

DRAFT

**INITIAL STUDY AND
MITIGATED NEGATIVE DECLARATION**

**ALIEN COMMERCIAL CENTER
BAKER, CALIFORNIA
72252 BAKER BOULEVARD
APN 0544-311-42**



LEAD AGENCY:

**COUNTY OF SAN BERNARDINO
LAND USE SERVICES DEPARTMENT
7385 N. ARROWHEAD AVENUE
SAN BERNARDINO, CA 92415-0182**

REPORT PREPARED BY:

**BLODGETT BAYLOSIS ENVIRONMENTAL PLANNING
2211 S. HACIENDA BOULEVARD, SUITE 107
HACIENDA HEIGHTS, CALIFORNIA 91745**

NOVEMBER 14, 2022

BAKE001

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

SAN BERNARDINO COUNTY INITIAL STUDY ENVIRONMENTAL CHECKLIST FORM

This form and the descriptive information in the application package constitute the contents of Initial Study pursuant to County Guidelines under Ordinance 3040 and Section 15063 of the State CEQA Guidelines.

PROJECT LABEL

APNs: 0544-311-42	USGS Quad: Baker
Applicant: Steeno Design Studio Inc.	Lat/Long: 35°26'7613"N -116°07'1602"W
	T, R, Section: west half of Section 30, T14N R9E,
Project No: PROJ-2022-00038	Community Plan: Baker
Staff: Ruben Arceo, Planner	LUC: Commercial (C)
	Zone: Highway Commercial (CH)
Rep	Overlays: N/A.
Proposal: Alien Commercial Center	

PROJECT CONTACT INFORMATION

Lead agency: County of San Bernardino
Land Use Services Department
385 N. Arrowhead Avenue, 1st Floor
San Bernardino, CA 92415-0182

Contact person: Ruben Arceo, Contract Planner
Phone No: 909-387-4387

Fax (909) 387-3223
No:

E-mail: Reuben.arceo@lus.sbcounty.gov

PROJECT DESCRIPTION

Physical Characteristics

The County of San Bernardino is reviewing an application submitted by Steeno Design Studio Inc. to construct and operate a 20-pump fueling station, a 20,400 square foot convenience store, a coffee shop with a drive through lane consisting of 3,864 square feet on a 4.99-acres (217,369 square feet) parcel located on the northwest side of Baker Boulevard. The legal address assigned to the project site is 72252 Baker Boulevard, Baker California 92309 with an Assessor Parcel Number (APN) of 0544-311-42. The site's zoning designation is Highway Commercial (CH) and a Land Use Category of Commercial (C). The project elements are summarized below.

- *Existing Buildings to be Demolished.* The existing motel buildings (five buildings that were part of the former Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project.
- *Underground Storage Tanks (USTs).* Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and one UST would be installed for the storage of diesel fuel.

- **Fueling Area.** The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the canopy roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions.
- **Convenience Store.** The proposed project would include a new a 20,400 square foot convenience store. The proposed convenience store would be located adjacent to, and north of, the fueling area. The south elevation would be the main public entry way and would face the fuel dispensing area. Secondary entryways would be located at the building's east and west ends next to the patio areas. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR).
- **Drive-Thru Coffee Shop.** A coffee shop, with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. The drive through lane would have a capacity of between 19 and 20 vehicles.
- **Access and Circulation.** Vehicular access would be provided by five new driveway connections. Two driveways would be located along Baker Boulevard frontage to the south of the project site. Two driveways located on the north portion of the project site would connect to a future site on the north. Finally, one driveway will be located to the east of the project site.
- **Parking.** A total of 226 standard parking spaces would be provided in addition to 8 ADA accessible parking spaces, and 16 electric vehicle charging stations. A total of 250 surface parking spaces would be provided.
- **Landscaping.** Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and in the parking spaces. A San Bernardino County Drainage Easement would also extend along the site's west side.

The site plan is shown in Exhibit 1. Building elevations are provided in Exhibits 2 and 3. The project is summarized in the table below.

Project Summary Table	
Project Element	Description
Total Site Area	4.99-acres (217,369 sq. ft.)
Total Building Floor Area	24,264 sq. ft.
Coffee Shop (with Drive Through)	3,864 sq. ft.
Fuel Sales Area	20 pumps (40 fueling positions)
Convenience Store	20,400 sq. ft.
Total No. Parking Spaces	250 spaces
Standard Parking Spaces	226 spaces
ADA Parking Spaces	8 spaces
EV Parking Spaces	16 charging Stations
Driveway Access	5 curb cuts
Landscaping	31,173 sq. ft.

Source: Steeno Design Studio

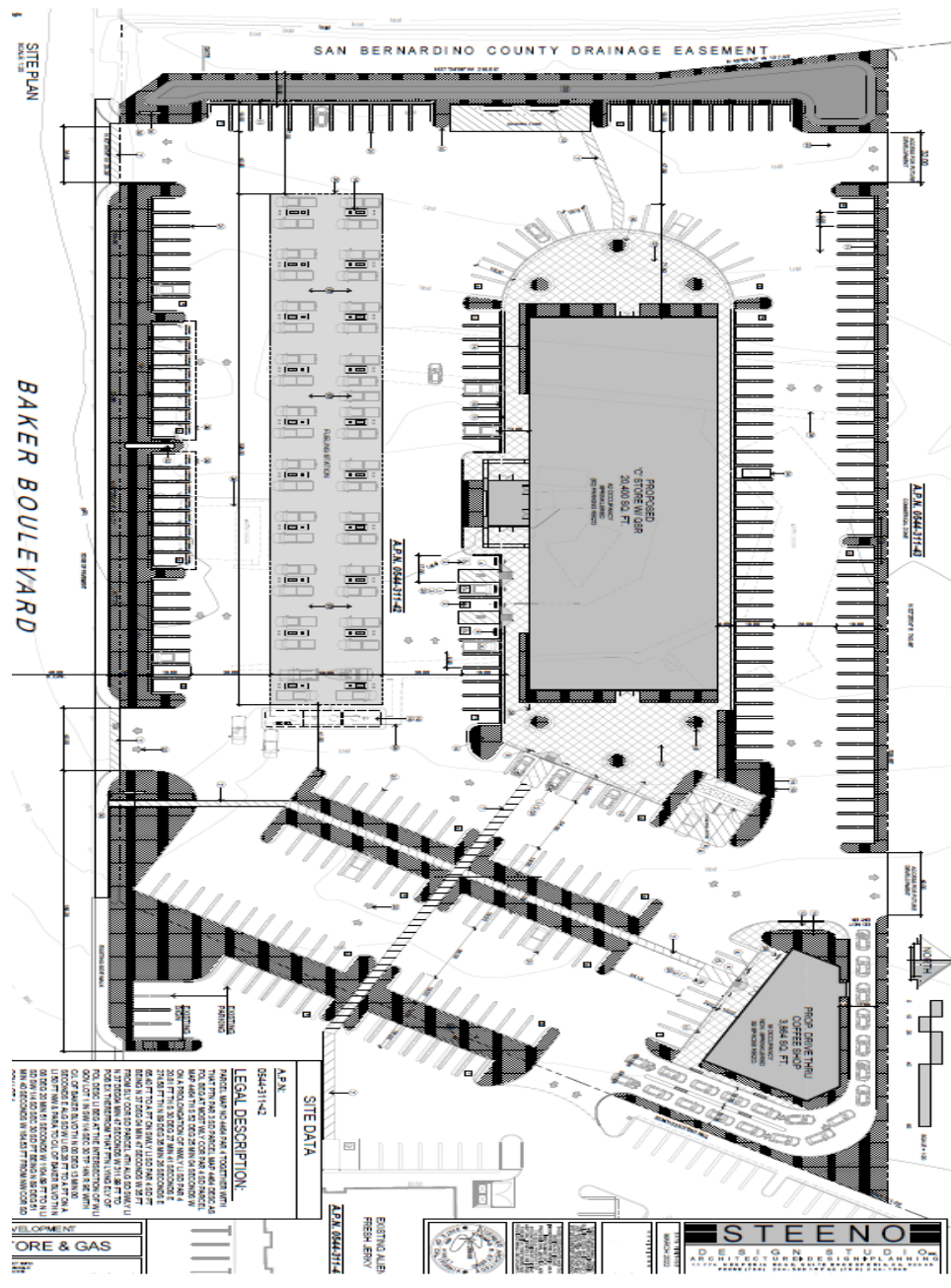


EXHIBIT 1
SITE PLAN OF PROPOSED PROJECT
 SOURCE: STEENO DESIGN STUDIOS



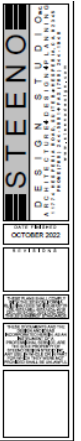
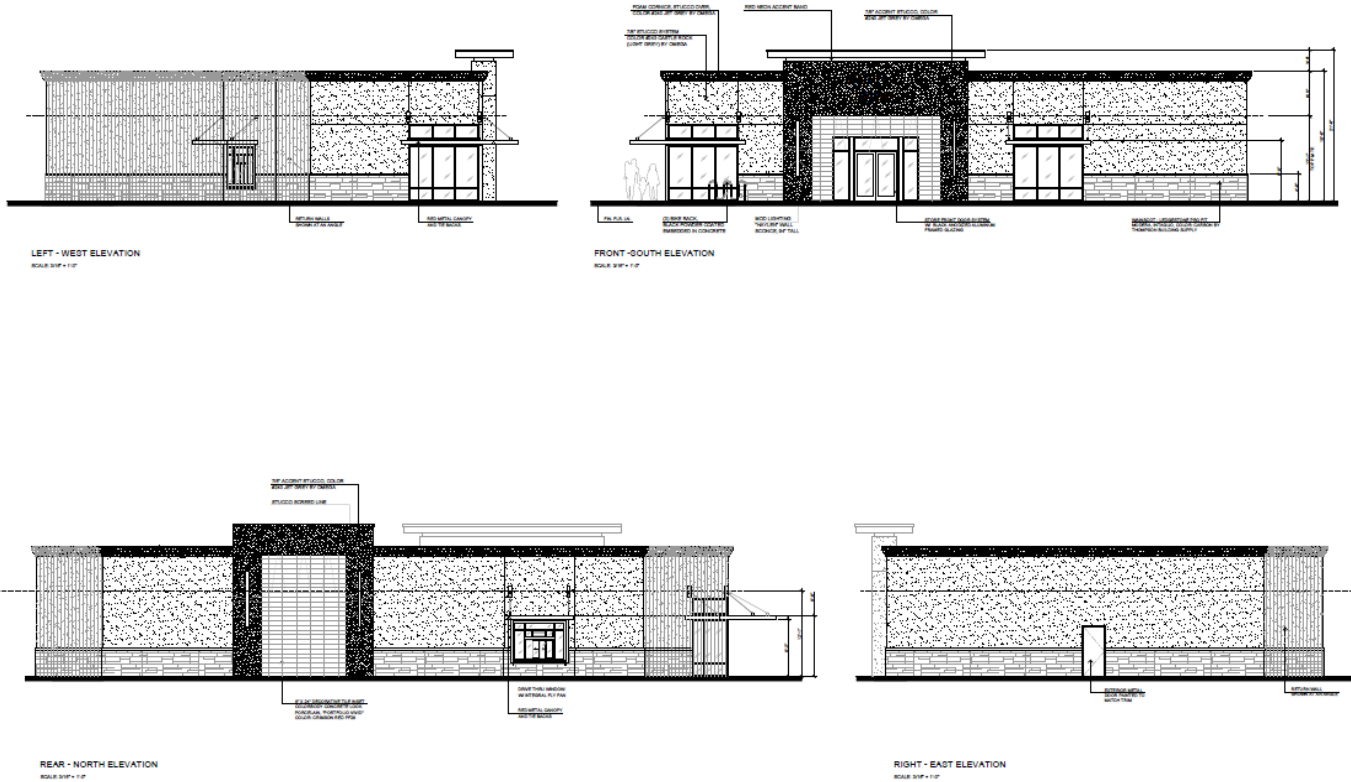


EXHIBIT 3 BUILDING ELEVATIONS

SOURCE: STEENO DESIGN STUDIOS

Construction Characteristics

The total land area to be developed is a 4.99-acres (217,369 square feet) parcel located on the northwest side of Baker Boulevard. The construction for the current proposed project is estimated to begin on January 2023 and would take approximately ten months to complete. The key construction phases are outlined in the paragraphs that follow.

- *Demolition Phase.* The existing onsite improvements would be demolished and removed from the site during this phase. Construction equipment that would be used onsite during this phase would include heavy bulldozers, back hoes, front loaders, graders, dump trucks, and water trucks. This phase would require one month to complete.
- *Grading Phase.* The project site would be graded and readied for the construction. Construction equipment that would be used onsite during this phase would include graders, dump trucks, and water trucks. This phase would require one month to complete.
- *Site Preparation Phase.* During this phase, the building footings, utility lines, and other underground infrastructure would be installed. Construction equipment that would be used onsite during this phase would include trenching equipment, back hoes, front loaders, graders, dump trucks, and water trucks. This phase would require one month to complete.
- *Building Construction Phase.* The new buildings would be constructed during this phase. Construction equipment that would be used onsite during this phase would include fork lifts, trucks, back hoes, front loaders, and compressors/generators. This phase would take approximately five months to complete.
- *Paving, Landscaping, and Finishing Phase.* The individual development sites will be paved during this phase. Construction equipment that would be used onsite during this phase would include fork lifts, trucks, back hoes, front loaders, and cement mixers, pavers, rollers, compressors/generators. This phase will take approximately two months to complete.

Operational Characteristics

The fuel dispensers and the convenience store will be open 24 hours a day, 7 days a week. The coffee shop may be open 24 hours a day though the actual hours of operation will be determined once the tenant is identified. The proposed convenience store component project is anticipated to employ up to 25 persons while the potential employment for the coffee shop is anticipated to be up to 20 persons.

SURROUNDING LAND USES AND PROJECT LOCATION

Surrounding Land Uses

Land uses located in the vicinity of the proposed project are outlined below:¹

- *North of the project site:* Vacant land uses are located north of the site. This area is zoned as Highway Commercial (CH) and the San Bernardino Countywide Plan land use designation is Commercial (C).

- *East of the project site:* Land uses located to the east of the project site are retail (72252 Baker Boulevard). This area is zoned as Highway Commercial (CH) and the General Plan land use designation is Commercial (C).
- *South of the project site:* Baker Boulevard extends along the project site's south side. Further south, on the south side of the aforementioned roadway, is a fast-food restaurant (Del Taco, 72197 Baker Boulevard). This area is zoned as Highway Commercial (CH) and the General Plan land use designation is Commercial (C).
- *West of the project site:* Directly west of the project site is a vacant property. This area is zoned as Highway Commercial (CH) and the General Plan land use designation is Commercial (C).

An aerial photograph of the project site and the surrounding area is provided in Exhibit 4.

Existing Land Use and Land Use Zoning Districts		
Location	Existing Land Use	Land Use Zoning District
Project Site	Vacant "Santa Fe Motel"	This area is Zoned as Highway Commercial (CH). The General Plan land use designation is Commercial (C).
North	Vacant land uses are located north of the site.	This area is zoned as Highway Commercial (CH). The General Plan land use designation is Commercial (C).
South	Baker Boulevard extends along the project site's south side. Further south, on the south side of the aforementioned roadway, is a fast-food restaurant (Del Taco, 72197 Baker Boulevard).	This area is zoned as Highway Commercial (CH). The General Plan land use designation is Commercial (C).
East	Directly west of the project site is a vacant property.	This area is zoned as Highway Commercial (CH). The General Plan land use designation is Commercial (C).
West	Directly west of the project site is a vacant property.	This area is zoned as Highway Commercial (CH). The General Plan land use designation is Commercial (C).

The proposed project site is located on a 4.99-acre parcel that is currently occupied by a vacant motel (the former Santa Fe Motel) consisting of five buildings and a concrete in-ground pool. The total floor area of the buildings that will be demolished is 16,630 square feet. All of the buildings are one-story structures set on concrete slab foundations. The main motel buildings and a storage shed have flat roofs, while the rental offices have medium-pitched roofs covered with red terracotta tiles. Exterior walls of the motel buildings and the modern rental office are clad in tan-colored stucco. The exterior cladding of the older office is a mix of white-washed stucco and board-and-batten siding. A full-width arcade across the front of the older motel building shelters a concrete walkway, while the entries to the modern motel building are shaded in pairs by tiled pent roofs resting on wood frames. The swimming pool has been backfilled in with dirt, and many of the doors and windows on all of the buildings have been sealed with particle boards.



EXHIBIT 4 AERIAL MAP

Project Site Location

The proposed project site is located in the south-central portion of the unincorporated community of Baker, California. Baker is located in the northeastern portion of San Bernardino County in the southwestern Mojave Desert physiographic subregion. This physiographic subregion is separated from the more populated areas of coastal and inland Southern California by the San Bernardino and San Gabriel mountains. Baker is bounded on all sides by unincorporated San Bernardino County. Regional access to Baker is provided by two area highways: the Mojave Freeway (Interstate 15), extending in a southwest to northeast orientation through the southern portion of Baker and State Route 127, which traverses the western portion of the community in a north to south orientation. The location of Baker, in a regional context, is shown in Exhibit 5. A vicinity map is provided in Exhibit 6.

The proposed project site is located on the northwestern side of Baker Boulevard. The site's address is 72252 Baker Boulevard, Baker California 92309. The corresponding Assessor Parcel Number (APN) is 0544-311-42. The site's latitude and longitude are 35.267613, -116.071602. The project site is located in the west half of Section 30, T14N R9E, San Bernardino Baseline and Meridian. An aerial photograph of the site and the surrounding area is provided in Exhibit 7.

ADDITIONAL APPROVALS REQUIRED BY OTHER PUBLIC AGENCIES

Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement.):

Federal: N/A

State of California: NPDES Permit

County of San Bernardino: Land Use Services – Building and Safety, Land Development Engineering – Roads/Drainage; Public Health – Environmental Health Services; and County Fire

Local: N/A

CONSULTATION WITH CALIFORNIA NATIVE AMERICAN TRIBES

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun? The required notification of affected tribes has occurred. The San Manuel tribe provided standard language regarding mitigation of inadvertent discovery of tribal cultural resources including human remains.

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

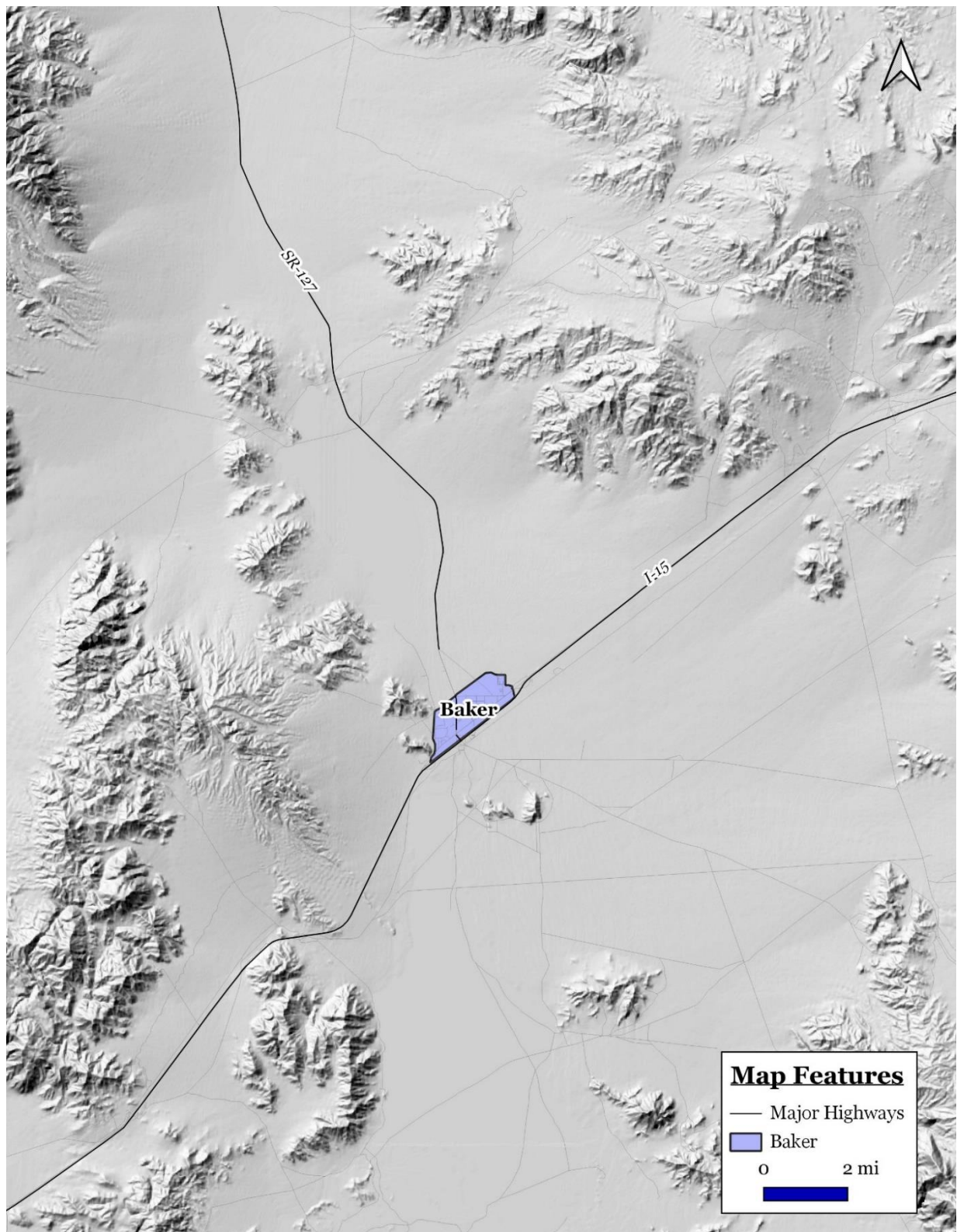


EXHIBIT 5 REGIONAL MAP

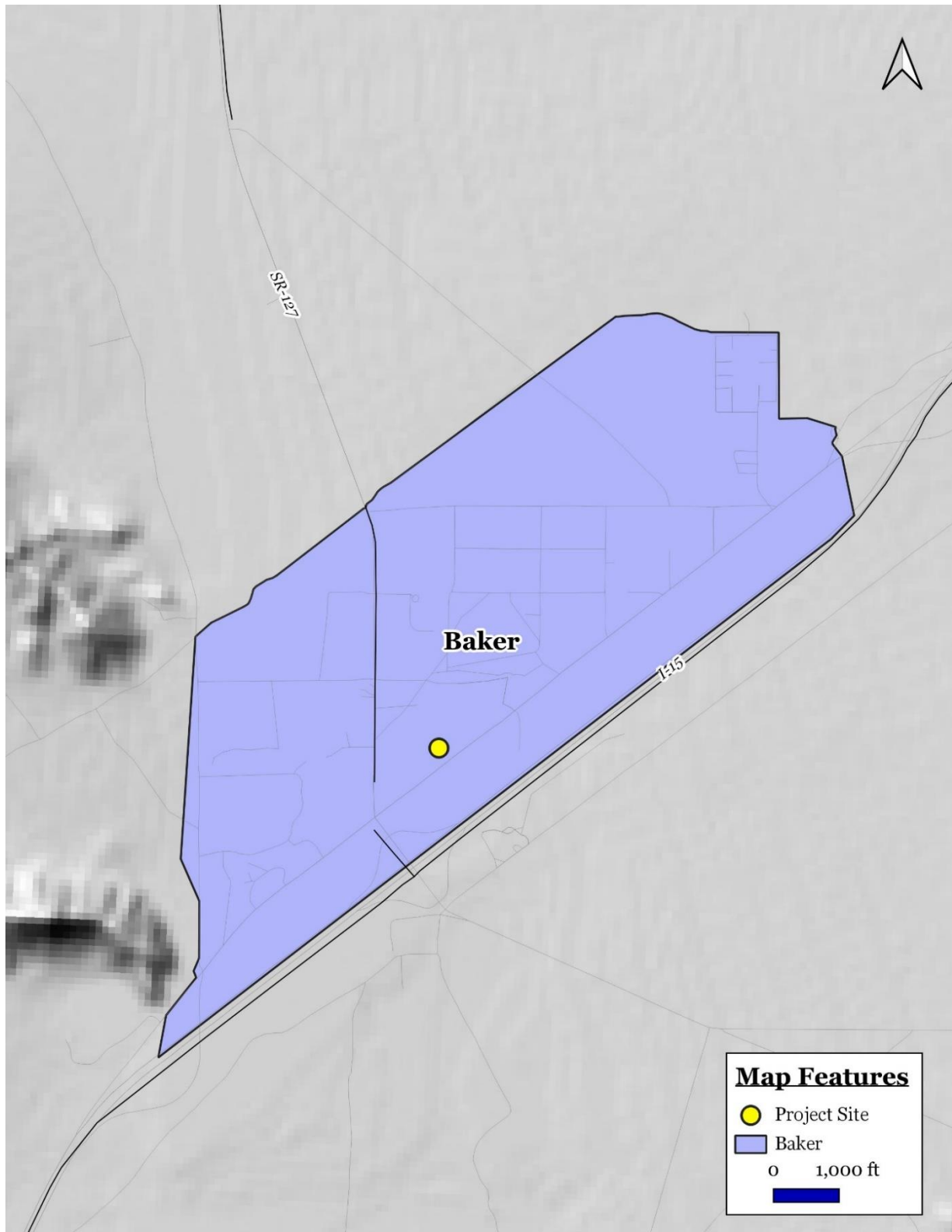


EXHIBIT 6 AREAWIDE MAP

SOURCE: BLODGETT BAYLOSIS ENVIRONMENTAL PLANNING

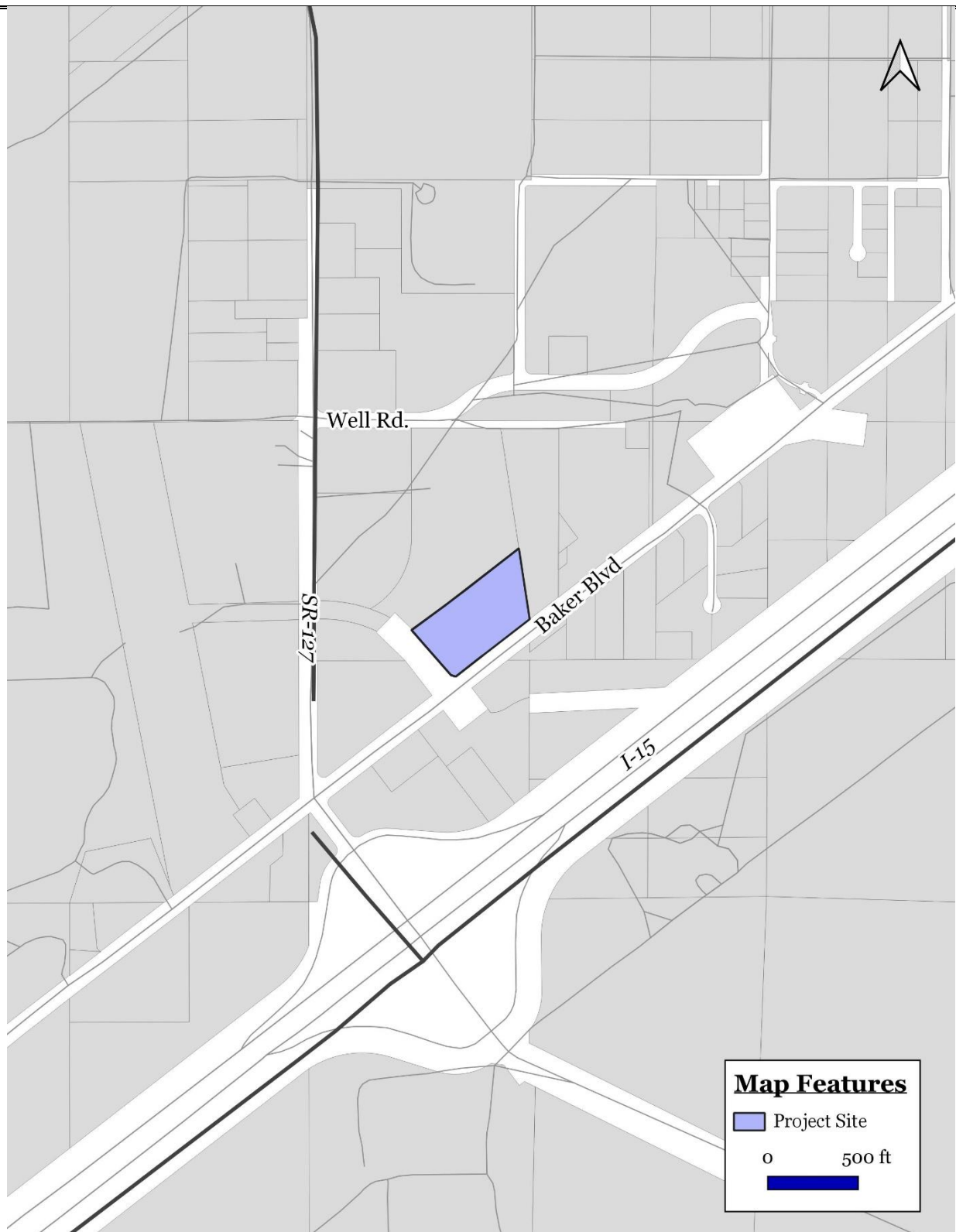


EXHIBIT 7 VICINITY MAP

SOURCE: BLODGETT BAYLOSIS ENVIRONMENTAL PLANNING

EVALUATION FORMAT

This initial study is prepared in compliance with the California Environmental Quality Act (CEQA) pursuant to Public Resources Code Section 21000, et seq. and the State CEQA Guidelines (California Code of Regulations Section 15000, et seq.). Specifically, the preparation of an Initial Study is guided by Section 15063 of the State CEQA Guidelines. This format of the study is presented as follows. The project is evaluated based on its effect on the 21 major categories of environmental factors. Each factor is reviewed by responding to a series of questions regarding the impact of the project on each element of the overall factor. The Initial Study checklist provides a formatted analysis that provides a determination of the effect of the project on the factor and its elements. The effect of the project is categorized into one of the following four categories of possible determinations:

Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant	No Impact
--------------------------------	--	-----------------------	-----------

Substantiation is then provided to justify each determination. One of the four following conclusions is then provided as a summary of the analysis for each of the major environmental factors.

1. **No Impact:** No impacts are identified or anticipated, and no mitigation measures are required.
2. **Less than Significant Impact:** No significant adverse impacts are identified or anticipated, and no mitigation measures are required.
3. **Less than Significant Impact with Mitigation:** Possible significant adverse impacts have been identified or anticipated and the following mitigation measures are required as a condition of project approval to reduce these impacts to a level below significant. The required mitigation measures are: (List of mitigation measures)
4. **Potentially Significant Impact:** Significant adverse impacts have been identified or anticipated. An Environmental Impact Report (EIR) is required to evaluate these impacts, which are (List of the impacts requiring analysis within the EIR).

At the end of the analysis the required mitigation measures are restated and categorized as being either self- monitoring or as requiring a Mitigation Monitoring and Reporting Program.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below will 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.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture & Forestry Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input type="checkbox"/> Geology & Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials |
| <input type="checkbox"/> Hydrology & Water Quality | <input type="checkbox"/> Land Use & Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population & Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation & Traffic | <input type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities & Service Systems | <input type="checkbox"/> Wildfire | <input type="checkbox"/> Mandatory Findings of Significance |

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation, the following finding is made:

<input type="checkbox"/>	The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION shall be prepared.
<input checked="" type="checkbox"/>	Although the proposed project could have a significant effect on the environment, there shall 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 shall be prepared.
<input type="checkbox"/>	The proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	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.
<input type="checkbox"/>	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.

12/8/2022

Signature (Reuben J. Arceo, Contract Planner)

Date

David Prusch
Signature (Dave Prusch), Supervising Planner

12/8/2022

1. AESTHETICS

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project have a substantial adverse effect on a scenic vista?				×
B. Would the project 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, would the project 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 a 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. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?		×		

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

A. *Would the project have a substantial adverse effect on a scenic vista? • No Impact*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acre (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and gasoline and one UST would be installed for the storage of diesel fuel. The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Vehicular access would be provided by five new driveway connections. Two driveways would connect to Baker Boulevard located to the south of the project site. Two driveways located on the north portion of the project site, would connect to a future site on the north. Finally, one driveway would be located to the east of the project site. A total of 226 standard parking spaces would be provided in addition to 8 ADA accessible parking spaces, and 16 electric vehicle charging stations. A total of 250 surface parking spaces would be provided. Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and parking spaces.

Land uses located in the vicinity of the proposed project are outlined below and on the following page:

- *North of the project site:* Vacant land uses are located north of the site. This area is zoned as Highway Commercial (CH) and the San Bernardino Countywide Plan land use designation is Commercial (C).

- *East of the project site:* Land uses located to the east of the project site are retail (72252 Baker Boulevard). This area is zoned as Highway Commercial (CH) and the General Plan land use designation is Commercial (C).
- *South of the project site:* Baker Boulevard extends along the project site's south side. Further south, on the south side of the aforementioned roadway, is a fast-food restaurant (Del Taco, 72197 Baker Boulevard). This area is zoned as Highway Commercial (CH) and the General Plan land use designation is Commercial (C).
- *West of the project site:* Directly west of the project site is a vacant property. This area is zoned as Highway Commercial (CH) and the General Plan land use designation is Commercial (C).

The site would not qualify as undeveloped desert land since the site is currently occupied and disturbed by motel buildings and an in-ground pool and it is also zoned as Highway Commercial (CH). The adjacent parcels are also developed or otherwise zoned for development. The proposed site does not contain any sensitive habitats. Lastly, the project site does not contain any buildings listed in the State or National register. *As a result, no impacts will occur.*

- B.** *Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?* • **No Impact.**

The Open Space Element of the San Bernardino Countywide Plan describes a "scenic route" as a roadway that has scenic vistas and other scenic and aesthetic qualities that, over time, have been found to add beauty to the County. County of San Bernardino designated scenic routes are presented within the aforementioned element and include State Route (SR) 127 from Interstate 15 at Baker northwest to the Inyo County line. This roadway segment is a County designated scenic route. The proposed project site is occupied by a number of older structural improvements that will be demolished to accommodate the proposed project. The project site does not contain any buildings listed in the State or National registrar (refer to the discussion under Cultural Resources). The site does not contain any protected or scenic elements such as trees, rock outcroppings, or existing structures or any historic buildings listed in the State or National register. *As a result, no impacts will occur.*

- C.** *In non-urbanized areas, would the project 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 a 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?* • **No Impact**

The proposed project site is located in an urbanizing area located along the Baker Boulevard corridor. All views of distant mountains from the proposed project site are partially obscured by the existing development in the area. Furthermore, the proposed land use would conform to the applicable development standards. *As a result, no impacts will occur.*

- D.** *Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?* • **Less than Significant Impact with Mitigation.**

Exterior lighting can be a nuisance to adjacent land uses that are sensitive to this lighting. This nuisance lighting is referred to as light trespass, which is typically defined as the presence of unwanted light on properties located adjacent to the source of lighting. A high level of nighttime illumination already exists along the Baker Boulevard corridor due to the degree of urban development in the vicinity of the project area. Project-related sources of nighttime light would be typical of that associated with commercial land uses, including signage, parking area lighting, security lighting, and vehicular headlights. The light sensitive receptors are shown in Exhibit 8.

The County has adopted the San Bernardino Night Sky Ordinance. In addition, the San Bernardino Countywide Plan, the Desert Community Plan, and the San Bernardino County Development Code have several goals and policies relating to lighting/glare. All new development, including the proposed project, may incrementally change conditions of nighttime views and the character of dark skies. This continued development will incrementally increase ambient light and glare and degrade “dark skies” conditions. However, the degree of change to nighttime views may be significantly reduced by adhering to the requirements of the Development Code and County Night Sky Ordinance.

Potential light-trespass impacts resulting from lighting would be minimized through compliance with all pertinent development standards, the goals, policies, and implementation measures of the Countywide Plan. San Bernardino County Ordinance No. 3900 which regulates glare, outdoor lighting, and night sky protection. Nighttime lighting associated with the proposed project would be subject to County approval and compliance with San Bernardino County requirements. Under these requirements, lighting must be directed towards the ground from low elevation poles (less than 14 feet in height). In addition, all lights would be shielded so that there is no upward directed light. In addition, the implementation of mitigation measure AES-1(D), would reduce impacts from spillover lighting to adversely affect residents and motorists. *As a result, the impacts would be less than significant with mitigation.*

MITIGATION MEASURES

AES-1 (D). The area of illumination from any lighting source must be confined to within the site boundaries so as to minimize impacts to night sky views from surrounding properties. On-site lighting will be fully shielded, diffused, or directed in a manner to avoid glare directed at adjacent properties, roadways or any light spill into any wildland areas surrounding the site that might affect nocturnal animals. No light will be permitted to project onto adjacent roadways in a manner that interferes with on-coming traffic. All lighting will be limited to that necessary for maintenance activities, security, and safety purposes. All signs proposed by this project will only be lit by steady, stationary, shielded light directed at the sign, by light inside the sign or by direct stationary neon lighting.

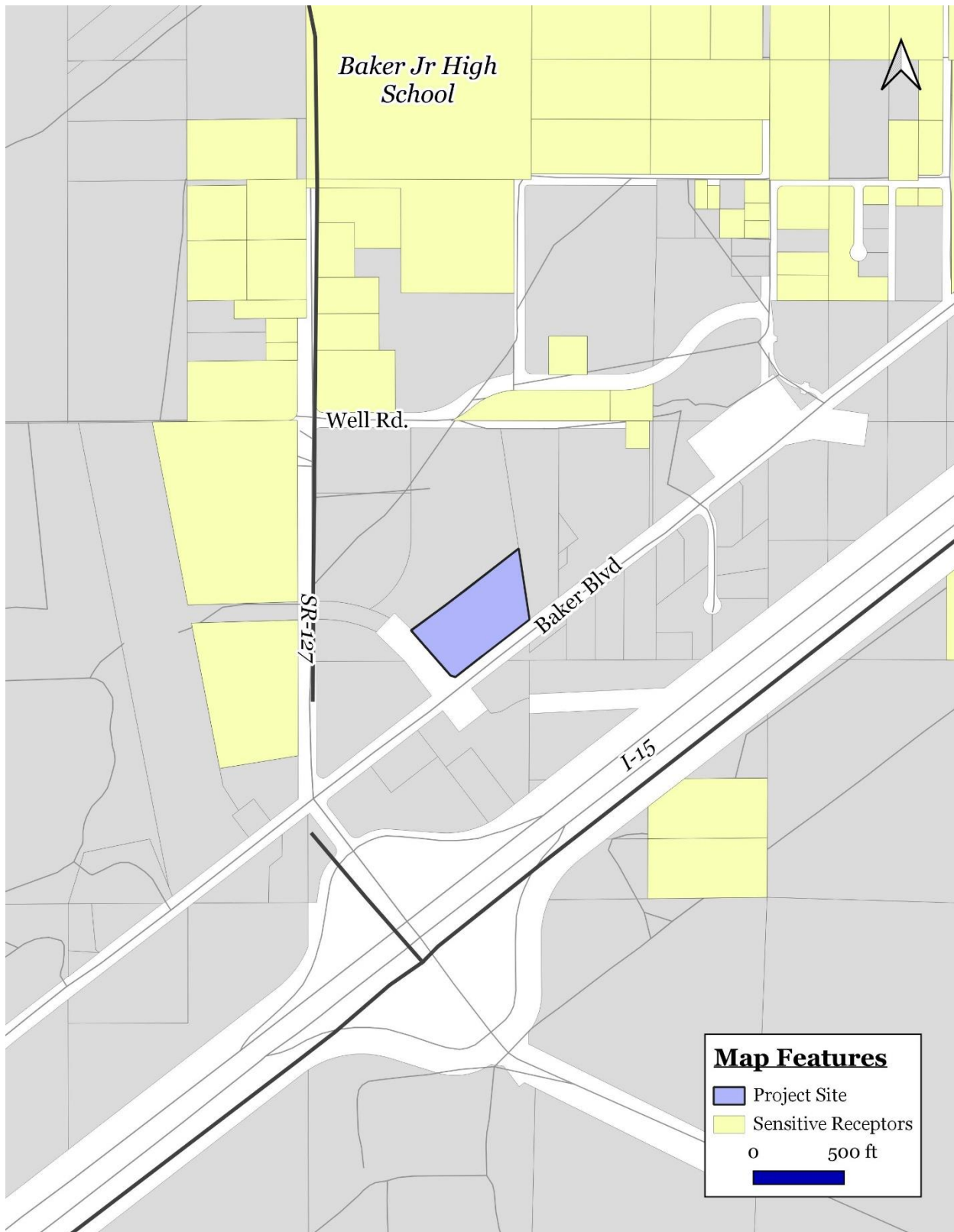


EXHIBIT 8
LIGHT SENSITIVE RECEPTORS
SOURCE: BLODGETT BAYLOSIS ENVIRONMENTAL PLANNING

2. AGRICULTURE & FORESTRY RESOURCES

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project 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 uses?				×
B. Would the project conflict with existing zoning for agricultural uses, or a Williamson Act Contract?				×
C. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?				×
D. Would the project result in the loss of forest land or conversion of forest land to a non-forest use?				×
E. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to a non-forest use?				×

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- A. *Would the project 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 uses? • No Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and parking spaces.

Agricultural development and resources in the Desert Region which includes the Baker community, is limited to areas located along the Mojave River and as far north as the community of Harvard-Newberry Springs. Historic alfalfa production occurred on a limited basis in areas that previously had sufficient groundwater for irrigation, such as Lucerne Valley and Harper Dry Lake. Information on the occurrence of Important Farmlands in the Desert Region is limited to the areas near Lenwood, Yermo, and Newberry Springs and Lucerne Valley. Large areas of grazing land are also located in the southwest areas of the Desert Region.

According to the California Department of Conservation, the project site does not, nor do the adjacent parcels, contain any areas of Farmland of Statewide Importance. No agricultural uses are located onsite or adjacent to the property. The implementation of the proposed project would not involve the conversion of any prime farmland, unique farmland, or farmland of statewide importance to urban uses. *As a result, no impacts will occur.*²

B. Would the project conflict with existing zoning for agricultural uses, or a Williamson Act Contract? • No Impact.

According to the California Department of Conservation Division of Land Resource Protection, the project site is not subject to a Williamson Act Contract.³ *As a result, no impacts will occur*

C. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? • No Impact.

The proposed project site is zoned for development and the site is located in the vicinity of urban development. All of the surrounding properties are zoned for urban development. No forest lands, timber lands, or timber land production zones are located within the project site. Additionally, the site's existing zoning designation does not contemplate such uses. *As a result, no impacts will occur.*

D. Would the project result in the loss of forest land or conversion of forest land to a non-forest use? • No Impact.

The proposed project site is zoned for urban development and the surrounding land is slated for urban development. No forest lands are located within the project site or surrounding areas. No loss or conversion of forest lands to urban uses would result from the proposed project's implementation. *As a result, no impacts will occur.*

E. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to a non-forest use? • No Impact.

The proposed project would not involve any changes to the existing environment which could result in the conversion of farmland to non-agricultural use, or the conversion of forest land to a non-forest use. *As a result, no impacts will occur.*

MITIGATION MEASURES

The analysis of agricultural and forestry resources indicated that no impact on these resources would occur as part of the proposed project's implementation. As a result, no mitigation is required.

² California Department of Conservation, Division of Land Resource Protection, Farmland Mapping, and Monitoring Program. *California Important Farmland Finder*.

³ California Department of Conservation. *State of California Williamson Act Contract Land*. <http://ftp.consrv.ca.gov/>

3. AIR QUALITY

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project conflict with or obstruct implementation of the applicable air quality plan?			✗	
B. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?			✗	
C. Would the project expose sensitive receptors to substantial pollutant concentrations?			✗	
D. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			✗	

The air quality analysis is provided in Appendix A.

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

A. *Would the project conflict with or obstruct implementation of the applicable air quality plan? • Less Than Significant*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acre (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and gasoline and one UST would be installed for the storage of diesel fuel). The proposed convenience store would be located adjacent to and north of the fueling area. A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Vehicular access would be provided by five new driveway connections. Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and parking spaces.

The project site and the unincorporated community of Baker are located within the portion of the County of San Bernardino, California, that is part of the Mojave Desert Air Basin (MDAB) and is under the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD). The air quality assessment for the proposed project includes estimating emissions associated with short-term construction and long-term operation of the proposed project. A number of air quality modeling tools are available to assess the air quality impacts of projects. In addition, certain air districts, such as the MDAQMD, have created guidelines and requirements to conduct air quality analyses. The MDAQMD's current guidelines, included in its California Environmental Quality Act and Federal Conformity Guidelines.

Projects in the MDAB generating construction and operational-related emissions that exceed any of the following emissions thresholds are considered to be significant under CEQA.

- *Ozone (O₃)* is a nearly colorless gas that irritates the lungs, damages materials, and vegetation. Ozone is formed by photochemical reaction (when nitrogen dioxide is broken down by sunlight).
- *Carbon Monoxide (CO)* is a colorless, odorless toxic gas that interferes with the transfer of oxygen to the brain and is produced by the incomplete combustion of carbon-containing fuels emitted as vehicle exhaust. The threshold is 548 pounds per day of carbon monoxide (CO).
- *Nitrogen Oxide (NO_x)* is a yellowish-brown gas, which at high levels can cause breathing difficulties. NO_x is formed when nitric oxide (a pollutant from burning processes) combines with oxygen. The daily threshold is 137 pounds per day of nitrogen oxide (NO_x).
- *Sulfur Dioxide (SO₂)* is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Health effects include acute respiratory symptoms. The daily threshold is 137 pounds per day of sulfur oxides (SO₂).
- *PM₁₀ and PM_{2.5}* refers to particulate matter less than ten microns and two and one-half microns in diameter, respectively. The daily threshold is 82 pounds per day of PM₁₀ and 65 pounds per day of PM_{2.5}.
- *Reactive Organic Gasses (ROG)* refers to organic chemicals that, with the interaction of sunlight photochemical reactions may lead to the creation of “smog.” The daily threshold is 137 pounds per day of ROG.

A project is conforming if it complies with all applicable District rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with growth forecasts may be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast. Projects that are consistent with the projections of employment and population forecasts identified in the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) prepared by SCAG. The project would not result in or cause NAAQS or CAAQS violations. The project's proposed land use designation for the subject site is consistent with the land use designation discussed in the San Bernardino Countywide Plan. Furthermore, the project would not exceed the applicable regional thresholds and would therefore be considered to have a less than significant impact. The project is therefore considered to be consistent with the AQMP.

The proposed project will not directly introduce new residents since it is a commercial project. Therefore, the proposed project is not in conflict with the growth projections established for the County by SCAG. The project's construction emissions would be below the thresholds of significance established by the MDAQMD (refer to the analysis included in the next section where construction emissions are summarized in Table 1). In addition, the proposed project's long-term (operational) airborne emissions will be below levels that the MDAQMD considers to be a significant impact (the long-term stationary and mobile emissions for the proposed project are summarized in Table 2). Therefore, the project will not conflict with or obstruct the implementation of the applicable air quality plan. *As a result, the impacts will be less than significant.*

- 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? • Less than Significant Impact.*

The project site is located in the desert portion of the County of San Bernardino that is part of the Mojave Desert Air Basin (MDAB) and is under the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD). The air quality assessment for the proposed project includes estimating emissions associated with short-term construction and long-term operation of the proposed project. A number of air quality modeling tools are available to assess the air quality impacts of projects. In addition, certain air districts,

such as the MDAQMD, have created guidelines and requirements to conduct air quality analyses. The MDAQMD's current guidelines, included in its California Environmental Quality Act and Federal Conformity Guidelines.

In May 2022 California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including MDAQMD, released the latest version of CalEEMod version 2022.1. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NOX, SOX, CO, PM10, and PM2.5) and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from any mitigation measures. Accordingly, the latest version of CalEEMod has been used for this project to determine construction and operational air quality emissions. The air quality study and output from the model runs for both construction and operational activity are provided in Appendix A. As shown in Table 1 daily construction emissions will not exceed the MDAQMD's significance thresholds. The short-term construction emissions will be limited to those emissions generated during project construction.

Table 1
Estimated Daily Construction Emissions

Construction Phase	VOC	NO ₂	CO	SOx	PM ₁₀	PM _{2.5}
Summer						
2023	5.01	47.10	39.70	0.05	8.42	5.07
Winter						
2023	14.10	47.10	39.10	0.05	8.42	5.07
Max. Daily Winter Emissions	14.10	47.10	39.70	0.05	8.42	5.07
Daily Thresholds	75	100	550	150	150	55
Threshold's Exceeded?	No	No	No	No	No	No

Source: California Air Resources Board CalEEMod [computer program].

Long-term emissions refer to those air quality impacts that will occur once the proposed project has been constructed and is operational. These impacts will continue over the operational life of the project. The two main sources of operational emissions include mobile emissions and area emissions related to off-site electrical generation. The analysis of long-term operational impacts summarized in Table 2 also used the CalEEMod V. 2022.1 computer model. The analysis summarized in Table 2 indicates that the operational (long-term) emissions will be below the MDAQMD daily emissions thresholds.

Table 2
Estimated Daily Operational Emissions

Construction Phase	VOC	NO ₂	CO	SOx	PM ₁₀	PM _{2.5}
Maximum Daily Summer Emissions						
Operational Emissions	133.6	60.82	511.23	0.80	24.22	4.83
Thresholds Exceeded	No	No	No	No	No	No
Maximum Daily Winter Emissions						
Operational Emissions	113.43	65.31	444.18	0.73	24.22	4.84
Thresholds Exceeded?	No	No	No	No	No	No
Daily Thresholds	137	137	548	137	82	65

Source: California Air Resources Board CalEEMod [computer program].

As indicated in Tables 1 and 2, the impacts are considered to be less than significant. In addition, the MDAQMD Rule Book contains numerous regulations governing various activities undertaken within the District. Among these regulations is Rule 403.2 – Fugitive Dust Control for the MDAB, which was adopted

in 1996 for the purpose of controlling fugitive dust. Adherence to Rule 403.2 regulations is required for all projects undertaken within the District. Future construction truck drivers must also adhere to Title 13 - §2485 of the California Code of Regulations, which limits the idling of diesel-powered vehicles to less than five minutes.³ Adherence to the aforementioned standard condition will minimize odor impacts from diesel trucks. Adherence to Rule 403 Regulations and Title 13 - §2485 of the California Code of Regulations will further reduce the potential emissions. *As a result, the impacts will be less than significant.*

C. Would the project expose sensitive receptors to substantial pollutant concentrations? • Less than Significant Impact.

The potential impact of project-generated air pollutant emissions at sensitive receptors has also been considered. Sensitive receptors can include uses such as long-term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, childcare centers, and athletic facilities can also be considered as sensitive receptors. The nearest sensitive receptor is a residential community (RV Park Baker) located approximately 945 feet west of the project site (refer to Exhibit 9).

Emissions resulting from the gasoline service station the potential to result in toxic air contaminants (TACs) (e.g., benzene, hexane, methyl tert-butyl ether (MTBE), toluene, xylene) and have the potential to contribute to health risk in the project vicinity. It should be noted that standard regulatory controls would apply to the project in addition to any permits required that demonstrate appropriate operational controls. The MDAQMD currently does not have a procedure for determining screening-level health risk estimates for gasoline dispensing operations and therefore relies on SCAQMD methodology.

For purposes of this evaluation, cancer risk estimates can be made consistent with the methodology presented in SCAQMD's Risk Assessment Procedures for Rules 1401, 1401.1 & 212 which provides screening-level risk estimates for gasoline dispensing operations. The project site is located 29.55 miles northeast of the Mojave National Preserve monitoring site and is approximately 280 meters west of a residential site. Based on this screening procedure it is anticipated that no residential sensitive receptors in the project vicinity will be exposed to a cancer risk of greater than 0.320 in one million and that no worker sensitive receptors will be exposed to a cancer risk of greater than 0.274 in one million which is less than the applicable threshold of 10 in one million. It should be noted that this screening-level risk estimate is very conservative (i.e., it would overstate rather than understate potential impacts). *As a result, the impacts would be less than significant.*

D. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? • Less than Significant Impact.

The MDAQMD has identified those land uses that are typically associated with odor complaints. These uses include activities involving livestock, rendering facilities, food processing plants, chemical plants, composting activities, refineries, landfills, and businesses involved in fiberglass molding.⁴ As designed, the proposed project will not be involved in any of the aforementioned odor-generating activities. For example, the fuel dispenser nozzles must adhere to both SCAQMD and CARB regulations that govern vapors.⁵ Future construction-related trucks must adhere to Title 13 - §2485 of the California Code of Regulations, which limits the idling of diesel-powered vehicles to less than five minutes. Adherence to the aforementioned standard condition will minimize odor impacts from diesel trucks. In addition, the project's contractors must adhere to Rule 403 regulations, which significantly reduce the generation of fugitive dust. Adherence to Rule 403 Regulations and Title 13 - §2485 of the California Code of Regulations will further reduce potential impacts. The project does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the proposed project may result from

⁴ South Coast Air Quality Management District. *CEQA Air Quality Handbook, Appendix 9*. As amended 2017.

⁵ The fuel dispensing system is designed to capture "displaced" vapors that emerge from inside a vehicle's fuel tank when gasoline is dispensed into the tank. Gasoline vapors accumulate in automobile and truck tanks, above the liquid level.

construction equipment exhaust and the application of asphalt and architectural coatings during construction activities and the temporary storage of typical solid waste (refuse) associated with the proposed project's (long-term operational) uses. Standard construction requirements would minimize odor impacts from construction. The construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction and is thus considered less than significant.

It is expected that project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the County's solid waste regulations. The proposed project would also be required to comply with MDAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odors, and emissions that may lead to odors, associated with the proposed project's construction and operations. *As a result, the impacts would be less than significant.*

MITIGATION MEASURES

The analysis of air quality impacts indicated that the projected emissions would be below the MDAQMD's thresholds of significance. As a result, no mitigation would be required.

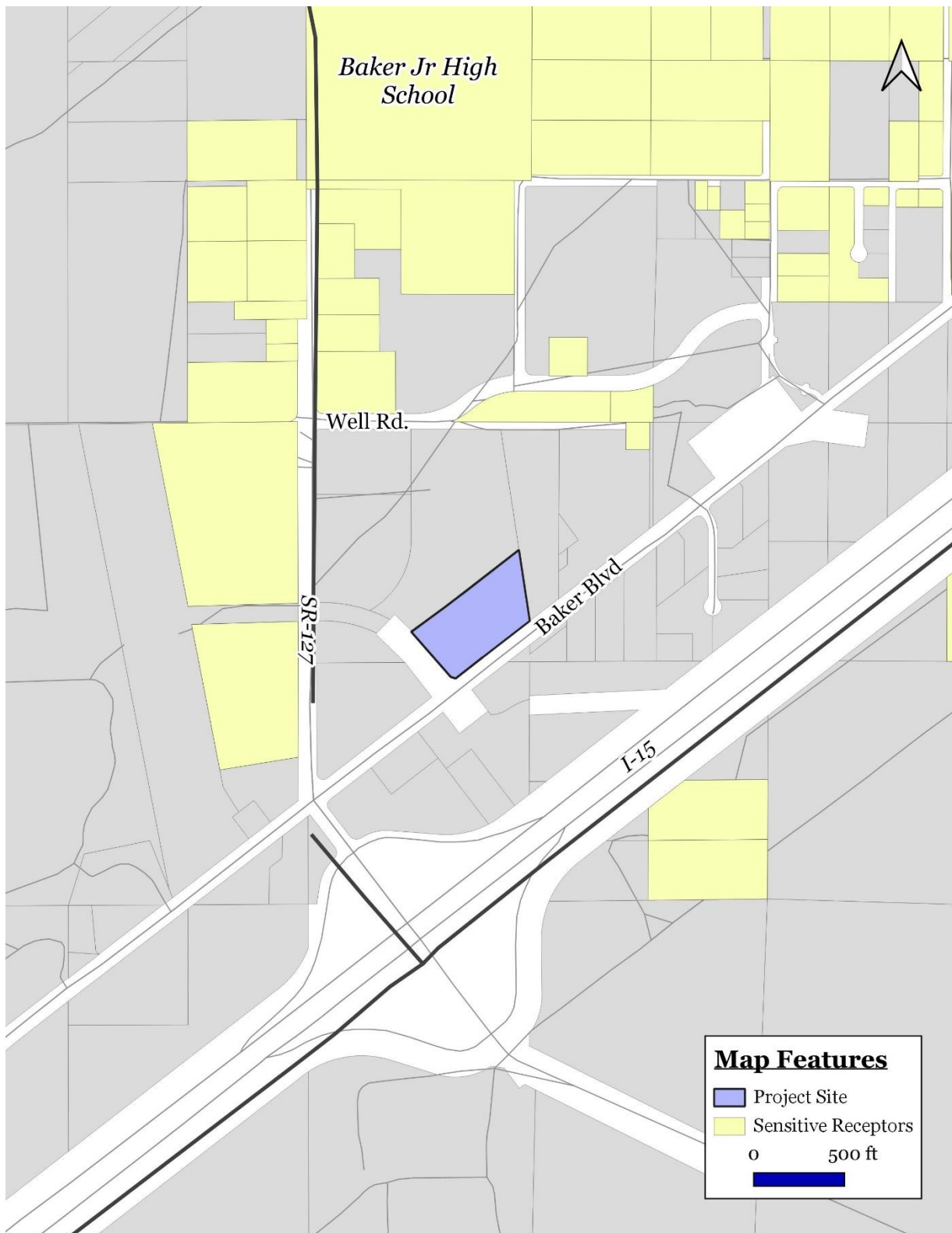


EXHIBIT 9
AIR QUALITY SENSITIVE RECEPTORS
SOURCE: BLODGETT BAYLOSIS ENVIRONMENTAL PLANNING

4. BIOLOGICAL RESOURCES

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				×
B. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				×
C. Would the project 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. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory life corridors, or impede the use of native wildlife nursery sites?				×
E. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				×
F. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?				×

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- A. *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? • No Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet) The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. The proposed convenience store would be located adjacent to and north of the fueling area. A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. A total of 226 standard parking spaces would be provided in addition to 8 ADA accessible parking spaces, and 16 electric vehicle charging stations. A total of 250 surface parking spaces would be provided. Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and parking spaces.

The project site in its entirety has been disturbed. Although the portion of Baker in which the project site is located is mostly developed, some areas remain that have not been substantially disturbed. The project site is located within an area that has historically been converted from undeveloped habitats to urban development. As a result, the project site and the adjacent properties do not contain any naturally occurring habitats and associated flora and fauna. The entire site has been disturbed due to the previous development and the subsequent disturbance related to the site's ongoing maintenance (weed control) and grubbing. *As a result, no impacts will occur.*

- B.** *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? • No Impact.*

According to the United States Fish and Wildlife Service and the results of the site visits, there are no wetland or migratory bird nesting areas located within the project site.⁶ In addition, there is no riparian habitat located on-site or in the surrounding areas (refer to Exhibit 10).⁷ No offsite wetland or migratory bird nesting areas will be affected by the proposed development since all new development will be confined to the project site. *As a result, no impacts are anticipated.*

- C.** *Would the project 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? • No Impact.*

No wetland areas or riparian habitats (e.g., wetlands, vernal pools, critical habitats for sensitive species, etc.) were observed on the site during the field investigations.⁸ The site in its entirety is disturbed. The existing motel buildings that were part of the Santa Fe Motel totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. Additionally, no offsite wetland habitats would be affected by the proposed development since the project's construction would be limited to the proposed project site. *As a result, no impacts will occur.*

- D.** *Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory life corridors, or impede the use of native wildlife nursery sites? • No Impact.*

The project site has no utility as a wildlife migration corridor due to the proposed site location in the midst of an urban area. The project area is surrounded on three sides by urban development. *As a result, no impacts will occur.*

- E.** *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? • No Impact*

There are no heritage trees or protected trees located within the project site boundaries. As a result, there would not be any significant adverse impacts associated with the site's development. Furthermore, there would not be any tree replacement or preservation requirements that would be applicable to the proposed project. *As a result, no impacts will occur.*

- E.** *Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? • No Impact.*

⁷ United States Fish and Wildlife Service. *National Wetlands Inventory*. <https://www.fws.gov/Wetlands/data/Mapper.html>

⁸ Ibid.

The project site and the surrounding areas are urbanizing. The proposed project's implementation would not be in conflict with the provisions of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plans. Therefore, no impacts will occur.

MITIGATION MEASURES

The analysis of biological resources indicated that no significant impacts would result from the proposed project's implementation and no mitigation would be required.

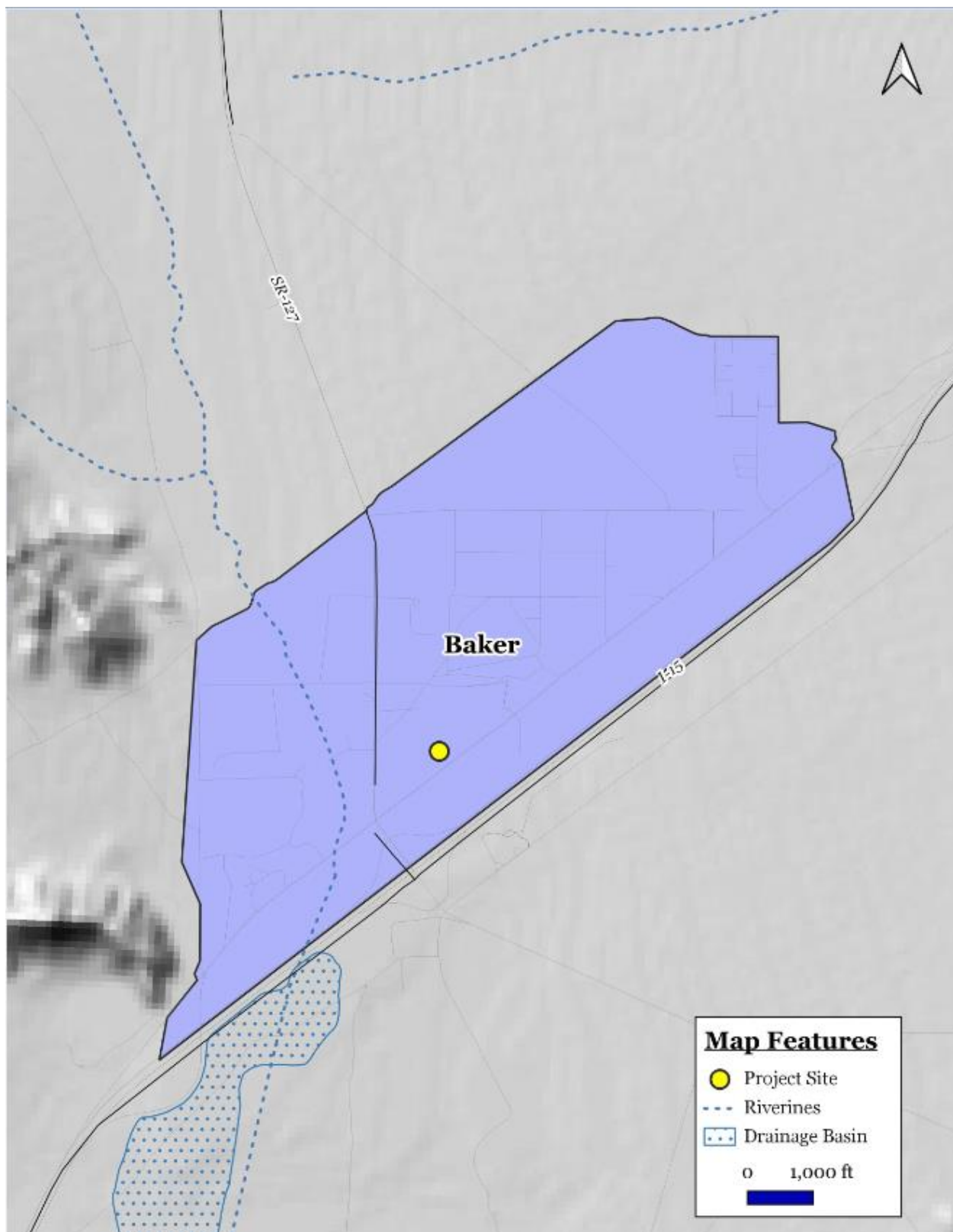


EXHIBIT 10
WETLANDS MAP
SOURCE: NATIONAL WETLANDS INVENTORY

5. CULTURAL RESOURCES

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5 of the CEQA Guidelines?				✗
B. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5 of the CEQA Guidelines?		✗		
C. Would the project disturb any human remains, including those interred outside of dedicated cemeteries?			✗	

The cultural resources report is included in Appendix B.

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

A. *Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5 of the CEQA Guidelines? • No Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. The proposed convenience store would be located adjacent to and north of the fueling area. A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and parking spaces.

Historical resources are defined by Local, State, and Federal criteria. A site or structure may be historically significant if it is locally protected through a General Plan or historic preservation ordinance. In addition, a site or structure may be historically significant according to State or Federal criteria even if the locality does not recognize such significance. To be considered eligible for the National Register, a property's significance may be determined if the property is associated with events, activities, or developments that were important in the past, with the lives of people who were important in the past, or represents significant architectural, landscape, or engineering elements.

Between December 2021 and August 2022, at the request of the Ramallos, Inc., CRM TECH performed a cultural resources survey on an approximately five-acre parcel of land that is partially occupied by the aforementioned motel. The purpose of the study was to provide the County with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any "historical resources," as defined by CEQA, that may exist in the project area. In order to identify such resources, CRM TECH completed a historical/archaeological resources records search and a Native American Sacred Lands File search, pursued historical background research, and carried out an intensive-level field survey. As a result of these research procedures, the existing motel on the property, last known as the Santa Fe Motel, was found to contain several buildings and other features that date to the late historic period, specifically the circa 1935-1961 era, including two rental office buildings, two motel buildings, a

maintenance equipment storage building, and a now-backfilled swimming pool. In light of the age of these features, the motel as a whole was recorded into the California Historical Resources Inventory during this study and designated temporarily as Site 3819-1H, pending assignment of an official identification number.

The property does not appear to meet any of the criteria for listing in the California Register of Historical Resources. Therefore, it does not constitute a “historical resource” for CEQA-compliance purposes. No other potential “historical resources” were encountered within the project area. Based on these findings, CRM TECH recommends to the County of San Bernardino a conclusion of No Impact regarding “historical resources.” No further cultural resources investigation is recommended for the project unless development plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are discovered during future earth-moving operations associated with the project, all work within 50 feet of the discovery should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds. In addition, the proposed project will be limited to the project site and will not affect any structures or historical resources listed on the National or State Register or those identified as being eligible for listing on the National or State Register. Furthermore, the project site is not present on the list of historic resources identified by the State Office of Historic Preservation (SHPO). *As a result, no impacts will result.*

B. *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5 of the CEQA Guidelines? • Less than Significant Impact with Mitigation.*

The present-day Baker area is generally considered a part of the traditional homeland of the Chemehuevi Indians, whose reservation today lies to the east along the Lake Havasu and Colorado River shorelines. The Chemehuevi are classified by anthropologists as a subgroup of the larger Southern Paiute population, whose territory stretched from eastern California across southern Nevada to southern Utah. Their language is part of the Southern Numic branch of the Uto-Aztecan linguistic family (Kelly and Fowler 1986:368). Chemehuevi social organization was based on local bands that which considered themselves an autonomous geographical unit. Subsistence depended on hunting, mostly small game, and collecting scarce desert food. In the decades before the first European contact, agricultural practices, in particular the cultivation of corn, beans, squash, and melons, began to spread. The main crafts practiced by the Chemehuevi included basketry, netting and, to some extent, pottery. The Chemehuevi Indian Reservation was formed in 1907 after encroachment by non-Natives on Southern Paiute territory resulted in the land division. The Native people suffered ongoing socioeconomic distress through much of the 20th century, consequently the population on the reservation declined to 124 by 1980. Cultural and spirit traditions suffered as well. In recent decades, however, Chemehuevi people and other tribes have sought to revive and re-establish Native culture and tradition, on and off the reservation.

According to SCCIC records, the project area was included in the scope of at least 10 early overview studies on ancient Lake Mohave archaeology completed in the 1930s-1960s. In 1987, the entire project area was surveyed systematically for cultural resources at an intensive level. More recently, the southwestern portion of the project area, formerly a part of APN 0544-311-43, was again surveyed intensively. The 1987 survey noted a “modern motel” and an asphalt-paved parking lot, but no cultural resources were identified on the property during that survey or any of the other studies. According to County of San Bernardino guidelines, however, all of these past studies involving the project area are now considered outdated for CEQA-compliance purposes. Within the half-mile scope of the records search, SCCIC records show about a dozen additional studies on various tracts of land and linear features. Altogether, these past survey efforts covered roughly 90 percent of the land within the scope of the records search, resulting in the identification of seven historical/archaeological sites, including two “pending” sites, and one isolate (i.e., a locality with fewer than three artifacts) within the half-mile radius. Among these previously identified cultural resources, the isolate and all but one of the sites dates to the historic period, consisting of various infrastructure features, refuse deposits, and the abandoned town site of Berry. The only site of prehistoric (i.e., Native American) origin, P2284-2, is a “pending” site described as a possible campsite located approximately a thousand feet to the southwest of the project location, along Baker Boulevard. One of historic-period sites, 36-007689 (CA-SBR-

7689H), represents segments of the Arrowhead Trail recorded at various locations across the Mojave Desert, including two segments of Baker Boulevard lying within a quarter-mile to the northeast and the southwest of the project area, respectively. For the purpose of this study, the segment of Baker Boulevard adjacent to the southeastern boundary of the project area is treated an extension of the site. None of the other seven known cultural resources was found in the immediate vicinity of the project area.

In response to CRM TECH's inquiry, the NAHC states in a letter dated February 23, 2022, that the Sacred Lands File search identified no Native American cultural resource in the project area. Noting that the absence of specific information would not necessarily indicate the absence of cultural resources, however, the NAHC recommended that local Native American groups be consulted for further information and provided a referral list of 10 individuals associated with five local Native American groups who may have knowledge of such resources. The NAHC's reply is attached in Appendix 2 of the Cultural Report included in Appendix B for reference by the County of San Bernardino in future government-to-government consultations with the pertinent tribal groups.

During the field survey, no prehistoric features or artifacts were observed within or adjacent to the project area boundaries. The only cultural resource encountered within the project boundaries is the closed Santa Fe Motel, formerly known as Hardy's Baker Inn and the Wills Fargo Motel, which was recorded into the California Historical Resources Inventory and designated temporarily as Site 3819-1H, pending assignment of an official identification number once the SCCIC resumed normal operation (see App. 3). At the present time, the motel complex consists of a circa 1935-1939 rental office, a 1950s-era motel building, a swimming pool, and a pool equipment storage shed, along with two modern buildings (a new rental office and a motel building from the 1983-1994 era) and the foundation of a 1930s-vintage café/gas station that has been demolished.

Located outside but adjacent to the southeastern project boundary, Baker Boulevard is an extension of the previously recorded segments of Arrowhead Trail (Site 36-007689), as stated above. Although dating originally to the 1920s, Baker Boulevard today is a working component of the modern transportation infrastructure, and its current configuration and appearance reflect the results of repeated upgrading and constant maintenance since the historic era. As such, the physical characters of Baker Boulevard do not contribute to the potential significance and integrity of the historic highway. Therefore, Site 36-007689 requires no further consideration during this study.

Although the study did not indicated sensitivity for cultural resources within the project boundaries, ground disturbing activities always have the potential to reveal buried deposits not observed on the surface during previous surveys. Prior to the initiation of ground-disturbing activities, field personnel should be alerted to the possibility of buried prehistoric or historic cultural deposits. In the event that field personnel encounter buried cultural materials, work in the immediate vicinity of the find should cease and a qualified archaeologist should be retained to assess the significance of the find. The qualified archaeologist shall have the authority to stop or divert construction excavation, as necessary. If the qualified archaeologist finds that any cultural resources present meet eligibility requirements for listing on the California Register or the National Register, plans for the treatment, evaluation, and mitigation of impacts to the find will need to be developed.⁹ Prehistoric or historic cultural materials that may be encountered during ground-disturbing activities include:

- Historic artifacts such as glass bottles and fragments, cans, nails, ceramic and pottery fragments, and other metal objects;

⁹ BCR Consulting LLC., *Cultural Resources Assessment, The Baker Gas Station Project Baker, Unincorporated San Bernardino County, California*. March 18, 2020

- Historic structural or building foundations, walkways, cisterns, pipes, privies, and other structural elements;
- Prehistoric flaked-stone artifacts and debitage (waste material), consisting of obsidian, basalt, and or cryptocrystalline silicates;
- Groundstone artifacts, including mortars, pestles, and grinding slabs; and,
- Dark, greasy soil that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire affected rocks.

CEQA guidelines define a tribal cultural resource as a site, feature, place, cultural landscape, sacred place or object, which is of cultural value to a tribe and is either on or eligible for listing in the California Register of Historical Resources, or that the lead agency at its discretion chooses to treat as a tribal cultural resource. Therefore, potential for impacts to tribal cultural resources will be determined by the lead agency during required consultation with tribes. If human remains are encountered during any proposed project activities, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. Adherence to the abovementioned mitigation summarized further below to include mitigation provided by the Chemehuevi Indians, will reduce potential impacts to levels that are less than significant.

C. Would the project disturb any human remains, including those interred outside of dedicated cemeteries? • *Less than Significant Impact.*

There are no dedicated cemeteries located in the vicinity of the project site.¹⁰ The proposed project will be restricted to the project site and therefore will not affect any dedicated cemeteries. Notwithstanding, the following mitigation is mandated by the California Code of Regulations (CCR) Section 15064.5(b)(4):

“A lead agency shall identify potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource. The lead agency shall ensure that any adopted measures to mitigate or avoid significant adverse changes are fully enforceable through permit conditions, agreements, or other measures.”

Adherence to the aforementioned standard condition will ensure potential impacts remain at levels that are less than significant.

MITIGATION MEASURES

The analysis of potential cultural resources impacts indicated that the project site's previous disturbance would limit the potential for cultural resources or human remains to be discovered within the project site. The Chemehuevi Indians has decided the cultural sensitivity of this project area is low, in large part due to the various levels of disturbance that were apparent in the geotechnical report and cultural study. As such, SMBMI does not have concerns, and simply requests that the following mitigation be made a part of the project/permit/plan conditions.

CUL-1(B): In the event that cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the Chemehuevi Indians shall be contacted, as detailed within TCR-1, regarding any pre-contact finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

CUL-2(B): If significant pre-contact cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to SMBMI for review and comment, as detailed within TCR-1. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

CUL-3(B): If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.

6. ENERGY

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?			✗	
B. Would the project conflict with or obstruct a State or local plan for renewable energy or energy efficiency?			✗	

The utility worksheets are included in Appendix C.

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- A. *Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? • Less than Significant Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. A total of 226 standard parking spaces would be provided in addition to 8 ADA accessible parking spaces, and 16 electric vehicle charging stations. A total of 250 surface parking spaces would be provided.

The project site is served by Southern California Edison (electricity). The proposed project is anticipated to consume 714 kWh of electricity. The utilities worksheets are included in Appendix C. The California Code of Regulations (CCR), Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles or other mobile equipment.

Title 24 CCR, Part 6 was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on August 1, 2009, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2022 California Green Building Code Standards that will be effective on January 1, 2023. The project would be required to comply with the applicable standards in place at the time building permit document submittals are made. Other required energy conserving measures included in CalGreen are listed below:

- *Short-term bicycle parking.* If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack.
- *Long-term bicycle parking.* For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility.
- *Designated parking for clean air vehicles.* In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles.
- *EV charging stations.* New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load.
- *Outdoor light pollution reduction.* Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings.
- *Construction waste management.* Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste (in accordance with Section 5.408.1.1, 5.405.1.2, or 5.408.1.3); or meet a local construction and demolition waste management ordinance, whichever is more stringent.
- *Excavated soil and land clearing debris.* 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reuse or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.
- *Recycling by Occupants.* Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive
- *Water conserving plumbing fixtures and fittings.* Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) must be provided.

The project Applicant will work with the local electrical utility company to identify existing and future strategies that will be effective in reducing energy consumption. *As a result, the impact will be less than significant.*

B. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency? • *Less Than Significant Impact.*

On January 12, 2010, the State Building Standards Commission adopted updates to the California Green Building Standards Code (Code) which became effective on January 1, 2011. The California Code of Regulations (CCR) Title 24, Part 11: California Green Building Standards (Title 24) became effective to aid efforts to reduce GHG emissions associated with energy consumption. Title 24 now requires that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. The proposed project will conform to all pertinent energy conservation requirements. *As a result, the potential impacts will be less than significant.*

MITIGATION MEASURES

The analysis determined that the proposed project will not result in significant impacts related to energy and mitigation measures are not required.

7. GEOLOGY & SOILS

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving 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; strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides?			×	
B. Would the project result in substantial soil erosion or the loss of topsoil?			×	
C. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?			×	
D. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (2012), creating substantial direct or indirect risks to life or property?			×	
E. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				×
F. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				×

The geotechnical report is included in Appendix D.

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- A. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving 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; strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides?* • *Less than Significant Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and gasoline and one UST would be installed for the storage of diesel fuel. The proposed convenience store would be located adjacent to and north of the fueling area. A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Vehicular access

would be provided by five new driveway connections. A total of 226 standard parking spaces would be provided in addition to 8 ADA accessible parking spaces, and 16 electric vehicle charging stations. A total of 250 surface parking spaces would be provided. Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and parking spaces.

The unincorporated community of Baker is located within a seismically active region. Many major and minor local faults traverse the entire Southern California region and earthquakes from several active and potentially active faults in the Southern California region could affect the project site. In 1972, the Alquist-Priolo Earthquake Zoning Act was passed in response to the damage sustained in the 1971 San Fernando Earthquake. The Alquist-Priolo Earthquake Fault Zoning Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults.

A list of cities and counties subject to the Alquist-Priolo Earthquake Fault Zones is available on the State's Department of Conservation website. There are no active faults identified by the State within the project site, nor is the project site within an Alquist-Priolo Earthquake Fault Zone. Nevertheless, the site is within a seismically active region prone to occasional damaging earthquakes. The nearest active faults are located within the San Jacinto Fault Zone, approximately 5 miles to the east of the project site. The proposed project would comply with the 2019 California Building Standards code, which is effective in minimizing any potential seismic-related impacts to structures (refer to Exhibit 11).

According to the United States Geological Survey, liquefaction is the process by which water-saturated sediment temporarily loses strength and acts as a fluid. Essentially, liquefaction is the process by which the ground soil loses strength due to an increase in water pressure following seismic activity. According to California Department of Conservation Earthquake Hazard Zone maps, the project site is located in an area that is subject to liquefaction, however the project site is not subject to the risk of landslides because there are no hills or mountains within or adjacent to the project site.

Regionally, the site is located in the Mojave Desert Province of California. The Mojave Desert Province is located in the southeastern corner of the state with the left lateral, vertical Garlock Fault making up the northern boundary of the province. The province is characterized by a more subdued topography due to extensive and deeper erosion than the Basin and Range Province. Due to a greater predominance of alluvial cover, the Mojave Desert Province has fewer exposures of all bedrock units, and a lack of the extension that has affected the Basin and Range Province. The topography is primarily a result of climatic changes during the last million years which are largely responsible for most landscape features in the Mojave region today. The character of modern alluvial fans, pediment surfaces, and playas, and the vegetation they support, reflect conditions that have evolved primarily within the past several thousand years. In addition to climate, the physical characteristics of the modern topographic features are tied to the properties of bedrock and tectonic history of any particular location.

The earth materials on the site are primarily comprised of Quaternary alluvial materials. The project is located in a seismically active region and as a result, significant ground shaking will likely impact the site within the design life of the proposed project. The geologic structure of the entire southern California area is dominated by northwest-trending faults associated with the San Andreas Fault system, which accommodates for most of the right lateral movement associated with the relative motion between the Pacific and North American tectonic plates. No active faults are known to project through the site and the site is not located within an Alquist-Priolo Earthquake Fault Zone, established by the State of California to restrict the construction of new habitable structures across identifiable traces of known active faults. An active fault is defined by the State of California as having surface displacement within the past 11,000 years or during the Holocene geologic time period. Based on our mapping of the subject site, review of current and historical aerial imagery, lack of lineaments indicative of active faulting, and the data compiled during the preparation of this report, it is our interpretation that the potential for surface rupture to adversely impact the proposed structures is very low to remote. The Garlock Fault with an approximate source to site distance

of 45.45 kilometers is the closest known active fault anticipated to produce the highest ground accelerations, with an anticipated maximum modal magnitude of 7.45. As a result, the potential impacts in regard to ground shaking, liquefaction, and landslides are less than significant since the risk is no greater in and around the project site than for the rest of the area.

Landslide debris was not observed during subsurface explorations of the site and no ancient landslides are known to exist on the site. No landslides are known to exist, or have been mapped, in the vicinity of the site. Geologic mapping of the site conducted during our investigation, and review of aerial imagery of the site, reveal no geomorphic expressions indicative of land sliding. *As a result, the impacts will be less than significant.*

B. Would the project result in substantial soil erosion or the loss of topsoil? • Less than Significant Impact.

According to the University of California, Davis SoilWeb database, the soils association that underlies the project site belong to the Tujunga loamy sand complex. The site lies within an area of moderate to high potential for wind and water erosion.¹¹ The project site is level and limited grading will be required for structural supports, building foundations, and utility lines. All grading activities will require grading permits from the County, which include requirements and standards designed to reduce potential erosion impacts. These requirements will effectively mitigate potential stormwater runoff impacts during construction. The project site is currently level and will remain level following the site's development. The surface grades within the parking and internal roadways will be designed to facilitate drainage into the nearest curbs and gutters. *As a result, the impacts will be less than significant.*

C. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? • Less than Significant Impact.

The project's construction will not result in soil erosion since the project's contractors must implement the construction best management practices (BMPs) identified in the mandatory storm water pollution prevention plan (SWPPP). The BMPs will minimize soil erosion and the discharge of sediment off-site. Additionally, the project site is not located within an area that could be subject to landslides or liquefaction.¹² The soils that underlie the project site possess a low potential for shrinking and swelling given the site's developed character. The likelihood of lateral spreading will be further reduced since the project's implementation will not require grading and excavation that would extend to depths required to encounter groundwater. Moreover, the project will not result in the direct extraction of groundwater. *As a result, the potential impacts will be less than significant.*

D. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (2012), creating substantial direct or indirect risks to life or property? • Less than Significant Impact.

The University of California, Davis SoilWeb database was consulted to determine the nature of the soils that underlie the project site. According to the University of California Davis SoilWeb database, the project site is underlain by the Tujunga loamy sand complex.¹³ The applicant is required to adhere to all requirements detailed by the USDA. *As a result, the impacts will be less than significant.*

¹¹ United States Department of Agriculture, Natural Resources Conservation Service. *Web Soil Survey*. Website accessed November 11, 2020.

¹² Ibid.

¹³ UC Davis. *Soil Web*. <https://casoilresource.lawr.ucdavis.edu/gmap/>

- E. *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? • No Impact.*

No septic tanks will be used for the proposed project since the new development will be connected to the sanitary sewer system. *As a result, no impacts will occur.*

- F. *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? • No Impact*

Results of an on-line paleontological resources record search through the University of California Museum of Paleontology (UCMP) database indicate that there are no known vertebrate fossil localities that have been previously identified within the vicinity of the project site. Additionally, the UCMP database shows surface deposits in the proposed project area are composed entirely of younger Quaternary alluvium. This younger Quaternary alluvium is unlikely to contain significant vertebrate fossils in the uppermost layers. The very limited and shallow excavations associated with the proposed project's construction are not likely to yield significant vertebrate fossil remains. *As a result, no impacts will occur.*

MITIGATION MEASURES

The analysis determined that the proposed project will not result in significant impacts related to paleontological resources and no mitigation measures are required.

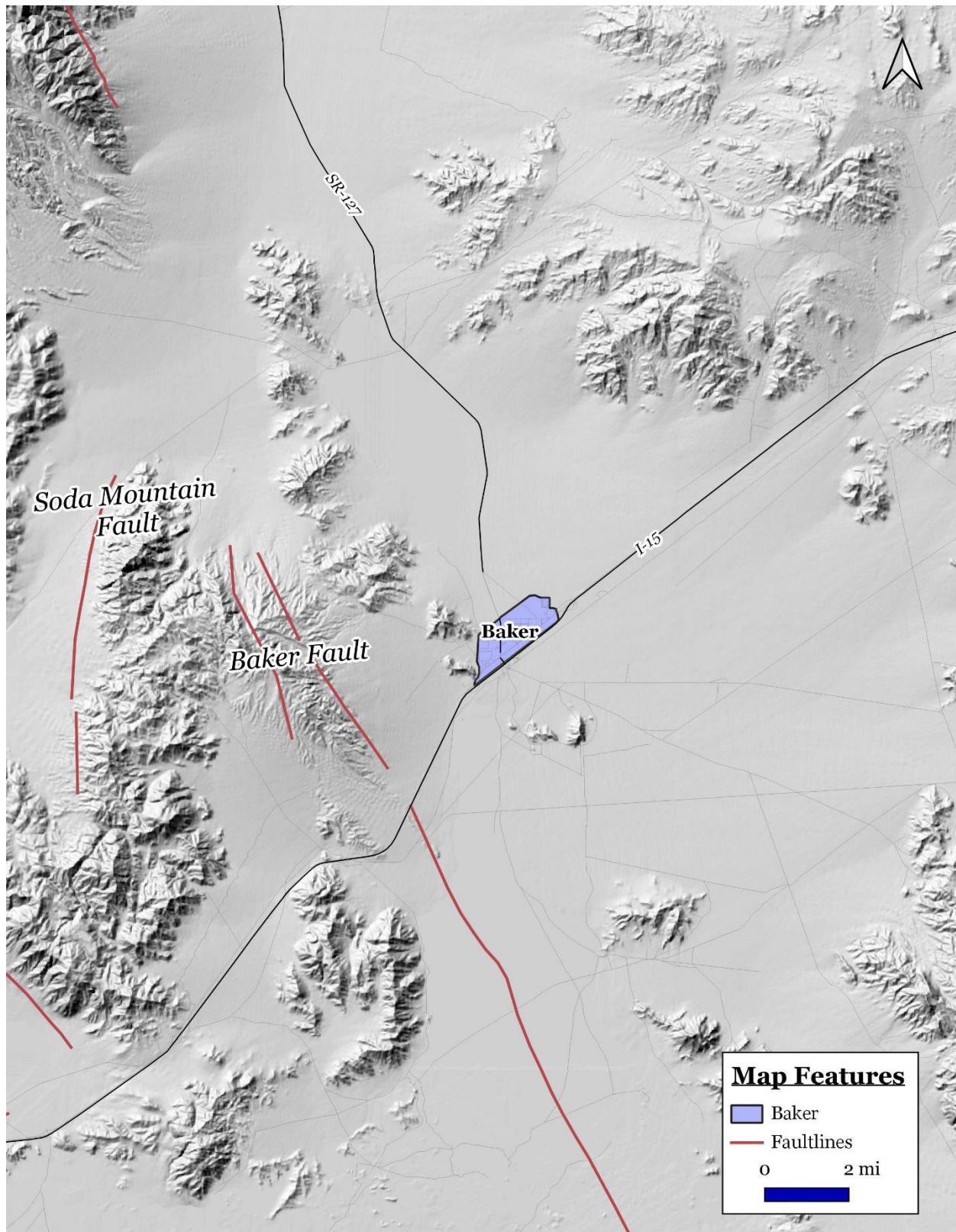


EXHIBIT 11
GEOLOGIC HAZARDS MAP
SOURCE: CALIFORNIA GEOLOGICAL SURVEY

8. GREENHOUSE GAS EMISSIONS

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			✗	
B. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				✗

The greenhouse gas technical report is included in Appendix E.

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- A. *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? • Less than Significant Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and gasoline and one UST would be installed for the storage of diesel fuel. The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Vehicular access would be provided by five new driveway connections. Two driveways would connect to Baker Boulevard located to the south of the project site.

The State of California requires CEQA documents to include an evaluation of greenhouse gas (GHG) emissions, or gases that trap heat in the atmosphere. GHG are emitted by both natural processes and human activities. Examples of GHG that are produced both by natural and industrial processes include carbon dioxide (CO₂), methane (CH₄), Nitrous Oxide (N₂O), and Chlorofluorocarbons (CFC):

- **Carbon Dioxide (CO₂):** Carbon dioxide enters the atmosphere through the combustion of fossil fuels such as coal, natural gas, and oil, solid waste, trees and organic biological materials, and also as a result of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH₄):** Methane is emitted during the production and transport of coal, natural gas, and oil. Locally, methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.

- **Nitrous Oxide (N₂O):** Nitrous oxide is emitted during agricultural and industrial activities, the combustion of fossil fuels and solid waste, as well as during treatment of wastewater.
- **Fluorinated carbons and gasses:** Hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for stratospheric ozone-depleting gasses.

The accumulation of GHG in the atmosphere regulates the earth's temperature. Without these natural GHG, the Earth's surface would be about 61°F cooler.¹⁴ However, emissions from fossil fuel combustion have elevated the concentrations of GHG in the atmosphere to above natural levels. The County of San Bernardino adopted the GHG Reduction Plan Update in June 2021. The GHG Reduction Plan Update provides guidance on how to analyze GHG emissions and determine significance during the CEQA review of proposed development projects within the County of San Bernardino. The County includes a GHG Development Review Process (DRP) that specifies a two-step approach in quantifying GHG emissions. First, a screening threshold of 3,000 MTCO₂e/yr. is used to determine if additional analysis is required. Projects that exceed the 3,000 MTCO₂e/yr will be required to either achieve a minimum 100 points per the Screening Tables or a 31% reduction over 2007 emissions levels. Consistent with CEQA guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.

The proposed project's construction activities would generate CO₂ and CH₄ emissions. As Construction related emissions are expected from the following construction activities: demolition, site preparation, grading, building construction, paving, and architectural coating. For the construction phase, project GHG emissions are quantified and amortized over the life of the project. MDAQMD follows the SCAQMD recommendation in calculating the total GHG emissions.

**Table 4
Greenhouse Gas Emissions Inventory**

Source	GHG Emissions (tons/year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ E
Annual Construction-related Emissions	5.00	3.33 E-04	0.00 E+00	5.03
Mobile Source	12,610	1.11	0.85	12,915
Area Source	0.35	< 0.005	< 0.005	0.36
Energy Source	173.00	0.02	< 0.005	174.00
Water	3.76	0.09	<0.005	6.58
Waste	9.44	0.94	0.00	33.00
Refrigerant	0.00	0.00	0.00	27.80
Total CO₂E (All Sources)				13,161.77

As shown in Table 4, the project will result in approximately 13,161.77 MTCO₂e/yr. The proposed project would exceed the screening threshold of 3,000 MTCO₂e/yr. This would be considered a significant impact. MM GHG-1 is included in this analysis that requires the project Applicant to complete the County's GHG Emission Reduction Screening Tables, which requires the Applicant to commit to 100 points of GHG emissions reduction measures that are listed in the Screening Tables (Appendix 3.3). According to the County's GHG Emissions Reduction Plan, any project that adopts at least 100 points of GHG reduction measures listed in the Screening Tables, the proposed project would be consistent with the County's GHG

¹⁴ California, State of. OPR Technical Advisory – CEQA and Climate Change: Addressing Climate Change through the California Environmental Quality Act (CEQA) Review. June 19, 2008.

Plan. *Therefore, since the Project will incorporate at least 100 points from the screening tables, the project's impact on GHG emissions is less than significant.*

B. *Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases? • Less than Significant Impact.*

The Project final plans and designs would conform to provisions of the GHG Development Review Process through implementation of the Screening Table Measures. The project shall implement Screening Table Measures providing for a minimum 100 points per the County Screening Tables, thus the project is considered to have a less than significant individual and cumulatively considerable impact on GHG emissions. *As a result, the impacts would be less than significant.*

MITIGATION MEASURES

The analysis of potential impacts related to greenhouse gas emissions indicated that no significant adverse impacts would result from the proposed project's approval and subsequent implementation. As a result, no mitigation measures are required.

9. HAZARDS & HAZARDOUS MATERIALS

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			×	
B. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			×	
C. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			×	
D. Would the project 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. Would the project 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?				×
F. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				×
G. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?				×

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

A. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? • *Less than Significant Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and gasoline and one UST would be installed for the storage of diesel fuel). The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Vehicular access would be provided by five new driveway connections. Two driveways would connect to Baker Boulevard located to the south of the project site. Two driveways located on the north portion of the project site, would connect to a future site on the north. Finally, one driveway would be located to the east of the project site. A total of 226 standard parking spaces would be provided in addition to 8

ADA accessible parking spaces, and 16 electric vehicle charging stations. A total of 250 surface parking spaces would be provided. Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and parking spaces.

The project's construction would require the use of diesel fuel to power the construction equipment. The diesel fuel would be properly sealed in tanks and would be transported to the site by truck. Other hazardous materials that would be used on-site during the project's construction phase include, but are not limited to, gasoline, solvents, architectural coatings, and equipment lubricants. These products are strictly controlled and regulated and in the event of any spill, cleanup activities would be required to adhere to all pertinent protocols. The Applicant will be required to prepare a safety and hazard mitigation plan that indicates those protocols that must be adhered to in the event of an accident. This plan will be reviewed and approved by the City prior to the issuance of the Occupancy Permit. As indicated in Subsection D, the project site is not listed in either the CalEPA's Cortese List or the EnviroStor database. Two underground storage tanks (USTs) will be provided. One UST will contain 87 and 89 octane unleaded gasoline. The second UST will contain diesel fuel. The chemicals that will be transported and stored on-site are regulated by the US EPA and the CalEPA. As a result, the potential impacts are considered to be less than significant. *As a result, the impacts are less than significant.*

- C. *Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? • Less than Significant Impact.*

The project's construction would require the use of diesel fuel to power the construction equipment. The diesel fuel would be properly sealed in tanks and would be transported to the site by truck. Other hazardous materials that would be used on-site during the project's construction phase include, but are not limited to, gasoline, solvents, architectural coatings, and equipment lubricants. These products are strictly controlled and regulated and in the event of any spill, cleanup activities would be required to adhere to all pertinent protocols. The Applicant will be required to prepare a safety and hazard mitigation plan that indicates those protocols that must be adhered to in the event of an accident. This plan will be reviewed and approved by the City prior to the issuance of the Occupancy Permit. As indicated in Subsection D, the project site is not listed in either the CalEPA's Cortese List or the EnviroStor database. As a result, the likelihood of encountering contamination or other environmental concerns during the project's construction phase is remote. *As a result, the impacts will be less than significant.*

- D. *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? • Less than Significant Impact.*

The nearest schools to the project site include Baker Elementary School and Baker High School located approximately 2,700 feet northeast of the project site. The proposed project will not create a hazard to any local school within ¼ mile. *As a result, the impacts will be less than significant.*

Would the project 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? • No Impact.

Government Code Section 65962.5 refers to the Hazardous Waste and Substances Site List, commonly known as the Cortese List. The Cortese List is a planning document used by the State and other local agencies to comply with CEQA requirements that require the provision of information regarding the location of hazardous materials release sites. A search of the California Department of Toxic Substances Control

EnviroStor website determined that the project site is not identified as a Cortese site.¹⁵ *As a result, no impacts will occur.*

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 a public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? • No Impact.

The project site is located within two miles of a public use airport. The nearest airport is the Baker Airport, located approximately 2.0 miles northwest of the project site. Baker Airport is a public airport located two miles northwest of the central business district of Baker. The airport is owned by the U.S. Department of the Interior, Bureau of Land Management. In 2006, this airport had 500 general aviation aircraft operations, an average of 42 per month. *As a result, no impacts will occur.*

E. *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? • No Impact.*

The nearest potential emergency evacuation routes in proximity to the project site include Baker Boulevard located to the south of the project site. At no time will the aforementioned emergency evacuation routes or any adjacent streets be completely closed to traffic during the proposed project's construction. *As a result, no impacts will occur.*

Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires? • No Impact.

The site is currently occupied by existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. According to the Cal FIRE Hazard Severity Zone Database, the project site is not located within a severe fire hazard zone.¹⁶ *As a result, no impacts will occur.*

MITIGATION MEASURES

The analysis of potential impacts related to hazards and hazardous materials indicated that no significant adverse impacts would result from the proposed project's approval and subsequent implementation. As a result, no mitigation measures are required.

¹⁵ CalEPA. *DTSC's Hazardous Waste and Substances Site List - Site Cleanup (Cortese List)*.
http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm.

¹⁶ CalFire. *Very High Fire Hazard Severity Zone Map for SW San Bernardino County*.
http://frap.fire.ca.gov/webdata/maps/san_bernardino_sw/

10. HYDROLOGY & WATER QUALITY

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?			✗	
B. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			✗	
C. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner in which would result in flooding on- or off-site; 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, impede or redirect flood flows?			✗	
D. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?				✗
E. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				✗

The hydrology report is included in Appendix F.

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

A. *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? • Less than Significant Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and gasoline and one UST would be installed for the storage of diesel fuel. The proposed convenience store would be located adjacent to and north of the fueling area. A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Vehicular access would be provided by five new driveway connections. Two driveways would connect to Baker Boulevard located to the south of the project site. Two driveways located on the north portion of the project site, would connect to a future site on the north. Finally, one driveway would be located to the east of the project site. A total of 226 standard parking spaces would be provided in addition to 8 ADA accessible parking spaces, and 16 electric vehicle charging stations. A total of 250 surface parking spaces would be provided.

Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and parking spaces.

The Clean Water Act (CWA) established regulations governing the discharge of pollutants to waters of the U.S. from any point source. The CWA also has established a framework for regulating nonpoint source stormwater discharges under the National Pollutant Discharge Elimination System (NPDES). The proposed project would be required to implement storm water pollution control measures pursuant to the NPDES requirements. The contractors would also be required to prepare a Water Quality Management Plan (WQMP) utilizing Best Management Practices to control or reduce the discharge of pollutants to the maximum extent practicable. The WQMP will also identify post-construction best management practices (BMPs) that will be the responsibility of the contractors to implement over the life of the project.

Prior to issuance of any grading permit for the project that would result in soil disturbance of one or more acres of land, the Applicant shall demonstrate that coverage has been obtained under California's General Permit for Storm Water Discharges Associated with Construction Activity by providing a copy of the Notice of Intent (NOI) submitted to the State Water Resources Control Board, and a copy of the subsequent notification of the issuance of a Waste Discharge Identification (WDID) Number or other proof of filing shall be provided to the Chief Building Official and the County Engineer. In addition, the contractors would be required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would be submitted to the Chief Building Official and County Engineer prior to the issuance of a grading permit. *As a result, the impacts would be less than significant.*

B. *Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? • Less than Significant Impact.*

A search was conducted through the Regional Water Quality Control Board's on-line database GeoTracker to identify the presence of any natural underground water wells within the project site. The search yielded no results. In addition, the proposed project will be connected to the existing water lines and will not deplete groundwater supplies. No new direct construction-related impacts to groundwater supplies, or groundwater recharge activities would occur as part of the proposed project's implementation. Water used to control fugitive dust will be transported to the site via truck. No direct ground water extraction will occur. Furthermore, the construction and post-construction BMPs will address contaminants of concern from excess runoff, thereby preventing the contamination of local groundwater. Water used for indoor irrigation will be transported to the project site and will be stored in an above ground water reservoir tank. As a result, there would be no direct groundwater withdrawals associated with the proposed project's implementation. *As a result, the impacts would be less than significant.*

C *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner in which would result in flooding on- or off-site; 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, impede or redirect flood flows? • Less than Significant Impact.*

To maintain a similar drainage path for the site, the post-development will sheet flow southerly leading to curb openings with energy dispersion rip-rap which will convey the runoff to the proposed infiltration trench on the southerly side of the site. In the event of overflow, runoff will be guided via a proposed swale toward the existing 36" storm drain pipe leading to the existing channel. Any offsite flows on the easterly side will be conveyed via the proposed curb and gutter along Baker Boulevard to the nearest catch basin. Offsite flow on the westerly side will be conveyed southerly toward the existing channel via a proposed swale. The project's construction will be restricted to the designated project site and the project will not alter the course

of any stream or river that would lead to on- or off-site siltation or erosion. No significant grading and/or excavation into the local aquifer will occur. No additional undisturbed land will be affected.

The existing peak runoff from the project area was calculated to be 4.42 cubic feet per second (cfs) and 9.55 cfs onsite for the 10- year, and 100-year storm, respectively. The proposed peak runoff from the project area after improvements was calculated to be 9.82 cfs, and 18.25 cfs onsite for the 10-year, and 100-year storm, respectively. The existing runoff volumes from the project area was calculated to be 0.20 Ac-ft, and 0.59 Ac-ft for the 10-year and 100-year storm event, respectively. The proposed runoff volume from the project area after improvements was calculated to be 0.32 Ac-ft, and 0.77 Ac-ft for the 10-year and 100-year storm, respectively. Post-development condition has greater peak runoff flow and runoff volume than the pre-development condition, with the difference between pre and post development runoff volume for 10-year and 100-year storm of 0.12 Ac-ft, and 0.18 Ac-ft respectively. The provided capacity of the infiltration trench is 8,013 cf (0.184 Ac-ft), while the difference in volume for the 100-As a result, the impacts would be less than significant.

- D.** *In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation? • No Impact.*

As indicated previously, the impervious surfaces (asphalt, building slabs, etc.) that will be constructed will result in the generation of storm water runoff. However, the project will be properly drained and is not expected to result in flooding on-or off-site. A County-approved drainage plan will be used, which will ensure that the site will be designed so that storm water runoff will continue to be directed to the curbs and gutters on the adjacent roadways or storm drain inlets. According to the Federal Emergency Management Agency (FEMA) flood insurance maps obtained for the unincorporated community of Baker, the proposed project site is located in Zone X.¹⁷ Thus, properties located in Zone X are not located within a 100-year flood plain. No natural channels are located adjacent to the site or in the immediate vicinity. The proposed project site is not located in an area that is subject to inundation by seiche or tsunami. In addition, the project site is located inland approximately 42 miles from the Pacific Ocean and, as a result, the project site would not be exposed to the effects of a tsunami.¹⁸ As a result, no impacts are anticipated.

- E.** *Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? • No Impact.*

The proposed project's construction and operation will comply with the San Bernardino County's Stormwater Management and Discharge Control requirements. Compliance with the ordinance will help minimize the discharge and transport of pollutants associated with the new development though the control of volume and rate stormwater runoff, therefore preventing any potential violations or inconsistencies with the local requirements. As a result, the construction impacts will be less than significant. In addition, the project's operation will not interfere with any groundwater management or recharge plan because there are no active groundwater management recharge activities on-site or in the vicinity. As a result, no impacts are anticipated.

MITIGATION MEASURES

As indicated previously, hydrological characteristics will not substantially change as a result of the proposed project. As a result, no mitigation is required.

¹⁷ Federal Emergency Management Agency. *Flood Insurance Rate Mapping Program*. 2020.

¹⁸ Google Earth. Website accessed August 15, 2020.

11. LAND USE & PLANNING

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project physically divide an established community?				✗
B. Would the project 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?				✗

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and gasoline and one UST would be installed for the storage of diesel fuel). The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and parking spaces. Land uses located in the vicinity of the proposed project are outlined below:¹⁹

- *North of the project site:* Vacant land uses are located north of the site. This area is zoned as Highway Commercial (CH) and the General Plan land use designation is Commercial (C).
- *East of the project site:* Land uses located to the east of the project site are retail (72252 Baker Boulevard). This area is zoned as Highway Commercial (CH) and the General Plan land use designation is Commercial (C).
- *South of the project site:* Baker Boulevard extends along the project site's south side. Further south, on the south side of the aforementioned roadway, is a fast-food restaurant (Del Taco, 72197 Baker Boulevard). This area is zoned as Highway Commercial (CH) and the General Plan land use designation is Commercial (C).
- *West of the project site:* Directly west of the project site is a vacant property. This area is zoned as Highway Commercial (CH) and the General Plan land use designation is Commercial (C).

The proposed project site is zoned as Highway Commercial (CH) and the General Plan land use designation is Commercial (C). The project site is located in an urbanized area surrounded by major roadways. This issue is specifically concerned with the expansion of an inconsistent land use into an established neighborhood. The proposed project will be confined within the project site's boundaries. The

granting of the requested entitlements and subsequent construction of the proposed project will not result in any expansion of the use beyond the current boundaries. As a result, the project will not lead to any division of an existing established neighborhood. *As a result, no impacts would occur.*

- B.** *Would the project 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? • No Impact.*

The site's zoning designation is Highway Commercial (CH) with a Commercial (C) Land Use. The project elements are summarized below. The proposed project's implementation would not require a General Plan Amendment (GPA) or Zone Change (ZC). *As a result, no impacts would occur.*

MITIGATION MEASURES

The analysis determined that no impacts on land use and planning would result upon the implementation of the proposed project. As a result, no mitigation measures are required.

12. MINERAL RESOURCES

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project 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. Would the project 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?				×

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- A. *Would the project 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?* • No Impact.

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acre (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and gasoline and one UST would be installed for the storage of diesel fuel). The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet.

A review of California Division of Oil, Gas, and Geothermal Resources well finder indicates that there are no wells located in the vicinity of the project site.²⁰ The Surface Mining and Reclamation Act of 1975 (SMARA) has developed mineral land classification maps and reports to assist in the protection and development of mineral resources. According to the SMARA, the following four mineral land use classifications are identified:

- *Mineral Resource Zone 1 (MRZ-1):* This land use classification refers to areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- *Mineral Resource Zone 2 (MRZ-2):* This land use classification refers to areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
- *Mineral Resource Zone 3 (MRZ-3):* This land use classification refers to areas where the significance of mineral deposits cannot be evaluated from the available data. Hilly or mountainous areas underlain by sedimentary, metamorphic, or igneous rock types and lowland areas underlain

²⁰ California, State of. Department of Conservation. *California Oil, Gas, and Geothermal Resources Well Finder*. <https://maps.conservation.ca.gov/doggr/wellfinder/#openModal/-117.41448/34.56284/14>.

by alluvial wash or fan material are often included in this category. Additional information about the quality of material in these areas could either upgrade the classification to MRZ-2 or downgraded it to MRZ-1.

- *Mineral Resource Zone 4 (MRZ-4)*: This land use classification refers to areas where available information is inadequate for assignment to any other mineral resource zone.

The project site is located within Mineral Resource Zone 1 (MRZ-1) within the unincorporated community of Baker, which indicates that no significant mineral deposits are present in the area and it has been judged that little likelihood exists for their presence. In addition, there are no active mineral extraction activities occurring on-site or in the adjacent properties. *As a result, no impacts would occur.*

B. *Would the project 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?* • *No Impact.*

As previously mentioned, no mineral, oil, or energy extraction and/or generation activities are located within the project site. Moreover, the proposed project will not interfere with any resource extraction activity. *As a result, no impacts would occur.*

MITIGATION MEASURES

The analysis of potential impacts related to mineral resources indicated that no significant adverse impacts would result from the approval of the proposed project and its subsequent implementation. As a result, no mitigation measures are required.

13. NOISE

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project result in 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. Would the project result in 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?				×

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- A. *Would the project result in 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?* • *Less than Significant Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and gasoline and one UST would be installed for the storage of diesel fuel). The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet.

The most commonly used unit for measuring the level of sound is the decibel (dB). Zero on the decibel scale represents the lowest limit of sound that can be heard by humans. The eardrum may rupture at 140 dB. In general, an increase of between 3.0 dB and 5.0 dB in the ambient noise level is considered to represent the threshold for human sensitivity. In other words, increases in ambient noise levels of 3.0 dB or less are not generally perceptible to persons with average hearing abilities.²¹

According to Section 83.01.080(G) of the County's Code of Ordinances, temporary construction, maintenance, repair, or demolition activities between 7:00 AM and 7:00 PM shall be exempt from the noise regulations identified by the county in Section 83.01.080. Nevertheless, the following mitigation will be required in order to further reduce construction noise:

²¹ Bugliarello, et. al. *The Impact of Noise Pollution*, Chapter 127, 1975.

- The Applicant must ensure that the contractors use construction equipment that includes working mufflers and other sound suppression equipment as a means to reduce machinery noise.

Adherence to the above-mentioned regulations will reduce potential impacts stemming from the project's construction to levels that are less than significant.

Future sources of operational noise will include noise emanating from the fuel dispensing area, the coffee shop drive through lanes, and the other related on-site improvements. The County's Development Code (Division 3, Countywide Development Standards; Chapter 83.01, General Performance Standards, Section 83.01.080, Noise) sets interior and exterior noise standards for specific land uses by type of noise source. Noise standards for stationary noise sources are summarized in the Ordinance in Table 3.11-6, Noise Standards for Stationary Noise Sources. The noise standard for residential properties is 55 dBA Leq from 7 a.m. to 10 p.m. and 45 dBA Leq from 10 p.m. to 7 a.m. Areas exposed to noise levels exceeding these standards are considered noise-impacted areas. The project's operation will not create excessive noise that will impact any noise sensitive receptors. No noise sensitive receptors are located adjacent to the project site. The maximum permitted noise level emanating from noise sources near residential zoned properties is 60 dBA during the daytime hours and 45 dBA during the evening hours. The nearest residential properties (the Baker RV Park) are located approximately 1050 feet to the west of the project site. The project site's distance from any sensitive receptor and adherence to the County's noise control regulations, will address both construction and operational noise impacts. *As a result, the impacts will be less than significant.*

B. Would the project result in generation of excessive ground-borne vibration or ground-borne noise levels? • *Less than Significant Impact.*

The construction of the proposed project will result in the generation of vibration and noise, though the vibrations and noise generated during the project's construction will not adversely impact any sensitive receptors. The background vibration velocity level in residential areas is usually around 50 vibration velocity level (VdB). The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximately dividing line between barely perceptible and distinctly perceptible levels for many people. Sources within buildings such as operation of mechanical equipment, movement of people, or the slamming of doors causes most perceptible indoor vibration. Construction activities may result in varying degrees of ground vibration, depending on the types of equipment, the characteristics of the soil, and the age and construction of nearby buildings.

The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibrations associated with construction activities using modern construction methods and equipment rarely reach the levels that result in damage to nearby buildings though vibration related to construction activities may be discernible in areas located near the construction site. A possible exception is in older buildings where special care must be taken to avoid damage. Table 5 summarizes the levels of vibration and the usual effect on people and buildings. The U.S. Department of Transportation (U.S. DOT) has guidelines for vibration levels from construction related to their activities and recommends that the maximum peak-particle-velocity (PPV) levels remain below 0.05 inches per second at the nearest structures. PPV refers to the movement within the ground of molecular particles and not surface movement. Vibration levels above 0.5 inches per second have the potential to cause architectural damage to normal dwellings. The U.S. DOT also states that vibration levels above 0.015 inches per second (in/sec) are sometimes perceptible to people, and the level at which vibration becomes an irritation to people is 0.64 inches per second.

Table 5
Common Effects of Construction Vibration

Peak Particle Velocity (in/sec)	Effects on Humans	Effects on Buildings
<0.005	Imperceptible	No effect on buildings
0.005 to 0.015	Barely perceptible	No effect on buildings
0.02 to 0.05	Level at which continuous vibrations begin to annoy occupants of nearby buildings	No effect on buildings
0.1 to 0.5	Vibrations considered unacceptable for persons exposed to continuous or long-term vibration.	Minimal potential for damage to weak or sensitive structures
0.5 to 1.0	Vibrations considered bothersome by most people, tolerable if short-term in length	Threshold at which there is a risk of architectural damage to buildings with plastered ceilings and walls. Some risk to ancient monuments and ruins.
>3.0	Vibration is unpleasant	Potential for architectural damage and possible minor structural damage

Source: U.S. Department of Transportation

Typical levels from vibration generally do not have the potential for any structural damage. Some construction activities, such as pile driving and blasting, can produce vibration levels that may have the potential to damage some vibration sensitive structures if performed within 50 to 100 feet of the structure. The reason that normal construction vibration does not result in structural damage has to do with several issues, including the frequency vibration and magnitude of construction related vibration. Unlike earthquakes, which produce vibration at very low frequencies and have a high potential for structural damage, most construction vibration is in the mid- to upper- frequency range, and therefore has a lower potential for structural damage. The project's implementation will not require deep foundations.

Various types of construction equipment have been measured under a wide variety of construction activities with an average of source levels reported in terms of velocity levels as shown in Table 6. Although the table gives one level for each piece of equipment, it should be noted that there is a considerable variation in reported ground vibration levels from construction activities. The data in Table 6 does provide a reasonable estimate for a wide range of soil conditions. Based on Transit Noise and Vibration Impact Assessment (FTA, May 2006), a vibration level of 102 VdB (vibration decibels, or 0.5 inches per second [in/sec]) (FTA, May 2006) is considered safe and would not result in any construction vibration damage.

Table 6
Vibration Source Levels for Typical Construction Equipment

Construction Equipment		PPV @25 ft. (inches/sec.)	Vibration (VdB) @ 25 ft.
Pile Driver (impact)	Upper range	1.58	112
	Typical	0.644	104
Pile Drive (Sonic)	Upper range	0.734	105
	Typical	0.170	93
Clam Shovel Drop		0.202	94
Large Bulldozer		0.089	87
Caisson Drilling		0.089	87
Loaded Trucks		0.076	86
Small Bulldozer		0.035	79

Source: Noise and Vibration During Construction

Once in operation, the proposed project will not significantly raise ground borne noise levels. Slight increases in ground-borne noise levels could occur during the construction phase. The limited duration of construction activities and the County's construction-related noise control requirements will reduce the potential impacts to levels that are less than significant. *As a result, the impacts will be less than significant.*

- 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? • No Impact.*

The nearest airport is the Baker Airport, located approximately 2.0 miles northwest of the project site. Baker Airport is a public airport located two miles northwest of the central business district of Baker. The airport is owned by the U.S. Department of the Interior, Bureau of Land Management. In 2006, this airport had 500 general aviation aircraft operations, an average of 42 per month. The project site is not located within an airport land use plan of this airport. *As a result, no impacts will occur.*

MITIGATION MEASURES

According to Section 83.01.080(G) of the County's Code of Ordinances, temporary construction, maintenance, repair, or demolition activities between 7:00 AM and 7:00 PM shall be exempt from the noise regulations identified by the county in Section 83.01.080. No other mitigation measures will be required.

14. POPULATION & HOUSING

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project 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. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				×

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- A. *Would the project 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)?* • No Impact.

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acre (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet.

According to the Growth Forecast Appendix prepared by SCAG for the 2016-2045 RTP/SCS, unincorporated areas of San Bernardino County, which includes the unincorporated community of Baker, are projected to add a total of 48,500 new residents and 33,700 new employees through the year 2040.²² The project's implementation will not result in a significant increase in employment that would exceed the SCAG's projections. Growth-inducing impacts include the following:

- *New development in an area presently undeveloped and economic factors which may influence development.* The project site has been previously disturbed. The project site was formerly developed as a motel. The site is located in the midst of commercial development.
- *Extension of roadways and other transportation facilities.* No roadway extensions will be required to accommodate the proposed development.

²² Southern California Association of Governments. *Growth Forecast. Regional Transportation Plan 2016-2040*. Adopted on April 7, 2016.

- *Extension of infrastructure and other improvements.* The installation of any new utility lines will not lead to subsequent offsite development since these utility lines will serve the project site only.
- *Major off-site public projects (treatment plants, etc.).* The project's increase in demand for utility services can be accommodated without the construction or expansion of landfills, water treatment plants, or wastewater treatment plants.
- *The removal of housing requiring replacement housing elsewhere.* The site does not contain any housing units. As a result, no replacement housing will be required.
- *Additional population growth leading to increased demand for goods and services.* The project's construction would result in a limited increase in employment which can be accommodated by the local labor market.
- *Short-term growth-inducing impacts related to the project's construction.* The project will result in temporary employment during the construction phase.

The proposed commercial development will not induce substantial unplanned population growth in an area. *As a result, no impacts will occur.*

B. *Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?* • *No Impact.*

The project site is vacant and unoccupied. No housing units will be permitted, and none will be displaced as a result of the proposed project's implementation. *As a result, no impacts will result.*

MITIGATION MEASURES

The analysis of potential population and housing impacts indicated that no significant adverse impacts would result from the proposed project's approval and subsequent implementation. As a result, no mitigation measures are required.

15. PUBLIC SERVICES

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	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 would cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for: fire protection; police protection; schools; parks; or other public facilities?		X		

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- 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 would cause significant environmental impacts, in fire protection; police protection; schools; parks; or other public facilities? • Less than Significant Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acre (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and gasoline and one UST would be installed for the storage of diesel fuel). The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Vehicular access would be provided by five new driveway connections. Two driveways would connect to Baker Boulevard located to the south of the project site. Two driveways located on the north portion of the project site, would connect to a future site on the north. Finally, one driveway would be located to the east of the project site. A total of 226 standard parking spaces would be provided in addition to 8 ADA accessible parking spaces, and 16 electric vehicle charging stations. A total of 250 surface parking spaces would be provided. Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and parking spaces.

Fire Department

The San Bernardino County Fire Department (SBCFD) serves Baker with the nearest station (Station No. 53) located approximately 3,750 feet northeast of the project site (72734 Baker Boulevard). The SBCFD currently reviews all new development plans. The proposed project will be required to conform to all fire protection and prevention requirements, including, but not limited to, building setbacks, emergency access, and fire flow (or the flow rate of water that is available for extinguishing fires). The proposed project would only place an incremental demand on fire services since the project will be constructed with strict adherence to all pertinent building and fire codes. In addition, the proposed project would be required to implement all pertinent Fire Code Standards including the installation of fire hydrants and sprinkler systems inside all of the new buildings the buildings. Furthermore, the project will be

reviewed by Fire officials to ensure adequate fire service is provided. *As a result, the potential impacts will be less than significant.*

Law Enforcement

Law enforcement services in Baker is provided by the San Bernardino County Sheriff's Department (SBCSD). The Baker Substation is a satellite substation to the Barstow Station. It is located in the town of Baker, approximately 60 miles north of Barstow on Interstate 15. This assignment is what is known as a "resident post." Deputies assigned to Baker live there in county housing and are truly integrated with the community. The SBCSD will review security and site plans to ensure the proposed project conforms to the Department's security regulations. The proposed development will also be required to comply with the SBCSD requirements. In order to maintain adequate security once the project is operational, the following mitigation is required:

- The convenience store and coffee shop's windows must remain un-obstructed and free from any window signs or writing. This is to allow for clear visibility of the store's interior from the patrol vehicles outside.
- Internal security cameras must be installed throughout the proposed convenience store and coffee shop to provide a comprehensive view of the buildings' interior and exterior. Cameras will be monitored by the cashiers.
- A silent alarm system that will be monitored at a central station must be installed.
- Hold up buttons or remote transmitters must be provided.
- Doorway access to the restrooms must be visible to the cashiers or security cameras monitored by the cashiers.
- No long-term parking (more than one hour), other than that required by employees, will be permitted. This provision will be monitored by employees with appropriate signage posted within the parking area.
- Appropriate signage must be posted indicating that loitering and/or the drinking of alcoholic beverages on-site are prohibited.
- The site frontage from Baker Boulevard and the parking and circulation areas must be visible to outside surveillance. Landscaping and other architectural treatments must not inhibit surveillance of the site from these areas.
- The site must be properly illuminated.

Implementation of the aforementioned mitigation measures will reduce potential impacts to levels that are less than significant.

Schools

The proposed project site is located within the attendance boundaries of the Baker Valley Unified School District (BVUSD). The proposed project will not involve any development and/or uses that could potentially affect school enrollments. The proposed project will not directly result in an increase in population and therefore will not create a significant incremental demand for school services. In addition, the proposed

project will be required to pay all pertinent development fees, \$0.78 per square foot for nonresidential development, to the BVUSD. *As a result, the impacts will be less than significant.*

Recreational Services

The proposed project will not result in any local increase in residential development (directly or indirectly) which could potentially impact the local recreational facilities. *As a result, the impacts will be less than significant.*

Governmental Services

The proposed project will not create direct local population growth which could potentially create demand for other public facilities. *As a result, the impacts will be less than significant.*

MITIGATION MEASURES

In order to maintain adequate security once the project is operational, the following mitigation is required:

PS-1(A): The convenience store and coffee shop's windows must remain un-obstructed and free from any window signs or writing. This is to allow for clear visibility of the store's interior from the patrol vehicles outside.

PS-2(A): Internal security cameras must be installed throughout the proposed convenience store and coffee shop to provide a comprehensive view of the buildings' interior and exterior. Cameras will be monitored by the cashiers.

PS-3(A): A silent alarm system that will be monitored at a central station must be installed.

PS-4(A): Hold up buttons or remote transmitters must be provided.

PS-5(A): Doorway access to the restrooms must be visible to the cashiers or security cameras monitored by the cashiers.

PS-6(A): No long-term parking (more than one hour), other than that required by employees, will be permitted. This provision will be monitored by employees with appropriate signage posted within the parking area.

PS-7(A): Appropriate signage must be posted indicating that loitering and/or the drinking of alcoholic beverages on-site are prohibited.

PS-8(A): The site frontage from Baker Boulevard and the parking and circulation areas must be visible to outside surveillance. Landscaping and other architectural treatments must not inhibit surveillance of the site from these areas.

PS-9(A): The site must be properly illuminated.

16. RECREATION

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	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. Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				×

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- 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? • No Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and parking spaces. No parks are located adjacent to the site. Waste water treatment services in the Baker Community is provided by the Baker Community Services District. The Baker Community Services District provides water, sanitary sewers, trash collection services, fire protection, road maintenance, street lighting, and park and recreation services. The nearest public park to the project site is Baker Valley Community Center which includes a small open space area. This facility is located approximately 3,800 feet to the northeast of the project site. Due to the commercial nature of the proposed project, no significant increase in the use of County parks and recreational facilities is anticipated to occur. The proposed project would not result in any improvements that would potentially significantly physically alter any public park facilities and services. *As a result, no impacts would occur.*

- B. *Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? • No Impact.*

As previously indicated, the implementation of the proposed project would not affect any existing parks and recreational facilities in the County. No such facilities are located adjacent to the project site. *As a result, no impacts would occur.*

MITIGATION MEASURES

The analysis of potential impacts related to parks and recreation indicated that no significant adverse impacts would result from the proposed project's approval and subsequent implementation. As a result, no mitigation measures are required.

17. TRANSPORTATION

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project conflict with a plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?			✗	
B. Conflict or be inconsistent with CEQA Guidelines §15064.3 subdivision (b)?			✗	
C. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			✗	
D. Would the project result in inadequate emergency access?				✗

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

The traffic report is included in Appendix G.

- A.** *Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities? • Less than Significant Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acre (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Vehicular access would be provided by five new driveway connections. Two driveways would connect to Baker Boulevard located to the south of the project site. Two driveways located on the north portion of the project site, would connect to a future site on the north. Finally, one driveway would be located to the east of the project site. A total of 226 standard parking spaces would be provided in addition to 8 ADA accessible parking spaces, and 16 electric vehicle charging stations. A total of 250 surface parking spaces would be provided.

San Bernardino Countywide Plan includes policies that address level of service (LOS) and identifies transportation facility LOS standards the county maintains. Although environmental impacts under the California Environmental Quality Act (CEQA) have replaced LOS with Vehicle Miles Traveled (VMT) as the most appropriate measures of transportation impacts, San Bernardino County still requires new development projects to prepare traffic analyses that demonstrate that the development conforms with, or can mitigate to, General Plan level of service policies and standards. According to San Bernardino County's Transportation Impact Study Guidelines (July 2019), the minimum acceptable intersection level of service for the county's desert regions as described in the current San Bernardino Countywide Plan is LOS D.

Land uses around the site consist of retail use on the east and west sides, and a dirt lot north of the project site. The street fronting the project property is a paved two-lane road. The roads pavement widths are currently within the range of 50 to 60 feet and are in good to fair condition. The following roadways provide regional access to the project within the study area: Baker Boulevard will provide the primary access to the project site.

- *Baker Boulevard* is a two-lane roadway that runs parallel to the I-15 Freeway. It is the old U.S 91 Highway prior to the construction of the I-15 Freeway. Baker Boulevard provides two separate interchanges at its terminus with the I-15 Freeway. The Northern Interchange, east of the project location, provides a northbound on-ramp and a southbound off-ramp to the I-15 freeway. The Southern Interchange, west of the project location, provides a northbound off-ramp and a southbound on-ramp to the I-15 freeway.
- *Death Valley Road (SR-127)* is a two-lane state highway that provides northerly access from Baker at the I-15 Freeway to the Death Valley and Tecopa/Shoshone areas. Death Valley Road (SR-127) provides an interchange for the Southbound I-15 freeway ramps.
- *Kelbaker Road* is a two-lane road that provides access to the small town of Kelso, the Mojave National Preserve, and Interstate 40 to the south of the unincorporated community of Baker. Kelbaker Road is the southerly extension of Death Valley Road that provides an interchange for the Northbound I-15 freeway ramps.
- *Interstate 15 Freeway* provides regional access within the study area. The freeway is a four-lane (two in each direction) facility with interchange access at Death Valley Road/Kelbaker Road interchange in the study area. This north-south freeway is an interstate facility that provides travel between Barstow, San Bernardino, Riverside and San Diego Counties to the south and Las Vegas to the north.

Access to the proposed project is provided by two 40-foot-wide driveways on Baker Boulevard. Driveway "A" is located at the southwesterly edge of the project's property. Driveway "B" is located about 180 feet south and west of the project's northeasterly property edge and is separated from Driveway "A" by approximately 337 feet. See Figure 2 for the driveway

The study intersections identified for this focused traffic study include three existing intersections and two proposed future driveways. These intersections are:

1. Baker Blvd and Death Valley Rd (SR 127);
2. Death Valley Rd (SR 127) and I-15 NB Ramps;
3. Death Valley Rd (SR 127) and I-15 SB Ramps;
4. Baker Blvd and Project Driveway "A"; and,
5. Baker Blvd and Project Driveway "

The intersection of Death Valley Rd (SR 127) / I-15 SB Ramps is currently side-street stop controlled. The intersections of Baker Boulevard / Death Valley Rd (SR 127) and Death Valley Rd (SR 127) / I-15 NB Ramps are currently all-way-street-stop controlled. The westbound right turn at the intersection of Baker Boulevard / Death Valley Rd (SR 127) currently operates as yield controlled.

The project is highway-oriented and relies on the I-15 freeway travel patterns to and from Las Vegas, the peak periods are Friday PM (4 - 6 PM) and Sunday PM (1 - 3 PM). Institute of Transportation Engineers (ITE) Trip Generation manual, 10th Edition trip generation estimates are presented for the PM Peak Hour of the Adjacent Street Traffic. The proposed project land uses include Super Convenience Market/Gas

Station (Land Use Category ITE 960) and Coffee/Donut Shop with Drive-Through Window (Land Use Category ITE 937). Due to the nature of highway-oriented development, the project traffic is primarily comprised of diverted link trips. Diverted-link trips are trips passing by the site but not on an immediately adjacent street and alter their path to visit the site. For example, for a gas station at an interchange, diverted link trips are those that would exit the freeway and then re-enter the freeway to continue in their original direction. The Institute of Transportation Engineers (ITE) Trip Generation Handbook defines a diverted-link trip as the following: "A diverted trip is attracted from the traffic volume on roadways within the vicinity of the generator but without direct access to the site. A diverted trip requires a diversion from a roadway not adjacent to the site to another roadway to gain direct access to the site. A diverted trip adds traffic to streets adjacent to a site and could remove a trip on streets from which it diverted.

Institute of Transportation Engineers (ITE) Trip Generation manual, 10th Edition trip generation estimates are presented for the PM Peak Hour of the Adjacent Street Traffic. The proposed project land uses include Super Convenience Market/Gas Station (Land Use Category ITE 960) and Coffee/Donut Shop with Drive-Through Window (Land Use Category ITE 937). Due to the nature of highway-oriented development, the project traffic is primarily comprised of diverted link trips. Diverted-link trips are trips passing by the site but not on an immediately adjacent street and alter their path to visit the site. For example, for a gas station at an interchange, diverted link trips are those that would exit the freeway and then re-enter the freeway to continue in their original direction. The total daily trips would be 19,070 trips and the PM peak hour trips would be 1,467 PM trips. When discounting the pass-by trips, the proposed project is estimated to generate 3,814 primary daily trips, 293 primary Friday PM and 293 primary Sunday PM peak hour trips during the adjacent street peak hours.

Access to the proposed project is provided by two 40-foot-wide driveways on Baker Boulevard. Driveway "A" is located at the southwesterly edge of the project's property. Driveway "B" is located about 180 feet south and west of the project's northeasterly property edge and is separated from Driveway "A" by approximately 337 feet.

The analysis finds that the proposed project causes a project-specific deficiency to the level of service of the intersection of Baker Boulevard and Death Valley Rd (SR 127) under the existing + project scenario and contributes to the near-term (background + project conditions) and long-term (future 2040 + project) cumulative level of service deficiencies. Implementing the following improvements at the intersection of Baker Boulevard and Death Valley Road will change the deficient LOS in all scenarios from a LOS E or F to a LOS D or better. As a result, the following mitigation is required:

Install traffic signal and widen intersection for additional lanes a. Traffic signal is proposed to be an 8-phase signal (providing protected left-turn phasing with overlap in the east-west and north-south directions). b. Widening of the south leg (Death Valley Rd (SR 127)) to accommodate exclusive left and right turn lanes c. Realignment and widening of the north leg (Death Valley Rd (SR 127) to accommodate an exclusive left turn lane. d. Set back of the east leg (Baker Boulevard) to accommodate the widening of the Death Valley Rd (SR 127) approaches. The installation of the traffic signal and the reconfiguring of approach lanes should be initiated by the County and Caltrans. The development will pay its fair share of the cost of these improvements.

B. *Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3 subdivision (b)? • Less than Significant Impact.*

Local serving retail projects less than 50,000 square feet may be presumed to have a less than significant impact absent substantial evidence to the contrary. Local serving retail generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel. Highway Oriented Commercial as Locally Serving Retail for Pass-by and Diverted Trips The definition of local serving retail can also be applied to convenience retail near interchanges that attract most of their customers from the freeway. These "diverted" customer trips from the freeway are trips that are passing-by and drive a little further to the site for the provided services important to freeway travelers. When the diverted travelers are ready, they return

to the freeway and continue in the same direction as their original route. The vehicle miles traveled by diverted link trips is the length of the route from the freeway to the site and the return trip. The most recent version (11th Edition) of the Institute of Transportation Engineers Trip Generation manual's appendices summarizes the substantial amount of empirical data on the proportion of trips generated by convenience markets / gas station that fall into the categories of pass-by, diverted link and primary trips. Combining pass-by and diverted link trips into a single category, as was done for this study, the average proportion of trips that are non-primary exceeds 80 percent. In addition to serving freeway travelers, the project will also serve the residents of Baker and people who work in Baker thereby meeting the traditional definition of a locally serving retail store / gas station.

Based on the above assessment, the proposed project can be screened from requiring a VMT analysis under CEQA because the project meets the definition of "locally serving retail" under 50,000 square feet and can be presumed to have an insignificant effect on VMT by providing necessary services to vehicles already traveling very long distances unrelated to the proposed project.

C. *Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? • Less than Significant Impact.*

The analysis indicated that the 95th percentile queues are expected to be less than 1 vehicle during either peak period, and delays to that movement are less than 8 seconds in either peak period. Therefore, there are no operational concerns with project traffic creating impacts to eastbound through traffic on Jurupa Avenue. The analysis documentation is included at the end of Appendix B of the TIA.

D. *Would the project result in inadequate emergency access? • No Impact.*

The proposed project would not affect emergency access to any adjacent parcels. At no time during construction will Baker Boulevard be completely closed to traffic. All construction staging must occur on-site. *As a result, no impacts will occur.*

MITIGATION MEASURES

The analysis finds that the proposed project causes a project-specific deficiency to the level of service of the intersection of Baker Boulevard and Death Valley Rd (SR 127) under the existing + project scenario and contributes to the near-term (background + project conditions) and long-term (future 2040 + project) cumulative level of service deficiencies. Implementing the following improvements at the intersection of Baker Boulevard and Death Valley Road will change the deficient LOS in all scenarios from a LOS E or F to a LOS D or better. As a result, the following mitigation is required:

TR-1: Install traffic signal and widen intersection for additional lanes a. Traffic signal is proposed to be an 8-phase signal (providing protected left-turn phasing with overlap in the east-west and north-south directions). b. Widening of the south leg (Death Valley Rd (SR 127)) to accommodate exclusive left and right turn lanes c. Realignment and widening of the north leg (Death Valley Rd (SR 127) to accommodate an exclusive left turn lane. d. Set back of the east leg (Baker Boulevard) to accommodate the widening of the Death Valley Rd (SR 127) approaches. The installation of the traffic signal and the reconfiguring of approach lanes should be initiated by the County and Caltrans. The development will pay its fair share of the cost of these improvements. Table 9-2 of the Traffic Study presents the project's calculated percentage of the growth in traffic at the intersection of Baker Boulevard and Death Valley Road (SR 127). The project's percentage of growth shown in the table multiplied by the cost of implementing the intersection improvements described above minus any fees or fair share development contributions previously collected by the County towards the cost of signaling this intersection would be the project's share of funding the improvement.

TR-2: Construct project frontage improvements The project will be conditioned to construct its access driveways and construct the required half-width improvements to the north side of Baker Boulevard along its frontage consistent with the county's standard for Major Highway with a 104-foot right of way and 80-foot curb separation. These improvements include but are not limited to the following:

- a. Dedicate right of way (if required) for the full half width of Baker Boulevard. 127)
- b. Remove old asphalt and repave the required half width of Baker Boulevard along the project's frontage.
- c. Mark the pavement of the widened side of Baker Boulevard as a single southbound lane using white edge lines that transition and channelize southbound traffic into the lane at the beginning of the project's frontage and out of the lane at the end of the project's frontage.
- d. Extend the existing two way left turn lane to the south along Baker Boulevard for the length of the project's frontage plus any required transition to match existing centerline south of the project's frontage improvements.
- e. Construct standard curb, gutter, and sidewalk frontage improvements on Baker Boulevard.
- f. Construct the two project access driveways at the locations shown on the site plan (see Figure 2 included in the traffic study).

SEE ATTACHED TRAFFIC STUDY AND OTHER STUDIES FOR COMPLETE LIST OF MITIGATION MEASURES.

18. TRIBAL CULTURAL RESOURCES

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
<p>A. 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:</p> <p>i. 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</p> <p>ii. 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 Resource 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 Tribe5020.1(k)?</p>		X		

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- A.** *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:*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project.

A Tribal Resource is defined in Public Resources Code section 21074 and includes the following:

- Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following: included or determined to be eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
- 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

- A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
- A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “non-unique archaeological resource” as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms to the criteria of subdivision (a).

California Assembly Bill 52 (AB52) was approved by Governor Brown on September 25, 2014. AB52 specifies that CEQA projects with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource may have a significant effect on the environment. As such, the bill requires lead agency consultation with California Native American tribes traditionally and culturally affiliated with the geographic area of a proposed project, if the tribe requested to the lead agency, in writing, to be informed of proposed projects in that geographic area. The legislation further requires that the tribe-requested consultation be completed prior to determining whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project.

On July 8, 2019, the County of San Bernardino mailed project notification pursuant to AB52 to the following tribes: San Gabriel Band of Mission Indians, Twenty-Nine Palms Band of Mission Indians, Morongo Band of Mission Indians, San Manuel Band of Mission Indians, Soboba Band of Luiseno Indians, Fort Mojave Indian Tribe, Colorado River Indian Tribe, and Gabrieleno Band of Mission Indians - Kizh Nation. AB-52 consultation concluded with the San Manuel tribe after receiving recommended mitigation measures on June 30, 2020, and with the Gabrieleno Band of Mission Indians-Kizh Nation on July 21, 2020. The Morongo Band of Mission Indians, and Twenty-Nine Palms Band of Mission Indians responded with no further comment. The Fort Mojave Indian Tribe responded with a comment of no adverse effect to their ancestral lands. A response letter from the Soboba Band of Luiseno Indians, San Gabriel Band of Mission Indians, and Colorado River Indians tribes was not received.

As of March 1, 2005, Senate Bill 18 requires cities and counties to conduct consultations with California Native American Tribes before the local officials adopt or amend their General Plans. The project in question includes an amendment to the San Bernardino Countywide Plan to change the land use from residential to commercial thus requiring compliance with this bill. Pursuant to SB-18 notification emails were sent on July 31, 2020 to ten (10) tribes based on a list provided by the Native American Heritage Commission (NAHC) on July 27, 2020. Those notifications were sent to the:

- San Manuel Band of Mission Indians;
- Quechan Tribe of Fort Yuma; and,
- Chemehuevi Indians.

No further comment letters were received regarding the SB-18 notification. Any mitigations requested by the tribe(s) and agreed to by the County are required as project Conditions of Approval (COAs). The required mitigation measures provided by the San Manuel Band of Mission Indians and Gabrieleno Band of Mission Indians-Kizh Nation are summarized below:

MITIGATION MEASURES

The following mitigation was requested by the San Manuel Band of Mission Indians:

TCR-1: The San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted of any pre-contact cultural resources discovered during project implementation and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a Cultural Resources Monitoring and Treatment Plan shall be created by the archaeologist, in

coordination with SMBMI, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents SMBMI for the remainder of the project, should SMBMI elect to place a monitor on-site.

TCR-2: Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant and Lead Agency for dissemination to SMBMI. The Lead Agency and/or applicant shall, in good faith, consult with SMBMI throughout the life of the project.

The following mitigation was requested by the Gabrieleno Band of Mission Indians-Kizh Nation:

TCR-3: Retain a Native American Monitor/Consultant: Prior to the commencement of any ground disturbing activity at the project site, the project applicant shall retain a Native American Monitor approved by the Gabrieleno Band of Mission Indians-Kizh Nation – the tribe that consulted on this project pursuant to Assembly Bill AB52 - SB 18 (the “Tribe” or the “Consulting Tribe”). A copy of the executed contract shall be submitted to the Lead Agency prior to the issuance of any permit necessary to commence a ground-disturbing activity. The Tribal monitor will only be present on-site during the construction phases that involve ground-disturbing activities. Ground disturbing activities are defined by the Tribe as activities that may include, but are not limited to, pavement removal, potholing or auguring, grubbing, tree removals, boring, grading, excavation, drilling, and trenching, within the project area. The Tribal Monitor will complete daily monitoring logs that will provide descriptions of the day's activities, including construction activities, locations, soil, and any cultural materials identified. The on-site monitoring shall end when all ground-disturbing activities on the Project Site are completed, or when the Tribal Representatives and Tribal Monitor have indicated that all upcoming ground-disturbing activities at the Project Site have little to no potential for impacting Tribal Cultural Resources. Upon discovery of any Tribal Cultural Resources, construction activities shall cease in the immediate vicinity of the find (not less than the surrounding 50 feet) until the find can be assessed. All Tribal Cultural Resources unearthed by project activities shall be evaluated by the Tribal monitor approved by the Consulting Tribe and a qualified archaeologist if one is present. If the resources are Native American in origin, the Consulting Tribe will retain it/them in the form and/or manner the Tribe deems appropriate, for educational, cultural and/or historic purposes. If human remains and/or grave goods are discovered or recognized at the Project Site, all ground disturbance shall immediately cease, and the county coroner shall be notified per Public Resources Code Section 5097.98, and Health & Safety Code Section 7050.5. Human remains and grave/burial goods shall be treated alike per California Public Resources Code section 5097.98(d)(1) and (2). Work may continue in other parts of the Project site while evaluation and, if necessary, mitigation takes place (CEQA Guidelines Section 15064.5[f]). Preservation in place (i.e., avoidance) is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. Any historic archaeological material that is not Native American in origin (non-TCR) shall be curated at a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County or the Fowler Museum, if such an institution agrees to accept the material. If no institution accepts the archaeological material, it shall be offered to a local school or historical society in the area for educational purposes.

TCR-4: Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in PRC 5097.98, are also to be treated according to this statute. Health and Safety Code 7050.5 dictates that any discoveries of human skeletal material shall be immediately reported to the County Coroner and excavation halted until the coroner has determined the nature of the remains. If the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC and PRC 5097.98 shall be followed.

TCR-5: Upon discovery of human remains, the tribal and/or archaeological monitor/consultant will immediately divert work at minimum of 100 feet and place an exclusion zone around the discovery location. The monitor/consultant(s) will then notify the Tribe, the qualified lead archaeologist, and the construction manager who will call the coroner. Work will continue to be diverted while the coroner determines whether the remains are human and subsequently Native American. The discovery is to be kept confidential and secure to prevent any further disturbance. If the finds are determined to be Native American, the coroner will notify the NAHC as mandated by state law who will then appoint a Most Likely Descendent (MLD).

TCR-6: If the Gabrieleno Band of Mission Indians – Kizh Nation is designated MLD, the Koo-nas-gna Burial Policy shall be implemented. To the Tribe, the term “human remains” encompasses more than human bones. In ancient as well as historic times, Tribal Traditions included, but were not limited to, the preparation of the soil for burial, the burial of funerary objects with the deceased, and the ceremonial burning of human remains. The prepared soil and cremation soils are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects.

TCR-7: Prior to the continuation of ground disturbing activities, the landowner shall arrange a designated site location within the footprint of the project for the respectful reburial of the human remains and/or ceremonial objects. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains will be covered with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24-hour guard should be posted outside of working hours. The Tribe will make every effort to recommend diverting the project and keeping the remains in situ and protected. If the project cannot be diverted, it may be determined that burials will be removed. The Tribe will work closely with the qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be taken which includes at a minimum detailed descriptive notes and sketches. Additional types of documentation shall be approved by the Tribe for data recovery purposes. Cremations will either be removed in bulk or by means as necessary to ensure completely recovery of all material. If the discovery of human remains includes four or more burials, the location is considered a cemetery and a separate treatment plan shall be created. Once complete, a final report of all activities is to be submitted to the Tribe and the NAHC. The Tribe does NOT authorize any scientific study or the utilization of any invasive and/or destructive diagnostics on human remains.

Each occurrence of human remains and associated funerary objects will be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony will be removed to a secure container on site if possible. These items should be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the project site but at a location agreed upon between the Tribe and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.

TCR-8: Professional Standards: Native American and Archaeological monitoring during construction projects will be consistent with current professional standards. All feasible care to avoid any unnecessary disturbance, physical modification, or separation of TCR's shall be taken. The Native American monitor must be approved by the Gabrieleno Band of Mission Indians-Kizh Nation. Principal personnel for Archaeology must meet the Secretary of Interior standards for archaeology and have a minimum of 10 years of experience as a principal investigator working with Native American archaeological sites in southern California.

19. UTILITIES

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			✗	
B. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?			✗	
C. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			✗	
D. Would the project 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. Would the project negatively impact the provision of solid waste services or impair the attainment of solid waste reduction goals?				✗
F. Would the project comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?				✗

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- A.** *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? • Less than Significant Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and gasoline and one UST would be installed for the storage of diesel fuel). The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Vehicular access would be provided by five new driveway connections. Two driveways would connect to Baker Boulevard located to the south of the project site. Two driveways located on the north

portion of the project site, would connect to a future site on the north. Finally, one driveway would be located to the east of the project site. A total of 226 standard parking spaces would be provided in addition to 8 ADA accessible parking spaces, and 16 electric vehicle charging stations. A total of 250 surface parking spaces would be provided. Landscaping would total 31,173 square feet and would extend along the southern and western frontages of the project site and around the new buildings and parking spaces.

The project site is currently occupied by a vacant motel that will be demolished to accommodate the proposed use. There are no existing water or wastewater treatment plants, electric power plants, telecommunications facilities, natural gas facilities, or stormwater drainage infrastructure located on-site. Therefore, the project's implementation will not require the relocation of any of the aforementioned facilities. In addition, the increase in demand for waste disposal, water, and wastewater treatment services can be adequately handled and no expansion of these services is required. The project's implementation will not require the relocation of any utilities. In addition, the increase in demand for waste disposal, water, and wastewater treatment services can be adequately handled and no expansion of these services is required. *As a result, no impacts will result.*

- B.** *Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years? • Less than Significant Impact.*

Wastewater treatment services in the Baker Community is provided by the Baker Community Services District. The Baker Community Services District provides water, sanitary sewers, trash collection services, fire protection, road maintenance, street lighting, and park and recreation services. As indicated in Table 7, the proposed project is projected to consume approximately 2,465 gallons of water on a daily basis.

Table 7
Water Consumption (gals/day)

Use	Unit	Factor	Generation
Convenience Store	20,400 sq. ft.	0.10 gals/day/sq. ft	2,040 gals/day
Coffee Shop	3,864 sq. ft.	0.11 gals/day/sq. ft	425 gals/day
Total			2,465 gals/day

Source: California Home Building Foundation

Because the site is currently undeveloped, the project would result in an increase in the amount of water consumption compared to existing condition. The on-site water utility system would be designed, constructed, and maintained to be consistent with County and State Water Resources Control Board standards and requirements. *As a result, the impacts would be less than significant.*

- C.** *Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? • Less than Significant Impact.*

Wastewater treatment services in the Baker Community is provided by the Baker Community Services District. The Baker Community Services District provides water, sanitary sewers, trash collection services, fire protection, road maintenance, street lighting, and park and recreation services. Because the site is currently undeveloped, the project would result in an increase in the amount of wastewater generation compared to existing condition. According to Table 8, the proposed project is expected to generate

approximately 1,941 gallons of sewage per day.

Table 8
Wastewater (Effluent) Generation (gals/day)

Use	Unit	Factor	Generation
Convenience Store	20,400 sq. ft.	0.08 gals/day/sq. ft	1,632 gals/day
Fast Food Restaurant	3,864 sq. ft.	0.08 gals/day/sq. ft	309 gals/day
Total			1,941 gals/day

Source: Black & Veatch. *Wastewater Collection System Master Plan*. Report dated October 18, 2013

The future on-site wastewater system would be designed, constructed, and maintained to be consistent with County and State Water Resources Control Board standards and requirements. *As a result, the impacts would be less than significant.*

- D.** *Would the project 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? • Less than Significant Impact.*

Wastewater treatment services in the Baker Community is provided by the Baker Community Services District. The Baker Community Services District provides water, sanitary sewers, trash collection services, fire protection, road maintenance, street lighting, and park and recreation services. The proposed project is anticipated to generate approximately 1,019 pounds per day of solid waste (refer to Table 9 shown below). As a result, the potential impacts are considered to be less than significant.

Table 9
Solid Waste Generation (lbs./day)

Use	Unit	Factor	Generation
Convenience Store	20,400 sq. ft.	42 lbs./day/1,000 sq. ft	857 lbs./day
Fast-Food Restaurant	3,864 sq. ft.	42 lbs./day/1,000 sq. ft	162 lbs./day
Total			1,019 lbs./day

Total

- E.** *Would the project negatively impact the provision of solid waste services or impair the attainment of solid waste reduction goals? • No Impact.*

The proposed project, like all other development in San Bernardino County and the Community of Baker, will be required to adhere to County ordinances with respect to waste reduction and recycling. The proposed businesses will be required to implement all applicable requirements that govern solid waste disposal and recycling. *As a result, no impacts would occur.*

- F.** *Would the project comply with Federal, State, and local management and reduction statutes and regulations related to solid waste? • No Impact.*

The proposed project, like all other development in San Bernardino County and the Community of Baker, will be required to comply with all pertinent Federal, State and local management and reduction statutes with respect to waste reduction and recycling. *As a result, no impacts would occur.*

MITIGATION MEASURES

The analysis of utilities impacts indicated that no significant adverse impacts would result from the proposed project's approval and subsequent implementation. As a result, no mitigation is required.

20. WILDFIRE

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	Less Than Significant Impact	No Impact
A. If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?				×
B. If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project 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. If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project 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. If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project 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?				×

SUBSTANTIATION OF ENVIRONMENTAL IMPACTS

- A.** *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan? • No Impact.*

The proposed project involves the construction and subsequent operation of a 20-pump fueling station, a 20,400 square foot convenience store, and a coffee shop with a drive through lane consisting of 3,864 square feet. The project site consists of 4.99-acres (217,369 square feet). The existing motel buildings (five buildings that were part of the Santa Fe Motel) totaling 16,630 square feet, and a concrete in-ground pool would be demolished in order to accommodate the proposed project. The fuel dispensing area would be located under a 16,400 square foot canopy with solar panels installed on the roof. This area would include a total of 20 fuel dispensers providing a total of 40 fueling positions. Two underground storage tanks (USTs) would be installed (one for the storage of 91 octane and 87 octane gasoline and gasoline and one UST would be installed for the storage of diesel fuel). The proposed convenience store would be located adjacent to and north of the fueling area. The inside of the convenience store would include the retail sales area, the cash registers, restrooms and the quick-service restaurant (QSR). A coffee shop with a drive through lane, would be constructed in the site's northeast corner. The coffee shop would have a total floor area of 3,864 square feet. Vehicular access would be provided by five new driveway connections. Two driveways would connect to Baker Boulevard located to the south of the project site. Two driveways located on the north portion of the project site, would connect to a future site on the north. Finally, one driveway would be located to the east of the project site.

According to the Cal FIRE Fire Hazard Severity Zone Database, the project site is not located within a severe fire hazard zone. Furthermore, the proposed project would not involve the closure or alteration of any existing evacuation routes that would be important in the event of a wildfire. *As a result, no impacts will occur.*

- B.** *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones would the project 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? • No Impact.*

The proposed project may be exposed to particulate emissions generated by wildland fires in the surrounding region. However, the potential impacts would not be exclusive to the project site since criteria pollutant emissions from wildland fires may affect the entire Community as well as the surrounding cities and unincorporated county areas. *As a result, no impacts will occur.*

- C.** *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project 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? • No Impact.*

The project site is not located in an area that is classified as a high fire risk severity, and therefore will not require the installation of specialized infrastructure such as fire roads, fuel breaks, or emergency water sources. *As a result, no impacts will occur.*

- D.** *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project 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? • No Impact.*

There is no risk from wildfire within the project site or the surrounding area given the project site's distance from any area that may be subject to a wildfire event. Therefore, the project will not result in any impacts related to flooding or landslides facilitated by runoff flowing down barren and charred slopes given the area's level topography and developed character. *As a result, no impacts will occur.*

MITIGATION MEASURES

The analysis of wildfires impacts indicated that less than significant impacts would result from the proposed project's approval and subsequent implementation. As a result, no mitigation is required.

21. MANDATORY FINDINGS OF SIGNIFICANCE

Environmental Issue Areas Examined	Potentially Significant Impact	Less Than Significant Impact with Mitigation	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?				×

The following findings can be made regarding the Mandatory Findings of Significance set forth in Section 15065 of the CEQA Guidelines based on the results of this environmental assessment:

- A. The proposed project *will not* 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. As indicated in Section .1 through 20, the proposed project will not result in any significant unmitigable environmental impacts.
- B. The proposed project *will not* have impacts that are individually limited, but cumulatively considerable. The proposed project is relatively small, and the attendant environmental impacts will not lead to a cumulatively significant impact on any of the issues analyzed herein. Compliance with mitigation measures as outlined in sections 1-Aesthetics (AES), 5-Cultural Resources (CR), 15-Public Services (PS), and 18-Tribal Cultural Resources (TCR) will reduce any impacts to a less than significant level.
- C. The proposed project *will not* have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly. As indicated in Section 3.1 through 3.20, the proposed project will not result in any significant unmitigable environmental impacts.

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

GENERAL REFERENCES

Bugliarello, et. al. *The Impact of Noise Pollution*, Chapter 127, 1975.

California, State of. OPR Technical Advisory – CEQA and Climate Change: Addressing Climate Change through the California Environmental Quality Act (CEQA) Review. June 19, 2008.

California Environmental Quality Act (CEQA) Statutes and Guidelines. Section 15064.5. 2019.

Southern California Association of Governments (SCAG) 2016 RTP/SCS Demographics and Growth Forecast Appendix. December 2015.

South Coast Air Quality Management District (SCAQMD). *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines*. Report dated August 2016.

South Coast Air Quality Management District (SCAQMD). *CEQA Air Quality Handbook, Appendix 9*. As amended 2017.

PROJECT SPECIFIC REFERENCES

California Department of Conservation, Division of Land Resource Protection, Farmland Mapping, and Monitoring Program. *California Important Farmland Finder*.

California Department of Conservation. *State of California Williamson Act Contract Land*.
<ftp://ftp.consrv.ca.gov/>

CalEPA. *DTSC's Hazardous Waste and Substances Site List - Site Cleanup (Cortese List)*.
http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm.

CalFire. *Very High Fire Hazard Severity Zone Map for SW San Bernardino County*. <http://frap.fire.ca.gov/>

California, State of. Department of Conservation. *California Oil, Gas, and Geothermal Resources Well Finder*. <https://maps.conservaion.ca.gov/doggr/wellfinder>

Federal Emergency Management Agency. *Flood Insurance Rate Mapping Program*. 2020.

Southern California Association of Governments. *Growth Forecast. Regional Transportation Plan 2016-2040*. Adopted on April 7, 2016.

United States Department of Agriculture, Natural Resources Conservation Service. *Web Soil Survey*.

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

SECTION 5 REFERENCES

5.1 PREPARERS

Blodgett Baylosis Environmental Planning
2211 S Hacienda Boulevard, Suite 107
Hacienda Heights, CA 91745
(626) 336-0033

Marc Blodgett, Project Principal
Karla Nayakarathne, Project Manager
Genesis Loyda, Administrator
Alice Ye, Business Developer

5.2 REFERENCES

The references that were consulted have been identified using footnotes.



THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

APPENDIX A – AIR QUALITY ANALYSIS

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.



Alien Convenience Store and Gas Station

AIR QUALITY IMPACT ANALYSIS COUNTY OF SAN BERNARDINO

PREPARED BY:

Haseeb Qureshi
hqureshi@urbanxroads.com
(949) 336-5987

Ali Dadabhoy
adadabhoy@urbanxroads.com

OCTOBER 5, 2022

14962-02 AQ Report.docx

TABLE OF CONTENTS

TABLE OF CONTENTS.....	I
APPENDICES.....	II
LIST OF EXHIBITS.....	II
LIST OF TABLES	II
LIST OF ABBREVIATED TERMS	III
EXECUTIVE SUMMARY	V
ES.1 Summary of Findings.....	v
ES.2 Standard Regulatory Requirements/Best Available Control Measures (BACMs).....	v
ES.3 Construction-Source and Operational-Source Mitigation Measures	vi
1 INTRODUCTION.....	7
1.1 Site Location.....	7
1.2 Project Description.....	7
2 AIR QUALITY SETTING	11
2.1 Mojave Desert Air Basin.....	11
2.2 Regional Climate	11
2.3 Existing Air Quality	12
2.4 Regional Air Quality	15
2.5 Local Air Quality	15
2.6 Regulatory Background.....	18
3 PROJECT AIR QUALITY IMPACT.....	22
3.1 Introduction	22
3.2 Standards of Significance	22
3.3 California Emissions Estimator Model™ Employed to Estimate AQ Emissions	22
3.4 Construction Emissions	23
3.5 Operational Emissions	26
3.6 CO “Hot Spot” Analysis	29
3.7 Air Quality Management Planning.....	30
3.8 Potential Impacts to Sensitive Receptors	31
3.9 Odors.....	32
3.10 Cumulative Impacts	32
4 CONCLUSION	35
5 REFERENCES.....	37
6 CERTIFICATION.....	39

APPENDICES

APPENDIX 2.1: STATE/FEDERAL ATTAINMENT STATUS OF CRITERIA POLLUTANTS
 APPENDIX 3.1: CALEEMOD PROJECT CONSTRUCTION EMISSIONS MODEL OUTPUTS
 APPENDIX 3.2: CALEEMOD PROJECT OPERATIONAL EMISSIONS MODEL OUTPUTS

LIST OF EXHIBITS

EXHIBIT 1-A: LOCATION MAP	8
EXHIBIT 1-B: SITE PLAN.....	9

LIST OF TABLES

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS	V
TABLE 2-1: AMBIENT AIR QUALITY STANDARDS (1 OF 2)	13
TABLE 2-1: AMBIENT AIR QUALITY STANDARDS (2 OF 2)	14
TABLE 2-3: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE MDAB.....	15
TABLE 2-3: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2018-2020.....	16
TABLE 3-1: MAXIMUM REGIONAL DAILY EMISSIONS THRESHOLDS.....	22
TABLE 3-2: CONSTRUCTION DURATION	24
TABLE 3-3: CONSTRUCTION EQUIPMENT ASSUMPTIONS.....	25
TABLE 3-4: EMISSIONS SUMMARY OF CONSTRUCTION (WITHOUT MITIGATION)	26
TABLE 3-5: SUMMARY OF PEAK OPERATIONAL EMISSIONS	28
TABLE 3-6: CO MODEL RESULTS.....	29
TABLE 3-7: TRAFFIC VOLUMES.....	30

LIST OF ABBREVIATED TERMS

(1)	Reference
µg/m ³	Microgram per Cubic Meter
AADT	Annual Average Daily Traffic
AQIA	Air Quality Impact Analysis
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
BACM	Best Available Control Measures
BMPs	Best Management Practices
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DPM	Diesel Particulate Matter
EPA	Environmental Protection Agency
LST	Localized Significance Threshold
MDAQMD	Mojave Desert Air Quality Management District
NAAQS	National Ambient Air Quality Standards
NO ₂	Nitrogen Dioxide
NO _x	Oxides of Nitrogen
Pb	Lead
PM ₁₀	Particulate Matter 10 microns in diameter or less
PM _{2.5}	Particulate Matter 2.5 microns in diameter or less
PPM	Parts Per Million
Project	Alien Convenience Store and Gas Station
ROG	Reactive Organic Gases
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SIPs	State Implementation Plans
SRA	Source Receptor Area

TAC	Toxic Air Contaminant
TIA	Traffic Impact Analysis
TOG	Total Organic Gases
VMT	Vehicle Miles Traveled

EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Alien Convenience Store and Gas Station Air Quality Impact Analysis* are summarized below based on the significance criteria in Section 3 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 air quality impact under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Regional Construction Emissions	3.4	<i>Less Than Significant</i>	<i>n/a</i>
Regional Operational Emissions	3.5	<i>Less Than Significant</i>	<i>n/a</i>
CO "Hot Spot" Analysis	3.6	<i>Less Than Significant</i>	<i>n/a</i>
Air Quality Management Plan	3.7	<i>Less Than Significant</i>	<i>n/a</i>
Sensitive Receptors	3.8	<i>Less Than Significant</i>	<i>n/a</i>
Odors	3.9	<i>Less Than Significant</i>	<i>n/a</i>
Cumulative Impacts	3.10	<i>Less Than Significant</i>	<i>n/a</i>

ES.2 STANDARD REGULATORY REQUIREMENTS/BEST AVAILABLE CONTROL MEASURES (BACMs)

MDAQMD Rules that are currently applicable during construction activity for this Project include but are not limited to: Rule 1113 (Architectural Coatings) (2); Rule 403 (Fugitive Dust) (3).

RULE 403

The following measures shall be incorporated into Project plans and specifications as implementation of Rule 403.

- Use periodic watering for short-term stabilization of Disturbed Surface Area to minimize visible fugitive dust emissions. For purposes of this Rule, use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered sufficient to maintain compliance
- Take actions sufficient to prevent project-related Trackout onto paved surfaces.
- Stabilize graded surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than thirty days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate Visible Fugitive Dust emissions.

RULE 1113

Only "Low-Volatile Organic Compounds" paints consistent with Mojave Desert Air Quality Management District Rule 1113 shall be used.

ES.3 CONSTRUCTION-SOURCE AND OPERATIONAL-SOURCE MITIGATION MEASURES

The Project would not result in any potentially significant air quality impacts.

1 INTRODUCTION

This report presents the results of the air quality impact analysis (AQIA) prepared by Urban Crossroads, Inc., for the proposed Alien Convenience Store and Gas Station ("Project").

The purpose of this AQIA is to evaluate the potential impacts to air quality associated with construction and operation of the proposed Project and recommend measures to mitigate impacts considered potentially significant in comparison to thresholds established by the Mojave Desert Air Quality Management District (MDAQMD).

1.1 SITE LOCATION

The proposed Alien Convenience Store and Gas Station Project is generally located north of Baker Boulevard and Interstate I-15 and east of Death Valley Boulevard, in the County of San Bernardino as shown on Exhibit 1-A.

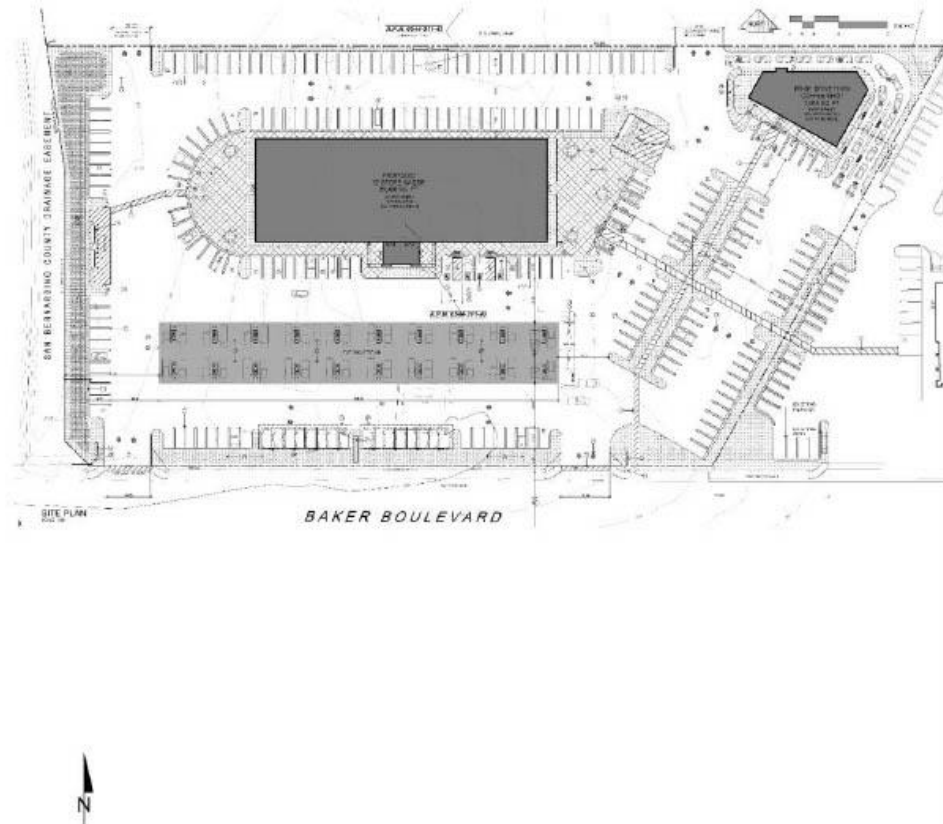
1.2 PROJECT DESCRIPTION

The proposed Project is to consist of the demolition of an existing motel and construction of a new 20,400 square foot convenience store, a 3,864 square foot coffee shop, and 20-pump fueling station, as shown in Exhibit 1-B. The Project is anticipated to have an Opening Year of 2023.

EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: SITE PLAN



This page intentionally left blank.

2 AIR QUALITY SETTING

This section provides an overview of the existing air quality conditions in the Project area and region.

2.1 MOJAVE DESERT AIR BASIN

The Project site is located in the portion of the County of San Bernardino, California, that is part of the Mojave Desert Air Basin (MDAB) and is under the jurisdiction of the MDAQMD. The air quality assessment for the proposed Project includes estimating emissions associated with short-term construction and long-term operation of the proposed Project. A number of air quality modeling tools are available to assess the air quality impacts of projects. In addition, certain air districts, such as the MDAQMD, have created guidelines and requirements to conduct air quality analyses. The MDAQMD's current guidelines, included in its *California Environmental Quality Act and Federal Conformity Guidelines* (August 2011), were adhered to in the assessment of air quality impacts for the proposed Project.

2.2 REGIONAL CLIMATE

Air quality in the Project area is not only affected by various emissions sources (mobile, industry, etc.) but is also affected by atmospheric conditions such as wind speed, wind direction, temperature, and rainfall.

The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains that dot the vast terrain rise from 1,000 to 4,000 ft above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada Mountains to the north; air masses pushed onshore in Southern California by differential heating are channeled through the MDAB. The MDAB is separated from the Southern California coastal and central California valley regions by mountains (highest elevation is approximately 10,000 ft), whose passes form the main channels for these air masses. The Mojave Desert is bordered on the southwest by the San Bernardino Mountains, separated from the San Gabriels by the Cajon Pass (4,200 ft). A lesser pass lies between the San Bernardino Mountains and the Little San Bernardino Mountains in the Morongo Valley. The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley), whose primary channel is the San Gorgonio Pass (2,300 ft) between the San Bernardino and San Jacinto Mountains.

During the summer, the MDAB is generally influenced by a Pacific subtropical high cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south. The MDAB averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inch of precipitation). The MDAB is classified as a dry-hot desert climate, with portions classified

as dry-very hot desert, to indicate that at least three months have maximum average temperatures over 100.4° F.

Snow is common above 5,000 ft in elevation, resulting in moderate snowpack and limited spring runoff. Below 5,000 ft, any precipitation normally occurs as rainfall. Pacific storm fronts normally move into the area from the west, driven by prevailing winds from the west and southwest. During late summer, moist high-pressure systems from the Pacific collide with rising heated air from desert areas, resulting in brief, high-intensity thunderstorms that can cause high winds and localized flash flooding.

2.3 EXISTING AIR QUALITY

Existing air quality is measured at established MDAQMD air quality monitoring stations. Monitored air quality is evaluated and in the context of ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are shown in Table 2-1 (4).

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards presented in Table 2-1. The air quality in a region is considered to be in attainment by the state if the measured ambient air pollutant levels for O₃, CO (except 8-hour Lake Tahoe), SO₂, NO₂, PM₁₀, PM_{2.5}, and visible reducing particles are not to be exceeded at any time in any consecutive three-year period; all other values are not to be equaled or exceeded. The air quality in a region is considered to be in attainment by federal standards if the measured ambient air pollutant levels for O₃, PM₁₀, PM_{2.5}, and those based on annual averages or arithmetic mean are not exceeded more than once per year. The O₃ standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, 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 one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

TABLE 2-1: AMBIENT AIR QUALITY STANDARDS (1 OF 2)

Ambient Air Quality Standards							
Pollutant	Averaging Time	California Standards ¹		National Standards ²			
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷	
Ozone (O ₃) ⁸	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry	
	8 Hour	0.070 ppm (137 µg/m ³)		0.070 ppm (137 µg/m ³)			
Respirable Particulate Matter (PM ₁₀) ⁹	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	20 µg/m ³		—			
Fine Particulate Matter (PM _{2.5}) ⁹	24 Hour	—	—	35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	12.0 µg/m ³	15 µg/m ³		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m ³)	—	Non-Dispersive Infrared Photometry (NDIR)	
	6 Hour	9.0 ppm (10 mg/m ³)		9 ppm (10 mg/m ³)	—		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—	—		
Nitrogen Dioxide (NO ₂) ¹⁰	1 Hour	0.16 ppm (339 µg/m ³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m ³)	—	Gas Phase Chemiluminescence	
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ²)		0.053 ppm (100 µg/m ³)	Same as Primary Standard		
Sulfur Dioxide (SO ₂) ¹¹	1 Hour	0.25 ppm (655 µg/m ³)	Ultraviolet Fluorescence	75 ppb (196 µg/m ³)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)	
	3 Hour	—		—	0.5 ppm (1300 µg/m ³)		
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (for certain areas) ¹¹	—		
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas) ¹¹	—		
Lead ^{12,13}	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption	
	Calendar Quarter	—		1.5 µg/m ³ (for certain areas) ¹²	Same as Primary Standard		
	Rolling 3-Month Average	—		0.15 µg/m ³			
Visibility Reducing Particles ¹⁴	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards			
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography				
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence				
Vinyl Chloride ¹²	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography				

See footnotes on next page ...

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (5/4/16)

TABLE 2-1: AMBIENT AIR QUALITY STANDARDS (2 OF 2)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above $150 \mu\text{g}/\text{m}^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon 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.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from $15 \mu\text{g}/\text{m}^3$ to $12.0 \mu\text{g}/\text{m}^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at $35 \mu\text{g}/\text{m}^3$, as was the annual secondary standard of $15 \mu\text{g}/\text{m}^3$. The existing 24-hour PM10 standards (primary and secondary) of $150 \mu\text{g}/\text{m}^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (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.
11. 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 1-hour national 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 one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' 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.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard ($1.5 \mu\text{g}/\text{m}^3$ as a quarterly average) remains in effect until one 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.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (5/4/16)

2.4 REGIONAL AIR QUALITY

Air pollution contributes to a wide variety of adverse health effects. The EPA has established NAAQS for six of the most common air pollutants: O₃, PM₁₀, PM_{2.5}, CO, NO₂, SO₂ and Pb which are known as criteria pollutants. The MDAQMD monitors levels of various criteria pollutants at 6 permanent monitoring stations throughout the air district (5). On January 5, 2021, CARB posted the 2020 amendments to the state and national area designations. See Table 2-3 for attainment designations for the MDAB and the Southeast Desert Air Basin (SDAB) (6). Appendix 2.1 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the MDAB and SDAB.

TABLE 2-3: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE MDAB

Criteria Pollutant	State Designation	Federal Designation
O ₃ – 1-hour standard	Nonattainment	--
O ₃ – 8-hour standard	Nonattainment	Nonattainment
PM ₁₀	Nonattainment	Nonattainment
PM _{2.5}	Attainment	Unclassifiable/Attainment
CO	Attainment	Unclassifiable/Attainment
NO ₂	Attainment	Unclassifiable/Attainment
SO ₂	Unclassifiable/Attainment	Unclassifiable/Attainment
Pb	Attainment	Unclassifiable/Attainment

Note: See Appendix 2.1 for a detailed map of State/National Area Designations within the MDAB and SDAB
"--" = The national 1-hour O₃ standard was revoked effective June 15, 2005.

2.5 LOCAL AIR QUALITY

Relative to the Project site, the nearest long-term air quality monitoring site for O₃ was obtained from the MDAQMD Mojave National Preserve station, located approximately 29.55 miles southeast of the project site within the Mojave National Preserve. Data for PM₁₀, and NO₂ was obtained from the MDAQMD Barstow monitoring station, located approximately 59.80 miles southwest of the project site in Barstow. Data for PM_{2.5} was obtained from the MDAQMD Victorville-Park Avenue, located approximately 88.26 miles southwest of the project site in Victorville. Data for CO was unavailable for any site. It should be noted that the Barstow and Victorville-Park monitoring stations were utilized in lieu of the Mojave National Preserve monitoring station only where data was not available from the nearest monitoring site.

The most recent three (3) years of data available is shown on Table 2-3 and identifies the number of days ambient air quality standards were exceeded for the study area, which is considered to be representative of the local air quality at the Project site. Data for O₃, NO₂, PM₁₀, and PM_{2.5} was obtained using the CARB iADAM: Air Quality and Data Statistics and the Air Quality and Meteorological Information System (AQMIS) (7) (8). Data for CO was unavailable for any site and SO₂ has been omitted as attainment is regularly met and few monitoring stations measure SO₂ concentrations. It should be noted that the table below is provided for informational purposes.

TABLE 2-3: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2018-2020

Pollutant	Standard	Year		
		2018	2019	2020
O ₃				
Maximum Federal 1-Hour Concentration (ppm)		0.103	0.088	0.100
Maximum Federal 8-Hour Concentration (ppm)		0.096	0.077	0.094
Number of Days Exceeding Federal 1-Hour Standard	> 0.09 ppm	0	0	0
Number of Days Exceeding State 1-Hour Standard		6	0	2
Number of Days Exceeding Federal 8-Hour Standard	> 0.070 ppm	79	19	30
Number of Days Exceeding State 8-Hour Standard	> 0.075 ppm	88	23	36
CO				
Maximum Federal 1-Hour Concentration	> 35 ppm	-	-	-
NO ₂				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	0.059	0.060	0.063
Maximum State 1-Hour Concentration	> 0.180 ppm	0.059	0.059	0.062
Annual Federal Standard Design Value		15	13	14
Annual State Standard Design Value		14	13	14
Number of Days Exceeding Federal 1-Hour Standard	> 0.100 ppm	0	0	0
Number of Days Exceeding State 1-Hour Standard	> 0.18 ppm	0	0	0
PM ₁₀				
Maximum Federal 24-Hour Concentration (µg/m³)	> 150 µg/m³	101.3	209.5	213.5
Annual Federal Arithmetic Mean (µg/m³)		27.3	24.6	33.3
Number of Days Exceeding Federal 24-Hour Standard	> 150 µg/m³	0	1	1
PM _{2.5}				
Maximum Federal 24-Hour Concentration (µg/m³)	> 35 µg/m³	32.7	17.8	48.4
Maximum State 24-Hour Concentration (µg/m³)		33.2	20.0	48.7
Annual Federal Arithmetic Mean (µg/m³)	>12 µg/m³	7.9	7.0	9.7
Annual State Arithmetic Mean (µg/m³)	>12 µg/m³	8.7	7.0	10.4
Number of Samples Exceeding Federal 24-Hour Standard	> 35 µg/m³	0	0	4

Source: California Air Resource Board iADAM: Air Quality Data Statistics and AQMIS
ppm = Parts Per Million
µg/m³ = microgram per cubic meter
-- = data not available

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Criteria pollutants, their typical sources, and health effects are identified below (9):

- Carbon Monoxide (CO): Is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the Basin. The highest

ambient CO concentrations are generally found near congested transportation corridors and intersections.

- **Sulfur Dioxide (SO₂):** Is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO₂ oxidizes in the atmosphere, it forms sulfates (SO₄). Collectively, these pollutants are referred to as sulfur oxides (SO_x).
- **Nitrogen Oxides (Oxides of Nitrogen, or NO_x):** Nitrogen oxides (NO_x) consist of nitric oxide (NO), nitrogen dioxide (NO₂) and nitrous oxide (N₂O) and are formed when nitrogen (N₂) combines with oxygen (O₂). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide. Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO₂ is a criteria air pollutant, and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO₂ is the most abundant in the atmosphere. As ambient concentrations of NO₂ are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO₂ than those indicated by regional monitors.
- **Ozone (O₃):** Is a highly reactive and unstable gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_x), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- **PM₁₀ (Particulate Matter less than 10 microns):** A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. PM₁₀ also causes visibility reduction and is a criteria air pollutant.
- **PM_{2.5} (Particulate Matter less than 2.5 microns):** A similar air pollutant consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO₂ release from power plants and industrial facilities and nitrates that are formed from NO_x release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. PM_{2.5} is a criteria air pollutant.
- **Volatile Organic Compounds (VOC):** Volatile organic compounds are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form ozone to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are a criteria pollutant since they are a precursor to O₃, which is a criteria pollutant. The MDAQMD uses the terms VOC and ROG (see below) interchangeably.

- **Reactive Organic Gases (ROG):** Similar to VOC, Reactive Organic Gases (ROG) are also precursors in forming ozone and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight. ROG's are a criteria pollutant since they are a precursor to O₃, which is a criteria pollutant. The MDAQMD uses the terms ROG and VOC (see previous) interchangeably.
- **Lead (Pb):** Lead is a heavy metal that is highly persistent in the environment. In the past, the primary source of lead in the air was emissions from vehicles burning leaded gasoline. As a result of the removal of lead from gasoline, there have been no violations at any of the MDAQMD's regular air monitoring stations since 1982. Currently, emissions of lead are largely limited to stationary sources such as lead smelters. It should be noted that the Project is not anticipated to generate a quantifiable amount of lead emissions. Lead is a criteria air pollutant.

2.6 REGULATORY BACKGROUND

2.6.1 FEDERAL REGULATIONS

The U.S. EPA is responsible for setting and enforcing the NAAQS for O₃, CO, NO_x, SO₂, PM₁₀, and lead (10). The U.S. EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The U.S. EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of the CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance (11). The CAA also mandates that states submit and implement State Implementation Plans (SIPs) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O₃, NO₂, SO₂, PM₁₀, CO, PM_{2.5}, and lead. The NAAQS were amended in July 1997 to include an additional standard for O₃ and to adopt a NAAQS for PM_{2.5}. Table 3-1 (previously presented) provides the NAAQS within the basin.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and nitrogen oxides (NO_x). NO_x is a collective term that includes all forms of nitrogen oxides (NO, NO₂, NO₃) which are emitted as byproducts of the combustion process.

2.6.2 CALIFORNIA REGULATIONS

The CARB, which became part of the California EPA in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. The California CAA mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for sulfates, visibility, hydrogen sulfide, and vinyl chloride. However, at this time, hydrogen sulfide and vinyl chloride are not measured at any monitoring stations in the MDAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS (12) (10).

Local air quality management districts, such as the MDAQMD, regulate air emissions from stationary sources such as commercial and industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Serious non-attainment areas are required to prepare air quality management plans that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;
- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a five percent or more annual reduction in emissions or 15 percent or more in a period of three years for ROG_s, NO_x, CO and PM₁₀. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than five percent per year under certain circumstances.

TITLE 24 ENERGY EFFICIENCY STANDARDS AND CALIFORNIA GREEN BUILDING STANDARDS

California Code of Regulations (CCR) Title 24 Part 6: The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. The most recent update to the California Energy Code was on August 11, 2021. Buildings whose permit applications are submitted after January 1, 2023 must comply with the 2022 Energy Code.

CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on August 1, 2009, and is administered by the California Building Standards Commission.

The Project would be required to comply with the applicable standards in place at the time building permit document submittals are made.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2022 California Green Building Code Standards that will be effective on January 1, 2023. The CEC anticipates that the 2022 energy code will provide \$1.5 billion in consumer benefits and reduce GHG emissions by 10 million metric tons (13).

2.6.3 AIR QUALITY MANAGEMENT PLANNING

Currently, the NAAQS and CAAQS are exceeded in most parts of the MDAB. In regards to the NAAQS, the Project region within the MDAB is in nonattainment for ozone (8-hour) and PM₁₀. For the CAAQS, the Project region within the MDAB is in nonattainment for ozone (1-hour and 8-hour), PM₁₀, and PM_{2.5}. In response, the MDAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient air quality standards (14). AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy. A detailed discussion on the AQMP and Project consistency with the AQMP is provided in Section 3.7.

This page intentionally left blank.

3 PROJECT AIR QUALITY IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will violate an air quality standard or contribute to an existing or projected air quality violation. Additionally, the Project has been evaluated to determine if it will result in a cumulatively considerable net increase of a criteria pollutant for which the MDAB is non-attainment under an applicable federal or state ambient air quality standard. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related air quality impacts are taken from the Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 California Code of Regulations §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to air quality if it would (15):

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

The MDAQMD has developed regional significance thresholds for regulated pollutants, shown below in Table 3-1. The MDAQMD's *CEQA and Federal Conformity Guidelines* indicate that any projects in the MDAB with daily regional emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact (16).

TABLE 3-1: MAXIMUM REGIONAL DAILY EMISSIONS THRESHOLDS

Pollutant	Daily Threshold (pounds)
CO	548 lbs/day
NO _x	137 lbs/day
VOC	137 lbs/day
SO _x	137 lbs/day
PM ₁₀	82 lbs/day
PM _{2.5}	65 lbs/day

Note: lbs/day – pounds per day

3.3 CALIFORNIA EMISSIONS ESTIMATOR MODEL™ EMPLOYED TO ESTIMATE AQ EMISSIONS

Land uses such as the Project affect air quality through construction-source and operational-source emissions.

In May 2022 California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including SCAQMD, released the latest version of CalEEMod version 2022.1. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_x, SO_x, CO, PM₁₀, and PM_{2.5}) and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from MMs (17). Accordingly, the latest version of CalEEMod has been used for this Project to determine construction and operational air quality emissions. Output from the model runs for both construction and operational activity are provided in Appendices 3.1.

3.4 CONSTRUCTION EMISSIONS

Construction activities associated with the Project will result in emissions of CO, VOCs, NO_x, SO_x, PM₁₀, and PM_{2.5}. Construction related emissions are expected from the following construction activities:

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

DEMOLITION ACTIVITIES

The site is currently developed with an existing motel which totals approximately 16,630 sf that will be demolished. Demolished material associated with demolition will be hauled off-site.

GRADING ACTIVITIES

Dust is typically a major concern during grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called “fugitive emissions”. Fugitive dust emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). CalEEMod was utilized to calculate fugitive dust emissions resulting from this phase of activity. This analysis assumes that earthwork would balance on site and no import or export of soils would be required.

CONSTRUCTION WORKER VEHICLE TRIPS

Construction emissions for construction worker vehicles traveling to and from the Project site, as well as vendor trips (construction materials delivered to the Project site) were estimated based on information from CalEEMod defaults.

3.4.1 CONSTRUCTION DURATION

Construction is expected to commence in August 2023 and will last through December 2023. Construction duration by phase is shown on Table 3-2. The construction schedule utilized in the analysis represents a “worst-case” analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.¹ The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per CEQA guidelines.

TABLE 3-2: CONSTRUCTION DURATION

Construction Activity	Start Date	End Date	Days
Demolition	9/1/2023	9/28/2023	20
Site Preparation	9/29/2023	10/5/2023	5
Grading	10/6/2023	10/17/2023	8
Building Construction	10/18/2023	12/29/2023	53
Paving	12/6/2023	12/29/2023	18
Architectural Coating	12/6/2023	12/29/2023	18

Source: Construction schedule based on CalEEMod default parameters.

3.4.2 CONSTRUCTION EQUIPMENT

Site specific construction fleet may vary due to specific project needs at the time of construction. The duration of construction activity was based on CalEEMod model defaults adjusted to account for a 2023 opening year. The associated construction equipment was generally based on CalEEMod defaults with modifications to assign 8-hour working days and account for ground disturbance during site preparation and grading. Please refer to specific detailed modeling inputs/outputs contained in Appendix 3.1 of this analysis. A detailed summary of construction equipment assumptions by phase is provided at Table 3-3.

¹ As shown in the California Emissions Estimator Model (CalEEMod) User's Guide Version, Section 4.3 "OFFROAD Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

TABLE 3-3: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Activity	Equipment ¹	Amount	Hours Per Day
Demolition	Concrete/Industrial Saws	1	8
	Excavators	3	8
	Rubber Tired Dozers	2	8
Site Preparation	Rubber Tired Dozers	3	8
	Crawler Tractors	4	8
Grading	Excavators	1	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Crawler Tractors	3	8
Building Construction	Cranes	1	8
	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Paving	Cement and Mortar Mixers	2	8
	Pavers	1	8
	Paving Equipment	2	8
	Rollers	2	8
	Tractors/Loaders/Backhoes	1	8
Architectural Coating	Air Compressors	1	8

Source: Construction equipment based on CalEEMod default parameters.

3.4.3 CONSTRUCTION EMISSIONS SUMMARY

The estimated maximum daily construction emissions without mitigation are summarized on Table 3-4. Detailed construction model outputs are presented in Appendix 3.1. Under the assumed scenarios, emissions resulting from the Project construction would not exceed thresholds established by the MDAQMD for emissions of any criteria pollutant. As such, the Project will have a less than significant impact during on-going construction activity and no mitigation is required.

TABLE 3-4: EMISSIONS SUMMARY OF CONSTRUCTION (WITHOUT MITIGATION)

Year	Emissions (lbs/day)					
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Summer						
2023	5.01	47.10	39.70	0.05	8.42	5.07
Winter						
2023	14.10	47.10	39.10	0.05	8.42	5.07
Maximum Daily Winter Emissions	14.10	47.10	39.70	0.05	8.42	5.07
MDAQMD Regional Threshold	137	137	548	137	82	65
Threshold Exceeded?	No	No	No	No	No	No

Source: CalEEMod, Appendix 3.1.

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}. Operational emissions would be expected from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions
- Gasoline Dispensing Emissions

3.5.1 AREA SOURCE EMISSIONS

ARCHITECTURAL COATINGS

Over a period of time the buildings that are part of this Project would require maintenance and would therefore produce emissions resulting from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings. The emissions associated with architectural coatings were calculated using CalEEMod.

CONSUMER PRODUCTS

Consumer products include, but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds which when released in the atmosphere can react to form ozone and other photochemically reactive pollutants. The emissions associated with use of consumer products were calculated based on defaults provided within CalEEMod.

LANDSCAPE MAINTENANCE EQUIPMENT

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the

landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in CalEEMod.

FUEL OFF GAS EMISSIONS

Volatile organic compounds are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form ozone to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints.

Operational VOC emissions have been analyzed using CalEEMod analysis software and methodology and are based on the default assumptions for a convenience store with fueling positions. The operational VOC emissions estimates associated with this use are shown on Table 3-5. However, CalEEMod does not specifically calculate storage, transfer, and dispensing fuel.

The MDAQMD currently does not have a procedure for estimating VOC emissions from storage, transfer and dispensing of fuel, associated with a fueling station. Estimates for gasoline VOC emissions therefore relies on SCAQMD methodology. The storage, transfer and dispensing of gasoline is not expected to generate significant VOC emissions. The enhanced vapor recovery systems required by SCAQMD Rule 461 would substantially reduce VOC emissions and mitigate any potential for the project to exceed the daily emissions thresholds set by MDAQMD.

In 2022, CARB released the Gasoline Service Station Industrywide Risk Assessment Technical Guidance report which provides emission factors for loading, breathing, fueling, spillage and hose permeation (18). Per client provided data, the Project will potentially have a fuel throughput of 4,800,000 gallons of fuel/year or 13,151 gallons/day. Based on this throughput estimate the Project is anticipated to emit an additional 5.84 lbs./day of VOC. Thus, the total daily VOC emissions from operational emissions estimated by CalEEMod as well as VOCs from gasoline dispensing would be 133.60 lbs/day (127.76 lbs/day + 5.84 lbs/day), and the result would still be below the 137 lbs/day limit set by MDAQMD.

Therefore, the impact of any additional VOCs from the storage, transfer and dispensing of gasoline is considered less than significant and no additional impacts would occur beyond those identified in this AQIA.

3.5.2 ENERGY SOURCE EMISSIONS

COMBUSTION EMISSIONS ASSOCIATED WITH NATURAL GAS AND ELECTRICITY

Electricity and natural gas are used by almost every project. Criteria pollutant emissions are emitted through the generation of electricity and consumption of natural gas. However, because electrical generating facilities for the Project area are located either outside the region (state) or offset through the use of pollution credits (RECLAIM) for generation within the MDAB, criteria pollutant emissions from offsite generation of electricity is generally excluded from the

evaluation of significance and only natural gas use is considered. The emissions associated with natural gas use were calculated using the CalEEMod model.

3.5.3 MOBILE SOURCE EMISSIONS

Project-related operational air quality impacts derive primarily from the 5,084 vehicle trips generated by the Project. Trip characteristics available from the report, Baker Boulevard Commercial Center *Traffic Impact Analysis* (David Evans and Associates, Inc.) 2022 were utilized in this analysis (19).

FUGITIVE DUST RELATED TO VEHICULAR TRAVEL

Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust inclusive of tire wear particulates. The emissions estimates for travel on paved roads were calculated using the CalEEMod model.

3.5.4 OPERATIONAL EMISSIONS SUMMARY

Operational-source emissions are summarized on Table 3-5. Detailed operational model outputs are presented in Appendix 3.2. Project operational-source emissions would not exceed the applicable MDAQMD thresholds for any criteria pollutant. Thus, a less than significant impact would occur for Project operational-source emissions and no mitigation is required.

TABLE 3-5: SUMMARY OF PEAK OPERATIONAL EMISSIONS

Source	Emissions (lbs/day)					
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Summer						
Mobile Source	127.00	60.60	510.00	0.80	24.20	4.81
Area Source	0.75	0.01	1.05	< 0.005	< 0.005	< 0.005
Energy Source	0.01	0.21	0.18	< 0.005	0.02	0.02
Fueling Station	5.84	0.00	0.00	0.00	0.00	0.00
Maximum Daily Summer Emissions	133.60	60.82	511.23	0.80	24.22	4.83
MDAQMD Regional Threshold	137	137	548	137	82	65
Threshold Exceeded?	No	No	No	No	No	No
Winter						
Mobile Source	107.00	65.10	444.00	0.73	24.20	4.82
Area Source	0.58	0.00	0.00	0.00	0.00	0.00
Energy Source	0.01	0.21	0.18	< 0.005	0.02	0.02
Fueling Station	5.84	0.00	0.00	0.00	0.00	0.00
Maximum Daily Winter Emissions	113.43	65.31	444.18	0.73	24.22	4.84
MDAQMD Regional Threshold	137	137	548	137	82	65
Threshold Exceeded?	No	No	No	No	No	No

Source: CalEEMod, Appendix 3.2

3.6 CO "HOT SPOT" ANALYSIS

As discussed below, the Project would not result in potentially adverse CO concentrations or "hot spots." Further, detailed modeling of Project-specific carbon monoxide (CO) "hot spots" is not needed to reach this conclusion.

An adverse CO concentration, known as a "hot spot", would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. At the time of the 1993 Handbook, the air basin was designated nonattainment under the California AAQS and National AAQS for CO (20).

It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the air basin is now designated as attainment, as previously noted in Table 2-2. Also, CO concentrations in the Project vicinity have steadily declined, as indicated by historical emissions data presented previously at Table 2-3.

To establish a more accurate record of baseline CO concentrations affecting the basin, a CO "hot spot" analysis was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards, as shown on Table 3-6.

TABLE 3-6: CO MODEL RESULTS

Intersection Location	Carbon Monoxide Concentrations (parts per million)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire-Veteran	4.6	3.5	3.7
Sunset-Highland	4	4.5	3.5
La Cienega-Century	3.7	3.1	5.2
Long Beach-Imperial	3	3.1	8.4

Source: 2003 AQMP, Appendix V: Modeling and Attainment Demonstrations

Notes: Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.

It should be noted that MDAQMD has not established its own guidelines for CO hotspots analysis. Since the MDAQMD guidelines are based on SCAQMD methodology, it is appropriate to apply the SCAQMD criteria when analyzing CO hotspots within the MDAQMD. As identified within SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the basin were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. As evidence of this, for example, 8.4 ppm CO concentration measured at the Long Beach Blvd. and Imperial Hwy. intersection (highest CO generating intersection within the "hot spot" analysis), only 0.7 ppm was attributable to the traffic volumes and congestion at this

intersection; the remaining 7.7 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared (20). Therefore, even if the traffic volumes for the proposed Project were double or even triple of the traffic volumes generated at the Long Beach Blvd. and Imperial Hwy. intersection, coupled with the on-going improvements in ambient air quality, the Project would not be capable of resulting in a CO “hot spot” at any study area intersections.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (21).

Traffic volumes generating the CO concentrations for the “hot spot” analysis, shown on Table 3-7. The busiest intersection evaluated was that at Wilshire Blvd. and Veteran Ave., which has a daily traffic volume of approximately 100,000 vehicles per day and AM/PM traffic volumes of 8,062 vehicles per hour and 7,719 vehicles per hour respectively (20). The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 ppm; this indicates that, should the daily traffic volume increase four times to 400,000 vehicles per day, CO concentrations (4.6 ppm x 4 = 18.4 ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm).²

The proposed Project considered herein would generate 5,084 trips and would not produce the volume of traffic required to generate a CO “hot spot” either in the context of the 2003 Los Angeles hot spot study or based on representative BAAQMD CO threshold considerations. Therefore, CO “hot spots” are not an environmental impact of concern for the proposed Project. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

TABLE 3-7: TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vehicles per hour)				
	Eastbound (AM/PM)	Westbound (AM/PM)	Southbound (AM/PM)	Northbound (AM/PM)	Total (AM/PM)
Wilshire-Veteran	4,954/2,069	1,830/3,317	721/1,400	560/933	8,062/7,719
Sunset-Highland	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,374
La Cienega-Century	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,674
Long Beach-Imperial	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514

Source: 2003 AQMP

3.7 AIR QUALITY MANAGEMENT PLANNING

The Federal Particulate Matter Attainment Plan and Ozone Attainment Plan for the Mojave Desert set forth a comprehensive set of programs that will lead the MDAB into compliance with

² Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm).

federal and state air quality standards. The control measures and related emission reduction estimates within the Federal Particulate Matter Attainment Plan and Ozone Attainment Plan are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Accordingly, conformance with these attainment plans for development projects is determined by demonstrating compliance with: 1) local land use plans and/or population projections, 2) all MDAQMD Rules and Regulations; and 3) demonstrating that the project will not increase the frequency or severity of a violation in the federal or state ambient air quality standards.

The County of San Bernardino General Plan designates the Project site for Highway Commercial "CH" uses. The primary purpose of areas designated "CH" is to provide Personal services, lodging, office, and professional services. Additionally, recreation and entertainment uses, wholesaling and warehousing, contract/construction, transportation, and open lot services (22). The proposed Project will consist of 20,400 square foot convenience store, a 3,864 square foot coffee shop, and 20-pump fueling station. The Project's land uses are consistent with the land use designations, and the development intensities would not have the potential to exceed what is allowed under the General Plan.

AQMP Consistency Conclusion

The Project would not result in or cause NAAQS or CAAQS violations. The Project's proposed land use designation for the subject site is consistent with the land use designation discussed in the General Plan. Furthermore, the Project would not exceed the applicable regional thresholds and would therefore be considered to have a less than significant impact. The Project is therefore considered to be consistent with the AQMP.

3.8 POTENTIAL IMPACTS TO SENSITIVE RECEPTORS

The potential impact of Project-generated air pollutant emissions at sensitive receptors has also been considered. Sensitive receptors can include uses such as long-term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, childcare centers, and athletic facilities can also be considered as sensitive receptors. The nearest sensitive receptor is a residential community located approximately 918 feet west of the Project site.

Emissions resulting from the gasoline service station the potential to result in toxic air contaminants (TACs) (e.g., benzene, hexane, methyl tert-butyl ether (MTBE), toluene, xylene) and have the potential to contribute to health risk in the project vicinity. It should be noted that standard regulatory controls would apply to the project in addition to any permits required that demonstrate appropriate operational controls. The MDAQMD currently does not have a procedure for determining screening-level health risk estimates for gasoline dispensing operations and therefore relies on SCAQMD methodology.

For purposes of this evaluation, cancer risk estimates can be made consistent with the methodology presented in SCAQMD's *Risk Assessment Procedures for Rules 1401, 1401.1 & 212* which provides screening-level risk estimates for gasoline dispensing operations. The Project site is located 29.55 miles northeast of the Mojave National Preserve monitoring site and is approximately 280 meters west of a residential site. Based on this screening procedure it is

anticipated that no residential sensitive receptors in the project vicinity will be exposed to a cancer risk of greater than 0.320 in one million and that no worker sensitive receptors will be exposed to a cancer risk of greater than 0.274 in one million which is less than the applicable threshold of 10 in one million. It should be noted that this screening-level risk estimate is very conservative (i.e. it would overstate rather than understate potential impacts).

The proposed Project would not result in a CO “hotspot” as a result of Project related traffic during ongoing operations, nor would the Project result in a significant adverse health impact as discussed in Section 3.6. Thus, a less than significant impact to sensitive receptors during operational activity is expected.

3.9 ODORS

The potential for the Project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations
- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The Project does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the proposed Project may result from construction equipment exhaust and the application of asphalt and architectural coatings during construction activities and the temporary storage of typical solid waste (refuse) associated with the proposed Project’s (long-term operational) uses. Standard construction requirements would minimize odor impacts from construction. The construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction and is thus considered less than significant. It is expected that Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the City’s solid waste regulations. The proposed Project would also be required to comply with MDAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odors, and emissions that may lead to odors, associated with the proposed Project construction and operations would be less than significant and no mitigation is required.

3.10 CUMULATIVE IMPACTS

Related projects could contribute to an existing or projected air quality exceedance because the Basin is currently nonattainment for ozone, PM₁₀, and PM_{2.5}.

The MDAQMD relies on the SCAQMD guidance for determining cumulative impacts. The SCAQMD has recognized that there is typically insufficient information to quantitatively evaluate the cumulative contributions of multiple projects because each project applicant has no control over nearby projects.

The SCAQMD published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (23). In this report the AQMD clearly states (Page D-3):

“...the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.”

Individual projects that do not generate operational or construction emissions that exceed the MDAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Conversely, individual project-related construction and operational emissions that exceed MDAQMD thresholds for project-specific impacts would be considered cumulatively considerable. As previously noted, the Project will not exceed the applicable MDAQMD regional threshold for construction and operational-source emissions. As such, the Project will not result in a cumulatively significant impact for construction or operational activity.

This page intentionally left blank.

4 CONCLUSION

CONSTRUCTION-SOURCE EMISSIONS

REGIONAL IMPACTS

For regional emissions, the Project will not exceed the numerical thresholds of significance established by the Mojave Desert Air Quality Management District (MDAQMD). Thus, a less than significant impact would occur for Project-related construction-source emissions and no mitigation measures are required.

Odors

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less-than-significant.

OPERATIONAL-SOURCE EMISSIONS

REGIONAL IMPACTS

For regional emissions, the Project would not exceed the numerical thresholds of significance established by the MDAQMD. Thus, a less than significant impact would occur for Project-related operational-source emissions and no mitigation measures are required.

The proposed Project would not result in a significant CO "hotspot" as a result of Project related traffic during ongoing operations, nor would the Project result in a significant adverse health impact as discussed in Section 3.6, thus a less than significant impact to sensitive receptors during operational activity is expected.

ODORS

Substantial odor-generating sources include land uses such as agricultural activities, feedlots, wastewater treatment facilities, landfills or various heavy industrial uses. The Project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential sources of operational odors generated by the Project would include disposal of miscellaneous refuse. Moreover, MDAQMD Rule 402 acts to prevent occurrences of odor nuisances (24). Consistent with County of San Bernardino requirements, all Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations. Potential operational-source odor impacts are therefore considered less-than-significant.

This page intentionally left blank.

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

APPENDIX B –CULTURAL RESOURCES

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY
UFO/ALIEN FRESH SERVICE STATION PROJECT

72252 Baker Boulevard
Baker, San Bernardino County, California

For Submittal to:

Land Use Services Department, Planning Division
County of San Bernardino
Jerry Lewis High Desert Government Center
15900 Smoke Tree Street, Suite 131
Hesperia, CA 92345

Prepared for:

The Ramallos, Inc.
9679 Black Coyote Court
Las Vegas, NV 89139-7498

Prepared by:

CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324

Bai "Tom" Tang, Principal Investigator
Michael Hogan, Principal Investigator

August 22, 2022
CRM TECH Contract No. 3819

Title: Historical/Archaeological Resources Survey: UFO/Alien Fresh Service Station Project, 72252 Baker Boulevard, Baker, San Bernardino County, California

Author(s): Bai “Tom” Tang, Principal Investigator
Terri Jacquemain, Historian/Architectural Historian
Hunter O’Donnell, Archaeologist

Consulting Firm: CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324
(909) 824-6400

Date: August 22, 2022

For Submittal to: Land Use Services Department, Planning Division
County of San Bernardino
Jerry Lewis High Desert Government Center
15900 Smoke Tree Street, Suite 131
Hesperia, CA 92345
(760) 995-8140

Prepared for: Luis Ramallo
The Ramallos, Inc.
9679 Black Coyote Court
Las Vegas, NV 89139-7498
(760) 244-5001

Project Size: Approximately five acres

USGS Quadrangle: Baker, Calif., 7.5’ quadrangle (Section 30, T14N R9E, San Bernardino Baseline and Meridian)

Keywords: Eastern Mojave Desert region; Assessor’s Parcel Numbers 0544-311-42 and 0544-311-43; Site 3819-1H (*temporary designation*): Hardy’s Baker Inn, circa 1935-1961 (a.k.a. Wills Fargo Motel, Santa Fe Motel); no “historical resources” under CEQA provisions

MANAGEMENT SUMMARY

Between December 2021 and August 2022, at the request of the Ramallos, Inc., CRM TECH performed a cultural resources survey on approximately five acres of land that is partially occupied by a defunct motel at 72252 Baker Boulevard, in the unincorporated community of Baker, San Bernardino County, California. The subject property of the study consists of Assessor's Parcel Number (APN) 0544-311-42 and the southernmost portion of APN 0544-311-43, located on the northwestern side of Baker Boulevard and to the east of Death Valley Road (State Route 127), in the west half of Section 30, T14N R9E, San Bernardino Baseline and Meridian.

The study is part of the environmental review process for the proposed redevelopment of the property into a roadside service complex with a gas station, a convenience store, a restaurant/coffee shop, and multi-vehicle charging ports. The County of San Bernardino, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of the study is to provide the County with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any "historical resources," as defined by CEQA, that may exist in the project area.

In order to identify such resources, CRM TECH completed a historical/archaeological resources records search and a Native American Sacred Lands File search, pursued historical background research, and carried out an intensive-level field survey. As a result of these research procedures, the existing motel on the property, last known as the Santa Fe Motel, was found to contain several buildings and other features that date to the late historic period, specifically the circa 1935-1961 era, including two rental office buildings, two motel buildings, a maintenance equipment storage building, and a now-backfilled swimming pool.

In light of the age of these features, the motel as a whole was recorded into the California Historical Resources Inventory during this study and designated temporarily as Site 3819-1H, pending assignment of an official identification number. However, the property does not appear to meet any of the criteria for listing in the California Register of Historical Resources. Therefore, it does not constitute a "historical resource" for CEQA-compliance purposes.

No other potential "historical resources" were encountered within the project area. Based on these findings, CRM TECH recommends to the County of San Bernardino a conclusion of *No Impact* regarding "historical resources." No further cultural resources investigation is recommended for the project unless development plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are discovered during future earth-moving operations associated with the project, all work within 50 feet of the discovery should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

TABLE OF CONTENTS

MANAGEMENT SUMMARY	i
INTRODUCTION	1
SETTING.....	4
Current Natural Setting.....	4
Cultural Setting.....	5
Prehistoric Context.....	5
Ethnohistoric Context	5
Historic Context.....	6
RESEARCH METHODS	7
Records Search.....	7
Field Survey	7
Historical Background Research.....	7
RESULTS AND FINDINGS	8
Records Search.....	8
Field Survey	9
Historical Background Research.....	10
DISCUSSION	12
Applicable Statutory/Regulatory Framework	12
Resource Evaluation	13
REFERENCES	14
APPENDIX 1: Personnel Qualifications	17
APPENDIX 2: Native American Sacred Lands File Search Results.....	21
APPENDIX 3: California Historical Resources Inventory Record Forms, Site 3819-1H	24

LIST OF FIGURES

Figure 1. Project vicinity.....	1
Figure 2. Project area	2
Figure 3. Recent satellite image of the project area.....	3
Figure 4. Overview of the project area	4
Figure 5. The project area and vicinity in 1855-1856.....	10
Figure 6. The project area and vicinity in 1953	10
Figure 7. Hardy's Baker Inn, circa 1939.....	11
Figure 8. Wills Fargo Motel, circa 1970s.	11
Figure 9. Wills Fargo Motel as it appeared in 2012	12

INTRODUCTION

Between December 2021 and August 2022, at the request of the Ramallos, Inc., CRM TECH performed a cultural resources survey on approximately five acres of land that is partially occupied by a defunct motel at 72252 Baker Boulevard, in the unincorporated community of Baker, San Bernardino County, California (Fig. 1). The subject property of the study consists of Assessor's Parcel Number (APN) 0544-311-42 and the southernmost portion of APN 0544-311-43, located on the northwestern side of Baker Boulevard and to the east of Death Valley Road (State Route 127), in the west half of Section 30, T14N R9E, San Bernardino Baseline and Meridian (Figs. 2, 3).

The study is part of the environmental review process for the proposed redevelopment of the property into a roadside service complex with a gas station, a convenience store, a restaurant/ coffee shop, and multi-vehicle charging ports. The County of San Bernardino, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.). The purpose of the study is to provide the County with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any "historical resources," as defined by CEQA, that may exist in the project area.

In order to identify such resources, CRM TECH completed a historical/archaeological resources records search and a Native American Sacred Lands File search, pursued historical background research, and carried out an intensive-level field survey. The following report is a complete account of the methods, results, and final conclusion of the study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

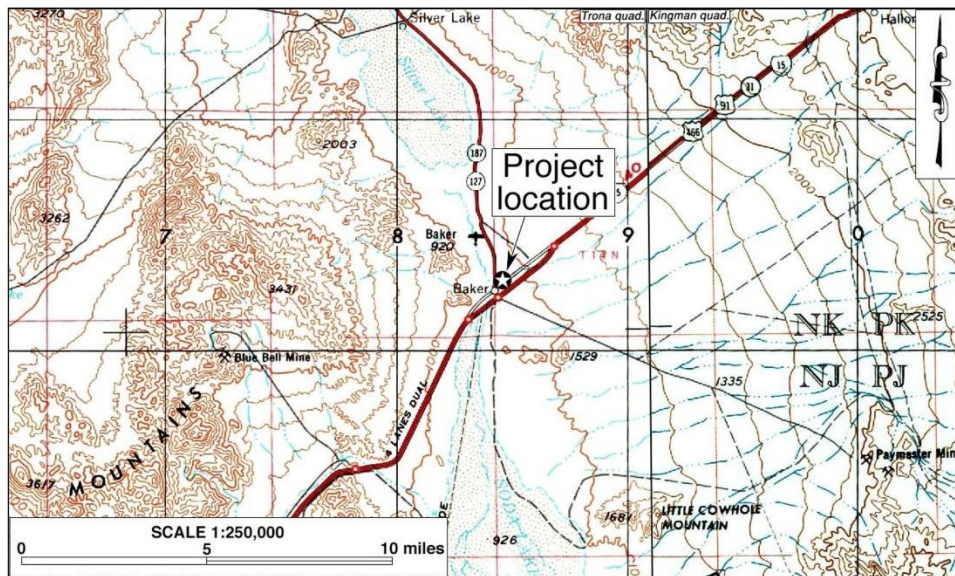


Figure 1. Project vicinity. (Based on USGS Kingman and Trona 120"x60" quadrangles [USGS 1969a; 1969b])

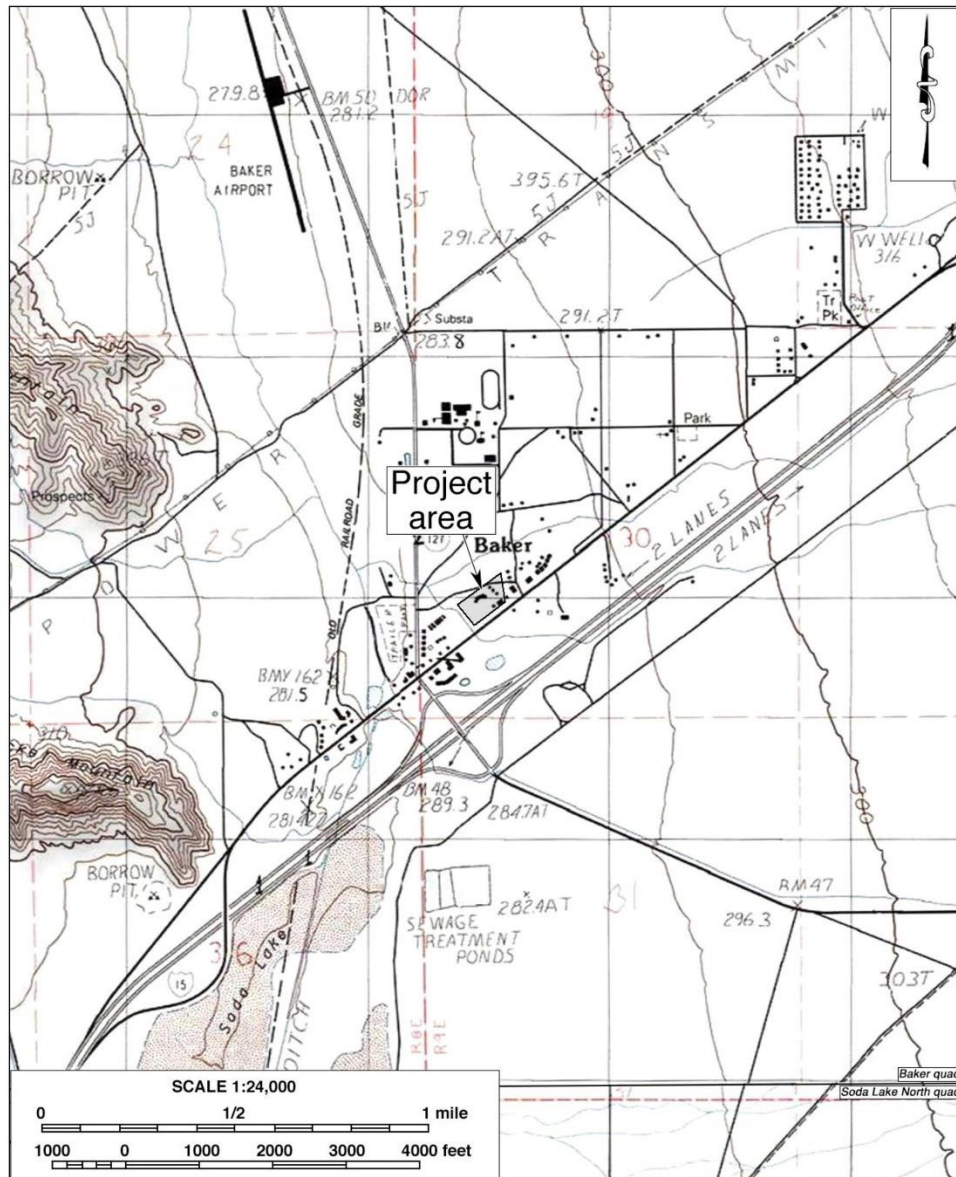


Figure 2. Project area. (Based on USGS Baker and Soda Lake North 7.5' quadrangles [USGS 1983a; 1983b])



Figure 3. Recent satellite image of the project area.

SETTING

CURRENT NATURAL SETTING

The small town of Baker is situated in the heart of the vast Mojave Desert, in the region that is commonly referred to as the Eastern Mojave. The climate and environment of the region is typical of southern California high desert country, so-called because of its relatively higher elevation than the Colorado Desert region to the southeast. The climate is marked by extremes in temperature and aridity, with summer highs reaching well over 110°F and winter lows dipping below freezing. Average annual precipitation is less than five inches.

Like the rest of the Mojave Desert, the Baker area belongs to the Creosote Bush Scrub Plant Community, characterized typically by sparse vegetation growth with bare soil between plants. Common plants in this community include creosote bush (*Larrea tridentata*), box thorn (*Lycium andersonii*), encelia (brittlebush; *Encelia farinosa*), prickly-pear cactus (*Opuntia* spp.), and globemallow (desert mallow; *Sphaeralcea ambigua*). Animals common to the area include snakes, lizards, roadrunners, coyotes, and jackrabbits. Soils in the region are usually a slightly alkaline to very alkaline sandy loam.

The roughly trapezoidal-shaped project area lies near the center of Baker, where a bustling commercial district provides an assortment of services that cater to travelers on Interstate Highway 15 (I-15). Baker Boulevard, historically a part of the Arrowhead Trail or Arrowhead Highway, runs parallel to I-15 and serves as the main commercial corridor in Baker. Elevations in the project area range around 490 feet above mean sea level, with a gradual incline to the northeast across generally level terrain. Vegetation observed on the property consists of a few palms and salt cedar trees with a scattered growth of arrowweed and other small grasses and brush.

Surface soils in the vicinity are typical of the Mojave Desert and mixed with pebble-size rocks. The ground surface has been disturbed by past development and decades of human use. The main buildings on the property include two motel offices and two motel buildings, all unoccupied and somewhat neglected (Fig. 4). Other features include a paved parking lot, a backfilled swimming



Figure 4. Overview of the project area. (Photograph taken on February 25, 2022; view to the northwest)

pool, a small storage building, and the remains of foundations and sidewalks. Piles of dirt and rubble dot the eastern portion of the property.

Like today, the paleoenvironment in the Mojave Desert through much of prehistory was inhospitable for human habitation. Nevertheless, past archaeological discoveries indicate that the aboriginal populations in the region took advantage of available plant, animal, and other resources, such as stone. They would likely have lived and camped in sheltered areas near reliable water sources, but also ventured onto the desert floor to forage or travel. When the climate was cooler and wetter, near the end of the Pleistocene Epoch and the beginning of the Holocene, there were numerous pluvial lakes in the region, which would have provided a richer subsistence environment.

CULTURAL SETTING

Prehistoric Context

In order to understand the progression of Native American cultures prior to European contact, archaeologists have devised chronological frameworks on the basis of artifacts and site types that date back some 12,000 years. Currently, the chronology most frequently applied in the Mojave Desert divides the region's prehistory into five periods marked by changes in archaeological remains, reflecting different ways in which Native peoples adapted to their surroundings. According to Warren (1984) and Warren and Crabtree (1986), the five periods are as follows: the Lake Mojave Period, 12,000 years to 7,000 years ago; the Pinto Period, 7,000 years to 4,000 years ago; the Gypsum Period, 4,000 years to 1,500 years ago; the Saratoga Springs Period, 1,500 years to 800 years ago; and the Protohistoric Period, 800 years ago to European contact.

This time frame is based on general changes in artifactual remains progressing from large stone projectile points with few stone tools for grinding food products, to smaller projectile points with an increase in milling stones. The scheme also notes increases in population, changes in food procurement and resource exploitation, and more cultural complexity over time. During the Protohistoric Period, there is evidence of contact with Colorado River tribes and the introduction of pottery in the Mojave Desert.

Ethnohistoric Context

The present-day Baker area is generally considered a part of the traditional homeland of the Chemehuevi Indians, whose reservation today lies to the east along the Lake Havasu and Colorado River shorelines. The Chemehuevi are classified by anthropologists as a subgroup of the larger Southern Paiute population, whose territory stretched from eastern California across southern Nevada to southern Utah. Their language is part of the Southern Numic branch of the Uto-Aztecan linguistic family (Kelly and Fowler 1986:368).

Chemehuevi social organization was based on local bands that which considered themselves an autonomous geographical unit. Subsistence depended on hunting, mostly small game, and collecting scarce desert food. In the decades before the first European contact, agricultural practices, in particular the cultivation of corn, beans, squash, and melons, began to spread. The main crafts practiced by the Chemehuevi included basketry, netting and, to some extent, pottery (Kelly and Fowler 1986:368-371, 375).

The Chemehuevi Indian Reservation was formed in 1907 after encroachment by non-Natives on Southern Paiute territory resulted in the land division. The Native people suffered ongoing socio-economic distress through much of the 20th century, consequently the population on the reservation declined to 124 by 1980. Cultural and spirit traditions suffered as well. In recent decades, however, Chemehuevi people and other tribes have sought to revive and re-establish Native culture and tradition, on and off the reservation (Kelly and Fowler 1986:386-392).

Historic Context

Although the Mojave Desert received its first European visitor, the famed Spanish explorer Francisco Garcés, as early as 1776, for the next 70 years the region was largely ignored by the Spanish and Mexican authorities in their colonization schemes. During that period, the presence of non-Natives in the Mojave Desert was essentially confined to a few trails, most notably the Old Spanish Trail, a pack-train road established between southern California and Santa Fe, New Mexico, in the 1830s. Afterward, a few desert trails such as the Mormon Trail and the Mojave Road followed in the footsteps of the Old Spanish Trail, taking many of the legendary wagon trains from the eastern United States to California.

Starting in the 1870s-1880s, several generations of modern transportation arteries took turns to assume the roles of the early desert trails, such as the Southern Pacific, the Santa Fe, and the Union Pacific Railroads; U.S. Route 91, Route 395, and the fabled Route 66; and today's I-15 and I-40. Several urban centers gradually emerged along these transportation lines, mostly along the western and southern rims, but bulk of the Mojave Desert remains sparsely populated and rarely touched by human activities, even to the present time.

The town of Baker traces its roots to a siding on the now-defunct Tonopah and Tidewater Railroad, built in 1905-1907 by "Borax King" Francis Marion Smith and his Pacific Coast Borax Company to meet his company's freight transportation needs. Originally named Berry, the siding was later renamed in honor of Richard C. Baker, an English investor who had acquired the company in 1913 (DesertUSA.com). In 1916, Robert Williams, a railroad employee, filed a homestead claim on a quarter-section of land near the Baker siding, thus opening the history of Baker as a settlement (Hayes n.d.).

In the mid-1920s, the County of San Bernardino constructed an oiled road through the Baker area (Digital-Desert.com n.d.). Known as the Arrowhead Trail or the Arrowhead Highway and subsequently designated U.S. Route 91, it connected Los Angeles to Las Vegas and Salt Lake City, superseding the historic Mormon Trail across the Baker area. Around the same time, the County of Inyo built the first passable road from Baker to Death Valley, soon to be designated a national monument in 1933 and eventually a national park in 1994, and Baker thus found itself at the gateway to a rising tourist attraction (Hayes n.d.).

Baker has taken full advantage of its location at a major crossroad in the Mojave Desert by providing much needed services to passing motorists. Boosted by the massive Boulder Dam (Hoover Dam since 1947) project near Las Vegas during the Great Depression and solidified by the completion of I-15 in the 1960s, Baker is widely recognized as the most popular service stop between Barstow and Las Vegas.

RESEARCH METHODS

RECORDS SEARCH

On January 24, 2022, CRM TECH archaeologist Nina Gallardo completed the records search at the South Central Coastal Information Center (SCCIC), California State University, Fullerton, which is the State of California's official cultural resource records repository for the County of San Bernardino. During the records search, Gallardo examined maps and records on file at the SCCIC for previously identified cultural resources and existing cultural resources reports within a half-mile radius of the project area. Previously identified cultural resources include properties designated as California Historical Landmarks, Points of Historical Interest, or San Bernardino County Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory.

NATIVE AMERICAN SACRED LANDS FILE SEARCH

On December 20, 2021, CRM TECH submitted a written request to the State of California's Native American Heritage Commission (NAHC) for a records search in the commission's Sacred Lands File. The NAHC is the State of California's trustee agency for the protection of "tribal cultural resources," as defined by California Public Resources Code §21074, and is tasked with identifying and cataloging properties of Native American cultural value, including places of special religious, spiritual, or social significance and known graves and cemeteries throughout the state. The reply from the NAHC is summarized below and attached to this report as Appendix 2.

FIELD SURVEY

CRM TECH archaeologists Hunter O'Donnell and Ashley Conner-Ayala carried out the field survey of the project area on February 25 and August 21, 2022. The survey was conducted on foot at an intensive level by walking a series of parallel transects in the north-south or northeast-southwest direction and spaced 15 meters (approximately 50 feet) apart. In this way, the ground surface in the entire the project area was systematically and closely examined for any evidence of human activities dating to the prehistoric or historic period (i.e., 50 years or older). Ground visibility was generally good to excellent (80-100%) except where the surface was obscured by pavement, piles of soils or rubble, or buildings.

In conjunction with the archaeological survey, O'Donnell performed a field inspection of the existing buildings and other built-environment features in the project area. In order to facilitate the proper recordation and evaluation of these features, O'Donnell made detailed notations and preliminary photo-documentation of their structural and architectural characteristics and current conditions. The field observations form the basis of the building descriptions and integrity assessment presented below, and the resulting California Historical Resources Inventory record forms are attached to this report as Appendix 3.

HISTORICAL BACKGROUND RESEARCH

Historical background research for this study was conducted by CRM TECH historian/architectural historian Terri Jacquemain. In addition to published literature in local and regional history, sources

consulted during the research included U.S. General Land Office (GLO) land survey plat maps dated 1856, U.S. Geological Survey (USGS) topographic maps dated 1956-1983, and aerial/ satellite photographs taken between 1952 and 2021. The historic topographic maps are available at the websites of the U.S. Bureau of Land Management and the USGS, while the aerial/satellite photographs available at websites of the University of California, Santa Barbra, library and Nationwide Environmental Title Research (NETR) Online and through Google Earth software.

After the identification of historic-period buildings on the property, Jacquemain pursued more focused historical research in order to ascertain their construction history, past uses, and potential associations. Sources consulted during this phase of the research included primarily real property tax assessment records of the County of San Bernardino, online newspaper archives, and genealogical databases such as those compiled by Ancestry.com.

RESULTS AND FINDINGS

RECORDS SEARCH

According to SCCIC records, the project area was included in the scope of at least 10 early overview studies on ancient Lake Mohave archaeology completed in the 1930s-1960s. In 1987, the entire project area was surveyed systematically for cultural resources at an intensive level (de Munck and Bouscaren 1987). More recently, the southwestern portion of the project area, within APN 0544-311-43, was again surveyed intensively (Tang et al. 2016). The 1987 survey noted a “modern motel” and an asphalt-paved parking lot, but no cultural resources were identified on the property during that survey or any of the other studies. According to County of San Bernardino guidelines, however, all of these past studies involving the project area are now considered outdated for CEQA-compliance purposes.

Within the half-mile scope of the records search, SCCIC records show about a dozen additional studies on various tracts of land and linear features. Altogether, these past survey efforts covered roughly 90 percent of the land within the scope of the records search, resulting in the identification of seven historical/archaeological sites, including two “pending” sites, and one isolate (i.e., a locality with fewer than three artifacts) within the half-mile radius, as listed in Table 1 below.

Table 1. Previously Recorded Cultural Resources within the Scope of the Records Search		
Site No.	Recorded By/Date	Description
36-007364	Various 1992-2012	Historic-period refuse scatter
36-007689	Various 1993-2013	Segments of Arrowhead Trail/Highway (U.S. Route 91)
36-008316	Brock and di Iorio 1996	Baker Boulevard bridge
36-024534	Lev-Tov 2011	Asphalt-pave road (Schoolhouse Lane)
36-029718	Ballester and Gallardo 2016	Refuse scatter with 200+ domestic items and construction debris
36-031391	McKenna 2017	Isolate: hole-in-cap can
P2284-2	N/A	Prehistoric campsite (“pending” site)
P2284-6H	Rogers and Mills n.d.	Former Berry townsite (“pending” site)

Among these previously identified cultural resources, the isolate and all but one of the sites date to the historic period, consisting of various infrastructure features, refuse deposits, and the abandoned town site of Berry. The only site of prehistoric (i.e., Native American) origin, P2284-2, is a

“pending” site described as a possible campsite located approximately a thousand feet to the southwest of the project location, along Baker Boulevard. One of historic-period sites, 36-007689 (CA-SBR-7689H), represents segments of the Arrowhead Trail recorded at various locations across the Mojave Desert, including two segments of Baker Boulevard lying within a quarter-mile to the northeast and the southwest of the project area, respectively. For the purpose of this study, the segment of Baker Boulevard adjacent to the southeastern boundary of the project area is treated an extension of the site. None of the other seven known cultural resources was found in the immediate vicinity of the project area.

NATIVE AMERICAN SACRED LANDS FILE SEARCH

In response to CRM TECH’s inquiry, the NAHC states in a letter dated February 23, 2022, that the Sacred Lands File search identified no Native American cultural resource in the project area. Noting that the absence of specific information would not necessarily indicate the absence of cultural resources, however, the NAHC recommended that local Native American groups be consulted for further information and provided a referral list of 10 individuals associated with five local Native American groups who may have knowledge of such resources. The NAHC’s reply is attached in Appendix 2 for reference by the County of San Bernardino in future government-to-government consultations with the pertinent tribal groups, if necessary.

FIELD SURVEY

During the field survey, no prehistoric features or artifacts were observed within or adjacent to the project area boundaries. The only cultural resource encountered within the project boundaries is the closed Santa Fe Motel (Fig. 4), formerly known as Hardy’s Baker Inn and the Wills Fargo Motel, which was recorded into the California Historical Resources Inventory and designated temporarily as Site 3819-1H, pending assignment of an official identification number once the SCCIC resumed normal operation (see App. 3). At the present time, the motel complex consists of a circa 1935-1939 rental office, a 1950s-era motel building, a swimming pool, and a pool equipment storage shed, along with two modern buildings (a new rental office and a motel building from the 1983-1994 era) and the foundation of a 1930s-vintage café/gas station that has been demolished.

All of the buildings are simple one-story structures set on concrete slab foundations. Both motel buildings and the storage shed have flat roofs, while the rental offices have medium-pitched front-gable roofs covered with red terracotta tiles. Exterior walls of the motel buildings and the modern rental office are clad in tan-colored stucco. The exterior cladding of the older office is a mix of white-washed stucco and board-and-batten siding. The equipment storage shed is clad with white-painted vertical tooth-and-groove wood siding. A full-width arcade across the front of the older motel building shelters a concrete walkway, while the entries to the modern motel building are shaded in pairs by tiled pent roofs resting on wood frames. The swimming pool has been backfilled in with dirt, and many of the doors and windows on all of the buildings have been sealed with particle boards.

Located outside but adjacent to the southeastern project boundary, Baker Boulevard is an extension of the previously recorded segments of Arrowhead Trail (Site 36-007689), as stated above. Although dating originally to the 1920s and known to be following its present-day alignment at least

by the 1950s (see below), Baker Boulevard today is a working component of the modern transportation infrastructure, and its current configuration and appearance reflect the results of repeated upgrading and constant maintenance since the historic era. As such, the physical characters of Baker Boulevard do not contribute to the potential significance and integrity of the historic highway. Therefore, Site 36-007689 requires no further consideration during this study.

HISTORICAL BACKGROUND RESEARCH

In 1855-1856, when the U.S. government conducted the earliest systematic land surveys in the Mojave Desert, no human-made features of any kind were observed in or near the project area (Fig. 5). Historical sources consulted for this study suggest that the project area was first developed as a highway rest stop in the 1930s, after both the Arrowhead Trail/ and Death Valley Road were constructed in the 1920s (Digital-Desert.com n.d.; Hayes n.d.). Meanwhile, construction of the Hoover Dam in 1931 brought workers to the region and ignited Nevada's hospitality industry, led by gambling, which was legalized locally that year (Encyclopaedia Britannica n.d.). The resulting rise in desert crossings in turn increased the need for roadside services. By 1953, a relatively dense cluster of buildings had appeared at the junction of the two major highways, demonstrating Baker's growth in that role (Fig. 6).

The project area was still U.S. government land in February 1935, when it was included in a 37.37-acre land patent secured by Don Mitchell Coon (BLM n.d.). The property was subsequently subdivided several times over the years, most recently around 2010, ultimately resulting in the current 3.5-acre parcel for the Santa Fe Motel. Coon (1896-1962) was born in Punxsutawney,

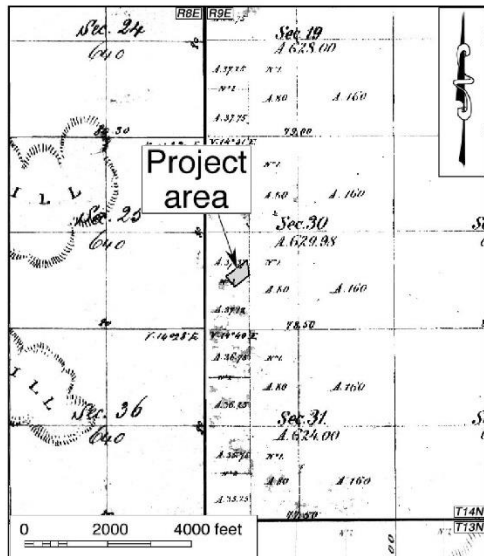


Figure 5. The project area and vicinity in 1855-1856.
(Source: GLO 1856)

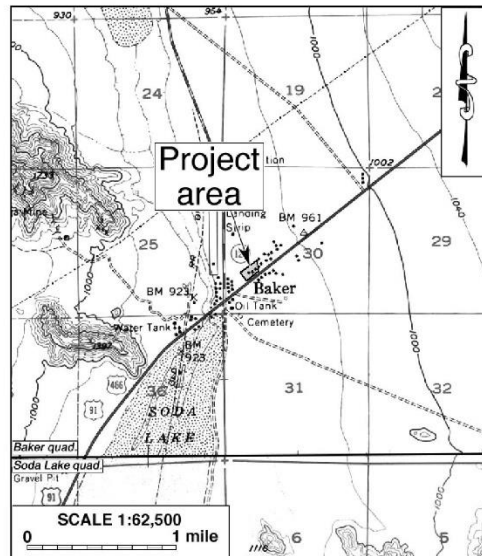


Figure 6. The project area and vicinity in 1953. (Source: USGS 1956a; 1956b)



Figure 7. Hardy's Baker Inn, circa 1939. The rental office in the foreground still stands in the eastern portion of the project area, although substantially altered. (Source: Frasher 1939)

Pennsylvania, and was a real estate broker living in Compton when he received the patent (Ancestry.com n.d.). He had previously lived in Utah, where he married Myrtle Hardy and apparently assumed her maiden name, at least for business purposes (*ibid.*).

The older rental office and the café/gas station immediately to its northeast were known to be in place by 1939 and operating as Hardy's Baker Inn, where "modern air-conditioned cabins" were advertised (Fig. 7). By 1949-1950, Joe and Rae Ostrenger were identified as the owners (County Assessor 1949-1951). Aerial photographs from 1952 show the rental office, the café/gas station, and

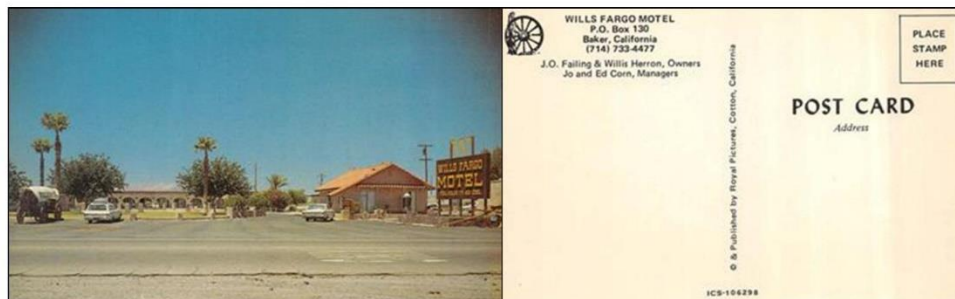


Figure 8. Wills Fargo Motel, circa 1970s. (Source: eBay n.d.)

4-5 small buildings of different sizes a short distance to the north of the café/gas station, presumably the cabins (UCSB 1952).

Accounts of Michigan native Joe Ostrenger (1909-1998) describe a colorful, self-styled businessman with a lifelong passion for prospecting and mining (Delveaux 2010:86; Ancestry.com n.d.). The inn and café apparently were purchased partly to serve as a “base” for his frequent prospecting excursions in Death Valley, which made it difficult to operate the business (Delveaux 2010:78). The couple took on a partner, but shortly afterwards businessman Ted Reetz became the owner and remained so through at least 1968 (*Danville Register* 1968; Delveaux 2010:80). Ostrenger continued in his mining pursuit in Death Valley, and later laid claim to a massive deposit of wollastonite, a mineral used in fire-proofing and important as a substitute for asbestos (Delveaux 2010:86).

By 1961, the older motel building had been added to the northwest of the rental office, accompanied by the swimming pool and the equipment storage shed (UCSB 1961). A 1970s postcard demonstrates that by then the property was known as the Wills Fargo Motel, with J.O. Failing and Willis Herron identified as the owners and Jo and Ed Corn as the managers (Fig. 8). The original office had undergone significant refurbishing and presented a completely different appearance from the unpretentious, barn-like look of 1939, with new doors, windows, roof, and exterior wall cladding (Figs. 7, 8).

Between 1983 and 1994, the café/gas station was removed, leaving only the foundation, while the newer motel building and office were built on the southwestern portion of the property, the former perpendicular to the original motel building and the latter some 65 feet from the earlier office and closer to Baker Boulevard (NETR Online 1983; 1994). Since then, no major additions have been made to the motel (NETR Online 1994-2018; Google Earth 1994-2021). By 2012, all of the buildings donned white-washed exterior with blue trim (Fig. 9). In more recent years, the property operated as the Santa Fe Motel until closing in 2018-2019 (Yelp.com n.d.).



Figure 9. Wills Fargo Motel as it appeared in 2012. (Source: Carr 2012)

DISCUSSION

APPLICABLE STATUTORY/REGULATORY FRAMEWORK

The purpose of this study is to identify any cultural resources within the project area, and to assist the County of San Bernardino in determining whether such resources meet the official definition of “historical resources,” as provided in the California Public Resources Code, in particular CEQA. According to PRC §5020.1(j), “‘historical resource’ includes, but is not limited to, any object,

building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.”

More specifically, CEQA guidelines state that the term “historical resources” applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the lead agency (Title 14 CCR §15064.5(a)(1)-(3)). Regarding the proper criteria for the evaluation of historical significance, CEQA guidelines mandate that “generally a resource shall be considered by the lead agency to be ‘historically significant’ if the resource meets the criteria for listing on the California Register of Historical Resources” (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.
- (2) Is associated with the lives of persons important in our past.
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- (4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

RESOURCE EVALUATION

In summary of the research results presented above, the Santa Fe Motel, formerly known as Hardy’s Baker Inn and the Wills Fargo Motel, is the only potential “historical resource” identified within the project area, featuring three buildings and other features that date to the 1930s-1950s era. The modest motel’s long presence on the historic Arrowhead Trail and near the main road to the Death Valley National Park (former a national monument in 1933-1994) has undoubtedly contributed to Baker’s standing as an important hub for roadside traveler services in the eastern Mojave Desert. As such, it is arguably associated with this recognized theme in the history of the community as a pattern of events.

As a physical entity, however, the only building that survives from the 1930s-era Barker Inn, namely the original rental office, has been repeatedly and significantly altered, so much so that it no longer retains any of the distinguishing characteristics of the building captured in historic photographs from 1939. All other buildings in the complex today were constructed in the post-WWII era, including the second office and the second motel building that both postdate 1983. As a result, neither the motel complex as a whole nor the sole surviving original building demonstrates sufficient historic integrity to relate to the early years of the property.

Historical background research on the motel has not identified any specific events of importance in close association with the motel. The research identified several owners and/or managers of the property from the historic period, but none of them is known to be of recognized historic significance in national, state, or local history. In terms of architectural, structural, or engineering merits, none of the buildings represents an important example of any style, property type, period, region, and method of construction, nor are they known to embody the work or accomplishment of any prominent architect, designer, or builder. As the products of utilitarian design and common

building practice of their time, the buildings do not exhibit any particular aesthetic merits or hold the promise for important historical or archaeological data, nor does the motel complex as a whole.

Based on these considerations, Site 3819-1H does not appear to meet any of the criteria for listing in the California Register of Historical Resources and thus does not qualify as a “historical resource,” as defined by CEQA. No other potential “historical resources” were encountered within the project area, and the NAHC’s Sacred Lands File did not identify any properties of Native American cultural value in the project vicinity. Therefore, the present study concludes that no “historical resources” exist within the project area.

CONCLUSION AND RECOMMENDATIONS

CEQA provides that “a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment” (PRC §21084.1). “Substantial adverse change,” according to PRC §5020.1(q), “means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired.” The results of the present study have established that no “historical resources,” as defined by CEQA and associated regulations, are present within the project area. Accordingly, CRM TECH presents the following recommendations to the County of San Bernardino:

- The proposed redevelopment project on the property will not cause a substantial adverse change to any known “historical resources.”
- No other cultural resources investigation will be necessary for the project unless development plans undergo such changes as to include areas not covered by this study.
- If buried cultural materials are encountered during future earth-moving operations resulting from the approval of the subdivision, all work within 50 feet of the discovery should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

REFERENCES

- Ancestry.com
n.d. Genealogical database entries for Don Mitchell Coon and Myrtle Hardy (1940 census; local directories; and Find-a Grave summary) and for Joe and Rae Ostrenger (1940 census; World War II hospital admission card files, 1942-1954; Ostrenger family tree).
<https://www.ancestry.com/>.
- BLM (Bureau of Land Management, U.S. Department of the Interior)
n.d. The Official Federal Land Records Site. <http://www.glorerecords.blm.gov>.
- Carr, Ron
2012 Will [sic] Fargo Motel, Baker, Ca. <https://imageevent.com/rcarr/willfargomotelbakerca>.
- County Assessor, San Bernardino
1949-1951 Real property tax assessment records, Book 85, Page 42. On file, San Bernardino County Historical Archive, San Bernardino.
- n.d. Real property information database. Available at the San Bernardino County Assessor’s Office, San Bernardino.

Danville Register, The

1968 Twenty Killed in Bus-Auto Collision. March 8:1.

Delveaux, Jane J.

2010 *Win Some, Lose Some: The Mother Lode*. Tate Publishing and Enterprises, Mustang, Oklahoma.

de Munck, Victor C., and Stephen J. Bouscaren

1987 Environmental Impact Evaluation: An Archaeological and Historical Assessment of 75 Acres in the Community of Baker, San Bernardino County, California. On file, South Central Coastal Information Center, California State University, Fullerton.

DesertUSA.com

n.d. Baker, Home of the World's Tallest Thermometer. <https://www.desertusa.com/cities/ca/baker.html>

Digital-Desert.com

n.d. Arrowhead Trail. <http://digital-desert.com/historic-roads/arrowhead-trail.html>.

eBay

n.d. Postcard: Wills Fargo Motel, Baker, California, San Bernardino County, 1970s. <https://www.ebay.com/itm/143730955820>.

Encyclopaedia Britannica

n.d. History of Las Vegas. <https://www.britannica.com/place/Las-Vegas-Nevada/History>.

Frasher, Burton

1939 Image: Hardy's Baker Inn, Baker, California. On file, Pomona Public Library. <https://calisphere.org/item/ark:/13030/kt558019c5>.

Gallegos, Dennis, John Cook, Emma Lou Davis, Gary Lowe, Frank Norris, and Jay Thesken

1980 Cultural Resources Inventory of the Central Mojave and Colorado Desert Regions, California. Bureau of Land Management, California Desert District, Riverside.

GLO (General Land Office, U.S. Department of the Interior)

1856 Plat Maps: Township No. 13-14 North Range No. 8-9 East, San Bernardino Meridian; surveyed in 1855-1856.

Google Earth

1994-2021 Aerial photographs of the project vicinity; taken in 1994, 1995, 2004, 2005, 2009, 2010, 2013, 2016 and 2021. Available through the Google Earth software.

Hayes, Lee

n.d. A Brief History of Baker, California. http://www.bakercsd.com/crimson_005.htm.

Kelly, Isabel T., and Catherine S. Fowler

1986 Southern Paiute. In Warren L. D'Azevedo(ed.): *Handbook of North American Indians*, Vol. 11: *Great Basin*; pp. 368-397. Smithsonian Institution, Washington, D.C.

NETR (Nationwide Environmental Title Research) Online

1983-2018 Aerial photographs of the project vicinity; taken in 1983, 1994, 2005, 2009, 2010, 2012, 2014, 2016, and 2018. <http://www.historicaerials.com>.

Tang, Bai "Tom," Ben Kerridge, Daniel Ballester, and Nina Gallardo

2016 Phase I Historical/Archaeological Resources Survey: Assessor's Parcel Numbers 0544-311-20, -39, and -43, in the Community of Baker, San Bernardino County, California. On file, South Central Coastal Information Center, California State University, Fullerton.

UCSB (University of California, Santa Barbara)

1952 Aerial photograph, Frame 27K-30, Flight AXL-953B. October 22. https://mil.library.ucsb.edu/ap_indexes/FrameFinder/?msclkid=b895ef8dcf3311ec9094e0f86534cfee.

- 1961 Aerial photograph, Frame 19, Flight PAI-148V-1. December 23. https://mil.library.ucsb.edu/ap_indexes/FrameFinder/?msclkid=b895ef8dcf3311ec9094e0f86534cfee.
- USGS (United States Geological Survey, U.S. Department of the Interior)
- 1956a Map: Baker, Calif. (15', 1:62,500); aerial photographs taken in 1953.
- 1956b Map: Soda Lake, Calif. (15', 1:62,500); aerial photographs taken in 1953.
- 1969a Map: Kingman, Ariz./Nev./Calif. (120'x60', 1:250,000); 1954 edition revised.
- 1969b Map: Trona, Calif. (120'x60', 1:250,000); 1957 edition revised.
- 1983a Map: Baker, Calif. (7.5', 1:24,000); aerial photographs taken in 1978, field-checked 1979.
- 1983b Map: Soda Lake North, Calif. (7.5', 1:24,000); aerial photographs taken in 1978, field-checked in 1979.
- Warren, Claude N.
- 1984 The Desert Region. In Michael J. Moratto (ed.): *California Archaeology*; pp. 339-430. Academic Press, Orlando, Florida.
- Warren, Claude N., and Robert H. Crabtree
- 1986 Prehistory of the Southwestern Area. In Warren L. D'Azevedo(ed.): *Handbook of North American Indians*, Vol. 11: *Great Basin*; pp. 183-193. Smithsonian Institution, Washington, D.C.
- Warren, Elizabeth von Till, Robert H. Crabtree, Claude N. Warren, Martha Knack, and Richard McCarty
- 1981 A Cultural Resources Overview of the Colorado Desert Planning Units. Bureau of Land Management, California Desert District, Riverside.
- Yelp.com
- n.d. Santa Fe Motel. <https://www.yelp.com/biz/santa-fe-motel-baker-2>.

**APPENDIX 1:
PERSONNEL QUALIFICATIONS**

**PRINCIPAL INVESTIGATOR, HISTORY/ARCHITECTURAL HISTORY
Bai “Tom” Tang, M.A.**

Education

- | | |
|-----------|--|
| 1988-1993 | Graduate Program in Public History/Historic Preservation, University of California, Riverside. |
| 1987 | M.A., American History, Yale University, New Haven, Connecticut. |
| 1982 | B.A., History, Northwestern University, Xi'an, China. |
| 2000 | “Introduction to Section 106 Review,” presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno. |
| 1994 | “Assessing the Significance of Historic Archaeological Sites,” presented by the Historic Preservation Program, University of Nevada, Reno. |

Professional Experience

- | | |
|-----------|---|
| 2002- | Principal Investigator, CRM TECH, Riverside/Colton, California. |
| 1993-2002 | Project Historian/Architectural Historian, CRM TECH, Riverside, California. |
| 1993-1997 | Project Historian, Greenwood and Associates, Pacific Palisades, California. |
| 1991-1993 | Project Historian, Archaeological Research Unit, University of California, Riverside. |
| 1990 | Intern Researcher, California State Office of Historic Preservation, Sacramento. |
| 1990-1992 | Teaching Assistant, History of Modern World, University of California, Riverside. |
| 1988-1993 | Research Assistant, American Social History, University of California, Riverside. |
| 1985-1988 | Research Assistant, Modern Chinese History, Yale University. |
| 1985-1986 | Teaching Assistant, Modern Chinese History, Yale University. |
| 1982-1985 | Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China. |

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (with Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

PRINCIPAL INVESTIGATOR, ARCHAEOLOGY
Michael Hogan, Ph.D., RPA (Registered Professional Archaeologist)

Education

- 1991 Ph.D., Anthropology, University of California, Riverside.
- 1981 B.S., Anthropology, University of California, Riverside; with honors.
- 1980-1981 Education Abroad Program, Lima, Peru.

- 2002 “Section 106—National Historic Preservation Act: Federal Law at the Local Level,”
UCLA Extension Course #888.
- 2002 “Recognizing Historic Artifacts,” workshop presented by Richard Norwood,
Historical Archaeologist.
- 2002 “Wending Your Way through the Regulatory Maze,” symposium presented by the
Association of Environmental Professionals.
- 1992 “Southern California Ceramics Workshop,” presented by Jerry Schaefer.
- 1992 “Historic Artifact Workshop,” presented by Anne Duffield-Stoll.

Professional Experience

- 2002- Principal Investigator, CRM TECH, Riverside/Colton, California.
- 1999-2002 Project Archaeologist/Field Director, CRM TECH, Riverside, California.
- 1996-1998 Project Director and Ethnographer, Statistical Research, Inc., Redlands, California.
- 1992-1998 Assistant Research Anthropologist, University of California, Riverside.
- 1992-1995 Project Director, Archaeological Research Unit, U.C. Riverside.
- 1993-1994 Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C.
Riverside, Chapman University, and San Bernardino Valley College.
- 1991-1992 Crew Chief, Archaeological Research Unit, U.C. Riverside.
- 1984-1998 Project Director, Field Director, Crew Chief, and Archaeological Technician for
various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Principal investigator for, author or co-author of, and contributor to numerous cultural resources management study reports since 1986.

Memberships

Society for American Archaeology; Society for California Archaeology; Pacific Coast Archaeological Society; Coachella Valley Archaeological Society.

PROJECT HISTORIAN/ARCHITECTURAL HISTORIAN
Terri Jacquemain, M.A.

Education

- 2004 M.A., Public History and Historic Resource Management, University of California, Riverside.
- 2002 B.S., Anthropology, University of California, Riverside.
- 2001 Archaeological Field School, University of California, Riverside.
- 1991 A.A., Riverside Community College, Norco Campus.

Professional Experience

- 2003- Historian/Architectural Historian/Report Writer, CRM TECH, Riverside/Colton, California.
- 2002-2003 Teaching Assistant, Religious Studies Department, University of California, Riverside.
- 2002 Interim Public Information Officer, Cabazon Band of Mission Indians.
- 2000 Administrative Assistant, Native American Student Programs, University of California, Riverside.
- 1997-2000 Reporter, *Inland Valley Daily Bulletin*, Ontario, California.
- 1991-1997 Reporter, *The Press-Enterprise*, Riverside, California.

Membership

- California Preservation Foundation.

PROJECT ARCHAEOLOGIST
Hunter C. O'Donnell, B.A.

Education

- 2016-2015 M.A. Program, Applied Archaeology, California State University, San Bernardino.
B.A. (*cum laude*), Anthropology, California State University, San Bernardino.
- 2012 A.A., Social and Behavioral Sciences, Mt. San Antonio College, Walnut, California.
- 2011 A.A., Natural Sciences and Mathematics, Mt. San Antonio College, Walnut, California.

- 2014 Archaeological Field School, Santa Rosa Mountains; supervised by Bill Sapp of the United States Forest Service and Daniel McCarthy of the San Manuel Band of Mission Indians.

Professional Experience

- 2017-2016-2018 Project Archaeologist, CRM TECH, Colton, California.
Graduate Research Assistant, Applied Archaeology, California State University, San Bernardino.
- 2016-2017 Cultural Intern, Cultural Department, Pechanga Band of Luiseño Indians, Temecula, California.
- 2015 Archaeological Intern, U.S. Bureau of Land Management, Barstow, California.
- 2015 Peer Research Consultant: African Archaeology, California State University, San Bernardino.

PROJECT ARCHAEOLOGIST
Ashley Conner-Ayala, B.S.

Education

- 2021 GIS Certification, Pasadena City College, Pasadena.
- 2020 B.S., Anthropology, University of California, Riverside.
- 2019 Paleoanthropology Field School, Dmanisi, Republic of Georgia.
- 2019 M.A.R.I. CRM Field School, Milford, Utah.

Professional Experience

- 2021-2021 Project Archaeologist, CRM TECH, Colton, California.
Field Technician, Bruce Love Consulting, Littlerock, California.
- 2020 Archaeological Monitor and Field Technician, McKenna et al., Whittier, California.

APPENDIX 2
NATIVE AMERICAN SACRED LANDS FILE
SEARCH RESULTS



STATE OF CALIFORNIA

Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

February 23, 2022

Nina Gallardo
CRM TECH

Via Email to: ngallardo@crmtech.us

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

PARLIAMENTARIAN
Russell Attebery
Karuk

SECRETARY
Sara Dutschke
Miwok

COMMISSIONER
William Mungary
Paiute/White Mountain
Apache

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Buffy McQuillen
Yokayo Pomo, Yuki,
Nomlaki

COMMISSIONER
Wayne Nelson
Luiseño

COMMISSIONER
Stanley Rodriguez
Kumeyaay

EXECUTIVE SECRETARY
Christina Snider
Pomo

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

Re: Proposed Baker Commercial Development Project, San Bernardino 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 me. 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: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green
Cultural Resources Analyst

Attachment

**Native American Heritage Commission
Native American Contact List
San Bernardino County
2/23/2022**

Kern Valley Indian Community

Robert Robinson, Chairperson
P.O. Box 1010
Lake Isabella, CA, 93283
Phone: (760) 378 - 2915
bbutterbredt@gmail.com

Kawaiisu
Tubatulabal
Koso

Kern Valley Indian Community

Julie Turner, Secretary
P.O. Box 1010
Lake Isabella, CA, 93240
Phone: (661) 340 - 0032

Kawaiisu
Tubatulabal
Koso

Kern Valley Indian Community

Brandy Kendricks,
30741 Foxridge Court
Tehachapi, CA, 93561
Phone: (661) 821 - 1733
krazykendricks@hotmail.com

Kawaiisu
Tubatulabal
Koso

Morongo Band of Mission Indians

Robert Martin, Chairperson
12700 Pumarra Road
Banning, CA, 92220
Phone: (951) 755 - 5110
Fax: (951) 755-5177
abrierty@morongo-nsn.gov

Cahuilla
Serrano

Morongo Band of Mission Indians

Ann Brierty, THPO
12700 Pumarra Road
Banning, CA, 92220
Phone: (951) 755 - 5259
Fax: (951) 572-6004
abrierty@morongo-nsn.gov

Cahuilla
Serrano

San Manuel Band of Mission Indians

Jessica Mauck, Director of
Cultural Resources
26569 Community Center Drive
Highland, CA, 92346
Phone: (909) 864 - 8933
Jessica.Mauck@sanmanuel-
nsn.gov

Serrano

Serrano Nation of Mission Indians

Mark Cochrane, Co-Chairperson
P. O. Box 343
Patton, CA, 92369
Phone: (909) 528 - 9032
serranonation1@gmail.com

Serrano

Serrano Nation of Mission Indians

Wayne Walker, Co-Chairperson
P. O. Box 343
Patton, CA, 92369
Phone: (253) 370 - 0167
serranonation1@gmail.com

Serrano

Twenty-Nine Palms Band of Mission Indians

Darrell Mike, Chairperson
46-200 Harrison Place
Coachella, CA, 92236
Phone: (760) 863 - 2444
Fax: (760) 863-2449
29chairman@29palmsbomi-
nsn.gov

Chemehuevi

Twenty-Nine Palms Band of Mission Indians

Anthony Madrigal, Tribal Historic
Preservation Officer
46-200 Harrison Place
Coachella, CA, 92236
Phone: (760) 775 - 3259
amadriral@29palmsbomi-nsn.gov

Chemehuevi

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 Baker Commercial Development Project, San Bernardino County.

PROJ-2022-
000717

02/23/2022 11:00 AM

1 of 1

APPENDIX 3
CALIFORNIA HISTORICAL RESOURCES INVENTORY
RECORD FORMS

Site 3819-1H
(Temporary Designation)

State of California--The Resources Agency DEPARTMENT OF PARKS AND RECREATION PRIMARY RECORD		Primary # _____ HRI # _____ Trinomial _____ NRHP Status Code <u>6Z</u>
Other Listings _____ Review Code _____ Reviewer _____ Date _____		*Resource Name or # (Assigned by recorder) <u>CRM TECH 3819-1H</u>

Page 1 of 5

P1. Other Identifier: Santa Fe Motel

***P2. Location:** ☐ Not for Publication ☒ Unrestricted ***a. County** San Bernardino
 and (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** Baker, Calif. **Date** 1983
T14N; R9E; N 1/2 of SW 1/4 Sec 30; S.B. B.M.
c. Address 72252 Baker Boulevard **City** Baker **Zip** 92309
d. UTM: (Give more than one for large and/or linear resources) **Zone** 11; 584,410 **mE/** 3,903,164 **mN**
UTM Derivation: ☐ USGS Quad ☐ GIS ☒ Google Earth
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)
Assessor's Parcel Number 0544-311-42; northwest side of Baker Boulevard, approximately 700 feet east of Death Valley Road (State Route 127).

***P3a Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) Now closed, the Santa Fe Motel consists of a circa 1935-1939 rental office, a 1950s-era motel building, a swimming pool, and a pool equipment storage shed, along with two modern buildings (a new rental office and a motel building from the 1983-1994 era) and the foundation of a 1930s-vintage café/gas station that has been demolished. All of the buildings are simple one-story structures set on concrete slab foundations. Both motel buildings and the storage shed have flat roofs, while the rental offices have medium-pitched front-gable roofs covered with red terracotta tiles. Exterior walls of the motel buildings and the modern rental office are clad in tan-colored stucco. The exterior cladding of the older office is a mix of white-
(Continued on p. 4)

***P3b. Resource Attributes:** (List attributes and codes) HP5: Motel

***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District
☐ Other (isolates, etc.)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)



P5b. Description of Photo (view, date, accession number): Photo taken on February 25, 2022; view to the northwest

***P6. Date Constructed/Age and Sources:**
☒ Historic ☐ Prehistoric ☐ Both
1935-1961

***P7. Owner and Address:** The Ramallos, Inc., 9679 Black Coyote Court, Las Vegas, NV 89139-7498

***P8. Recorded by** (Name, affiliation, & address): Hunter O'Donnell, CRM TECH, 1016 East Cooley Drive, Suite A/B, Colton, CA 92324

***P9. Date Recorded:** February 25, 2022

***P10. Survey Type** (describe): Intensive-level survey for CEQA compliance

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") Bai "Tom" Tang, Terri Jacquemain, and Hunter O'Donnell (2022): Phase I Historical/Archaeological Resources Survey: Assessor's Parcel Numbers 0544-311-42, 72252 Baker Boulevard, Baker, San Bernardino County, California

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Resource Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other (List): _____

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

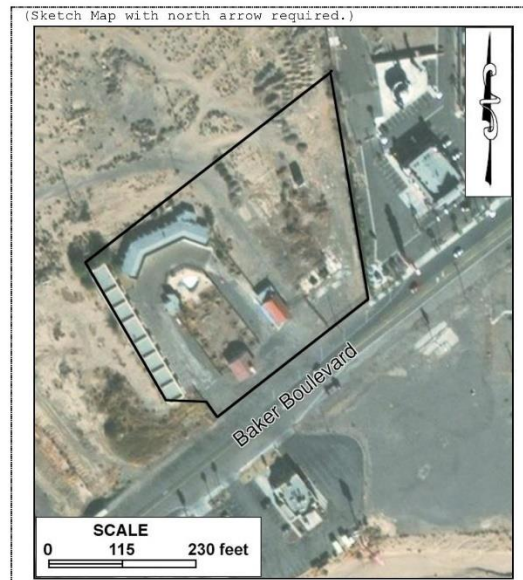
Primary # _____

HRI # _____

Page 2 of 5*NRHP Status Code 6Z*Resource Name or # (Assigned by recorder) CRM TECH 3819-1H

- B1. Historic Name: Hardy's Baker Inn, Wills Fargo Motel
- B2. Common Name: Santa Fe Motel
- B3. Original Use: Motel B4. Present Use: Vacant
- *B5. Architectural Style: Vernacular
- *B6. Construction History: (Construction date, alterations, and date of alterations) This roadside motel, located on what was once U.S. Route 91 (Arrowhead Trail) and close to Interstate Highway 15 and Death Valley Road, was built on part of a 37.37-acre U.S. land patent secured by Don Mitchell Coon in February 1935. The property was subsequently subdivided several times over the years, most recently around 2010, ultimately resulting in the current 3.5-acre parcel for the motel. (Continued on p. 4)
- *B7. Moved? ☒ No ☐ Yes ☐ Unknown Date: _____ Original Location: _____
- *B8. Related Features: See Item P3a.
- B9a. Architect: Unknown b. Builder: Unknown
- *B10. Significance: Theme Early to mid-20th century roadside commercial development
Area Baker; eastern Mojave Desert Period of Significance 1918-1970
Property Type Hospitality (lodging) Applicable Criteria N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.) The modest motel's long presence on the historic Arrowhead Trail and near the main road to the Death Valley National Park (former a national monument in 1933-1994) has undoubtedly contributed to Baker's (Continued on p. 4)
- B11. Additional Resource Attributes: (List attributes and codes) AH2: Foundation
- B12. References: Ancestry.com: genealogical database entries for Don Mitchell Coon. Myrtle Hardy, and Joe Ostrenger; U.S. land patent records (<http://www.glorerecords.blm.gov>); San Bernardino County Assessor's real property tax assessment records (1949-1951; Book 85, Page 42); Jane J. Delveaux (2010): Win Some, Lose Some: The Mother Lode (Tate Publishing and Enterprises, Mustang, Oklahoma); Aerial photographs taken in 1952-2021 (https://mil.library.ucsb.edu/ap_indexes/FrameFinder/, <http://www.historicaerials.com>, and Google Earth).
- B13. Remarks: _____
- *B14. Evaluator: Terri Jacquemain
- *Date of Evaluation: March 14, 2022

(This space reserved for official comments.)



*Required information

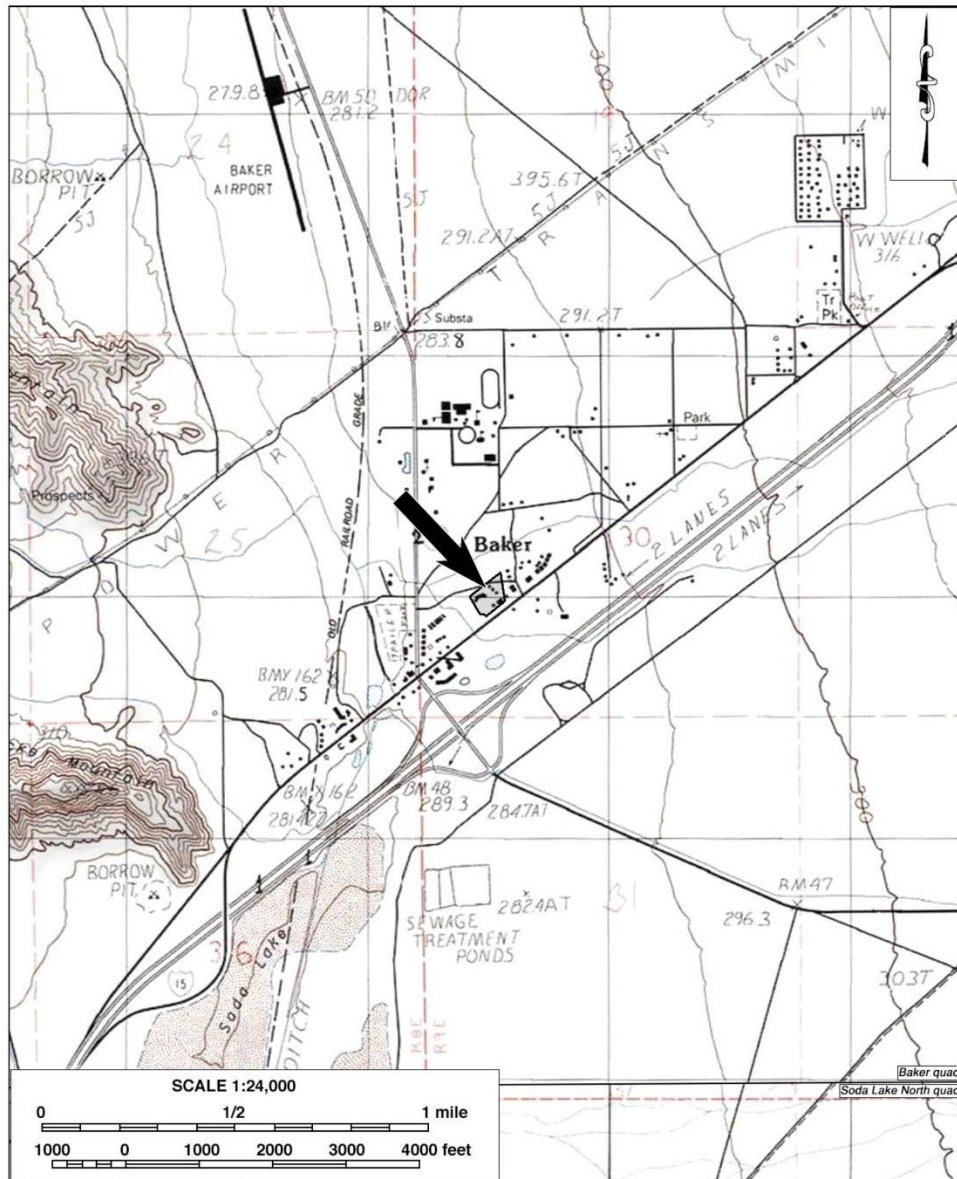
DPR 523B (1/95)

State of California--The Resources Agency DEPARTMENT OF PARKS AND RECREATION LOCATION MAP	Primary # _____ HRI # _____ Trinomial _____
Page <u>3</u> of <u>5</u>	*Resource Name or # (Assigned by recorder) <u>CRM TECH 3819-1H</u>

*Map Name: Baker and Soda Lake North, Calif.

*Scale: 1:24,000

*Date of Maps: 1981



DPR 523J (Rev. 1/1995) (Word 9/2013)

* Required information

State of California--The Resources Agency DEPARTMENT OF PARKS AND RECREATION CONTINUATION SHEET	Primary # _____ HRI # _____ Trinomial _____
Page <u>4</u> of <u>5</u>	Resource name or # (Assigned by recorder) <u>CRM TECH 3819-1H</u>

Recorded by: Hunter O'Donnell

*Date: February 25, 2022 ☒ Continuation ☐ Update

*P3a. **Description (continued):** washed stucco and board-and-batten siding. The equipment storage shed is clad with white-painted vertical tooth-and-groove wood siding. A full-width arcade across the front of the older motel building shelters a concrete walkway, while the entries to the modern motel building are shaded in pairs by tiled pent roofs resting on wood frames. The swimming pool has been backfilled in with dirt, and many of the doors and windows on all of the buildings have been sealed with particle boards.

*B6. **Construction History (continued):** The older rental office and the café/gas station immediately to its northeast were known to be in place by 1939 and operating as Hardy's Baker Inn, where "modern air-conditioned cabins" were advertised. The name of the establishment was adopted from the maiden name of Coon's wife, Myrtle Hardy, which Coon apparently also assumed, at least for business purposes.

By 1949-1950, Joe and Rae Ostrenger were identified as the owners. Aerial photographs from 1952 show the rental office, the café/gas station, and 4-5 small buildings of different sizes a short distance to the north of the café/gas station, presumably the cabins. The Ostrengers took on a partner, but shortly afterwards businessman Ted Reetz became the owner and remained so through at least 1968. By 1961, the older motel building had been added to the northwest of the rental office, accompanied by the swimming pool and the equipment storage shed.

A 1970s postcard demonstrates that by then the property was known as the Wills Fargo Motel, with J.O. Failing and Willis Herron identified as the owners and Jo and Ed Corn as the managers. The original office had undergone significant refurbishing and presented a completely different appearance from the unpretentious, barn-like look of 1939, with new doors, windows, roof, and exterior wall cladding.

Between 1983 and 1994, the café/gas station was removed, leaving only the foundation, while the newer motel building and office were built on the southwestern portion of the property, the former perpendicular to the original motel building and the latter some 65 feet from the earlier office and closer to Baker Boulevard. Since then, no major additions have been made to the motel. By 2012, all of the buildings donned white-washed exterior with blue trim. In more recent years, the property operated as the Santa Fe Motel until closing in 2018-2019.

*B10. **Significance (continued):** standing as an important hub for roadside traveler services in the eastern Mojave Desert. As such, it is arguably associated with this recognized theme in the history of the community as a pattern of events. As a physical entity, however, the only building that survives from the 1930s-era Barker Inn, namely the original rental office, has been repeatedly and significantly altered, so much so that it no longer retains any of the distinguishing characteristics of the building captured in historic photographs from 1939. All other buildings in the complex today were constructed in the post-WWII era, including the second office and the second motel building that both postdate 1983. As a result, neither the motel complex as a whole nor the sole surviving original building demonstrates sufficient historic integrity to relate to the early years of the property. (Continued on p. 5)

DPR 523L (1/95) (Word 9/2013)

* Required information

State of California--The Resources Agency DEPARTMENT OF PARKS AND RECREATION CONTINUATION SHEET	Primary # _____ HRI # _____ Trinomial _____
Page <u>5</u> of <u>5</u>	Resource name or # (Assigned by recorder) <u>CRM TECH 3819-1H</u>

Recorded by: Hunter O'Donnell

*Date: February 25, 2022 ☒ Continuation ☐ Update

***B10. Significance (continued):** Historical background research on the motel has not identified any specific events of importance in close association with the motel. The research identified several owners and/or managers of the property from the historic period, but none of them is known to be of recognized historic significance in national, state, or local history.

In terms of architectural, structural, or engineering merits, none of the buildings represents an important example of any style, property type, period, region, and method of construction, nor are they known to embody the work or accomplishment of any prominent architect, designer, or builder. As the products of utilitarian design and common building practice of their time, the buildings do not exhibit any particular aesthetic merits or hold the promise for important historical or archaeological data, nor does the motel complex as a whole. Therefore, the Santa Fe Motel does not appear eligible for listing in the National Register of Historic Places or the California Register of Historical Resources.

APPENDIX C – ENERGY & UTILITIES WORKSHEETS

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

INTRODUCTION TO ENERGY SCREENING TABLES

The following worksheets are used to evaluate the potential impacts of a project.

Table 1 Definition of Project

This Table is used to establish the proposed development parameters that are used in the calculation of energy usage. The independent variable to be entered is identified by shading. For residential development, the number of housing units should be entered in the shaded area. For non-residential development, the total floor area of development should be entered in the shaded area.

Tables 2 Summary of Project Impacts

Consumption/Generation Rates. This table indicates the development's projected electrical consumption, natural gas consumption, water consumption, effluent generation, and solid waste generation. No modifications should be made to this table.

Tables 3 through 4 Calculation of Project Impacts

Tables 3 through 4 indicate the results of the analysis.

Table 3 Electrical Consumption - This Table calculates the projected electrical consumption for new development. Default generation rates provided in the shaded areas may be changed.

Table 4 Natural Gas Consumption - This Table calculates the projected natural gas usage for new development. Default generation rates provided in the shaded areas may be changed.

Table 1 Project Name: Vask Gas Station

Definition of Project Parameters - Enter independent variable (no. of units or floor area) in the shaded area. The independent variable to be entered is the number of units (for residential development) or the gross floor area (for non-residential development).

Land Use	Independent	Factor
Residential Uses	Variable	Total Units
Single-Family Residential	No. of Units	0
Medium Density Residential	No. of Units	0
Multiple-Family Residential	No. of Units	0
Mobile Home	No. of Units	0
Office Uses	Variable	Total Floor Area
Office	Sq. Ft.	0
Medical Office Building	Sq. Ft.	0
Office Park	Sq. Ft.	0
Bank/Financial Services	Sq. Ft.	0
Commercial Uses	Variable	Floor Area/Rooms
Specialty Retail Commercial	Sq. Ft.	0
Convenience Store	Sq. Ft.	4,500
Movie Theater	Sq. Ft.	0
Shopping Center	Sq. Ft.	0
Sit-Down Restaurant	Sq. Ft.	0
Fast-Food Restaurant	Sq. Ft.	0
Hotel	Rooms	0
Manufacturing Uses	Variable	Total Floor Area
Industrial Park	Sq. Ft.	0
Manufacturing	Sq. Ft.	0
General Light Industry	Sq. Ft.	0
Warehouse	Sq. Ft.	0
Public/Institutional	Variable	Total Floor Area
Public/Institutional	Sq. Ft.	0
Open Space	Sq. Ft.	0

Table 2: Projected Energy Consumption and Generation

Summary of Project Impacts - Results of analysis identified below. No modifications should be made to this Table.

Utilities Consumption and Generation	Factor	Rates
Electrical Consumption	kWh/day	197
Natural Gas Consumption	cubic feet/day	36

Table 3: Electrical Consumption				
Project Component	Units of Measure	Consumption Factor		Projected Consumption
Residential Uses	No. of Units	kWh	Variable	kWh/Unit/Day
Single-Family Residential	0	5,625.00	kWh/Unit/Year	0.0
Medium Density Residential	0	5,625.00	kWh/Unit/Year	0.0
Multiple-Family Residential	0	5,625.00	kWh/Unit/Year	0.0
Mobile Home	0	4,644.00	kWh/Unit/Year	0.0
Office Uses	Sq. Ft.	kWh	Variable	kWh/Sq. Ft./Day
Office	0	20.80	kWh/Sq. Ft./Year	0.0
Medical Office Building	0	14.20	kWh/Sq. Ft./Year	0.0
Office Park	0	20.80	kWh/Sq. Ft./Year	0.0
Bank/Financial Services	0	20.80	kWh/Sq. Ft./Year	0.0
Commercial Uses	Sq. Ft./Rooms	kWh	Variable	kWh/Sq. Ft./Day
Specialty Retail Commercial	0	16.00	kWh/Sq. Ft./Year	0.0
Convenience Store	4,500	16.00	kWh/Sq. Ft./Year	197.3
Movie Theater	0	16.00	kWh/Sq. Ft./Year	0.0
Shopping Center	0	35.90	kWh/Sq. Ft./Year	0
Sit-Down Restaurant	0	49.10	kWh/Sq. Ft./Year	0.0
Fast-Food Restaurant	0	49.10	kWh/Sq. Ft./Year	0.0
Hotel	0	8,955.00	kWh/Sq. Ft./Year	0.0
Manufacturing Uses	Sq. Ft.	kWh	Variable	kWh/Sq. Ft./Day
Industrial Park	0	4.80	kWh/Sq. Ft./Year	0.0
Manufacturing	0	4.80	kWh/Sq. Ft./Year	0.0
General Light Industry	0	4.80	kWh/Sq. Ft./Year	0.0
Warehouse	0	4.80	kWh/Sq. Ft./Year	0.0
Public/Institutional	Sq. Ft.	kWh	Variable	kWh/Sq. Ft./Day
Public/Institutional	0	4.80	kWh/Sq. Ft./Year	0.0
Open Space	0	0.00	kWh/Sq. Ft./Year	0.0
Total Daily Electrical Consumption (kWh/day)				197.3
Sources: Residential rates were derived from the SCAQMD's CEQA Air Quality Handbook (April 1993). All other rates are from Common Forecasting Methodology VII Demand Forms, 1989				

Table 4: Natural Gas Consumption				
Project Component	Units of Measure	Consumption Factor		Projected Consumption
Residential Uses	No. of Units	Cu. Ft. of Nat. Gas	Variable	Cu. Ft./Day
Single-Family Residential	0	6,665.00	Cu. Ft./Mo./Unit	0.0
Medium Density Residential	0	4,011.50	Cu. Ft./Mo./Unit	0.0
Multiple-Family Residential	0	4,011.50	Cu. Ft./Mo./Unit	0.0
Mobile Home	0	4,011.50	Cu. Ft./Mo./Unit	0.0
Office Uses	Sq. Ft.	Cu. Ft. of Nat. Gas	Variable	Cu. Ft./Day
Office	0	2.00	Cu. Ft./Mo./Sq. Ft.	0.0
Medical Office Building	0	2.00	Cu. Ft./Mo./Sq. Ft.	0.0
Office Park	0	2.00	Cu. Ft./Mo./Sq. Ft.	0.0
Bank/Financial Services	0	2.00	Cu. Ft./Mo./Sq. Ft.	0.0
Commercial Uses	Sq. Ft./Rooms	Cu. Ft. of Nat. Gas	Variable	Cu. Ft./Day
Specialty Retail Commercial	0	2.90	Cu. Ft./Mo./Sq. Ft.	0.0
Convenience Store	4,500	2.90	Cu. Ft./Mo./Sq. Ft.	35.8
Movie Theater	0	2.90	Cu. Ft./Mo./Sq. Ft.	0.0
Shopping Center	0	2.90	Cu. Ft./Mo./Sq. Ft.	0.0
Sit-Down Restaurant	0	2.90	Cu. Ft./Mo./Sq. Ft.	0.0
Fast-Food Restaurant	0	2.90	Cu. Ft./Mo./Sq. Ft.	0.0
Hotel	0	2.90	Cu. Ft./Mo./Room	0.0
Manufacturing Uses	Sq. Ft.	Cu. Ft. of Nat. Gas	Variable	Cu. Ft./Day
Industrial Park	0	4.70	Cu. Ft./Mo./Sq. Ft.	0.0
Manufacturing	0	4.70	Cu. Ft./Mo./Sq. Ft.	0.0
General Light Industry	0	4.70	Cu. Ft./Mo./Sq. Ft.	0.0
Warehouse	0	4.70	Cu. Ft./Mo./Sq. Ft.	0.0
Public/Institutional Use	Sq. Ft.	Cu. Ft. of Nat. Gas	Variable	Cu. Ft./Day
Public/Institutional	0	2.90	Cu. Ft./Mo./Sq. Ft.	0.0
Open Space	0	2.90	Cu. Ft./Mo./Sq. Ft.	0.0
Total Daily Natural Gas Consumption (cubic feet/day)				35.8
Sources: South Coast Air Quality Management District, CEQA Air Quality Handbook. April 1993				

INTRODUCTION TO UTILITY SCREENING TABLES

The following worksheets are used to evaluate the potential impacts of a project.

Table 1 Definition of Project

This Table is used to establish the proposed development parameters that are used in the calculation of utilities usage. The independent variable to be entered is identified by shading. For residential development, the number of housing units should be entered in the shaded area. For non-residential development, the total floor area of development should be entered in the shaded area.

Tables 2 Summary of Project Impacts

Consumption/Generation Rates. This table indicates the development's projected electrical consumption, natural gas consumption, water consumption, effluent generation, and solid waste generation. No modifications should be made to this table.

Tables 3 through 5 Calculation of Project Impacts

Tables 3 through 7 indicate the results of the analysis.

Table 3 Water Consumption - This Table calculates the projected water consumption rates for new development. Default generation rates provided in the shaded areas may be changed.

Table 4 Sewage Generation - This Table calculates the projected effluent generation rates for new development. Default generation rates provided in the shaded areas may be changed.

Table 5 Solid Waste Generation - This Table calculates the projected waste generation for new development. Default generation rates provided in the shaded areas may be changed.

Table 1 Project Name: Vask Gas Station

Definition of Project Parameters - Enter independent variable (no. of units or floor area) in the shaded area. The independent variable to be entered is the number of units (for residential development) or the gross floor area (for non-residential development).

Land Use	Independent Variable	Factor
Residential Uses		
Single-Family Residential	No. of Units	0
Medium Density Residential	No. of Units	0
Multiple-Family Residential	No. of Units	0
Mobile Home	No. of Units	0
Office Uses		
Office	Sq. Ft.	0
Medical Office Building	Sq. Ft.	0
Office Park	Sq. Ft.	0
Bank/Financial Services	Sq. Ft.	0
Commercial Uses		
Specialty Retail Commercial	Sq. Ft.	0
Convenience Store	Sq. Ft.	4,500
Movie Theater	Sq. Ft.	0
Shopping Center	Sq. Ft.	0
Sit-Down Restaurant	Sq. Ft.	0
Fast-Food Restaurant	Sq. Ft.	0
Hotel	Rooms	0
Manufacturing Uses		
Industrial Park	Sq. Ft.	0
Manufacturing	Sq. Ft.	0
General Light Industry	Sq. Ft.	0
Warehouse	Sq. Ft.	0
Public/Institutional		
Public/Institutional	Sq. Ft.	0
Open Space	Sq. Ft.	0

Table 2: Projected Utility Consumption and Generation

Summary of Project Impacts - Results of analysis identified below. No modifications should be made to this Table.

Utilities Consumption and Generation	Factor	Rates
Water Consumption	gallons/day	675
Sewage Generation	gallons/day	450
Solid Waste Generation	pounds/day	189

Utilities Consumption/Generation Worksheet

SFSP 049

Table 3: Water Consumption				
Project Component	Units of Measure	Consumption Factor		Projected Consumption
Residential Uses	No. of Units	Gals. of Water	Variable	Gals./Day
Single-Family Residential	0	390.00	Gals./Day/Unit	0.0
Medium Density Residential	0	300.00	Gals./Day/Unit	0.0
Multiple-Family Residential	0	234.00	Gals./Day/Unit	0.0
Mobile Home	0	234.00	Gals./Day/Unit	0.0
Office Uses	Sq. Ft.	Gals. of Water	Variable	Gals./Day
Office	0	0.30	Gals./Day/Sq. Ft.	0.0
Medical Office Building	0	0.30	Gals./Day/Sq. Ft.	0.0
Office Park	0	0.30	Gals./Day/Sq. Ft.	0.0
Bank/Financial Services	0	0.15	Gals./Day/Sq. Ft.	0.0
Commercial Uses	Sq. Ft./Room	Gals. of Water	Variable	Gals./Day
Specialty Retail Commercial	0	0.15	Gals./Day/Sq. Ft.	0.0
Convenience Store	4,500	0.15	Gals./Day/Sq. Ft.	675.0
Movie Theater	0	0.20	Gals./Day/Sq. Ft.	0.0
Shopping Center	0	0.50	Gals./Day/Sq. Ft.	0.0
Sit-Down Restaurant	0	1.50	Gals./Day/Sq. Ft.	0.0
Fast-Food Restaurant	0	0.12	Gals./Day/Sq. Ft.	0.0
Hotel	0	187.50	Gals./Day/Room.	0.0
Manufacturing Uses	Sq. Ft.	Gals. of Water	Variable	Gals./Day
Industrial Park	0	0.30	Gals./Day/Sq. Ft.	0.0
Manufacturing	0	0.30	Gals./Day/Sq. Ft.	0.0
General Light Industry	0	0.30	Gals./Day/Sq. Ft.	0.0
Warehouse	0	0.05	Gals./Day/Sq. Ft.	0.0
Public/Institutional Use	Sq. Ft.	Gals. of Water	Variable	Gals./Day
Public/Institutional	0	0.12	Gals./Day/Sq. Ft.	0.0
Open Space	0	0.12	Gals./Day/Sq. Ft.	0.0
Total Daily Water Consumption (gallons/day)				675.0
Source: Derived from Los Angeles County Sanitation District rates (150% of effluent generation).				

Table 4: Sewage Generation				
Project Component	Units of Measure	Generation Factor		Projected Consumption
Residential Uses	# of Units	Gals. of Effluent	Variable	Gals./Day
Single-Family Residential	0	260.00	Gals./Day/Unit	0.0
Medium Density Residential	0	200.00	Gals./Day/Unit	0.0
Multiple-Family Residential	0	156.00	Gals./Day/Unit	0.0
Mobile Home	0	156.00	Gals./Day/Unit	0.0
Office Uses	Sq. Ft.	Gals. of Effluent	Variable	Gals./Day
Office	0	0.20	Gals./Day/Sq. Ft.	0.0
Medical Office Building	0	0.20	Gals./Day/Sq. Ft.	0.0
Office Park	0	0.20	Gals./Day/Sq. Ft.	0.0
Bank/Financial Services	0	0.10	Gals./Day/Sq. Ft.	0.0
Commercial Uses	Sq. Ft./# Rooms	Gals. of Effluent	Variable	Gals./Day
Specialty Retail Commercial	0	0.10	Gals./Day/Sq. Ft.	0.0
Convenience Store	4,500	0.10	Gals./Day/Sq. Ft.	450.0
Movie Theater	0	0.13	Gals./Day/Sq. Ft.	0.0
Shopping Center	0	0.33	Gals./Day/Sq. Ft.	0.0
Sit-Down Restaurant	0	1.00	Gals./Day/Sq. Ft.	0.0
Fast-Food Restaurant	0	0.08	Gals./Day/Sq. Ft.	0.0
Hotel	0	125	Gals./Day/Room.	0.0
Manufacturing Uses	Sq. Ft.	Gals. of Effluent	Variable	Gals./Day
Industrial Park	0	0.20	Gals./Day/Sq. Ft.	0.0
Manufacturing	0	0.20	Gals./Day/Sq. Ft.	0.0
General Light Industry	0	0.20	Gals./Day/Sq. Ft.	0.0
Warehouse	0	0.03	Gals./Day/Sq. Ft.	0.0
Public/Institutional Use	Sq. Ft.	Gals. of Effluent	Variable	Gals./Day
Public/Institutional	0	0.10	Gals./Day/Sq. Ft.	0.0
Open Space	0	0.10	Gals./Day/Sq. Ft.	0.0
Total Daily Sewage Generation (gallons/day)				450.0
Source: Los Angeles County Sanitation Districts.				

Table 5: Solid Waste Generation				
Project Component	Units of Measure	Generation Factor		Projected Generation
Residential Uses	# of Units	Lbs. of Waste	Variable	Lbs./Day
Single-Family Residential	0	12.23	Lbs./Day/Unit	0.0
Medium Density Residential	0	12.23	Lbs./Day/Unit	0.0
Multiple-Family Residential	0	12.23	Lbs./Day/Unit	0.0
Mobile Home	0	12.23	Lbs./Day/Unit	0.0
Office Uses	Sq. Ft.	Lbs. of Waste	Variable	Lbs./Day
Office	0	6.00	Lbs./Day/1,000 Sq. Ft.	0.0
Medical Office Building	0	6.00	Lbs./Day/1,000 Sq. Ft.	0.0
Office Park	0	6.00	Lbs./Day/1,000 Sq. Ft.	0.0
Bank/Financial Services	0	6.00	Lbs./Day/1,000 Sq. Ft.	0.0
Commercial Uses	Sq. Ft./# Rooms	Lbs. of Waste	Variable	Lbs./Day
Specialty Retail Commercial	0	42.00	Lbs./Day/1,000 Sq. Ft.	0.0
Convenience Store	4,500	42.00	Lbs./Day/1,000 Sq. Ft.	189.0
Movie Theater	0	6.00	Lbs./Day/1,000 Sq. Ft.	0.0
Shopping Center	0	6.00	Lbs./Day/1,000 Sq. Ft.	0.0
Sit-Down Restaurant	0	6.00	Lbs./Day/1,000 Sq. Ft.	0.0
Fast-Food Restaurant	0	42.00	Lbs./Day/1,000 Sq. Ft.	0.0
Hotel	0	6.00	Lbs./Day/Room	0.0
Manufacturing Uses	Sq. Ft.	Lbs. of Waste	Variable	Lbs./Day
Industrial Park	0	8.93	Lbs./Day/1,000 Sq. Ft.	0.0
Manufacturing	0	8.93	Lbs./Day/1,000 Sq. Ft.	0.0
General Light Industry	0	8.93	Lbs./Day/1,000 Sq. Ft.	0.0
Warehouse	0	8.93	Lbs./Day/1,000 Sq. Ft.	0.0
Public/Institutional Use	Sq. Ft.	Lbs. of Waste	Variable	Lbs./Day
Public/Institutional	0	4.00	Lbs./Day/1,000 Sq. Ft.	0.0
Open Space	0	3.00	Lbs./Day/1,000 Sq. Ft.	0.0
Total Daily Solid Waste Generation				189.0
Source: City of Los Angeles CEQA Thresholds Guide, 2006, and City of Los Angeles Average Solid Waste Generation Rates, April 1981				

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

APPENDIX D –GEOTECHNICAL STUDY

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.



PATEL & ASSOCIATES, INC.

P.O. Box 1121 • Victorville, CA 92393 • Phone (760) 243-1436 • Fax (760) 243-1471

December 27, 2021

Project No. V21066-10A

Mr. Luis Ramallo
9679 Black Coyote Court
Las Vegas, NV 89139

Subject: Preliminary Geotechnical Interpretive Report, Proposed Commercial Development and Gasoline Station, Assessor's Parcel Number 0544-311-42, Located on Baker Boulevard, Baker Area, San Bernardino County, California

Patel & Associates is pleased to present our preliminary geotechnical interpretive report for the proposed commercial development and gasoline station, Assessor's Parcel Number 0544-311-42, located on Baker Boulevard in the Baker Area of San Bernardino County, California. This work was performed in accordance with the scope of work described in our proposal. The purpose of this study is to evaluate the nature, distribution, engineering properties, and geologic strata underlying the site with respect to the proposed development.

Patel & Associates appreciates the opportunity to offer our consultation and advice on this project. In the event that you have any questions, please do not hesitate to contact the undersigned at your earliest convenience.

Respectfully submitted,

PATEL & ASSOCIATES

Stephen M. Poole, PE, GE
Principal Engineer



SMP/snj

Distribution: (2) Addressee

WMBE# 12050152 • GEOTECHNICAL • MATERIALS TESTING • ENVIRONMENTAL ENGINEERING
WWW.PATELGEOTECHNICAL.COM

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
INTRODUCTION.....	1
SITE DESCRIPTION.....	1
PROPOSED DEVELOPMENT AND GRADING.....	1
FIELD EXPLORATION AND LABORATORY TESTING.....	3
Field Exploration.....	3
Laboratory Testing.....	3
FINDINGS.....	3
Regional Geology.....	3
Local Geology.....	4
Faulting.....	4
Landslides.....	4
CONCLUSIONS AND RECOMMENDATIONS.....	6
General.....	6
Earthwork.....	6
Earthwork and Grading.....	6
Clearing and Grubbing.....	6
Excavation Characteristics.....	6
Groundwater.....	6
Ground Preparation for Fill Areas.....	6
Oversize Rock.....	7
Compacted Fill Placement.....	7
Import Earth Materials.....	7
Cut/Fill Transitions.....	8
Cut Areas.....	9
Shrinkage, Bulking and Subsidence.....	9
Geotechnical Observations.....	9
Post Grading Considerations.....	10
Slope Landscaping and Maintenance.....	10
Site Drainage.....	10
Utility Trenches.....	10
SEISMIC DESIGN CONSIDERATIONS.....	11
Ground Motions.....	11
Secondary Seismic Hazards.....	12
Liquefaction and Lateral Spreading.....	12
General.....	12
Allowable Bearing Values.....	12
Settlement.....	13
Lateral Resistance.....	13
Structural Setbacks and Building Clearance.....	13
Foundation Observations.....	14
Expansive Soil Considerations.....	15
Low Expansion Potential (Expansion Index of 21 to 50).....	15
Footings.....	15
Building Floor Slabs.....	15

Post Tensioned Slab/Foundation Design Recommendations.....	16
Corrosivity	18
RETAINING WALLS.....	19
Active and At-Rest Earth Pressures.....	19
Subdrain System	20
Temporary Excavations	20
Retaining Wall Backfill	20
CONCRETE FLATWORK	21
Thickness and Joint Spacing	21
Subgrade Preparation	21
PRELIMINARY ASPHALTIC CONCRETE PAVEMENT DESIGN	21
GRADING PLAN REVIEW AND CONSTRUCTION SERVICES	23
REPORT LIMITATIONS	23

Attachments:

- Figure 1 – Vicinity Map (Page 2)
- Figure 2 – Regional Geologic Map (Page 5)
- APPENDIX A – References (Rear of Text)
- APPENDIX B – Exploratory Logs (Rear of Text)
- APPENDIX C – Laboratory Procedures and Test Results (Rear of Text)
- APPENDIX D – Seismicity (Rear of Text)
- APPENDIX E - Asphaltic Concrete Pavement Calculations (Rear of Text)
- APPENDIX F – General Earthwork and Grading Specifications (Rear of Text)
- Plate 1 – Geotechnical Map (Rear of Text)

INTRODUCTION

Patel & Associates is pleased to present our preliminary geotechnical interpretive report for the proposed development. The purpose of this study was to evaluate the nature, distribution, engineering properties, and geologic strata underlying the site with respect to the proposed development, and then provide preliminary grading and foundation design recommendations based on the plans you provided. The general location of the subject property is indicated on the Vicinity Map, Figure 1. The plans you provided were used as the base map to show geologic conditions within the subject site, see Geotechnical Map, Plate 1.

SITE DESCRIPTION

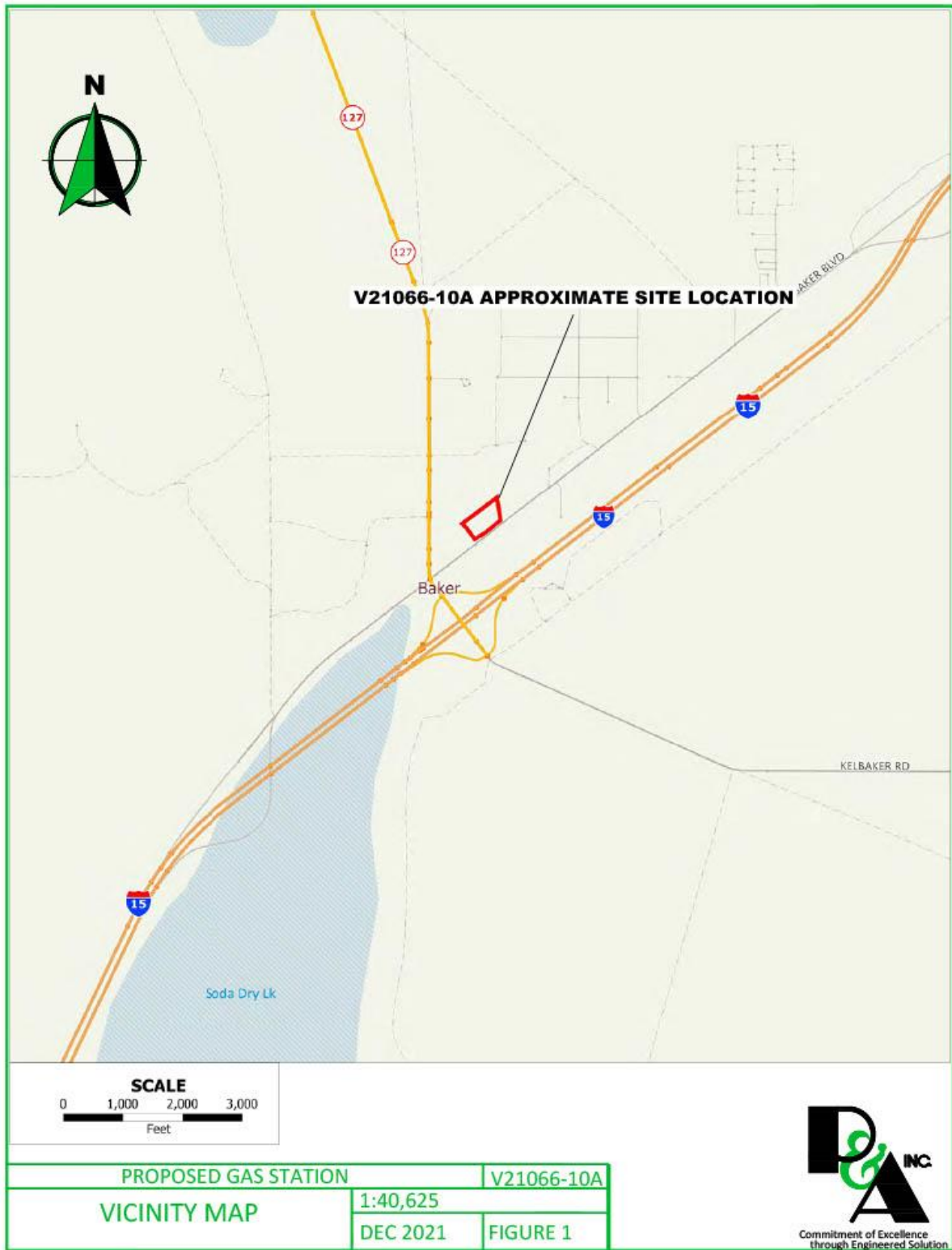
The subject property is located northeast of the intersection of Baker Boulevard and Death Valley Road in the Baker Area of San Bernardino County, California. The approximate location of the site is shown on the Vicinity Map, Figure 1.

The subject property is comprised of approximately 4.99 acres of developed land with an existing motel. Topographic relief at the subject property is relatively low with the terrain being generally flat. Elevations at the site is approximately 935 feet above mean sea level (msl). Drainage within the subject property generally flows to the north.

The site is currently bordered by vacant property immediately to the north, southwest, and northeast, beyond which is commercial development. Baker Boulevard is located immediately to the south.

PROPOSED DEVELOPMENT AND GRADING

The proposed commercial development is expected to consist of concrete, wood or steel framed one-and/or two-story structures utilizing slab on grade construction with associated streets, landscape areas, and utilities. The current development plans include two (2) building pads and a fuel canopy with 20 dispenser islands. The plans provided by you were utilized in our exploration and form the base for our Geotechnical Map, Plate 1.



FIELD EXPLORATION AND LABORATORY TESTING

Field Exploration

Subsurface exploration within the subject site was performed on December 9, 2021 for the exploratory excavations. A truck mounted hollow-stem-auger drill rig was utilized to drill six (6) borings throughout the site to a maximum depth of 31 feet. An underground utilities clearance was obtained from Underground Service Alert of Southern California, prior to the subsurface exploration.

Earth materials encountered during exploration were classified and logged in general accordance with the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) of ASTM D 2488. Upon completion of laboratory testing, exploratory logs and sample descriptions may have been reconciled to reflect laboratory test results with regard to ASTM D 2487.

Associated with the subsurface exploration was the collection of bulk (disturbed) samples and relatively undisturbed samples of earth materials for laboratory testing and analysis. The relatively undisturbed samples were obtained with a 3 inch outside diameter modified California split-spoon sampler lined with 1-inch-high brass rings. Samples obtained using a hollow stem auger drill rig, were mechanically driven with successive 30 inch drops of a 140-pound automatic trip safety hammer. The blow count per one-foot increment was recorded in the boring logs. The central portions of the driven samples were placed in sealed containers and transported to our laboratory for testing and analysis. The approximate exploratory locations are shown on Plate 1 and descriptive logs are presented in Appendix B.

Laboratory Testing

Maximum dry density/optimum moisture content, expansion potential, pH, resistivity, sulfate content, chloride content, and in-situ density/moisture content were determined for selected undisturbed and bulk samples of earth materials, considered representative of those encountered. An evaluation of the test data is reflected throughout the Conclusions and Recommendations section of this report. A brief description of laboratory test criteria and summaries of test data are presented in Appendix C.

FINDINGS

Regional Geology

Regionally, the site is located in the Mojave Desert Province of California. The Mojave Desert Province is located in the southeastern corner of the state with the left lateral, vertical Garlock Fault making up the northern boundary of the province. The province is characterized by a more subdued topography due to extensive and deeper erosion than the Basin and Range Province. Due to a greater predominance of alluvial cover, the Mojave Desert Province has fewer exposures of all bedrock units, and a lack of the extension that has affected the Basin and Range Province. The topography is primarily a result of climatic changes during the last million years which are largely responsible for most landscape features in the Mojave region today. The character of modern alluvial fans, pediment surfaces, and playas, and the vegetation they support, reflect conditions that have evolved primarily within the past several thousand years. In addition to climate, the physical characteristics of the modern topographic features are tied to the properties of bedrock and tectonic history of any particular location. A map of the regional geology is presented on the Regional Geologic Map, Figure 2.

Local Geology

The earth materials on the site are primarily comprised of Quaternary alluvial materials. A general description of the dominant earth materials observed on the site is provided below:

- **Quaternary Alluvium (map symbol Qal):** Quaternary alluvium was encountered to the full depth of our exploration. These alluvial deposits consist predominately of interlayered light brown to brown, fine to coarse grained silty sand with varying amounts of silt and clay. These deposits were generally noted to be in a slightly moist to moist, loose to very dense state.

Faulting

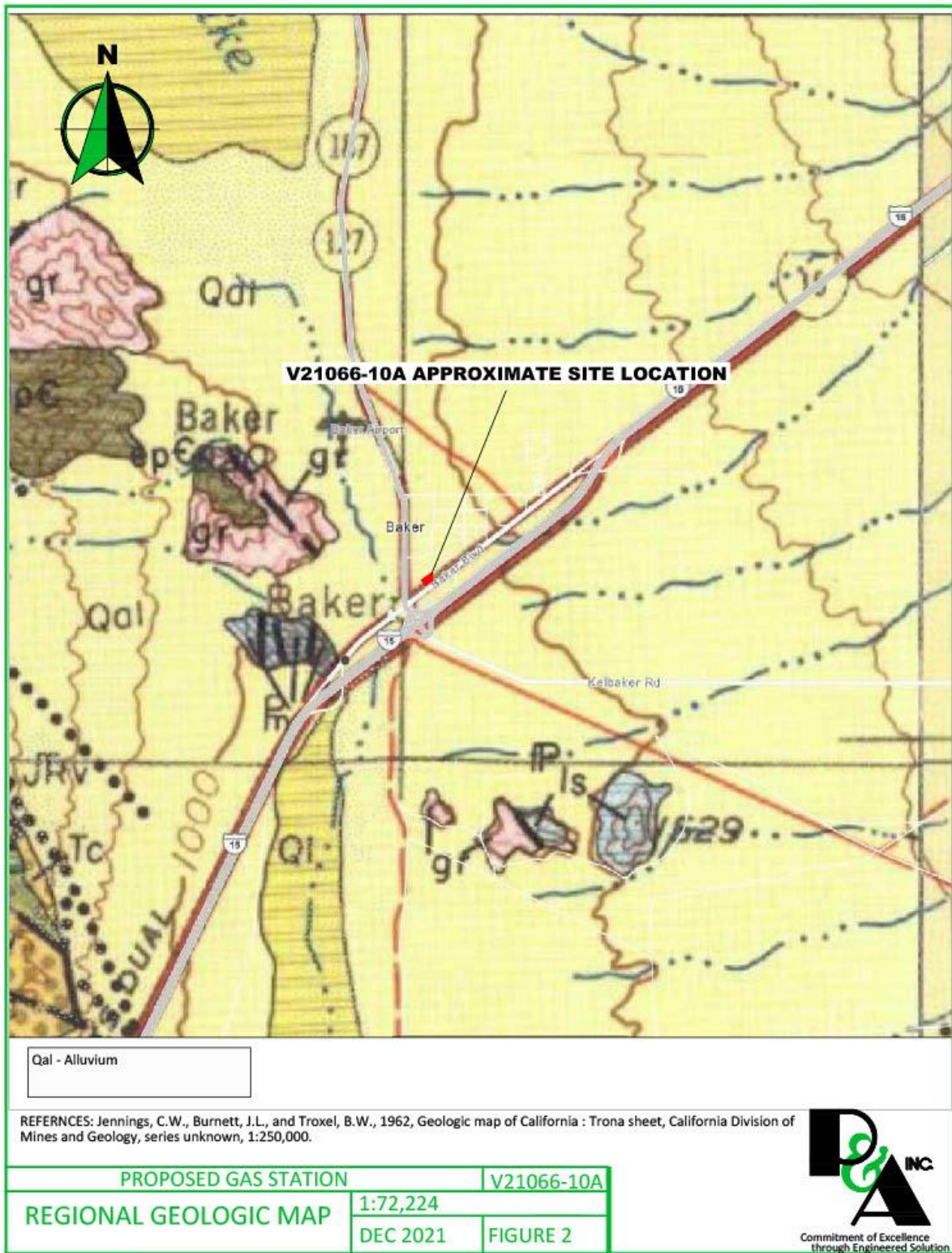
The project is located in a seismically active region and as a result, significant ground shaking will likely impact the site within the design life of the proposed project. The geologic structure of the entire southern California area is dominated by northwest-trending faults associated with the San Andreas Fault system, which accommodates for most of the right lateral movement associated with the relative motion between the Pacific and North American tectonic plates.

No active faults are known to project through the site and the site is not located within an Alquist-Priolo Earthquake Fault Zone, established by the State of California to restrict the construction of new habitable structures across identifiable traces of known active faults. An active fault is defined by the State of California as having surface displacement within the past 11,000 years or during the Holocene geologic time period. Based on our mapping of the subject site, review of current and historical aerial imagery, lack of lineaments indicative of active faulting, and the data compiled during the preparation of this report, it is our interpretation that the potential for surface rupture to adversely impact the proposed structures is very low to remote.

Based on our review of regional geologic maps and applicable computer programs (USGS Seismic Design Maps, Caltrans ARS online, and USGS Earthquake Hazard Programs), the Garlock Fault with an approximate source to site distance of 45.45 kilometers is the closest known active fault anticipated to produce the highest ground accelerations, with an anticipated maximum modal magnitude of 7.45. A list of faults as well as a list of significant historical seismic events within a 100km radius of the subject site are included in Appendix D.

Landslides

Landslide debris was not observed during our subsurface exploration and no ancient landslides are known to exist on the site. No landslides are known to exist, or have been mapped, in the vicinity of the site. Geologic mapping of the site conducted during our investigation, and review of aerial imagery of the site, reveal no geomorphic expressions indicative of landsliding.



CONCLUSIONS AND RECOMMENDATIONS

General

From geotechnical and engineering geologic points of view, the subject property is considered suitable for the proposed development, provided the following conclusions and recommendations are incorporated into the plans and are implemented during construction.

Earthwork

Earthwork and Grading

The provisions of the 2019 California Building Code (CBC), including the General Earthwork and Grading Specifications in the last Appendix of this report, should be applied to all earthwork and grading operations, as well as in accordance with all applicable grading codes and requirements of the appropriate reviewing agency. Unless specifically revised or amended herein, grading operations should also be performed in accordance with applicable provisions of our General Earthwork and Grading Specifications within the last appendix of this report.

Clearing and Grubbing

Vegetation including trees, grasses, weeds, brush, shrubs, or any other debris should be stripped from the areas to be graded and properly disposed of offsite. In addition, laborers should be utilized to remove any roots, branches, or other deleterious materials during grading operations.

Patel & Associates should be notified at the appropriate times to provide observation and testing services during Clearing and Grubbing operations. Any buried structures or unanticipated conditions should be brought to our immediate attention.

Excavation Characteristics

Based on the results of our exploration and experience with similar projects in similar settings, the near surface earth materials, will be readily excavated with conventional earth moving equipment.

Groundwater

Groundwater was not observed during our subsurface exploration.

Ground Preparation for Fill Areas

For each area to receive compacted fill, the removal of low density, compressible earth materials, such as upper alluvial materials should continue until firm competent alluvium is encountered. Removal excavations are subject to verification by the project engineer, geologist or their representative. Prior to placing compacted fills, the exposed bottom in each removal area should be scarified to a depth of 6 inches or more, watered or air dried as necessary to achieve near optimum moisture conditions and then compacted to a minimum of 90 percent of the maximum dry density determined by ASTM D 1557.

The intent of remedial grading is to diminish the potential for hydro-consolidation, slope instability, and/or settlement. Remedial grading should extend beyond the perimeter of the proposed structures a horizontal distance equal to the depth of excavation or a minimum of 5 feet, whichever is greater. For cursory purposes the anticipated removal depths are shown on the enclosed Geotechnical Map, Plate 1. In general, the anticipated removal depths should vary from 4 to 6 feet below existing grade within the proposed building pad and fuel canopy. The anticipated removal depths should vary from 2 to 4 feet below existing grade within the parking lot. Additionally, a minimum of 5 feet should be removed beneath the existing footprint of the motel, which will be demolished.

Wet Removals

Wet alluvial materials will probably not be encountered within the low lying areas of the site. If removals of wet alluvial materials are required, special grading equipment and procedures can greatly reduce overall costs. Careful planning by an experienced grading contractor can reduce the need for special equipment, such as swamp cats, draglines, excavators, pumps, and top loading earthmovers. Possible solutions may include the placement of imported angular rock and/or geotextile ground reinforcement. More specific recommendations can be provided based on the actual conditions encountered. Drying or mixing of wet materials with dry materials will be needed to bring the wet materials to near optimum moisture prior to placing wet materials into compacted fills.

Oversize Rock

Oversize rock is not expected to be encountered during grading. Oversize rock that is encountered (i.e., rock exceeding a maximum dimension of 12 inches) should be disposed of offsite or stockpiled onsite and crushed for future use. The disposal of oversize rock is discussed in greater detail in General Earthwork and Grading Specifications within the last appendix of this report.

Compacted Fill Placement

Compacted fill materials should be placed in 6 to 8 inch maximum (uncompacted) lifts, watered or air dried as necessary to achieve uniform near optimum moisture content and then compacted to a minimum of 90 percent of the maximum dry density determined by ASTM D 1557.

Import Earth Materials

Should import earth materials be needed to achieve final design grades, all potential import materials should be free of deleterious/oversize materials, non-expansive, and approved by the project geotechnical consultant prior to delivery onsite.

Fill Slopes

When properly constructed, fill slopes up to 10 feet high with inclinations of 2:1 (h:v) or flatter are considered to be grossly stable. Keyways are required at the toe of all fill slopes higher than 5 feet and steeper than 5:1 (h:v). Keyways should be a minimum of 10 feet wide and 2 feet into competent

earth materials, as measured on the downhill side. In order to establish keyway removals, backcuts should be cut no steeper than 1:1 or as recommended by the geotechnical engineer or engineering geologist. Compacted fill should be benched into competent earth materials.

Cut Slopes

When properly constructed, cut slopes into older alluvium up to 10 feet high with inclinations of 2:1 (h:v) or flatter are considered grossly stable. Cut slopes should be observed by the engineering geologist or his representative during grading, but are anticipated to be stable.

Stabilization Fills

Currently, stabilization fills will not be required for cut slopes in the alluvium. Our engineering geologist or his representative should be called to evaluate all slopes during grading. In the event that unfavorable geologic conditions are encountered, recommendations for stabilization fills or flatter slopes will be provided.

Fill Over Cut Slopes

The fill portion of fill over cut slopes should not be constructed until the cut portion of the slope has been cut to finish grade. The earth materials and geologic structure exposed along the cut slope should be evaluated with regard to suitability for compacted fills or foundations and for stability. If the cut materials are determined to be competent, then the construction of the keyway and subdrain system may commence or additional remedial recommendations will be provided.

Temporary Backcuts

It is the responsibility of the grading contractor to follow all Cal-OSHA requirements with regard to excavation safety. Where existing developments are upslope, adequate slope stability to protect those developments must be maintained. Temporary backcuts will be required to accomplish removals of unsuitable materials and possibly, to perform canyon removals, stabilization fills, and/or keyways. Backcuts should be excavated at a gradient of 1:1 (h:v) or flatter. Flatter backcuts may be required where geologic structure or earth materials are unfavorable. It is imperative that grading schedules minimize the exposure time of the unsupported excavations. All excavations should be stabilized within 30 days of initial excavation.

Cut/Fill Transitions

Cut/fill transitions should be eliminated from all building areas where the depth of fill placed within the "fill" portion exceeds proposed footing depths. This is to diminish distress to structures resulting from excessive differential settlement. The entire foundation of each structure should be founded on a uniform bearing material. This should be accomplished by overexcavating the "cut" portion and replacing the excavated materials as properly compacted fill. Refer to the following table for recommended depths of overexcavation.

DEPTH OF FILL ("fill" portion)	DEPTH OF OVEREXCAVATION ("cut" portion)
Up to 5 feet	Equal Depth
5 to 10 feet	5 feet
Greater than 10 feet	One-half the thickness of fill placed on the "fill" portion (10 feet maximum)

Overexcavation of the "cut" portion should extend beyond the building perimeter a horizontal distance equal to the depth of overexcavation or a minimum of 5 feet, whichever is greater.

Cut Areas

In cut areas, an area a minimum of 5 feet beyond the footprint of the proposed structures should overexcavated until; competent bottoms are achieved; to a minimum 3 feet below the proposed foundations; or per the Overexcavation Table above; (whichever is greater) and replaced with compacted fill. Final determination of areas that require overexcavation should be determined in the field by a representative of Patel & Associates.

Shrinkage, Bulking and Subsidence

Volumetric changes in earth material quantities will occur when poorly consolidated earth materials are replaced with properly compacted fill. Estimates of the percent shrinkage/bulking factors for the various geologic units observed on the subject property are based on in-place densities and on the estimated average percent of relative compaction achieved during grading.

GEOLOGIC UNIT	SHRINKAGE (%)
Alluvium	10 to 15

Subsidence from scarification and recompaction of exposed bottom surfaces is expected to be negligible to approximately 0.01 foot.

The estimates of shrinkage/bulking and subsidence are intended as an aid for project engineers in determining earthwork quantities. Since many variables can affect the accuracy of these estimates, they should be used with caution and contingency plans should be in place for balancing the project.

Geotechnical Observations

Clearing operations, removal of unsuitable materials, and general grading procedures should be observed by the project geotechnical consultant or his representative. No compacted fill should be placed without observations by the geotechnical consultant or his representative to verify the adequacy of the removals.

The project geotechnical consultant or his representative should be present to observe grading operations and to check that minimum compaction requirements and proper lift thicknesses are being met, as well as to verify compliance with the other recommendations presented herein.

Post Grading Considerations

Slope Landscaping and Maintenance

Adequate slope and building pad drainage is essential for the long term performance of the subject site. The gross stability of graded slopes should not be adversely affected, provided all drainage provisions are properly constructed and maintained. Engineered slopes should be landscaped with deep rooted, drought tolerant maintenance free plant species, as recommended by the project landscape architect.

Site Drainage

Control of site drainage is important for the performance of the proposed project. Roof gutters are recommended for the proposed structures. Pad and roof drainage should be collected and transferred to driveways, adjacent streets, storm-drain facilities, or other locations approved by the building official in non-erosive drainage devices. Drainage should not be allowed to pond on the pad or against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope. Planters located within retaining wall backfill should be sealed to prevent moisture intrusion into the backfill. Planters located next to structures should be sealed to the depth of the footings. Drainage control devices require periodic cleaning, testing and maintenance to remain effective.

At a minimum, pad drainage should be designed at the minimum gradients required by the CBC. To divert water away from foundations, the ground surface adjacent to foundations should also be graded at the minimum gradients required per the CBC.

Utility Trenches

All utility trench backfill should be compacted at near optimum moisture to a minimum of 90 percent of the maximum dry density determined by ASTM D 1557. For utility trench backfill within pavement areas the upper 6 inches of subgrade materials should be compacted to 95 percent of the maximum dry density determined by ASTM D 1557. This includes within the street right-of-ways, utility easements, under footings, sidewalks, driveways and building floor slabs, as well as within or adjacent to any slopes. Backfill should be placed in approximately 6 to 8 inch maximum loose lifts and then mechanically compacted with a hydro-hammer, rolling with a sheepsfoot, pneumatic tampers, or similar equipment. The utility trenches should be tested by the project geotechnical engineer or their representative to verify minimum compaction requirements are obtained.

In order to minimize the penetration of moisture below building slabs, all utility trenches should be backfilled with compacted fill, lean concrete or concrete slurry where they undercut the perimeter foundation. Utility trenches that are proposed parallel to any building footings (interior and/or exterior trenches), should not be located within a 1:1 (h:v) plane projected downward from the outside bottom edge of the footing.

SEISMIC DESIGN CONSIDERATIONS

Ground Motions

Structures are required to be designed and constructed to resist the effects of seismic ground motions as provided in the 2019 California Building Code Section 1613. The design is dependent on the site class, occupancy category I, II, III, or IV, mapped spectral accelerations for short periods (S_s), and mapped spectral acceleration for a 1-second period (S_1).

In order for structural design to comply with the 2019 CBC, the USGS "US Seismic Design Maps" online tool was used to compile spectral accelerations for the subject property based on data and maps jointly compiled by the United States Geological Survey (USGS) and the California Geological Survey (CGS). The data found in the following table is based on the Maximum Considered Earthquake (MCE) with 5% damped ground motions having a 2% probability of being exceeded in 50 years (2,475 year return period).

The seismic design coefficients were determined by a combination of the site class, mapped spectral accelerations, and occupancy category. The following seismic design coefficients should be implemented during design of the proposed structures. Summaries of the Seismic Hazard Deaggregation graphs and test data are presented in Appendix D.

2019 CBC	FACTOR (ASCE 7-16)
Site Location	Latitude: 35.268036° (North) Longitude: -116.071793° (West)
Site Class	D - Default
Mapped Spectral Accelerations for short periods, S_s	0.629
Mapped Spectral Accelerations for 1-Second Period, S_1	0.242
Maximum Considered Earthquake Spectral Response Acceleration for Short Periods, S_{ms}	0.816
Maximum Considered Earthquake Spectral Response Acceleration for 1-Second Period, S_{m1}	Null - Section 11.4.8*
Design Spectral Response Acceleration for Short Periods, S_{Ds}	0.544
Design Spectral Response Acceleration for 1-Second Period, S_{D1}	Null - Section 11.4.8*
Seismic Design Category	D
Importance Factor Based on Occupancy Category	II

*2019 CBC

We performed the probabilistic seismic hazard assessment for the site in accordance with the 2019 CBC, Section 1803.5.11 and 1803.5.12. The probabilistic seismic hazard maps and data files were jointly prepared by the United States Geological Survey (USGS) and the California Geological Survey (CGS) and can be found at the CGS Probabilistic Seismic Hazards Mapping Ground Motion Page. Actual ground shaking intensities at the site may be substantially higher or lower based on complex variables such as the near source directivity effects, depth and consistency of earth materials, topography, geologic structure, direction of fault rupture, and seismic wave reflection, refraction, and attenuation rates. The mean peak ground acceleration was calculated to be 0.357g.

Secondary Seismic Hazards

Secondary effects of seismic shaking considered as potential hazards include several types of ground failure as well as induced flooding. Different types of ground failure, which could occur as a consequence of severe ground shaking at the site, include landslides, ground lurching, shallow ground rupture, and liquefaction/lateral spreading. The probability of occurrence of each type of ground failure depends on the severity of the earthquake, distance from faults, topography, the state of subsurface earth materials, groundwater conditions, and other factors. Based on our experience, subsurface exploration, and laboratory testing, all of the above secondary effects of seismic activity are considered unlikely.

Seismically induced flooding is normally a consequence of a tsunami (seismic sea wave), a seiche (i.e., a wave-like oscillation of surface water in an enclosed basin that may be initiated by a strong earthquake) or failure of a major reservoir or retention system up gradient of the site. Since the site is at an elevation of more than 900 feet above mean sea level and is located more than 150 miles inland from the nearest coastline of the Pacific Ocean, the potential for seismically induced flooding due to a tsunami is considered nonexistent. Since no enclosed bodies of water lie adjacent to or up gradient of the site, the likelihood for induced flooding due to a dam failure or a seiche overcoming the dam's freeboard is considered nonexistent.

Liquefaction and Lateral Spreading

Liquefaction occurs as a result of a substantial loss of shear strength or shearing resistance in loose, saturated, cohesionless earth materials subjected to earthquake induced ground shaking. Potential impacts from liquefaction include loss of bearing capacity, liquefaction related settlement, lateral movements, and surface manifestation such as sand boils. Seismically induced settlement occurs when loose sandy soils become denser when subjected to shaking during an earthquake. The three factors determining whether a site is likely to be subject to liquefaction include seismic shaking, type and consistency of earth materials, and groundwater level. The proposed structures will be supported by compacted fill and competent alluvium, with groundwater at a depth greater than 31 feet. As such, the potential for earthquake induced liquefaction and lateral spreading beneath the proposed structures is considered very low to remote due to the recommended compacted fill, relatively low groundwater level, and the dense nature of the deeper onsite earth materials.

TENTATIVE FOUNDATION DESIGN RECOMMENDATIONS

General

Provided grading is performed in accordance with the recommendations of this report, shallow foundations are considered feasible for support of the proposed structures. Tentative foundation recommendations are provided herein and graphic presentations of relevant recommendations may also be included on the enclosed map.

Allowable Bearing Values

An allowable bearing value of 3,000 pounds per square foot (psf) is recommended for design of 24-inch square pad footings and 12-inch-wide continuous footings founded at a minimum depth of 12 inches below the lowest adjacent final grade. This value may be increased by 20 percent for each additional 1-foot of

width and/or depth to a maximum value of 3,500 psf. Recommended allowable bearing values include both dead and frequently applied live loads and may be increased by one third when designing for short duration wind or seismic forces.

Settlement

Based on the settlement characteristics of the earth materials that underlie the building sites and the anticipated loading, we estimate that the maximum total settlement of the footings will be less than approximately $\frac{3}{4}$ inch. Differential settlement is expected to be about $\frac{1}{2}$ inch over a horizontal distance of approximately 20 feet, for an angular distortion ratio of 1:480. It is anticipated that the majority of the settlement will occur during construction or shortly after the initial application of loading.

The above settlement estimates are based on the assumption that the grading and construction are performed in accordance with the recommendations presented in this report and that the project geotechnical consultant will observe or test the earth material conditions in the footing excavations.

Lateral Resistance

Passive earth pressure of 250 psf per foot of depth to a maximum value of 2,500 psf may be used to establish lateral bearing resistance for footings. For areas covered with hardscape, passive earth pressure may be taken from the surface. For areas without hardscape, the upper 12 inches of the soil profile must be neglected when calculating passive earth pressure. A coefficient of friction of 0.36 times the dead load forces may be used between concrete and the supporting earth materials to determine lateral sliding resistance. The above values may be increased by one-third when designing for short duration wind or seismic forces. When combining passive and friction for lateral resistance, the passive component should be reduced by one third. In no case shall the lateral sliding resistance exceed one-half the dead load for clay, sandy clay, sandy silty clay, silty clay, and clayey silt.

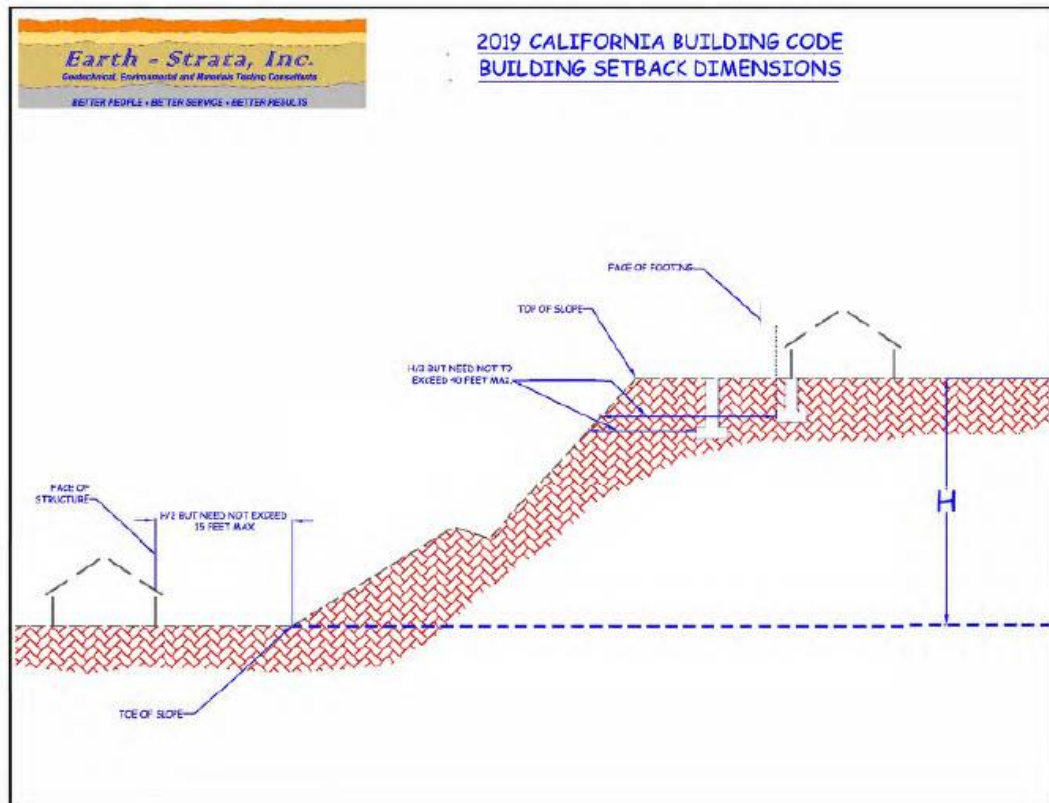
The above lateral resistance values are based on footings for an entire structure being placed directly against either compacted fill or competent alluvium.

Structural Setbacks and Building Clearance

Structural setbacks are required per the 2019 California Building Code (CBC). Additional structural setbacks are not required due to geologic or geotechnical conditions within the site. Improvements constructed in close proximity to natural or properly engineered and compacted slopes can, over time, be affected by natural processes including gravity forces, weathering, and long term secondary settlement. As a result, the CBC requires that buildings and structures be setback or footings deepened to resist the influence of these processes.

For structures that are planned near ascending and descending slopes, the footings should be embedded to satisfy the requirements presented in the CBC, Section 1808.7 as illustrated in the following Foundation Clearances from Slopes diagram.

FOUNDATION CLEARANCES FROM SLOPES



When determining the required clearance from ascending slopes with a retaining wall at the toe, the height of the slope shall be measured from the top of the wall to the top of the slope.

Foundation Observations

In accordance with the 2019 CBC and prior to the placement of forms, concrete, or steel, all foundation excavations should be observed by the geologist, engineer, or his representative to verify that they have been excavated into competent bearing materials. The excavations should be per the approved plans, moistened, cleaned of all loose materials, trimmed neat, level, and square. Any moisture softened earth materials should be removed prior to steel or concrete placement.

Earth materials from foundation excavations should not be placed in slab on grade areas unless the materials are tested for expansion potential and compacted to a minimum of 90 percent of the maximum dry density.

Expansive Soil Considerations

Preliminary laboratory test results indicate onsite earth materials exhibit an expansion potential of **LOW** as classified in accordance with 2019 CBC Section 1803.5.3 and ASTM D 4829. Additional, testing for expansive soil conditions should be conducted upon completion of rough grading. The following recommendations should be considered the very minimum requirements, for the earth materials tested. It is common practice for the project architect or structural engineer to require additional slab thickness, footing sizes, and/or reinforcement.

Low Expansion Potential (Expansion Index of 21 to 50)

Our laboratory test results indicate that the earth materials onsite exhibit a **LOW** expansion potential as classified in accordance with 2019 CBC Section 1803.5.3 and ASTM D 4829. Accordingly, the CBC specifies that slab on ground foundations (floor slabs) resting on earth materials with expansion indices greater than 20, require special design considerations in accordance with 2019 CBC Sections 1808.6.1 and 1808.6.2. The design procedures are based on the thickness and plasticity index of the various earth materials within the upper 15 feet of the proposed structure. For preliminary design purposes, we have assumed an effective plasticity index of 12.

Footings

- Exterior continuous footings may be founded at the minimum depths below the lowest adjacent final grade (i.e. 12-inch minimum depth for one-story, 18-inch minimum depth for two-story, and 24-inch minimum depth for three-story construction). Interior continuous footings for one-, two-, and three-story construction may be founded at a minimum depth of 12 inches below the lowest adjacent final grade. All continuous footings should have a minimum width of 12, 15, and 18 inches, for one-, two-, and three-story structures, respectively, and should be reinforced with a minimum of four (4) No. 4 bars, two (2) top and two (2) bottom.
- Exterior pad footings intended to support roof overhangs, such as second story decks, patio covers and similar construction should be a minimum of 24 inches square and founded at a minimum depth of 18 inches below the lowest adjacent final grade. The pad footings should be reinforced with a minimum of No. 4 bars spaced a maximum of 18 inches on center, each way, and should be placed near the bottom-third of the footings.

Building Floor Slabs

- The project architect or structural engineer should evaluate minimum floor slab thickness and reinforcement in accordance with 2019 CBC Section 1808.6.2 based on an assumed effective plasticity index of 12. Building floor slabs should be a minimum of 4 inches thick and reinforced with a minimum of No. 3 bars spaced a maximum of 18 inches on center, each way. All floor slab reinforcement should be supported on concrete chairs or bricks to ensure the desired placement at mid-depth.
- Interior floor slabs, within moisture sensitive areas, should be underlain by a minimum 10-mil thick moisture/vapor barrier to help reduce the upward migration of moisture from the underlying earth materials. The moisture/vapor barrier used should meet the performance

standards of an ASTM E 1745 Class A material, and be properly installed in accordance with ACI publication 318-05. It is the responsibility of the contractor to ensure that the moisture/vapor barriers are free of openings, rips, or punctures prior to placing concrete. As an option for additional moisture reduction, higher strength concrete, such as a minimum 28-day compressive strength of 5,000 pounds per square inch (psi) may be used. Ultimately, the design of the moisture/vapor barrier system and recommendations for concrete placement and curing are the purview of the foundation engineer, taking into consideration the project requirements provided by the architect and owner.

- Garage floor slabs should be a minimum of 5 inches thick and should be reinforced in a similar manner as living area floor slabs. Garage floor slabs should be placed separately from adjacent wall footings with a positive separation maintained with $\frac{3}{8}$ inch minimum felt expansion joint materials and quartered with weakened plane joints. A 12-inch-wide turn down founded at the same depth as adjacent footings should be provided across garage entrances. The turn down should be reinforced with a minimum of four (4) No. 4 bars, two (2) top and two (2) bottom.
- The subgrade earth materials below all floor slabs should be pre-watered to achieve a moisture content that is at least equal or slightly greater than optimum moisture content, prior to placing concrete. This moisture content should penetrate a minimum depth of 12 inches into the subgrade earth materials. The pre-watering should be verified by Patel & Associates during construction.

Post Tensioned Slab/Foundation Design Recommendations

In lieu of the proceeding foundation recommendations, post tensioned slabs may be used to support the proposed structures. We recommend that the foundation engineer design the foundation system using the Preliminary Post Tensioned Foundation Slab Design table below. These parameters have been provided in general accordance with Post Tensioned Design. Alternate designs addressing the effects of expansive earth materials are allowed per 2019 CBC Section 1808.6.2. When utilizing these parameters, the foundation engineer should design the foundation system in accordance with the allowable deflection criteria of applicable codes and per the requirements of the structural engineer/architect.

It should be noted that the post tensioned design methodology is partially based on the assumption that soil moisture changes around and underneath post tensioned slabs, are influenced only by climate conditions. Soil moisture change below slabs is the major factor in foundation damages relating to expansive soil. However, the design methodology has no consideration for presaturation, owner irrigation, or other non-climate related influences on the moisture content of subgrade earth materials. In recognition of these factors, we modified the geotechnical parameters determined from this methodology to account for reasonable irrigation practices and proper homeowner maintenance. Additionally, we recommend that prior to excavating footings, slab subgrades be presoaked to a depth of 12 inches and maintained at above optimum moisture until placing concrete. Furthermore, we recommend that the moisture content of the earth materials around the immediate perimeter and below the slab be presaturated to at least 1% above optimum moisture content just prior to placing concrete. The pre-watering should be verified and tested by Patel & Associates during construction.

The following geotechnical parameters assume that areas adjacent to the foundations, which are planted and irrigated, will be designed with proper drainage to prevent water from ponding. Water ponding near

PATEL & ASSOCIATES
Project Number V21066-10A

16

December 27, 2021

the foundation causes significant moisture change below the foundation. Our recommendations do not account for excessive irrigation and/or incorrect landscape design. Planters placed adjacent to the foundation, should be designed with an effective drainage system or liners, to prevent moisture infiltration below the foundation. Some lifting of the perimeter foundation beam should be expected even with properly constructed planters. Based on our experience monitoring sites with similar earth materials, elevated moisture contents below the foundation perimeter due to incorrect landscaping irrigation or maintenance, can result in uplift at the perimeter foundation relative to the central portion of the slab.

Future owners should be informed and educated of the importance in maintaining a consistent level of moisture within the earth materials around the structures. Future owners should also be informed of the potential negative consequences of either excessive watering, or allowing expansive earth materials to become too dry. Earth materials will shrink as they dry, followed by swelling during the rainy winter season, or when irrigation is resumed. This will cause distress to site improvements and structures.

Preliminary Post Tensioned Foundation Slab Design

PARAMETER		VALUE
Expansion Index		Low ¹
Percent Finer than 0.002 mm in the Fraction Passing the No. 200 Sieve		< 20 percent (assumed)
Type of Clay Mineral		Montmorillonite (assumed)
Thorntwaite Moisture Index		+20
Depth to Constant Soil Suction		7 feet
Constant Soil Suction		P.F. 3.6
Moisture Velocity		0.7 inches/month
Center Lift	Edge moisture variation distance, e_m	5.5 feet
	Center lift, y_m	2.0 inches
Edge Lift	Edge moisture variation distance, e_m	3.0 feet
	Edge lift, y_m	0.8 inches
Soluble Sulfate Content for Design of Concrete Mixtures in Contact with Earth Materials		Negligible
Modulus of Subgrade Reaction, k (assuming presaturation as indicated below)		200 pci
Minimum Perimeter Foundation Embedment		18
Perimeter Foundation Reinforcement		--
Under Slab Moisture/Vapor Barrier and Sand Layer		10-mil thick moisture/vapor barrier meeting the requirements of a ASTM E 1745 Class A material
1. Obtained by laboratory testing. 2. Recommendations for foundation reinforcement are ultimately the purview of the foundation/structural engineer based upon the geotechnical criteria presented in this report, and structural engineering considerations.		

Corrosivity

Corrosion is defined by the National Association of Corrosion Engineers (NACE) as “a deterioration of a substance or its properties because of a reaction with its environment.” From a geotechnical viewpoint, the “substances” are the reinforced concrete foundations or buried metallic elements (not surrounded by concrete) and the “environment” is the prevailing earth materials in contact with them. Many factors can contribute to corrosivity, including the presence of chlorides, sulfates, salts, organic materials, different oxygen levels, poor drainage, different soil types, and moisture content. It is not considered practical or realistic to test for all of the factors which may contribute to corrosivity.

The potential for concrete exposure to chlorides is based upon the recognized Caltrans reference standard “Bridge Design Specifications”, under Subsection 8.22.1 of that document, Caltrans has determined that “Corrosive water or soil contains more than 500 parts per million (ppm) of chlorides”. Based on limited preliminary laboratory testing, the onsite earth materials have chloride contents *less* than 500 ppm. As such, specific requirements resulting from elevated chloride contents are not required.

Specific guidelines for concrete mix design are provided in 2019 CBC Section 1904.1 and ACI 318, Section 4.3 Table 4.3.1 when the soluble sulfate content of earth materials exceeds 0.1 percent by weight. Based on limited preliminary laboratory testing, the onsite earth materials are classified in accordance with Table 4.3.1 as having a *negligible* sulfate exposure condition. Therefore, structural concrete in contact with onsite earth materials should utilize Type I or II.

Based on our laboratory testing of resistivity, the onsite earth materials in contact with buried steel should be considered *very corrosive*. Additionally, pH values below 5.6 and above 9.1 are recognized as being corrosive to many common metallic components. The pH values for the earth materials tested were *higher* than 9.1

If building slabs are to be post tensioned, the post tensioning cables should be encased in concrete and/or encapsulated in accordance with the Post Tensioning Institute Guide Specifications. Post tensioning cable end plate anchors and nuts also need to be protected if exposed. If the anchor plates and nuts are in a recess in the edge of the concrete slab, the recess should be filled in with a non-shrink, non-porous, moisture-insensitive epoxy grout so that the anchorage assembly and the end of the cable are completely encased and isolated from the soil. A standard non-shrink, non-metallic cementitious grout may be used only when the post tension anchoring assembly is polyethylene encapsulated equivalent to that offered from a PTI plant or similar.

The preliminary test results for corrosivity are based on limited samples, and the initiation of grading may blend various earth materials together. This blending or imported material could alter and increase the detrimental properties of the onsite earth materials. Accordingly, additional testing for chlorides and sulfates along with testing for pH and resistivity should be performed upon completion of grading. Laboratory test results are presented in Appendix C.

RETAINING WALLS

Active and At-Rest Earth Pressures

Foundations may be designed in accordance with the recommendations provided in the Tentative Foundation Design Recommendation section of this report. The following table provides the minimum recommended equivalent fluid pressures for design of retaining walls a maximum of 8 feet high. The active earth pressure should be used for design of unrestrained retaining walls, which are free to tilt slightly. The at-rest earth pressure should be used for design of retaining walls that are restrained at the top, such as basement walls, curved walls with no joints, or walls restrained at corners. For curved walls, active pressure may be used if tilting is acceptable and construction joints are provided at each angle point and at a minimum of 15 foot intervals along the curved segments.

MINIMUM STATIC EQUIVALENT FLUID PRESSURES (pcf)		
PRESSURE TYPE	BACKSLOPE CONDITION	
	LEVEL	2:1 (h:v)
Active Earth Pressure	40	63
At-Rest Earth Pressure	60	95

The retaining wall parameters provided do not account for hydrostatic pressure behind the retaining walls. Therefore, the subdrain system is a very important part of the design. All retaining walls should be

designed to resist surcharge loads imposed by other nearby walls, structures, or vehicles should be added to the above earth pressures, if the additional loads are being applied within a 1.5:1 (h:v) plane projected up from the heel of the retaining wall footing. As a way of minimizing surcharge loads and the settlement potential of nearby buildings, the footings for the building can be deepened below the 1.5:1 (h:v) plane projected up from the heel of the retaining wall footing.

Upon request and under a separate scope of work, more detailed analyses can be performed to address equivalent fluid pressures with regard to stepped retaining walls, actual retaining wall heights, actual backfill inclinations, specific backfill materials, higher retaining walls requiring earthquake design motions, etc.

Subdrain System

We recommend a perforated pipe and gravel subdrain system be provided behind all proposed retaining walls to prevent the buildup of hydrostatic pressure behind the proposed retaining walls. The perforated pipe should consist of 4-inch minimum diameter Schedule 40 PVC or ABS SDR-35, placed with the perforations facing down. The pipe should be surrounded by 1 cubic foot per foot of $\frac{3}{4}$ - or 1½ inch open graded gravel wrapped in filter fabric. The filter fabric should consist of Mirafi 140N or equivalent to prevent infiltration of fines and subsequent clogging of the subdrain system.

In lieu of a perforated pipe and gravel subdrain system, weep holes or open vertical masonry joints may be provided in the lowest row of block exposed to the air to prevent the buildup of hydrostatic pressure behind the proposed retaining walls. Weep holes should be a minimum of 3 inches in diameter and provided at intervals at least every 6 feet along the wall. Open vertical masonry joints should be provided at a minimum of 32 inch intervals. A continuous gravel fill, a minimum of 1 cubic foot per foot, should be placed behind the weep holes or open masonry joints. The gravel should be wrapped in filter fabric consisting of Mirafi 140N or equivalent.

The retaining walls should be adequately coated on the backfilled side of the walls with a proven waterproofing compound by an experienced professional to inhibit infiltration of moisture through the walls.

Temporary Excavations

All excavations should be made in accordance with Cal-OSHA requirements. Patel & Associates is not responsible for job site safety.

Retaining Wall Backfill

Retaining wall backfill materials should be approved by the geotechnical engineer or his representative prior to placement as compacted fill. Retaining wall backfill should be placed in lifts no greater than 6 to 8 inches, watered or air dried as necessary to achieve near optimum moisture contents. All retaining wall backfill should be compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM D 1557. Retaining wall backfill should be capped with a paved surface drain.

CONCRETE FLATWORK

Thickness and Joint Spacing

Concrete sidewalks and patio type slabs should be at least 3½ inches thick and provided with construction or expansion joints every 6 feet or less, to reduce the potential for excessive cracking. Concrete driveway slabs should be at least 5 inches thick and provided with construction or expansion joints every 10 feet or less.

Subgrade Preparation

In order to reduce the potential for unsightly cracking, subgrade earth materials underlying concrete flatwork should be compacted at near optimum moisture to a minimum of 90 percent of the maximum dry density determined by ASTM D 1557 and then moistened to optimum or slightly above optimum moisture content. This moisture should extend to a depth of 12 inches below subgrade and be maintained prior to placement of concrete. Pre-watering of the earth materials prior to placing concrete will promote uniform curing of the concrete and minimize the development of shrinkage cracks. The project geotechnical engineer or his representative should verify the density and moisture content of the earth materials and the depth of moisture penetration prior to placing concrete.

Cracking within concrete flatwork is often a result of factors such as the use of too high a water to cement ratio and/or inadequate steps taken to prevent moisture loss during the curing of the concrete. Concrete distress can be reduced by proper concrete mix design and proper placement and curing of the concrete. Minor cracking within concrete flatwork is normal and should be expected.

PRELIMINARY ASPHALTIC CONCRETE PAVEMENT DESIGN

Laboratory testing of representative earth materials indicate an R-value of 50 may be used for preliminary pavement design. The following table includes our minimum recommended asphaltic concrete pavement sections calculated in accordance with the State of California design procedures using assumed Traffic Indices. Final pavement design should be based on sampling and testing of post grading conditions. Alternative pavement sections and calculation sheets have been provided within the appendices of this report.

PRELIMINARY ASPHALTIC CONCRETE PAVEMENT DESIGN			
PARAMETERS	AUTO PARKING	AUTO DRIVES	TRUCK ENTRANCES/ DRIVES
Assumed Traffic Index	5.0	6.0	7.0
Design R-Value	50	50	50
AC Thickness (inches)	3	3	3½
AB Thickness (inches)	4*	4.2	5.4

Notes: AC – Asphaltic Concrete
AB – Aggregate Base

* Denotes Minimum

The subgrade earth materials immediately below the aggregate base (base) should be compacted to a minimum of 95 percent of the maximum dry density determined by ASTM D 1557 to a minimum depth of 12 inches. Base materials should be compacted to a minimum of 95 percent of the maximum dry density determined by ASTM D 1557.

PATEL & ASSOCIATES
Project Number V21066-10A

21

December 27, 2021

Base materials should consist of Class 2 aggregate base conforming to Section 26-1.02B of the State of California Standard Specifications or crushed aggregate base conforming to Section 200-2 of the Standard Specifications for Public Works Construction (Greenbook). Base materials should be compacted at or slightly below optimum moisture content. Asphaltic concrete materials and construction operations should conform to Section 203 of the Greenbook.

GRADING PLAN REVIEW AND CONSTRUCTION SERVICES

This report has been prepared for the exclusive use of **MR. LUIS RAMALLO** and their authorized representative. It likely does not contain sufficient information for other parties or other uses. Patel & Associates should be engaged to review the final design plans and specifications prior to construction. This is to verify that the recommendations contained in this report have been properly incorporated into the project plans and specifications. Should Patel & Associates not be accorded the opportunity to review the project plans and specifications, we are not responsible for misinterpretation of our recommendations.

We recommend that Patel & Associates be retained to provide geologic and geotechnical engineering services during grading and foundation excavation phases of the work. In order to allow for design changes in the event that the subsurface conditions differ from those anticipated prior to construction.

Patel & Associates should review any changes in the project and modify and approve in writing the conclusions and recommendations of this report. This report and the drawings contained within are intended for design input purposes only and are not intended to act as construction drawings or specifications. In the event that conditions encountered during grading or construction operations appear to be different than those indicated in this report, this office should be notified immediately, as revisions may be required.

REPORT LIMITATIONS

Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable soils engineers and geologists, practicing at the time and location this report was prepared. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

Earth materials vary in type, strength, and other geotechnical properties between points of observation and exploration. Groundwater and moisture conditions can also vary due to natural processes or the works of man on this or adjacent properties. As a result, we do not and cannot have complete knowledge of the subsurface conditions beneath the subject property. No practical study can completely eliminate uncertainty with regard to the anticipated geotechnical conditions in connection with a subject property. The conclusions and recommendations within this report are based upon the findings at the points of observation and are subject to confirmation by Patel & Associates based on the conditions revealed during grading and construction.

This report was prepared with the understanding that it is the responsibility of the owner or their representative, to ensure that the conclusions and recommendations contained herein are brought to the attention of the other project consultants and are incorporated into the plans and specifications. The owners' contractor should properly implement the conclusions and recommendations during grading and construction, and notify the owner if they consider any of the recommendations presented herein to be unsafe or unsuitable.

APPENDIX E –GREENHOUSE GAS STUDY

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.



Alien Convenience Store and Gas Station

GREENHOUSE GAS ANALYSIS
COUNTY OF SAN BERNARDINO

PREPARED BY:

Haseeb Qureshi
hqureshi@urbanxroads.com
(949) 336-5987

Ali Dadabhoy
adadabhoy@urbanxroads.com

OCTOBER 5, 2022

14962-02 GHG Report.docx

TABLE OF CONTENTS

TABLE OF CONTENTS	I
APPENDICES.....	II
LIST OF EXHIBITS	II
LIST OF TABLES	II
LIST OF ABBREVIATED TERMS	III
EXECUTIVE SUMMARY	V
ES.1 Summary of Findings.....	v
ES.2 Regulatory Requirements	v
ES.3 Mitigation Measures.....	vi
1 INTRODUCTION.....	7
1.1 Site Location.....	7
1.2 Project Description.....	7
2 CLIMATE CHANGE SETTING	11
2.1 Introduction to Global Climate Change (GCC)	11
2.2 Global Climate Change Defined	11
2.3 GHGs	11
2.4 Global Warming Potential.....	18
2.6 GHG Emissions Inventories	18
2.7 Regulatory Setting.....	19
3 PROJECT GREENHOUSE GAS IMPACT.....	34
3.1 Introduction	34
3.2 Standards of Significance	34
3.3 Models Employed To Analyze Greenhouse Gases Emissions	34
3.4 Construction Emissions.....	35
3.5 Operational Emissions	37
3.6 Emissions Summary	38
3.7 Findings and Conclusions.....	39
4 REFERENCES.....	46
5 CERTIFICATION.....	50

APPENDICES

APPENDIX 3.1: CALEEMOD PROJECT CONSTRUCTION EMISSIONS MODEL OUTPUTS
APPENDIX 3.2: CALEEMOD PROJECT OPERATIONAL EMISSIONS MODEL OUTPUTS
APPENDIX 3.3: SCREENING TABLES

LIST OF EXHIBITS

EXHIBIT 1-A: LOCATION MAP	8
EXHIBIT 1-B: SITE PLAN.....	9
EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT, 2070-2099 (AS COMPARED WITH 1961-1990).....	17

LIST OF TABLES

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS.....	V
TABLE 2-1: GREENHOUSE GASES	12
TABLE 2-2: GWP AND ATMOSPHERIC LIFETIME OF SELECT GHGS	18
TABLE 3-1: CONSTRUCTION DURATION	35
TABLE 3-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS.....	36
TABLE 3-3: AMORTIZED ANNUAL CONSTRUCTION EMISSIONS	37
TABLE 3-4: PROJECT GHG EMISSIONS SUMMARY	39
TABLE 3-5: 2017 SCOPING PLAN CONSISTENCY SUMMARY.....	40

LIST OF ABBREVIATED TERMS

(1)	Reference
AB	Assembly Bill
CARB	California Air Resources Board
CAA	Federal Clean Air Act
CAFÉ	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CEC	California Energy Commission
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CH ₄	Methane
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission
EPA	Environmental Protection Agency
GCC	Global Climate Change
GHGA	Greenhouse Gas Analysis
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
MDAQMD	Mojave Desert Air Quality Management District
MMT CO ₂ e	Million Metric Ton of Carbon Dioxide Equivalent
MT CO ₂ e	Metric Ton of Carbon Dioxide Equivalent
N ₂ O	Nitrogen Dioxide
NHTSA	National Highway Traffic Safety Administration
NIOSH	National Institute for Occupational Safety and Health
NO _x	Oxides of Nitrogen
PFC	Perfluorocarbons
PM ₁₀	Particulate Matter 10 microns in diameter or less
PM _{2.5}	Particulate Matter 2.5 microns in diameter or less
PPM	Parts Per Million
SB	Senate Bill
WRI	The World Resources Institute

This page intentionally left blank.

EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Alien Convenience Store and Gas Station Greenhouse Gas Analysis* is summarized below based on the significance criteria in Section 3 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 potential greenhouse gas impacts under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
GHG Impact #1: The Project would not generate direct or indirect greenhouse gas emission that would result in a significant impact on the environment.	3.7	Potentially Significant	Less Than Significant
GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.	3.7	Potentially Significant	Less Than Significant

ES.2 REGULATORY REQUIREMENTS

The Project would be required to comply with all mandates imposed by the State of California and the Mojave Desert Air Quality Management District (MDAQMD). Those that are applicable to the Project and that would assist in the reduction of greenhouse gas (GHG) emissions are:

- Global Warming Solutions Act of 2006 (AB 32) (2).
- Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies (SB 375) (3).
- Pavley Fuel Efficiency Standards (AB 1493). Establishes fuel efficiency ratings for new vehicles (4).
- Title 24 California Code of Regulations (California Building Code). Establishes energy efficiency requirements for new construction (5).
- Title 20 California Code of Regulations (Appliance Energy Efficiency Standards). Establishes energy efficiency requirements for appliances (6).
- Title 17 California Code of Regulations (Low Carbon Fuel Standard). Requires carbon content of fuel sold in California to be 10% less by 2020 (7).
- California Water Conservation in Landscaping Act of 2006 (AB 1881). Requires local agencies to adopt the Department of Water Resources updated Water Efficient Landscape Ordinance or equivalent by January 1, 2010 to ensure efficient landscapes in new development and reduced water waste in existing landscapes (8).

- Statewide Retail Provider Emissions Performance Standards (SB 1368). Requires energy generators to achieve performance standards for GHG emissions (9).
- Renewable Portfolio Standards (SB 1078). Requires electric corporations to increase the amount of energy obtained from eligible renewable energy resources to 20 percent (%) by 2010 and 33% by 2020 (10).
- Senate Bill 32 (SB 32). Requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15 (11).

ES.3 MITIGATION MEASURES

MM GHG-1

Prior to issuance of building permits, the Project Applicant shall provide documentation to the County of San Bernardino Building Department demonstrating that the improvements and/or buildings subject to the building permit application include measures from the County of San Bernardino Development Review Processes (March 2015) GHG Emissions Screening Tables, as needed to achieve the required 100 points (12).

Alternatively, the Project Applicant may demonstrate that other measures from GHG Development Review Process Screening Tables have been incorporated into the building permit application and/or plans to achieve the required minimum of 100 points.

1 INTRODUCTION

This report presents the results of the greenhouse gas analysis (GHGA) prepared by Urban Crossroads, Inc., for the Alien Convenience Store and Gas Station Project (Project).

The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of greenhouse gas (GHG) impacts as a result of constructing and operating the proposed Project.

1.1 SITE LOCATION

The proposed Alien Convenience Store and Gas Station Project is generally located north of Baker Boulevard and Interstate I-15 and east of Death Valley Boulevard, in the County of San Bernardino as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The proposed Project is to consist of the demolition of an existing motel and construction of a new 20,400 square foot convenience store, a 3,864 square foot coffee shop, and 20-pump fueling station, as shown in Exhibit 1-B. The Project is anticipated to have an Opening Year of 2023.

EXHIBIT 1-A: LOCATION MAP

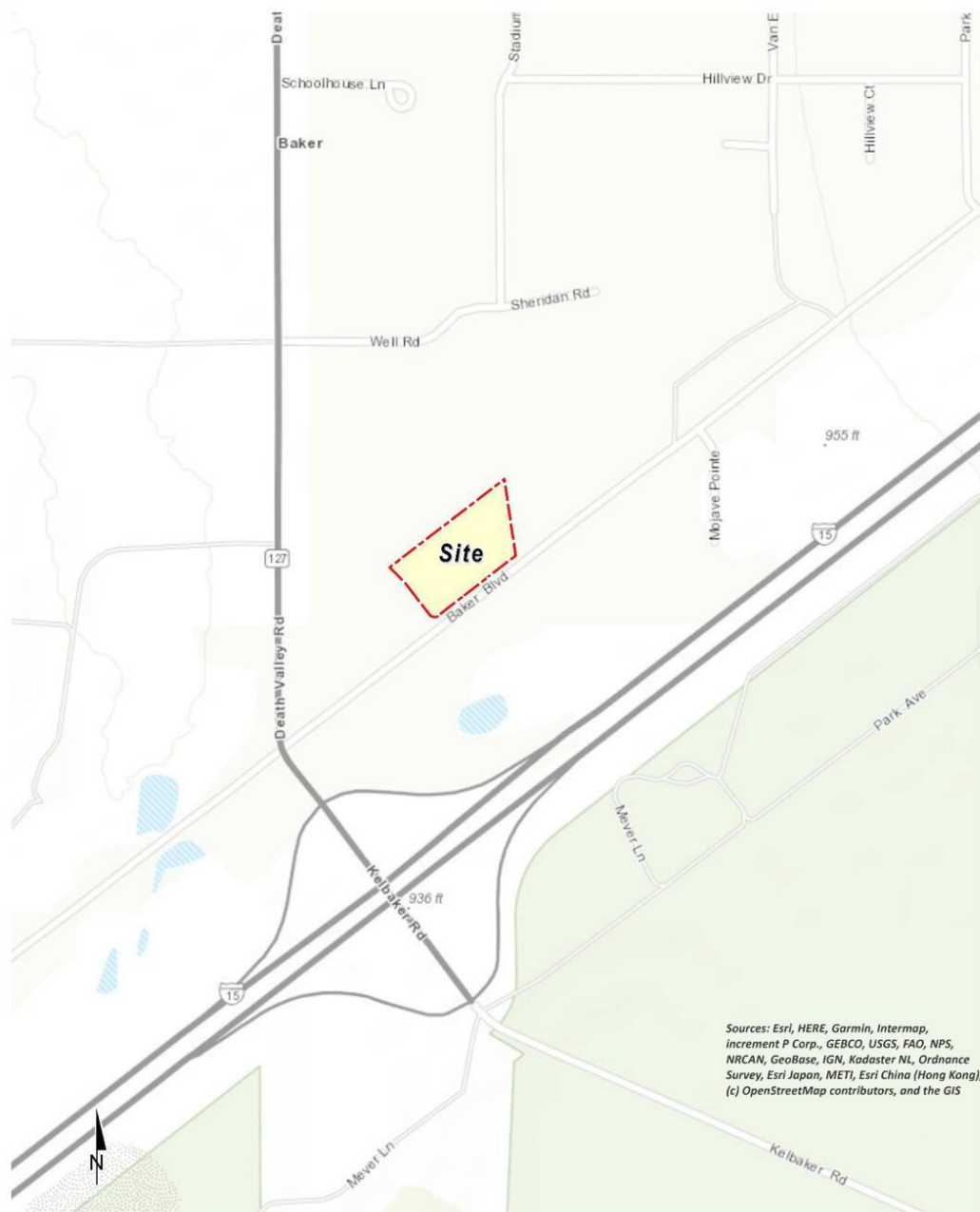
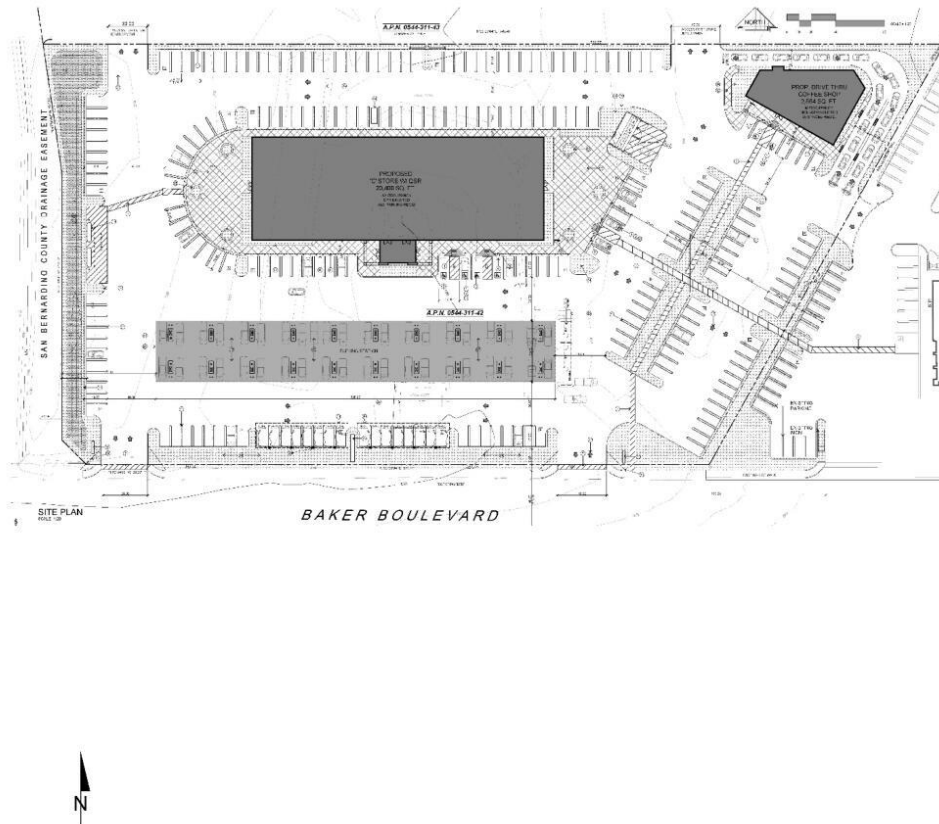


EXHIBIT 1-B: SITE PLAN



This page intentionally left blank.

2 CLIMATE CHANGE SETTING

2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE (GCC)

GCC is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. The majority of scientists believe that the climate shift taking place since the Industrial Revolution is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of GHGs in the earth's atmosphere, including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases. The majority of scientists believe that this increased rate of climate change is the result of GHGs resulting from human activity and industrialization over the past 200 years.

An individual project like the proposed Project evaluated in this GHGA cannot generate enough GHG emissions to affect a discernible change in global climate. However, the proposed Project may participate in the potential for GCC by its incremental contribution of GHGs combined with the cumulative increase of all other sources of GHGs, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3.0 will evaluate the potential for the proposed Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

2.2 GLOBAL CLIMATE CHANGE DEFINED

GCC refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO₂, N₂O, CH₄, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the earth's atmosphere, but prevent radioactive heat from escaping, thus warming the earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages.

Gases that trap heat in the atmosphere are often referred to as GHGs. GHGs are released into the atmosphere by both natural and anthropogenic activity. Without the natural GHG effect, the earth's average temperature would be approximately 61 degrees Fahrenheit (°F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

2.3 GHGs

2.3.1 GHGs AND HEALTH EFFECTS

GHGs trap heat in the atmosphere, creating a GHG effect that results in global warming and climate change. Many gases demonstrate these properties and as discussed in Table 2-1. For the purposes of this analysis, emissions of CO₂, CH₄, and N₂O were evaluated because these gases are the primary contributors to GCC from development projects. Although there are other

substances such as fluorinated gases that also contribute to GCC, these fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

TABLE 2-1: GREENHOUSE GASES

Greenhouse Gases	Description	Sources	Health Effects
Water	<p>Water is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. Climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change.</p> <p>As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is</p>	<p>The main source of water vapor is evaporation from the oceans (approximately 85%). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.</p>	<p>There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.</p>

Greenhouse Gases	Description	Sources	Health Effects
	unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the earth's surface and heat it up) (13).		
CO ₂	CO ₂ is an odorless and colorless GHG. Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO ₂ concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30%. Left unchecked, the concentration of CO ₂ in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (14).	CO ₂ is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. CO ₂ is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (15).	Outdoor levels of CO ₂ are not high enough to result in negative health effects. According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of CO ₂ can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of CO ₂ in the earth's atmosphere are estimated to be approximately 370 ppm, the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15 minute period (16).

Greenhouse Gases	Description	Sources	Health Effects
CH ₄	CH ₄ is an extremely effective absorber of radiation, although its atmospheric concentration is less than CO ₂ and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs.	CH ₄ has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH ₄ . Other anthropogenic sources include fossil-fuel combustion and biomass burning (17).	CH ₄ is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Exposure to high levels of CH ₄ can cause asphyxiation, loss of consciousness, headache and dizziness, nausea and vomiting, weakness, loss of coordination, and an increased breathing rate.
N ₂ O	N ₂ O, also known as laughing gas, is a colorless GHG. Concentrations of N ₂ O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb).	N ₂ O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also	N ₂ O can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (18).

Alien Convenience Store and Gas Station Greenhouse Gas Analysis

Greenhouse Gases	Description	Sources	Health Effects
		used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. N ₂ O can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction (18).	
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in CH ₄ or ethane (C ₂ H ₆) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	CFCs have no natural source but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years (19).	In confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

Alien Convenience Store and Gas Station Greenhouse Gas Analysis

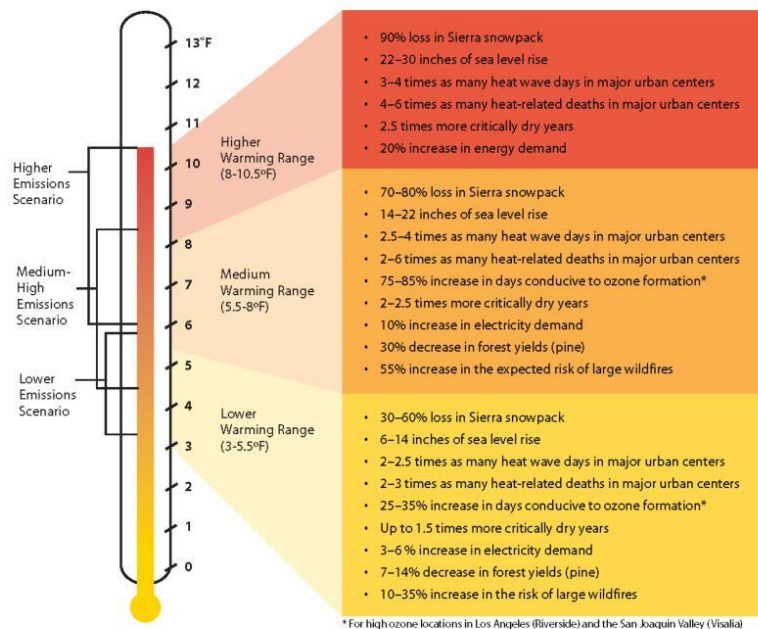
Greenhouse Gases	Description	Sources	Health Effects
HFCs	HFCs are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential (GWP). The HFCs with the largest measured atmospheric abundances are (in order), fluoroform (CHF ₃), 1,1,1,2-tetrafluoroethane (CH ₂ FCF ₃), and 1,1-difluoroethane (CH ₃ CF ₂). Prior to 1990, the only significant emissions were of CHF ₃ . CH ₂ FCF ₃ emissions are increasing due to its use as a refrigerant.	HFCs are manmade for applications such as automobile air conditioners and refrigerants.	No health effects are known to result from exposure to HFCs.
PFCs	PFCs have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above earth's surface, are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF ₄) and hexafluoroethane (C ₂ F ₆). The EPA estimates that concentrations of CF ₄ in the atmosphere are over 70 parts per trillion (ppt).	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.	No health effects are known to result from exposure to PFCs.
SF ₆	SF ₆ is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated (23,900) (20). The EPA indicates that concentrations in the 1990s were about 4 ppt.	SF ₆ is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.	In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

Alien Convenience Store and Gas Station Greenhouse Gas Analysis

Greenhouse Gases	Description	Sources	Health Effects
Nitrogen Trifluoride (NF ₃)	NF ₃ is a colorless gas with a distinctly moldy odor. The World Resources Institute (WRI) indicates that NF ₃ has a 100-year GWP of 17,200 (21).	NF ₃ is used in industrial processes and is produced in the manufacturing of semiconductors, Liquid Crystal Display panels, types of solar panels, and chemical lasers.	Long-term or repeated exposure may affect the liver and kidneys and may cause fluorosis (22).

The potential health effects related directly to the emissions of CO₂, CH₄, and N₂O as they relate to development projects such as the proposed Project are still being debated in the scientific community. Their cumulative effects to GCC have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change will likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (23). Exhibit 2-A presents the potential impacts of global warming (24).

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT, 2070-2099 (AS COMPARED WITH 1961-1990)



Source: Barbara H. Allen-Diaz. "Climate change affects us all." *University of California, Agriculture and Natural Resources*, 2009.

2.4 GLOBAL WARMING POTENTIAL

GHGs have varying GWP values. GWP of a GHG indicates the amount of warming a gas causes over a given period of time and represents the potential of a gas to trap heat in the atmosphere. CO₂ is utilized as the reference gas for GWP, and thus has a GWP of 1. CO₂ equivalent (CO₂e) is a term used for describing the difference GHGs in a common unit. CO₂e signifies the amount of CO₂ which would have the equivalent GWP.

The atmospheric lifetime and GWP of selected GHGs are summarized at Table 2-2. As shown in the table below, GWP for each assessment report has changed based the current understanding of the interactions of different chemicals in the atmosphere (25).

TABLE 2-2: GWP AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	GWP (100-year time horizon)		
		2 nd Assessment Report	4 th Assessment Report	5 th Assessment Report
CO ₂	See*	1	1	1
CH ₄	12 .4	21	25	28
N ₂ O	121	310	298	265
HFC-23	222	11,700	14,800	12,400
HFC-134a	13.4	1,300	1,430	1,300
HFC-152a	1.5	140	124	138
SF ₆	3,200	23,900	22,800	23,500

Source: International Panel on Climate Change, Library. <https://www.ipcc.ch/library/>

2.6 GHG EMISSIONS INVENTORIES

2.6.2 UNITED STATES

According to the United States (U.S.) Environmental Protection Agency (EPA), in 2019, GHG emissions in the U.S. totaled 6,558 million metric tons of carbon dioxide equivalents (MT CO₂e), or 5,769 million MT CO₂e after accounting for sequestration from the land sector. Emissions decreased from 2018 to 2019 by 1.7% (after accounting for sequestration from the land sector). This decrease was driven largely by a decrease in emissions from fossil fuel combustion resulting from a decrease in total energy use in 2019 compared to 2018 and a continued shift from coal to natural gas and renewables in the electric power sector. 2019 GHG emissions were 13% below 2005 levels (26).

2.6.3 STATE OF CALIFORNIA

California has significantly slowed the rate of growth of GHG emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls but is still a substantial contributor to the U.S. emissions inventory total. The California Air Resource Board (CARB) compiles GHG inventories for the State of California. Based upon the 2021 GHG

inventory data (i.e., the latest year for which data are available) for the 2000-2019 GHG emissions period, California emitted an average 418.2 million MT CO₂e per year (/yr) (27). In 2016, statewide GHG emissions dropped below the 2020 GHG Limit and have remained below the Limit since that time.

2.7 REGULATORY SETTING

2.7.2 FEDERAL

Prior to the last decade, there have been no concrete federal regulations of GHGs or major planning for climate change adaptation. The following are actions regarding the federal government, GHGs, and fuel efficiency.

GHG ENDANGERMENT

In *Massachusetts v. Environmental Protection Agency* 549 U.S. 497 (2007), decided on April 2, 2007, the United States Supreme Court (U.S. Court) found that four GHGs, including CO₂, are air pollutants subject to regulation under Section 202(a)(1) of the Clean Air Act (CAA). The Court held that the EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the CAA:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs— CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section “Clean Vehicles” below. After a lengthy legal challenge, the U.S. Court declined to review an Appeals Court ruling that upheld the EPA Administrator’s findings (28).

CLEAN VEHICLES

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the U.S. On April 1, 2010, the EPA and the Department of Transportation’s National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the U.S.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty (MD) passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO₂ per mile, equivalent to 35.5 miles per gallon (mpg) if the automobile industry were to meet this CO₂ level solely through fuel economy improvements. Together, these standards would cut CO₂ emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). The EPA and the NHTSA issued final rules on a second-phase joint rulemaking establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012. The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and MD passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of CO₂ in model year 2025, which is equivalent to 54.5 mpg if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20% reduction in CO₂ emissions and fuel consumption by the 2018 model year. For HDT and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10% reduction for gasoline vehicles and a 15% reduction for diesel vehicles by the 2018 model year (12 and 17% respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10% reduction in fuel consumption and CO₂ emissions from the 2014 to 2018 model years.

On April 2, 2018, the EPA signed the Mid-term Evaluation Final Determination, which declared that the MY 2022–2025 GHG standards are not appropriate and should be revised (29). This Final Determination serves to initiate a notice to further consider appropriate standards for MY 2022–2025 light-duty vehicles. On August 2, 2018, the NHTSA in conjunction with the EPA, released a notice of proposed rulemaking, the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks* (SAFE Rule). The SAFE Vehicles Rule was proposed to amend existing Corporate Average Fuel Economy (CAFE) and tailpipe CO₂ standards for passenger cars and light trucks and to establish new standards covering model years 2021 through 2026. As of March 31, 2020, the NHTSA and EPA finalized the SAFE Vehicle Rule which increased stringency of CAFE and CO₂ emissions standards by 1.5% each year through model year 2026 (30). In April, the U.S. EPA and National Highway Traffic Safety Administration's separately announced proposed rulemakings to repeal the previous administration's light-duty motor vehicle regulations that were part of the "The Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program" (SAFE 1). The comment period has closed, but no additional actions have been taken to date.

MANDATORY REPORTING OF GHGS

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA

issued the Final Mandatory Reporting of GHGs Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the U.S. and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons per year (MT/yr) or more of GHG emissions are required to submit annual reports to the EPA.

NEW SOURCE REVIEW

The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule “tailors” the requirements of these CAA permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Federal Code of Regulations, the EPA states:

“This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the CAA, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to GHG sources, starting with the largest GHG emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for GHG emissions until at least April 30, 2016.”

The EPA estimates that facilities responsible for nearly 70% of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation’s largest GHG emitters—power plants, refineries, and cement production facilities.

2.7.3 STATE

2.7.3.1 EXECUTIVE ORDERS RELATED TO GHG EMISSIONS

California’s Executive Branch has issued several Executive Orders (EO) to state agencies to reduce GHGs. EO are not legally enforceable on local governments or the private sector. Although not regulatory and not directly applicable to development projects, they set the tone for the state and guide the actions of state agencies.

EXECUTIVE ORDER S-3-05

Executive Order (EO) S-3-05 sets the following reduction targets for GHG emissions:

- 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.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target.

EXECUTIVE ORDER S-01-07 (LCFS)

EO S-01-07 mandates a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020. CARB adopted the Low Carbon Fuel Standard (LCFS) to achieve the 10% reduction in GHG emissions from the transportation fuels sector by 2020.

In 2018, the CARB approved amendments to LCFS that included strengthening the carbon intensity benchmarks through 2030 in compliance with GHG emissions reduction target for 2030. The amendments included crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector (31).

EXECUTIVE ORDER S-13-08

EO S-13-08 requires the creation of the California Climate Adaptation Strategy (CCAS), the first of which was adopted. Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

EXECUTIVE ORDER B-30-15

EO B-30-15 establishes a California GHG reduction target of 40% below 1990 levels by 2030. The new interim statewide GHG emission reduction target is set at a level to ensure California meets its 2050 target of reducing GHG emissions 80% below 1990 levels. EO B-30-15 directs CARB to update the State Climate Change Scoping Plan to include a 2030 target in terms of millions of MT CO₂e. EO B-30-15 also requires the CCAS to be updated every three years, and for the State to continue its climate change research program, among other provisions.

EXECUTIVE ORDER B-55-18

Executive Order B-55-18 establishes a Statewide policy to achieve carbon neutrality by 2045 and maintain net negative emissions thereafter. As per Executive Order B-55-18, CARB is directed to work with relevant State agencies to develop a framework for implementation and accounting that tracks progress toward this goal and to ensure future Climate Change Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

EXECUTIVE ORDER N-79-20

EO N-79-20 sets new statewide goals for phasing out gasoline-powered cars and trucks in California. Under EO N-79-20, 100% of in-state sales of new passenger cars and trucks are to be zero-emission by 2035; 100% of in-state sales of medium- and heavy-duty trucks and busses are to be zero-emission by 2045, where feasible; and 100% of off-road vehicles and equipment sales are to be zero-emission by 2035, where feasible. EO-79-20 directs CARB and other state agencies to develop regulations or take other steps within existing authority to achieve these goals.

2.7.3.1 LEGISLATIVE ACTIONS TO REDUCE GHGS

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as Global Warming Solutions Act of 2006 (AB32) was specifically enacted to address GHG emissions and the 2020 target identified in EO S-3-05. This section describes the major provisions of the legislation.

GLOBAL WARMING SOLUTIONS ACT OF 2006 (AB 32)

In 2006, the State Legislature enacted AB 32, the California Global Solutions Act of 2006 (HSC §38500-38599), which requires that GHGs emitted in California be reduced to 1990 levels by the year 2020 (this goal has been met since 2016¹). GHGs as defined under AB 32 include CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆. Since AB32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. CARB is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

“Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.”

GLOBAL WARMING SOLUTIONS ACT OF 2006: EMISSIONS LIMIT (SB 32)

In September 2016, the State Legislature enacted SB 32, the California Global Warming Solutions Act of 2006: Emissions Limit ((HSC §38566)). SB 32 requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon AB 32 and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80% below 1990 levels by 2050 (32).

THE SUSTAINABLE COMMUNITIES AND CLIMATE PROTECTION ACT OF 2008 (SB 375)

According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40% of the total GHG emissions in California. SB 375 states, “Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32.” SB 375 does the following: it (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

¹ Based upon the 2021 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2019 GHG emissions period, California emitted less than the 2020 emissions target of 431 million MT CO₂e in 2016 and each year after that.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts, or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network, if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the CARB accepts as achieving the GHG emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the mitigation measures required by an applicable prior environmental document.

VEHICULAR EMISSIONS: GREENHOUSE GASES (AB 1493)

California's AB 1493, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. The standards initially phased in during the 2009 through 2016 model years. The near-term (2009–2012) standards resulted in about a 22% reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards resulted in about a 30% improvement in fuel efficiency. The second phase of the implementation for AB 1493 was incorporated into Amendments to the Low-Emission Vehicle Program (LEV III) or the Advanced Clean Cars (ACC) program. The ACC program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation is intended reduce GHGs from new cars by 34% from 2016 levels by 2025. The new rules are intended to clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric vehicles (EV), newly emerging plug-in hybrid EVs, and hydrogen fuel cell vehicles. The package will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

MEDIUM- AND HEAVY-DUTY VEHICLES: COMPREHENSIVE STRATEGY (SB 44)

SB 44 requires CARB, no later than January 1, 2021, and at least every 5 years thereafter, to update CARB's 2016 Mobile Source Strategy to include a comprehensive strategy for the deployment of medium-duty and heavy-duty vehicles in the state for the purpose of bringing the state into compliance with federal ambient air quality standards and reducing motor vehicle greenhouse gas emissions from the medium-duty and heavy-duty vehicle sector. SB 44 further requires CARB to recommend reasonable and achievable goals, for reducing emissions from medium-duty and heavy-duty vehicles by 2030 and 2050, respectively.

CALIFORNIA RENEWABLES PORTFOLIO STANDARD PROGRAM: EMISSIONS OF GREENHOUSE GASES

The State Renewable Portfolio Standard (RPS) was initially established by SB 1078. SB 1078 required electricity providers to increase procurement of electricity from renewable energy sources by at least one percent per year with the goal of reaching 20 percent renewables by 2017. SB 107 accelerated the 20 percent RPS requirement from 2017 to 2010. Subsequently, SB 2 (1X) increased the RPS requirements to 33 percent renewables by 2020 with compliance period targets of 20 percent by 2013 and 25 percent by 2016. SB 350 further increases the RPS requirement to 50 percent by 2030, with interim targets of 40 percent by 2024 and 45 percent

by 2027. In addition, the bill requires that 65 percent of RPS procurement must be derived from long-term contracts (10 years or more) starting in 2021. The most recent change is from SB 100, which increases RPS requirements to 60 percent by 2030, with new interim targets of 44 percent by 2024 and 52 percent by 2027 as well. The bill further requires that all of the state's electricity come from carbon-free resources (not only RPS-eligible ones) by 2045.

MODEL WATER EFFICIENT LANDSCAPING ORDINANCE

The Model Water Efficient Landscaping Ordinance (MWELO) was enacted by AB 1881, the Water Conservation Act. AB 1881 required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. EO B-29-15 directs DWR to update the MELOW through expedited regulation. The California Water Commission approved the revised MELOW became effective December 15, 2015, which requires new development projects that include landscape areas of 500 sf to implement:

- More efficient irrigation systems;
- Incentives for graywater usage;
- Improvements in on-site stormwater capture;
- Limiting the portion of landscapes that can be planted with high water use plants; and
- Includes reporting requirements for local agencies.

SB 97 AND THE CEQA GUIDELINES UPDATE

Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the OPR shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the OPR pursuant to subdivision (a)." Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA.

On December 28, 2018, the Natural Resources Agency announced the OAL approved the amendments to the CEQA Guidelines for implementing the CEQA. The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

Section 15064.3 was added the CEQA Guidelines and states that in determining the significance of a project's GHG emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions. The agency's analysis should

consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes. Additionally, a lead agency may use a model or methodology to estimate GHG emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use (33).

2.7.3.2 CARB

CALIFORNIA CLIMATE CHANGE SCOPING PLAN

AB 32 required the California Air Resources Board (CARB or Board) to develop a Scoping Plan that describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020. The Scoping Plan was first approved by the Board in 2008 and must be updated at least every five years. Since 2008, there have been two updates to the Scoping Plan. Each of the Scoping Plans have included a suite of policies to help the State achieve its GHG targets, in large part leveraging existing programs whose primary goal is to reduce harmful air pollution.

The First Update to the (2013) Scoping Plan was approved CARB in 2014, and built upon the initial (2008) Scoping Plan with new strategies and recommendations. The First Update identified opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The First Update sets the groundwork to reach long-term goals set forth in Executive Order S-3-05. The First Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the initial Scoping Plan. It also evaluates how to align the State's "longer-term" GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

In November 2017, CARB released the *Final 2017 Scoping Plan Update*, which identifies the State's post-2020 reduction strategy. The *Final 2017 Scoping Plan Update* reflects the 2030 target of a 40% reduction below 1990 levels, set by Executive Order B-30-15 and codified by SB 32. Key programs that the proposed Second Update builds upon include the Cap-and-Trade Regulation, the LCFS, and much cleaner cars, trucks and freight movement, utilizing cleaner, renewable energy, and strategies to reduce CH₄ emissions from agricultural and other wastes.

The *Final 2017 Scoping Plan Update* establishes a new emissions limit of 260 MMT CO₂e for the year 2030, which corresponds to a 40% decrease in 1990 levels by 2030 (34).

California's climate strategy will require contributions from all sectors of the economy, including the land base, and will include enhanced focus on zero- and near-zero-emission (ZE/NZE) vehicle technologies; continued investment in renewables, including solar roofs, wind, and other distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (CH₄, black carbon, and fluorinated gases); and an increased focus on integrated land use

planning to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for direct GHG reductions at refineries will further support air quality co-benefits in neighborhoods, including in disadvantaged communities historically located adjacent to these large stationary sources, as well as efforts with California's local air pollution control and air quality management districts (air districts) to tighten emission limits on a broad spectrum of industrial sources. Major elements of the *Final 2017 Scoping Plan Update* framework include:

Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks.

- LCFS, with an increased stringency (18% by 2030).
- Implementing SB 350, which expands the RPS to 50% RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of zero-emission vehicles (ZEV) trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing CH₄ and hydrofluorocarbon emissions by 40% and anthropogenic black carbon emissions by 50% by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20% reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Note, however, that the *Final 2017 Scoping Plan Update* acknowledges that:

"[a]chieving net zero increases in GHG emissions, resulting in no contribution to GHG impacts, may not be feasible or appropriate for every project, however, and 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."

In addition to the statewide strategies listed above, the *Final 2017 Scoping Plan Update* also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends that local governments achieve a community-wide goal to achieve emissions of no more than 6 metric tons of CO₂e (MTCO₂e) or less per capita by 2030 and 2 MTCO₂e or less per capita by 2050. For CEQA projects, CARB states that lead agencies may develop evidenced-based bright-line numeric thresholds—consistent with the Scoping Plan and the State's long-term GHG goals—and projects with emissions over that amount may be required to incorporate on-site design features and mitigation measures that avoid or minimize project emissions to the degree feasible; or, a performance-based metric using a CAP or other plan to reduce GHG emissions is appropriate.

According to research conducted by the Lawrence Berkeley National Laboratory (LBNL) and supported by CARB, California, under its existing and proposed GHG reduction policies, could achieve the 2030 goals under SB 32. The research utilized a new, validated model known as the California LBNL GHG Analysis of Policies Spreadsheet (CALGAPS), which simulates GHG and criteria pollutant emissions in California from 2010 to 2050 in accordance to existing and future GHG-reducing policies. The CALGAPS model showed that by 2030, emissions could range from 211 to 428 MTCO₂e per year (MTCO₂e/yr), indicating that “even if all modeled policies are not implemented, reductions could be sufficient to reduce emissions 40% below the 1990 level [of SB 32].” CALGAPS analyzed emissions through 2050 even though it did not generally account for policies that might be put in place after 2030. Although the research indicated that the emissions would not meet the State’s 80% reduction goal by 2050, various combinations of policies could allow California’s cumulative emissions to remain very low through 2050 (35) (36).

CAP-AND-TRADE PROGRAM

The Scoping Plan identifies a Cap-and-Trade Program as one of the key strategies for California to reduce GHG emissions. According to CARB, a cap-and-trade program will help put California on the path to meet its goal of achieving a 40% reduction in GHG emissions from 1990 levels by 2030. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap will be able to trade permits to emit GHGs within the overall limit.

CARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. The Cap-and-Trade Program is designed to reduce GHG emissions from regulated entities by more than 16% between 2013 and 2020, and by an additional 40% by 2030. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the program’s duration.

Covered entities that emit more than 25,000 MTCO₂e/yr must comply with the Cap-and-Trade Program. Triggering of the 25,000 MTCO₂e/yr “inclusion threshold” is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of GHG Emissions (Mandatory Reporting Rule or “MRR”).

Under the Cap-and-Trade Program, CARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender “compliance instruments” for each MTCO₂e of GHG they emit. There also are requirements to surrender compliance instruments covering 30% of the prior year’s compliance obligation by November of each year (37).

The Cap-and-Trade Program provides a firm cap, which provides the highest certainty of achieving the 2030 target. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by CARB in the *First Update to the Climate Change Scoping Plan*:

“The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative.” (38)

The Cap-and-Trade Program covered approximately 80% of California’s GHG emissions (34). The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects’ electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program’s first compliance period. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in-state or imported.

2.7.3.3 CALIFORNIA REGULATIONS AND BUILDING CODES

Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions.

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California’s energy consumption relatively flat even with rapid population growth.

TITLE 20 CCR

CCR, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. 23 categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (CEC 2012).

TITLE 24 CCR

California Code of Regulations (CCR) Title 24 Part 6: The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California’s energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all

residential, commercial, and school buildings that went in effect on August 1, 2009, and is administered by the California Building Standards Commission.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2022 California Green Building Code Standards that will be effective on January 1, 2023. The CEC anticipates that the 2022 energy code will provide \$1.5 billion in consumer benefits and reduce GHG emissions by 10 million metric tons (39). The Project would be required to comply with the applicable standards in place at the time building permit document submittals are made. These require, among other items (40):

NONRESIDENTIAL MANDATORY MEASURES

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking for clean air vehicles. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- EV charging stations. New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load. The number of spaces to be provided for is contained in Table 5.106.5.3.3 (5.106.5.3). Additionally, Table 5.106.5.4.1 specifies requirements for the installation of raceway conduit and panel power requirements for medium- and heavy-duty electric vehicle supply equipment for warehouses, grocery stores, and retail stores.
- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Table 5.106.8 (5.106.8).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1, 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reuse or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).

- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
 - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
 - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
 - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
 - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor potable water uses in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWEL0), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gallons per day (GPD) (5.303.1.1 and 5.303.1.2).
- Outdoor water uses in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

2.7.4 REGIONAL/SAN BERNARDINO COUNTY

The County of San Bernardino adopted a GHG Emissions Reduction Plan (Reduction Plan) in September 2011. The Reduction Plan contains further guidance on the County of San Bernardino's GHG Inventory reduction goals, policies, guidelines, and implementation programs. The purpose of the Reduction Plan is to provide guidance on how to analyze GHG emissions and determine significance during the CEQA review of proposed development projects within the County of San Bernardino (41). The Reduction Plan provided the GHG emissions inventory for the year 2007, and target for reducing GHG emissions 15% below 2007 levels by 2020. The County has implemented strategies to reduce its GHG emissions identified in the 2011 Reduction Plan, which has helped the County meet its 2020 GHG reduction targets. Since the adoption of County's

Reduction Plan, the State has enacted new climate change regulations, most notably SB 32, which provides statewide targets to reduce GHG emissions to 40% below 1990 levels by 2030.

As part of the Reduction Plan, the County of San Bernardino published a GHG Development Review Process that specifies a two-step approach in quantifying GHG emissions. First, a screening threshold of 3,000 MTCO₂e/yr is used to determine if additional analysis is required. Projects that exceed the 3,000 MTCO₂e/yr are required to either achieve a minimum 100 points per the Screening Tables or a 31% reduction over 2007 emissions levels. Consistent with CEQA guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions (12).

This page intentionally left blank.

3 PROJECT GREENHOUSE GAS IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will result in a significant greenhouse gas impact. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related GHG impacts are taken from the Initial Study Checklist in Appendix G of the State *CEQA Guidelines* (14 CCR §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to GHG if it would (33):

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

3.2.1 DISCUSSION ON ESTABLISHMENT OF SIGNIFICANCE THRESHOLDS

The County of San Bernardino adopted the GHG Reduction Plan Update in June 2021. The GHG Reduction Plan Update provides guidance on how to analyze GHG emissions and determine significance during the CEQA review of proposed development projects within the County of San Bernardino (42). The County includes a GHG Development Review Process (DRP) that specifies a two-step approach in quantifying GHG emissions (42). First, a screening threshold of 3,000 MTCO₂e/yr is used to determine if additional analysis is required. Projects that exceed the 3,000 MTCO₂e/yr will be required to either achieve a minimum 100 points per the Screening Tables or a 31% reduction over 2007 emissions levels. Consistent with CEQA guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.

3.3 MODELS EMPLOYED TO ANALYZE GREENHOUSE GASES EMISSIONS

Land uses such as the Project affect GHGs through construction-source and operational-source emissions.

3.3.1 CALIFORNIA EMISSIONS ESTIMATOR MODEL™

In May 2022 California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including SCAQMD, released the latest version of CalEEMod version 2022.1. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_x, SO_x, CO, PM₁₀, and PM_{2.5}) and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from MMs (43). Accordingly, the latest version of CalEEMod has been used for this Project to determine GHG emissions. Output from the model runs for construction and operational activity are provided in

Appendix 3.1. CalEEMod includes GHG emissions from the following source categories: construction, area, energy, mobile, waste, water, refrigerants.

3.4 CONSTRUCTION EMISSIONS

Project construction activities would generate CO₂ and CH₄ emissions. The report *Alien Convenience Store and Gas Station Air Quality Impact Analysis Report* (Urban Crossroads, Inc.) (AQIA) contains detailed information regarding Project construction activities (44). As discussed in the AQIA, Construction related emissions are expected from the following construction activities:

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

3.4.1 CONSTRUCTION DURATION

Construction is expected to commence in August 2023 and will last through December 2023. Construction duration by phase is shown on Table 3-1. The construction schedule utilized in the analysis represents a “worst-case” analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.² The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per CEQA guidelines.

TABLE 3-1: CONSTRUCTION DURATION

Construction Activity	Start Date	End Date	Days
Demolition	9/1/2023	9/28/2023	20
Site Preparation	9/29/2023	10/5/2023	5
Grading	10/6/2023	10/17/2023	8
Building Construction	10/18/2023	12/29/2023	53
Paving	12/6/2023	12/29/2023	18
Architectural Coating	12/6/2023	12/29/2023	18

Source: Construction schedule based on CalEEMod default parameters.

² As shown in the California Emissions Estimator Model (CalEEMod) User’s Guide Version, Section 4.3 “OFFROAD Equipment” as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

3.4.2 CONSTRUCTION EQUIPMENT

Site specific construction fleet may vary due to specific project needs at the time of construction. The duration of construction activity was based on CalEEMod model defaults adjusted to account for a 2023 opening year. The associated construction equipment was generally based on CalEEMod defaults with modifications to assign 8-hour working days and account for ground disturbance during site preparation and grading. Please refer to specific detailed modeling inputs/outputs contained in Appendix 3.1 of this analysis. A detailed summary of construction equipment assumptions by phase is provided at Table 3-2.

TABLE 3-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Activity	Equipment ¹	Amount	Hours Per Day
Demolition	Concrete/Industrial Saws	1	8
	Excavators	3	8
	Rubber Tired Dozers	2	8
Site Preparation	Rubber Tired Dozers	3	8
	Crawler Tractors	4	8
Grading	Excavators	1	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Crawler Tractors	3	8
Building Construction	Cranes	1	8
	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Paving	Cement and Mortar Mixers	2	8
	Pavers	1	8
	Paving Equipment	2	8
	Rollers	2	8
	Tractors/Loaders/Backhoes	1	8
Architectural Coating	Air Compressors	1	8

Source: Construction equipment based on CalEEMod default parameters.

3.4.3 CONSTRUCTION EMISSIONS SUMMARY

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. MDAQMD follows the SCAQMD recommendation in calculating the total GHG emissions

for construction activities by amortizing the emissions over the life of the Project by dividing it by a 30- year project life then adding that number to the annual operational phase GHG emissions (45). As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions. The amortized construction emissions are presented in Table 3-3.

TABLE 3-3: AMORTIZED ANNUAL CONSTRUCTION EMISSIONS

Year	Emissions (MT/yr)				
	CO ₂	CH ₄	N ₂ O	R	Total CO ₂ e
2023	150.00	0.01	< 0.005	0.02	151.00
Total Annual Construction Emissions	150.00	0.01	0.00	0.02	151.00
Amortized Construction Emissions (MTCO₂e)	5.00	0.00	0.00	0.00	5.03

Source: CalEEMod, Appendix 3.1

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of CO₂, CH₄, N₂O and R from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions
- Water Supply, Treatment, and Distribution
- Solid Waste
- Refrigerants

3.5.1 AREA SOURCE EMISSIONS

LANDSCAPE MAINTENANCE EQUIPMENT

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in the CalEEMod model.

3.5.2 ENERGY SOURCE EMISSIONS

COMBUSTION EMISSIONS ASSOCIATED WITH NATURAL GAS AND ELECTRICITY

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO₂ and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these

emissions are considered to be indirect emissions. Unless otherwise noted, CalEEMod™ default parameters were used.

3.5.3 MOBILE SOURCE EMISSIONS

Project-related operational air quality impacts derive primarily from the 5,084 vehicle trips generated by the Project. Trip characteristics available from the report, Baker Boulevard Commercial Center *Traffic Impact Analysis* (David Evans and Associates, Inc.) 2022 were utilized in this analysis (46).

3.5.4 SOLID WASTE

Retail commercial land uses would result in the generation and disposal of solid waste. A large percentage of this waste would be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted would be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. GHG emissions associated with the disposal of solid waste associated with the Project were calculated using CalEEMod default parameters.

3.5.5 REFRIGERANTS

Air conditioning (A/C) and refrigeration equipment associated with the building are anticipated to generate GHG emissions. CalEEMod automatically generates a default A/C and refrigeration equipment inventory for each project land use subtype based on industry data from the USEPA (2016b). CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime and then derives average annual emissions from the lifetime estimate. Note that CalEEMod does not quantify emissions from the disposal of refrigeration and A/C equipment at the end of its lifetime. Per 17 CCR 95371, new facilities with refrigeration equipment containing more than 50 pounds of refrigerant are prohibited from utilizing refrigerants with a GWP of 150 or greater as of January 1, 2022. As such, it was conservatively assumed that refrigeration systems installed at the convenience store portion of the Project would utilize refrigerants with a GWP of 150. Otherwise, GHG emissions associated with refrigerants were calculated by CalEEMod using default parameters.

3.6 EMISSIONS SUMMARY

The annual GHG emissions associated with the Project are summarized in Table 3-4. As shown in Table 3-4, construction and operation of the Project would generate a total of 13,161.77 MTCO₂e/yr.

TABLE 3-4: PROJECT GHG EMISSIONS SUMMARY

Emission Source	Emissions (MT/yr)				
	CO ₂	CH ₄	N ₂ O	R	Total CO ₂ e
Annual construction-related emissions amortized over 30 years	5.00	3.33E-04	0.00E+00	6.67E-04	5.03
Mobile Source	12,610.00	1.11	0.85	23.40	12,915.00
Area Source	0.35	< 0.005	< 0.005	0.00	0.36
Energy Source	173.00	0.02	< 0.005	0.00	174.00
Water	3.76	0.09	< 0.005	0.00	6.58
Waste	9.44	0.94	0.00	0.00	33.00
Refrigerants	0.00	0.00	0.00	27.80	27.80
Total CO₂e (All Sources)	13,161.77				

Source: CalEEMod, Appendix 3.1 and Appendix 3.2
-- = Emission factor only provided in MT CO₂e

3.7 FINDINGS AND CONCLUSIONS

GHG Impact #1: Potential to generate direct or indirect GHG emissions that would result in a significant impact on the environment.

The County of San Bernardino adopted the GHG Plan in September 2011 (updated June 2021), which provides guidance on how to analyze GHG emissions and determine significance during the CEQA review of proposed development projects within the County of San Bernardino (47).

The County includes a GHG Development Review Process (DRP) that specifies a two-step approach in quantifying GHG emissions (12). First, a screening threshold of 3,000 MTCO₂e/yr is used to determine if additional analysis is required. Projects that exceed the 3,000 MTCO₂e/yr will be required to either achieve a minimum 100 points per the Screening Tables or a 31% reduction over 2007 emissions levels. Consistent with CEQA guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.

As shown in Table 3-4, the Project will result in approximately 13,161.77 MTCO₂e/yr; the proposed project would exceed the screening threshold of 3,000 MTCO₂e/yr. This would be considered a significant impact.

MM GHG-1 is included in this analysis that requires the Project Applicant to complete the County's GHG Emission Reduction Screening Tables, which requires the Project Applicant to commit to 100 points of GHG emissions reduction measures that are listed in the Screening Tables (Appendix 3.3). According to the County's GHG Emissions Reduction Plan, any project that adopts at least 100 points of GHG reduction measures listed in the Screening Tables, the proposed Project would be consistent with the County's GHG Plan. Therefore, since the Project will incorporate at least 100 points from the screening tables, the Project's impact on GHG emissions is less than significant.

4 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2016.
2. **Air Resources Board.** Assembly Bill 32: Global Warming Solutions Act. [Online] 2006. <http://www.arb.ca.gov/cc/ab32/ab32.htm>.
3. —. Sustainable Communities. [Online] 2008. <http://www.arb.ca.gov/cc/sb375/sb375.htm>.
4. —. Clean Car Standards - Pavley, Assembly Bill 1493. [Online] September 24, 2009. <http://www.arb.ca.gov/cc/ccms/ccms.htm>.
5. **Building Standards Commission.** California Building Standards Code (Title 24, California Code of Regulations). [Online] <http://www.bsc.ca.gov/codes.aspx>.
6. **California Energy Commission.** California Code of Regulations, TITLE 20, Division 2. [Online] September 3, 2013. <http://www.energy.ca.gov/reports/title20/index.html>.
7. **Air Resources Board.** Title 17 - California Code of Regulation. [Online] 2010. <http://www.arb.ca.gov/regs/regs-17.htm>.
8. **Department of Water Resources.** Updated Model Water Efficient Landscape Ordinance AB 1881. [Online] 2006. [Cited: November 13, 2013.] http://www.water.ca.gov/wateruseefficiency/landscapeordinance/updatedOrd_history.cfm.
9. **California Energy Commission.** SB 1368 Emission Performance Standards. [Online] September 29, 2006. http://www.energy.ca.gov/emission_standards/.
10. —. Renewables Portfolio Standard (RPS). [Online] 2002. <http://www.energy.ca.gov/portfolio/>.
11. **California Legislative Information.** Senate Bill No. 32. [Online] September 8, 2016. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32.
12. **County of San Bernardino.** Greenhouse Gas Emissions Development Review Processes. [Online] March 2015. <http://www.sbcounty.gov/Uploads/lus/GreenhouseGas/FinalGHGUpdate.pdf>.
13. **National Oceanic and Atmospheric Administration.** Greenhouse Gases - Water Vapor. *NOAA National Centers For Environmental Information.* [Online] <https://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php?section=watervapor>.
14. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report. International Panel on Climate Change.* 4, 2007.
15. *The Carbon Cycle and Climate Change.* Bennington, Bret J. 1, s.l. : Brooks/Cole, 2019. ISBN 1 3: 978-0-495-73855-8.
16. **The National Institute for Occupational Safety and Health.** Carbon Dioxide. *Centers for Disease Control and Prevention.* [Online] 2019. <https://www.cdc.gov/niosh/npg/npgd0103.html>.
17. **National Oceanic and Atmospheric Administration.** Greenhouse Gases - Methane. *NOAA National Centers for Environmental Information.* [Online] 2020. <https://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php?section=methane>.
18. **World Resources Institute.** Climate Analysis Indicator Tool (CAIT). [Online] 2020. <http://cait.wri.org>.
19. **National Oceanic and Atmospheric Administration.** Greenhouse Gases - Chlorofluorocarbons. *NOAA National Centers For Environmental Information.* [Online] 2020. <https://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php?section=chlorofluorocarbons>.

20. **United States Environmental Protection Agency.** Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear. *Environmental Protection Agency*. [Online] 2014. <https://www.epa.gov/sites/production/files/2016-02/documents/mehl-arb-presentation-2014-wkshp.pdf>.
21. **World Resources Institute.** Nitrogen Trifluoride Now Required in GHG Protocol Greenhouse Gas Emissions Inventory. [Online] 2013. <https://www.wri.org/blog/2013/05/nitrogen-trifluoride-now-required-ghg-protocol-greenhouse-gas-emissions-inventories>.
22. **National Center for Biotechnology Information.** Nitrogen Trifluoride. *PubChem Compound Database*. [Online] 2020. <https://pubchem.ncbi.nlm.nih.gov/compound/24553>.
23. **American Lung Association.** Climate Change. [Online] 2020. <http://www.lung.org/our-initiatives/healthy-air/outdoor/climate-change/>.
24. **Barbara H. Allen-Diaz.** Climate change affects us all. *University of California Agriculture and Natural Resources*. [Online] 2009. <http://calag.ucanr.edu/Archive/?article=ca.v063n02p51>.
25. **International Panel on Climate Change.** IPCC: Library - Assessment Reports. *International Panel on Climate Change*. [Online] [Cited: October 15, 2021.] <https://www.ipcc.ch/library/>.
26. **U.S. Environmental Protection Agency.** *Inventory of U.S. Greenhouse Gas Emissions and Sinks*. 2021.
27. **Air Resources Board.** 2021 GHG Inventory. *California Greenhouse Gas Emission Inventory 2000-2019 Edition*. [Online] [Cited: October 14, 2021.] https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf.
28. **Agency, United States Environmental Protection.** Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act. *United States Environmental Protection Agency*. [Online] 2020. <https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean>.
29. **Federal Register.** Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light-Duty Vehicles. [Online] 2018. <https://www.federalregister.gov/documents/2018/04/13/2018-07364/mid-term-evaluation-of-greenhouse-gas-emissions-standards-for-model-year-2022-2025-light-duty>.
30. **Administration, National Highway Traffic Safety.** SAFE: The Safer Affordable Fuel-Efficient 'SAFE' Vehicle Rule. *National Highway Traffic Safety Administration*. [Online] 2020. <https://www.nhtsa.gov/corporate-average-fuel-economy/safe>.
31. **California Air Resources Board.** Low Carbon Fuel Standard. [Online] 2019. <https://ww3.arb.ca.gov/fuels/lcfs/lcfs.htm>.
32. **California Legislative Information.** Senate Bill No. 32. [Online] 2016. https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32.
33. **Association of Environmental Professionals.** 2018 CEQA California Environmental Quality Act. 2018.
34. **California Air Resources Board.** California's 2017 Climate Change Scoping Plan. [Online] 2017. https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017_es.pdf.
35. **Lawrence Berkeley National Laboratory.** California's Policies Can Significantly Cut Greenhouse Gas Emissions through 2030. *Lawrence Berkeley National Laboratory*. [Online] 2015. <http://newscenter.lbl.gov/2015/01/22/californias-policies-can-significantly-cut-greenhouse-gas-emissions-2030/>.
36. **Ernest Orlando Lawrence Berkeley National Laboratory.** Modeling California policy impacts on greenhouse gas emissions. [Online] 2015. <https://eaei.lbl.gov/sites/all/files/lbnl-7008e.pdf>.

37. **California Air Resources Board.** Legal Disclaimer & User's Notice. [Online] 2019. https://ww3.arb.ca.gov/cc/capandtrade/capandtrade/ct_reg_unofficial.pdf.
38. —. Climate Change Scoping Plan. [Online] 2014. https://ww3.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.
39. **California Energy Commission.** Energy Commission Adopts Updated Building Standards to Improve Efficiency, Reduce Emissions from Homes and Businesses. [Online] August 11, 2021. <https://www.energy.ca.gov/news/2021-08/energy-commission-adopts-updated-building-standards-improve-efficiency-reduce-0>.
40. **California Department of General Services.** 2022 CALGreen Code. *CALGreen*. [Online] <https://codes.iccsafe.org/content/CAGBC2022P1>.
41. **County of San Bernardino.** Greenhouse Gas Emissions Reduction Plan. [Online] June 2021. http://www.sbcounty.gov/uploads/LUS/GreenhouseGas/GHG_2021/GHG%20Reduction%20Plan%20Update-Greenhouse%20Gas%20Reduction%20Plan%20Update%20-%20Adopted%209-21-2021.pdf.
42. —. Greenhouse Gas Reduction Plan Update. [Online] 2021. http://www.sbcounty.gov/uploads/LUS/GreenhouseGas/GHG_2021/GHG%20Reduction%20Plan%20Update-Greenhouse%20Gas%20Reduction%20Plan%20Update%20-%20Adopted%209-21-2021.pdf.
43. **California Air Pollution Control Officers Association (CAPCOA).** California Emissions Estimator Model (CalEEMod). [Online] May 2022. www.caleemod.com.
44. **Urban Crossroads, Inc.** *Alien Convenience Store and Gas Station Air Quality Impact Analysis Report*. 2022.
45. **Mojave Desert Air Quality Management District.** *MDAQMD CEQA Guidelines*. 2016.
46. **David Evans and Associates, Inc.** *Baker Boulevard Commercial Center Traffic Impact Analysis*. 2022.
47. **County of San Bernardino.** Greenhouse Gas Emissions Reduction Plan Update. [Online] June 2021. http://www.sbcounty.gov/uploads/LUS/GreenhouseGas/GHG_2021/GHG%20Reduction%20Plan%20Update-Greenhouse%20Gas%20Reduction%20Plan%20Update%20-%20Adopted%209-21-2021.pdf.
48. **Lawrence Berkeley National Laboratory.** California's Policies Can Significantly Cut Greenhouse Gas Emissions through 2030. *Lawrence Berkeley National Laboratory*. [Online] January 22, 2015. <http://newscenter.lbl.gov/2015/01/22/californias-policies-can-significantly-cut-greenhouse-gas-emissions-2030/>.

This page intentionally left blank.

5 CERTIFICATION

The contents of this air study report represent an accurate depiction of the environmental impacts associated with the proposed Alien Convenience Store and Gas Station Project. The information contained in this health risk assessment is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 660-1994.

Haseeb Qureshi
Associate Principal
URBAN CROSSROADS, INC.

(949) 660-1994
hqureshi@urbanxroads.com

EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May, 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Environmental Site Assessment – American Society for Testing and Materials • June, 2013
Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

This page intentionally left blank

GHG Impact #2: The Project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

The Project's consistency with AB 32, SB 32, and the GHG Development Review Process are discussed below.

2017 SCOPING PLAN CONSISTENCY

The 2017 Scoping Plan Update reflects the 2030 target of a 40% reduction below 1990 levels, set by Executive Order B-30-15 and codified by SB 32. Table 3-5 summarizes the project's consistency with the 2017 Scoping Plan. As summarized, the project will not conflict with any of the provisions of the Scoping Plan and in fact supports seven of the action categories.

TABLE 3-5: 2017 SCOPING PLAN CONSISTENCY SUMMARY³

Action	Responsible Parties	Consistency
Implement SB 350 by 2030		
Increase the Renewables Portfolio Standard to 50% of retail sales by 2030 and ensure grid reliability.	CPUC, CEC, CARB	Consistent. The Project would use energy from Southern California Edison (SCE). SCE has committed to diversify its portfolio of energy sources by increasing energy from wind and solar sources. The Project would not interfere with or obstruct SCE energy source diversification efforts.
Establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses by 2030.		Consistent. The Project would be constructed in compliance with current California Building Code requirements. Specifically, new buildings must achieve compliance with the current Building and Energy Efficiency Standards and the current California Green Building Standards requirements. The proposed Project includes energy efficient field lighting and fixtures that meet the current Title 24 Standards throughout the Project Site and would be a modern development with energy efficient boilers, heaters, and air conditioning systems.
Reduce GHG emissions in the electricity sector through the implementation of the above measures and other actions as modeled in Integrated Resource Planning (IRP) to meet GHG emissions reductions planning targets in the IRP process. Load-serving entities and publicly- owned utilities meet GHG emissions reductions planning targets through a combination of measures as described in IRPs.		
Implement Mobile Source Strategy (Cleaner Technology and Fuels)		
At least 1.5 million zero emission and plug-in hybrid light-duty EVs by 2025.	CARB, California State Transportation Agency (CalSTA),	Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB zero emission and plug-in hybrid light-duty EV 2025 targets.

³ Measures can be found at the following link: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

Action	Responsible Parties	Consistency
	Strategic Growth Council (SGC), California Department of Transportation (Caltrans), CEC, OPR, Local Agencies	As this is a CARB enforced standard, vehicles that access the Project are required to comply with the standards and will therefore comply with the strategy.
At least 4.2 million zero emission and plug-in hybrid light-duty EVs by 2030.		Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB zero emission and plug-in hybrid light-duty EV 2030 targets. As this is a CARB enforced standard, vehicles that access the Project are required to comply with the standards and will therefore comply with the strategy.
Further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean cars regulations.		Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB efforts to further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean cars regulations. As this is a CARB enforced standard, vehicles that access the Project are required to comply with the standards and will therefore comply with the strategy.
Medium- and Heavy-Duty GHG Phase 2.		Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB efforts to implement Medium- and Heavy-Duty GHG Phase 2. As this is a CARB enforced standard, vehicles that access the Project are required to comply with the standards and will therefore comply with the strategy.
Innovative Clean Transit: Transition to a suite of to-be-determined innovative clean transit options. Assumed 20% of new urban buses purchased beginning in 2018 will be zero emission buses with the penetration of zero-emission technology ramped up to 100% of new sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NO _x standard.		Not applicable. This measure is not within the purview of this Project.
Last Mile Delivery: New regulation that would result in the use of low NO _x or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for class 3-7 last mile delivery trucks in California. This measure assumes ZEVs comprise 2.5% of new Class 3-7 truck sales in local fleets starting in 2020,		Not applicable. This Project is not responsible for implementation of SB 375 and would therefore not conflict with this measure

Action	Responsible Parties	Consistency
increasing to 10% in 2025 and remaining flat through 2030.		
Further reduce VMT through continued implementation of SB 375 and regional Sustainable Communities Strategies; forthcoming statewide implementation of SB 743; and potential additional VMT reduction strategies not specified in the Mobile Source Strategy but included in the document "Potential VMT Reduction Strategies for Discussion."		Consistent. This Project would not obstruct or interfere with implementation of SB 375 and would therefore not conflict with this measure.
Increase stringency of SB 375 Sustainable Communities Strategy (2035 targets).	CARB	Not applicable. The Project is not within the purview of SB 375 and would therefore not conflict with this measure.
Harmonize project performance with emissions reductions and increase competitiveness of transit and active transportation modes (e.g. via guideline documents, funding programs, project selection, etc.).	CalSTA, SGC, OPR, CARB, Governor's Office of Business and Economic Development (GO- Biz), California Infrastructure and Economic Development Bank (IBank), Department of Finance (DOF), California Transportation Commission (CTC), Caltrans	Consistent. The Project would not obstruct or interfere with agency efforts to harmonize transportation facility project performance with emissions reductions and increase competitiveness of transit and active transportation modes.
By 2019, develop pricing policies to support low-GHG transportation (e.g. low-emission vehicle zones for heavy duty, road user, parking pricing, transit discounts).	CalSTA, Caltrans, CTC, OPR, SGC, CARB	Consistent. The Project would not obstruct or interfere with agency efforts to develop pricing policies to support low-GHG transportation.
Implement California Sustainable Freight Action Plan		

Alien Convenience Store and Gas Station Greenhouse Gas Analysis

Action	Responsible Parties	Consistency
Improve freight system efficiency.	CalSTA, CalEPA, CNRA, CARB, Caltrans, CEC, GO-Biz	Consistent. This measure would apply to all trucks accessing the Project sites, this may include existing trucks or new trucks that are part of the statewide goods movement sector. The Project would not obstruct or interfere with agency efforts to Improve freight system efficiency.
Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize both zero and near-zero emission freight vehicles and equipment powered by renewable energy by 2030.		Not applicable. This measure is not within the purview of this Project.
Adopt a Low Carbon Fuel Standard with a Carbon Intensity reduction of 18%.	CARB	Consistent. When adopted, this measure would apply to all fuel purchased and used by the Project in the state. The Project would not obstruct or interfere with agency efforts to adopt a Low Carbon Fuel Standard with a Carbon Intensity reduction of 18%.
Implement the Short-Lived Climate Pollutant Strategy (SLPS) by 2030		
40% reduction in methane and hydrofluorocarbon emissions below 2013 levels.	CARB, CalRecycle, CDFA, California State Water Resource Control Board (SWRCB), Local Air Districts	Not applicable. This measure is not within the purview of this Project.
50% reduction in black carbon emissions below 2013 levels.		
By 2019, develop regulations and programs to support organic waste landfill reduction goals in the SLCP and SB 1383.	CARB, CalRecycle, CDFA, SWRCB, Local Air Districts	Not applicable. This measure is not within the purview of this Project.
Implement the post-2020 Cap-and-Trade Program with declining annual caps.	CARB	Consistent. The Project would be required to comply with any applicable Cap-and-Trade Program provisions. The Project would not obstruct or interfere agency efforts to implement the post-2020 Cap-and-Trade Program.
By 2018, develop Integrated Natural and Working Lands Implementation Plan to secure California's land base as a net carbon sink		

Action	Responsible Parties	Consistency
Protect land from conversion through conservation easements and other incentives.	CNRA, Departments Within CDFA, CalEPA, CARB	Not applicable. This measure is not within the purview of this Project. However, the Project site is not an identified property that needs to be conserved.
Increase the long-term resilience of carbon storage in the land base and enhance sequestration capacity		Not applicable. This measure is not within the purview of this Project. The majority of the site is already currently developed.
Utilize wood and agricultural products to increase the amount of carbon stored in the natural and built environments		Consistent. To the extent appropriate for the proposed retail buildings, wood products would be used in construction, including for the roof structure. Additionally, the proposed project includes landscaping.
Establish scenario projections to serve as the foundation for the Implementation Plan		Not applicable. This measure is not within the purview of this Project.
Implement Forest Carbon Plan	CNRA, California Department of Forestry and Fire Protection (CAL FIRE), CalEPA and Departments Within	Not applicable. This measure is not within the purview of this Project.
Identify and expand funding and financing mechanisms to support GHG reductions across all sectors.	State Agencies & Local Agencies	Not applicable. This measure is not within the purview of this Project.

As shown above, the Project would not conflict with any of the 2017 Scoping Plan elements as any regulations adopted would apply directly or indirectly to the Project. Further, recent studies show that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40% below 1990 levels by 2030 (48).

CONSISTENCY WITH COUNTY'S CAP

The Project final plans and designs would conform to provisions of the GHG Development Review Process through implementation of the Screening Table Measures. The Project shall implement Screening Table Measures providing for a minimum 100 points per the County Screening Tables, thus the Project is considered to have a less than significant individual and cumulatively considerable impact on GHG emissions.

This page intentionally left blank.

APPENDIX F HYDROLOGY STUDY

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

PRELIMINARY HYDROLOGY STUDY

FOR

Alien Fresh C-store and Gas

DRNSTY-2021-00063
72252 Baker Blvd.
Baker, CA 92309

Prepared By:
PLUMP ENGINEERING, INC.
914 E. Katella Avenue
Anaheim, CA 92805
troy@peica.com



TG/NV5/PC2/06-02-2022



This Drainage Report was prepared under my supervision

By: _____

Date: 5/25/2022



PEI Job No. 2111016

INTRODUCTION

The site is located at 72252 Baker Boulevard in the city of Baker, California. The site is located on the northerly side of Baker Boulevard. The general location of the site is shown on the Site Vicinity Map in this report under Attachment A.

The subject site is approximately 4.99 acres (217,369 sf). The total disturbed area for the site will be 4.99 acres. The site has 5 existing buildings (15,234 sf) and a concrete in-ground pool (659 sf), all to be demolished. All existing impervious surface (54,155 sf) is to be removed and replaced. The proposed building (20,400 sf) includes a convenience store and a quick service restaurant. An additional drive thru coffee shop (4,995 sf) is proposed on the northeast corner of the property. A 20-pump gas station (18,269 sf) is proposed on the southerly side of the property. The site plan proposes a total of 237 parking stalls. Stormwater runoff from the site shall be detained using the underground infiltration trench. The site plan for the proposed development indicates that the site area will be developed with 25,465 sf of landscaped areas and 191,904 sf of impervious area. The site is located in FEMA Flood Zone X per Panel No. 06071C2325H effective 8/28/2008. (See Attachment A for FEMA FIRM Exhibit)

HYDROLOGY ANALYSIS

Hydrologic calculations were performed in accordance with San Bernardino County Hydrology Manual (August 1986) guidelines. The Hydrology Manual was used to determine the existing and proposed peak flows for the 10-year, and 100-year storm as well as the runoff volumes generated for the 10-year, and 100-year storm event. Figures and Tables below are referenced to that Manual. The pre-development condition is underdeveloped with inconsistent pavement and areas of land cover with brush and light vegetation that can be classified as grass, annual or perennial. The post-development use will be for a gas station/quick service restaurant with a drive-thru coffee shop on the northeasterly corner of the property. The existing drainage path of the site sheet flows from the northerly corner to the southerly side of the property before reaching an existing 36" storm drain pipe. The storm drain pipe then guides the runoff to an adjacent channel which conveys the storm water northerly.

To maintain a similar drainage path for the site, the post-development will sheet flow southerly leading to curb openings with energy dispersion rip-rap which will convey the runoff to the proposed infiltration trench on the southerly side of the site. In the event of overflow, runoff will be guided via a proposed swale toward the existing 36" storm drain pipe leading to the existing channel. Any offsite flows on the easterly side will be conveyed via the proposed curb and gutter along Baker Blvd to the nearest catch basin. Offsite flow on the westerly side will be conveyed southerly toward the existing channel via a proposed swale. The hydrologic soil group was determined to be Soil Group A from the Hydrologic Soil Group Map from the San Bernardino Hydrology Manual. (Please see Attachment A) Antecedent Moisture Condition II was used for all storm events to determine runoff volume. Depth of 24-hr and 1-hr point precipitation data was obtained from NOAA Atlas 14, Volume 6, Version 2. (Please see Attachment A)

RUNOFF FLOWS

Table 1: Peak Flow

Tributary Area	DA (Pre-Develop.)	DA (Post-Develop.)
Acreage, Acres	4.99	4.99
Time of Concentration; T _c (min)	24	10.5
10 year Storm Event Runoff; Q ₁₀ (cfs)	4.42	9.82
100 year Storm Event Runoff; Q ₁₀₀ (cfs)	9.55	18.25

RUNOFF VOLUMES

Table 2: Runoff Volumes

Tributary Area	DA (Pre-Develop.)	DA (Post-Develop.)
Acreage, Acres	4.99	4.99
24-hr. Precipitation Depth(inches) P ₂₄ (10 yr)	1.60	1.60
24-hr. Precipitation Depth(inches) P ₂₄ (100 yr)	2.84	2.84
CN (AMC II)	84	90
CN (AMC III)	96	98
10 year Storm Event Runoff; V ₁₀ (Ac-ft)	0.20	0.32
100 year Storm Event Runoff; V ₁₀₀ (Ac-ft)	0.59	0.77

CONCLUSION

The existing peak runoff from the project area was calculated to be 4.42 cfs, and 9.55 cfs onsite for the 10-year, and 100-year storm, respectively. The proposed peak runoff from the project area after improvements was calculated to be 9.82 cfs, and 18.25 cfs onsite for the 10-year, and 100-year storm, respectively. The existing runoff volumes from the project area was calculated to be 0.20 Ac-ft, and 0.59 Ac-ft for the 10-year and 100-year storm event, respectively.

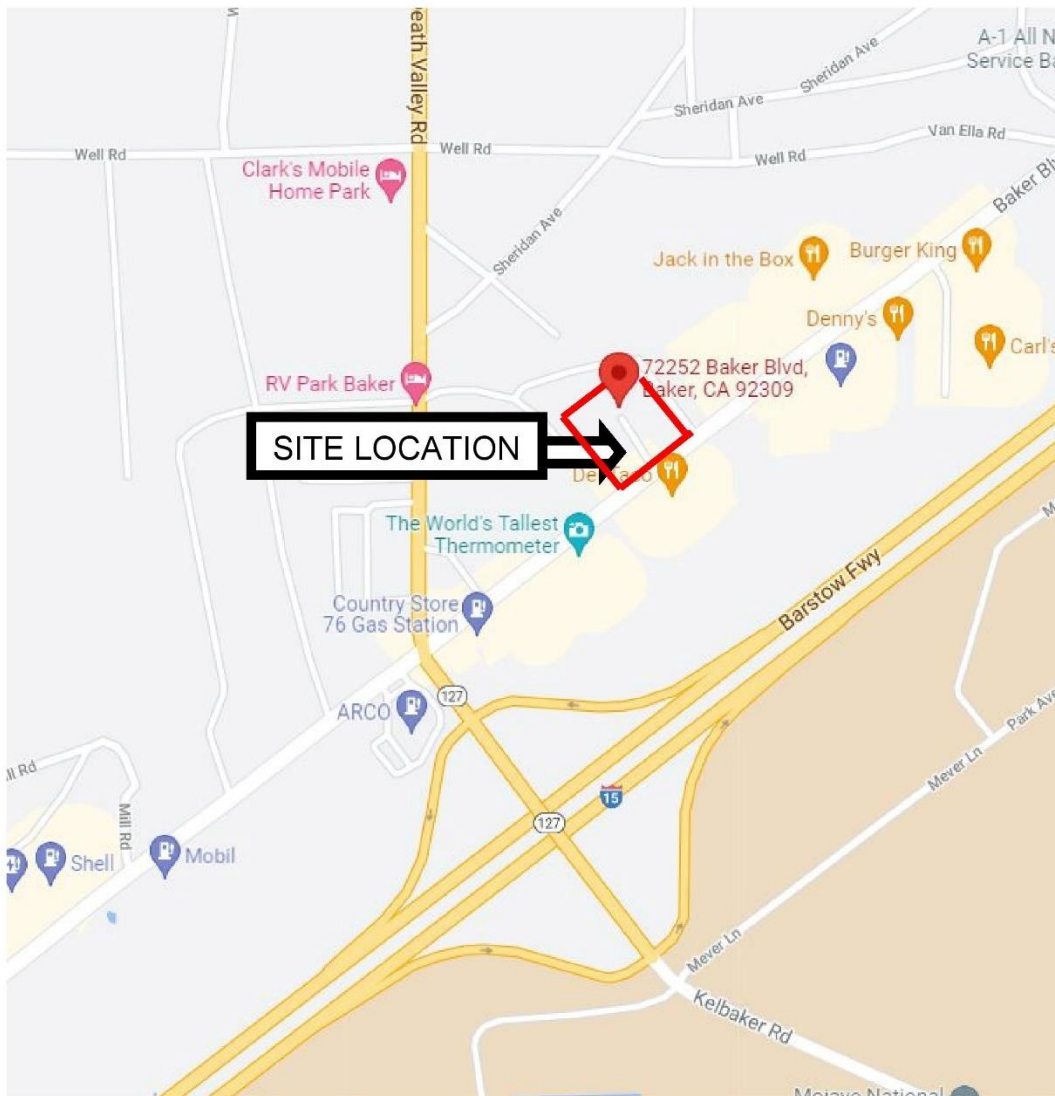
The proposed runoff volume from the project area after improvements was calculated to be 0.32 Ac-ft, and 0.77 Ac-ft for the 10-year and 100-year storm, respectively. Post-development condition has greater peak runoff flow and runoff volume than the pre-development condition, with the difference between pre and post development runoff volume for 10-year and 100-year storm of 0.12 Ac-ft, and 0.18 Ac-ft respectively. The provided capacity of the infiltration trench is 8,013 cf (0.184 Ac-ft), while the difference in volume for the 100-year storm is 7,841 cf (0.180 Ac-ft). Therefore, the site will be discharging less than the pre-development conditions. Refer to the Attachment A for sizing calculations.

Attachment A

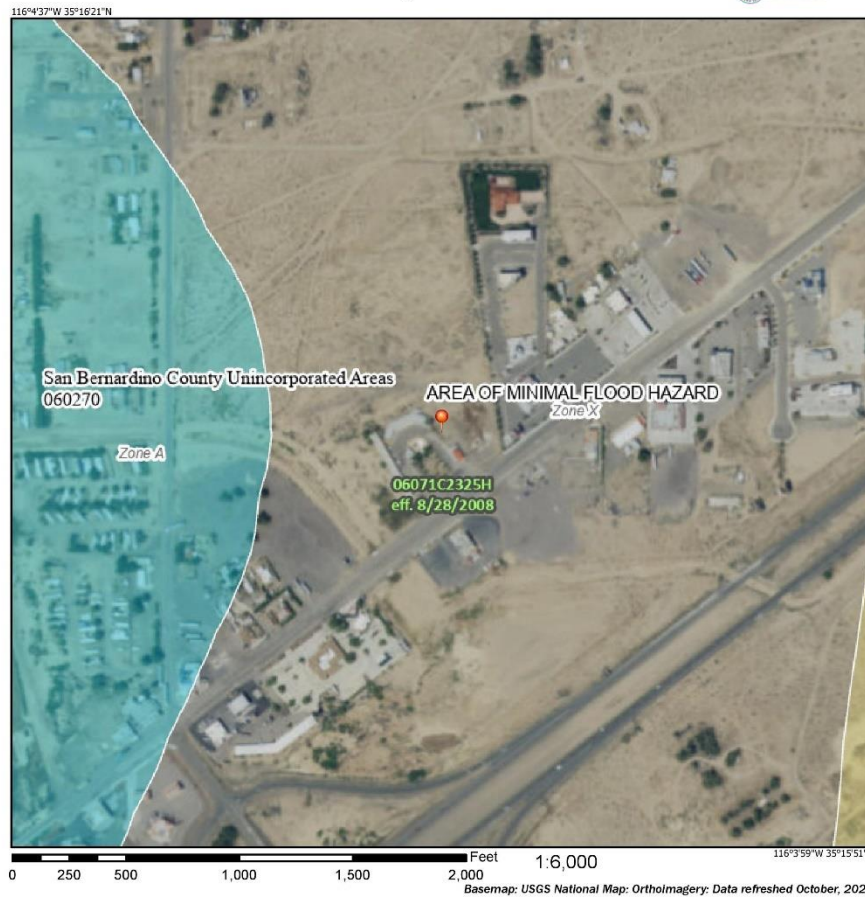
Rational Method Calculation

Hydrology Study
Alien Fresh C-store and Gas
72252 Baker Blvd., Baker, CA 92309

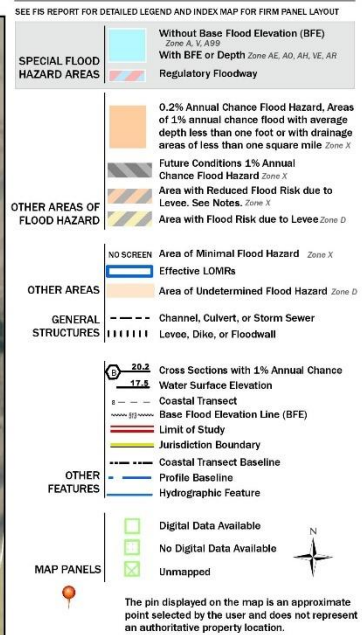
SITE VICINITY MAP



National Flood Hazard Layer FIRMeTte



Legend



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/17/2022 at 12:50 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

COUNTY CALCULATIONS

Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA1)			
1 Remaining LID DCV not met by site design HSC BMP (ft ³): $V_{\text{unmet}} = \text{Form 4.2-1 Item 7} - \text{Form 4.3-2 Item 30}$			
BMP Type Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs	DA BMP Type Infiltration Basin	DA BMP Type	DA DMA BMP Type (Use additional forms for more BMPs)
2 Infiltration rate of underlying soils (in/hr) See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods	2		
3 Infiltration safety factor See TGD Section 5.4.2 and Appendix D	2		
4 Design percolation rate (in/hr) $P_{\text{design}} = \text{Item 2} / \text{Item 3}$	1		
5 Ponded water drawdown time (hr) Copy Item 6 in Form 4.2-1	48		
6 Maximum ponding depth (ft) BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details	1		
7 Ponding Depth (ft) $d_{\text{BMP}} = \text{Minimum of } (1/12 * \text{Item 4} * \text{Item 5}) \text{ or Item 6}$	0.5		
8 Infiltrating surface area, SA_{BMP} (ft ²) the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP	2428.2		
9 Amended soil depth, d_{media} (ft) Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details	0		
10 Amended soil porosity	0		
11 Gravel depth, d_{media} (ft) Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details	7		
12 Gravel porosity	0.4		
13 Duration of storm as basin is filling (hrs) Typical ~ 3hrs	3		
14 Above Ground Retention Volume (ft ³) $V_{\text{retention}} = \text{Item 8} * [\text{Item 7} + (\text{Item 9} * \text{Item 10}) + (\text{Item 11} * \text{Item 12}) + (\text{Item 13} * (\text{Item 4} / 12))]$	8620		
15 Underground Retention Volume (ft ³) Volume determined using manufacturer's specifications and calculations	N/A		
16 Total Retention Volume from LID Infiltration BMPs: 8,620 cf (Sum of Items 14 and 15 for all infiltration BMP included in plan)			



INFILTRATION TRENCH DRAWDOWN CALCULATION

By: CB

Date: 5/25/2022

Infiltration Trench (w/o 3hr time credit):

$D_{\text{gravel}}=7'$, $D_{\text{ponding}}=0.5'$, $A=2,428.2$ sf

D_{gravel} = Gravel Depth

D_{ponding} = Ponding Depth

A = Infiltration Trench Area

N = Gravel Porosity

V_{TRENCH} = Trench Storage Volume

$$V_{\text{TRENCH}} = A * [N * D_{\text{gravel}} + D_{\text{ponding}}]$$

$$V_{\text{TRENCH}} = 2,428.2 * [(0.40) * 7' + 0.5']$$

$$V_{\text{TRENCH}} = 8,013 \text{ CF}$$

$P_{\text{design}}=1.0$ in/hr, $A=2,428.2$ sf, $T_{\text{drawdown}}=48$ hrs

P_{design} = Design Percolation Rate

A = Infiltration Trench Area

T_{drawdown} = Drawdown Time

V_{drawdown} = Maximum Drawdown Volume

$$V_{\text{drawdown}} = A * (P_{\text{design}}/12) * T_{\text{drawdown}}$$

$$V_{\text{drawdown}} = 2,428.2 \text{ sf} * (1.0/12 \text{ ft/hr}) * 48 \text{ hrs}$$

$$V_{\text{drawdown}} = 9,712.8 \text{ CF}$$

$V_{\text{drawdown}} > V_{\text{TRENCH}}$ ∴ *The proposed infiltration trench will drawdown within 48 hours.*

ALIEN FRESH C-STORE AND GAS
 72252 BAKER BLVD
 BAKER, CA 92364

Pre-Development Condition			
Total Area	217369.20 SF	4.99 AC	1.00
Pervious Area	147980.28 SF	3.40 AC	0.68
Impervious Area	69388.92 SF	1.59 AC	0.32

Tc	24 mins	(Fig. D-1 SBC Hydro Manual)
I-2yr	0.62 in/hr	(Fig. D-3 SBC Hydro Manual)
I-10yr	1.27 in/hr	(Fig. D-3 SBC Hydro Manual)
I-100yr	2.25 in/hr	(Fig. D-3 SBC Hydro Manual)
Fp-2yr	0.42 in/hr	(Fig C.6 SBC Hydro Manual-AMC II)
Fp-10yr	0.42 in/hr	(Fig C.6 SBC Hydro Manual-AMC II)
Fp-100yr	0.18 in/hr	(Fig C.6 SBC Hydro Manual-AMC III)
Fm-2yr	0.29 in/hr	(Eq. C.7 SBC Hydro Manual)
Fm-10yr	0.29 in/hr	(Eq. C.7 SBC Hydro Manual)
Fm-100yr	0.12 in/hr	(Eq. C.7 SBC Hydro Manual)
Q-2yr	1.50 cfs	(Eq. D.4 SBC Hydro Manual)
Q-10yr	4.42 cfs	(Eq. D.4 SBC Hydro Manual)
Q-100yr	9.55 cfs	(Eq. D.4 SBC Hydro Manual)

Alien Commercial Center Initial Study Mitigated Negative Declaration
72252 Baker Boulevard, (APN: 0544-311-42) Baker, CA, San Bernardino County November 2022

11/12/21, 2:22 PM

Precipitation Frequency Data Server



NOAA Atlas 14, Volume 6, Version 2
Location name: Baker, California, USA*
Latitude: 35.2683°, Longitude: -116.0717°
Elevation: 933.35 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 & aeriels](#)

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	0.055 (0.045-0.068)	0.099 (0.081-0.122)	0.156 (0.127-0.193)	0.202 (0.164-0.252)	0.265 (0.208-0.341)	0.313 (0.240-0.411)	0.361 (0.271-0.486)	0.411 (0.300-0.568)	0.478 (0.336-0.687)	0.530 (0.360-0.787)
10-min	0.079 (0.065-0.097)	0.142 (0.116-0.175)	0.223 (0.182-0.277)	0.290 (0.234-0.361)	0.379 (0.297-0.489)	0.448 (0.344-0.589)	0.517 (0.388-0.696)	0.589 (0.430-0.813)	0.685 (0.481-0.985)	0.759 (0.516-1.13)
15-min	0.095 (0.078-0.118)	0.171 (0.140-0.211)	0.270 (0.220-0.334)	0.350 (0.284-0.437)	0.459 (0.360-0.591)	0.542 (0.416-0.712)	0.626 (0.470-0.842)	0.712 (0.520-0.984)	0.828 (0.582-1.19)	0.918 (0.624-1.37)
30-min	0.130 (0.107-0.161)	0.234 (0.191-0.288)	0.368 (0.301-0.456)	0.478 (0.387-0.596)	0.626 (0.491-0.806)	0.739 (0.568-0.971)	0.854 (0.641-1.15)	0.971 (0.710-1.34)	1.13 (0.793-1.63)	1.25 (0.851-1.86)
60-min	0.183 (0.150-0.226)	0.329 (0.269-0.406)	0.519 (0.423-0.643)	0.673 (0.545-0.840)	0.882 (0.691-1.14)	1.04 (0.800-1.37)	1.20 (0.903-1.62)	1.37 (1.00-1.89)	1.59 (1.12-2.29)	1.76 (1.20-2.62)
2-hr	0.263 (0.215-0.324)	0.411 (0.337-0.508)	0.613 (0.500-0.759)	0.782 (0.633-0.976)	1.02 (0.800-1.32)	1.21 (0.930-1.59)	1.41 (1.06-1.90)	1.62 (1.18-2.24)	1.92 (1.35-2.76)	2.15 (1.46-3.20)
3-hr	0.297 (0.244-0.367)	0.444 (0.363-0.548)	0.646 (0.527-0.799)	0.818 (0.662-1.02)	1.07 (0.835-1.37)	1.26 (0.972-1.66)	1.48 (1.11-1.99)	1.71 (1.25-2.36)	2.03 (1.43-2.92)	2.30 (1.56-3.42)
6-hr	0.364 (0.298-0.449)	0.517 (0.423-0.638)	0.732 (0.598-0.907)	0.920 (0.745-1.15)	1.19 (0.936-1.54)	1.42 (1.09-1.87)	1.66 (1.25-2.24)	1.93 (1.41-2.67)	2.32 (1.63-3.34)	2.65 (1.80-3.93)
12-hr	0.444 (0.363-0.547)	0.633 (0.517-0.781)	0.898 (0.732-1.11)	1.13 (0.913-1.41)	1.46 (1.15-1.89)	1.74 (1.34-2.29)	2.04 (1.53-2.74)	2.36 (1.73-3.27)	2.84 (1.99-4.08)	3.23 (2.19-4.80)
24-hr	0.615 (0.542-0.711)	0.892 (0.786-1.03)	1.27 (1.12-1.48)	1.60 (1.40-1.87)	2.06 (1.75-2.49)	2.44 (2.03-2.99)	2.84 (2.31-3.56)	3.26 (2.59-4.19)	3.87 (2.96-5.16)	4.37 (3.24-6.00)
2-day	0.711 (0.627-0.823)	1.02 (0.899-1.18)	1.44 (1.26-1.67)	1.79 (1.56-2.09)	2.28 (1.93-2.74)	2.66 (2.22-3.27)	3.07 (2.50-3.85)	3.49 (2.77-4.49)	4.09 (3.13-5.45)	4.57 (3.39-6.28)
3-day	0.778 (0.686-0.901)	1.11 (0.974-1.28)	1.54 (1.36-1.79)	1.91 (1.66-2.23)	2.41 (2.04-2.91)	2.81 (2.34-3.45)	3.22 (2.62-4.03)	3.65 (2.89-4.68)	4.24 (3.24-5.65)	4.71 (3.49-6.47)
4-day	0.840 (0.741-0.973)	1.19 (1.04-1.37)	1.65 (1.45-1.91)	2.02 (1.77-2.37)	2.55 (2.16-3.07)	2.95 (2.46-3.62)	3.37 (2.75-4.23)	3.81 (3.03-4.89)	4.41 (3.38-5.88)	4.88 (3.62-6.71)
7-day	0.902 (0.795-1.04)	1.25 (1.10-1.45)	1.72 (1.51-2.00)	2.10 (1.83-2.46)	2.62 (2.22-3.15)	3.02 (2.51-3.71)	3.43 (2.80-4.31)	3.86 (3.07-4.96)	4.45 (3.40-5.93)	4.90 (3.64-6.74)
10-day	0.976 (0.861-1.13)	1.35 (1.18-1.56)	1.83 (1.61-2.12)	2.22 (1.94-2.60)	2.76 (2.34-3.33)	3.18 (2.64-3.90)	3.60 (2.93-4.52)	4.04 (3.21-5.19)	4.64 (3.55-6.18)	5.10 (3.79-7.02)
20-day	1.09 (0.961-1.26)	1.48 (1.30-1.72)	1.99 (1.75-2.31)	2.41 (2.10-2.82)	2.97 (2.52-3.58)	3.41 (2.83-4.18)	3.85 (3.13-4.82)	4.30 (3.41-5.53)	4.92 (3.76-6.55)	5.40 (4.00-7.42)
30-day	1.22 (1.08-1.41)	1.65 (1.45-1.91)	2.21 (1.94-2.57)	2.66 (2.32-3.12)	3.28 (2.78-3.95)	3.76 (3.13-4.61)	4.24 (3.45-5.32)	4.74 (3.77-6.09)	5.42 (4.15-7.23)	5.95 (4.41-8.18)
45-day	1.37 (1.21-1.58)	1.84 (1.62-2.13)	2.45 (2.15-2.85)	2.95 (2.58-3.46)	3.64 (3.08-4.38)	4.17 (3.46-5.11)	4.70 (3.83-5.89)	5.26 (4.17-6.76)	6.01 (4.60-8.02)	6.60 (4.90-9.08)
60-day	1.47 (1.30-1.70)	1.97 (1.73-2.28)	2.63 (2.31-3.05)	3.16 (2.76-3.70)	3.89 (3.30-4.69)	4.46 (3.71-5.47)	5.04 (4.10-6.31)	5.63 (4.47-7.24)	6.45 (4.94-8.60)	7.09 (5.26-9.75)
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.										

[Back to Top](#)

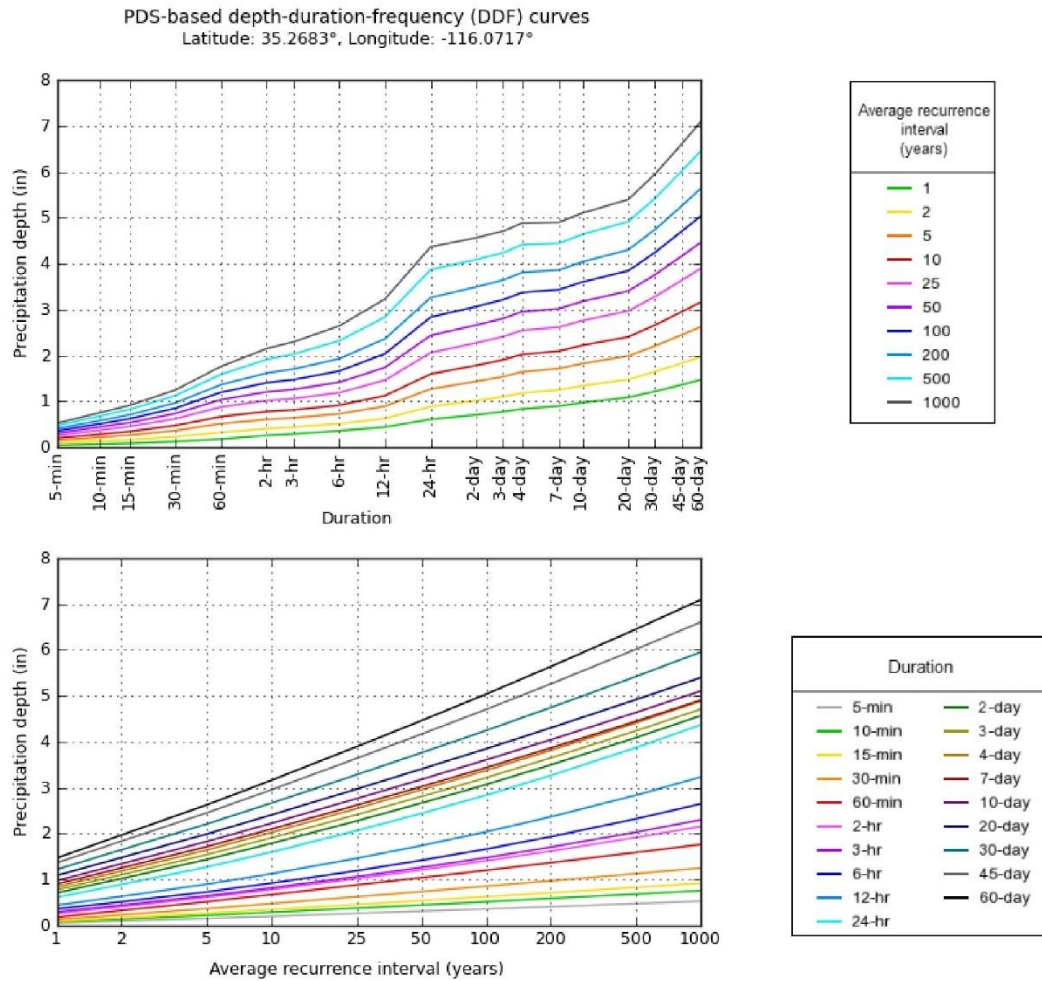
PF graphical

https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_printpage.html?lat=35.2683&lon=-116.0717&data=depth&units=english&series=pds

1/4

11/12/21, 2:22 PM

Precipitation Frequency Data Server



NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Fri Nov 12 22:21:56 2021

[Back to Top](#)

Maps & aerals

Small scale terrain

https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_printpage.html?lat=35.2683&lon=-116.0717&data=depth&units=english&series=pds

2/4

TABLE C.1. CURVE NUMBER RELATIONSHIPS

CN for AMC Condition II	Corresponding CN for AMC Condition	
	I	III
100	100	100
95	87	99
90	78	98
85	70	97
80	63	94
75	57	91
70	51	87
65	45	83
60	40	79
55	35	75
50	31	70
45	27	65
40	23	60
35	19	55
30	15	50
25	12	45
20	9	39
15	7	33
10	4	26
5	2	17
0	0	0

C.6. ESTIMATION OF LOSS RATES

In estimating loss rates for design hydrology, a watershed curve number (CN) is determined for each soil-cover complex within the watershed using Figure C-3. The working range of CN values is between 0 and 98, where a low CN indicates low runoff potential (high infiltration), and a high CN indicates high runoff potential (low infiltration). Selection of a CN takes into account the major factors affecting loss rates on pervious surfaces including the hydrologic soil group, cover type and quality, and antecedent moisture condition (AMC).

Also included in the CN selection are the effects of "initial abstraction" (Ia) which represents the combined effects of other effective rainfall losses including depression storage, vegetation interception, evaporation, and transpiration, among other factors.

PRE-DEVELOPMENT

Curve (I) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II					
Cover Type (3)	Quality of Cover (2)	Soil Group			
		A	B	C	D
<u>NATURAL COVERS -</u>					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparral, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparral, 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	71	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	25	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
<u>URBAN COVERS -</u>					
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
<u>AGRICULTURAL COVERS -</u>					
Fallow (Land plowed but not tilled or seeded)		77	86	91	94

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

**CURVE NUMBERS
FOR
PERVIOUS AREAS**

C-6

Figure C-3 (1 of 2)

26

Curve (1) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II					
Cover Type (3)	Quality of Cover (2)	Soil Group			
		A	B	C	D
<u>AGRICULTURAL COVERS (Continued)</u>					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87

Notes:

- All curve numbers are for Antecedent Moisture Condition (AMC) II.
- Quality of cover definitions:

 Poor-Heavily grazed, regularly burned areas, or areas of high burn potential. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.

 Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.

 Good-Heavy or dense cover with more than 75 percent of the ground surface protected.
- See Figure C-2 for definition of cover types.

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

CURVE NUMBERS

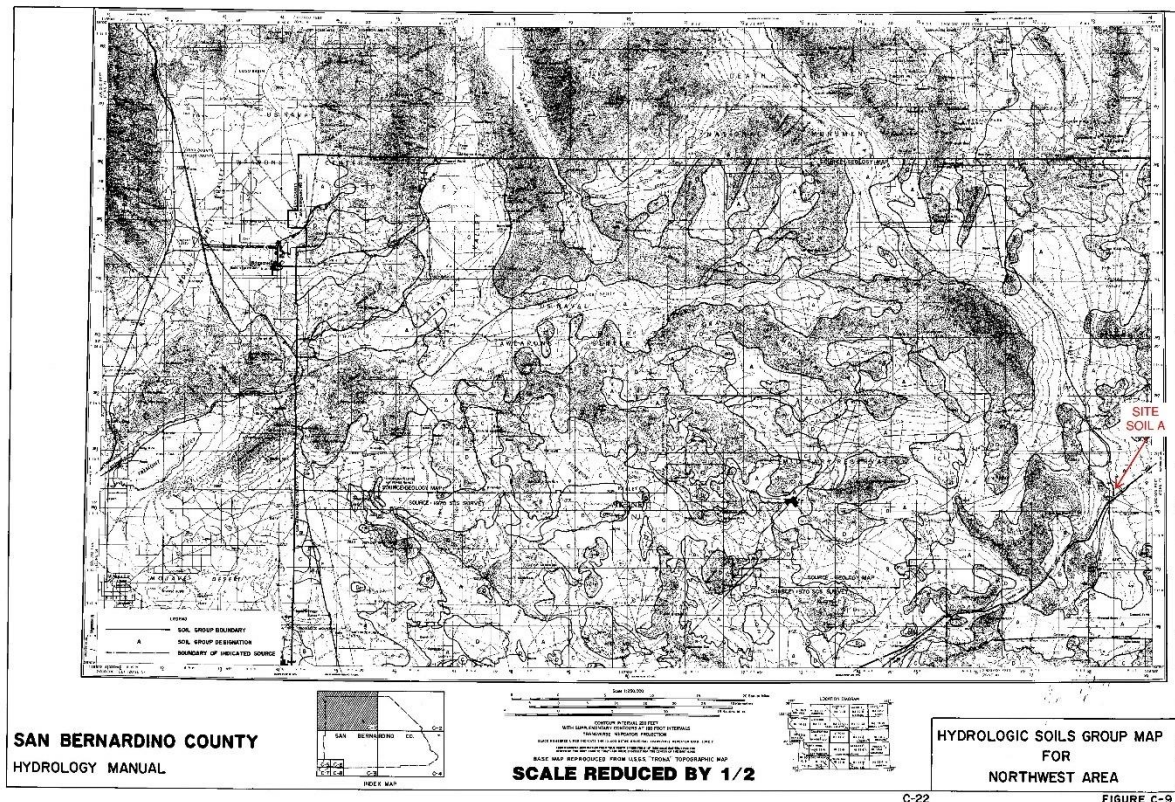
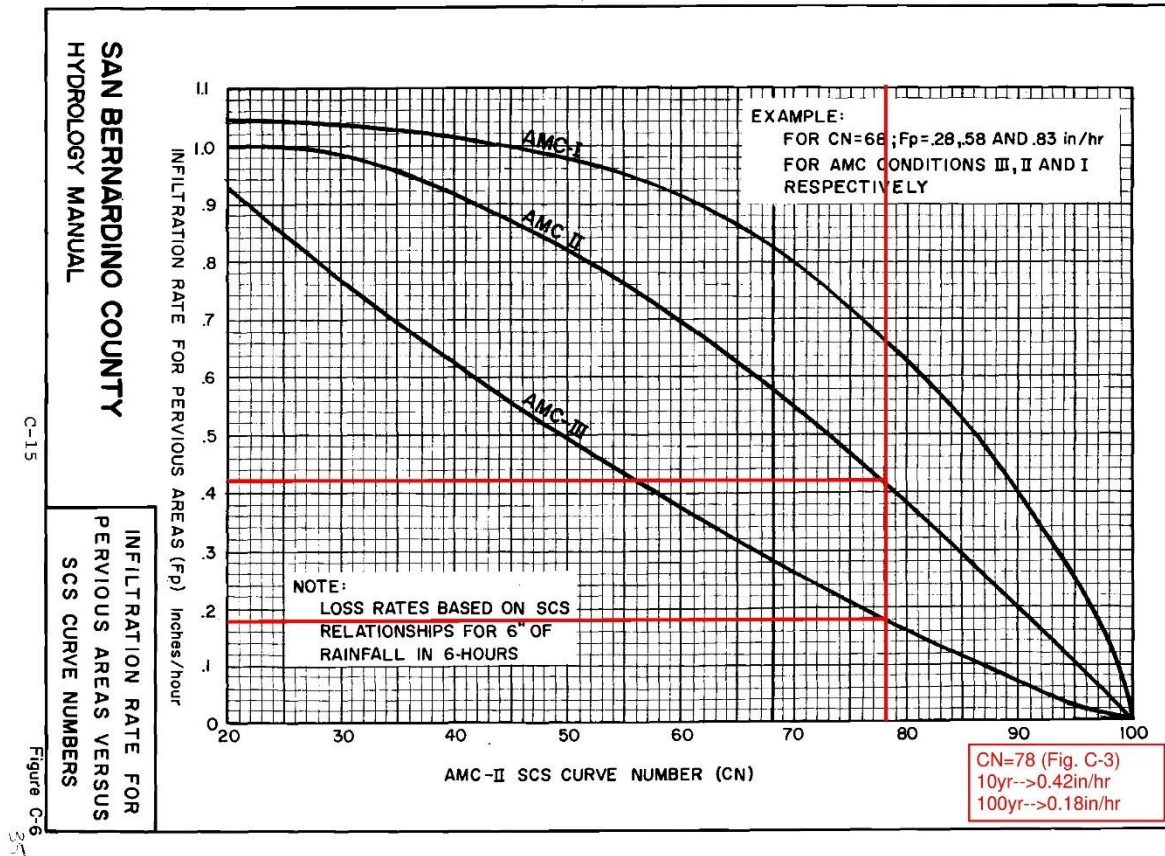
FOR

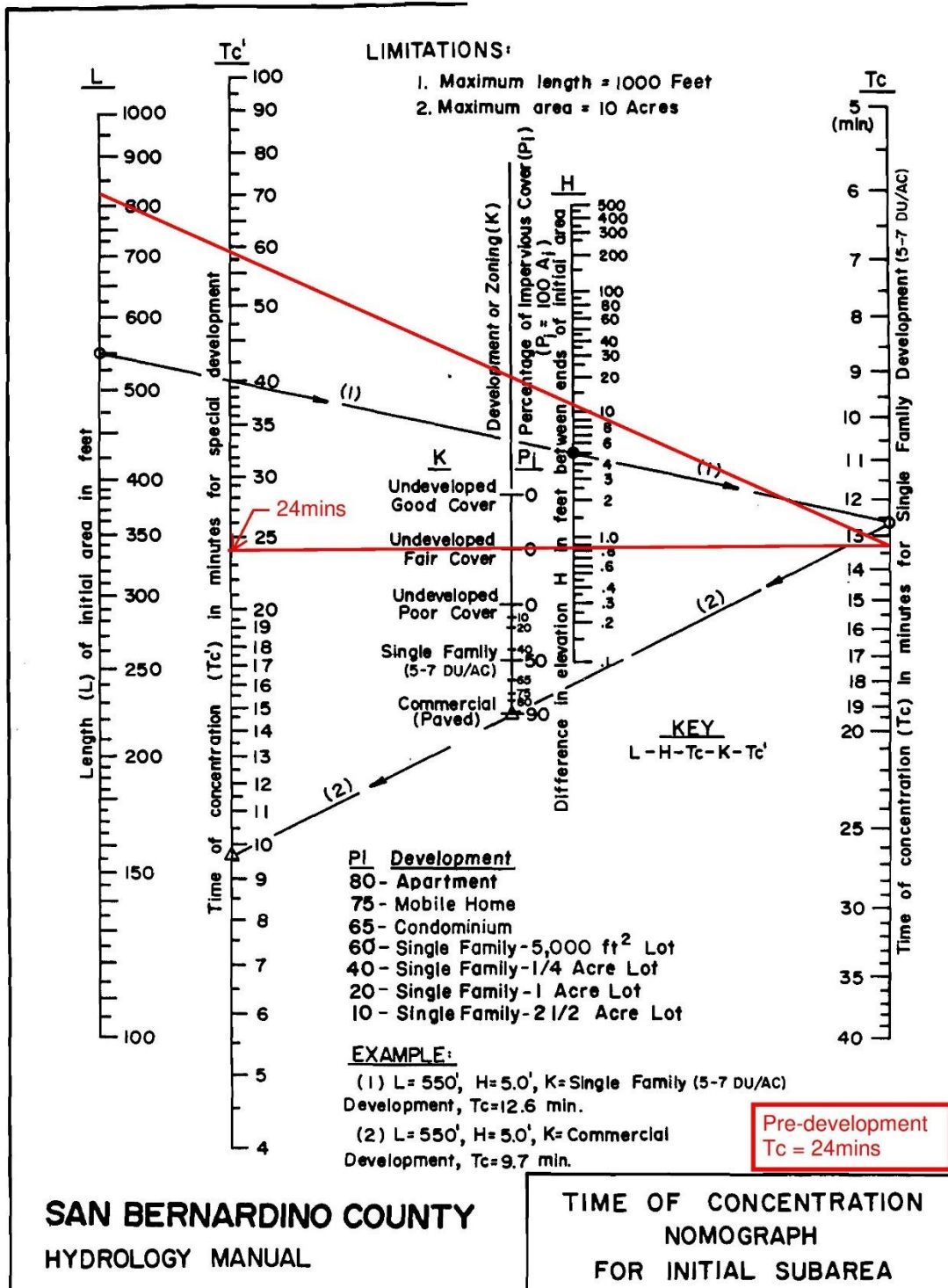
PERVIOUS AREAS

C-7

Figure C-3 (2 of 2)

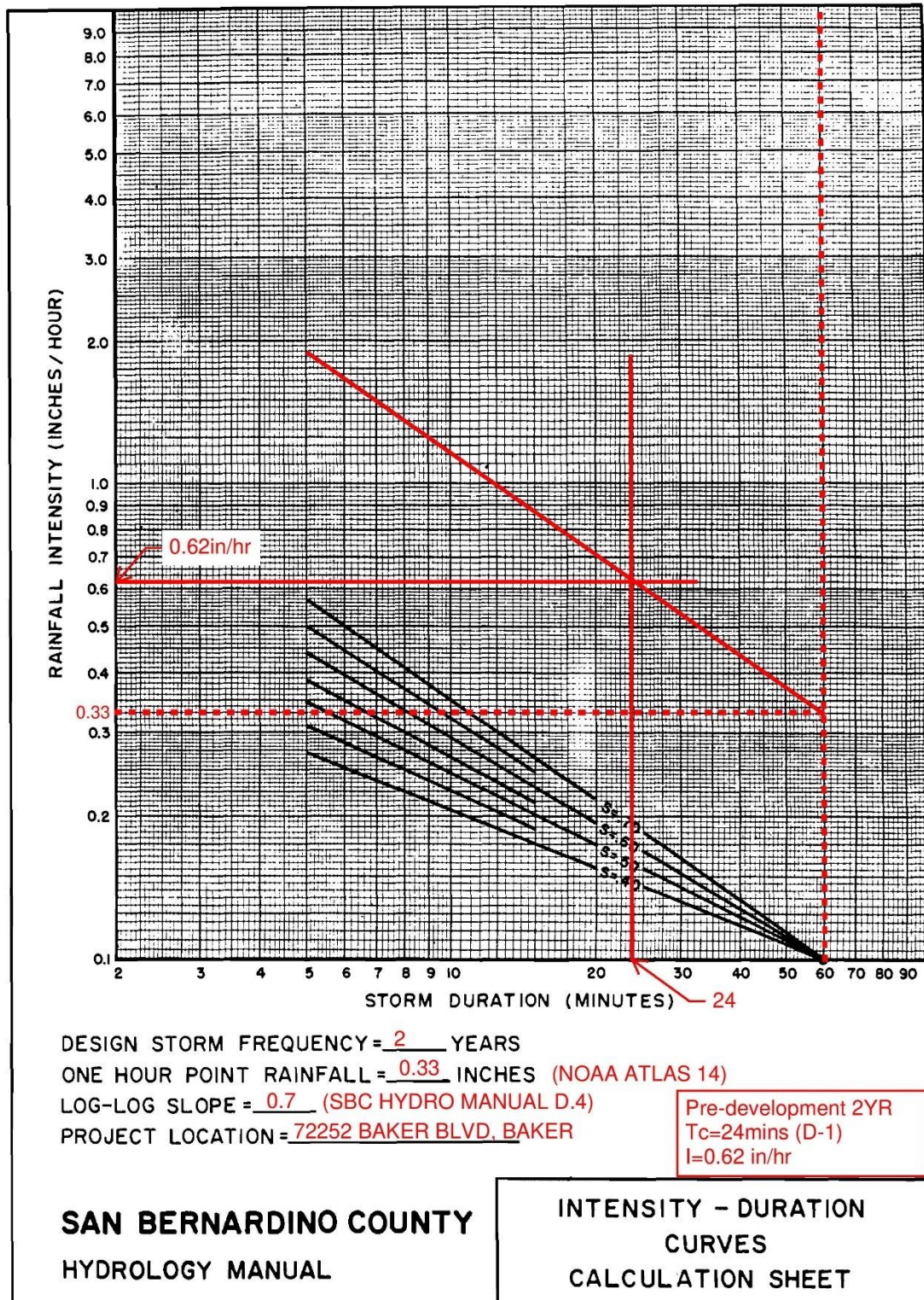
37





D-4

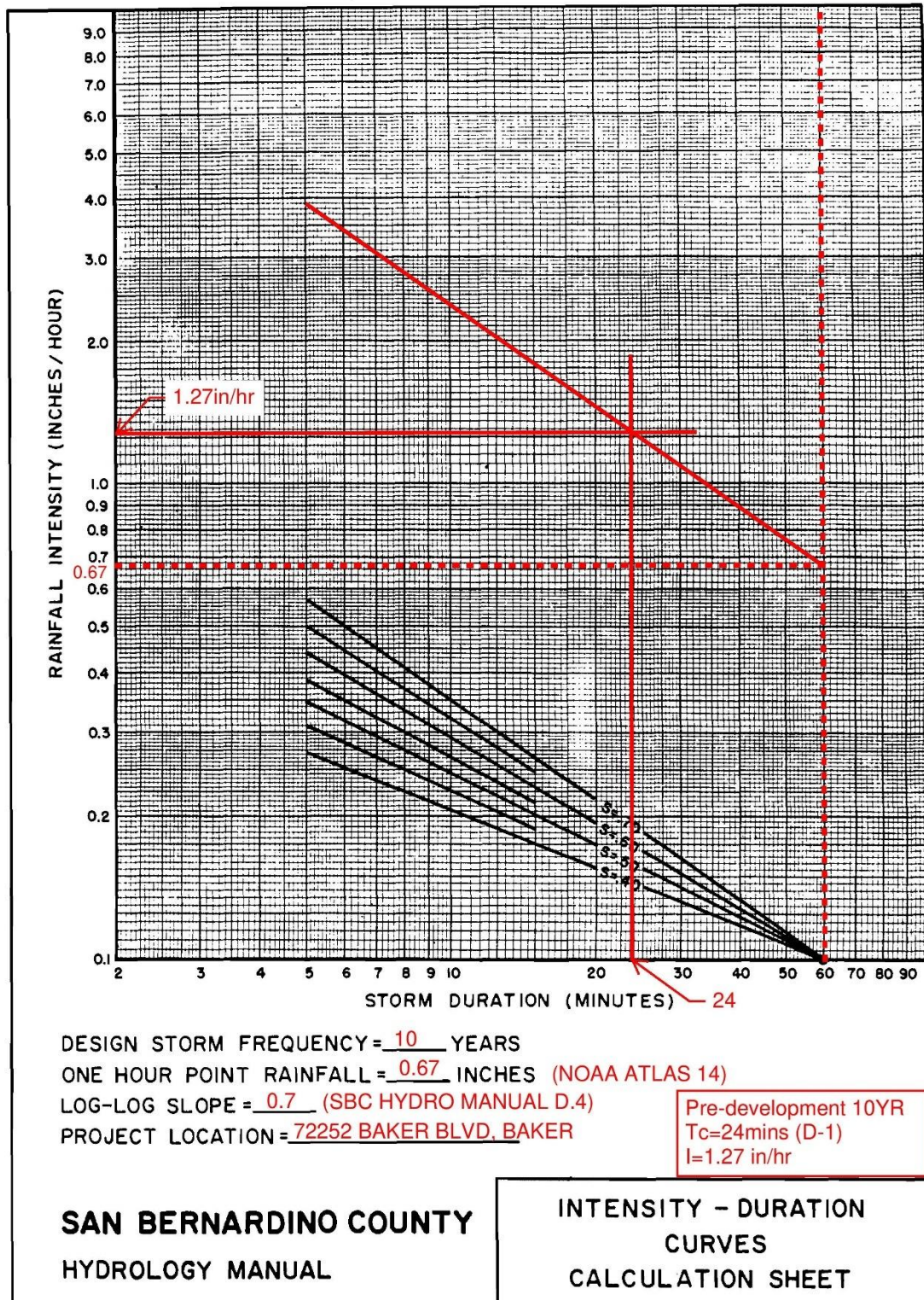
Figure D-1



D-8

FIGURE D-3

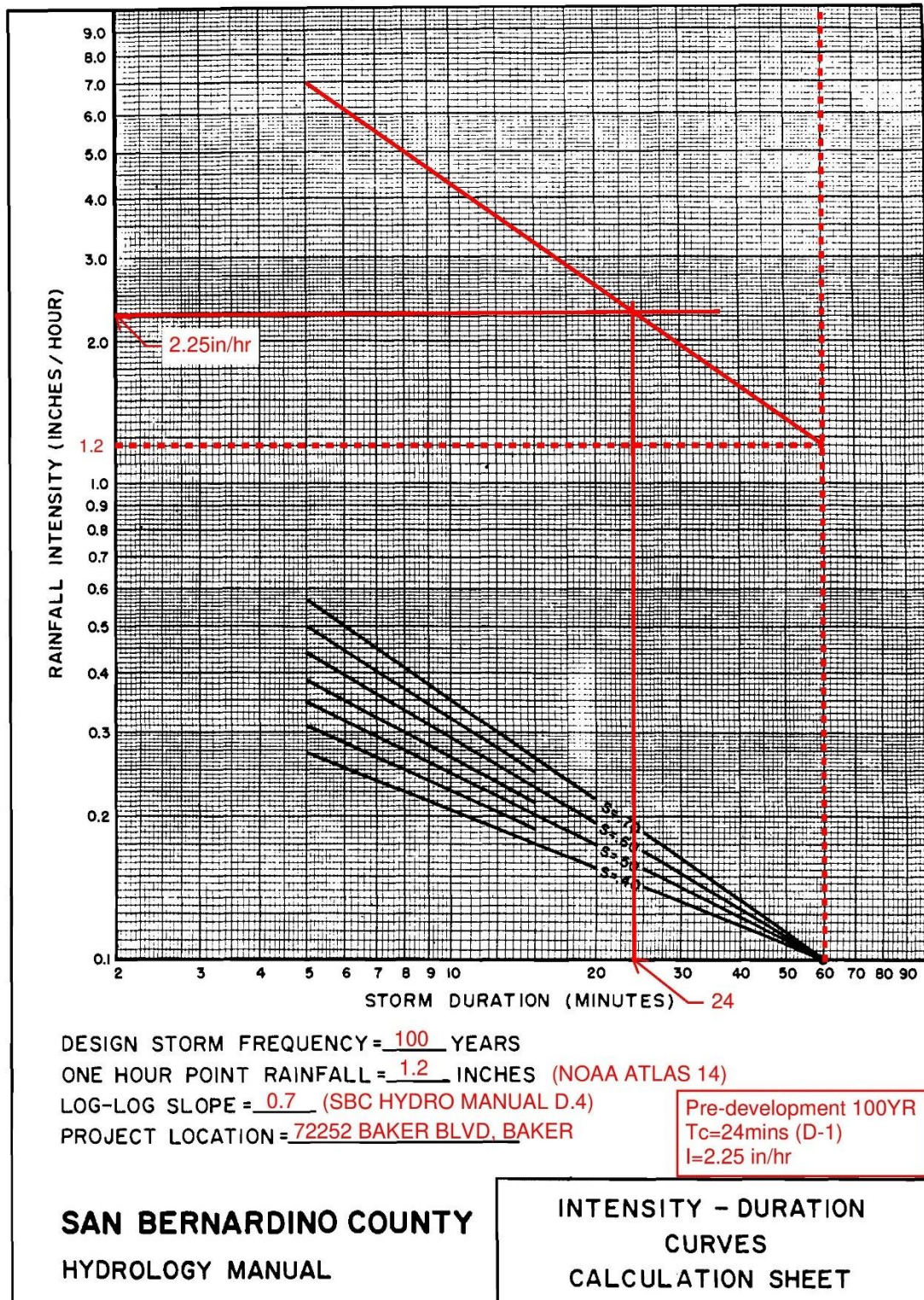
71



D-8

FIGURE D-3

71



D-8

FIGURE D-3

71

ALIEN FRESH C-STORE AND GAS
 72252 BAKER BLVD
 BAKER, CA 92364

Post-Development Condition			
Total Area	217369.20 SF	4.99 AC	1.00
Pervious Area	25465.49 SF	0.58 AC	0.12
Impervious Area	191903.71 SF	4.41 AC	0.88

Tc	10.5 mins	(Fig. D-1 SBC Hydro Manual)
I-2yr	1.12 in/hr	(Fig. D-3 SBC Hydro Manual)
I-10yr	2.3 in/hr	(Fig. D-3 SBC Hydro Manual)
I-100yr	4.15 in/hr	(Fig. D-3 SBC Hydro Manual)
Fp-2yr	0.97 in/hr	(Fig C.6 SBC Hydro Manual-AMC II)
Fp-10yr	0.97 in/hr	(Fig C.6 SBC Hydro Manual-AMC II)
Fp-100yr	0.74 in/hr	(Fig C.6 SBC Hydro Manual-AMC III)
Fm-2yr	0.11 in/hr	(Eq. C.7 SBC Hydro Manual)
Fm-10yr	0.11 in/hr	(Eq. C.7 SBC Hydro Manual)
Fm-100yr	0.09 in/hr	(Eq. C.7 SBC Hydro Manual)
Q-2yr	4.52 cfs	(Eq. D.4 SBC Hydro Manual)
Q-10yr	9.82 cfs	(Eq. D.4 SBC Hydro Manual)
Q-100yr	18.25 cfs	(Eq. D.4 SBC Hydro Manual)
Q-HCOC	2.79 cfs	(SBC WQMP TGD 4.2.3)

Alien Commercial Center Initial Study Mitigated Negative Declaration
72252 Baker Boulevard, (APN: 0544-311-42) Baker, CA, San Bernardino County November 2022

11/12/21, 2:22 PM

Precipitation Frequency Data Server



NOAA Atlas 14, Volume 6, Version 2
Location name: Baker, California, USA*
Latitude: 35.2683°, Longitude: -116.0717°
Elevation: 933.35 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 & aeriels](#)

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	0.055 (0.045-0.068)	0.099 (0.081-0.122)	0.156 (0.127-0.193)	0.202 (0.164-0.252)	0.265 (0.208-0.341)	0.313 (0.240-0.411)	0.361 (0.271-0.486)	0.411 (0.300-0.568)	0.478 (0.336-0.687)	0.530 (0.360-0.787)
10-min	0.079 (0.065-0.097)	0.142 (0.116-0.175)	0.223 (0.182-0.277)	0.290 (0.234-0.361)	0.379 (0.297-0.489)	0.448 (0.344-0.589)	0.517 (0.388-0.696)	0.589 (0.430-0.813)	0.685 (0.481-0.985)	0.759 (0.516-1.13)
15-min	0.095 (0.078-0.118)	0.171 (0.140-0.211)	0.270 (0.220-0.334)	0.350 (0.284-0.437)	0.459 (0.360-0.591)	0.542 (0.416-0.712)	0.626 (0.470-0.842)	0.712 (0.520-0.984)	0.828 (0.582-1.19)	0.918 (0.624-1.37)
30-min	0.130 (0.107-0.161)	0.234 (0.191-0.288)	0.368 (0.301-0.456)	0.478 (0.387-0.596)	0.626 (0.491-0.806)	0.739 (0.568-0.971)	0.854 (0.641-1.15)	0.971 (0.710-1.34)	1.13 (0.793-1.63)	1.25 (0.851-1.86)
60-min	0.183 (0.150-0.226)	0.329 (0.269-0.406)	0.519 (0.423-0.643)	0.673 (0.545-0.840)	0.882 (0.691-1.14)	1.04 (0.800-1.37)	1.20 (0.903-1.62)	1.37 (1.00-1.89)	1.59 (1.12-2.29)	1.76 (1.20-2.62)
2-hr	0.263 (0.215-0.324)	0.411 (0.337-0.508)	0.613 (0.500-0.759)	0.782 (0.633-0.976)	1.02 (0.800-1.32)	1.21 (0.930-1.59)	1.41 (1.06-1.90)	1.62 (1.18-2.24)	1.92 (1.35-2.76)	2.15 (1.46-3.20)
3-hr	0.297 (0.244-0.367)	0.444 (0.363-0.548)	0.646 (0.527-0.799)	0.818 (0.662-1.02)	1.07 (0.835-1.37)	1.26 (0.972-1.66)	1.48 (1.11-1.99)	1.71 (1.25-2.36)	2.03 (1.43-2.92)	2.30 (1.56-3.42)
6-hr	0.364 (0.298-0.449)	0.517 (0.423-0.638)	0.732 (0.598-0.907)	0.920 (0.745-1.15)	1.19 (0.936-1.54)	1.42 (1.09-1.87)	1.66 (1.25-2.24)	1.93 (1.41-2.67)	2.32 (1.63-3.34)	2.65 (1.80-3.93)
12-hr	0.444 (0.363-0.547)	0.633 (0.517-0.781)	0.898 (0.732-1.11)	1.13 (0.913-1.41)	1.46 (1.15-1.89)	1.74 (1.34-2.29)	2.04 (1.53-2.74)	2.36 (1.73-3.27)	2.84 (1.99-4.08)	3.23 (2.19-4.80)
24-hr	0.615 (0.542-0.711)	0.892 (0.786-1.03)	1.27 (1.12-1.48)	1.60 (1.40-1.87)	2.06 (1.75-2.49)	2.44 (2.03-2.99)	2.84 (2.31-3.56)	3.26 (2.59-4.19)	3.87 (2.96-5.16)	4.37 (3.24-6.00)
2-day	0.711 (0.627-0.823)	1.02 (0.899-1.18)	1.44 (1.26-1.67)	1.79 (1.56-2.09)	2.28 (1.93-2.74)	2.66 (2.22-3.27)	3.07 (2.50-3.85)	3.49 (2.77-4.49)	4.09 (3.13-5.45)	4.57 (3.39-6.28)
3-day	0.778 (0.686-0.901)	1.11 (0.974-1.28)	1.54 (1.36-1.79)	1.91 (1.66-2.23)	2.41 (2.04-2.91)	2.81 (2.34-3.45)	3.22 (2.62-4.03)	3.65 (2.89-4.68)	4.24 (3.24-5.65)	4.71 (3.49-6.47)
4-day	0.840 (0.741-0.973)	1.19 (1.04-1.37)	1.65 (1.45-1.91)	2.02 (1.77-2.37)	2.55 (2.16-3.07)	2.95 (2.46-3.62)	3.37 (2.75-4.23)	3.81 (3.03-4.89)	4.41 (3.38-5.88)	4.88 (3.62-6.71)
7-day	0.902 (0.795-1.04)	1.25 (1.10-1.45)	1.72 (1.51-2.00)	2.10 (1.83-2.46)	2.62 (2.22-3.15)	3.02 (2.51-3.71)	3.43 (2.80-4.31)	3.86 (3.07-4.96)	4.45 (3.40-5.93)	4.90 (3.64-6.74)
10-day	0.976 (0.861-1.13)	1.35 (1.18-1.56)	1.83 (1.61-2.12)	2.22 (1.94-2.60)	2.76 (2.34-3.33)	3.18 (2.64-3.90)	3.60 (2.93-4.52)	4.04 (3.21-5.19)	4.64 (3.55-6.18)	5.10 (3.79-7.02)
20-day	1.09 (0.961-1.26)	1.48 (1.30-1.72)	1.99 (1.75-2.31)	2.41 (2.10-2.82)	2.97 (2.52-3.58)	3.41 (2.83-4.18)	3.85 (3.13-4.82)	4.30 (3.41-5.53)	4.92 (3.76-6.55)	5.40 (4.00-7.42)
30-day	1.22 (1.08-1.41)	1.65 (1.45-1.91)	2.21 (1.94-2.57)	2.66 (2.32-3.12)	3.28 (2.78-3.95)	3.76 (3.13-4.61)	4.24 (3.45-5.32)	4.74 (3.77-6.09)	5.42 (4.15-7.23)	5.95 (4.41-8.18)
45-day	1.37 (1.21-1.58)	1.84 (1.62-2.13)	2.45 (2.15-2.85)	2.95 (2.58-3.46)	3.64 (3.08-4.38)	4.17 (3.46-5.11)	4.70 (3.83-5.89)	5.26 (4.17-6.76)	6.01 (4.60-8.02)	6.60 (4.90-9.08)
60-day	1.47 (1.30-1.70)	1.97 (1.73-2.28)	2.63 (2.31-3.05)	3.16 (2.76-3.70)	3.89 (3.30-4.69)	4.46 (3.71-5.47)	5.04 (4.10-6.31)	5.63 (4.47-7.24)	6.45 (4.94-8.60)	7.09 (5.26-9.75)
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.										

[Back to Top](#)

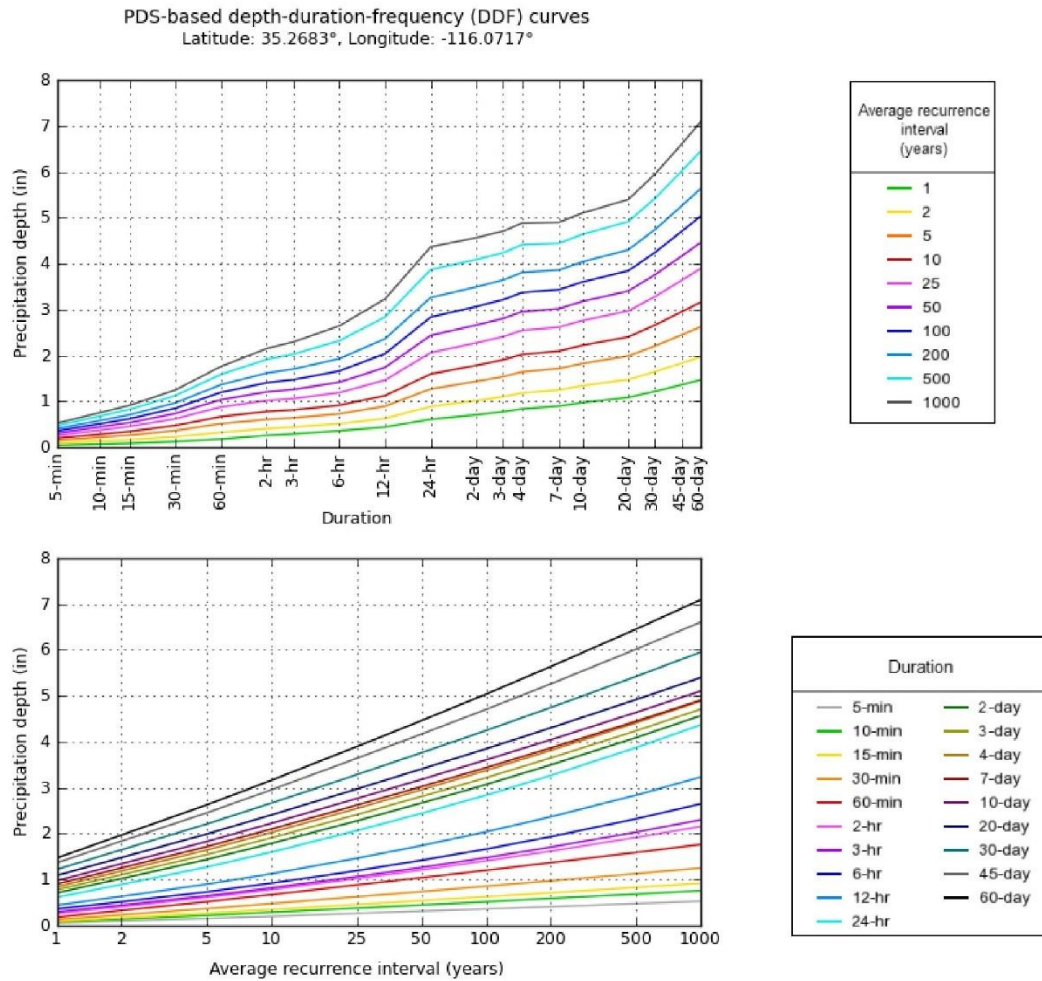
PF graphical

https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_printpage.html?lat=35.2683&lon=-116.0717&data=depth&units=english&series=pds

1/4

11/12/21, 2:22 PM

Precipitation Frequency Data Server



NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Fri Nov 12 22:21:56 2021

[Back to Top](#)

Maps & aerals

Small scale terrain

https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_printpage.html?lat=35.2683&lon=-116.0717&data=depth&units=english&series=pds

2/4

Post-development

TABLE C.1. CURVE NUMBER RELATIONSHIPS

CN for AMC Condition II	Corresponding CN for AMC Condition	
	I	III
100	100	100
95	87	99
90	78	98
85	70	97
80	63	94
75	57	91
70	51	87
65	45	83
60	40	79
55	35	75
50	31	70
45	27	65
40	23	60
32 35	19	55 52
30	15	50
25	12	45
20	9	39
15	7	33
10	4	26
5	2	17
0	0	0

C.6. ESTIMATION OF LOSS RATES

In estimating loss rates for design hydrology, a watershed curve number (CN) is determined for each soil-cover complex within the watershed using Figure C-3. The working range of CN values is between 0 and 98, where a low CN indicates low runoff potential (high infiltration), and a high CN indicates high runoff potential (low infiltration). Selection of a CN takes into account the major factors affecting loss rates on pervious surfaces including the hydrologic soil group, cover type and quality, and antecedent moisture condition (AMC).

Also included in the CN selection are the effects of "initial abstraction" (Ia) which represents the combined effects of other effective rainfall losses including depression storage, vegetation interception, evaporation, and transpiration, among other factors.

POST-DEVELOPMENT

Curve (I) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II					
Cover Type (3)	Quality of Cover (2)	Soil Group			
		A	B	C	D
<u>NATURAL COVERS -</u>					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparral, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparral, 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	71	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	25	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
<u>URBAN COVERS -</u>					
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
<u>AGRICULTURAL COVERS -</u>					
Fallow (Land plowed but not tilled or seeded)		77	86	91	94

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

**CURVE NUMBERS
FOR
PERVIOUS AREAS**

C-6

Figure C-3 (1 of 2)

26

Curve (1) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II					
Cover Type (3)	Quality of Cover (2)	Soil Group			
		A	B	C	D
<u>AGRICULTURAL COVERS (Continued)</u>					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87

Notes:

- All curve numbers are for Antecedent Moisture Condition (AMC) II.
- Quality of cover definitions:

 Poor-Heavily grazed, regularly burned areas, or areas of high burn potential. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.

 Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.

 Good-Heavy or dense cover with more than 75 percent of the ground surface protected.
- See Figure C-2 for definition of cover types.

SAN BERNARDINO COUNTY

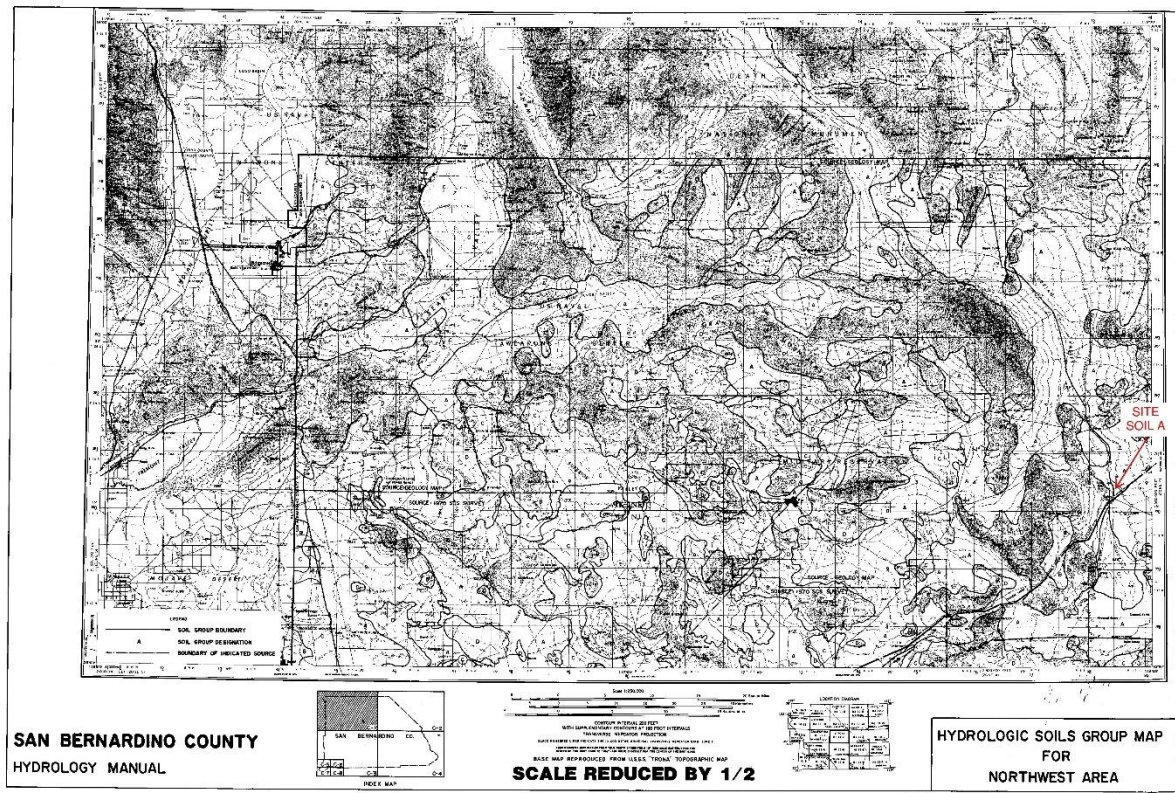
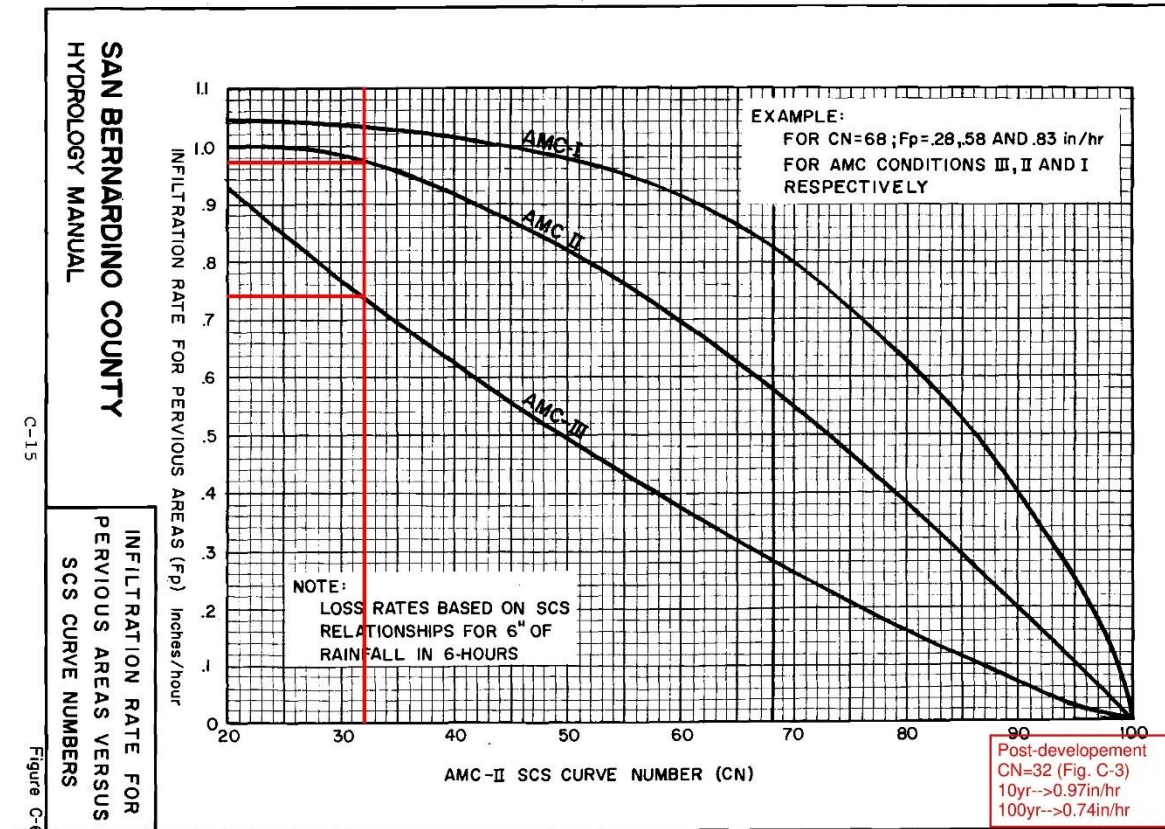
HYDROLOGY MANUAL

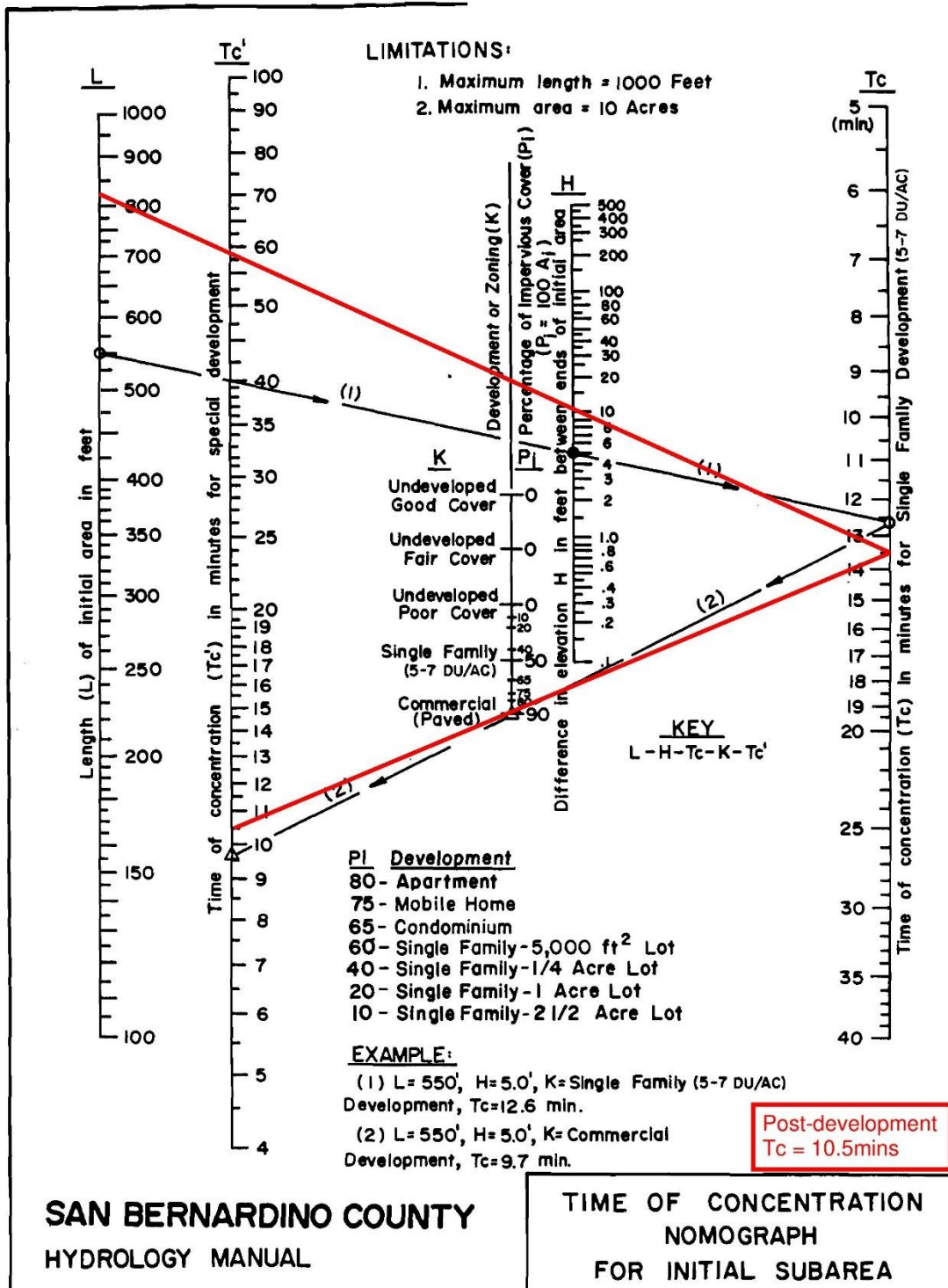
**CURVE NUMBERS
FOR
PERVIOUS AREAS**

C-7

Figure C-3 (2 of 2)

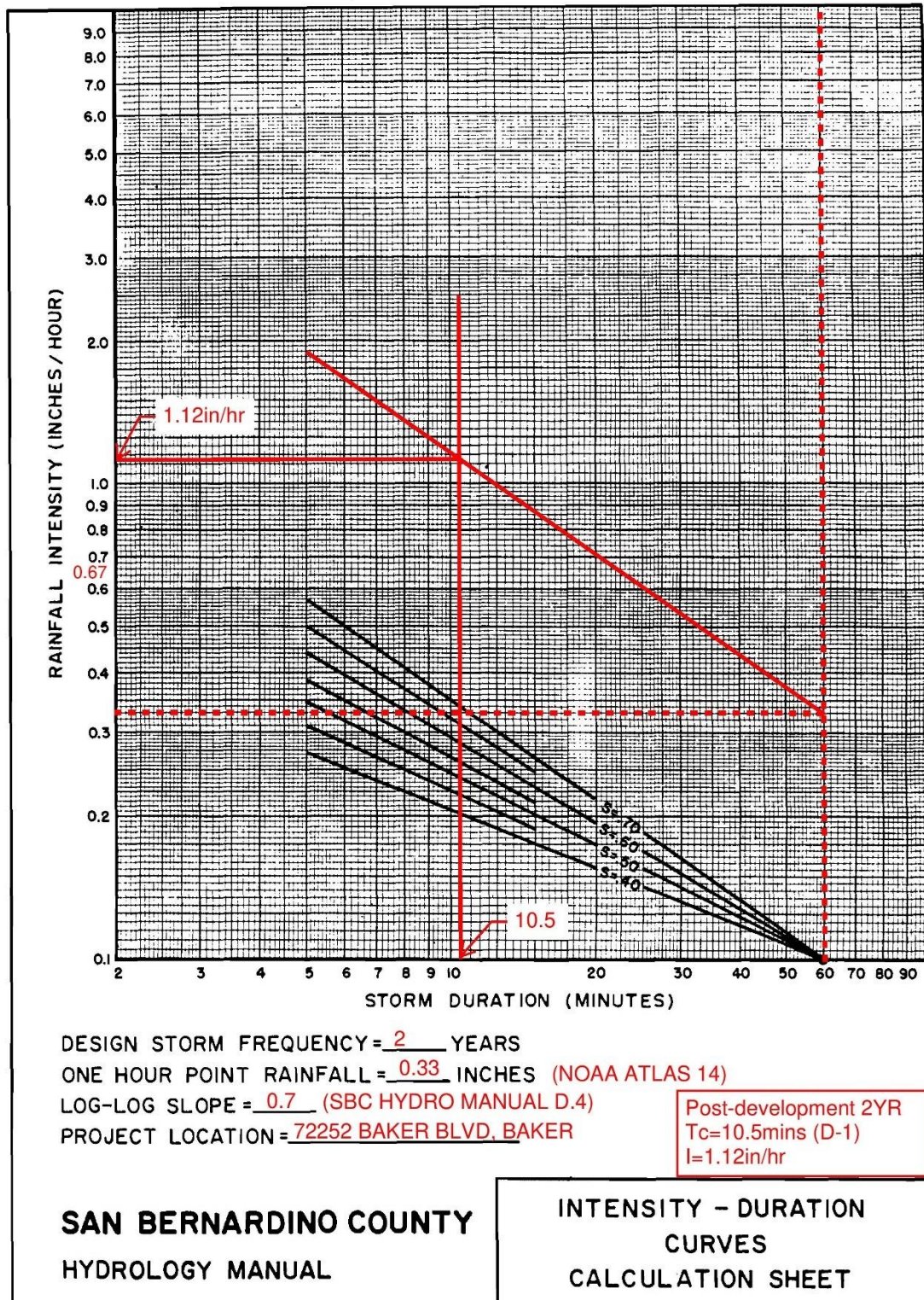
37





D-4

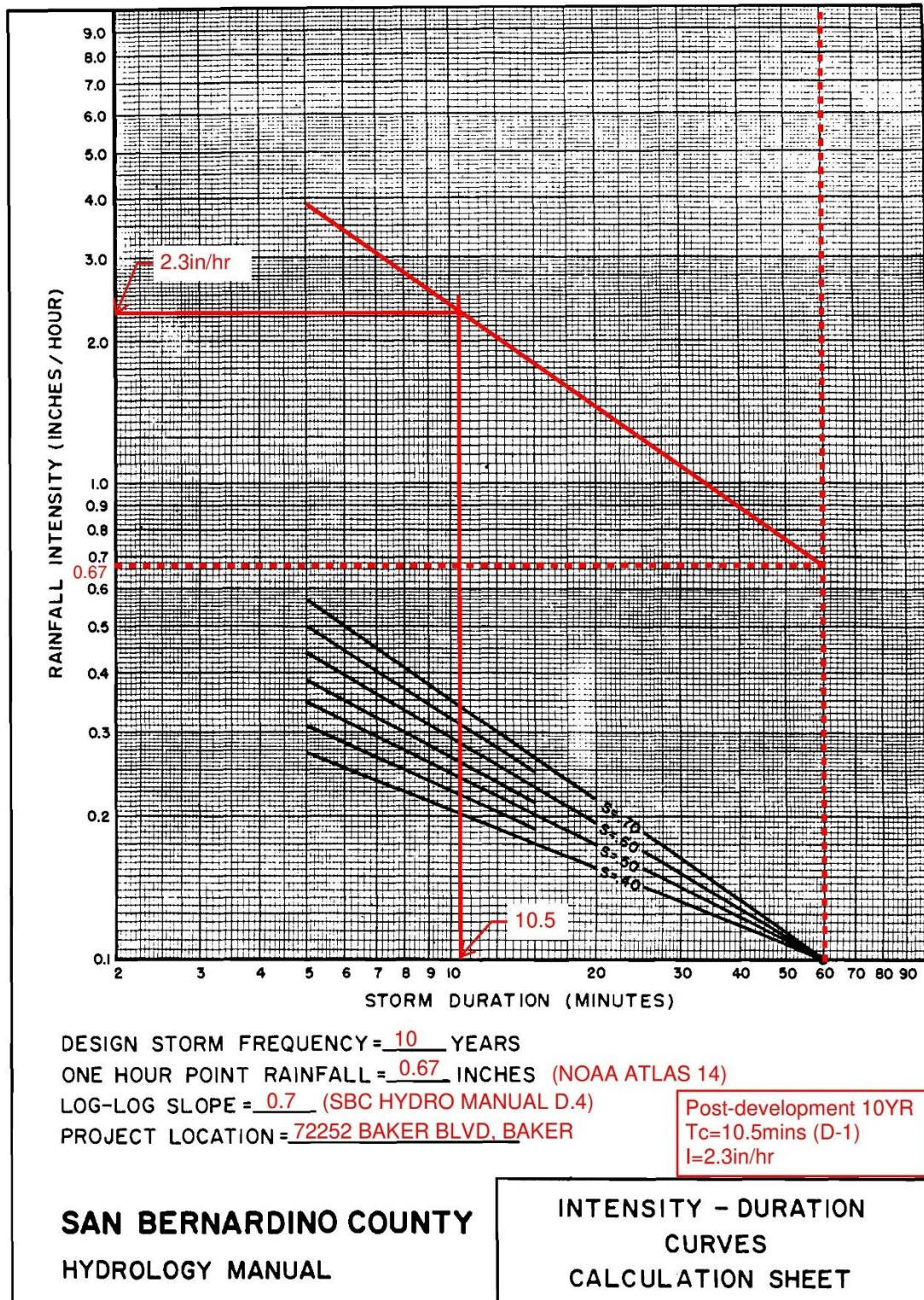
Figure D-1



D-8

FIGURE D-3

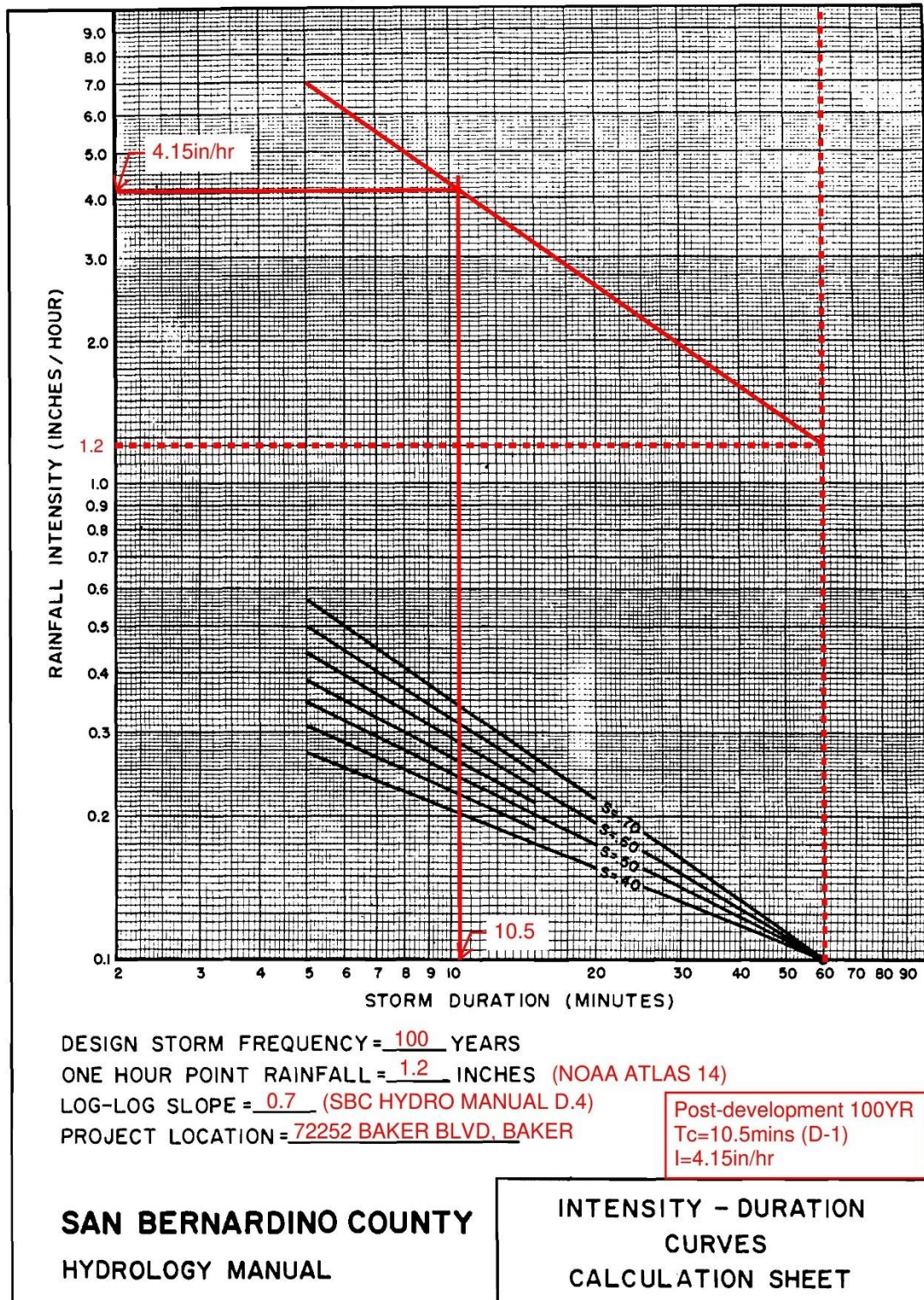
71



D-8

FIGURE D-3

71



D-8

FIGURE D-3

71

Attachment B

Volume Run-off Calculation

ALIEN FRESH C-STORE AND GAS
72252 BAKER BLVD
BAKER, CA 92364

Runoff Volume Calculations (Section E.8)

$$V = \frac{Y \cdot A \cdot P_{24}}{12}$$

Where :

V	Volume in acre-ft.	
Y	24-hour storm runoff yield factor	
	$\frac{(P_{24} - I_a)^2}{(P_{24} - I_a + S)P_{24}}$	(Eq. C.3)
P ₂₄	24-hour storm rainfall	(Noaa Atlas 14)
I _a	Initial abstraction	
	0.2S	(Eq. C.1)
S	$\frac{1000}{CN} - 10$	(Eq. C.2)
A	Drainage area in acres	

2YR-24HR PRE-DEVELOPMENT							
Drainage Area	CN AMC II	S	I _a	P _{24-HR} (in.)	Y	Area Fraction	
1a	78					0.68	Pervious Area
1b	98					0.32	Impervious Area
	84 (Area-weighted)	1.85	0.37	0.89	0.13		
					V	2070	cf
Note:							
CN	78	AMC II	(Fig. C-3)				
CN	92	AMC III	(Tab. C.1)				
CN	98	Imp. Area (AMC II & III)	(Manual Pg. C-5)				
A	217369	sf					
P _{24hr}	0.89	in					

2YR-24HR POST-DEVELOPMENT							
Drainage Area	CN AMC II	S	I _a	P _{24-HR} (in.)	Y	Area Fraction	
1a	32					0.12	Pervious Area
1b	98					0.88	Impervious Area
	90 (Area-weighted)	1.10	0.22	0.89	0.28		
					V	4588	cf
Note:					V Reduction Post-Pre	2288	cf
CN	32	AMC II	(Fig. C-3)				
CN	52	AMC III	(Tab. C.1)				
CN	98	Imp. Area (AMC II & III)	(Manual Pg. C-5)				
A	217369	sf					
P _{24hr}	0.89	in					

Alien Commercial Center Initial Study Mitigated Negative Declaration
72252 Baker Boulevard, (APN: 0544-311-42) Baker, CA, San Bernardino County November 2022

ALIEN FRESH C-STORE AND GAS
72252 BAKER BLVD
BAKER, CA 92364

10YR-24HR PRE-DEVELOPMENT							
Drainage Area	CN AMC II	S	I _a	P _{24-HR} (in.)	Y	Area Fraction	
1a	78					0.68	Pervious Area
1b	98					0.32	Impervious Area
	84 (Area-weighted)	1.85	0.37	1.60	0.31		
					V	8906	cf
Note:							
CN	78	AMC II	(Fig. C-3)				
CN	92	AMC III	(Tab. C.1)				
CN	98	Imp. Area (AMC II & III)	(Manual Pg. C-5)				
A P24hr	217369 1.6	sf in					

10YR-24HR POST-DEVELOPMENT							
Drainage Area	CN AMC II	S	I _a	P _{24-HR} (in.)	Y	Area Fraction	
1a	32					0.12	Pervious Area
1b	98					0.88	Impervious Area
	90 (Area-weighted)	1.10	0.22	1.60	0.48		
					V	13899	cf
					V Reduction Post-Pre	4993	cf
Note:							
CN	32	AMC II	(Fig. C-3)				
CN	52	AMC III	(Tab. C.1)				
CN	98	Imp. Area (AMC II & III)	(Manual Pg. C-5)				
A P24hr	217369 1.6	sf in					

ALIEN FRESH C-STORE AND GAS
 72252 BAKER BLVD
 BAKER, CA 92364

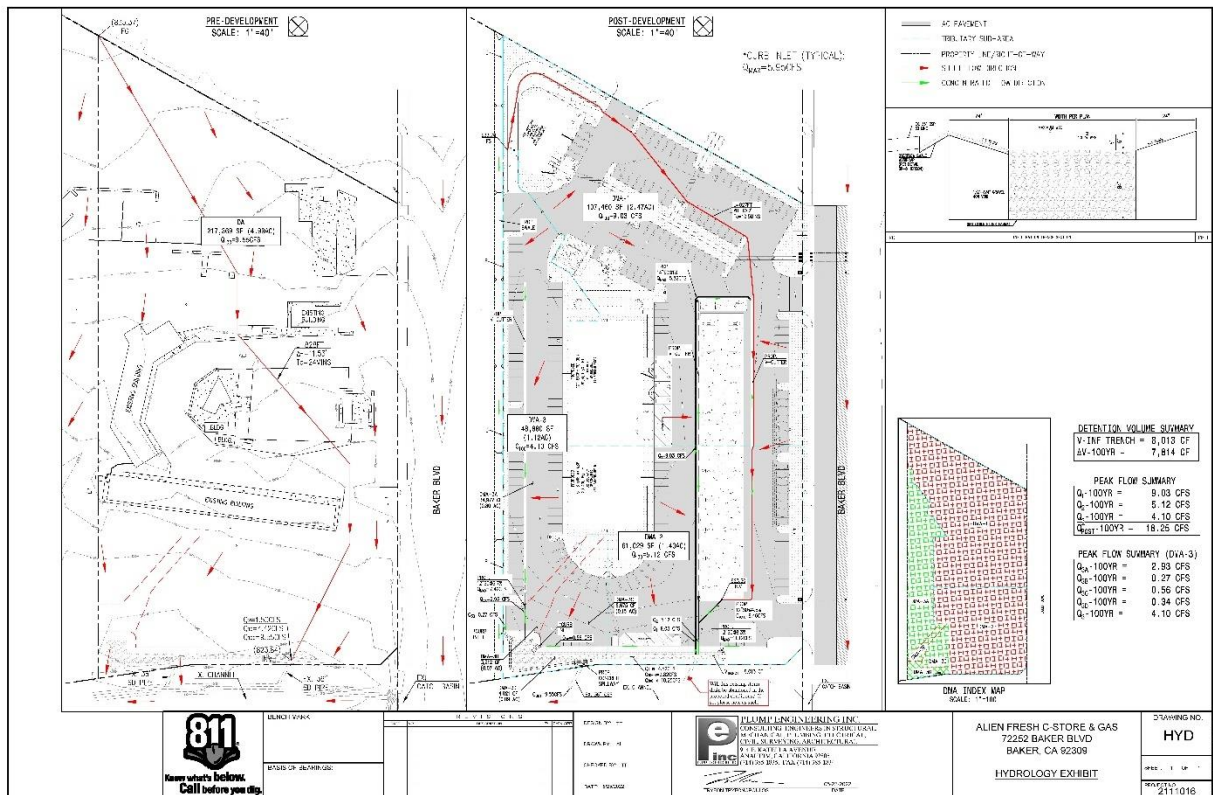
100YR-24HR PRE-DEVELOPMENT							
Drainage Area	CN AMC II	S	I _a	P _{24-HR} (in.)	Y	Area Fraction	
1a	78					0.68	Pervious Area
1b	98					0.32	Impervious Area
	84 (Area-weighted)	1.85	0.37	2.84	0.50		
					V	25596	cf
Note:							
CN	78	AMC II	(Fig. C-3)				
CN	92	AMC III	(Tab. C.1)				
CN	98	Imp. Area (AMC II & III)	(Manual Pg. C-5)				
A	217369	sf					
P24hr	2.84	in					

100YR-24HR POST-DEVELOPMENT							
Drainage Area	CN AMC II	S	I _a	P _{24-HR} (in.)	Y	Area Fraction	
1a	32					0.12	Pervious Area
1b	98					0.88	Impervious Area
	90 (Area-weighted)	1.10	0.22	2.84	0.65		
					V	33410	cf
					V Reduction Post-Pre	7814	cf
Note:							
CN	32	AMC II	(Fig. C-3)				
CN	52	AMC III	(Tab. C.1)				
CN	98	Imp. Area (AMC II & III)	(Manual Pg. C-5)				
A	217369	sf					
P24hr	2.84	in					

Attachment C

Hydrology Exhibit

Alien Commercial Center Initial Study Mitigated Negative Declaration
72252 Baker Boulevard, (APN: 0544-311-42) Baker, CA, San Bernardino County November 2022



Attachment D

Hydraulic Calculations

Provide riprap and riprap apron sizing calculations for spillway, outfall storm drain, and curb outlet locations.

6" CONCRETE SPILLWAY

Type: **Triangular** Define...

Side Slope 1 (Z1): 1.5 H: 1V
Side Slope 2 (Z2): 1.5 H: 1V
Channel Width (B): 3.0 (ft)
Pipe Diameter (D): 1.0 (ft)
Longitudinal Slope: 0.5 (ft/ft)

☐ Override Default
Manning's Roughness: 0.0120
☐ Use Lining
Lining Type: Woven Paper Net

☐ Enter Flow: 11.528 (cfs)
☒ Enter Depth: 0.500 (ft)

Calculate

Parameter Value Unit

Flow	11.528	cfs
Depth	0.500	ft
Area of Flow	0.375	sq ft
Wetted Perimeter	1.803	ft
Hydraulic Radius	0.208	ft
Average Velocity	30.741	fps
Top Width (T)	1.500	ft
Froude Number	10.635	
Critical Depth	1.297	ft
Critical Velocity	4.569	fps
Critical Slope	0.00310	ft/ft
Critical Top Width	3.891	ft
Max Shear Stress	15.600	lb/ft ²
Avg Shear Stress	6.490	lb/ft ²

Plot... Compute Curves... OK Cancel

Figure 1. 6" Concrete Spillway
(Qmax=11.53cfs)

CURB INLET

Type: **Rectangular** Define...

Side Slope 1 (Z1): 0.0 H: 1V
Side Slope 2 (Z2): 0.0 H: 1V
Channel Width (B): 2.0 (ft)
Pipe Diameter (D): 1.0 (ft)
Longitudinal Slope: 0.01 (ft/ft)

☐ Override Default
Manning's Roughness: 0.0120
☐ Use Lining
Lining Type: Woven Paper Net

☐ Enter Flow: 5.953 (cfs)
☒ Enter Depth: 0.500 (ft)

Calculate

Parameter Value Unit

Flow	5.953	cfs
Depth	0.500	ft
Area of Flow	1.000	sq ft
Wetted Perimeter	3.000	ft
Hydraulic Radius	0.333	ft
Average Velocity	5.953	fps
Top Width (T)	2.000	ft
Froude Number	1.484	
Critical Depth	0.650	ft
Critical Velocity	4.576	fps
Critical Slope	0.00473	ft/ft
Critical Top Width	2.000	ft
Max Shear Stress	0.312	lb/ft ²
Avg Shear Stress	0.208	lb/ft ²

Plot... Compute Curves... OK Cancel

Figure 2. Curb Inlet
(Qmax=5.95cfs)

12" SD @ 3.7%

Type: **Circular** Define...

Side Slope 1 (Z1): 0.0 H: 1V
Side Slope 2 (Z2): 0.0 H: 1V
Channel Width (B): 0.0 (ft)
Pipe Diameter (D): 1.0 (ft)
Longitudinal Slope: 0.037 (ft/ft)

☐ Override Default
Manning's Roughness: 0.0120
☐ Use Lining
Lining Type: Woven Paper Net

☐ Enter Flow: 7.424 (cfs)
☒ Enter Depth: 1.000 (ft)

Calculate

Parameter Value Unit

Flow	7.424	cfs
Depth	1.000	ft
Area of Flow	0.785	sq ft
Wetted Perimeter	3.142	ft
Hydraulic Radius	0.250	ft
Average Velocity	9.453	fps
Top Width (T)	0.000	ft
Froude Number	0.000	
Critical Depth	0.980	ft
Critical Velocity	9.498	fps
Critical Slope	0.03314	ft/ft
Critical Top Width	0.279	ft
Max Shear Stress	2.309	lb/ft ²
Avg Shear Stress	0.577	lb/ft ²

Plot... Compute Curves... OK Cancel

Figure 3. 12" SD @ 3.7%
(Qmax=7.42cfs)

12" SD @ 4.8%

Type: **Circular** Define...

Side Slope 1 (Z1): 0.0 H: 1V
Side Slope 2 (Z2): 0.0 H: 1V
Channel Width (B): 0.0 (ft)
Pipe Diameter (D): 1.0 (ft)
Longitudinal Slope: 0.048 (ft/ft)

☐ Override Default
Manning's Roughness: 0.0120
☐ Use Lining
Lining Type: Woven Paper Net

☐ Enter Flow: 8.456 (cfs)
☒ Enter Depth: 1.000 (ft)

Calculate

Parameter Value Unit

Flow	8.456	cfs
Depth	1.000	ft
Area of Flow	0.785	sq ft
Wetted Perimeter	3.142	ft
Hydraulic Radius	0.250	ft
Average Velocity	10.767	fps
Top Width (T)	0.000	ft
Froude Number	0.000	
Critical Depth	0.988	ft
Critical Velocity	10.790	fps
Critical Slope	0.04393	ft/ft
Critical Top Width	0.216	ft
Max Shear Stress	2.995	lb/ft ²
Avg Shear Stress	0.749	lb/ft ²

Plot... Compute Curves... OK Cancel

Figure 4. 12" SD @ 4.8%
(Qmax=8.46cfs)

12" SD @ 8.3%

Type: **Circular** Define...

Side Slope 1 (Z1): 0.0 H: 1V
Side Slope 2 (Z2): 0.0 H: 1V
Channel Width (B): 0.0 (ft)
Pipe Diameter (D): 1.0 (ft)
Longitudinal Slope: 0.083 (ft/ft)

☐ Override Default
Manning's Roughness: 0.0120
☐ Use Lining
Lining Type: Woven Paper Net

☐ Enter Flow: 11.120 (cfs)
☒ Enter Depth: 1.000 (ft)

Calculate

Parameter Value Unit

Flow	11.120	cfs
Depth	1.000	ft
Area of Flow	0.785	sq ft
Wetted Perimeter	3.142	ft
Hydraulic Radius	0.250	ft
Average Velocity	14.158	fps
Top Width (T)	0.000	ft
Froude Number	0.000	
Critical Depth	0.996	ft
Critical Velocity	14.164	fps
Critical Slope	0.07868	ft/ft
Critical Top Width	0.126	ft
Max Shear Stress	5.179	lb/ft ²
Avg Shear Stress	1.295	lb/ft ²

Plot... Compute Curves... OK Cancel

Figure 5. 12" SD @ 8.3%
(Qmax=11.12cfs)

14" SD @ 1.0%

Type: **Circular** Define...

Side Slope 1 (Z1): 0.0 H: 1V
Side Slope 2 (Z2): 0.0 H: 1V
Channel Width (B): 0.0 (ft)
Pipe Diameter (D): 1.1666 (ft)
Longitudinal Slope: 0.01 (ft/ft)

☐ Override Default
Manning's Roughness: 0.0120
☐ Use Lining
Lining Type: Woven Paper Net

☐ Enter Flow: 5.821 (cfs)
☒ Enter Depth: 1.167 (ft)

Calculate

Parameter Value Unit

Flow	5.821	cfs
Depth	1.167	ft
Area of Flow	1.069	sq ft
Wetted Perimeter	3.665	ft
Hydraulic Radius	0.292	ft
Average Velocity	5.446	fps
Top Width (T)	0.000	ft
Froude Number	0.000	
Critical Depth	0.884	ft
Critical Velocity	6.050	fps
Critical Slope	0.00552	ft/ft
Critical Top Width	0.847	ft
Max Shear Stress	0.728	lb/ft ²
Avg Shear Stress	0.182	lb/ft ²

Plot... Compute Curves... OK Cancel

Figure 6. 14" SD @ 1.0%
(Qmax=5.82cfs)

APPENDIX G –TRAFFIC STUDY

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

TRAFFIC IMPACT ANALYSIS

LOS ANGELES

201 S. Figueroa St, Suite 240
Los Angeles, CA 90012
213.337.3680
Fax :213.337.3679

ONTARIO

4141 E. Inland Empire Blvd, Suite
250
Ontario, CA 91764
909.481.5750
Fax:909.481.5757

SAN DIEGO

3530 Camino Del Rio North, Suite
105 San Diego, CA 92108
619.400.0600
Fax: 619.400.0599

SANTA CLARITA

25152 Springfield Ct, Suite 350
Santa Clarita, CA 91355
661.284.7400
Fax 661.284.7401

TEMECULA

41951 Remington Ave, Suite 220
Temecula, CA 92590
951.294.9300
Fax: 951.294-9301

TUSTIN

17782 17th St, Suite 200
Tustin, CA 92780
714.665.4500
Fax: 714.665.4501

VICTORVILLE

14297 Cajon Ave, Suite 101
760.524.9100
Fax 760.524.9101

www.deainc

BAKER BOULEVARD COMMERCIAL CENTER A.P.N 0544-311-42 AND A.P.N 0544-311-43

SAN BERNARDINO COUNTY, CALIFORNIA

Prepared by:



DAVID EVANS
AND ASSOCIATES INC.

DRAFT REPORT
August 5, 2022



August 5, 2022

Job No. OONT0004-0001

Mr. Luis Ramallo
9679 Black Coyote Court
Las Vegas, NV 89139

**RE: TRAFFIC IMPACT ANALYSIS– BAKER BOULEVARD COMMERCIAL CENTER – A.P.N 0544-311-42
AND A.P.N 0544-311-43, SAN BERNARDINO COUNTY, CALIFORNIA**

Dear Mr. Ramallo,

David Evans and Associates, Inc. is pleased to submit this Traffic Impact Analysis report for your Baker Boulevard Commercial Center Project. The proposed project consists of super convenience market with gas station and a stand-alone coffee shop with a drive-through window located in the unincorporated community of Baker in the County of San Bernardino.

This report was prepared in accordance with the County of San Bernardino's Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS) published in July 2019 and meets the county's requirements for analyzing intersection level of service to identify consistency with the county's General Plan policies and standards.

This report also summarizes the VMT screening assessment we prepared and submitted with the scoping agreement submitted to the county and Caltrans in August of 2021 and takes into account the comments we received from Caltrans on that document.

We are pleased to be of assistance to you in processing and obtaining approval for the project. If you have any questions or comments, please feel free to contact me at 909-912-7304.

Respectfully submitted,

DAVID EVANS AND ASSOCIATES, INC.

A handwritten signature in blue ink, appearing to read 'James M. Daisa'.

James M. Daisa, P.E.
Senior Project Manager / Associate





TABLE OF CONTENTS

1	SUMMARY OF FINDINGS AND RECOMMENDATIONS.....	4
1.1	San Bernardino County General Plan Consistency Requirements.....	4
1.2	Project Description.....	4
1.3	Summary of General Plan Consistency Impacts at Baker Blvd and Death Valley Rd (SR 127)	5
1.4	Traffic Signal Warrant Analysis at Baker Boulevard and Death Valley Road (SR 127).....	5
1.5	Project Access Level of Service Assessment	7
1.6	Recommendations	8
2	INTRODUCTION	10
2.1	Scenario Definitions	10
3	EXISTING CONDITIONS	13
3.1	San Bernardino County General Plan Consistency Requirements.....	13
3.2	Local and Major Roadways	13
3.3	Site Access.....	14
3.4	Study Intersections	14
3.5	Existing Traffic Volumes.....	14
3.6	Intersection Capacity Analysis Methodology.....	14
3.7	Existing Traffic Analysis	16
4	EXISTING PLUS PROJECT CONDITIONS.....	19
4.1	Project Description and Trip Generation	19
4.2	Project Trip Distribution and Assignment.....	20
4.3	Existing Plus Project Level of Service Analysis	26
4.4	Project Access	26
5	BACKGROUND CONDITIONS	30
5.1	Background Conditions Traffic Analysis.....	30
6	PROJECT CONDITIONS.....	32
6.1	Project Traffic Analysis.....	32
7	FUTURE CONDITIONS.....	34
7.1	Future Conditions Traffic Analysis	34
8	FUTURE PLUS PROJECT CONDITIONS.....	36
8.1	Future Plus Project Traffic Analysis.....	36
9	RECOMMENDATIONS.....	38
10	SUMMARY OF VEHICLE MILES TRAVELED (VMT) SCREENING	40
10.1	Project Screening from Conducting VMT Analyses.....	40
11	APPENDICES	42



LIST OF FIGURES

Figure 1: Vicinity Map	11
Figure 2: Site Plan.....	12
Figure 3: Existing Traffic Volumes	15
Figure 4: Existing Intersection Geometrics	18
Figure 5: Primary Project Trip Generation	21
Figure 6: Diverted Link Project Trip Generation	22
Figure 7: Primary Project Trips.....	23
Figure 8: Diverted Link Project Trips	24
Figure 9: Total Combined Project Trips.....	25
Figure 10: Existing Plus Project Traffic Volumes	28
Figure 11: Existing Plus Project Geometrics.....	29
Figure 12: Background Traffic Volumes	31
Figure 13: Project Traffic Volumes.....	33
Figure 14: Future Traffic Volumes.....	35
Figure 15: Future Plus Project Traffic Volumes.....	37

LIST OF TABLES

Table 1-1: Criteria for Determining General Plan Level of Service Consistency at Unsignalized Intersections.....	4
Table 1-2: Baker Blvd and Death Valley Rd (SR 127) Level of Service Deficiency Assessment	5
Table 1-3: Baker Boulevard and Death Valley Road (SR 127) Traffic Signal Warrant Analysis	6
Table 1-4: Calculation of Project Share of Growth in Traffic at Baker Blvd / Death Valley Road (SR 127)	8
Table 3-1: Criteria for Determining General Plan LOS Consistency at Unsignalized Intersections.....	13
Table 3-2: HCM 6 – LOS Criteria for Signalized Intersections	16
Table 3-3: HCM 6 – Level of Service Criteria for Two-Way Stop Controlled (TWSC) Intersections	16
Table 3-4: Level of Service Criteria (HCM 6) for All Way Stop Controlled Intersections	16
Table 3-5: Intersection Capacity Analysis – Existing Conditions	17
Table 4-1: Project Trip Generation	20
Table 4-2: Intersection Capacity Analysis – Existing Plus Project Conditions	26
Table 5-1: Intersection Capacity Analysis – Background Conditions	30
Table 6-1: Intersection Capacity Analysis – Project Conditions	32
Table 7-1: Intersection Capacity Analysis – Future Conditions.....	34
Table 8-1: Intersection Capacity Analysis – Future Plus Project Conditions.....	36
Table 9-1: Mitigated Level of Service at Baker Boulevard and Death Valley Road (SR127)	38
Table 9-2: Calculation of Project Share of Growth in Traffic at Baker Blvd / Death Valley Road (SR 127)	39

LIST OF APPENDICES

Appendix A: Traffic Counts
Appendix B: Forecast Model
Appendix C: Intersection Capacity Analysis Worksheets
Appendix D: Traffic Signal Warrant Analysis



1 SUMMARY OF FINDINGS AND RECOMMENDATIONS

1.1 San Bernardino County General Plan Consistency Requirements

San Bernardino County's General Plan includes policies that address level of service (LOS) and identifies transportation facility LOS standards the County maintains. Although environmental impacts under the California Environmental Quality Act (CEQA) have replaced LOS with Vehicle Miles Traveled (VMT) as the most appropriate measures of transportation impacts, San Bernardino County still requires new development projects to prepare traffic analyses that demonstrate that the development conforms with, or can mitigate to, General Plan level of service policies and standards.

According to San Bernardino County's Transportation Impact Study Guidelines (July 2019), the minimum acceptable intersection level of service for the County's **desert regions** as described in the current San Bernardino County General Plan, is LOS D. The criteria for identifying operational deficiencies at unsignalized intersections are shown in **Table 1-1**.

Table 1-1: Criteria for Determining General Plan Level of Service Consistency at Unsignalized Intersections

At an unsignalized intersection, an operational improvement would be required if the analysis determines that the proposed project causes or contributes to conditions described in criterion (A) <u>or</u> criterion (B) and (C).			
(A)		(B)	
The addition of project traffic causes an intersection to degrade from a LOS D or better to a LOS E or F.		The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate at a LOS E or F without project traffic.	
Note: If Criteria A is met under the existing + project scenario, it is considered a project-specific impact and the project is solely responsible for its mitigation. If the criterion is met in the opening day or long-range scenarios (e.g., background + project, and year 2040) it is considered a cumulative impact and the project contributes its fair share to the cost of the improvement.		AND	
		(C)	
		One or both of the following conditions are met:	
		The project adds ten (10) or more peak hour trips to any minor street approach of the unsignalized intersection being analyzed.	The intersection, with the addition of project traffic, meets the peak hour traffic signal warrant (#3) as defined in the California Manual on Uniform Traffic Control Devices.
If the analysis of a development project meets the criteria above, the transportation impact study needs to identify measures that will achieve the following: <ul style="list-style-type: none"> Measures applied to unsignalized intersections impacted under Criteria A should improve peak hour level of service to a LOS D or better or, Measures applied to unsignalized intersections impacted under Criteria B and C should reduce delay (and associated LOS) to at least pre-project levels. 			

1.2 Project Description

The proposed project is comprised of highway-oriented land uses including a super convenience market / gas station, and a drive-through coffee shop intended to serve the public traveling on Interstate 15 (I-15) between southern California and Las Vegas, Nevada, and tourist traffic destined to Death Valley National Park traveling on State Route 127. Most of the businesses on Baker Boulevard serve the tourism and traveler convenience industry.

The peak hours of traffic flow on the I-15 freeway (northbound on a Friday afternoon and southbound on a Sunday afternoon) correspond to the peak flow of visitors to/from Las Vegas each weekend. Therefore, the Friday and Sunday peaks were selected as the peak hours of analysis in this study.

The project is estimated to generate about 19,000 vehicle trips per day and about 1,500 trips in each of the Friday and Sunday peak hours. Most of the trips generated by the project (80%) are estimated to be diverted from I-15 and SR 127. The project will also capture a small number of trips that are passing by the site on Baker Boulevard.



1.3 Summary of General Plan Consistency Impacts at Baker Boulevard and Death Valley Rd (SR 127)

Intersections analyzed in this study include Baker Boulevard and Death Valley Rd (SR 127), Baker Boulevard and the I-15 southbound and northbound ramp intersections, and the project's two driveways accessing Baker Boulevard. The only public street intersection in which the project causes and/or contributes to a deficient level of service is Baker Boulevard and Death Valley Rd (SR 127).

Table 1-2 presents the application of the level of service deficiency criteria to the intersection of Baker Boulevard and Death Valley Rd (SR 127) for all project scenarios.

The analysis finds that the proposed project causes a project-specific deficiency to the level of service of the intersection of Baker Boulevard and Death Valley Rd (SR 127) under the existing + project scenario and contributes to the near-term (background + project conditions) and long-term (future 2040 + project) cumulative level of service deficiencies.

Table 1-2: Baker Blvd and Death Valley Rd (SR 127) Level of Service Deficiency Assessment

Table 1-1: Baker Blvd and 24th Valley Rd (SR 127) Level of Service Deficiency Assessment				
Scenario	Criteria for General Plan LOS Deficiency Impacts (Refer to Table 1-1)			
	A	B	C1	C2
	The addition of project traffic causes an intersection to degrade from an LOS D or better to a LOS E or worse.	The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at an LOS E or F.	The project adds ten (10) or more peak hour trips to any minor street approach of the unsignalized intersection being analyzed.	The intersection, with the addition of project traffic, meets the MUTCD peak hour traffic signal warrant. [1]
Existing + Project Conditions	Friday Peak: Yes Sunday Peak: Yes	Friday Peak: No Sunday Peak: No	Not Applicable	Not Applicable
Background + Project Conditions (Near-Term)	Friday Peak: Yes Sunday Peak: Yes	Friday Peak: No Sunday Peak: No		
Future (2040) + Project Conditions (Long-Term)	Friday Peak: Yes Sunday Peak: Yes	Friday Peak: No Sunday Peak: No		
Notes:				
[1] A traffic signal warrant analysis is not required as part of the county's deficiency criteria (C2) because the project did not satisfy criteria B. In all scenarios, the without project conditions operated at a LOS D or better, and the addition of project traffic degraded the level of service to LOS E or F, clearly satisfying criteria A.				

1.4 Traffic Signal Warrant Analysis at Baker Boulevard and Death Valley Road (SR 127)

Most traffic signal warrants are not applicable to the intersection of Baker Boulevard and Death Valley Road (SR 127) because the intersection has multi-way stop control. Warrants are usually applied to side street stop-controlled intersections. The project did, however, satisfy criteria A in each of the scenarios—a condition requiring intersection improvements that would improve with project conditions to a level of service of D or better. Installation of a traffic signal is a potential improvement but at least one traffic signal warrant must be satisfied for it to be considered. Multi-way stop control is often used as an interim form of traffic control when a signal is warranted but not yet fully funded.

Criteria Justifying the Current Multi-Way Stop Control at Baker Boulevard and Death Valley Road (SR 127)

The fact that the intersection of Baker Boulevard and Death Valley Road (SR 127) currently has multi-way stop control indicates that the intersection wouldn't operate satisfactorily with side street stop control in the past. Refer to the criteria summarized below used in justifying the installation of multi-way stop control from the California MUTCD:

- A. Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed



quickly to control traffic while arrangements are being made for the installation of the traffic control signal.

B. Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.

C. Minimum volumes:

1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and
2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but
3. If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.

D. Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.

The intersection of Baker Boulevard and Death Valley Road (SR 127) may have been identified for signalization in the past and the county needs to confirm if it has collected fees from new development in Baker specifically for funding a traffic signal at this intersection.

Application of Traffic Signal Warrants Assuming Two-Way Stop Control Under Project Conditions

Signal warrants can still be applied if the intersection is assumed under its previous form of traffic control—two-way stop assuming Baker Boulevard as the uncontrolled major street and Death Valley Road as the stop controlled minor street. Under this assumption, warrant 3 (peak hour) and warrant 7 (crash experience) were evaluated at Baker Boulevard and Death Valley Road (SR 127). These warrants are included as standards in the California Manual on Uniform Traffic Control Devices (CA MUTCD, 2014).

Table 1-3 summarizes the traffic signal warrant analysis criteria to the intersection of Baker Boulevard and Death Valley Road (SR 127) for all study scenarios.

Table 1-3: Baker Boulevard and Death Valley Road (SR 127) Traffic Signal Warrant Analysis

Warrant	Traffic Signal Warrant Analysis					
	Warrant 3 (Peak Hour)					Warrant 7 (Crash Experience)
	Part A				Part B	
	All criteria 1,2, and 3 below must be satisfied for any four consecutive 15 minute periods				The plotted point falls above the applicable curve in Figure 4C-S (See Appendix D)	All Parts Must be Satisfied
	1. Total Delay	2. Volume on minor street	3. Total Entering volume	All Satisfied		
Existing Conditions	No	Yes	Yes	No	Yes	No
Existing + Project Conditions	Yes	Yes	Yes	Yes	Yes	Not Applicable [1]
Background Conditions	No	Yes	Yes	No	Yes	
Background + Project Conditions	Yes	Yes	Yes	Yes	Yes	
Future (2040) Conditions	No	Yes	Yes	No	Yes	
Future (2040) + Project Conditions	Yes	Yes	Yes	Yes	Yes	
Notes:						
[1] The crash experience in warrant 7 looks at historical crashes over a three-to-five-year period and there is no accurate way to forecast future crashes.						
Source of warrant procedures: California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition (Section 4C.01 Studies and Factors for Justifying Traffic Control Signals).						
Source of crash data: Transportation Injurv Mapping System (TIMS). UC Berkely.						



Traffic signal warrant 3, part A is satisfied under project conditions in each scenario, and part B is satisfied under every condition in each scenario. The traffic signal warrant analysis worksheets are provided in **Appendix D**.

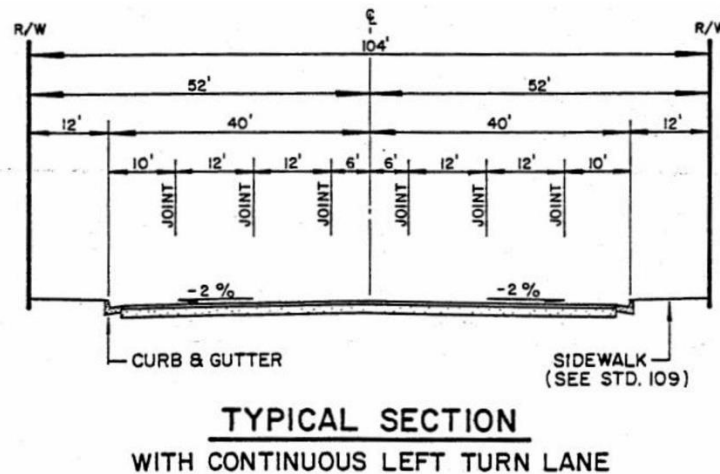
1.5 Project Access Level of Service Assessment

Project Access

Access to the proposed project is provided by two 40-foot-wide driveways on Baker Boulevard. Driveway "A" is located at the southwesterly edge of the project's property. Driveway "B" is located about 180 feet south and west of the project's northeasterly property edge and is separated from Driveway "A" by approximately 337 feet.

Baker Boulevard's Planning Context and Design Standards

Baker Boulevard is part of San Bernardino County's Maintained Road System (CMRS) with a right of way of 104 feet and a functional classification code of 13, according to the County Public Works Department's web map of "Roads Maintained by the County Department of Public Works – Transportation". This right of way is associated with the county's Master Plan of Highways in the Arterial Roads category as a Major Highway (104-foot RW and 80-foot curb separation). See the street section below for the county's standard for a Major Highway.



County standard plan 101 (Major Highway). Ultimately, Baker Boulevard will have two lanes in each direction and a median turn lane.

The current paved width of Baker Boulevard along the project's frontage is about 80 feet measured from the face of curb on the south side of the street (along the Del Taco restaurant frontage) to the edge of pavement on the north side of the street. The north side of the street is unimproved lacking curb, gutter, and sidewalk. This width is consistent with the curb separation width requirements of a Major Highway classification in the County's Master Plan. Only a portion of the existing pavement is currently used by through traffic on Baker Boulevard. Pavement markings are used demarcate a 12-foot southbound lane and 25 feet of pavement in the northbound direction operating as a single lane.

Driveway Level of Service

In the Friday and Sunday peak hours, both Driveway "A" and Driveway "B" operate at LOS E or LOS F under all scenarios. The delay experienced by the worse movement exiting Driveway "A" (southbound left turn) exceeds 300 seconds per vehicle in both the Friday and Sunday peak hours. Driveway "B"'s Friday peak hour experiences a similar level of delay, but the Sunday peak hour delay is about 35 seconds per vehicle (LOS E).



1.6 Recommendations

Measures to Improve Level of Service Deficiency at Baker Boulevard and Death Valley Road (SR 127)

Implementing the following improvements at the intersection of Baker Boulevard and Death Valley Road will change the deficient LOS in all scenarios from a LOS E or F to a LOS D or better.

1. Install traffic signal and widen intersection for additional lanes

- Traffic signal is proposed to be an 8-phase signal (providing protected left-turn phasing with overlap in the east-west and north-south directions).
- Widening of the south leg (Death Valley Rd (SR 127)) to accommodate exclusive left and right turn lanes
- Realignment and widening of the north leg (Death Valley Rd (SR 127) to accommodate an exclusive left turn lane.
- Set back of the east leg (Baker Boulevard) to accommodate the widening of the Death Valley Rd (SR 127) approaches.

A traffic signal at the intersection of Baker Boulevard and Death Valley Road would improve the level of service to a LOS C or better under project conditions in all scenarios

The installation of the traffic signal and the reconfiguring of approach lanes should be initiated by the County and Caltrans. The development will pay its fair share of the cost of these improvements.

Project Traffic Fair Share Calculation

Table 1-4 presents the project's calculated percentage of the growth in traffic at the intersection of Baker Boulevard and Death Valley Road (SR 127). The project's percentage of growth shown in the table multiplied by the cost of implementing the intersection improvements described above minus any fees or fair share development contributions previously collected by the county towards the cost of signalizing this intersection would be the project's share of funding the improvement.

Table 1-4: Calculation of Project Share of Growth in Traffic at Baker Boulevard / Death Valley Road (SR 127)

Table 1 - Calculation of Project Share of Growth in Trips at Baker Blvd / SR 127 / Death Valley Road (SR 127)						
Intersection	Scenario	Project Trips		Plus Project Conditions Traffic [1]	Existing Traffic	Project Percentage of Growth
Baker Blvd / Death Valley Road (SR 127)	Existing + Project Conditions	FRI	986	÷ (1,684	- 698)	= 100.00%
		SUN	1015	÷ (2,049	- 1,034)	= 100.00%
	Background + Project Conditions	FRI	986	÷ (1,713	- 698)	= 97.14%
		SUN	1015	÷ (2,090	- 1,034)	= 96.12%
	Future 2040 + Project Conditions	FRI	986	÷ (1,793	- 698)	= 90.05%
		SUN	1015	÷ (2,131	- 1,034)	= 92.53%
Notes: [1] Plus project conditions traffic = existing + ambient growth at 2% annually + project traffic for each scenario.						

Other Recommended Measures

1. Construct project frontage improvements

The project will be conditioned to construct its access driveways and construct the required half-width improvements to the north side of Baker Boulevard along its frontage consistent with the county's standard for Major Highway with a 104-foot right of way and 80-foot curb separation. These improvements include but are not limited to the following:

- Dedicate right of way (if required) for the full half width of Baker Boulevard.



- b. Remove old asphalt and repave the required half width of Baker Boulevard along the project's frontage.
- c. Mark the pavement of the widened side of Baker Boulevard as a single southbound lane using white edge lines that transition and channelize southbound traffic into the lane at the beginning of the project's frontage and out of the lane at the end of the project's frontage.
- d. Extend the existing two way left turn lane to the south along Baker Boulevard for the length of the project's frontage plus any required transition to match existing centerline south of the project's frontage improvements.
- e. Construct standard curb, gutter, and sidewalk frontage improvements on Baker Boulevard.
- f. Construct the two project access driveways at the locations shown on the site plan (see Figure 2).



2 INTRODUCTION

This report identifies the effect of the proposed Baker Boulevard Commercial Center on intersection level of service in accordance with the County of San Bernardino's Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS) and recommends improvements to address level of service deficiencies.

The proposed project consists of a of a super convenience market (approximately 20,400 SF) and gas station with 40 fueling stations and a stand-alone coffee shop with drive-through window (approximately 5,000 SF). **Figure 1** illustrates the vicinity map, and **Figure 2** illustrates the proposed project site plan.

This report analyzes intersection level of service under the following scenarios:

- Existing Conditions - **Chapter 3**
- Existing plus Project Conditions - **Chapter 0**
- Background Conditions (Opening Year 2023 without project) - **Chapter 5**
- Project Conditions (Opening Year 2023 with project) - **Chapter 6**
- Future Year 2040 Conditions (Horizon Year 2040 without project)- **Chapter 7**
- Future Year Plus Project Conditions (Horizon Year 2040 with project)- **Chapter 8**
- Recommendations- **Chapter 9**
- Summary of Vehicle Miles Traveled (VMT) Screening – **Chapter 10**

2.1 Scenario Definitions

Existing Conditions. This scenario represents existing transportation conditions at the time this report was prepared. Data includes traffic counts collected in September 2021 and current roadway and intersection geometries. This scenario is used as the baseline condition from which to measure project-specific impacts.

Existing Plus Project Conditions. This scenario represents transportation conditions as if the project were built and occupied today. This scenario is intended to identify potentially significant impact (requiring improvements) when compared to Existing Conditions without any unrelated transportation system improvements or other development. Impacts identified in this scenario are considered “project-specific”—impacts that are the sole responsibility of the project to mitigate.

Background Conditions (Year 2023). This scenario represents conditions at the time the project is anticipated to be constructed and occupied (year 2023 for this project) but without traffic generated by the project. The ambient growth is a general rate of growth in traffic from overall regional development (assumed to be 2% annually for this study).

Project Conditions (Year 2023). This scenario adds the project's estimated traffic generation at project buildout (year 2023) to the Background Conditions scenario described above. Impacts identified in this scenario are considered “cumulative” impacts—impacts that the project contributes to, but does not solely cause, and may be responsible for a fair-share of the cost to implement any mitigation measures.

Future Year 2040 Conditions. This scenario represents regional ambient growth in traffic up to the year 2040. Ambient growth derived from forecasts from the San Bernardino Transportation Analysis Model (SBTAM).

Future Year 2040 with Project Conditions. This scenario adds the project's estimated traffic generation to the Future Conditions scenario described above. Impacts identified in this scenario are considered “cumulative” impacts—impacts that the project contributes to, but does not solely cause, and may be responsible for a fair-share of the cost to implement any mitigation measures.

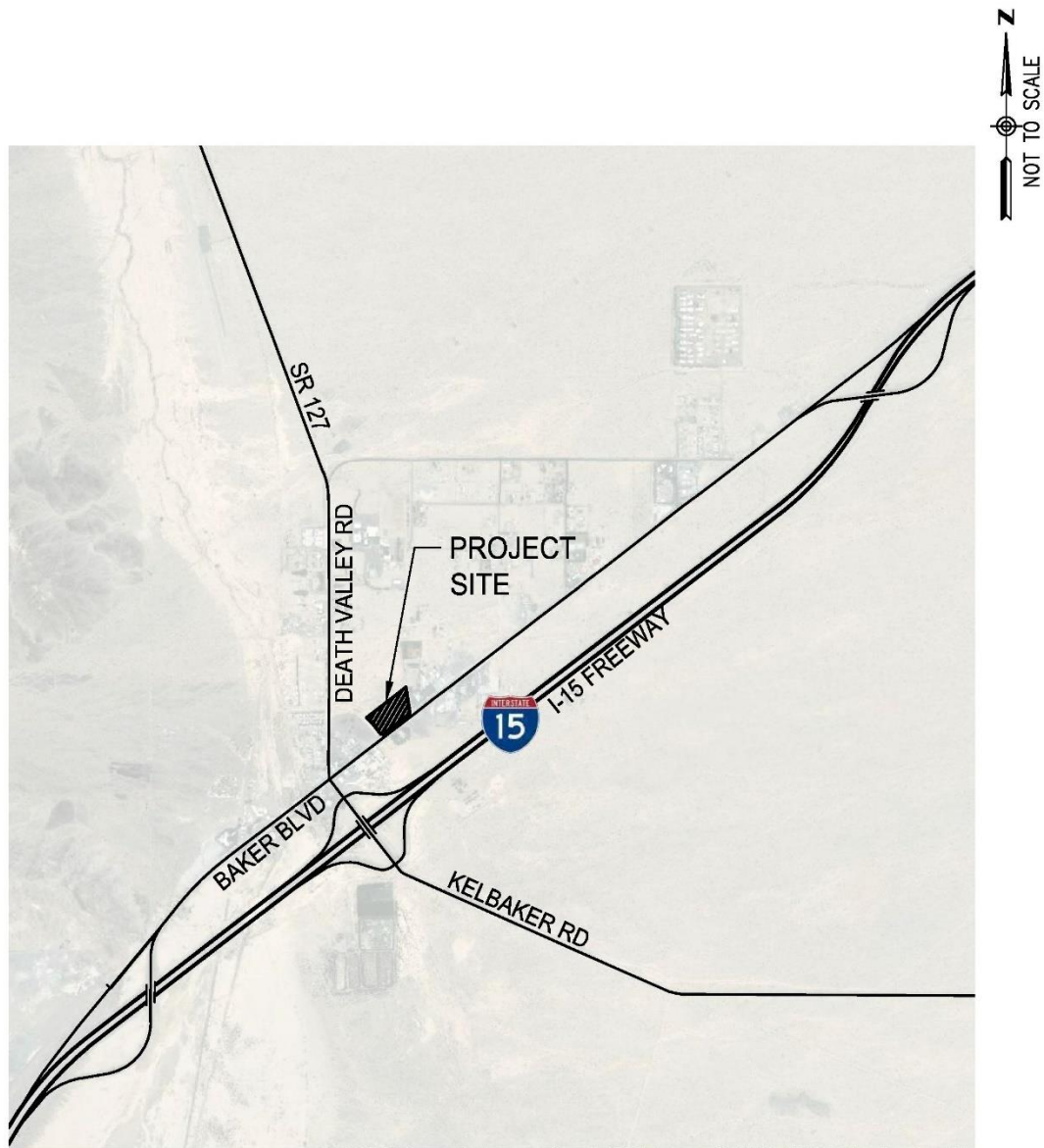


FIGURE 1: VICINITY MAP
 BAKER BOULEVARD COMMERCIAL CENTER
 SAN BERNARDINO COUNTY, CA

Drawing Name: P:\0000000000\0544-311-42\Baker\BTS\Study\Figure 1.dwg
 Last Updated: Mar 25, 2022 - 5:27pm by: Tmsh



FIGURE 2: SITE PLAN
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA

Drawing Name: P:\O\CONT00400001\0400\CAD\EXHIBITS\Study\Figure 2.dwg
Last Opened: Mar 25, 2022 - 5:21pm by: Tnm



3 EXISTING CONDITIONS

This section describes the county's level of service policy and standards and frames the criteria the county established for determining when development is considered causing, or contributing, to a level of service deficiency requiring mitigation.

3.1 San Bernardino County General Plan Consistency Requirements

San Bernardino County's General Plan includes policies that address level of service (LOS) and identifies transportation facility LOS standards the county maintains. Although environmental impacts under the California Environmental Quality Act (CEQA) have replaced LOS with Vehicle Miles Traveled (VMT) as the most appropriate measures of transportation impacts, San Bernardino County still requires new development projects to prepare traffic analyses that demonstrate that the development conforms with, or can mitigate to, General Plan level of service policies and standards.

According to San Bernardino County's Transportation Impact Study Guidelines (July 2019), the minimum acceptable intersection level of service for the county's **desert regions** as described in the current San Bernardino County General Plan, is LOS D. The criteria for identifying operational deficiencies at unsignalized intersections are shown in **Table 3-1**.

Table 3-1: Criteria for Determining General Plan Level of Service Consistency at Unsignalized Intersections

At an unsignalized intersection, an operational improvement would be required if the analysis determines that the proposed project causes or contributes to conditions described in criterion (A) <u>or</u> criterion (B) and (C).			
(A)	OR	(B)	
The addition of project traffic causes an intersection to degrade from a LOS D or better to a LOS E or F.		The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate at a LOS E or F without project traffic.	
Note: If Criteria A is met under the existing + project scenario, it is considered a project-specific impact and the project is solely responsible for its mitigation. If the criterion is met in the opening day or long-range scenarios (e.g., background + project, and year 2040) it is considered a cumulative impact and the project contributes its fair share to the cost of the improvement.		AND	
		(C)	
		One or both of the following conditions are met:	
		The project adds ten (10) or more peak hour trips to any minor street approach of the unsignalized intersection being analyzed.	The intersection, with the addition of project traffic, meets the peak hour traffic signal warrant (#3) as defined in the California Manual on Uniform Traffic Control Devices.
If the analysis of a development project meets the criteria above, the transportation impact study needs to identify measures that will achieve the following:			
<ul style="list-style-type: none">Measures applied to unsignalized intersections impacted under Criteria A should improve peak hour level of service to a LOS D or better or,Measures applied to unsignalized intersections impacted under Criteria B and C should reduce delay (and associated LOS) to at least pre-project levels.			

3.2 Local and Major Roadways

Land uses around the site consist of retail use on the east and west sides, and a dirt lot north of the project site. The street fronting the project property is a paved two-lane road. The roads pavement widths are currently within the range of 50 to 60 feet and are in good to fair condition. The following roadways provide regional access to the project within the study area:

Baker Boulevard will provide the primary access to the project site. Baker Boulevard is a two-lane roadway that runs parallel to the I-15 Freeway. It is the old U.S 91 Highway prior to the construction of the I-15 Freeway. Baker Blvd provides two separate interchanges at its terminus with the I-15 Freeway. The Northern Interchange, east of the project location, provides a northbound on-ramp and a southbound off-ramp to the I-15 freeway. The Southern



Interchange, west of the project location, provides a northbound off-ramp and a southbound on-ramp to the I-15 freeway.

Death Valley Road (SR-127) is a two-lane state highway that provides northerly access from Baker at the I-15 Freeway to the Death Valley and Tecopa/Shoshone areas. Death Valley Road (SR-127) provides an interchange for the Southbound I-15 freeway ramps.

Kelbaker Road is a two-lane road that provides access to the small town of Kelso, the Mojave National Preserve, and Interstate 40 to the south of the unincorporated community of Baker. Kelbaker Road is the southerly extension of Death Valley Road that provides an interchange for the Northbound I-15 freeway ramps.

Interstate 15 Freeway provides regional access within the study area. The freeway is a four-lane (two in each direction) facility with interchange access at Death Valley Road/Kelbaker Road interchange in the study area. This north-south freeway is an interstate facility that provides travel between Barstow, San Bernardino, Riverside and San Diego Counties to the south and Las Vegas to the north.

3.3 Site Access

Access to the proposed project is provided by two 40-foot-wide driveways on Baker Boulevard. Driveway "A" is located at the southwesterly edge of the project's property. Driveway "B" is located about 180 feet south and west of the project's northeasterly property edge and is separated from Driveway "A" by approximately 337 feet. See **Figure 2** for the driveway locations.

3.4 Study Intersections

The study intersections identified for this focused traffic study include three existing intersections and two proposed future driveways. These intersections are:

1. Baker Blvd and Death Valley Rd (SR 127)
2. Death Valley Rd (SR 127) and I-15 NB Ramps
3. Death Valley Rd (SR 127) and I-15 SB Ramps
4. Baker Blvd and Project Driveway "A"
5. Baker Blvd and Project Driveway "B"

The intersection of Death Valley Rd (SR 127) / I-15 SB Ramps is currently side-street stop controlled. The intersections of Baker Boulevard / Death Valley Rd (SR 127) and Death Valley Rd (SR 127) / I-15 NB Ramps are currently all-way-street-stop controlled. The westbound right turn at the intersection of Baker Boulevard / Death Valley Rd (SR 127) currently operates as yield controlled.

3.5 Existing Traffic Volumes

Turn movement counts were conducted in September 2021 by Newport Traffic Studies, an independent traffic data collection company. These counts were collected during the Friday PM (4-6 PM) and Sunday MID-Day (1-3 PM) peak periods. The existing turn movement counts are included in **Appendix A** of this study. **Figure 3** illustrates the existing peak hour traffic volumes in the study area.

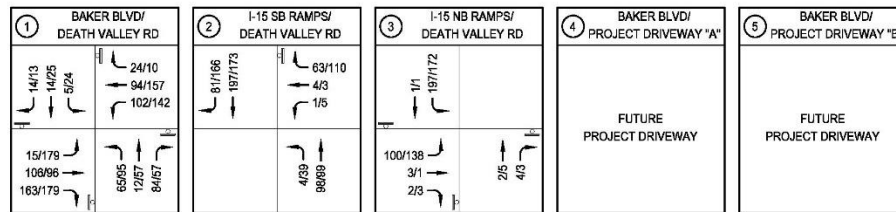
3.6 Intersection Capacity Analysis Methodology

Intersection level of service (LOS) is determined using Synchro software¹ which implements the methodology in Chapter 19, Chapter 20, and Chapter 21 of the Highway Capacity Manual, 6th Edition (HCM 6)² and conforms to the procedures and assumptions in the county's Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS).

The intersection analyses use existing intersection geometrics and existing traffic volumes in determining AM and PM peak hour intersection level of service. **Table 3-3** provides LOS thresholds for signalized intersections as provided in the HCM 6 Chapter 19.

¹ Trafficware Ltd, version 10.

² Transportation Research Board, Washington D.C., 2010.



**DAVID EVANS
AND ASSOCIATES INC.**

FIGURE 3: EXISTING TRAFFIC VOLUMES
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA

Drawing Name: P:\OCON\0004\0001\0400\CAD\EXHIBITS\Study\Figure 3.dwg
Last Opened: Mar 25, 2022 - 5:24pm by: Tmm



Table 3-2: HCM 6 – LOS Criteria for Signalized Intersections

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio ^a	
	≤1.0	>1.0
≤ 10	A	F
> 10 - 20	B	F
> 20 - 35	C	F
> 35 - 55	D	F
> 55 - 80	E	F
> 80	F	F

[a] For approach-based and intersection-wide assessments, LOS is defined solely by control delay. Source: Highway Capacity Manual 6th Edition, Exhibit 19-8.

The level of service for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay. The LOS is determined for each minor-street movement (or shared movement) by using the criteria provided in **Table 3-3**.

Table 3-3: HCM 6 – Level of Service Criteria for Two-Way Stop Controlled (TWSC) Intersections

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤1.0	v/c >1.0
0 - 10	A	F
> 10 -15	B	F
> 15 - 25	C	F
> 25 - 35	D	F
> 35 - 50	E	F
> 50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for the uncontrolled major-street approaches or for the intersection as a whole.
Source: Highway Capacity Manual 6th Edition, Exhibit 20-2.

The level of service for an all-way (or multi-way) stop controlled (AWSC) intersection is determined by the computed or measured control delay. The LOS is determined for the intersection by using the criteria provided in **Table 3-4**.

Table 3-4: Level of Service Criteria (HCM 6) for All Way Stop Controlled Intersections

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio ^a	
	v/c ≤1.0	v/c >1.0
0 - 10	A	F
> 10 -15	B	F
> 15 - 25	C	F
> 25 - 35	D	F
> 35 - 50	E	F
> 50	F	F

[a] For approach-based and intersection-wide assessments, LOS is defined solely by control delay. Source: Highway Capacity Manual 6th Edition, Exhibit 21-8.

3.7 Existing Traffic Analysis

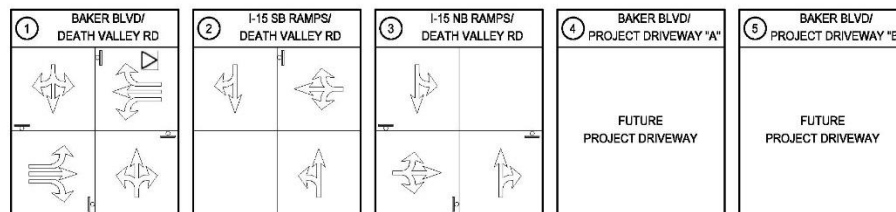
Existing intersection geometrics and existing AM and PM peak hour traffic counts are used in analyzing existing intersection capacity. **Table 3-4** and **Appendix C** provide the results of the analysis. **Figure 4** illustrates the existing intersection geometrics used in the capacity analysis.

As presented in **Table 3-4**, under existing conditions, the existing study intersections are currently operating at LOS B or better during the peak hours.



Table 3-5: Intersection Capacity Analysis – Existing Conditions

Intersection	Intersection Control	FRI Peak		SUN Peak	
		Delay	LOS	Delay	LOS
1. Baker Blvd / Death Valley Rd (SR 127)	AWSC	10.0	A	12.4	B
2. Death Valley Rd (SR 127) / I-15 NB Ramps	SSSC	9.3	A	9.7	A
3. Death Valley Rd (SR 127) / I-15 SB Ramps	AWSC	9.0	A	8.8	A
Abbreviations: TS – Traffic Signal AWSC – All Way Stop Controlled Intersection SSSC – Side Street Stop Controlled Intersection Delay – seconds per vehicle LOS – Level of Service					



**DAVID EVANS
AND ASSOCIATES INC.**

FIGURE 4: EXISTING INTERSECTION GEOMETRICS
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA

Drawing Name: P:\O\CONT00040001\0400CAD\EXHIBITS\Study\Figure 4.dwg
 and Created: Mar 26 2023 5:20pm by: T. T.



4 EXISTING PLUS PROJECT CONDITIONS

Existing plus project conditions identifies impacts to the county's level of service standards when compared to existing conditions without any unrelated transportation system improvements or other development. Impacts identified in this scenario are considered "project-specific"—impacts that are the sole responsibility of the project to mitigate.

4.1 Project Description and Trip Generation

The project proposes to construct a super convenience market (approximately 20,400 SF) and gas station with 40 fueling stations and a stand-alone coffee/donut shop with drive-through window (approximately 5,000 SF) as shown on the site plan in **Figure 2**.

The project is highway-oriented and relies on the I-15 freeway travel patterns to and from Las Vegas, the peak periods are Friday PM (4 - 6 PM) and Sunday PM (1 - 3 PM).

Institute of Transportation Engineers (ITE) Trip Generation manual, 10th Edition trip generation estimates are presented for the PM Peak Hour of the Adjacent Street Traffic. The proposed project land uses include Super Convenience Market/Gas Station (Land Use Category ITE 960) and Coffee/Donut Shop with Drive-Through Window (Land Use Category ITE 937).

Due to the nature of highway-oriented development, the project traffic is primarily comprised of diverted link trips. Diverted-link trips are trips passing by the site but not on an immediately adjacent street and alter their path to visit the site. For example, for a gas station at an interchange, diverted link trips are those that would exit the freeway and then re-enter the freeway to continue in their original direction.

The Institute of Transportation Engineers (ITE) Trip Generation Handbook defines a diverted-link trip as the following:

*"A diverted trip is attracted from the traffic volume on roadways within the vicinity of the generator but without direct access to the site. A diverted trip requires a diversion from a roadway not adjacent to the site to another roadway to gain direct access to the site. **A diverted trip adds traffic to streets adjacent to a site and could remove a trip on streets from which it diverted.** A diverted trips may be part of multiple-stop chain of trips."*

The ITE Trip Generation Handbook further describes diverted link trips and the application of diverted link trips to a traffic assessment.

"Diverted trips are often difficult to identify. Consequently, diverted trips should be estimated in a traffic impact study only if

- Reliable data reporting the percentage distribution of the three types of trips (primary, pass-by, and diverted trips) are available for the land use(s) being considered; and*
- The travel routes for diverted trips can be clearly established.*

If these conditions cannot be met, the analyst should treat all non-pass-by trips as primary trips.

In establishing travel routes for diverted trips, the analyst should consider the location and relative volume of traffic on major roadways within the study area for the traffic impact analysis. Locally established data or data from the site developer may also be helpful in identifying the travel routes for diverted trips.

Overall, diverted trips represent a change in local area travel patterns but constitute no new increase on a macroscopic scale. Within the immediate study area, diverted trips represent additional traffic on individual streets adjacent to a proposed development and could decrease traffic on the streets from which they divert, and should be analyzed that way (if diverted trips are considered in the study and if the streets from which traffic is diverted are within the study area)."



Recent approved traffic studies completed for area projects adjoining this segment of I-15 Freeway within San Bernardino County proposed project were reviewed to establish reliable data reporting the percentage distribution of the three types of trips.

- These studies consisted of **20% primary project trips** and **80% diverted link project trips**.

The proposed travel routes considered the rural nature of the study area, destination travel patterns of the adjacent highway, and the proposed highway-oriented project.

- The I-15 freeway is defined as the diverted-link travel route. The route includes the Baker Boulevard ramps (I-15 northbound on and off-ramps, I-15 southbound on and off-ramps at the north end of Baker), and Kelbaker Road ramps at the south end of Baker

Table 4-1 summarizes the estimated trip generation for the proposed project site, for the Friday PM (4 - 6 PM) and Sunday PM (1 - 3 PM) peak periods based on the Peak Hour of the Adjacent Street Traffic.

Table 4-1: Project Trip Generation

Use		Size/ Quantity	Daily	FRIDAY			SUNDAY		
				In	Out	Total	In	Out	Total
1	Super Convenience Market/Gas Station - Land Use Category (ITE 960)								
	Per 1,000 Sq. Ft. GLA	20,400	837.58	34.64	34.64	69.28	34.64	34.64	69.28
	Trips		17,087	707	707	1,414	707	707	1,414
2	Coffee/Donut Shop with Drive-Through Window - Land Use Category (ITE 937)								
	Per 1,000 Sq. Ft. GLA	5,000	820.38	21.69	21.69	43.38	21.69	21.69	43.38
	Trips		4,102	109	108	217	109	108	217
	Sub-Total Trips		21,189	816	815	1,631	816	815	1,631
	Internal Trips (10%)		2,119	82	82	164	82	82	164
	Adjusted Sub-Total Trips		19,070	734	733	1,467	734	733	1,467
	Diverted Link Trips (80%)		15,256	587	586	1,174	587	586	1,174
	Primary Trips (20%)		3,814	147	147	293	147	147	293

Source: "Trip Generation Manual, Institute of Transportation Engineers", 10th Edition

As presented in **Table 4-1**, the proposed project land use is estimated to generate 3,814 primary daily trips, 293 primary Friday PM and 293 primary Sunday PM peak hour trips during the adjacent street peak hours.

4.2 Project Trip Distribution and Assignment

The distribution of project trips to the surrounding street network is based on assumed origins of the project's employees and visitors. The directional distribution patterns (east, west, north, and south) are consistent with area traffic patterns, then assigned to the street system based on the most direct route on major streets.

The following exhibits illustrate both the directional distribution (percent direction) and the assignment of project traffic (peak hour trips) to the street system.

Figure 5 presents the primary project trips distribution percentages at each study intersection. **Figure 6** presents the diverted-link project trips distribution percentages at each study intersection.

Figure 7 presents the primary project trips assigned to each study intersection. **Figure 8** presents the diverted-link project trips to each study intersection. **Figure 9** presents the total project trips assigned to each study intersection.

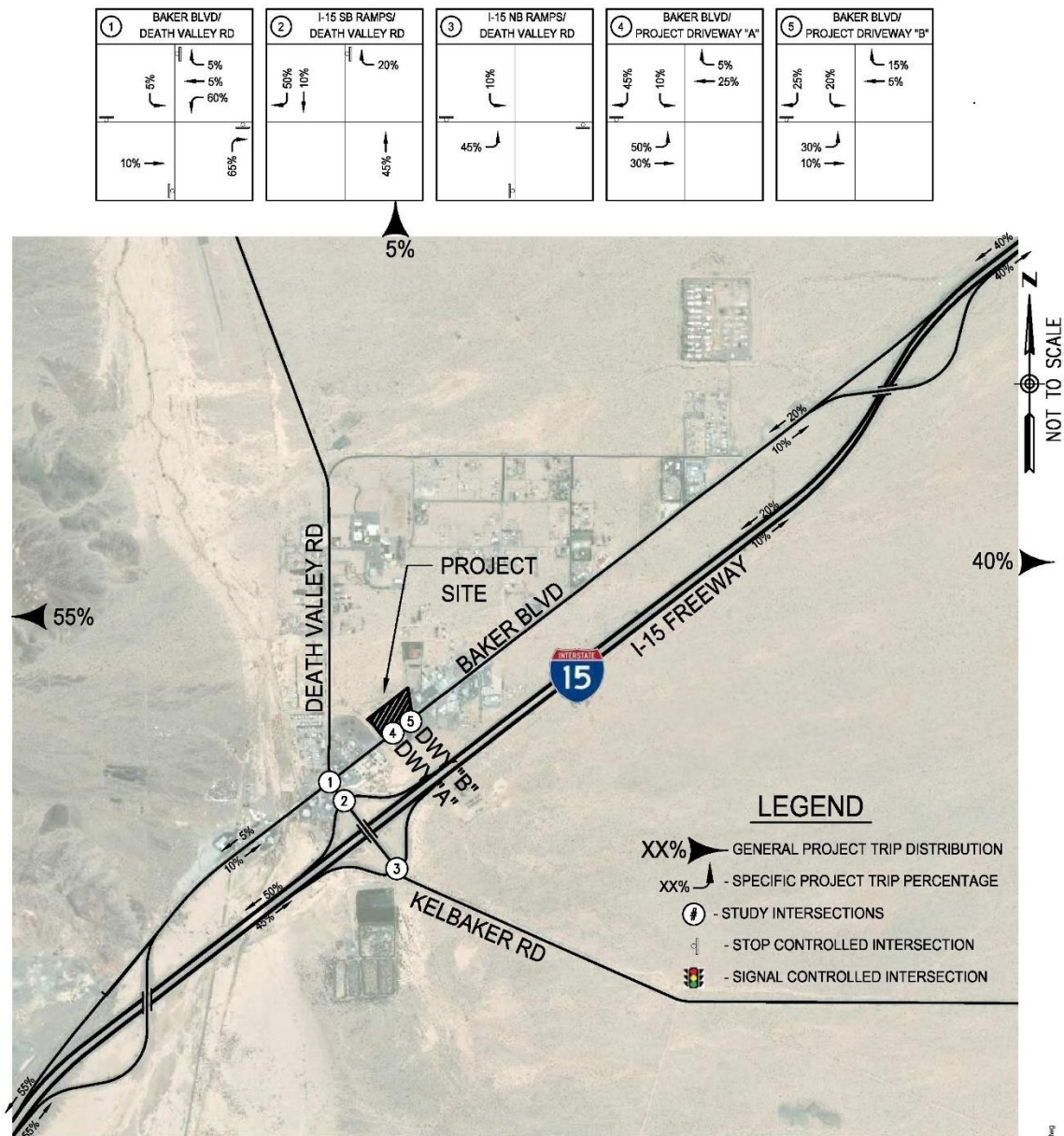
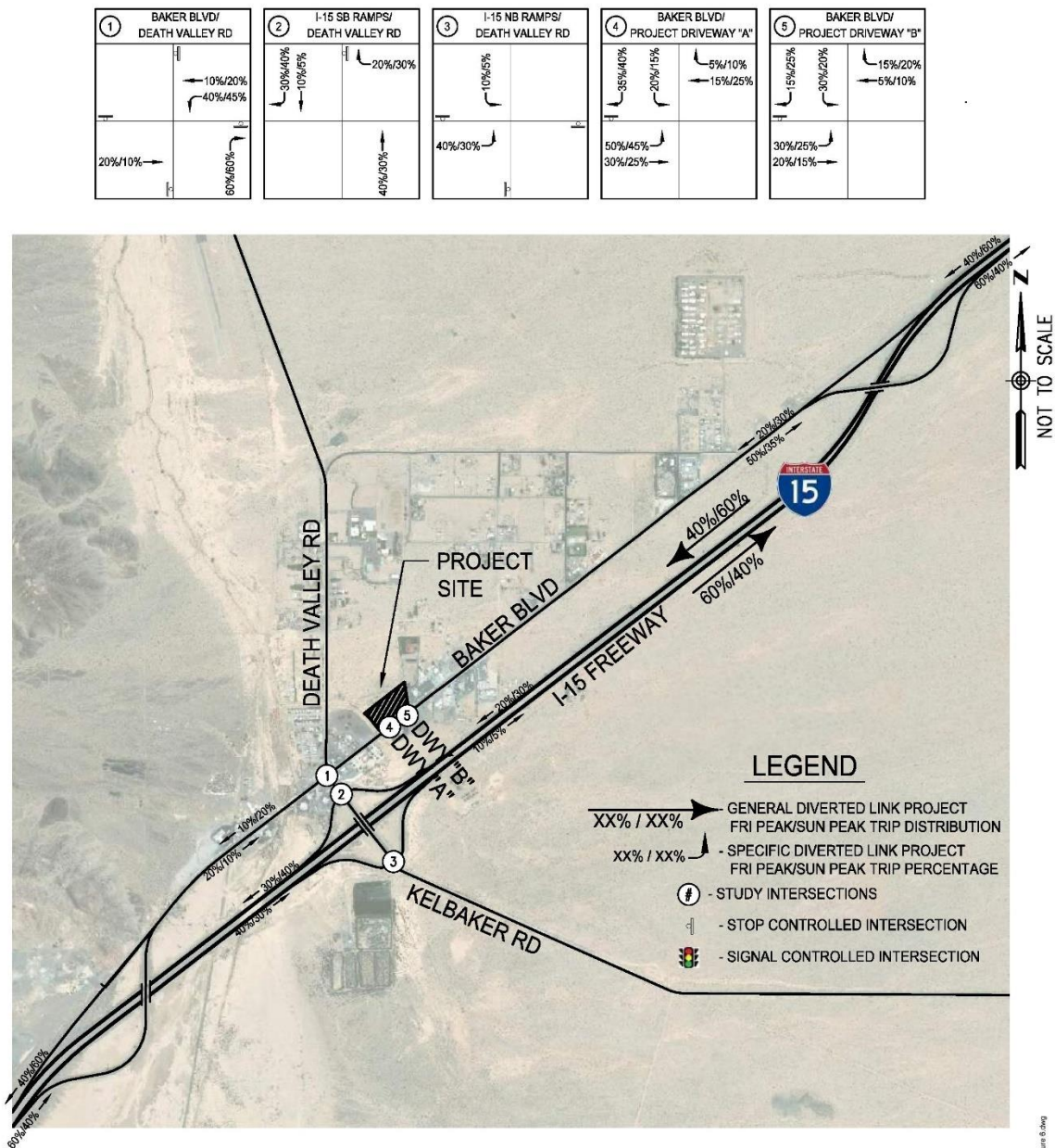
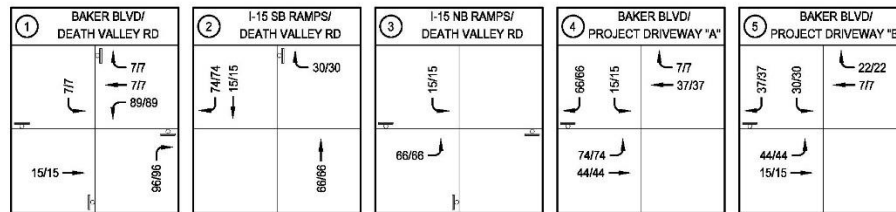


FIGURE 5: PRIMARY PROJECT TRIP
DISTRIBUTION
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA

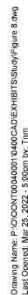


**FIGURE 6: DIVERTED-LINK PROJECT TRIP
DISTRIBUTION
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA**

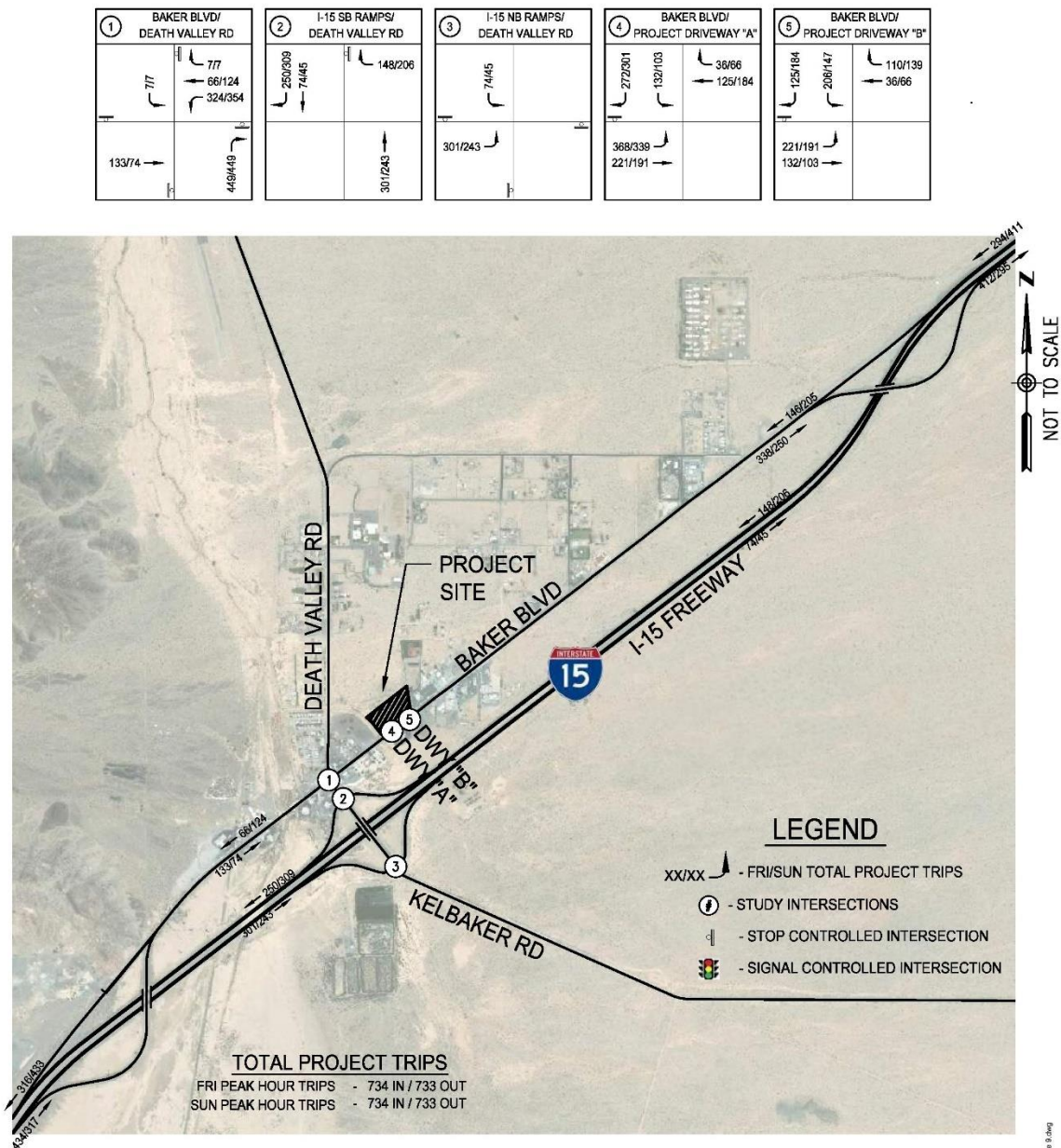


**DAVID EVANS
AND ASSOCIATES INC.**

FIGURE 7: PRIMARY PROJECT TRIPS
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA



APPENDICES





4.3 Existing Plus Project Level of Service Analysis

The intersection capacity analysis of existing plus project conditions uses the Friday and Sunday peak hour traffic volumes shown in **Figure 10** and the existing intersection geometrics shown in **Figure 11**.

Table 4-2 and **Appendix C** provide the results of the analysis.

Table 4-2: Intersection Capacity Analysis – Existing Plus Project Conditions

Intersection	Control	Existing Conditions				Existing + Project Conditions				Increase in Delay (Seconds)		Exceed the Criteria	
		FRI Peak		SUN Peak		FRI Peak		SUN Peak					
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	FRI	SUN	FRI	SUN
1. Baker Blvd / Death Valley Rd (SR 127)	AWSC	10.0	A	12.4	B	127.4	F	152.1	F	117.4	139.7	YES	YES
2. Death Valley Rd (SR 127) / I-15 NB Ramps	SSSC [1]	9.3	A	9.7	A	15.2	C	17.7	C	5.9	8.0	NO	NO
3. Death Valley Rd (SR 127) / I-15 SB Ramps	AWSC	9.0	A	8.8	A	15.4	C	12.5	B	6.4	3.7	NO	NO
Project Access Driveways													
4. Baker Blvd / Driveway "A"	SSSC	Not Applicable				[2]	F	[2]	F	Not Applicable			
5. Baker Blvd / Driveway "B"	SSSC					[2]	F	36.3	E				
Notes:													
[1] Side Street stop-controlled (SSSC) intersection delay and LOS presented are for the worst stop-controlled approach or lane group.													
[2] Delay per vehicle exceeds 300 seconds.													
Abbreviations and definitions:													
TS – Traffic signal control, AWSC – All-way or multi-way stop control, SSSC – Side-street stop control													
Delay – seconds per vehicle, LOS – Level of Service													

As presented in **Table 4-2**, under existing plus project conditions, the intersection of Baker Boulevard / Death Valley Rd (SR 127) would operate at LOS F in the Friday and Sunday peak hours with the addition of project traffic.

In the Friday and Sunday peak hours, both Driveway "A" and Driveway "B" operate at LOS E or LOS F under all scenarios. The delay experienced by the worse movement exiting Driveway "A" (southbound left turn) exceeds 300 seconds per vehicle in both the Friday and Sunday peak hours. Driveway "B"'s Friday peak hour experiences a similar level of delay, but the Sunday peak hour delay is about 35 seconds per vehicle (LOS E).

4.4 Project Access

Project Access

Access to the proposed project is provided by two 40-foot-wide driveways on Baker Boulevard. Driveway "A" is located at the southwesterly edge of the project's property. Driveway "B" is located about 180 feet south and west of the project's northeasterly property edge and is separated from Driveway "A" by approximately 337 feet.

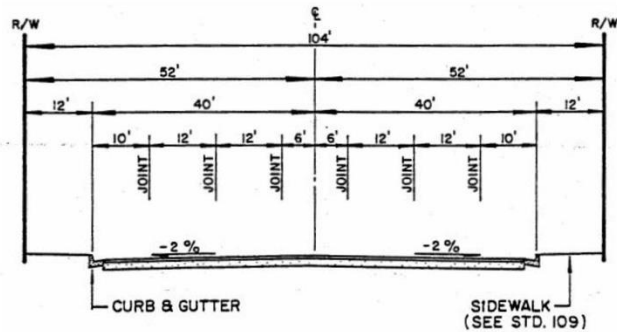
Baker Boulevard's Planning Context and Design Standards

Baker Boulevard is part of San Bernardino County's Maintained Road System (CMRS) with a right of way of 104 feet and a functional classification code of 13, according to the county Public Works Department's web map of "Roads Maintained by the County Department of Public Works – Transportation". This right of way is associated with the county's Master Plan of Highways in the Arterial Roads category as a Major Highway (104-foot RW and 80-foot curb separation). See the street section below for the county's standard for a Major Highway.

The current paved width of Baker Boulevard along the project's frontage is about 80 feet measured from the face of curb on the south side of the street (along the Del Taco restaurant frontage) to the edge of pavement on the north side of the street. The north side of the street is unimproved lacking curb, gutter, and sidewalk. This width is consistent with the curb separation width requirements of a Major Highway classification in the county's Master Plan.



Only a portion of the existing pavement is currently used by through traffic on Baker Boulevard. Pavement markings are used demarcate a 12-foot southbound lane and 25 feet of pavement in the northbound direction operating as a single lane.



TYPICAL SECTION
WITH CONTINUOUS LEFT TURN LANE

County standard plan 101 (Major Highway). Ultimately, Baker Boulevard will have two lanes in each direction and a median turn lane.



**DAVID EVANS
AND ASSOCIATES INC.**

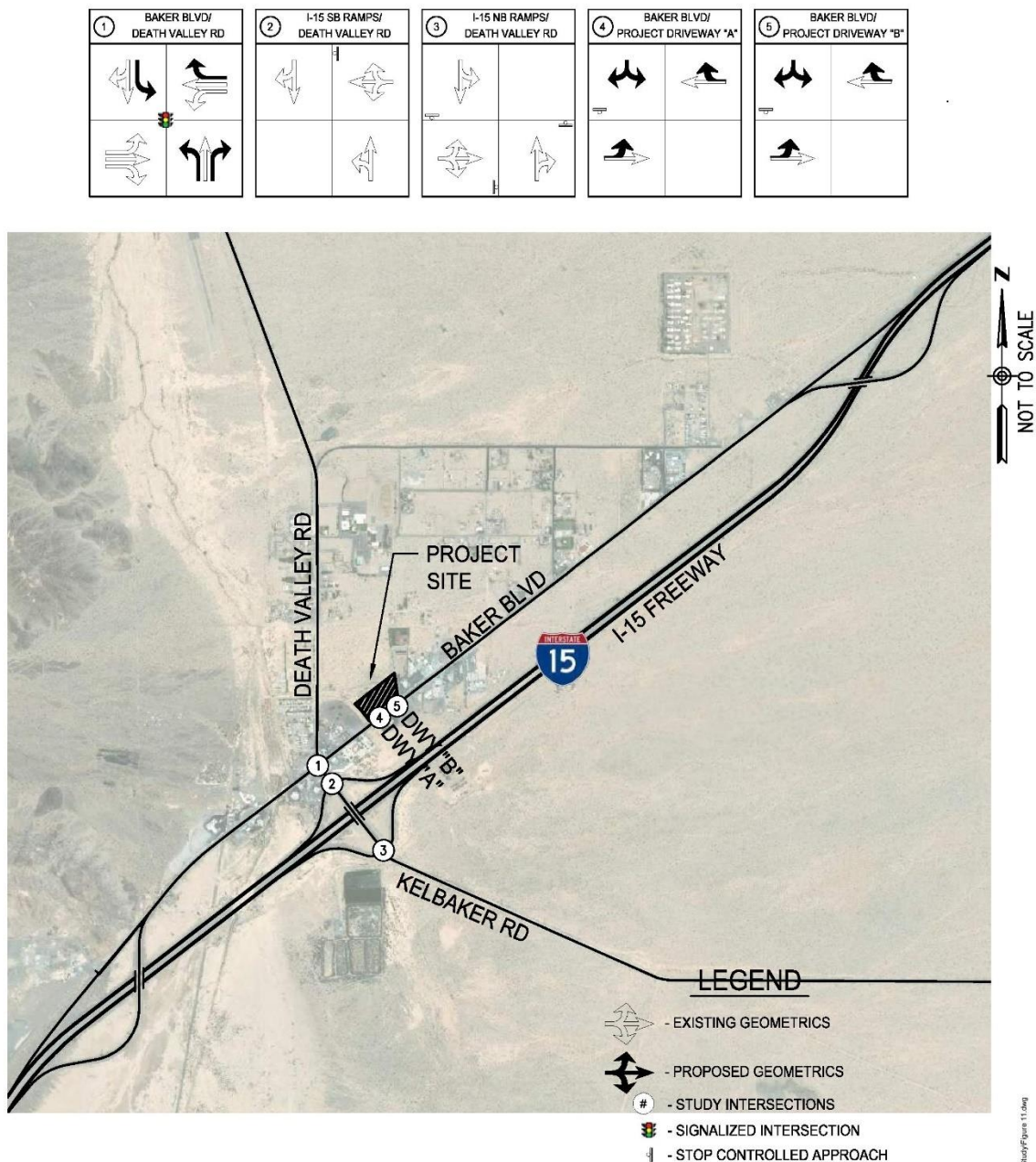


FIGURE 11: EXISTING PLUS PROJECT
INTERSECTION GEOMETRICS
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA

Drawing Name: P:\00000000-4000110400CAD\EXHIBITS\StudyFigure 11.dwg
Last Created: Apr 04, 2023, 10:57am by Team



5 BACKGROUND CONDITIONS

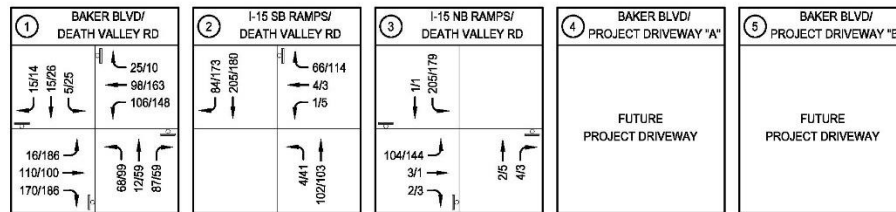
This scenario represents conditions at the time the project is anticipated to be constructed and occupied (year 2023 for this project) but without traffic generated by the project. Ambient growth is used to project the background traffic for this scenario. Ambient growth a general rate of growth in traffic from overall regional development (assumed to be 2% annually for this study).

5.1 Background Conditions Traffic Analysis

The background conditions intersection capacity analysis uses existing intersection geometrics and the projected Friday and Sunday peak hour traffic shown in **Figure 12. Table 5-1** and **Appendix C** provides the results of the analysis. As presented in the table, under background conditions, the study intersections would operate at a LOS A or LOS B during the Friday and Sunday peak hours.

Table 5-1: Intersection Capacity Analysis – Background Conditions

Intersection	Intersection Control	FRI Peak		SUN Peak	
		Delay	LOS	Delay	LOS
1. Baker Blvd / Death Valley Rd (SR 127)	AWSC	10.3	B	12.9	B
2. Death Valley Rd (SR 127) / I-15 NB Ramps	SSSC	9.3	A	9.8	A
3. Death Valley Rd (SR 127) / I-15 SB Ramps	AWSC	9.1	A	8.9	A
Abbreviations and definitions: TS – Traffic signal control, AWSC – All-way or multi-way stop control, SSSC – Side-street stop control Delay – seconds per vehicle, LOS – Level of Service					



**DAVID EVANS
AND ASSOCIATES INC.**

**FIGURE 12: BACKGROUND TRAFFIC VOLUMES
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA**

Drawing Name: P:\OICONT\00400001\0400CAD\EXHIBITS\Study\Figure 12.dwg
 and Created: Mar 25, 2022, 5:02pm by: T. Tran



6 PROJECT CONDITIONS

The project conditions scenario evaluates the potential cumulative impacts to the study intersections due to ambient growth and traffic from other area development that occurs by opening day (year 2023) with the addition of project traffic.

This scenario adds the project's estimated traffic generation at opening day (2023) to the opening day conditions scenario. Level of service impacts identified in this scenario are considered "cumulative" impacts—impacts that the project contributes to, but does not solely cause, and may be responsible for a fair-share of the cost to implement any improvement measures.

6.1 Project Traffic Analysis

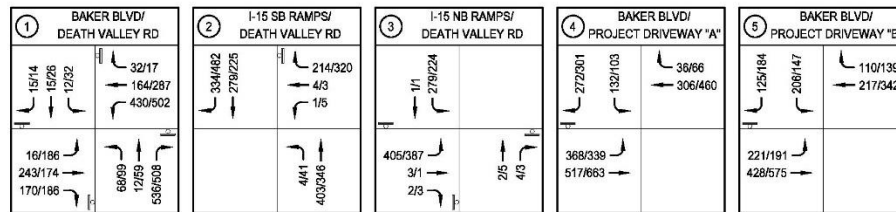
The traffic volumes under this scenario are illustrated in **Figure 13**. Intersection capacity analysis for the study intersections uses existing lanes geometries and the proposed project-specific access, roadway, and off-site intersection improvements described earlier. The results of the analysis are shown in **Table 6-1** and provided in **Appendix C**.

Table 6-1: Intersection Capacity Analysis – Project Conditions

Intersection	Control	Background Conditions				Project Condition				Increase in Delay (Seconds)		Exceed the Criteria	
		FRI Peak		SUN Peak		FRI Peak		SUN Peak					
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	FRI	SUN	FRI	SUN
1. Baker Blvd / Death Valley Rd (SR 127)	AWSC	10.3	B	12.9	B	132.3	F	158.6	F	122.0	145.7	YES	YES
2. Death Valley Rd (SR 127) / I-15 NB Ramps	SSSC [1]	9.3	A	9.8	A	15.4	C	18.0	C	6.1	8.2	NO	NO
3. Death Valley Rd (SR 127) / I-15 SB Ramps	AWSC	9.1	A	8.9	A	15.8	C	12.8	B	6.7	3.9	NO	NO
Project Access Driveways													
4. Baker Blvd / Driveway "A"	SSSC	Not Applicable				[2]	F	[2]	F	Not Applicable			
5. Baker Blvd / Driveway "B"	SSSC					[2]	F	[2]	F				
Notes:													
[1] Side Street stop-controlled (SSSC) intersection delay and LOS presented are for the worst stop-controlled approach or lane group.													
[2] Delay per vehicle exceeds 300 seconds.													
Abbreviations and definitions:													
TS – Traffic signal control, AWSC – All-way or multi-way stop control, SSSC – Side-street stop control													
Delay – seconds per vehicle, LOS – Level of Service													

As presented in **Table 6-1**, with the addition of project traffic, the intersection of Baker Boulevard / Death Valley Rd (SR 127) would operate at LOS F in both peak hours.

Driveway "A" and Driveway "B" operate at LOS F under all scenarios. The delay experienced by the worse movement exiting Driveway "A" (southbound left turn) exceeds 300 seconds per vehicle in both the Friday and Sunday peak hours. Driveway "B"'s Friday and Sunday peak hours experience a similar level of delay.



**DAVID EVANS
AND ASSOCIATES INC.**

FIGURE 13: PROJECT TRAFFIC VOLUMES
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA

Drawing Name: P:\OICONT\0040001\0400CAD\EXHIBITS\Study\Figure 13.dwg
 and Created: Mar 25, 2022, 5:02pm by: T...



7 FUTURE CONDITIONS

The future conditions scenario represents regional ambient growth in traffic up to the year 2040. Ambient growth is derived from forecasts from the San Bernardino Transportation Analysis Model (SBTAM). Intersection turn movements were derived from post processing forecasted approach volumes and balancing the turn movement volumes for each study intersection.

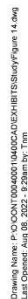
The derivation of future traffic projections from the SBTAM traffic model are shown in **Appendix B**.

7.1 Future Conditions Traffic Analysis

The future conditions intersection capacity analysis uses existing intersection geometrics and the projected AM and PM peak hour traffic shown in **Figure 14. Table 6-1** and **Appendix C** provides the results of the analysis. As presented in **Table 7-1**, under future conditions, the study intersections would operate at LOS A or B during the Friday and Sunday peak hours.

Table 7-1: Intersection Capacity Analysis – Future Conditions

Intersection	Intersection Control	FRI Peak		SUN Peak	
		Delay	LOS	Delay	LOS
1. Baker Blvd / Death Valley Rd (SR 127)	AWSC	11.2	B	13.7	B
2. Death Valley Rd (SR 127) / I-15 NB Ramps	SSSC	9.6	A	9.9	A
3. Death Valley Rd (SR 127) / I-15 SB Ramps	AWSC	8.7	A	8.9	A
Abbreviations and definitions: TS – Traffic signal control, AWSC – All-way or multi-way stop control, SSSC – Side-street stop control Delay – seconds per vehicle, LOS – Level of Service					



Page 333



8 FUTURE PLUS PROJECT CONDITIONS

Future plus project conditions adds the project's estimated traffic generation to the future condition scenario. As described in the previous section, the forecasted future year 2040 traffic intersection turn movements were derived from post processing forecasted SBTAM traffic model approach volumes and balancing the turn movement volumes for each study intersection.

8.1 Future Plus Project Traffic Analysis

The intersection capacity analysis of future plus project conditions uses existing intersection geometrics and the projected Friday and Sunday peak hour traffic volumes shown in **Figure 15. Table 8-1** and **Appendix C** provide the results of the analysis.

Table 8-1: Intersection Capacity Analysis – Future Plus Project Conditions

Intersection	Control	Background Conditions				Project Condition				Increase in Delay (Seconds)		Exceed the Criteria	
		FRI Peak		SUN Peak		FRI Peak		SUN Peak		FRI	SUN	FRI	SUN
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS				
1. Baker Blvd / Death Valley Rd (SR 127)	AWSC	11.2	B	13.7	B	157.0	F	170.9	F	145.8	157.2	YES	YES
2. Death Valley Rd (SR 127) / I-15 NB Ramps	SSSC [1]	9.6	A	9.9	A	16.4	C	18.8	C	6.8	8.9	NO	NO
3. Death Valley Rd (SR 127) / I-15 SB Ramps	AWSC	8.7	A	8.9	A	15.3	C	12.7	B	6.6	3.8	NO	NO
Project Access Driveways													
4. Baker Blvd / Driveway "A"	SSSC	Not Applicable				[2]	F	[2]	F	Not Applicable			
5. Baker Blvd / Driveway "B"	SSSC					[2]	F	[2]	F				
Notes:													
[1] Side Street stop-controlled (SSSC) intersection delay and LOS presented are for the worst stop-controlled approach or lane group.													
[2] Delay per vehicle exceeds 300 seconds.													
Abbreviations and definitions:													
TS – Traffic signal control, AWSC – All-way or multi-way stop control, SSSC – Side-street stop control													
Delay – seconds per vehicle, LOS – Level of Service													

As presented in **Table 8-1**, with the addition of project traffic, the intersection of Baker Boulevard / Death Valley Rd (SR 127) would operate at LOS F in both peak hours.

As in the other project scenarios, Driveway "A" and Driveway "B" operate at LOS F under all scenarios. The delay experienced by the worse movement exiting Driveway "A" (southbound left turn) exceeds 300 seconds per vehicle in both the Friday and Sunday peak hours. Driveway "B"'s Friday and Sunday peak hours experience a similar level of delay.

<p>① BAKER BLVD/ DEATH VALLEY RD</p> <p>19/15 21/28 14/5 34/18 167/288 442/500</p> <p>17/188 237/179 188/189 87/110 17/64 550/516</p>	<p>② I-15 SB RAMP/ DEATH VALLEY RD</p> <p>351/482 282/233 206/327 11/3 3/5 24/36 428/355</p>	<p>③ I-15 NB RAMP/ DEATH VALLEY RD</p> <p>2/3 243/223 404/381 3/1 3/5 23/7 38/4</p>	<p>④ BAKER BLVD/ PROJECT DRIVEWAY "A"</p> <p>272/301 132/103 36/66 332/474 368/339 530/673</p>	<p>⑤ BAKER BLVD/ PROJECT DRIVEWAY "B"</p> <p>125/184 208/147 110/139 243/358 221/191 441/485</p>
---	--	---	--	--



FIGURE 15: FUTURE PLUS PROJECT
TRAFFIC VOLUMES
BAKER BOULEVARD COMMERCIAL CENTER
SAN BERNARDINO COUNTY, CA

Drawing Name: P:\COMMITMENTS\0544-311-42\CD\EXHIBITS\Study\Figure 15.dwg
Last Updated: Aug 08, 2022 - 10:07am by: Tim



9 RECOMMENDATIONS

The intersection of Baker Boulevard / Death Valley Road (SR 127) is projected to change from an acceptable level of service to a deficient level of service after project traffic is added to the intersection. This occurs in all three scenarios (existing, background opening day, and future 2040).

Measures to Improve Level of Service Deficiency at Baker Boulevard and Death Valley Road (SR 127)

Implementing the following improvements at the intersection of Baker Boulevard and Death Valley Road will change the deficient LOS in all scenarios from a LOS E or F to a LOS D or better.

2. Install traffic signal and widen intersection for additional lanes

- Traffic signal is proposed to be an 8-phase signal (providing protected left-turn phasing with overlap in the east-west and north-south directions).
- Widening of the south leg (Death Valley Rd (SR 127)) to accommodate exclusive left and right turn lanes
- Realignment and widening of the north leg (Death Valley Rd (SR 127) to accommodate an exclusive left turn lane.
- Set back of the east leg (Baker Boulevard) to accommodate the widening of the Death Valley Rd (SR 127) approaches.

The installation of a traffic signal would improve level of service to a LOS C or better under project conditions in all scenarios, as shown in **Table 9-1**.

The installation of the traffic signal and the reconfiguring of approach lanes should be initiated by the County and Caltrans. The development will pay its fair share of the cost of these improvements.

Table 9-1: Mitigated Level of Service at Baker Boulevard and Death Valley Road (SR127)

Scenario	Without Project				With Project				With Project Mitigated			
	FRI Peak		SUN Peak		FRI Peak		SUN Peak		FRI Peak		SUN Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Existing Conditions	10.0	A	12.4	B	127.4	F	152.1	F	25.1	C	24.8	C
Background (2023) Conditions	10.3	B	12.9	B	132.3	F	158.6	F	25.1	C	25.4	C
Future 2040 Conditions	11.2	B	13.7	B	157.0	F	170.9	F	25.7	C	25.7	C
Notes: Mitigation: Install traffic signal and widen approaches to add turning lanes.												

Project Traffic Fair Share Calculation

Table 9-2 presents the project's calculated percentage of the growth in traffic at the intersection of Baker Boulevard and Death Valley Road (SR 127). The project's percentage of growth shown in the table multiplied by the cost of implementing the intersection improvements described above minus any fees or fair share development contributions previously collected by the county towards the cost of signaling this intersection would be the project's share of funding the improvement.

Other Recommended Measures

2. Construct project frontage improvements

The project will be conditioned to construct its access driveways and construct the required half-width improvements to the north side of Baker Boulevard along its frontage consistent with the county's standard for



Major Highway with a 104-foot right of way and 80-foot curb separation. These improvements include but are not limited to the following:

- a. Dedicate right of way (if required) for the full half width of Baker Boulevard.

Table 9-2: Calculation of Project Share of Growth in Traffic at Baker Boulevard / Death Valley Road (SR 127)

Intersection	Scenario	Project Trips		Plus Project Conditions Traffic [1]	Existing Traffic	Project Percentage of Growth
Baker Blvd / Death Valley Road (SR 127)	Existing + Project Conditions	FRI	986	÷ (1,684 - 698)	=	100.00%
		SUN	1015	÷ (2,049 - 1,034)	=	100.00%
	Background + Project Conditions	FRI	986	÷ (1,713 - 698)	=	97.14%
		SUN	1015	÷ (2,090 - 1,034)	=	96.12%
	Future 2040 + Project Conditions	FRI	986	÷ (1,793 - 698)	=	90.05%
		SUN	1015	÷ (2,131 - 1,034)	=	92.53%
Notes: [1] Plus project conditions traffic = existing + ambient growth at 2% annually + project traffic for each scenario.						

- b. Remove old asphalt and repave the required half width of Baker Boulevard along the project's frontage.
- c. Mark the pavement of the widened side of Baker Boulevard as a single southbound lane using white edge lines that transition and channelize southbound traffic into the lane at the beginning of the project's frontage and out of the lane at the end of the project's frontage.
- d. Extend the existing two way left turn lane to the south along Baker Boulevard for the length of the project's frontage plus any required transition to match existing centerline south of the project's frontage improvements.
- e. Construct standard curb, gutter, and sidewalk frontage improvements on Baker Boulevard.
- f. Construct the two project access driveways at the locations shown on the site plan (see Figure 2).



10 SUMMARY OF VEHICLE MILES TRAVELED (VMT) SCREENING

The County of San Bernardino guideline refers to the use of the San Bernardino County Transportation Authority (SBCTA) guidelines for analyzing a development project's VMT in conformance with SB 743.

According to the SBCTA guidelines a VMT analysis would apply to projects that have the potential to increase the average VMT per service population (e.g., population plus employment) compared to the County of San Bernardino VMT average of 32.7%.

10.1 Project Screening from Conducting VMT Analyses

There are three types of screening that lead agencies can apply to effectively screen projects from the need to conduct a project-level VMT assessment. The two relevant screening steps are summarized below:

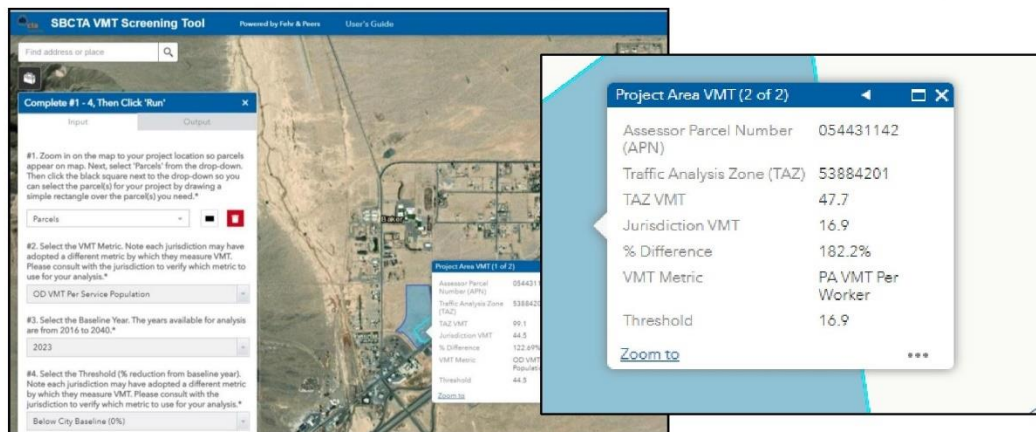
Low VMT Area Screening

Residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per worker, or per service population that is similar to the existing land uses in the low VMT area.

For low VMT screening in the SBCTA area, the SBTAM travel forecasting model was used to develop a tool that measures VMT performance for individual jurisdictions and for individual traffic analysis zones (TAZs). TAZs are geographic polygons like Census block groups used to represent areas of homogenous travel behavior. Total daily VMT per service population (population plus employment) was estimated for each TAZ. This presumption may not be appropriate if the project land uses would alter the existing built environment in such a way as to increase the rate or length of vehicle trips.

To identify if the project is in a low VMT-generating area, the SBCTA screening tool is used to **compare the appropriate baseline (without project) TAZ VMT to current County of San Bernardino VMT threshold of 32.7% VMT/Service Population**. Additionally, as noted above, the analyst must identify if the project is consistent with the existing land use within that TAZ and use professional judgement that there is nothing unique about the project that would otherwise be mis-represented utilizing the data from the travel demand model.

The image below provides the SBCTA screening tool output for the project's opening year (2023) and shows that the project identified in blue. Based on this analysis, the project is not located in a low-VMT generating area.



SBCTA Screening Tool Output for Project in Opening Year (2023)



Project Type Screening

Local serving retail projects less than 50,000 square feet may be presumed to have a less than significant impact absent substantial evidence to the contrary. Local serving retail generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel.

Highway Oriented Commercial as Locally Serving Retail for Pass-by and Diverted Trips

The definition of local serving retail can also be applied to convenience retail near interchanges that attract most of their customers from the freeway. These “diverted” customer trips from the freeway are trips that are passing-by and drive a little further to the site for the provided services important to freeway travelers. When the diverted travelers are ready, they return to the freeway and continue in the same direction as their original route. The vehicle miles traveled by diverted link trips is the length of the route from the freeway to the site and the return trip.

The most recent version (11th Edition) of the Institute of Transportation Engineers Trip Generation manual’s appendices summarizes the substantial amount of empirical data on the proportion of trips generated by convenience markets / gas station that fall into the categories of pass-by, diverted link and primary trips. Combining pass-by and diverted link trips into a single category, as was done for this study, the average proportion of trips that are non-primary exceeds 80 percent.

In addition to serving freeway travelers, the project will also serve the residents of Baker and people who work in Baker thereby meeting the traditional definition of a locally serving retail store / gas station.

VMT Screening Conclusion

Based on the above assessment, the proposed project can be screened from requiring a VMT analysis under CEQA because the project meets the definition of “locally serving retail” under 50,000 square feet and can be presumed to have an insignificant affect on VMT by providing necessary services to vehicles already traveling very long distances unrelated to the proposed project.



11 APPENDICES

Appendix A: Traffic Counts

Appendix B: Forecast Model Volume Development

Appendix C: Intersection Capacity Analysis

Appendix D: Traffic Signal Warrant Analysis