Mr. Jake Cormier, to cut out wet drywall material and remove water damaged ceiling materials has prevented subsequent mold growth and allows identification of the water intrusion areas and pathways. ET&T was retained by Rancho California Investors, LLC to conduct a visual inspection for primary and secondary (mold growth) water damaged materials. ET&T was tasked to develop a remediation protocol for the remediation contractor and to perform post remediation verification once the repairs are completed. ET&T surveyed the facility during the time period between May 26th and June 3rd, 2011. This report presents our findings and recommends the necessary remediation actions to address the water related damages.

EXECUTIVE SUMMARY

The building is currently a construction site and a heavy layer of construction dust is present on almost all horizontal surfaces. The main areas affected by water damage are walls, ceilings, sections of the HVAC system and fireproofing material. Overall, the number of areas where visible mold growth was discovered was relatively small because wet material had been removed by building management promptly.

Visible mold growth was discovered during the visual inspections behind cabinets, on walls and ceilings, baseboards, ceiling tiles and in bathrooms on drywall sandwiched between shower/tub enclosures. Water damaged areas in the form of water stains, bubbling paint or discoloration of building material have been indentified and are suspect for hidden mold growth. The remediation areas are outlined in a table format organized by location, building material, type of damage, size of the affected areas and remediation methods.

All sources of the moisture intrusions have to be identified and repaired. This includes but is not limited to: openings in the roof assembly of The Suites Building, roofs in general, sliding doors, windows, plumbing and drainage issues. The presence of microbial contaminants will continue or return unless the sources of the moisture intrusions are identified and remedied.

During our site inspections, large amounts of rodent and bird droppings, bird nests, bird feathers, cockroaches and other insects were detected in different building sections. The presence of vectors, such as rodents can contribute to persistent odor problems in the rooms and buildings. This is a significant health and safety concern for the facility and needs to be expediently, appropriately and professionally addressed.

Fine dust is present on every horizontal surface in the rooms and buildings, and inside the HVAC systems. The greatest challenge to obtain good air quality in the buildings is an effective and thorough cleaning of the fine dust and debris in all areas. This will need to include all kitchen installations, cabinets and drawers, floors in all rooms and components of the HVAC systems.

Please read the report in its entirety for more detailed information. Photo documentation of the conditions encountered is available upon request. ET&T has been retained to assess the air quality after the remediation work has been completed.

INSPECTION METHODOLOGY



ET&T conducted site visits at the hotel facility between May 26th and June 3rd, 2011. During the site visits, a visual inspection of all rooms in the buildings was conducted. This included the guestrooms, corridors, conference rooms, public areas, administrative areas, employee work areas, and readily accessible ceiling spaces in the different buildings. The inspected areas include the main hotel building with Guestroom Wings A, B and C, the Core Area, the Spa and The Suites Building.

Many wall and ceiling surfaces appear to have been painted in the recently. Areas where visible mold growth or water damaged building materials were identified, documented and marked. A spray can with orange fluorescent paint was used to outline the areas where mold growth or water damaged materials should be removed. The results are compiled in the table in the remediation section of this document. ET&T did not inspect the heating ventilation and air conditioning (HVAC) systems in the different buildings.

REMEDIATION PROTOCOL

Overall, the number of areas where visible mold growth was discovered was relatively small. The work procedures and containment types are outlined in the following guidelines and tables. We encountered a number of areas, especially in the B Wing, where water damage in the form of water stains, bubbling paint or discoloration of building material makes these areas suspect for hidden mold growth. We have marked these areas to be opened up for a follow-up inspection. These areas are marked with orange spray paint and are listed in the remediation tables.

It should be verified that all sources of the moisture intrusions have been identified and eliminated. Openings still remain at the roof assembly of The Suites Building. The presence of microbial contaminants will continue or return unless the sources of the moisture intrusions are identified and remedied. ET&T has been retained to conduct post remediation verification (PRV) testing once the remediation and deep cleaning have been completed.

General

The building is currently a construction site and heavy layers of construction dust are present on almost all horizontal surfaces and the individual room air condition (AC) units. Contents are not present at the site, except for the construction management offices. The remediation areas are outlined in a table format organized by location, building material, type of damage and the size of the affected areas. The tables are separated into by wings and building sections.

The areas where remediation work is to be conducted has been marked with orange spray paint. The areas within the outlined areas are to be removed. The dots around the outlined areas are not to be removed. The dots are identifiers used by ET&T personnel to inspect the areas for the potential presence of additional water or mold damage once the outlined areas have been removed.

In the Great Ballroom, Pre-Function Room and Display Kitchen area, cut out work needs to be conducted at very high ceilings (12 feet or more). In these locations, we recommend the use of a moveable (wheeled) scaffolding platform to provide access to the work area. The local containment is then built on a scaffolding platform.

Gerald Ford Boardroom

Based on background information, the Gerald Ford Boardroom was flooded multiple times with surface water. The entire wall surfaces consist of wood paneling. A very strong putrid, urine-like smell was present in the room. None of the paneling has been removed. We marked two wall areas outside the boardroom for intrusive investigation. This will provide access to the backside of two walls only. However, it will not allow inspection of the drywall side sandwiched behind the wood paneling.

Table Definitions

The Remediation Table uses the following parameters and codes to describe the primary (water damage) and secondary water damage (mold growth) identified.

VMG = Visible mold growth on wallboard (drywall)
WD = Water damage on drywall or baseboards, suspect for VMG
CD = Plaster on concrete, or block ceilings or walls is deteriorated due to water damage

Size descriptions and enumerators:

0 to 2 square feet	1
2 to 5 square feet	2
5 to 10 square feet	3
More than 10 square feet	4

Examples: Four square feet of visible mold growth is expressed as VMG 3, twelve (12) square feet of water damaged plaster on a ceiling as CD 4 or 2 square feet of water damaged baseboards as WD 1.

Work Sequences

Phase 1, the initial step of identifying areas where remediation work needs to be conducted has been completed with this report. The following sequential steps are broken into different phases.

Phase 2	Remediation of the indentified areas in this report
Phase 3	Re-inspection of the suspect areas by ET&T
Phase 4	Deep cleaning of surface and airborne dust load by contractor
Phase 5	Post remediation verification (PRV) testing by ET&T

REMEDIATION TABLES

B Wing - Third Floor

ID	Room	Location	WD	VMG	Specifications	Containment
1	B 302	Bath and hall ceiling	CD 3		Remove plaster	None
2	B 303	Hallway cabinet		VMG 3	Remove cabinetry and wall board behind	Local Containment
3	B 303	Bathroom vanity		VMG 2	Remove vanity and drywall behind	Local Containment
4	B 304	Bathroom vanity		VMG 2	Remove remaining drywall	Local Containment
5	B 304	Hallway cabinet	WD 2	VMG 1	Remove vanity and drywall behind	Local Containment
6	B 304	Guest bedroom ceiling	CD 4		Remove plaster	None
7	B 305	Guest bedroom ceiling	CD 2		Remove plaster	None
8	B 325	Vanity ceiling	CD 2		Remove plaster	None
9	B 320	South closet and ceiling	WD 2	VMG 2		Local Containment
10	B 325	Guest bedroom ceiling	CD 4		Remove plaster	None
11	Master suite across B307 & B309	Guest bedroom ceiling	CD 2		Remove plaster	None
12	Master suite across B307 & B309	Guest bedroom pipe insulation about 4 linear feet	WD 2		Encapsulate or replace pipe insulation	None
	B Wing Corridor 3rd Floor					
14	South End – N wall left to elevator		CD 2 WD 2		Remove drywall 2 feet high belt cut	DT
15	Wall left of door to B 302		WD 2		Remove drywall 2 feet high belt cut	DT
16	Wall right of door to B 302		WD 3		Remove drywall 2 feet high belt cut	DT
17	East wall opposite B 304		WD 2		Remove drywall 2 feet high belt cut	DT
18	W and E walls at B 309		WD 4		Remove drywall 2 feet high belt cut	DT
19	E wall at B 316		WD 2		Remove drywall 2 feet high belt cut	DT
20	W wall at B317		WD 3		Remove drywall 2 feet high belt cut	DT

B Wing – Second Floor

ID	Room	Location	WD	VMG	Specifications	Containment
21	B 204	Guest closet, vanity ceiling	WD 2		Remove drywall on ceiling and vanity	DT
22	B 206	Guest bedroom ceiling	CD 1		Remove plaster	None
23	B 210	Guest bedroom ceiling	CD 4		Remove plaster	None
24	B 212	Guest bedroom and hallway ceiling	CD 4 WD 2		Remove plaster and drywall	None DT
25	B 215	Guest bedroom	WD 3	VMG 2	Remove drywall	Local Containment
26	B 216	Guest bedroom	CD 2		Remove plaster	None
27	B 223	Guest bedroom ceiling	CD 1		Remove plaster	None
28	B 228	Guest bedroom	WD 1		Remove drywall	DT
	B Wing Corridor 2nd Floor					
29	Outside ice room near B 220		CD 4		Remove plaster	None
30	Wall left of door to B 210		CD 2		Remove plaster	None
31	Ceiling to the right of door to B 203		CD 2		Remove plaster	None
32	South End – Ceiling above hallway elevators and entrance		CD 2 WD 2		Remove plaster and drywall	None DT
33	South End – Across from elevators		CD 2		Remove plaster	None

B Wing – First Floor

ID	Room	Location	WD	VMG	Specifications	Containment
34	B 103	Guest bedroom	CD 1		Remove plaster	None
35	B 105	Guest bedroom	WD 3		Remove drywall	DT
36	B 106	Guest bedroom ceiling	CD 1		Remove plaster	None
37	B 117	Guest bedroom	CD 2 WD 2		Remove plaster and drywall	DT
38	B 119	Hallway ceiling	WD 1		Remove drywall	DT
39	B 123	Guest bedroom	CD 1		Remove plaster	None
40	B 124	Vanity ceiling	WD 3		Remove drywall	DT
41	B 129	Hallway ceiling	WD 1		Remove drywall	DT
42	B 139	Paneling and crown molding	WD 4		Remove wood paneling and crown molding	DT
	B Wing Corridor 1st Floor					
43	South End – Ceiling above hallway elevators		CD 2		Remove plaster	None
44	Exit hallway between B 117 and B 119		CD 3		Remove plaster	None
45	Ceiling outside of B104		CD 1		Remove plaster	None
46	East wall of corridor across from B 102		CD 2		Remove plaster	None
47	Exit hallway to the east of B 142		WD 4		Remove drywall	DT
48	To the right of B 127		CD 1		Remove plaster	None
49	Exit hallway common to ice maker next to B 118		CD 1		Remove plaster	None
50	Exit hallway common to ice maker next to B 118		CD 4		Remove plaster	None
51	Exit hallway to outside (stairwell)		WD 4		Remove entire wall common to exterior	DT
52	South wall near B 118		CD 4		Remove plaster	None

C Wing – Third Floor

ID	Room	Location	WD	VMG	Specifications	Containment
53	C 377	Bathroom ceiling and guest bedroom	CD 2		Remove plaster	None
54	C 375	Bathroom ceiling and guest bedroom	CD 2 CD 1		Remove plaster	None
55	C 389	Guest bedroom	CD 3		Remove plaster	None
56	C 383	Bathroom ceiling	CD 2		Remove plaster	None
57	C 395	Bathroom ceiling and guest bedroom	CD 3 CD 2 CD 2		Remove plaster	None
58	C 391	Guest bedroom, bathroom ceiling and hallway ceiling	CD 1 CD 4 CD 2		Remove plaster	None
59	C 380	Guest bedroom	CD 1		Remove plaster	None
60	C 378	Guest bedroom and hallway ceiling	CD 3 CD 2		Remove plaster	None
61	C 388	Bathroom ceiling and guest bedroom	CD 4 WD 3		Remove plaster and drywall	None DT
62	C 396	Guest bedroom	WD 1		Remove drywall	DT
	C Wing Corridor - Third Floor					
63	Ice room near C 395		CD 4		Remove plaster	None
64	Between C 391 and C 389		CD 1		Remove plaster	None
65	Wall and ceiling common to C 389		CD 4		Remove plaster	None
66	Ceiling in front of C 375		CD 2		Remove plaster	None
67	Ceiling next to C 373		CD 3		Remove plaster	None
68	Ceiling near ice room		CD 2		Remove plaster	None
69	Ceiling between A wing, C wing, and elevators		CD 4		Remove plaster	None
70	Wall and ceiling of elevators between A wing and C wing		CD 1 WD 3		Remove plaster and drywall	None DT
71	Ceiling of service room facing southwest of building		WD 3		Remove plaster	DT

C Wing – Second Floor

ID	Room	Location	WD	VMG	Specifications	Containment
72	C 279	Bathroom ceiling and guest bedroom	CD 1 WD 1		Remove plaster and drywall	None DT
73	C 280	Bathroom ceiling	CD 1		Remove plaster	None
74	C 281	Bathroom ceiling	CD 1		Remove plaster	None
75	C 283	Bathroom ceiling	CD 1		Remove plaster	None
76	C 284	Guest bedroom	WD 1		Remove drywall	DT
77	C 288	Bathroom ceiling and guest bedroom	CD 1 WD 1		Remove plaster and drywall	None DT
78	C 287	Bathroom ceiling	CD 1		Remove plaster	None
79	C 289	Bathroom ceiling and guest bedroom	CD 2 WD 1		Remove plaster and drywall	None DT
80	C 292	Guest bedroom	CD 1		Remove plaster	None
81	C 294	Guest bedroom	WD 2		Remove drywall	DT
82	C 296	Bathroom ceiling and guest bedroom	CD 1 WD 1		Remove drywall and plaster	DT
83	C 285	Bathroom ceiling	CD 1		Remove plaster	None

C Wing – First Floor

ID	Room	Location	WD	VMG	Specifications	Containment
84	C 173	Guest bedroom	WD 3		Remove drywall	DT
85	C 177	Bathroom ceiling and guest bedroom	WD 2 CD 2		Remove drywall and plaster	DT
86	C 179	Bathroom ceiling and guest bedroom	CD 2 CD 1		Remove plaster	None
87	C 181	Guest bedroom	CD 2 WD 3		Remove plaster and drywall	None DT
88	C 183	Guest bedroom	WD 4	VMG 1	Remove drywall	Source Containment
89	C 185	Guest bedroom	WD 4	VMG 1	Remove drywall and plaster	Source Containment
90	C 187	Bathroom ceiling and guest bedroom	WD 1 CD 1		Remove drywall and plaster	DT None
91	C 189	Bathroom ceiling and guest bedroom	WD 3 CD 2		Remove drywall and plaster	DT None
92	C 193	Guest bedroom	WD 2		Remove drywall	DT
93	C 195	Bathroom ceiling and guest bedroom, AC Unit	CD 2 WD 2	VMG 1	Remove drywall and plaster	Local Containment
	C Wing Corridor - First Floor					
94	Between C 189 and C 191		WD 2		Remove green board	DT
95	Hallway between A Wing and C Wing at bottom N.W. corner			VMG 2	Remove mold behind baseboard	Source Containment and DT
96	West wall crown of elevator room between A Wing and C Wing		WD 2		Remove crown molding carefully and drywall	DT

A Wing – Third Floor

ID	Room	Location	WD	VMG	Specifications	Containment
97	A 347	Guest bedroom	CD 2		Remove plaster	None
98	A 348	Guest hallway	CD 1		Remove plaster	None
99	A 349	Guest bedroom	CD 3 CD 1		Remove plaster	None
100	A 355	Bathroom ceiling and guest bedroom	CD 2		Remove plaster	None
101	A 359	Vanity ceiling	CD 1		Remove plaster	None
102	A 350	Bathroom ceiling and guest bedroom	CD 3 CD 1		Remove plaster	None
103	A 360	Guest bedroom	CD 1 CD 2		Remove plaster	None
	A Wing Corridor - Third Floor					
104	In front of A 348		CD 2 CD 3		Remove plaster	None
105	To the right of A 361		CD 3		Remove plaster in multiple areas	None
106	Ceiling of entrance to third floor A wing		CD 2		Remove plaster	None
107	Ceiling next to first window at entrance to A wing		CD 2		Remove plaster	None
108	Hallway between A 367 and A 369 on ceiling		CD 2		Remove plaster	None

A Wing – Second Floor

ID	Room	Location	WD	VMG	Specifications	Containment
109	A 246	Guest bedroom	WD 2		Remove drywall	DT
110	A 249	Guest bedroom	WD 2		Remove drywall	DT
111	A 251	Guest bedroom	WD 3	VMG 3	Remove drywall	Local Containment
112	A 257	Guest bedroom	WD 3		Remove drywall	DT
113	A 258	Bathroom ceiling	WD 2		Remove drywall	DT
114	A 259	Guest bedroom	WD 2		Remove drywall	DT
115	A 261	Guest bedroom	WD 2		Remove drywall	DT
116	A 262	Bathroom area	WD 4		Remove drywall	DT
117	A 265	Guest bedroom	WD 4		Remove drywall	DT
118	A 267	Guest bedroom AC Unit	WD 4	VMG 2	Remove drywall and plaster	Local Containment
119	A 269	Guest bedroom AC Unit	WD 2	VMG 1	Remove drywall	Local Containment

A Wing – First Floor

ID	Room	Location	WD	VMG	Specifications	Containment
120	A 146	Guest bedroom	WD 2		Remove drywall	DT
121	A 147	Guest bedroom	WD 2		Remove drywall	DT
122	A 148	Guest bedroom AC Unit	WD 4	VMG 1	Remove drywall	Local Containment
123	A 149	Guest bedroom AC Unit	WD 2	VMG 1	Remove drywall	Local Containment
124	A 151	Guest bedroom	WD 4 CD 1		Remove drywall and plaster	DT
125	A 160	Guest bedroom	CD 4		Remove plaster	None
126	A 161	Guest bedroom AC Unit	WD 4	VMG 1	Remove drywall and plaster	Local Containment
127	A 166	Guest bedroom AC Unit	WD 3	VMG 2	Remove drywall	Local Containment
	A Wing Corridor - First Floor					
128	Ceiling of room 1249		WD 4		Remove drywall	DT
129	Right side of the door in front of room 1247		WD 2		Remove drywall	DT

The Suites – Third Floor

ID	Room	Location	WD	VMG	Specifications	Containment
130	303	Bathroom ceiling	WD 3		Remove drywall	DT
131	305	Guest bedroom and vanity bathroom	CD 1 WD 2	VMG 2	Remove drywall and plaster, unscrew top of bathroom bench seat and inspect	Local Containment

The Suites – Second Floor

ID	Room	Location	WD	VMG	Specifications	Containment
132	207	Guest hallway and bathroom area	WD 4	VMG 4	Remove drywall in closet and on back end of bench seat in vanity area, tile shower	Local Containment
133	209	Guest entry		VMG 3	Remove drywall at left bottom side of entry (back wall).	Local Containment
	Spa Suites Corridor - Second Floor					
134	N wall between S 205 and S 207		WD 2 WD 1	VMG 2 VMG 1	Remove gypsum board	Local Containment
135	S wall opposite S 209			VMG 2	Remove drywall	Local Containment
136	N wall between S 203 and S 205		WD 2	VMG 2	Remove drywall	Local Containment

The Suites – First Floor

ID	Room	Location	WD	VMG	Specifications	Containment
137	S 104/S 105 (one room)	N wall of S.E. bedroom to right of slider	WD 4		Remove drywall	DT
		Drywall inside cavity behind tub	WD 2	VMG 2		Source Containment
		Wall cavity at shower enclosure	WD 1			DT
		Demising wall between S 104 and S 103	WD 1			DT

Spa Building

ID	Room	Location	WD	VMG	Specifications	Containment
138	Main entry 2nd floor at south side		WD 4		Remove drywall	DT
139	Entry area ceiling 2nd floor south side		WD 2		Tube sticking through ceiling extended 2 ft. Cannot reach, cannot be marked.	DT
140	First Floor - Room on N side of building facing courtyard – east wall		WD 4		Remove drywall	DT
141	Mechanical Room		WD		Water stains on block wall, eliminate water intrusion source	Damp wipe water stains of wall

Core Area

ID	Room	Location	WD	VMG	Specifications	Containment
142	2316	Near Junior Ballroom	WD 4		Remove drywall and plaster, possible mold growth	DT
143	2327	Display Kitchen near restaurant	WD 4	VMG 4	Remove drywall. HVAC needs 10 ft ladder and HVAC contractor to inspect ductwork	Local Containment
144		Kitchen – dishwashing area	WD 3	VMG 3	Remove ceiling tiles (2)	Local Containment
145		Kitchen	WD 4	VMG 1	Remove ceiling tiles (6)	Local Containment
146		Kitchen – janitorial area	WD 4	VMG 4	Remove ceiling tiles (6)	Local Containment
147	2387	Great Ballroom	WD 4	VMG 1	Very suspect, access limited due to stored content. Remove drywall and wood paneling	Local Containment
148	2388	West wall	WD 4		Contents to be removed to allow access, remove drywall and wood paneling	DT
149	2388	North wall	WD 4		Contents to be removed to allow access, remove drywall and wood paneling	DT
150	2358	All walls	WD 2		Remove drywall, remove baseboards in entire room	DT
151	2356	Pre Ford Room - Wood paneling prevents inspection			Paneled, strong odor, no access to walls	DT from corridor
152	2369	Back room	WD 3		Remove all baseboards	DT
153	2355	Gerald Ford Boardroom - Wood paneling prevents inspection			Strong urine odor, wall cavities suspect. Destructive testing from corridor to west wall	DT from corridor
Core area Corridor						
154	Lobby 2301 left at first beam, Back side of ceiling above fireplace		WD 4	VMG 1	Remove drywall or HEPA vacuum, disinfect and encapsulate	Source Containment
155	Closet in service corridor next to kitchen janitorial		WD 4		Remove drywall	DT

Employee Corridor

ID	Room and Location	WD	VMG	Specifications	Containment
156	Employee corridor base level – efflorescent present along block retaining wall causing paint to peel. Suspect to water intrusion.			Investigate drainage and eliminate water intrusion.	None

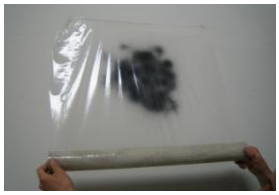
CONTAINMENT TYPES

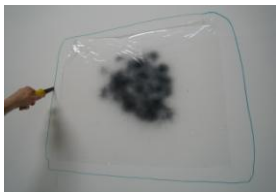
None

Water damaged plaster or other deteriorated building materials which needs to be removed. The visual inspection did not show visible mold growth. Inorganic materials such as plaster, concrete or block wall are not likely to support microbial growth. Dust control methods are recommended during the removal or surface cleaning of the materials.

Source Containment

A source containment is used for a small limited area of visible mold growth. It is an engineering control method used to reduce fungal spore and fragment release into the surrounding areas and to reduce exposure to remediation workers.





Use plastic film materials with adhesive backing such as carpet tack mat or carpet protector to cover over moldy material prior removal. Adhere the plastic film directly to the moldy material extending beyond the area of visible mold growth. Place a HEPA-filtered air scrubber next to the work area to capture dust particulates released during cut out process. Cut sealed material out with dust control methods. Remove the affected material and place immediately into a 4- to 6-mil polyethylene trash bag. HEPA vacuum the remaining construction debris and dust from the vicinity of the removal work area.

Local Containment

A local containment is used to remove larger areas of visible mold growth or water damaged materials where significant mold growth is expected to be exposed. Erect a local barrier system around the work area to prevent the release of fungal spores and fragments into the surrounding areas and reduce exposure to remediation workers.

Use 4 to 6 mil polyethylene sheeting material and spring mounted expendable poles such as the Zipwalls™ system to create the structural enclosure. PVC pipes can also be used to build structural enclosures but only where the use of extension poles is not feasible. Tape or attach the sheeting material around the perimeter to the building assembly to create a tight seal. A decontamination chamber is not required.

Place a HEPA-filtered air scrubber inside the enclosure, next to the work area, to capture dust particulates

released during cut out process. Remove the affected or specified materials carefully with as little agitation as possible using dust control methods. Remove the affected material and place immediately into a 4- to 6-mil polyethylene trash bag before removing from containment. HEPA vacuum the remaining construction debris and dust from the vicinity of the removal work area.

Full Containment

A full containment is a work area enclosure which encompasses the entire room. Establish a barrier system with spring mounted pole such as a Zipwall system or PVC pipes to seal the work area from the surrounding areas. This is done to prevent the release of fungal spores and fragments to the surrounding areas and reduce exposure to remediation workers.

Place a HEPA-filtered air scrubber in the enclosure, next to the work area, to capture dust particulates released during cut out process. Remove the affected or specified materials carefully with as little agitation as possible using dust control methods. Remove the affected material and place it immediately into a 4- to 6-mil polyethylene trash bag before removing from the containment. HEPA vacuum the remaining construction debris and dust from the vicinity of the removal work area.

DT (Destructive Testing)

An intrusive investigation needs to be conducted in this area. Building materials such as ceilings, baseboards and walls need to be removed to gain access to other suspect areas for inspection by the mold consultant.

Place HEPA-filtered air scrubber(s) next to the work area to capture dust particulates released during cut out process. Carefully cut out the affected or specified materials with as little agitation as possible using dust control methods. If visible mold growth is detected on the backside of the cutout material, photo document extent and location prior to the disposal of the material. Report condition and transmit photos to ET&T's mold consultant for the project.

If small areas of visible mold growth (less than 5 square feet) are discovered on the backside of the wallboard, place a source containment over the affected surface area and remove the material. Place the demolition material immediately into a 4- to 6-mil polyethylene trash bag. HEPA vacuum the remaining construction debris and dust from the vicinity of the removal work area.

If large areas of visible mold growth (more than 5 square feet) are discovered on the backside of the wallboard, establish a local containment around the work area. Remove the cut out material and place the demolition material immediately into a 4- to 6-mil polyethylene trash bag. HEPA vacuum the remaining construction debris and dust from the vicinity of the removal work area.

HVAC System



The heating ventilation and air conditioning (HVAC) systems in the different buildings were not inspected by ET&T. Visibly accessible sections of the HVAC showed water intrusions into the system in some areas. The main area is the Display Kitchen in the main building core.



During the inspection of the guestrooms, it became apparent that all individual room AC units had a heavy layer of fine white drywall dust in them. This is due to the construction work in the building. We highly recommend that all sections of the HVAC system are cleaned after the dust generating work has been completed. HVAC and duct cleaning should be conducted by a professional duct cleaning company according to NADCA ACR 2006 standard. All air filters need to be replaced after duct and AC cleaning has been completed.

Fire Proofing Materials



Sprayed on fire proofing materials on metal beams and sheeting materials have been affected by water intrusions. A fire marshal or structural engineer needs to inspect and assess the fire proofing material for appropriate performance and adherence. We recommend that a spray-on encapsulant coating such as *Fiberlock ABC* or equivalent product is applied to the affected areas of the fire proofing material.

ET&T has collected four (4) material samples for fungal analysis to evaluate if fungal amplification is likely. The laboratory analysis data is not available yet.

Cleaning



Fine dust is present on every horizontal surface in the rooms and buildings, and inside the HVAC systems. The greatest challenge to obtain good air quality in the buildings is an effective and thorough cleaning of the fine dust and debris in all areas. This will include all kitchen installations, cabinets and drawers in all rooms and components of the HVAC systems.

Surface cleaning methods should consist of thorough HEPA vacuuming and damp wiping. Place HEPA filtered air filtration devices ("scrubbers") in the cleaning area to effectively reduce the airborne dust and particle load. Critical plastic barriers need to be installed to separate "cleaned" from "to be cleaned" areas. Otherwise, air flow may carry particulates back into previously cleaned areas.

The use of a laser particle counter will be helpful to verify the efficacy of the cleaning efforts. ET&T has been retained to conduct spore trap air sampling to assess the airborne spore load upon completion of the

remediation and cleaning efforts. ET&T will be able to provide more detailed cleaning specification upon request.

SCHEDULING

ET&T will conduct an inspection of the opened and remediated areas once the contractor has completed the material removal but prior to the deep cleaning. The contractor or building management shall inform ET&T in a timely manner when the work areas are ready for inspection. The work areas shall be accessible.

POST REMEDIATION VERIFICATION

Upon completion of the remediation work, ET&T will conduct a post remediation verification survey. The survey will consist of a visual inspection, to assure that the areas are dust free, air and surface sampling. The sampling results should reflect and be comparable to typical background spore levels in the local outside air or in known non-complaint indoor environments. The spore type and concentration levels should be similar to or lower than local outdoor reference air. The work areas need to be dry to industry standards.

HEALTH AND SAFETY

The remediation contractor or each employer is responsible for complying with all federal, state and local safety and regulatory requirements. ET&T is only responsible for the health and safety of its own employees and is providing a site-specific health and safety plan for others involved in the project.

Personal Protection Equipment

The use of appropriate personal protection equipment such as coveralls, respirators, gloves and goggles is highly recommended during destructive testing, demolition and clean-up work. The type of personal equipment selected varies with the type of contaminant, the quantity of affected material, airborne dust and spore load and work time period.

Professional judgment in personal protection equipment selection is required. At a minimum an N-95 respirator shall be used during any dust generating work. The contractor must follow applicable local, state and federal regulation when using personal protection equipment.

OTHER ENVIRONMENTAL ISSUES, REGULATIONS AND STANDARDS

Rodents

During our site inspections large amounts of mice and rat droppings, cockroaches and other insects were detected in different sections of the buildings, especially the lower sections of the B Wing and The Suites. This is a significant health and safety concern to the facility. A rodent type odor is already perceived in some part of the complex, especially the Gerald Ford Boardroom. This discovery has to be incorporated into the remedial efforts for the hotel complex. It appears to be a systemic infestation. The presence of rodents and vectors raises the following health and safety issues:

- Persistent odor problems in buildings
- Nests inside the wall and ceiling cavities
- Carriers of viruses, for example Hanta viruses in rodents

- Produce known allergens (cockroaches)
- Suspected bird or bat droppings (Histoplasmosis)

The suspected routes of entry for the rodents are:

- Dried out toilets that are not sealed securely
- Surface and bathroom drains that are not sealed
- Boarded windows and doors that have gaps

Regular maintenance pest control methods such as spraying chemicals in and around facilities are not sufficient in our opinion. A vector control professional needs to be brought to the site to assess the rodent population, consults on prevention of further entry and design the professional eradication strategy. This issue needs to the addressed expediently to prevent further damage to the building, odor problems and related health and safety issues.

Asbestos

A comprehensive and regulatory asbestos survey has not been conducted. The oldest buildings were built in 1986-1987 when use of asbestos containing materials (ACM) was restricted. An asbestos survey was not part of our scope of work. ET&T conducted limited asbestos sampling as part of its own Job Hazard Analysis. Two samples each were collected from drywall material, surface dust and fire proofing materials. All six (6) samples were negative for ACM. Each employer is responsible for complying with all federal, state and local safety and regulatory requirements for asbestos.

Lead

Testing for lead containing materials was not part of ET&T's scope of work. Lead containing materials are regulated federally under the EPA and OSHA. Due to the age of the building, type of building and type of use, we assume that the EPA's Repair, Remodeling and Painting (RRP) rule does not apply to the buildings. Each employer is responsible for complying with all federal, state and local safety and regulatory requirements for lead.

Mold

ET&T bases its inspection, remediation and repair recommendations on the following industry documents:

- IICRC/ANSI S520 *Standard and Reference Guide for Professional Mold Remediation*
- New York City Department of Health and Mental Hygiene - *Guidelines on Assessment and Remediation of Fungi in Indoor Environments*
- ACGIH: *Bioaerosols: Assessment and Control*
- AIHA: *Recognition, Evaluation, and Control of Indoor Mold*

LIMITATIONS

Reasonable efforts were made by Environmental Testing & Technology, Inc.'s personnel to locate suspect areas of mold growth. However, the existence of hidden and concealed mold growth is always a possibility in buildings. Environmental Testing & Technology, Inc. does not warrant, guarantee or profess to have the ability to locate or identify all mold and fungi in a building. Conditions of mold growth can change in a short period of time due to water intrusion, environmental conditions and other factors. Results of this report represent the conditions at the time of site inspection only.

A diligent inspection of normally visible and accessible areas was made in accordance with the scope of work. However, due to the inherent limitations of the physical inspection process, Environmental Testing & Technology, Inc. cannot report, or accept responsibility for, materials or conditions, which may exist in areas that were inaccessible at the time of its inspection. This survey cannot guarantee, nor warrantee the absence of microbial growth in areas not accessible for inspection or not part of this scope of work.

This inspection is not intended to reflect the structural integrity, or value of the property, nor do we make any representation as to the advisability of purchase or the suitability for use. We do not assume responsibility for choices or decisions made regarding the purchase or rental of properties, mitigation or potential legal action, based on our site inspections. The inspection is not intended to be technically exhaustive, and is not to be used as a guarantee or warranty, expressed or implied, regarding the adequacy, performance, or condition of the inspected structure.

Thank you for choosing ET&T for your survey needs. If you have any further questions, please feel free to contact us at (760) 942-9400.

Sincerely yours,



Peter H. Sierck
Principal/Industrial Hygienist

Certified Microbial Consultant #0706039
Florida Licensed Mold Assessor # 5560460
Certified Microbial Remediation Supervisor #0710010
Certified Indoor Environmental Consultant #0702028
Certified Indoor Air Quality Professional #184

3565 Lexington Av.
El Monte, CA 91731

Micron Environmental Labs

PAT ID No.: 103012
Analytical Method NIOSH 7400

Micron Ref. No.: 12211078
Date: 7/5/11

Air Sample Analysis Summary

Project: 110526
68900 Frank Sinatra Dr, Rancho Mirage

Analyst: Nick Orozco

Name: ACM+ Environmental
Address: 3561 Lexington Ave
City, State, Zip: El Monte, CA 91731

Date Received: 5/27/11
Date Analyzed: 5/27/11
No. Samples: 2

Micron ID	Client ID	Date Collected	Sample Description/Location	Total Time (min)	Flow (LPM)	Volume (Liters)	No. of Fibers	No. of Fields	Result (F/cc)
328350	1	5/26/11	2nd Floor, S. B-Wing	110	15	1650	5.5	100	0.002
328351	2	5/26/11	3rd Floor, S. B-Wing	110	15	1650	5.5	100	0.002

Analyst: _____

Field Area: .007854mm Filter Media: MCE, 25mm^2/0.8μ Filter Area: 385mm

95% Upper Confidence Limit based on intralaboratory coefficient of variation. Limit of Detection based on 5.5 fibers/100 fields

Micron Environmental Labs

3565 Lexington Ave. • El Monte, California 91731 (626) 454-4782 Fax (626) 454-4849

July 19, 2011

Alfredo Amaro
ACM +
3561 Lexington Av.
El Monte, CA 91731

Subject: PLM Analysis of Bulk Samples
Micron Job No.: 12211077
Client Ref.: Project # 110526/68900 Frank Sinatra Dr.

Dear Mr. Amaro:

This report includes an attached summary of the samples collected for the analyses of the 10 bulk samples received by this laboratory on May 27, 2011. The analyses were completed using polarized light microscopy (PLM) in accordance with the EPA Method 600/R-93/116, July 1993. The quantification is based on the percentage of visual area estimation and is expressed as percent area. Samples that are multilayer are analyzed by layer unless, it has been requested as a composite analysis. These visual area estimate results are based on using reference standards materials that are routinely used in the laboratory.

For all the organic matrix samples that were not asbestos detected by (PLM), Micron Environmental recommends the use of Transmission Electron Microscopy (TEM) due to the size and the masking of the fibers.

Micron Environmental Labs is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) Lab Code 200294-0 for asbestos fiber analysis (PLM).

Micron Environmental Labs is responsible for the accuracy in this report, but we are not liable for any wrong data given to us by the client regarding these samples or for any misuse or interpretation of information supplied by us. Liability shall extend to providing replicate analyses only. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. We will retain these samples for a period of ninety days unless otherwise specified. This report pertains only to the samples submitted and analyzed.

Micron Environmental will not grant reproduction of this report unless an approval is obtained from this laboratory. Please feel free to contact the laboratory for questions regarding results or the analytical methods used at (626)454-4782.

Sincerely,
Micron Environmental Labs

Daniel Gamez
Director
Attachments
LW

Micron Environmental Labs
3565 Lexington Ave.
El Monte, CA 91731
626-454-4782
FAX: 626-454-4849

Analytical Method: EPA 600/R-93/116
NIST / NVLAP Lab Code No. 200294-0
California ELAP Certificate No. 2297

Micron Ref. No.
12211077

Sample Summary Results

Customer Project: *Project # 110526/68900 Frank Sinatra Dr.* Microscopist: *Nick Orozco*

July 19, 2011

Alfredo Amaro
ACM +
3561 Lexington Av.
El Monte, CA 91731

Date Collected: *May 26, 2011*
Date Received: *May 27, 2011*
Date Analyzed: *May 27, 2011*
No. Samples: *10*

Cust ID No. / Micron ID No	Sample Description / Color	Asbestos Detected	Analytical Results	Q.C.
1 328340	Fireproofing beige	No	40% Cellulose 20% Mineral Filler 40% Vermiculite	
2 328341	Drywall/Ceiling white	No	100% Mineral Filler	
2 328342	Joint Compound/Ceiling beige	No	100% Mineral Filler	
3 328343	Drywall/Wall white	No	100% Mineral Filler	
3 328344	Joint Compound/Wall beige	No	100% Mineral Filler	
4 328345	Drywall/Wall white	No	100% Mineral Filler	

Sample Summary Results

Date: *July 19, 2011*

Microscopist: *Nick Orozco*

Micron Ref. No.: *12211077*

Cust ID No. / Micron ID No	Sample Description / Color	Asbestos Detected	Analytical Results	Q.C.
4 328346	Joint Compound/Wall beige	No	100% Mineral Filler	
5 328347	Fireproofing grey	No	40% Cellulose 20% Mineral Filler 40% Vermiculite	X
6 328348	Drywall white	No	100% Mineral Filler	
6 328349	Joint Compound beige	No	100% Mineral Filler	

Microscopist: _____

The limit of detection for this analytical method is less than one percent asbestos (visual area estimates). CV=0.04

Appendix H:

Resumes

LANEICIA A. STONE

Director, Environmental Technical Operations

Education

- Bachelor of Science, Civil Engineering, University of Texas at Arlington, 1993

Project Experience

Landfill, Carrollton, TX Ms. Stone served as Project Scientist and was responsible for monthly field collection and client reporting of monitoring well and piezometer readings, as well as the surveying of water levels of streams and lakes near the existing two phases of the landfill. Ms. Stone also helped in the permitting of Phase III of this landfill, which included the installation of a High Density Poly-Urethane liner.

Rapid Transit Authority, Dallas, TX Ms. Stone served as a Project Scientist for the remediation efforts, which were encountered during the excavation of contaminated soils for the underground DART system. This project included the field collection of samples and reporting directly to the DART authorities on remediation efforts of contaminated soils. These soils were removed and taken to an off-site location to be remediated and then were incinerated.

NationsBank, Dallas, TX Ms. Stone served as a Project Scientist for the OREO division of NationsBank. Ms. Stone was placed in the environmental offices for NationsBank on a long term contract by her employer, GZA. Ms. Stone assisted in reviewing other consultant's environmental reports for technical accuracy, assisted in closing out deficiencies between these reports and the bank's Scope, and then made appropriate recommendations to the bank based on these reports.

Airports, Houston, TX Ms. Stone served as Project Manager over air monitoring and indoor air quality. Her responsibilities included the air monitoring and PCM sample analysis as well as project management and oversight of asbestos removal at the three city of Houston airports. This job included unlimited security clearance and access to all three airports (Ellington, Intercontinental and Hobby).

Walgreen Facilities (Nationwide) Ms. Stone served as the environmental technical lead for a portfolio of 96 Walgreen facilities. Over half of these facilities had historical gas stations located on the asset lands which required further investigations (i.e. Phase II Subsurface Investigations and review of State files).

Automotive Dealerships Ms. Stone performed Phase I Environmental Site Assessments for several automotive dealerships

Industry Tenure

- Environmental: 1990
- EMG: September, 1995

Industry Experience

- Office
- Banking
- Industrial
- Retail
- Residential

Active Licenses/Registration

- Certified EPA/AHERA Building Inspector/205349, 1992
- EPA Model Curriculum for Residential Lead-Based Paint Hazard Reduction Act of 1992 (Title X), 1992
- OSHA/40 Hour Health and Safety Training/29 CFR 1910.120, 1991
- State of Texas Licensed Asbestos Management Planner (1995)
- Texas Certified Lead-based Paint Inspector/Risk Assessor/Management Planner, 1999
- CEI – Certified Environmental Risk Assessor, Environmental Assessment Association, 1991
- NIOSH 7400, Microscopic Identification of Asbestos, 1993

Professional Affiliations

- Society of Women Engineers (Young Woman of the Year, 1991)

Regional Location

- Baltimore, MD

throughout the south and southeast as part of a national automotive portfolio. The automotive dealerships had numerous environmental concerns including, underground storage tanks, oil/water separators, and in-ground hydraulic lifts. Based on an evaluation of the automotive sites, Ms. Stone recommended Phase II subsurface investigations to further evaluate the adverse environmental impacts from the various environmental concerns to the subsurface environment.

Historic Building – Ms. Stone performed a Phase I Environmental Site Assessment, limited asbestos survey and lead-based paint survey at a historic building in downtown Houston. Asbestos-containing materials and lead-based paints were identified throughout the facility. The facility developed and implemented an operations and maintenance plan for asbestos and lead-based paint.

Golf Courses (Nationwide) Ms. Stone served as the environmental technical lead for a portfolio of over 100 golf course facilities. Over half of these facilities had issues including leaking underground storage tanks, unregistered water wells, and contamination resulting from pesticides and herbicides which required further investigations (i.e. Phase II Subsurface Investigations and review of State files).

Sands Hotel (Las Vegas, NV) Ms. Stone served as the Project Manager for the environmental due diligence prior to demolition of the Sands Hotel in Las Vegas. Asbestos-containing materials were identified that required abatement prior to demolition. In addition, contaminated groundwater was encountered during demolition, which resulted in the installation of carbon filtration and extraction and reinjection wells to remediate the contaminated groundwater encountered during dewatering efforts. After successful completion of the remediation, the Venetian Hotel was given clearance for development.

Hilton Hotels (International locations) Ms. Stone assisted in the environmental management activities for over 170 Hilton international locations as well as performing onsites for Phase I Environmental Site Assessments and Property Condition Surveys of various Hilton Hotels located throughout Europe.

SARAH SWEENEY

Technical Report Reviewer

Education

- Bachelor of Science in Environmental Conservation at California University of Pennsylvania
- 29 Credits towards Master of Environmental Pollution Control at the Pennsylvania State University

Project Experience

Rental Car Facility, Arlington, VA – Ms. Sweeney performed a Phase I Environmental Assessment for an existing rental car facility, which included a leaking underground storage tank. At her recommendation, a Phase II Subsurface Investigation was conducted. Groundwater monitoring wells were installed at the property to determine groundwater flow and extent of contamination.

Vacant Land, Charles Town, WV – Ms. Sweeney performed a Phase I Environmental Assessment for 200 acres that was slated for residential development. A pile of asphalt roofing shingles, potentially containing asbestos was found on the property. At her recommendation, the roofing shingles were removed and disposed of in accordance with State and Federal regulations.

Apartment Building, Libertytown, MD – Ms. Sweeney performed a Phase I Environmental Assessment for an existing apartment building with an on-site drinking water well. Through interviews with governmental officials, as well as historical research, she found that the groundwater in the area was contaminated with TCE. She recommended that the well be properly abandoned and the property be connected to the public water system.

Business Park, Hanover, MD – Ms. Sweeney performed a Phase I Environmental Assessment for a business park, which contained four buildings and numerous laboratory tenants.

Hotel, Harpers Ferry, WV – Ms. Sweeney performed a Phase I Environmental Assessment for a hotel that was to be purchased. The hotel was built in the 1960s and had an on-site wastewater treatment plant. At her recommendation, an asbestos survey was conducted.

Industry Tenure

- Environmental: 2001
- EMG: May, 2002

Industry Experience

- Office
- Industrial
- Housing
- Hospitality
- Retail

Active Licenses/Registration

- Maryland Biological Stream Survey – Spring 2002 Training
- Maryland Biological Stream Survey – Summer 2001 Training
- Lead Inspector Technician Certification, Maryland, Certificate # 33016 since 2002
- AHERA Asbestos Inspector Certification, Certificate # 059130 since 2002

Regional Location

- Hanover, PA