404-408 The Alameda, San Juan Bautista, CA

Fuel Station, Convenience Store and Quick Serve Restaurant
Initial Study and Mitigated Negative Declaration

Prepared For:

City of San Juan Bautista
311 Second Street
PO Box 1420
San Juan Bautista, California 95045
831.623.4661

7/11/2016

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1.0 Introduction

1.1 Organization and Contents

This Initial Study (IS) has been prepared pursuant to California Environmental Quality (CEQA). The City of San Juan Bautista (hereinafter "City"), acting as the lead agency, initiated the preparation of an IS to determine if the proposed project consisting of a new gas station, convenience store and quick serve restaurant may result in significant adverse environmental effects, as defined in CEQA Guidelines section 15064. Through this IS, it has been determined that the project's environmental impacts are less than significant with mitigation measures incorporated herein. A Mitigated Negative Declaration has been prepared.

CEQA Guidelines section 15063(c) states that the purposes of an initial study are to:

- Provide the lead agency the information to decide whether to prepare an Environmental Impact Report (EIR) or a Negative Declaration;
- Enable the applicant or lead agency to modify a proposed project by mitigating adverse impacts before an EIR is prepared, thereby allowing the project to qualify for a negative declaration;
- Assist in the preparation of an EIR if one is required;
- Facilitate environmental review early in the design of a proposed project;
- Provide documentation of the factual basis for the finding in a negative declaration that a proposed project will not have a significant effect on the environment;
- Eliminate unnecessary EIRs; and
- Determine whether a previously prepared EIR could be used with the project.

If the proposed project, before or after revision, will not result in a significant impact on the environment, then a negative declaration could be prepared. An IS provides documentation of the factual basis for the finding of a negative declaration. If the proposed project, after revision, will still result in one or more significant impacts on the environment that cannot be mitigated to a less than significant level, an EIR must be prepared. In such case, the initial study may be used to focus the EIR on only those significant impacts that may result from the proposed project.

CEQA Guidelines Section 15382 states that a significant impact on the environment means a substantial or potentially substantial adverse change in any of the physical conditions within the area affected by the proposed project, including historic resources, land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Pursuant to CEQA Guidelines section 15070, the City determined that a Mitigated Negative Declaration (MND) should be prepared in this case. An Environmental Impact Report (EIR) will therefore not be prepared.

A 30-day public review period has been established beginning on Tuesday, July 12, 2016 and ending on Friday, August 12, 2016. A copy of the Notice of Intent (NOI) to adopt a Mitigated Negative Declaration was sent to responsible agencies and trustee agencies concerned with the project. The NOI was also posted with the Office of the San Benito County Clerk's office.

Availability of the Initial Study Mitigated Negative Declaration: Additional information on the project, including a copy of the application and Initial Study are available at the City of San Juan Bautista, City Hall, 311 Second Street, Or by mail at PO Box 1420, San Juan Bautista, CA 95045. Telephone: (831) 623-4661. Contact: Roger Grimsley, City Manager.

2.0 Project Description

2.1 Project Site Location and Setting

Project Site Location

The 1.12 acre project site (Assessor's Parcel Number: 002-520-012) is located at 404 The Alameda at the southeast corner of State Highway 156 and The Alameda in the City of San Juan Bautista. Access to the project site is located off The Alameda. The regional location is shown in **Figure 1 – Regional Location Map** and the project vicinity is presented in **Figure 2 – Local Vicinity Map**.

Existing Conditions

The project site is considered an infill site adjacent to The Alameda and Highway 156. The proposed project site is generally flat and is densely covered in annual and perennial weed species typical of agricultural areas in central California. The project site contained seven Eucalyptus trees ranging in size from 26-inches in diameter to 50-inches in diameter; one 18-inch diameter Cedar Deodar tree; and one 12-inch diameter Apricot tree. However, a tree removal permit was approved by the City of San Juan Bautista and all trees were removed from the project site on May 21, 2014.

Project Vicinity Existing Conditions

It is surrounded by existing uses including: a hotel (San Juan Inn) to the south; residential uses across The Alameda to the west; Highway 156 to the north; and vacant land to the east. The Windmill commercial shopping center is located approximately 240 feet to the northwest and the San Juan School is located approximately 160 feet to the northeast across Highway 156.

Project Site Planning Context

The project site is designated "General Commercial" in the *City of San Juan Bautista General Plan* as shown in **Figure 3 – General Plan Map**. As shown in **Figure 4 – Zoning Map**, the project site is zoned "C-2 General Commercial" in the *City of San Juan Bautista Zoning Map*. **Figure 5 – Preliminary Site Plan** illustrates the proposed site development.

Source: Census 2000 Data, The CaSIL, ESRI

FirstCarbon SOLUTIONS

5 2.5 0 5 Miles

Figure 1
Regional Location Map

404 THE ALAMEDA (APN 002-520-012)

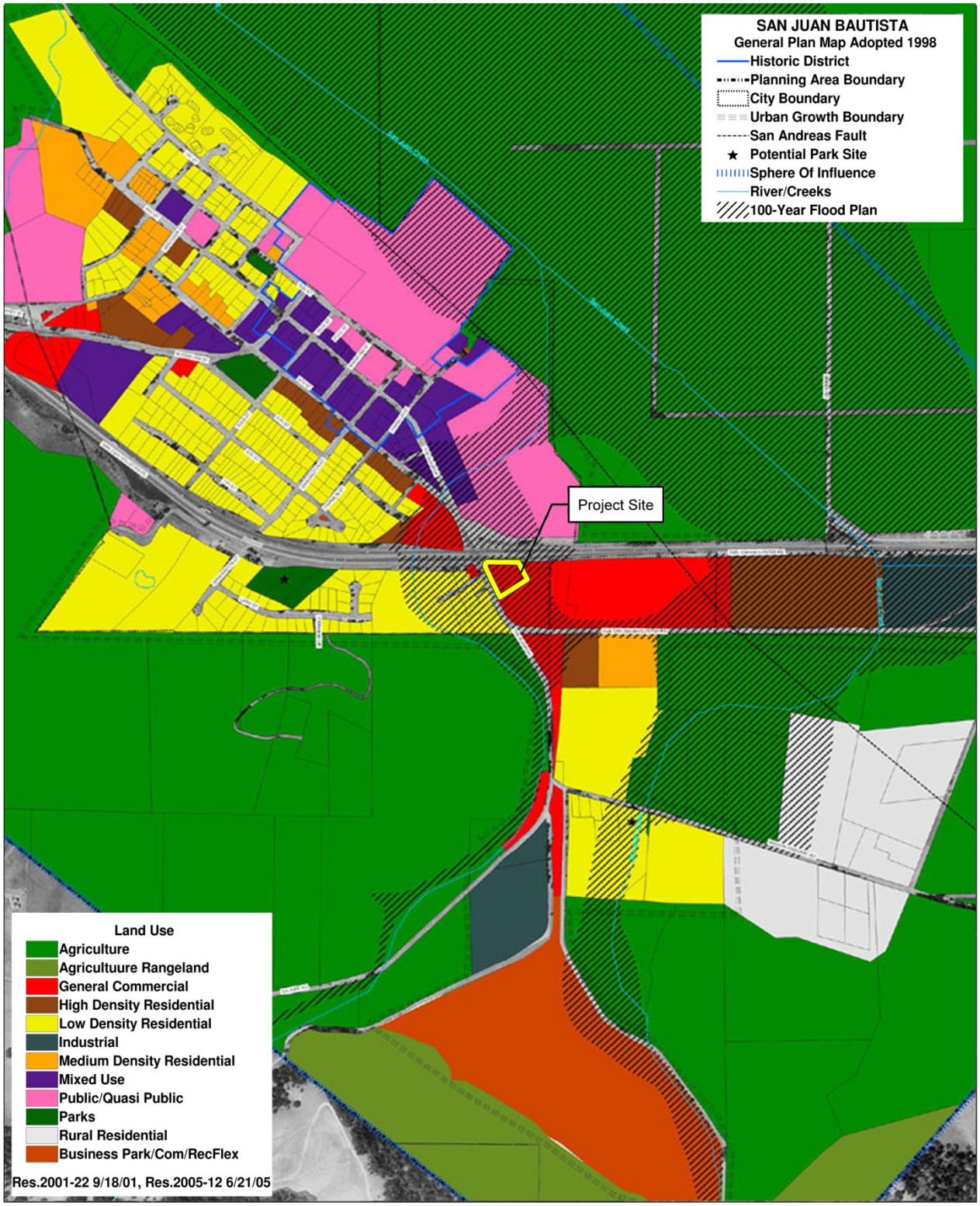
Source: ESRI Imagery, San Benito County, 2014

FirstCarbon SOLUTIONS

1,000 500 0 1,000 Feet

Figure 2
Local Vicinity Map

404 THE ALAMEDA (APN 002-520-012)

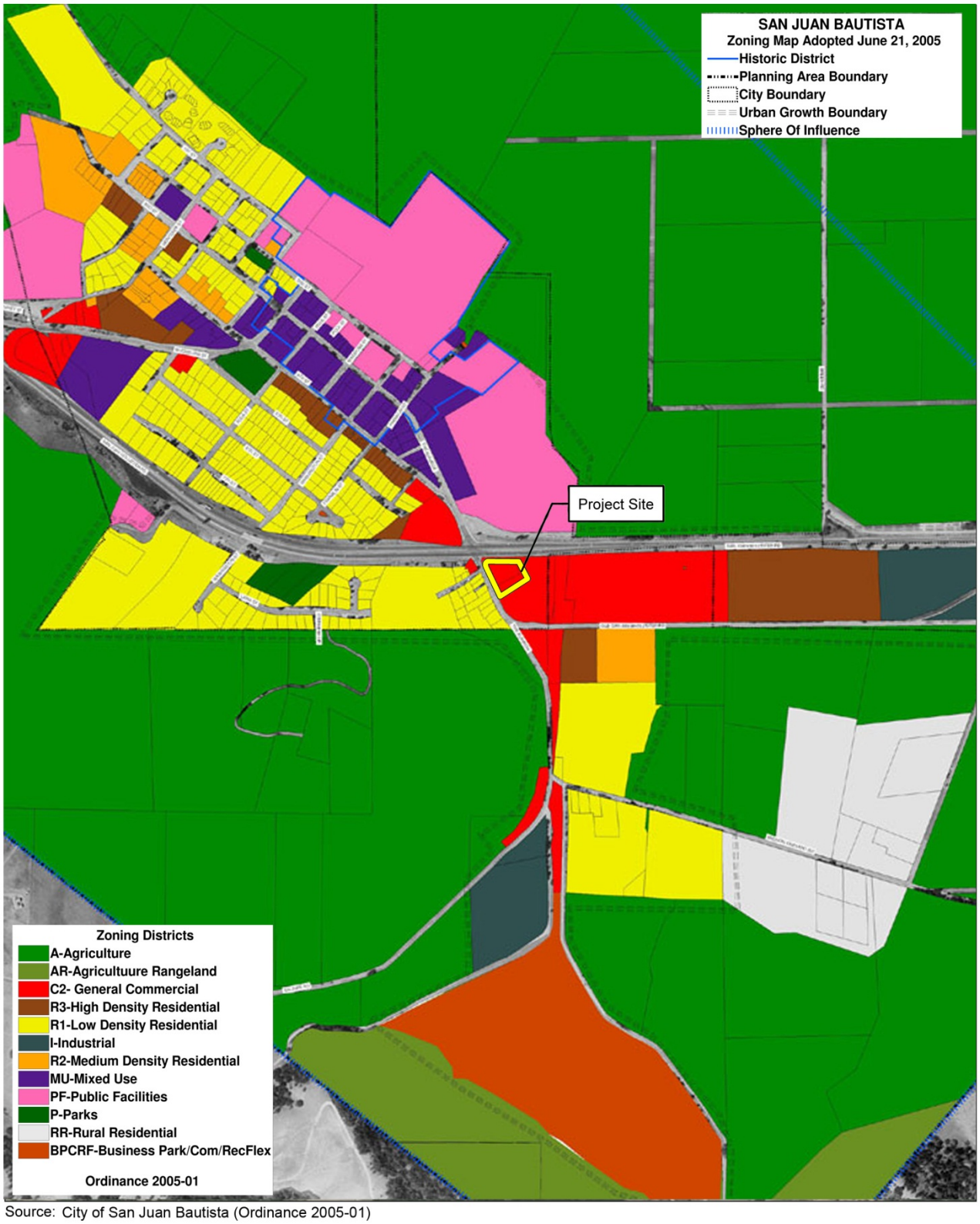


Source: City of San Juan Bautista General Plan (1998)

1,000 500 0 1,000 Feet

Figure 3
General Plan Map

404 THE ALAMEDA (APN 002-520-012)



Source: City of San Juan Bautista (Ordinance 2005-01)

1,000 500 0 1,000 Feet

Figure 4
Zoning Map

404 THE ALAMEDA (APN 002-520-012)

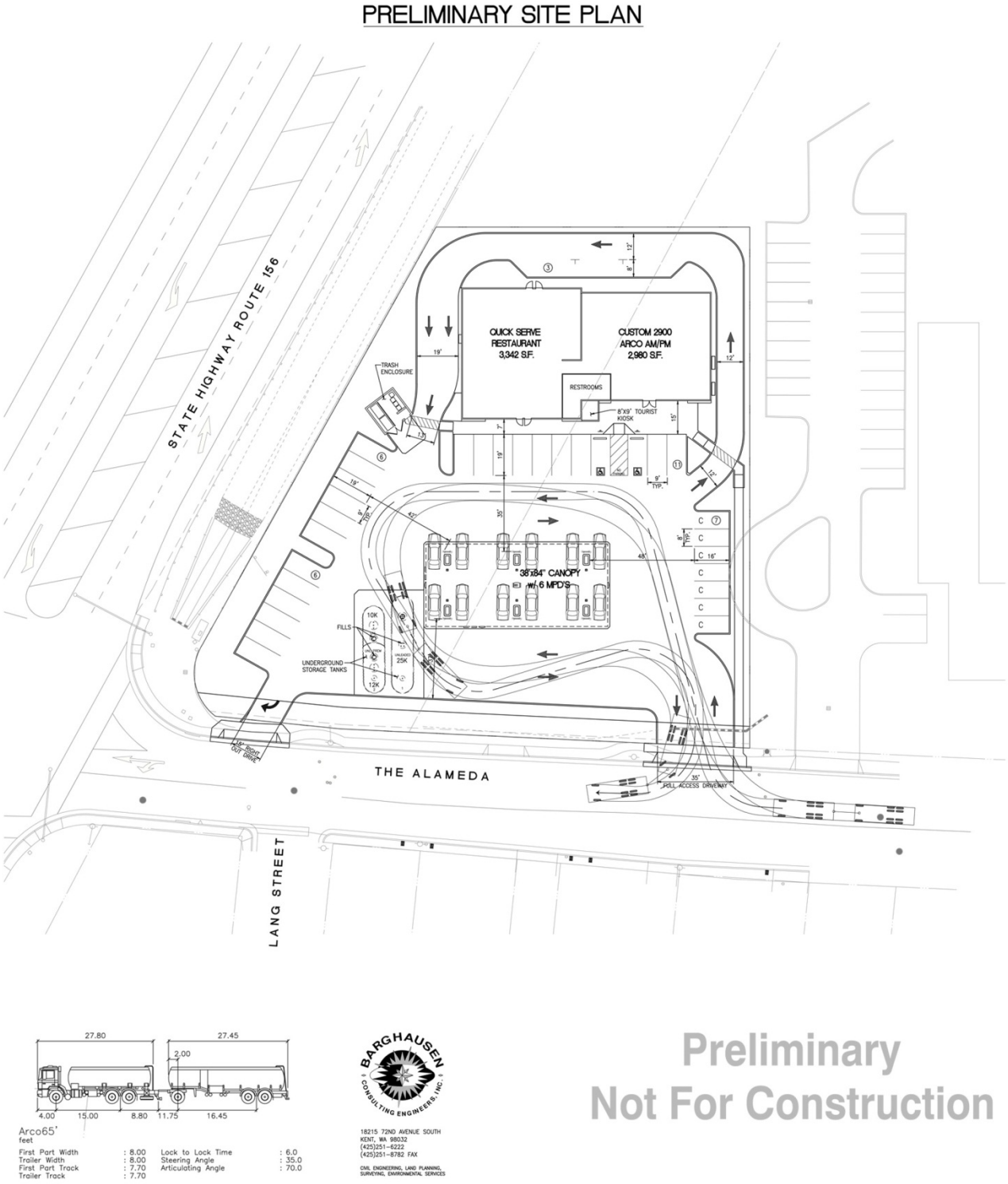


Figure 5
Preliminary Site Plan

404 THE ALAMEDA (APN 002-520-012)

View Southeast from the intersection of The Alameda and State Highway 156

View Southwest from State Highway 156

Figure 6
Building Elevations

404 THE ALAMEDA (APN 002-520-012)

3.0 Initial Study Checklist

PROJECT INFORMATION:

1. **Project Title/Project Number:** Fuel Station, Convenience Store and Quick Serve Restaurant (404-408 The Alameda, San Juan Bautista, CA)

2. **Lead Agency Name and Address:**
City of San Juan Bautista
311 Second Street/Post Office Box 1420
San Juan Bautista, CA 95045

3. **Contact Person and Phone Number:**
Roger Grimsley, City Manager
City of San Juan Bautista
311 Second Street/Post Office Box 1420
San Juan Bautista, CA 95045
Email: citymanager@san-juan-bautista.ca.us
Tel: (831)623-4661

4. **Project Location:** The project site is comprised of 1.12 acres located at 404-408 The Alameda at the southeast corner of State Highway 156 and The Alameda in the City of San Juan Bautista on Assessor's Parcel Number (APN): 002-520-012. The regional location is shown in **Figure 1 – Regional Location Map** and the project vicinity is presented in **Figure 2 – Local Vicinity Map** and **Figure 5 – Preliminary Site Plan** of the project site. Elevations of the conceptual building design are shown in **Figure 6 – Building Elevations**.

5. **Project Applicant/Sponsor's Name and Address:**
Harbhajan (Harvey) Dadwal
SJB Development, Inc.
1534 Fremont Boulevard, Suite D
Seaside, CA 93955

6. **General Plan Designation:** The project site is designated "General Commercial" in the *City of San Juan Bautista General Plan* as shown in **Figure 3 – General Plan Map**.

7. **Zoning Designation:** As shown in **Figure 4 – Zoning Map**, the project site is zoned "C-2 General Commercial" in the *City of San Juan Bautista Zoning Map*.

8. **Description of Project:** The project involves the development of a gas station with 12 pumps under a covered fuel island canopy, and a 6,322 square-foot building on an undeveloped 1.12-acre site. The commercial building will be divided into a 2,980 square foot convenience store and a 3,342 square foot quick serve restaurant. The quick serve restaurant will not have a drive through, but a driveway will be included behind the commercial building for deliveries and employee parking. The project is located on the southeast corner of California State Route 156 and The Alameda. A site plan of the proposed project is presented in **Figure 5 – Preliminary Site Plan.** The proposed project will be designed to follow the City's design guidelines to fit in with early California Architectural design characteristics. Elevations of the conceptual building design are shown in **Figure 6 – Building Elevations**.

9. **Project Background:** The City of San Juan Bautista prepared and circulated an Initial Study and Mitigated Negative Declaration (IS/MND) in January 2014 for a period of 20 days. The City of San Juan

Bautista Planning Commission conducted a public hearing on January 7, 2014; a special meeting for public input and comment was also held on January 23, 2014; and a public hearing was held on February 4, 2014. The project was approved by the Planning Commission at the February 4, 2014 public hearing. The proposed project was appealed to the City of San Juan Bautista City Council by Leal Vineyards, Inc. on February 11, 2014 following approval of the proposed project. The San Juan Bautista City Council continued the appeal hearing from April 9, 2014 to May 7, 2014. At the May 7, 2014 hearing, the City Council directed staff to complete additional technical analyses and preparation of a subsequent Mitigated Negative Declaration.

Further environmental review was performed and submitted to the City Council with an additional staff report containing conditions of approval, mitigation monitoring and findings. On November 18, 2014, the City Council approved the Project with a Mitigated Negative Declaration, mitigation monitoring, conditions of approval and findings, as set forth in Resolutions 2014-43 and 2014-44.

The Project was challenged by Writ. On March 14, 2016, the Honorable Steven R. Saunders remanded the Project back to the City for reconsideration of the potential noise issues. It was recognized at the hearing that the noise analysis for the Project was for an earlier version of the Project and not specific to the Project before the Court. The remainder of the Project was in compliance with CEQA. As such, the City was required to "undertake such further studies and proceedings as may be necessary and appropriate to evaluate and consider the proposed Project's noise impacts on the environment, determine whether any such impacts that may be significant can be mitigated to less than significant levels, and if appropriate and feasible, adopt mitigation measures. Such compliance may take the ultimate form of adoption of a negative declaration, mitigated negative declaration, focused EIR, rejection of all of the above, such other actions consistent with CEQA as may be appropriate." As required by the Court, on April 19, 2016, the City adopted Resolution 2016-21, setting aside Resolutions 2014-43 and 2014-44, which approved the Project. Because the Mitigated Negative Declaration was in compliance with CEQA, except that noise impacts were to be reconsidered, the City undertook a new noise analysis using the current Project description. A new Initial Study and Mitigated Negative Declaration was prepared using the new noise analysis.

Following circulation of a prior IS/MND for a project on this site, a tree removal application was submitted to the City for the removal of ten trees on the project site. The tree removal application was approved on May 15, 2014 together with an Arborist and Biological Reports. The trees were removed on May 21, 2014. Trees removed from the project site included seven Eucalyptus trees ranging in size from 26 inches in diameter to 50 inches in diameter; one 16-inch diameter Cypress tree; one 18-inch diameter Cedar Deodar tree; and one 12-inch diameter Apricot tree. At the time of the trees being removed, a California Department of Fish and Wildlife (CDFW) warden was called to the project site, and a CDFW biologist provided verbal approval for the tree removal over the telephone.

Project Operations

The proposed project is subject to a Use Permit by the City of San Juan Bautista. The proposed project anticipates operation to occur between the hours of 5:00 am to 11:00 pm, seven days a week. Truck deliveries are expected on-site daily during operating hours.

10. **Surrounding Land Uses and Setting:** The project site is considered an infill-site adjacent to The Alameda and Highway 156, taking access from two driveways on The Alameda. The site is surrounded by existing uses including: a motel (San Juan Inn) to the south; residential uses across The Alameda to the west; Highway 156 to the north; and vacant land to the east. The Windmill commercial shopping center is located approximately 240 feet to the northwest and the San Juan School is located approximately 160 feet to the northeast across Highway 156.

The project site is currently vacant and is comprised of grasses including Annual bluegrass, Ripgut Brome, Wild oats, Italian rye grass, Wild radish, Wild turnip, Little Mallow, White horehound, Common lambsquarters, Milk thistle, Nettleleaf Goosefoot, Shortpod Mustard, Black Mustard, and Curly dock. As noted above, the project site contained seven Eucalyptus trees ranging in size from 26 inches in diameter to 50 inches in diameter; one 16 inch diameter Cypress tree; one 18 inch diameter Cedar Deodar tree; and one 12 inch diameter Apricot tree. All trees were removed from the project site on May 21, 2014.

11. Other Public Agencies Whose Approval is Required (e.g., permits, financing approval, or participation agreement):

- Monterey Bay Unified Air Pollution Control District
- San Benito County Health Department
- Regional Water Quality Control Board

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

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

DETERMINATION:

On the basis of this initial evaluation:

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

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

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

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

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

Signature _____ Date _____

Title _____

EVALUATION OF ENVIRONMENTAL IMPACTS:

The checklist sections on the following pages analyze proposed project impacts on the following resources.

- Aesthetics
- Agricultural and forestry resources
- Air quality
- Biological resources
- Cultural Resources
- Geology and soils
- Greenhouse Gases
- Hazards and hazardous materials
- Hydrology and Water Quality
- Land use and planning
- Mineral resources
- Noise
- Population and housing
- Public services
- Recreation
- Transportation and Traffic
- Utilities and Public Services

Consistent with the state's *CEQA Guidelines* (§15064), the analysis considered the Project's reasonably foreseeable direct impacts (i.e., effects that are immediately related to the Project and typically occur close in space and time to Project implementation) as well as its indirect impacts (effects that are not immediately related to the Project itself, but are secondary outcomes of the proposed project's effects, and may occur at a greater remove in time and/or space). The analysis also considered the proposed project's contribution to cumulative impacts – i.e., effects that result from repeated activities over a period of time, and effects representing the reasonably foreseeable combined outcome of more than one past, present, and/or future project.

Levels of effect were identified using the following terminology.

- **No Impact –** The proposed project would not materially change conditions from the existing, pre-project baseline
- **Less than Significant Impact –** It is reasonably foreseeable (i.e., substantial evidence suggests) that the proposed project would alter conditions from the pre-project baseline, but the change would be small enough to fall below an adopted threshold of significance representing the level of concern
- **Less than Significant with Mitigation Incorporated –** The proposed project's impact would be significant, but mitigation measures can be adopted to lessen the effect, reducing it below the adopted threshold of significance, and therefore below the level of concern. Where this finding is made, the specific mitigation measures are identified, including implementation timing and responsibility as well as applicable performance standards
- **Potentially Significant –** It is reasonably foreseeable that the proposed project would alter conditions from the pre-project baseline, and the change would be substantial or important enough to exceed an adopted threshold of significance.

Information used in analyzing impacts of the proposed project is cited to its sources, and a complete list of references is provided in *References Cited* section at the end of this checklist.

I. AESTHETICS

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒

NO IMPACT. The San Juan Bautista General Plan (*City of San Juan Bautista General Plan*) does not identify a scenic vista in the area of the project, and the site is not within a designated California State Scenic Highway.

The project site is surrounded by existing urban land uses including the following: a motel (San Juan Inn) to the south; residential homes across The Alameda to the west; Highway 156 to the north; and vacant land to the east. The Windmill commercial shopping center is located approximately 240 feet to the northwest and an elementary school, the San Juan School is located approximately 160 feet to the northeast across Highway 156.

The property and the proposed development will be designed consistent with the requirements set forth by the *City of San Juan Bautista Municipal Code*, and subject to review and approval by the decision making body in conjunction with a discretionary permit for consistency with the Municipal Code and the City's Design Guidelines. Therefore, the proposed project would have **no impact** to scenic vistas.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings, within a state scenic highway?	☐	☐	☐	☒

NO IMPACT. As previously noted, the project site contained seven Eucalyptus trees ranging in size from 26-inches in diameter to 50-inches in diameter; one 18-inch diameter Cedar Deodar tree; and one 12-inch diameter Apricot tree. Prior to preparation of this Initial Study, a tree removal permit was submitted and approved by the City of San Juan Bautista. All trees have since been removed from the project site.

The site is an infill site surrounded by existing urban development and will be developed in accordance with the *City of San Juan Bautista Municipal Code* and the City's Design Guidelines regulating the visual character and quality of the site. The property does not contain rock outcroppings or historic buildings. No designated historic structures will be affected by the proposed project.

Highway 156 in San Benito County is eligible for designation as a State Scenic Highway (*California Department of Transportation*, *California Scenic Highway Mapping System*). Currently there are no officially designated Scenic Highways in San Benito County. Therefore, the proposed project would have **no impact** to scenic resources or state scenic highways.
Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. The site is adjacent to The Alameda and Highway 156 and designated for commercial use as specified by the *City of San Juan Bautista General Plan* and the Zoning Ordinance of the *City of San Juan Bautista Municipal Code*. The project site is an infill site surrounded by existing urban development. Land uses including the following: a motel (San Juan Inn) to the south; residential homes across The Alameda to the west; Highway 156 to the north; and vacant land commercially designated land to the east. The Windmill commercial shopping center is located approximately 240 feet southwest, the San Juan School (an elementary school), is located approximately 160 feet northeast across Highway 156.

As previously noted in Project Information (Subheading 9), the project site is currently vacant and is comprised primarily of grasses typical of annual and perennial weed species. The proposed project would develop the 1.12 acre project site into a gas station, convenience store, and quick serve restaurant. The gas station component of the project would include 12 pumps with a covered fuel island canopy. The proposed project would also include a 6,322 square foot building in the eastern portion of the project site that would be divided into a 2,980 square foot convenience store and a 3,342 square foot quick serve restaurant. A site plan of the proposed project is presented in **Figure 5 – Preliminary Site Plan**. The proposed project will be designed in accordance with the City's Design Guidelines and reminiscent of the design aesthetic of the San Juan Bautista Mission and other early California era structures located within the City. The project design is proposed to include architectural design features to compliment surrounding land uses. Elevations of the conceptual building design are shown in **Figure 6 – Building Elevations**.

Section 11.12 of *The City of San Juan Bautista Municipal Code* requires that the proposed project prepare a landscape plan subject to review and approval by the Planning Commission. All required landscape plans shall address the size, species, location, installation and maintenance of landscaping and irrigation. In accordance with the requirements for commercial uses in the Municipal Code: a) not less than ten percent of the lot area shall be landscaped and b) All portions of any setback areas fronting on streets shall be landscaped, with the exception of those areas required for access.

A draft landscape plan has been prepared on behalf of the project applicant, which includes the replacement of the trees removed with approximately 22 fifteen gallon trees. In accordance with *The City of San Juan Bautista Municipal Code*, the landscape plan shall be reviewed by the decision making body in conjunction with a discretionary permit for consistency with the *City of San Juan Bautista Municipal Code* and the *City's Design Guidelines* including review of the following elements:

- Treatment of vehicular use areas, open space, and pedestrian areas that contribute to their usage and appearance;
- Screening for utility boxes, parking areas, trash areas, storage areas, blank walls and fences, and other areas of low visual interest from public and private view;
- Utilization of drought-tolerant plant materials and water-saving irrigation techniques sufficient to minimize the use of water; and
- Treatment of areas adjacent to building(s) that increases the overall visual quality of the building design.

The project site is located on the eastern gateway of the City at the southeastern corner of The Alameda and Highway 156. The project site is also located on the auto tour route and historic trail corridor of the Juan Bautista de Anza National Historic Trail. Policy L-20 of the *City of San Juan Bautista General Plan* (1998) states "Support the development of land at the western and eastern gateways to Downtown with mixed uses that convey a positive image of the City to residents and visitors." With implementation of the requirements of the *City of San Juan Bautista Municipal Code* and the City's *Design Guidelines*, the proposed project remains consistent with existing and anticipated urban development envisioned in the San Juan Bautista General Plan and would therefore have **a less than significant impact** on the existing visual character of the project site or its surroundings.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

The proposed project includes a gasoline station, convenience store, and quick serve restaurant and would include outdoor lighting to serve these uses. The proposed project may introduce reflective surfaces that could result in the potential for increased glare.

Lighting

LESS THAN SIGNIFICANT IMPACT. The proposed project would be required to comply with Section 11.13 (Lighting) of the *City of San Juan Bautista Municipal Code*. The purpose of Section 11.13 of the City's Municipal Code is to "minimize light pollution (a.k.a., "sky glow"), glare, waste, and light trespass caused by inappropriate or misaligned light fixtures; while improving nighttime public safety, utility, and security, and preserving the night sky as a valued natural resource in the community. The local ordinance was modeled after the San Benito County Dark Sky Ordinance (Chapter 32 of the San Benito County Zoning Code), which is premised on the Outdoor Lighting Code Handbook (*International Dark Sky Association, Version 1.14, December 2000/September 2002*).

The City's lighting requirements in Section 11.13 of the Municipal Code include, but not limited to the following: 1) limiting light trespass and glare to a reasonable level through the use of shielding, directional lighting methods, fixture location and height and type of lamp uses to illuminate as describe in the Municipal Code; 2) the use of top mounted light fixtures on externally illuminated signs, advertising displays, billboards, and building identification, which shine downward and which are fully shielded unless the sign does not exceed 36 inches in height; 3) requirements for service station canopy lighting; and 4) meet the total lighting output requirements per net acre.

A qualified engineer or licensed architect will be required to confirm in writing that all lighting was installed in accordance with Section 11.13 of the *City of San Juan Bautista Municipal Code* prior to obtaining occupancy permits. Therefore, in compliance with the City's Municipal Code, the proposed project would have a **less than significant impact** to both day and nighttime views from new light sources.

Glare

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. Reflective light (glare) is caused by sunlight or artificial light reflecting from finished surfaces such as window glass, or other reflective materials. The reflectivity of glass can have many different reflectance characteristics. Generally, darker or mirrored glass would have a higher visible light reflectance factor than clear glass. Buildings constructed of highly reflective materials from which the sun reflects at a low angle commonly cause adverse glare. Reflective light is common in urban areas.

Depending on the final building materials, the proposed building might increase glare and reflectivity from the site. Reflected sunlight from the proposed building can be a problem to motorists when the sun is close to the horizon, allowing reflected glare to interfere with a driver's vision. Consequently, glare impacts may occur during morning and early evening hours when the sun is near the horizon. Potentially affected road segments would include The Alameda and Highway 156. The Project's impact would vary by season and time of day and would be of short duration, which without mitigation (such as use of non-mirrored glass) could result in a significant impact. Use of non-reflective materials would be required as mitigation for visual glare impacts. **Less than significant with Mitigation Incorporated**.

During construction, it is anticipated that sunlight glare associated with reflections from the glass and painted metal surfaces of construction equipment may occur. Construction associated with the project would occur during daylight hours and would be short-term. The limited duration and short-term visibility of potential construction-related glare is **less than significant**.

Mitigation Measures

The following mitigation measures will eliminate any potential for significant light or glare that would adversely affect day or nighttime views in the area:

AE-1 – Glare Avoidance. The exterior of the proposed building shall be constructed using non-reflective materials including non-mirrored glass, painted metal panel treatments, and non-reflective wall surfaces.

II. AGRICULTURAL AND FOREST RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the *California Agricultural Land Evaluation and Site Assessment Model* (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the *Forest and Range Assessment Project* and the *Forest Legacy Assessment Project*; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and	☐	☐	☐	☒

Monitoring Program of the California Resources Agency, to non-agricultural use?

NO IMPACT. According to the *San Benito County Important Farmland Map*, the project site is designated "Urban and Built-Up Land." The site is considered infill and surrounded by urban development. The project is consistent with the existing "General Commercial" land use designation and "C-2 General Commercial" zoning designation. Surrounding land uses would not be modified as a result of this project. The project site is not considered Prime Farmland, Unique Farmland or Farmland of Statewide Importance, per the State of California Resources Agency. Therefore, the proposed project would not result in the conversion of Farmland to non-agricultural use and would result in **no impact**.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

NO IMPACT. As identified in Item (a), the project site is designated "Urban and Built-Up Land" on the *San Benito County Important Farmland Map*. The project site land use is "General Commercial" and zoned "C-2 General Commercial" in the City of San Juan Bautista zoning map. In addition, the surrounding land uses do not support agricultural zoning, and there are no Williamson Act contracts in place in the project vicinity. Therefore, there would be **no impact** related to conflict with agricultural zoning or Williamson Act contracts.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 1220[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. There is no forest or timberland meeting these definitions in proximity to the project site, and the proposed project would not modify existing zoning or land uses. Therefore, there would be **no impact** related to conflicts with forest or timberland zoning.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation*	*Less Than Significant Impact*	*No Impact*

		Incorporated		
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

NO IMPACT. As previously addressed, the project site is not comprised of forest land and would not create a significant adverse impact on any existing forest lands. Therefore, there would be **no impact** related to loss or conversion of forest land to non-forest use.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
e. Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

NO IMPACT. As stated in the responses to a and b above, the project site is not within or adjacent to an area designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, per the State of California Resources Agency. There are no Williamson Act designated properties in project vicinity. As stated in the responses to c and d above, the project site is not within, or near, an area zoned for forest land, and there are no forested lands nearby. Therefore, the proposed project would not have the ability to convert farmland to non-agricultural uses or convert forest land to non-forest uses.

III. AIR QUALITY

An Air Quality analysis was prepared to evaluate whether the estimated criteria air pollutants generated from the project would cause significant impacts to air resources. This assessment was conducted within the context of the California Environmental Quality Act (*CEQA, California Public Resources Code Sections 21000, et seq.*). The methodology follows the *CEQA Air Quality Guidelines* prepared by the *Monterey Bay Unified Air Pollution Control District (MBUAPCD)* for quantification of emissions and evaluation of potential impacts to air resources. The full Air Quality and Greenhouse Gas analysis is included within this Initial Study/Mitigated Negative Declaration and can be referenced in **Appendix A**.

The project is located in the North Central Coast Air Basin (NCCAB). The NCCAB consists of Monterey, Santa Cruz, and San Benito counties. The local agency with jurisdiction over air quality in the NCCAB is the MBUAPCD. Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The following section describes these conditions as they pertain to the NCCAB, and provides a description of pollutants and their health effects.

North Central Coast Air Basin Environmental Setting

Climate and Meteorology - The NCCAB lies along the central coast of California covering an area of 5,159 square miles. NCCAB air quality is regulated by a limited local source of emissions, and by the overall marine character of the climate. A semi-permanent high-pressure cell in the eastern Pacific is the basic controlling factor in the climate of the NCCAB. In the summer, the high-pressure cell is dominant and

causes the persistent west and northwest winds over the entire California coast. Air descends in the Pacific High forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft acts as a lid to inhibit vertical air movement.

The predominant on-shore flow is confined to a series of northwest to southeast trending mountains and valleys. The shallow marine layer is confined within each valley with only limited "spillover". Intrusion of polluted air from more heavily developed areas in the San Francisco Bay area into the basin is normally restricted to only the communities closest to the Santa Clara Valley. Therefore, much of Monterey County enjoys high quality air most of the time. Meteorological conditions in the NCCAB are generally favorable for maintaining relatively good air quality. Onshore winds across Monterey Bay normally bring clean air into the project area. Degraded air quality may sometimes be experienced in San Benito County due to airflow from the Santa Clara Valley; dust and odor may also be experienced around agricultural operations or other localized sources adjacent to the project site.

Impact Analysis

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

d) Expose sensitive receptors to substantial pollutant concentrations; or

e) Create objectionable odors affecting a substantial number of people.

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, the MBUAPCD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. The applicable MBUAPCD thresholds and methodologies are contained under each impact statement below.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. The project is subject to MBUAPCD permit authority and will comply with all MBUAPCD rules and regulations. In addition, the primary way of determining consistency with the AQMP's assumptions is determining consistency with the applicable General Plan to ensure that the project's population density and land use are consistent with the growth assumptions used in the AQPs for the NCCAB.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and designates locations for land uses to regulate growth. The applicable General Plan for the project is the City of San Juan Bautista General Plan, which was adopted in 1998.

The General Plan is amended up to four times per year to allow changes to the planned land use and other plan elements as needed to accommodate development proposals that are not currently consistent with the General Plan. Changes in land use are then incorporated into the modeling assumptions of the regional transportation model on a periodic basis. Therefore, if the project's population growth and vehicle miles traveled are consistent with the General Plan, then the project is automatically consistent with the growth assumptions used in the applicable AQMPs. The project site's General Plan land use designation is "General Commercial" and the area is zoned "C-2 General Commercial," which is consistent with the project's proposed use. Therefore, the project's growth is consistent with the General Plan.

Consistency with the AQMP is also determined by whether or not the project's construction or operation emissions will conflict with the Air Basin meeting attainment. The NCCAB is in nonattainment for State Ozone and PM_{10}. The project's construction and operational emissions do not exceed the thresholds set forth for any criteria air pollutant, including those in nonattainment. Impacts are **less than significant**.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the project's criteria pollutant emissions compared with MBUAPCD thresholds of significance for short-term construction activities and long-term operation of the project. Localized emissions from project construction and operation are also assessed using concentration-based thresholds compared with ambient air quality standards or significance thresholds.

The primary pollutant of concern during project construction is PM_{10} and during operation are ROG, NO_x, SO_x, CO, and PM_{10}. The MBUAPCD's current 2008 CEQA Air Quality Guidelines adopted in 2008 contains thresholds for ROG, NO_x, SO_x, CO, and PM_{10}. These thresholds are shown in the Table 7 of the Air Quality Analysis contained in Appendix A of this IS/MND.

Construction emissions associated with the project are shown in Appendix A (Air Quality and Greenhouse Gas Report) of this IS/MND. For assumptions in estimating the emissions, please refer to Section 4, Modeling Parameters and Assumptions in Appendix A. Impacts are **less than significant**.
Operational emissions occur over the lifetime of the project and are from two main sources: area sources and

motor vehicles, or mobile sources. For assumptions in estimating the emissions, please refer to Appendix A, Section 4, Modeling Parameters and Assumptions. Project vehicles generate entrained road dust (PM_{10}) while traveling on paved roads to and from the site. CalEEMod includes emissions from paved road dust and the total generated does not exceed the MBUAPCD PM_{10} threshold. As shown in the table, the emissions are below the adopted and recommended MBUAPCD significance thresholds for all criteria pollutants and, therefore, would result in a **less than significant impact**.

Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. The MBUAPCD CEQA Air Quality Guidelines state that if the screening thresholds are met for operational CO, as described above in Table 5, further analysis should be undertaken. A traffic study was conducted (Appendix F) which determined that potentially significant impacts will be mitigated to reduce traffic impacts to less than significant levels. The project will not exceed the 550 lb/day threshold, therefore, a CO hotspot is unlikely to occur and no further CO hotspot analysis is necessary. Impacts are **less than significant**.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
c. 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. The MBUAPCD's 2008 CEQA Air Quality Guidelines provide criteria for determining cumulative impacts and consistency. The Guidelines indicate that a project that is inconsistent with the AQMP will have a significant cumulative impact on regional air quality. As previously addressed in this analysis, the project is consistent with the applicable AQMP. In addition, cumulative air pollutant impacts would occur if the project exceeded MBUAPCD thresholds. The project would not exceed any of the construction or operational thresholds.

The NCCAB is currently in nonattainment for State Ozone and PM_{10} standards. As previously addressed, ozone precursors include ROG and NO_x. The project would not emit 137 lb/day of either air quality pollutant and therefore would not release emissions that exceed quantitative thresholds for these precursors. Similarly, PM_{10} thresholds also would not be exceeded for construction or operation of the project. The regional analysis of construction and operational emissions indicates that the project would not exceed the MBUAPCD's significance thresholds. Therefore, the project would not result in cumulative health impacts. Impacts are **less than significant**.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. This discussion addresses whether the project would expose sensitive receptors to substantial pollutant concentrations of CO, DPM, or other toxic air contaminants of concern.

Two scenarios have the potential for exposing sensitive receptors to toxic air contaminants. The first is when a project includes a new or modified source of toxic air contaminants and would be located near an existing or proposed sensitive receptor. The second scenario involves a residential or other sensitive receptor development locating near an existing or planned source of toxic air contaminants. The project is not considered a sensitive receptor land use since it is a commercial land use. The nearest sensitive receptor to the project site is located across The Alameda approximately 51 feet from the fence line of the project site. Therefore, this analysis examines potential exposure of off-site receptors from development of the project site.

The project proposes to construct a gasoline station with a convenience store and quick serve restaurant in a location with a sensitive receptor in the vicinity. Therefore, the potential exposure of off-site receptors to criteria pollutants and toxic air contaminants from the development of the project was assessed.

Fugitive Dust

As previously addressed in Air Quality impact analysis section c, the project would not generate a significant impact for construction-generated, localized PM_{10}. Therefore, the project would not expose sensitive receptors to unhealthy levels of PM_{10}.

The City's Municipal Code and the City's *Standard Specifications* require all contractors to implement good construction site management practices to control any potential sources of air pollution during construction activities. This includes the use of erosion and sediment control measures such as site watering. Additionally, all project related construction activities will be regulated by the City of San Juan Bautista through the encroachment and building permit process. This includes application of standard construction requirements including maintaining the construction site in a neat, clean and safe condition at all times; daily debris removal and street cleaning; and dust control. These standard requirements will be implemented with all construction activities on site to reduce the occurrence of potential fugitive dust.

CO Hotspot

Carbon monoxide from mobile sources is a pollutant of local concern and correlates to traffic volume, speed, and delay. Carbon monoxide emissions disperse quickly under normal meteorological conditions but can reach unhealthy levels with more stagnant meteorological conditions. High concentrations of CO can be found near signalized intersections or roadway segments operating at Level of Service (LOS) E or worse during peak-hour traffic.

As discussed in Air Quality impact analysis section b, the MBUAPCD CEQA Air Quality Guidelines state that if the screening thresholds are met for operational CO, as described in Table 5, Appendix A, further analysis should be undertaken. The project is not expected to result in significant traffic congestion and does not exceed the 550 lb/day threshold.

Toxic Air Contaminants

Toxic air contaminants (TACs), also known as hazardous air pollutants (HAPs), are another group of pollutants of concern. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health

even at low concentrations. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts are not expected to occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the state and federal governments have set ambient air quality standards.

Construction equipment generates DPM, identified as a carcinogen by the ARB. The State of California has determined that DPM from diesel-fueled engines poses a chronic health risk with chronic (long-term) inhalation exposure. The California Office of Environmental Health Hazard Assessment (OEHHA) recommends using a 70-year exposure duration for determining residential cancer risks. Because of the project size and short duration, the project construction would not pose a toxic risk to nearby sensitive receptors. Therefore, health risks from construction-related DPM would be less than significant.

The operation of a gasoline fueling facility is a source of gasoline vapors, which include TACs, and other hazardous air pollutants such as DPM. ARB recommends avoiding siting sensitive such as schools, playgrounds, parks, daycares, nursing homes, hospitals, and residential uses within 300 feet of a large gasoline dispensing facility (defined as a facility with a throughput of 3.6 million gallons per year or greater). The project will have a throughput of 2.9 million gallons of gasoline per year and would not be considered a large gasoline station. A 50-foot distance is the recommended separation for typical gas dispensing facilities from sensitive receptors. The nearest sensitive receptor to the project site is 51 feet from the project's fence line. This is over the recommended 50 foot separation distance and under these conditions a health risk assessment is not required.

In addition, prior to construction and operation of a gasoline facility, the applicant is required to comply with District Rule 200, which requires projects to obtain a written Authority to Construct permit from the District. The project must also comply with District Rule 417, which requires any container holding organic liquid to be designed and equipped with a vapor loss control device; and District Rule 1002, which requires any transfer of gasoline to a vehicle fuel tank greater than 5 gallons must be made through a fill nozzle which captures the gasoline vapors displaced by the transfer. Based on the screening criteria and applicable regulations, no significant TAC impact is anticipated. The project will have a **less than significant impact** on offsite sensitive receptors. Operational TAC impacts to offsite sensitive receptors would be **less than significant**.

In summary, fugitive dust, CO hot spot, and TAC impacts from the proposed project would be **less than significant**.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, schools, etc., warrant the closest scrutiny, but consideration could also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas. Therefore, this impact analysis is not limited to odor impacts on just sensitive receptors.

Two circumstances have the potential to cause odor impacts:

1) A source of odors is proposed to be located near existing or planned receptors, or
2) A receptor land use is proposed near an existing or planned source of odor.

The MBUAPCD CEQA Guidelines state the following: "Odors represent emissions of one or more pollutants that are a nuisance to healthy persons and my trigger asthma episodes in people with sensitive airways. Pollutants associated with objectionable odors include sulfur compounds and [volatile organic compounds]. Typical sources of odors include landfills, rendering plants, chemical plans, agricultural uses, wastewater treatment plants, and refineries. Odors are a complex problem that can be caused by minute quantities of substances. Because people have mixed reactions to odors, the nuisance level of an odor varies" (*MBUAPCD 2008*).

The project would involve the development of a gasoline station with a convenience store and quick serve restaurant and may be a source of objectionable odors from the provision of gasoline. Vapor controls on gasoline tanks and dispensing equipment required by MBUAPCD regulation prevent significant odors from this source from occurring. The nearest sensitive receptor to the project fence line is located 51 feet across The Alameda. Gasoline stations are generally not considered a potential odor source.

The project site does not include any sensitive receptors and is also not planned near an existing or planned source of odor. The type of restaurant has not been identified; therefore, the potential for odors from the restaurant component would be speculative.

The MBUAPCD does not have a recommended odor threshold for construction activities. Diesel exhaust and VOCs would be emitted during the construction of the project, which are objectionable to some; however, such odorous emissions are temporary, would disperse rapidly from the project site, and therefore should not reach an objectionable level at nearby residences. Impacts would be **less than significant**.

IV. BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Have substantial adverse effects, 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 Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. A biological evaluation of the project site was prepared by Regan Biological and Horticultural Consulting on June 16, 2014 to address the projects potential to affect sensitive plants and animal species (**Appendix B – Biological Assessment**).

Pat Regan with Regan Biological and Horticultural Consulting performed a field reconnaissance of the project site on May 12, 2014, examining plant and wildlife habitat and documenting existing conditions at the project site. At the time of the field reconnaissance, the project site had not been disturbed (e.g. trees and vegetation had not been removed).

The project site was densely covered in annual and perennial weed species typical of agricultural areas in central California. The project site also contained seven planted Eucalyptus (*Eucalyptus polyanthemos* and *globulus compacta*) trees ranging in size from 26 inches in diameter to 50 inches in diameter; one 16 inch diameter Deodar cedar tree (*Cedrus deodora*); one Cypress (*Cupressus arizonica*) and one 12 inch diameter Apricot tree (*Prunus sp.*). The only native plants found within the project site were several Coyote bush plants (*Baccharis pilularis*) along a ditch running parallel to Highway 156 outside of the fence line. Coyote bush is a common shrub throughout California and is commonly found in disturbed soils. The Monterey Cypress tree is considered a special status species in its natural range (e.g. on the Monterey Peninsula), but not within the City of San Juan Bautista.

Animal species encountered during the field reconnaissance include a group of European Starling; a pair of common Crows; and a single Cabbage White Butterfly. No evidence of Ground Squirrel or Pocket Gopher activity was found. Therefore, no special status wildlife species were observed during the field reconnaissance. According to the biological evaluation, some of the trees on the project site could have supported a variety of bird species, but none of the native tree species that native birds or bats prefer.

Special Status Species. The biological evaluation included a query of the California Natural Diversity Database (CNDDB) to compile a list of special status plant and animal species documented in the San Juan Bautista Quadrant of the U.S. Geological survey mapping system. Special status species are those considered rare, threatened, or endangered on a local, state, or national level.

The CNDDB database query search included three amphibian species: the California red-legged frog (*Rana draytonii*), the Coast range newt (*Taricha torosa*), and the California Salamander (*Batrachoseps attenuates*); one reptile: the Pacific pond turtle (*Actinemys marmorata*); one insect: the Pinnacles optioservus riffle beetle (*Optioservus canus*); and one mollusk: the Redwood shoulder band snail (*Helminthoglypta walkeriana*). The amphibian and reptile species are dependent on permanent or perennial water bodies for major portions of their life cycles. No such bodies of water occur on or adjacent to the project site.

Upland habitat near such bodies of water is utilized by these species during the dry season when it can be safely accessed from water bodies. There is a pond located 1.1 miles west-southwest of the project site. However due to the proximity of the project site to Highway 156 and intervening urban development, the project site is not be considered upland habitat for these species. In addition, due to the absence of ground squirrel or pocket gopher activity on the project site, there is an absence of underground refugia during the dry season.

Also included in the CNNDB database are birds such as the Golden eagle, White-tailed kite, least bell's vireo, and tri-colored blackbird. These birds are typically associated with aquatic and grassland conditions not present at the project site. Three mammals including two bats, the Hoary and pallid bat and the American badger are also included in the CNDDB query. According to the biological evaluation, the bat species are not anticipated to utilize the scattered exotic trees that were previously located on the project site. No evidence of American badger activity was found on-site.

According to the biological assessment, the project site does not support any native species of plants including any rare, threatened, or endangered species and therefore, the proposed project would have **a less than significant impact** on special status species.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

NO IMPACT. Riparian vegetation occurs along the banks of streams and drainage courses. According to the biological assessment prepared by Regan Biological and Horticultural Consulting (May 2014), the project site does not contain riparian habitat or other sensitive natural community. Therefore, the proposed project would have **no impact** on a riparian habitat or other sensitive natural community.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

NO IMPACT. According to the biological assessment prepared by Regan Biological and Horticultural Consulting (May 2014), the project site does not contain any federally protected wetlands as defined by Section 404 of the Clean Water Act. Therefore, the proposed project would have **no impact** on federally protected wetlands.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of	☐	☐	☐	☒

native wildlife nursery sites?

NO IMPACT. Urban development on the project site would remove of 1.2 acres of ruderal/disturbed area. Evidence of wildlife was minimal during the field reconnaissance (e.g. European Starling, Crows, and Cabbage White Butterfly) as described in the biological evaluation, **Appendix B**. As previously noted, the proposed project does not contain any federally protected riparian and wetland habitat.

The project site is an infill urban development site adjacent to Highway 156 and The Alameda and surrounded by urban development. The project is not anticipated to interfere with the movement of any native resident or migratory fish or wildlife species, or result in impacts to established native resident or migratory wildlife corridors. The proposed project would not affect the use of native wildlife nursery sites. Therefore, **no impact** would occur to wildlife corridors or native wildlife nursery sites with implementation of the proposed project.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. A tree assessment and arborist report was prepared for the proposed project by Frank Ono, Urban Forestry on May 14, 2014 (**Appendix C – Arborist Report**). According to the arborist report, ten trees were located within the project site at the time of the site survey, and included the following: seven planted Eucalyptus (*Eucalyptus polyanthemos and globulus compacta*) trees ranging in size from 26-inch diameter to 50-inch diameter; one 18-inch diameter Deodar cedar tree (*Cedrus deodora*); one 16-inch diameter Cypress (*Cupressus arizonica*) and one 12 inch diameter Apricot tree (*Prunus sp.).* All of the trees previously located at the project site were planted ornamental trees. Based on the arborist report, all of the trees at the project site were recommended for removal due to a weak structure, infestation with bark beetles, or stressed and nutrient deficient conditions.

Following circulation of a prior IS/MND for a project on this site, a tree removal application was submitted to the City for the removal of ten trees on the project site. The tree removal application was approved on May 15, 2014 and the trees were removed on May 21, 2014. At the time of the trees being removed, a California Department of Fish and Wildlife (CDFW) warden was called to the project site, and a CDFW biologist provided verbal approval for the tree removal over the telephone.
At the time of preparation of this IS/MND, all trees previously located on-site had been removed authorization from the City of San Juan Bautista and CDFW. The project is not in conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and the proposed project would have a **less than significant impact**.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

NO IMPACT. No adopted conservation plan covers the project site or surrounding area. Therefore, there would be **no impact** related to conflict with any adopted conservation plan.

V. CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Cause a substantial adverse change in the significance of an historical resource as defined in §15064.5?	☐	☒	☐	☐

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED. Section 15064.5 of the CEQA Guidelines ("Determining the Significance of Impacts to Archaeological and Historical Resources") defines an historical resource as:

1. A resource listed in, or determined to be eligible by, the State Historical Resources Commission for listing in the California Register of Historical Resources (California Public Resources Code §5024.1, Title 14, and California Code of Regulations, Section 4850 et seq.);
2. A resource included in a local register of historical resources (California Public Resources Code, §5020.1(k)) or identified as significant in an historical resource survey that meets the requirements section 5024.1(g) of the Public Resources Code;
3. Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

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, including the following, if the potential resource:

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; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

A "Preliminary Archaeological Reconnaissance" report, dated December 19, 2013, was prepared by Archaeological Consulting in December 2013.

Research for the Preliminary Archaeological Reconnaissance included a record search for the project site through the Northwest Information Center (NIC) at Sonoma State University in Rohnert Park, California, utilizing the *California Historical Resources Information System (CHRIS)*. A site visit was also conducted of visible land surfaces in the project area by Mary Doane, B.A. on December 17, 2013.

A records search at the Northwest Information Center revealed two prehistoric archaeological sites within one kilometer of the project site including CA-SBN 35 (P-35-36) located a short distance south of the project site. The historic resource formerly called the Breen Grove of the Taix Grove (P-35-294) is recorded adjacent to the project site on Assessor Parcel Number 002-520-013.

However, the Preliminary Archaeological Reconnaissance indicated that outlying trees associated with the grove are found on the project site. However, according to the *Preliminary Archaeological Reconnaissance*, the trees have the potential for listing as an historic resource, but are not considered eligible for the National Register or the California Inventory. The CHRIS search of the California Inventory of Historical Resources, California Historical Landmarks, and the National Register of Historic Places discovered no listed resources within the project site.

Based on a review of the City's *2005-2006 Certified Local Government Grant Historical Resources Inventory and Context Statement (2006)*, which is an inventory of local historic resources within the City. The Breen Grove or the Taix Grove that is recorded primarily on the adjacent parcel was not noted as a local historic resource in the *2006 Historical Resources Inventory and Context Statement*.

None of the materials frequently associated with prehistoric cultural resources in this area (dark midden soil, fire affected rocks, bone fragments, flaked lithics, ground stone, eroded marine shell fragments, etc.) were observed on the project site during the field survey. Although some ceramic and glass shards were noted within the project site along with trash and construction debris, no surface evidence of potentially significant historic period cultural resources was seen on the parcel during the survey.

Mitigation Measures

CR-1 - Undiscovered Archaeological Resources and Human Remains. To reduce the project's potential impact to historic resources, Native American and archeological resources, the project applicant and contractor shall implement the following measures during grading and construction activities at the project site:

1. **Human Remains Encountered.** If human remains are encountered, 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 Resource Code section 5097.98. The County Coroner shall be notified of the find immediately. If the remains are determined to be prehistoric, the coroner shall notify the Native American Heritage Commission, which shall determine and notify the appropriate Native American tribe who is the most likely descendent (MLD). The descendent shall inspect the site of the discovery and make recommendations and enter into consultation concerning the appropriate mitigation. After the recommendations have been made, the project applicant, the MLD, and a City representative shall meet to determine the appropriate mitigation measures and corrective actions to be implemented.

2. **Inadvertent Archaeological or Cultural Find**. If during ground disturbance activities, significant archeological or cultural resources are discovered that were not anticipated by the archaeological report(s) and/or Initial Study/Mitigated Negative Declaration, conducted prior to project approval, the

following procedures shall be followed:

a) All ground disturbance activities within 160 feet of the discovered archeological or cultural resources shall be halted until a meeting is convened between the developer, the archaeologist, the appropriate Native American tribe and the Community Development Director to discuss appropriate actions;
b) At the meeting, the significance of the discoveries shall be discussed and, after consultation with the appropriate Native American tribe and the archaeologist, a decision shall be made (with the concurrence of the City Manager) as to the appropriate mitigation (documentation, recovery, avoidance, etc.) for the archeological or cultural resources; and
c) Grading shall not resume within the immediate vicinity of the discovery until an agreement has been reached by the appropriate Native American tribe, the archaeologist, and the City Manager as to the appropriate mitigation. The grading plans shall conform to the mitigations requirements placed on the map.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED. Although, the proposed project has a low probability of causing substantial adverse change to archaeological resources, there is the probability that unidentified archaeological resources could be uncovered during construction, which would be considered a potentially significant impact.

Mitigation Measure CR-1 would be required during construction activities, which would require monitoring during construction activities and the halting of construction activity for excavation and recording should any historic or archaeological resources be discovered during construction activities. With implementation of this mitigation measure, the proposed project would have a less than significant impact on archaeological and historic resources.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

NO IMPACT. Paleontological resources are any fossilized remains, traces, or imprints of organisms preserved in or on the earth's crust, that provide information about the history of life on earth, evolution, and our place, as humans, in the world, with the exception of archeological resource as defined by the Archeological Resources Protection Act of 1979 (16 U.S.C. 470bb[1]), or any cultural item as defined by the

Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001[2]).

According to the *San Benito County General Plan*, the significant paleontological specimens have been found on both public and private land within San Benito County in the Moreno shale deposits along Cantua Canyon. Invertebrate fossils occur in Los Gatos Creek Canyon in sandstone formations. Fossils have also been found in the Coalinga and Pleasant Valley areas. Fossil sites have produced a range of plant and animal remains, found at many locations, including Tumey Gulch, Griswold Hills, Lariaus Creek, San Carlos Creek, the Bolsa Valley, Tres Pinos Creek, and the San Benito River valley. The project site is located in an urban infill location and is not located in the vicinity of one of these significant locations, therefore the impact is **less than significant**.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED. Although, the project site has a low probability of disturbing unidentified human remains, there is the probability that unidentified human remains could be uncovered during construction, which would be considered a potentially significant impact.

Mitigation Measure CR-1 would be required during construction activities, which would require monitoring during construction activities and that construction is halted should any historic or archaeological resources be discovered during construction activities. With implementation of this mitigation measure, the proposed project would have a **less than significant impact** on archaeological and historic resources.

VI. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii. Strong seismic ground shaking?	☐	☒	☐	☐

iii. Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv. Landslides?	☐	☐	☐	☒

(i) NO IMPACT. According to the Geotechnical Report prepared for the proposed project by Grice Engineering, Inc. in March 2014 (**Appendix D – Geotechnical Report**), there are no fault traces that cross the project site. In addition, according to the California State Geologist. State of California Earthquake Fault Zones – *San Juan Bautista Quadrangle (1974*), the project site is located outside of the Alquist Priolo earthquake fault zone. Therefore, the proposed project would result in **no impact** to people or structures from the rupture of a known earthquake fault.

(ii) LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED. Active faults in the project vicinity include the San Andreas Rift Fault Zone (Creeping Segment) located approximately 0.11 miles to the northeast. Other fault zones include the Zayante-Vergeles Fault Zone, the center of which is located approximately 2.9 miles to the southwest; the Sargent Fault Zone located approximately 4.3 miles to the northeast, the Quien Sabe Fault Zone located approximately 10.9 miles to the northeast; and the Calaveras (South) Fault Zone approximately 6.5 miles to the northeast.

The primary seismic hazard associated with the proposed project would be the potential for strong ground shaking from an earthquake on the faults in the vicinity of the project site. The San Andreas Rift System has the greatest potential for seismic activity with estimated intensities of VIII-IX Mercalli within the project site. The other faults located in the project vicinity are not as liable to rupture as the San Andreas Rift Fault Zone and would likely produce earth movements of a lesser intensity at the project site.

If the proposed project were not designed in accordance with the latest edition of the California Uniform Building Code requirements for a moderate seismic shaking hazard zone, people and structures could be exposed to seismic related hazards, which would be considered a potentially significant impact. The proposed project is required to be developed consistent with the City's Building Code. In addition, all development would be require to comply with the applicable California Building Code requirements with regard to the design and construction or installation of structures and improvements with regard to resisting damaging forces of seismic ground shaking. In addition, implementation of the following mitigation measure would ensure that the proposed project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking which would reduce this potentially significant impact to a less than significant level.

Mitigation Measure

GEO-1 - Preparation of Design-Level Geotechnical Report. The project applicant shall consult with a registered geotechnical engineer to prepare a design level geotechnical report that incorporates the recommendations in the preliminary geotechnical investigation by Grice Engineering, Inc. (March 2014). The design level geotechnical report shall address recommendations from the geotechnical investigation including the following: foundation and footings, slabs-on-grade, specifications for rock under floor slabs, slope ratio and drainage, surface drainage and erosion control, subsurface drains, and grading. This report shall be submitted in conjunction with Building Permit application(s) and reviewed and approved by the City. The design-level geotechnical report recommendations shall be incorporated into the project design and construction documents.

(iii) LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED. Generally, when liquefaction occurs because of earthquakes, the conditions of cohesionless surface material

accompanied with relatively shallow water tables underlying the area were the factor. In such cases, ground vibration increases the pore pressure resulting in water moving upward whereby turning the sand or silt into a quicksand like condition. The surface characteristics include the development of sand boils, surface cracks, ground settlement and differential compaction. Without proper soil engineering, foundation design, and construction, the project area could expose people and/or structures to hazards associated with seismic-related ground failure. According to the Geotechnical Investigation, the soils at the project site are not considered susceptible to liquefaction as they are either un-saturated and medium dense to dense sands, or they contain or are cohesive clays. Although the project site is not located in a known subsidence zone or subject to liquefaction, the near surface soils to an approximate depth of two feet are considered loose and have the capacity to settle under hydraulic loading or bearing loads when saturated.

The proposed project would be required to comply with the City's Building Code and regulations of the California Building Code. In addition, **Mitigation Measure GEO-1** would require that the project applicant prepare a design-level geotechnical report, which would address the loose near surface soils. Therefore, with compliance with regulatory requirements and measures in the design level geotechnical report which would address loose soils, this **potentially significant impact** would be reduced to a **less than significant level.**

(iv) NO IMPACT. The project site is generally level. According to the Geotechnical Investigation, no landslides are located above or below the building area and the site is not subject to slope failure because of the level topography of the project site. Therefore, the proposed project would have **no impact** from landslides.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. According to the United States Department of Agriculture, Natural Resources Conservation Service, the project site is comprised of approximately 55 percent of the Rincon loam, 2 to 9 percent slopes (RnC) soil series in the western portion of the project site and 45 percent Salinas clay loam, 0 to 2 percent slopes (SaA) soil series in the eastern portion of the project site. The RnC loam soil series was formed from Alluvium derived from sandstone and shale and is generally well drained. Runoff is generally slow and the erosion hazard is minimal. The SaA soil series consists of well drained soils that formed in mixed alluvium derived from sedimentary and granitic rocks on alluvial fans and river terraces. Runoff is generally slow and the erosion hazard is slight.

Due to the generally flat topography of the project site, construction of the proposed project would include a minimal amount of cut and fill necessary to provide for adequate drainage. In accordance with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit, the project applicant is required to prepare a Stormwater Pollution Prevention Plan (SWPPP) that documents best management practices (filters, traps, bio-filtration swales, etc.) to ensure urban runoff contaminants and sediment are minimized during site preparation, construction, and post-construction periods.

The SWPPP would incorporate best management practices consistent with the requirements of the

National Pollution Discharge Prevention System. The SWPPP would be subject to review and approval by the City of San Juan Bautista prior to issuance of a grading permit. The SWPPP would specify which erosion control measures are necessary to control runoff during the rainy season (November 1 through April 15) and which measures would be in place year round. The SWPPP would be required to be consistent with the recommendations and policies of the City of San Juan Bautista and Central Coast Water Quality Control Board standards for discharges of stormwater associated with construction activities. Compliance with this measure would ensure that the proposed project would not result in substantial soil erosion or the loss of topsoil during construction activities. Therefore, the impacts associated with soil erosion or the loss of topsoil would be considered **less than significant**.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED. As previously described in geology and soils impact section a(iii), the near surface soils to an approximate depth of two feet are considered loose and have the capacity to settle under hydraulic loading or bearing loads when saturated. The proposed project would be required to comply with the City's Building Code and regulations of the CBC.

In addition, **Mitigation Measure GEO-1** would require that the project applicant prepare a design-level geotechnical report, which would address the loose near surface soils. Therefore, with compliance with regulatory requirements and measures in the design level geotechnical report which would address loose soils, this **potentially significant impact** would be reduced to a **less than significant level.**

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
d. Be located on expansive soil, as defined in the current California Building Standards Code, creating substantial risks to life or property?	☐	☒	☐	☐

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED. The near surface soils are silty clays of low-moderate plasticity, which are typical to the area. There are no known problems of expansive soils in the area. The proposed project would be required to comply with the City's Building Code and regulations of the CBC.

In addition, **Mitigation Measure GEO-1** would require that the project applicant prepare a design-level

geotechnical report, which would address expansive soils. Therefore, with compliance with regulatory requirements and measures in the design level geotechnical report which would address expansive soils, this **potentially significant impact** would be reduced to a **less than significant level.**

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

NO IMPACT. The project will connect to the City of San Juan Bautista sewer system and therefore would not be located on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems.

VII. GREENHOUSE GAS EMISSIONS

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on GHGs, the type, level, and impact of emissions generated by the project must be evaluated. The following GHG significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

(b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. The project would generate direct and indirect greenhouse gas emissions; however, these emissions would not result in a significant impact on the environment.

Threshold of Significance

The MBUAPCD has currently not established a Threshold of Significance for construction or operations related GHG emissions. In absence of GHG thresholds from the City of San Juan Bautista and the MBUAPCD, thresholds from the adjacent district, San Luis Obispo Air Pollution Control District, were

reviewed. However, the adopted thresholds, which include a bright-line threshold of 1,150 metric tons of carbon dioxide equivalents ($MTCO_2e$) that would screen out small projects and an efficiency threshold of 4.9 $MTCO_2e$ per service population per year for mixed use projects, are not appropriate for all commercial projects. Instead, a threshold based on project consistency with the target established by ARB's AB 32 Scoping Plan was used. Projects that achieve reductions from business as usual emissions by 2020 of 21.7 percent would be consistent with the reductions required by the State to achieve the AB 32 target. Under these circumstances, the project would not hinder or obstruct the State's ability to reach AB 32 targets.

To determine significance, the analysis first will quantify project-related GHG emissions under a business-as-usual scenario, and then compare these emissions with those emissions that would occur when all project-related design features are accounted for, and when compliance with new regulatory measures is assumed. The standard and methodology is explained in further detail, below. In addition, construction activities will be quantified and amortized over 30 years, which is the estimated life of the project, and then added to the annual operational emissions.

Business-as-Usual Operational Emissions

Operational emissions under the business-as-usual scenario were modeled using CalEEMod 2013.2.2. The analysis uses a modeling year of 2005 to represent the emissions that would occur in 2020 without regulations adopted since the 2002-2004 baseline used in the ARB Scoping Plan for its business as usual scenario. CalEEMod defaults were used for project energy usage, water usage, waste generation, and area sources (architectural coating, consumer products, and landscaping). The vehicle fleet mix was revised to reflect the fleet mix for year 2020. The year 2020 is the target year for AB 32 that requires the State to reduce emissions to 1990 levels by 2020. Full assumptions and CalEEMod model outputs and full analysis results are provided in the full **Air Quality and GHG Emissions Report - Appendix A**.

2020 Operational Emissions

Operational emissions for the year 2020 were modeled using CalEEMod. CalEEMod assumes compliance with some, but not all applicable rules and regulations regarding energy efficiency, vehicle fuel efficiency, renewable energy usage, and other GHG reduction policies, as described in the CalEEMod User's Guide (CAPCOA 2011). The passenger vehicle efficiency standards under AB 1493 (Pavley) were adopted as revisions to the state's Low Emission Vehicle Program (LEV III), and are anticipated to be in place by 2020 and have been incorporated into CalEEMod assumptions. In addition to these rules and regulations, the project would incorporate the following design features that would further reduce GHG emissions:

a) Pedestrian Connections – The project is located adjacent to existing pedestrian infrastructure.
b) Electrical Outlets for Landscaping Equipment: Outlets provided to power electric landscaping equipment.

GHG reductions from many of these design features can be quantified in CalEEMod. Note that CalEEMod nominally treats these design elements and conditions as "mitigation measures," despite their inclusion in the project description. Therefore, reported operational emissions are considered to represent unmitigated project conditions. Full assumptions and model outputs are provided in Appendix A.

The project has a reduction of 26.07% from 2020 Business-as-usual to the year 2020 with Regulations and Design features incorporated. This is above the 21.7-percent reduction outlined in the AB 32 Scoping Plan Update. Therefore, the impact is **less than significant**.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. The project would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of greenhouse gases. The City of San Juan Bautista does not currently have formal GHG emissions reduction plans or recommended emissions thresholds for determining significance associated with GHG emissions from development projects. In the absence of any formal GHG emissions reduction plans, the project is compared with the AB 32 scoping plan in order to determine compliance with any applicable plan, policy, or regulation adopted to reduce emissions of GHGs.

AB 32 Scoping Plan

The California State Legislature adopted AB 32 in 2006. AB 32 focuses on reducing GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, the ARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal.

The Scoping Plan calls for an "ambitious but achievable" reduction in California's GHG emissions, cutting approximately 30 percent from business-as-usual emission levels projected for 2020, or about 10 percent from today's levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman and child in California down to about 10 tons per person by 2020.

The Scoping Plan contains a variety of strategies to reduce the State's emissions. As shown in Appendix A of this Initial Study, the project is consistent with the strategies, or the strategies are not applicable to the project. Therefore, the project is consistent with the applicable strategies and the impact is **less than significant**.

VIII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. *Create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials?*	☐	☐	☒	☐

Short-Term Construction Activities

Construction of the proposed project would require limited amounts of some substances that qualify as hazardous materials as defined by the State of California (e.g., Health and Safety Code §25117); these include vehicle and equipment fuels and lubricants. All such substances would be handled and disposed in strict accordance with good construction practices and applicable state regulations. With these precautions in place, significant impacts associated with construction-related use, transport, or disposal of hazardous materials are not anticipated.

Long-Term Operational Activities

The proposed project would be subject to local, state and federal regulations related to the routine transportation, storage, and dispensing of gasoline in order to ensure that the gas station would not create a significant hazard to the public or environment. The use and storage of hazardous materials in the City of San Juan Bautista is regulated by San Benito County Environmental Health and Human Services Agency. The construction and operation of the proposed project would be required to conform to the requirements of the San Benito County Environmental Health Department.

In accordance with Chapter 6.95 of the California Health and Safety Code Article 1–Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2–Hazardous Materials Management (Sections 25531 to 25543.3), basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and the health risks) is required to be made available to firefighters, public safety officers, and regulatory agencies in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of hazardous materials into the environment in the form of a Hazardous Materials Business Plan (HMBP), which is submitted to the County of San Benito Environmental Health Department.

California Code of Regulations (CCR) Title 19, Public Safety, Division 2, Office of Emergency Services, Chapter 4–Hazardous Material Release Reporting, Inventory, and Response Plans, Article 4 (Minimum Standards for Business Plans) establishes minimum statewide standards for Hazardous Materials Business Plans (HMBP). These plans shall include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 to 2729.7; (2) emergency response plans and procedures in accordance with Section 2731; and (3) training program information in accordance with Section 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the State. The proposed project would be required to prepare a HMBP since it will use, handle, or store a hazardous material or an extremely hazardous material in quantities greater than or equal to the following: 55 gallons of a liquid. In accordance with the California Code of Regulations, Title 23, section 2635 (b), underground storage tanks would be required to have spill containment and overfill prevention

systems. With implementation of these standards and regulations, the storage and handling of hazardous materials within the project site would result in a **less than significant impact.**

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

Short-Term Construction Activities

As discussed in Item (a), project construction would require the use of some hazardous substances (e.g., fuels, lubricants, and paving media) but all such substances would be handled according to good construction practices, requirements of the SWPP, and applicable state regulations. With these precautions in place, impacts, if any, during the construction period would **be less than significant**.

Long-Term Operational Activities

As described in Section VIIIa, the proposed project would be subject to local, state, and federal regulations related to the routine transportation, storage, and dispensing of gasoline, in order to ensure that the gas station would not create a significant hazard to the public or environment. In addition, the proposed project is required to obtain permits from the Monterey Bay Unified Air Pollution Control District (MBUAPCD) to operate the gas station in accordance with the MBUAPCD's rules and regulations for the permitting of gas stations found in Regulation II: Permits, including Rule 1000 (Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants).

Therefore, in attaining and maintaining compliance with local, state and federal regulations, the proposed project would have a **less than significant impact** on surrounding sensitive receptors (e.g. residential uses).

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
c. 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 project site is located within 0.25 miles of San Juan School, which is approximately 160 feet to the northeast of the project site across Highway 156. As part of the permitting process with the Monterey Bay Unified Air Pollution Control District for the proposed gas station, the project applicant is required to prepare a Health Risk Assessment (HRA) screening evaluation. The HRA screening evaluation is a conservative evaluation of the potential health risks associated with the gas station and determines noticing requirements by the Monterey Bay Unified Air Pollution Control District prior to

obtaining a permit to operate.

As described under VIII(b), the proposed project is required to obtain permits from the Monterey Bay Unified Air Pollution Control District (MBUAPCD) to operate the gas station in accordance with the MBUAPCD's rules and regulations found in Regulation II: Permits, including Rule 1000 (Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants). A permit will not be issued by the Air Pollution Control Officer until all of the conditions of the MBUAPCD rules and regulations have been met to ensure that the proposed project does not result in the emission of toxic air emissions.

Section VIII(a) requires construction and operation to conform to the requirements of the San Benito County Environmental Health Department, and State and federal requirements with respect to hazardous materials.

Therefore, by attaining and maintaining compliance with local, State and federal regulations, the proposed project would have a **less than significant impact** on San Juan School located within a quarter mile of the proposed project.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. The project is not located on a site having hazardous materials or on a list of known sites complied pursuant to Government Code Section 65962.5. Three known hazardous materials sites have historically been located within the City. These sites (identified in Table 1 below) contain a list of known hazardous materials sites in the project vicinity.

Table 1 - Known Hazardous Materials Sites in the Project Vicinity

Address	Status	Potential Contaminants	Potential Media Affected
300 The Alameda Street (Chevron)	Closed (Case closed on October 24, 1991) – LUST Cleanup Site	Gasoline	Other Groundwater (Uses Other than Drinking Water)
101 The Alameda Street (B&K Union Tow Service)	Open (Eligible for Closure) – LUST Cleanup site	Waste Oil/Motor /Hydraulic/Lubricating	Other Groundwater (Uses Other than Drinking Water)
Monterey and 3rd Street (Nyland Ranch Warehouse)	Closed (Case closed on February, 17, 1998)	Gasoline	None known

The closest site is located at 101 The Alameda and is approximately one quarter-mile from the project site. Based on the distance of this site to the proposed project, it is not anticipated that existing hazardous waste

sites will affect development of the project site. Therefore, the proposed project would have a **less than significant impact**.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

NO IMPACT. The project site is located outside of the airport influence area for the Frazier Lake Airport and the Hollister Municipal Airport, which are both located in proximity to the City of Hollister. With the project site located outside of the airport influence area for these airports, the proposed project would have no impact on airport facilities or functions. Therefore, the proposed project would have **no impact** on short-term or long-term impacts on safety in the vicinity of an airport.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

NO IMPACT. The project site is not located in proximity to any private airport or airstrip. Therefore, there would be no safety hazard for people residing in or working within the project site and **no impact** would result.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. The Sheriff's Office of Emergency Services (OES) provides emergency management services for the County Operational Area including the City of San Juan Bautista. OES coordinates emergency operations activities and develops written guidelines for emergency preparedness, response, recovery and mitigation in response to natural or man-made disasters.
Basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and the health risks) is required to be made available to firefighters, public safety officers, and regulatory agencies in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of hazardous materials into the environment in the form of a Hazardous Materials Business Plan (HMBP) that is submitted to the County of San Benito Environmental Health Department as described under VIII(a) above.

Although, the proposed project is located adjacent to Highway 156, which provides regional access in San Benito County, it is not anticipated to impair with an emergency evacuation plan or emergency response plan. Therefore, the proposed project would result in a **less than significant impact.**

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

NO IMPACT. The project site is an infill site surrounded by urban development and located a substantial distance from wildland interface areas. It would not add, nor would it foster, residential development in wildland interface areas. Therefore, the proposed project would not expose people or structures to loss, injury, or death involving wildland fires. The proposed project would have **no impact** under this criterion.

IX. HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	☐	☐	☒	☐
e. 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?	☐	☐	☒	☐
f. Otherwise substantially degrade water quality?	☐	☐	☒	☐

(a-f) **LESS THAN SIGNIFICANT IMPACT.** Whenever a project requires ground disturbance, there is some potential to degrade water quality through accelerated erosion and delivery of sediment to storm drains and watercourses and as a result of accidental release or discharge of various pollutants such as vehicle and equipment fuels and lubricants, drilling mud, paints, solvents, and paving and striping media, which can be considered potentially significant.

In accordance with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit, the project applicant is required to prepare a Stormwater Pollution Prevention Plan (SWPPP) that documents best management practices (filters, traps, bio-filtration swales, etc.) to ensure urban runoff contaminants and sediment are minimized during site preparation, construction, and post-construction periods. The SWPPP would incorporate best management practices consistent with the requirements of the National Pollution Discharge Prevention System.

The SWPPP would be subject to review and approval by the City of San Juan Bautista prior to issuance of a grading permit. The SWPPP would specify which erosion control measures are necessary to control runoff during the rainy season (November 1 through April 15) and which measures would be in place year round. The SWPPP would be required to be consistent with the recommendations and policies of the City of San Juan Bautista and Central Coast Water Quality Control Board standards for discharges of stormwater

associated with construction activities.

With these measures in place, construction-related impacts on water quality would be materially reduced or avoided, and the associated potential for violation of water quality standards and/or waste discharge requirements, is expected to be a less than significant impact. The proposed project would result in an increase in water use at the project site, however, the project does not have the direct or indirect potential to result in or contribute to groundwater overdraft. Paved areas disturbed for project construction would be re-paved when construction is completed. The project site itself is flat and generally drains to the northeast at 0.7% where it enters the drainage channel along the south side of Highway 156. A storm drain inlet near the northwest corner of the project is a point where site runoff enters the storm drain system at the intersection of The Alameda and Hwy 156. This storm drain system also drains the City Streets. In accordance with the post-construction requirements of the Central Coast Regional Water Quality Control Board, the design of the site includes the development of best management practices (BMPs) to meet the Low Impact Development (LID) standards for the Pajaro River Watershed as documented in the Storm Water Management Guidance Manual published by the City of Gilroy, City of Morgan Hill and County of Santa Clara dated March 6, 2014. While San Juan Bautista and San Benito County have yet to implement these LID standards, the developer of this project intends to meet this more stringent LID requirement for the benefit of the community-at-large.

Due to the proposed parking lot and structures proposed, the runoff from the site will increase. The landscape areas and bio-retention swales have been designed so that all project runoff is routed through these features where it will be filtered by the vegetation, detained to allow the suspended sediments to fall out of the solution and to allow the water to infiltrate and evapotranspirate to mimic the pre development drainage pattern. The calculations included in Appendix H in this Initial Study substantiate the sizing and performance of these BMPs. There would therefore be a less than significant impact related to groundwater depletion or reduced groundwater recharge.

The proposed project would not entail mass grading or re-contouring, nor would it in any way modify any stream or river course. As discussed in Section IX (a), in accordance with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit, the project applicant is required to prepare a Stormwater Pollution Prevention Plan (SWPPP) that documents best management practices (filters, traps, bio-filtration swales, etc.) to ensure urban runoff contaminants and sediment are minimized during site preparation, construction, and post-construction periods. The proposed project would have a less than significant impact related to changes in drainage patterns, and the proposed project would not result in substantial erosion or siltation on- or offsite.

As previously discussed in Item (a), construction of the proposed project would have some potential to degrade water quality through accelerated erosion in disturbed areas and increased delivery of sediment to storm drains and watercourses, and through potential accidental release or discharge of various pollutants such as vehicle and equipment fuels and lubricants, paints, solvents, paving and striping media. However, the City's Municipal Code and the City's *Standard Specifications* require all contractors to implement good construction site management practices to control any potential sources of water pollution. In addition, the City's Municipal Code and *Standard Specifications* require all contractors to implement measures to control potential sources of water pollution. This includes the use of erosion and sediment control measures. With these precautions in place, the proposed project would have a **less than significant impact** to water quality.

Would the project:

	Potentially Significant Impact	*Less Than Significant with*	*Less Than Significant*	*No Impact*

			Mitigation Incorporated	*Impact*	
g.	*Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*	☐	☐	☒	☐
h.	*Place within a 100-year flood hazard area, structures that would impede or redirect flood flows?*	☐	☐	☒	☐
i.	*Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?*	☐	☐	☒	☐

(g-i) **LESS THAN SIGNIFICANT IMPACT.** According to the San Benito Flood Insurance Rate Map No. 06069C0158D (Dated April 16, 2009) the project site is located within a flood hazard zone. However, the proposed project would not construct housing and would not indirectly contribute to or foster the construction of additional housing. Therefore, the project would not have a direct or indirect impact related to construction of housing within a 100-year flood hazard area.

The proposed project would be required to comply with Section 12-1: Flood Hazard Prevention of the *City of San Juan Bautista Municipal Code* for development within a flood hazard zone. Drainage analysis and storm water management calculations have been prepared meeting flood hazard requirements. According to the Municipal Code "No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this Chapter and other applicable regulations."

A development permit shall be obtained before any grading, filling, construction, or other development begins within any area of special flood hazard established in SJBMC 12-1-205. Application for a development permit shall be made on forms furnished by the Floodplain Administrator and shall include, but not be limited to: plans in duplicate drawn to scale showing the nature, location, dimensions, and elevation of the area in question; existing or proposed structures, amount and type of fill, storage of materials, drainage facilities; and the location of the foregoing. Specifically, the following information is required:

- Proposed elevation in relation to mean sea level, of the lowest floor (including basement) of all structures. In Zone AO elevation of highest adjacent grade and proposed elevation of lowest floor of all structures; or
- Proposed elevation in relation to mean sea level to which any structure will be flood-proofed, if required in SJBMC 12-1-400(C); and
- All appropriate certifications listed in SJBMC 12-1-310(D); and
- Description of the extent to which any watercourse will be altered or relocated as a result of proposed development; and
- A discussion of the project's consistency with the General Plan goals and policies regarding development within a flood hazard area.

The Floodplain Administrator, and on appeal, the Planning Commission and City Council, may attach conditions to any development permit issued hereunder so long as said conditions are reasonably related to the protection of the public, health, safety and welfare and are necessary to mitigate impacts of the

development. Therefore the project would have **no significant impact** related to the placement of structures within a 100-year flood hazard area.

San Benito County could be affected by dam failure inundation from a few relatively small dams and reservoirs, including the San Justo Reservoir located three miles southwest of Hollister; and the Leroy Anderson Dam, which is located in Santa Clara County but has a dam inundation zone that covers a part of San Benito County. However, the City of San Juan Bautista is not located within the inundation area of these two dams.

Future development on this property would require finished floor elevations as prescribed through the Federal Emergency Management Agency. There are no significant flood exposure impacts resulting from this project. Therefore, the proposed project will have a **less than significant impact**.

Would the project:

	Potentially Impact	*Significant*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
j. Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐		☐	☐	☒

NO IMPACT. As identified above, the proposed project would not construct housing or indirectly contribute to or foster the construction of housing. It therefore would not result in increased exposure of people or structures to flood risks associated with seiches, tsunami, or mudflows. There would be **no impact** under this item.

X. LAND USE AND PLANNING

The property is designated "General Commercial" in the City of San Juan Bautista General Plan and is zoned "C-2 General Commercial" in the City of San Juan Bautista Zoning Ordinance. As stated in the General Plan, this land use type designates areas "suitable for commercial uses which would not benefit from locations downtown due to their parking or land area requirements, auto orientation, need for highway visibility, or operational characteristics and space needs." The designation permits retail, service, office, hotel, and tourist-oriented commercial development. Auto or highway-oriented uses such as gas stations and motels are allowed in the General Commercial district/zones. Residential and industrial uses are generally not allowed, although commercial uses in warehouse-type buildings and accessory residential uses may be conditionally permitted.

San Juan Bautista currently has one automotive fueling station (Valero) at Muckelemi and Monterey Streets, serving a population of approximately 1,900. For a period of about two years (2007-2009) there were no gas stations in the City. For the 2012 calendar year, there were approximately 10,000 retail fueling stations in California. Among this number includes different types of retail fueling stations, such as service stations, hypermarkets, truck stops, public card locks, and airports. (*California Energy Commission*). Station population varies due to the opening of new stations, closures of existing stations and consolidations/changes of ownership. According to the CEC, San Benito County had an estimated 15 retail fuel stations compared to California's mean average for all counties of 172 stations.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Physically divide an established community?	☐	☐	☐	☒

NO IMPACT. The project site is an infill site that is over 75% surrounded by urban development, including an existing motel (San Juan Inn) and residential units to the south; residential uses across The Alameda to the west; the Windmill retail shopping center to the northwest; and San Juan School to the north across Highway 156. Commercial zoned vacant land is located to the east. The Windmill commercial shopping center is located approximately 240 feet to the northwest and the San Juan School is located approximately 160 feet to the northeast across Highway 156. The San Juan Inn shares the project's southern boundary. The proposed project is located at the southeast corner of existing Highway 156 and The Alameda. No existing pedestrian or vehicle crossings or existing land uses will be inaccessible due to the project. There would be **no impact** under this item.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

LESS THAN SIGNIFICANT IMPACT. The proposed project is consistent with the City of San Juan Bautista General Plan policies for Commercially designated lands. In determining that the proposed project will not conflict with the City's "applicable land use plan, policy or regulation […]", a review of the applicable goals and policies of the General Plan was conducted to determine any environmental effect.

Commercial Land Use Goals and Policies

The project is consistent with the "Commercial" land use classification of the General Plan. The land use classification designates areas suitable for commercial uses which would not benefit from locations Downtown due to their parking or land area requirements, auto-orientation, need for highway visibility, or operational characteristics and space needs. The designation permits retail, service, office, hotel, and tourist-oriented commercial development. Auto or highway-oriented uses such as gas stations and motels are also allowed. The project is restricted to a maximum development intensity of 0.5 Floor Area Ratio (FAR). Proposed project building coverage does not exceed 0.5 FAR, consistent with the General Plan.

Goal L-1: Small Town Character

The project is located on an infill site within the existing City of San Juan Bautista boundary and Urban

Growth Boundary (UGB). No extension of urban services is required with this project.

Goal L-2: Growth Management
The site is currently served by urban services. The project has been evaluated for consistency with municipal growth management goals. No new or expanded municipal utilities or public facilities will be required for this project.

General Plan Land Use Policy L-3: Encourage the development of vacant lots and underutilized property within the City of San Juan Bautista before approving urban development outside the existing City Boundaries. The subject commercial zoned property has been vacant for over 34 years. The property is considered infill and fits into the contiguous outward orderly growth pattern for the City. The project has been reviewed and is consistent with the General Plan Land Use Plan and Zoning Ordinance. According to the General Plan, "The Land Use Diagram has been designed to avoid the potential for conflicts in new development areas." Additionally, the General Plan states, "It is not uncommon to find houses next to auto repair businesses, or agricultural warehouses in the middle of neighborhoods. In most cases, the uses co-exist fairly well and will be allowed to continue. The conflicts are more serious where truck traffic, noise, and odors from businesses impact adjacent residences. These types of conflicts will be addressed in the future through code enforcement and the conditional use permit process, as well as site planning techniques like landscaping and buffering." Environmental analysis prepared for the required Use Permit finds that potential impacts resulting from project development can be mitigated to less than significant levels.

General Plan Land Use Policy L-7: Approve development projects only when sufficient public services and utilities are able to serve that development or will be provided as part of the development plan. The proposed project will construct utility service improvements to the site and will be required to pay development impact fees to facilitate continued provision of public services.

General Plan Land Use Policy L-8: Provide a balance between job growth and housing growth. Land for both employment and housing should be provided to ensure that San Juan Bautista does not become a "bedroom community." The proposed project will facilitate the creation of employment opportunities within the community, particularly youth employment and those with retail and food skills.

General Plan Land Use Policy L-10: Protect residential areas from the effects of potentially incompatible uses. Where new commercial or mixed use development is allowed adjacent to residentially zoned districts, maintain standards for circulation, setbacks, landscaping, and architecture which ensure compatibility between the uses. Policy L-10 requires land use conflicts "be addressed through code enforcement and the conditional use permit process, as well as site planning techniques like landscaping and buffering. The Land Use Diagram has been designed to avoid the potential for conflicts in new development areas." The proposed project is consistent with the Land Use Diagram and includes the review and approval of a Conditional Use Permit. Therefore the project is subject to conditions set forth by the City of San Juan Bautista to avoid or mitigate potential impacts. The Conditional Use Permit must be reviewed by the Planning Department for conformance with the General Plan (1998), the San Juan Bautista Municipal Code, the San Juan Bautista Design Guidelines (2004) and other applicable policies and standards.

General Plan Land Use Policy L-16: Maintaining Downtown as the City's primary area for pedestrian-oriented retail and service activities. The proposed project is characterized as "commercial development outside of the Downtown Area" and as such, it "must be planned in a

manner which complements Downtown businesses and does not compromise its position as a center of community life." The proposed project consists of development of a highway-oriented service station, including fuel pumps, a quick serve restaurant and convenience store. The project is consistent with the "General Commercial" land use designation and "C-2 General Commercial" zoning designation. The General Commercial land use classification designates areas suitable for commercial uses which would not benefit from locations Downtown due to their parking or land area requirements, auto-orientation, need for highway visibility, or operational characteristics and space needs. The proposed project is primarily characterized as an "auto or highway-oriented use" and restricted to a maximum development intensity of 0.5 Floor Area Ratio (FAR). Therefore, the project would not compromise pedestrian-oriented retail and mixed use within the downtown, consistent with stated policies and goals within the General Plan.

General Plan Land Use Policy L-21: Support [of] the development of land at the western and eastern "gateways" to Downtown with mixed uses that convey a positive image of the City to residents and visitors. This Policy describes appropriate and inappropriate uses within the "gateways" of Downtown. The General Plan states, "Auto or highway-oriented uses such as gas stations and motels are allowed in the General Commercial district/zones." However, Policy L-21 prohibits "large-scale auto "malls" and repair establishments, drive-through restaurants, big box retailers, and storage yards." The project is consistent with the "General Commercial" land use designation and "C-2 General Commercial" zoning designation, and will be designed consistent with the Community Design Element, San Juan Bautista Municipal Code, and the San Juan Bautista Design Guidelines (2004). No drive-through restaurants, big box retailers, repair establishments or other uses identified as "inappropriate" in Policy L-21 are proposed on the project site. Elevations of the conceptual building design are shown in Figure 6 – Building Elevations.

General Plan Land Use Policy L-23: Support existing small and locally-owned businesses in San Juan Bautista. The will consist of a local business providing local employment and a source of income to the City of San Juan Bautista in the form of sales, gasoline and property taxes. The project is consistent with the "General Commercial" land use designation and "C-2 General Commercial" zoning designation. General Plan Policy L-23 requires that "while future tourist development is encouraged, it must be consistent with the City's character and history. New visitor-serving uses should convey a positive image of the City. Uses which convey a cheap, tacky, or overly commercialized image should be discouraged." The proposed project includes the review and approval of a Conditional Use Permit subject to conditions set forth by the City of San Juan Bautista to ensure the physical character of a project is consistent with the San Juan Bautista Design Guidelines and Municipal Code requirements. Additionally the project will be designed to be complementary in appearance with the existing visitor-serving motel currently under renovation to the south.

General Plan Land Use Policy 27: Attract businesses and services which provide for the day-to-day needs of local residents as well as the needs of visitors. San Juan Bautista currently has one automotive fueling station (Valero) at Muckelemi and Monterey Streets, serving a population of approximately 1,900. For a period of about two years (2007-2009) there were no gas stations in the City. The proposed project will provide a viable means to purchase fuel, goods, food and merchandise locally. Extended hours of operation of this business will make these goods available to residents where currently unavailable from existing businesses within the area.

General Plan Land Use Policy L-28: Attract businesses that create jobs appropriate to the skills of the local labor force. The proposed project will provide an opportunity for work training and local employment in retail and service industries.

General Plan Community Design Policies

The project is consistent with the "General Commercial" land use designation and "C-2 General Commercial" zoning designation adopted for the purpose of avoiding or mitigating an environmental effect. As architectural design concepts are developed and refined, the City of San Juan Bautista must ensure that architectural and site plan elements are consistent with the Community Design Element of the General Plan; as well as the San Juan Bautista Design Guidelines and Municipal Code requirements. Elevations of the conceptual building design are shown in Figure 6 – Building Elevations.

Policy C-11- Require new signs to be compatible with the building, streetscape and local character. The project was previously approved by the Planning Commission without a sign approval, and determined that a separate sign permit application and review would be necessary before exterior signs are permitted. Therefore, a separate sign permit application will be required.

Policy C-13- Use of signature architecture. Communities throughout the U.S. have successfully integrated restaurants and other large franchises into the fabric of the community without using corporate "signature architecture". The City requires that businesses with a signature architecture work with the Planning Department to ensure that the architecture of any proposed structures meet local design requirements consistent with adopted community design policies. The proposed project will be designed consistent with the adopted *San Juan Bautista Design Guidelines (2004).*

Policy C-13- Discourage development of large "shopping centers" or commercial "strips" through appropriate zoning designations on the City's vacant commercial sites. The proposed project consists of a mixed fuel station/convenience store and quick serve restaurant on 1.2 acres, located at the corner of Highway 156 and The Alameda. The size of the site is too small to support a large shopping complex and has not been designed as a strip commercial development.

Policy C-24- Conserve the visual qualities of land adjacent to scenic roadways. State Highway 156 is not a designated Scenic Highway. Likewise, "The Alameda" is not designated as a scenic road by the City of San Juan Bautista, San Benito County or the State of California. The project will, however, incorporate landscaping including shrubs and ground cover to minimize potential visual impacts associated with the project. (Refer to Aesthetics, Page 13).

San Juan Bautista Design Guidelines (2004)

The project will be designed consistent with the San Juan Bautista Design Guidelines. The General Non-Residential Site Development Guidelines address "how non-residential developments should present themselves to the street and to adjacent buildings and spaces," including design guidance on landscaping and signs. Chapter 3.0 - San Juan Bautista's Architectural Styles, presents a written and visual summary of prominent architectural styles existing in San Juan Bautista and can be used as a reference to evaluate the compatibility of new architectural styles. Additionally, Chapter 4.0 – Architectural Design Guidelines: Non-Residential Development, provides architectural design guidance for new and infill development that is non-residential in nature, including mixed-use projects, commercial projects, and public buildings.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*

c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

NO IMPACT. As discussed in Item (f) of Section IV above, the project site is not within an area covered by a habitat conservation plan or natural community conservation plan. Therefore, there would be no impact related to conflicts with any adopted habitat or natural community conservation plan.

XI. MINERAL RESOURCES

Would the project?

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

NO IMPACT. Mineral resources in the County of San Benito are primarily sand and aggregate based and include the Holocene Stream Channel and Terrace Deposits adjacent to the San Benito River and Tres Pinos Creek, which are not located within San Juan Bautista. The proposed project would be constructed on an infill lot in the City of San Juan Bautista within a developed urban/suburban area. As such, the project site does not offer mineral resource recovery opportunities. Therefore, the proposed project would result in **no impact** to the availability of mineral resources of local, regional, or state importance.

XII. NOISE

A noise study (**Appendix E – Noise Impact Assessment**) was prepared to evaluate the potential noise impacts on nearby sensitive receptors produced by additional traffic, mechanical equipment, operational noise and construction activities related to the proposed project. This assessment was conducted within the context of the California Environmental Quality Act (*CEQA, California Public Resources Code Sections 21000, et seq.*).

Existing Noise Environment

The primary source of noise at the project site is traffic on State Route 156, a four-lane arterial bounding the project on the north side, and to a lesser extent traffic on The Alameda on the project's west boundary. Two continuous long-term (48-hour minimum, LT-1 and LT-2) and two short-term (15-minute, S-1 and S-2) noise measurements were conducted (between March 2 and March 9, 2016) to quantify the existing noise environment in the vicinity of the proposed project. The long-term noise measurements were conducted along SR 156 and The Alameda, and the short-term noise measurements were conducted along the south and

west edges of the project site. A summary of the acoustical measurements and locations are listed in Table 2.

Table 2 – On-Site Measured Noise Levels

Monitor	Location	Elevation (feet above grade)	Measured Noise Level L_{dn}
LT-1	Along SR 156	12	78 dB
LT-2	Along The Alameda	12	65 dB
S-1	South Edge of Project Site	5	62 dB*
S-2	West Edge of Project Site	5	67 dB*

*Note: Daily average noise levels at short-term monitor locations are estimated based on adjacent long-term monitor data.

Based on the City and County guidelines for residential land uses provided in Appendix E, the measured traffic noise levels along the locals roadways are currently above the "normally acceptable" thresholds.

Thresholds of Significance

The noise study references the applicable standards, codes and ordinances found within the City of San Juan Bautista General Plan and Municipal Code, the San Benito County General Plan Noise Element, and the San Benito County Municipal Code. The following criteria were used to determine significant noise impacts:

- An increase in the day-night average noise level[1] (L_{dn}) of three decibels or greater at noise-sensitive receptors would be considered significant when projected noise levels would exceed those considered "normally acceptable" for the affected land use.
- An increase of five decibels or greater would be considered significant when projected noise levels would continue to meet those considered satisfactory for the affected land use.

Project-Generated Traffic Noise

Measured traffic noise levels along the local roadways are above the "normally acceptable" threshold of City and County guidelines for residential land uses. Future traffic noise levels will exceed this threshold as well. Therefore, the analysis of permanent traffic noise increases is based on the relative increases in noise.

The traffic report for the project, prepared by Hatch Mott MacDonald (HMM) and dated July 1, 2014, estimated the additional traffic volumes on adjacent roadways that would be associated with the project. Based on the existing traffic volumes and the increase in traffic volumes due to the project, an increase in traffic noise (L_{dn}) of up to two decibels was calculated[2] along The Alameda in the vicinity of the project site. Further from the project site, the projected noise increase would be less. Increased traffic along SR 156 would increase nearby noise levels by less than one decibel. These noise increases are less than the three-decibel significance threshold. Therefore, there would be no significant noise impact from project-related traffic.

Projected future traffic noise increases are also available in the City of San Juan Bautista General Plan EIR.

1 Day-Night Average Sound Level (DNL or L_{dn}) – A descriptor established by the U.S. Environmental Protection Agency to describe the average day-night level with a penalty applied to noise occurring during the nighttime hours (10 pm - 7 am) to account for the increased sensitivity of people during sleeping hours.

Per the City of San Juan Bautista General Plan EIR, "Growth expected by 2035 in San Juan Bautista and San Benito County will increase traffic levels on SR 156. Traffic noise levels along SR 156 are projected to increase by 0 to 2 dBA, L_{dn}. Concurrently, The Alameda/Third Street (SR 156 to San Juan Hollister Road) segment is projected to experience increased traffic volumes resulting in an 8 dBA, Ldn noise increase by 2035 (Illingworth & Rodkin, 2012)."

In the year 2035, traffic noise on The Alameda is predicted to increase by eight decibels. Less than one decibel of this future noise increase is attributed to project traffic. Therefore, project traffic does not constitute a significant portion of the future increase. Calculated traffic noise levels for The Alameda near the project site are shown in Table 3.

Table 3 – Traffic Noise on The Alameda Near the Project Site

Traffic Condition	Calculated L_{dn}	Delta
Existing	62 dB	2
Existing with Project	64 dB	
Cumulative Future without Project	70 dB	<1
Cumulative Future with Project	70 dB*	

*Note: Calculated existing level of 62 dB plus 8 dB per City General Plan EIR.

Project Equipment Mechanical Noise

The project's building would be equipped with heating, ventilation, and air-conditioning equipment and other equipment that could be located in areas exposed to adjacent property lines. The noise levels of project equipment cannot yet be calculated since the equipment locations and model selection have not yet been determined.

Project Activities Operational Noise

The planned project involves many noise generating activities such as vehicles parking onsite, voices, and site maintenance. Noise from these activities is not expected to violate any local ordinance. However, backup alarms from delivery trucks could generate noise levels up to 70 dB at the property line. If the deliveries take place during the night, this noise would violate the maximum nighttime noise criteria in the draft City Noise Ordinance and the County Noise Element Goal HS-8.11 noise limit of 65 dB (Lmax).

Operational Ground-Borne Vibration

Equipment located at-grade near property lines has the potential to generate vibration at neighboring properties. City and County regulations do not include specific criteria to address operational vibration.

Construction Ground-Borne Vibration

Construction activities would include site preparation work, excavation, foundation work, and new building framing. Excavation for underground fuel storage might produce vibration. Depending on the foundation type, vibration could occur during the installation of piers or similar deep foundation structures. Site preparation such as vibratory compaction can also be a source of vibration. For structural damage, the Federal Transit Administration (FTA) uses a vibration limit of 0.5 in/sec Peak Particle Velocity (PPV) for reinforced-concrete, steel or timber buildings, 0.2 in/sec PPV for non-engineered timber and masonry buildings, and a conservative limit of 0.12 in/sec PPV for buildings extremely susceptible to vibration damage.

Table 4 presents typical vibration levels that could be expected from construction equipment at distances of 25 and 50 feet. Project construction activities such as drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may generate substantial vibration in the immediate vicinity. Erection and finishing of the building structure is not anticipated to be a source of substantial vibration with the exception of sporadic events such as dropping of heavy objects, which should be avoided to the extent possible. Since pile driving is not expected to be part of the project, vibration due to construction is expected to be as shown in Table 4. Vibration levels on-site would vary depending on soil conditions, construction methods, and equipment used.

Table 4 – Example Construction Vibration Levels*

Equipment	PPV at 25 ft. (in/sec)	PPV at 50 ft. (in/sec)
Vibratory Roller	0.210	0.074
Hoe Ram	0.089	0.031
Large Bulldozer	0.089	0.031
Caisson Drilling	0.089	0.031
Loaded Trucks	0.076	0.027
Jackhammer	0.035	0.012
Small Bulldozer	0.003	0.001

*Note: Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office of Planning and Environment, Federal Transit Administration, May 2006.

As indicated in Table 4, vibration levels are not be expected to exceed the FTA guideline of 0.12 in/sec, PPV for buildings susceptible to vibration damage, at a distance of 50 feet or greater. Vibration due to construction will meet the County General Plan Goal HS-8.7 requirement.

Project Activities Ambient Noise

The existing project site is undeveloped and does not create any noise. The planned project involves many noise generating activities such as vehicles parking on-site, voices, and site maintenance. These types of project-related operational noise are not expected to generate noise levels significantly greater than existing ambient noise levels due to the nearby roadways. Since truck deliveries would occur for short durations, they are not expected to increase the day-night-average noise level (DNL). Therefore, no significant noise impacts are expected.

Project Equipment Ambient Noise

The project's building would be equipped with heating, ventilation, and air-conditioning equipment and other equipment that could contribute to a permanent increase in the nearby ambient noise levels. The permanent increase in ambient noise levels due to project equipment cannot yet be calculated since the equipment locations and model selection have not yet been determined.

Construction Noise

Construction activities would include the use of heavy equipment for excavation, grading, erection, and other activities. Heavy trucks would travel to, from, and within the site hauling soil, equipment, and building materials. Smaller equipment, such as pneumatic tools and saws, could also be used throughout construction. Neighboring land-uses with direct line-of-sight to construction activities and construction traffic could be affected by construction noise. Potential construction noise impacts would vary with distance. Potential baseline construction levels are listed in Table 5. The project is not expected to involve pile driving, rock

blasting, or similar extreme noise-generating activities.

Table 5 – Construction Noise Levels

Phase	Equipment	Noise Level (dB at 50-feet)*
Rough Grading/Shoring/Off Haul	Scraper, Compactor, Water Truck, Blade/Grader, Excavator, Dump Trucks, Drill Rig, Backhoe, Air Compressor	85
Utilities	Excavator, Rubber Tire Loader, Water Truck, Backhoe, Dump Truck	80
Concrete Works	Forklift, Compressor, Cement Mixer/Truck, Concrete Finisher, Concrete Boom Pump	85
Building Exterior	Gradall/Crane, Hand/Power Tools	85
Building Interior	Gradall, Metal Stud Saw (indoors), Paint Sprayer	80
Hardscape and Landscape	Backhoe, Compactor, Dump Truck, Cement Mixer/Truck, Bobcat	80

*Note: Equipment noise levels are from Section 9 of the Federal Highway Administration Highway Traffic Noise Construction Noise Handbook (August 2006).

Some construction equipment is expected to generate intermittent noise levels up to 85 dBA at a distance of 50-feet. Therefore, noise-generating activities over the construction period could cause a significant impact without implementation of reasonable measures to manage construction activities. The County Code includes a limitation of construction hours to between 7:00 am and 7:00 pm. The City Noise Element Policy N-1.4.1 supports the limitation of construction operations to "daylight hours." The County Noise Element also limits construction activity hours with Goal HS-8.3; "The County shall control the operation of construction equipment at specific sound intensities and frequencies during day time hours between 7:00 am and 6:00 pm on weekdays and 8:00 am and 5:00 pm on Saturdays. No construction shall be allowed on Sundays or federal holidays." The County Noise Element Goal HS-8.12 also requires that construction projects within 500 feet of sensitive receivers develop a construction noise control plan.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.

a-1) Project-Generated Traffic Noise

Measured traffic noise levels in the vicinity of the Project currently exceed the "normally acceptable" threshold of City and County guidelines for residential land uses. Project generated traffic noise would not

exceed the 3db set forth in the applicable standards for increased noise in areas where the "normally acceptable" threshold has already been exceeded. Therefore, project-generated traffic noise would have a **less than significant impact**.

Mitigation Measures

a-2) Project Equipment Mechanical Noise

The project's building would be equipped with heating, ventilation, and air-conditioning equipment and other equipment that could be located in areas exposed to adjacent property lines. The noise levels of project equipment cannot yet be calculated since the equipment locations and model selection have not yet been determined. To be considered "Normally acceptable" according to the City General Plan and Municipal Code, mechanical noise would need to be limited to DNL 60 dB at the nearest residential property line and DNL 65 dB at the nearby hotel property line. These noise levels would also satisfy the County General Plan Goal HS-8.11 guidelines.

To meet the draft City Noise Ordinance limits and the County General Plan Goal HS-8.1, noise levels at the nearest residential receivers are to be limited to an hourly Leq of 55 dB and maximum noise level of 70 dB during the daytime hours and hourly Leq 45 dB and a maximum noise level of 65 dB during nighttime hours.

NOI-1 – Project Equipment Mechanical Noise Mitigation. Select or mitigate mechanical equipment to meet applicable noise standards. The project's mechanical systems are expected to include common commercial air-conditioning and ventilation equipment. Therefore, standard construction methods including selecting quieter equipment models, strategic siting, equipment setback, noise barriers or enclosures, acoustical louvers, and equipment noise attenuators should be sufficient. A qualified acoustical professional should be involved during the design phase of the project to advise the design team regarding effective noise reduction measures.

a-3) Project Activities Operational Noise

The planned project involves many noise generating activities such as vehicles parking onsite, voices, and site maintenance. Noise from these activities is not expected to violate any local ordinance. However, backup alarms from delivery trucks could generate noise levels up to 70 dB at the property line. If the deliveries take place during the night, this noise would violate the maximum nighttime noise criteria in the draft City Noise Ordinance and the County Noise Element Goal HS-8.11 noise limit of 65 dB (Lmax).

NOI-2 – Project Activities Operational Noise Mitigation. Truck deliveries at the site that require the use of backup alarms should be limited to daytime hours.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b. Exposure of persons to, or generation of, excessive ground borne vibration or ground borne noise levels?	☐	☒	☐	☐

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED. Operation of the project could expose persons to excessive ground borne vibration.

Mitigation Measures

b-1) Operational Ground-Borne Vibration

Equipment located at-grade near property lines has the potential to generate vibration at neighboring properties. City and County regulations do not include specific criteria to address operational vibration.

NOI-3 – Operational Ground-Borne Vibration Mitigation. Vibration-generating mechanical equipment is to be adequately vibration isolated per ASHRAE Guidelines to reduce ground-borne vibration levels at neighboring properties.

b-2) Construction Ground-Borne Vibration

Construction activities would include site preparation work, excavation, foundation work, and new building framing. Excavation for underground fuel storage might produce vibration. Depending on the foundation type, vibration could occur during the installation of piers or similar deep foundation structures. Site preparation such as vibratory compaction can also be a source of vibration. For structural damage, the Federal Transit Administration (FTA) uses a vibration limit of 0.5 in/sec Peak Particle Velocity (PPV) for reinforced-concrete, steel or timber buildings, 0.2 in/sec PPV for non-engineered timber and masonry buildings, and a conservative limit of 0.12 in/sec PPV for buildings extremely susceptible to vibration damage.

NOI-4 – Construction Ground-Borne Vibration Mitigation. Employ administrative controls such as notifying adjacent land uses of scheduled construction activities and limiting construction activities with the highest potential to produce significant vibration to the least sensitive times of the day. Along property lines, equipment and methods that generate less ground-borne vibration are to be used, to the extent feasible. Prior to construction, a qualified acoustical engineer shall review and monitor specific impact-generating and heavy equipment and site locations that might generate vibration levels above a conservative threshold of 0.2 in/sec at adjacent property lines. The study would also determine if additional mitigation measures, as feasible, are needed to reduce vibration to a level that would not be expected to result in building damage.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.

c-1) Project Activities Ambient Noise

The existing project site is undeveloped and does not create any noise. The planned project involves many noise generating activities such as vehicles parking on-site, voices, and site maintenance. These types of project-related operational noise are not expected to generate noise levels significantly greater than existing ambient noise levels due to the nearby roadways. Since truck deliveries would occur for short durations, they are not expected to increase the day-night-average noise level (DNL). Therefore, the project would have a **less than significant impact**.

Mitigation Measures

c-2) Project Equipment Ambient Noise

The project's building would be equipped with heating, ventilation, and air-conditioning equipment and other equipment that could contribute to a permanent increase in the nearby ambient noise levels. The permanent increase in ambient noise levels due to project equipment cannot yet be calculated since the equipment locations and model selection have not yet been determined. On-site noise measurements indicate that the existing ambient noise levels at adjacent properties are between DNL 62 dB and DNL 78 dB, which varies by location and proximity to the roadways. To reduce the impact of mechanical equipment, it must be designed such that noise levels do not increase by three decibels or more at adjacent properties. Specific equipment plans have not been developed, and it is possible that mechanical equipment could exceed the threshold. Project equipment that generates a noise level of DNL 62 dB at the southern property line would be expected to increase ambient noise levels by up to three decibels. Therefore, project equipment that might generate noise exceeding DNL 62 dB at adjacent properties is to be evaluated further. Additional measures are to be incorporated to reduce equipment noise to DNL 62 dB or quieter.

NOI-1 – Project Equipment Ambient Noise Mitigation. Select or mitigate mechanical equipment to meet applicable noise standards. The project's mechanical systems are expected to include common commercial air-conditioning and ventilation equipment. Therefore, standard construction methods including selecting quieter equipment models, strategic siting, equipment setback, noise barriers or enclosures, acoustical louvers, and equipment noise attenuators should be sufficient. A qualified acoustical professional should be involved during the design phase of the project to advise the design team regarding effective noise reduction measures.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing without the project?	☐	☒	☐	☐

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.

Mitigation Measures

d-1) Construction Noise

Construction activities would include the use of heavy equipment for excavation, grading, erection, and other activities. Heavy trucks would travel to, from, and within the site hauling soil, equipment, and building materials. Smaller equipment, such as pneumatic tools and saws, could also be used throughout construction. Neighboring land-uses with direct line-of-sight to construction activities and construction traffic could be affected by construction noise. Potential construction noise impacts would vary with distance. The project is not expected to involve pile driving, rock blasting, or similar extreme noise-generating activities.

NOI-5 – Construction Noise Mitigation. Construction impacts are expected to be temporary and vary depending on the construction phase. Mitigation measures outlined below are expected to reduce construction noise to be less than significant. Construction activities should be conducted in accordance with the following guidelines:

a. Construction shall be limited to the hours of 7:00 am and 6:00 pm on weekdays and 8:00 am and 5:00 pm on Saturdays. No construction shall be allowed on Sundays or federal holidays (in accordance with County Noise Element HS-8.3).

b. During construction, mufflers shall be provided for all heavy construction equipment and all stationary noise sources in accordance with the manufacturers' recommendations.

c. Limit unnecessary idling of internal combustion engines.

d. Stationary noise sources and staging areas shall be located as far as is feasible from existing noise sensitive receivers. Locating stationary noise sources near existing roadways away from adjacent properties is preferred. If located otherwise, stationary noise sources are to be enclosed or shielded from neighboring noise-sensitive properties with noise barriers to the extent feasible.

e. Air compressors and pneumatic equipment should be equipped with mufflers and impact tools should be equipped with shrouds or shields.

f. A construction liaison shall be designated to ensure coordination between construction staff and neighbors to minimize disruptions due to construction noise.

g. Neighboring property owners within 300 feet of construction activity shall be notified in writing of the contact information for the construction liaison. Neighboring property owners within 300 feet of construction activity shall be notified in writing of the construction schedule and at least 30 days prior to loud noise-generating activities. Notification is to include the nature and estimated duration of the activity.

h. Prior to construction, a qualified acoustical professional is to review specific equipment and site locations that would be expected to generate noise levels above 80 dBA at adjacent residential properties and 85 dBA at adjacent commercial properties. The study would also determine additional mitigation measures, as feasible, to reduce noise levels by at least five decibels and below the aforementioned limits. Additional measures might include local barriers around specific construction equipment or property line barriers. The location, height, and extent of the barriers should be provided by the acoustical professional.

i. A qualified acoustical professional should be retained as needed to address neighbor complaints as they occur. If complaints occur, noise measurements could be conducted to determine if construction noise levels at adjacent property lines are within the standards. Short-term or long-term construction noise monitoring could also be utilized to diagnose complaints and determine if additional mitigation is required for certain phases of construction as needed.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
e. For a project located within an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☒
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

(e-f) NO IMPACT. The project is not within two miles of a public airport or private airstrip; therefore, the project would have no impact.

XIII. POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Induce substantial 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 is a commercial use and would not induce substantial population growth indirectly through the extension of roads or other infrastructure. Therefore, the proposed project would not induce substantial population growth and would result in **no impact**.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation*	*Less Than Significant Impact*	*No Impact*

		Incorporated		
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

NO IMPACT. The project site is currently vacant and would not displace substantial numbers of existing housing necessitating the construction of replacement housing elsewhere. Therefore, the proposed project would have **no impact**.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

NO IMPACT. As identified in the previous item, the proposed project would displace housing; it therefore would not result in the displacement of existing residents and would not create a need for replacement housing. **No impact.**

XIV. PUBLIC SERVICES

Would the project:

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
i. Fire Protection?	☐	☐	☒	☐
ii. Police Protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

NO IMPACT. Fire protection and Law enforcement services are currently provided in the project area, an infill site within the City limits. Police protection is provided by the San Benito County Sherriff's Department by contract. The Sheriff's office has sub-station located at 100 Nyland Drive (San Juan School) in the City; however, the office is used only for administrative purposes and there is no active police station. Neighborhood Watch meetings are held the third Monday of each month at the Sherriff Sub-Station.

One full-time Deputy is assigned patrol the City for four 10 hour shifts per week. During off-duty periods, law enforcement is provided within the overall County beat structure. Responses to calls in San Juan Bautista are made by the closest patrol available at the time of the call. Response time varies from about one minute when the deputy sheriff is on duty to up to 30 minutes during off-duty periods.

The proposed project could result in an increase in police activity at the project site typical of commercial projects. Section 3-8: Development Impact Fees in the *City of San Juan Bautista Municipal Code* requires that commercial projects within the City pay a fee to off-set the increase in providing law enforcement activity in the City. Therefore any increase in activity will be considered a **less than significant impact**.

Due to the commercial nature of the proposed project, **no impact** is anticipated to occur with items iii through v.

XV. RECREATION

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

NO IMPACT. The proposed project would not include recreational facilities, and, as mentioned in Section XIII of this checklist, it would not lead to population growth or relocation potentially requiring the construction or expansion of existing recreational facilities. Therefore, there would be **no impact** associated with recreation.

XVI. TRANSPORTATION/TRAFFIC

Hatch Mott MacDonald (HMM) has prepared traffic engineering services at the intersection of State Route 156 (SR 156) and The Alameda in San Juan Bautista, California. This report documents the traffic impact analysis that explores the operations with and without various improvements, including a conceptual design of the preferred improvement. The full SR 156/ The Alameda Intersection Study traffic impact analysis is provided in **Appendix F – Traffic Study.**

Staff of the City of San Juan Bautista has raised concerns regarding the potential need for acceleration and deceleration lanes onto and off of SR 156 at The Alameda. Specifically, this would include an eastbound SR 156 right turn lane and an eastbound SR 156 acceleration lane into which northbound The Alameda traffic can turn into while speeding up to the speed of mainline traffic (i.e. a minimum of 55 MPH). Each of these alternatives was evaluated.

The definition of the fuel station, convenience store, and quick-serve restaurant has changed slightly from that which was previously analyzed in a prior traffic report for this site. Thus, the revisions of the trip generation, distribution, and pass-by trips are repeated herein. The project is composed of two pieces. First is an automotive diesel & gasoline/service station capable of servicing up to 12 vehicles at once. (A previous site plan called for the fuel station being able to service up to 16 vehicles at once.)

This station also has an associated convenience store. Adjacent to and within the same building as the convenience store is a 3,342 square foot quick-serve restaurant with no drive-through window provided. Although each use has its own separate entrance, an opening within their shared common wall would allow patrons to easily walk between the convenience store and quick-serve restaurant.

Intersection turning movement traffic volumes were collected by HMM staff on December 12-14, 2013 between 7:00 – 9:00 AM (Thursday, December 12th only), 4:00 – 6:00 PM (Thursday, December 12th and Friday, December 13th), and 12:00 – 2:00 PM (Saturday, December 14th). The collected data included passenger cars, trucks, buses, pedestrians, and bicyclists. From this data, the peak one-hour midweek AM, midweek PM, Friday PM and Saturday midday periods were identified for use in the analysis.

A seasonal adjustment of 1.20 (a.k.a. a 20% increase) was applied to the Existing volumes in order to approximate peak summer month traffic within the study area. Exhibit 3A of Appendix F – Traffic Study depicts the unadjusted Existing volumes, while Exhibit 3B depicts the seasonally adjusted volumes. Appendix A of the traffic study includes the derivation of the seasonal adjustment factor, which is based upon variations in Caltrans quarterly traffic volumes along the SR 156 corridor over an entire year.
It should be noted that the City of San Juan Bautista General Plan contains several transportation and traffic related policies that regulate new development in the City Limit. The following General Plan policies apply to the proposed project:

Policy T-3- New development must do its fair share to mitigate the traffic impacts it generates, including the construction of new roads and improvements, as well as improvements to existing roads and intersections as warranted. The project will contribute its fair share to construct improvements including the required eastbound SR 156 right turn lane; as well as other public improvements required for project construction. These improvements may include, but are not limited to asphalt overlays, curbs, gutters, sidewalks, driveways, channelization, pavement striping, crosswalks, bicycle lane marking, pedestrian walkways, and bicycle racks.

Policy T-4- Where a project will generate the need for transportation improvements, require the construction of these improvements concurrently with the development whenever feasible. The project proponent will be required to contribute a fair share payment to the City of San Juan Bautista to fund future transportation improvements associated with the project, consistent with traffic study findings to mitigate potential traffic impacts. Additionally, the City may require additional improvements as stated in Policy T-3 above.

Policy T-10- Require new development to provide for the parking demand it generates. The project will provide required parking consistent with the Municipal Code of the City of San Juan Bautista.

Policy T-12- Required parking areas are to be attractively landscaped and comfortable for pedestrians and motorists. The project will provide landscaping and design amenities consistent with Municipal Code policies and the policies set forth by the community design guidelines. (Refer to Aesthetics and Land Use discussions within this Initial Study).

Policy T-21- Develop a continuous system of sidewalks and pedestrian paths along all existing and future City streets. The project will be required to construct on-site sidewalks, in addition to other public improvements as required by the San Juan Bautista Municipal Code and General Plan policies.

Policy T-22- Improve and expand facilities for bicycles in San Juan Bautista. The project will construct bicycle lane improvements including repaving and restriping, as well as bicycle racks and crosswalk improvements consistent with the San Juan Bautista Municipal Code and General Plan policies.

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☒	☐	☐
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e. Result in inadequate emergency access?	☐	☐	☐	☒

f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

(a-b) **LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED**. An eastbound right turn lane is recommended to mitigate traffic impacts resulting from the proposed project. The project will be required to pay a "fair share" contribution to the City of San Juan Bautista to fund future improvements.

Project Trip Generation, Distribution and Assignment

Exhibit 4 of Appendix F summarizes the project trip generation estimate. This trip generation estimate uses rates from *Trip Generation Manual*, 9th Edition, published by the Institute of Transportation Engineers in 2012. As shown within Exhibit 4, the project would generate a net new 1,391 weekday daily trips, with 86 weekday AM peak hour trips (57 in, 29 out) and 81 weekday PM peak hour trips (41 in, 40 out), and 1,370 Saturday daily trips, with 138 Saturday midday peak hour trips (70 in, 68 out).

An internal capture (a.k.a. trip reduction) of 20% has been applied to the trip generation estimate to account for interactions between the two uses, e.g. a patron of the gasoline station who also purchases food at the quick-serve restaurant. The trip generation estimate also includes adjustments for pass-by trips, which are trips made to the site by traffic already on the surrounding street system. While pass-by trips would be new trips to the project site, they are effectively existing trips on the street system that would divert from their route to visit the project site and subsequently continue on their way to their originally-intended destination.

Both automotive fuel/service stations and quick-serve restaurants typically have high pass-by trip percentages, which represent the estimated proportion of the total trip activity that would be from the existing street traffic (i.e. drivers already passing by the project site who would divert into the project site to utilize one or more of the site services, then leave to continue to their ultimate destinations). The pass-by trip percentages used in this trip generation estimate are based upon those within the publication *Trip Generation Handbook*, 2nd Edition, published by the Institute of Transportation Engineers in June 2004, which average over 50%, depending upon the land use and time of day. A conservative pass-by trip percentage of 50% was thus applied to both the automotive fueling station and quick-serve restaurant traffic.

Project trip distribution represents the percentage of project traffic that would travel to and from the project site at a localized level. Exhibit 5A (see Appendix F) graphically depicts the estimated project trip distribution. This distribution was developed based upon the relative locations of compatible land uses and the relative magnitude of the existing traffic volumes within the study area. Exhibit 5A also depicts the project trip assignment for the net new project trips on the study network, using both the aforementioned trip generation and trip distribution to quantify the number of new project trips added to each direction of travel at each of the study intersections.

Exhibit 5B contains the project trip assignment for the pass-by trips. Similar to the net new project trip assignment, the pass-by trip assignment has been split between the roadways within the study area based upon the relative magnitude of the existing traffic volumes within the study area. As the pass-by trips are essentially existing traffic diverting from their existing routes to visit the project site before continuing to their ultimate destinations, the pass-by trip assignment contains both negative and positive trips, in order to

depict the net gain and loss in traffic for each affected traffic movement within the study area.

Cumulative Conditions Analysis
Cumulative Conditions represent projected traffic operations in the Year 2035, or 22 years into the future. This scenario includes both traffic from the proposed project (i.e. Exhibits 5A and 5B of Appendix F) and future traffic growth on the study street system. This future growth is projected using traffic volume growth rates – 2% per year (for 22 years) for mainline traffic on SR 156 and 0.5% per year (for 22 years) for all other roadways and turning movements. (The 2%-per-year growth rate for SR 156 is based off of historical traffic volume growth rates, as shown within the traffic study. It is also consistent with growth rates projected in the *San Benito 156 Improvement Project Final Environmental Impact Report /Environmental Assessment with Finding of No Significant Impact*, California Department of Transportation, October 2008. The 0.5%-per-year growth rate for all other roadways and turning movements reflect the low level of new residential and commercial development projected within the greater San Juan Bautista region and the City's General Plan.) Cumulative Condition traffic volumes are depicted within Exhibit 6A (Average) and 6B (Peak Month) of Appendix F.

Exhibit 7 of Appendix F summarizes the levels of service at the study intersections under Cumulative conditions. The full traffic study contains the level of service calculations for this scenario. As shown within Exhibit 7, operations of most of the study intersections would operate within acceptable levels of service at Level of Service (LOS) C. The lone exception is during the Friday PM peak, when the study intersection would operate at LOS D.

Acceleration and Deceleration Lane Evaluation

Eastbound SR 156 Right Turn Lane:
An eastbound right turn lane will be warranted on SR 156 at The Alameda under Cumulative conditions. While this warrant is typically used at high-speed unsignalized locations, it gives a good general indication as to when a right turn lane is warranted. The benefits of this right turn lane are clear from Exhibit 7 of Appendix F – the eastbound right turn lane improves operations at the intersection to within acceptable operations during peak Cumulative conditions during Friday PM.

Existing Caltrans right-of-way near The Alameda/SR 156 intersection is sufficiently wide enough to allow the addition of an eastbound right turn lane and still maintain a standard four-foot wide shoulder adjacent to the right turn lane, per Caltrans standards. Conceptual design of the eastbound SR 156 Right Turn Lane improvement is provided within the full traffic analysis (Appendix F).

Eastbound SR 156 Acceleration Lane:
There are no generally recognized warrants for right turn acceleration lanes. For this reason, an acceleration lane is not recommended at this location.

(c-f) **NO IMPACT.** The proposed project would not modify airport facilities, affect air traffic or result in modifications to emergency access along The Alameda or along Highway 156. Pedestrian access to the property is via a sidewalk fronting the property on The Alameda (east side of The Alameda). The Alameda also has a sidewalk on the north side of SR 156 fronting San Juan Elementary school. The existing sidewalk and roadway will be improved, thereby improving both pedestrian and bicycle access within the local neighborhood.

Mitigation Measures

TRA-1 – Eastbound SR 156 Right Turn Lane. An eastbound right turn lane will be warranted on SR 156 at The Alameda under Cumulative conditions. The eastbound right turn lane improves operations at the intersection to within acceptable operations during peak Cumulative conditions during Friday PM. The project proponent will be required to contribute a fair share payment to the City of San Juan Bautista to fund this future transportation improvement.

XVII. UTILITIES AND SERVICE SYSTEMS

Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e. Result in a determination by the wastewater treatment provided 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?	☐	☐	☐	☒
f. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

g. Result in a determination by the wastewater treatment provided 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?	☐	☐	☐	☒
h. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒

NO IMPACT. The proposed project is an infill commercial use located in and served by the City of San Juan Bautista. The project would not directly increase population, and would not indirectly foster development exceeding service levels envisioned in the *City of San Juan Bautista General Plan*. The proposed project would not directly or indirectly result in an additional need for wastewater treatment services beyond what is planned for in the *City of San Juan Bautista General Plan*. The proposed project will comply with federal, State, and local statutes and regulations related to solid waste, and will be served by Recology recycling and garbage service of San Benito County. The project will not lead to elevated levels of non-point source urban runoff with compliance with the NPDES requirements as previously addressed in this IS. Therefore, there would be **no impact** with regard to utilities and service systems.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a. Does the project have the potential to 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, 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?	☐	☒	☐	☐

This Initial Study has identified that the proposed project may introduce environmental impacts with the potential to degrade the quality of the environment or have potential adverse effects on human beings directly or indirectly.

The following mitigation measures are recommended to reduce potential impacts to a less than significant level:

Mitigation Measures

AE-1 – Glare Avoidance. The exterior of the proposed building shall be constructed using non-reflective materials including non-mirrored glass, painted metal panel treatments and non-reflective wall surfaces.

CR-1 - Undiscovered Archaeological Resources and Human Remains. To reduce the project's potential impact to historic resources, Native American and archeological resources, the project applicant and contractor shall implement the following measure during grading and construction activities at the project site:

a. Human Remains Encountered. If human remains are encountered, 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 Resource Code section 5097.98. The County Coroner shall be notified of the find immediately. If the remains are determined to be prehistoric, the coroner shall notify the Native American Heritage Commission, which shall determine and notify the appropriate Native American tribe who is the most likely descendent (MLD). The descendent shall inspect the site of the discovery and make recommendations and enter into consultation concerning the appropriate mitigation. After the recommendations have been made, the project applicant, the MLD, and a City representative shall meet to determine the appropriate mitigation measures and corrective actions to be implemented.

b. Inadvertent Archaeological or Cultural Find. If during ground disturbance activities, significant archeological or cultural resources are discovered that were not anticipated by the archaeological report(s) and/or Initial Study/Mitigated Negative Declaration, conducted prior to project approval, the following procedures shall be followed:

1. All ground disturbance activities within 160 feet of the discovered archeological or cultural resources shall be halted until a meeting is convened between the developer, the archaeologist, the appropriate Native American tribe and the Community Development Director to discuss appropriate actions;

2. At the meeting, the significance of the discoveries shall be discussed and, after consultation with the appropriate Native American tribe and the archaeologist, a decision shall be made (with the concurrence of the City Manager) as to the appropriate mitigation (documentation, recovery, avoidance, etc.) for the archeological or cultural resources; and

3. Grading shall not resume within the immediate vicinity of the discovery until an agreement has been reached by the appropriate Native American tribe, the archaeologist, and the City Manager as to the appropriate mitigation. The grading plans shall conform to the mitigations requirements placed on the map.

GEO-1 - Preparation of Design-Level Geotechnical Report. The project applicant shall consult with a registered geotechnical engineer to prepare a design level geotechnical report that incorporates the recommendations in the preliminary geotechnical investigation by Grice Engineering, Inc. (March 2014). The design level geotechnical report shall address recommendations from the geotechnical investigation including the following: foundation and footings, slabs-on-grade, specifications for rock under floor slabs, slope ratio and drainage, surface drainage and erosion control, subsurface drains, and grading. This report shall be submitted in conjunction with Building Permit application(s) and reviewed and approved by the City. The design-level geotechnical report recommendations shall be incorporated into the project design and construction documents.

NOI-1 – Project Equipment Mechanical and Ambient Noise Mitigation. Select or mitigate mechanical equipment to meet applicable noise standards. The project's mechanical systems are expected to include common commercial air-conditioning and ventilation equipment. Therefore, standard construction methods including selecting quieter equipment models, strategic siting, equipment setback, noise barriers or enclosures, acoustical louvers, and equipment noise attenuators should be sufficient. A qualified acoustical professional should be involved during the design phase of the project to advise the design team regarding effective noise reduction measures.

NOI-2 – Project Activities Operational Noise Mitigation. Truck deliveries at the site that require the use of backup alarms should be limited to daytime hours.

NOI-3 – Operational Ground-Borne Vibration Mitigation. Vibration-generating mechanical equipment is to be adequately vibration isolated per ASHRAE Guidelines to reduce ground-borne vibration levels at neighboring properties.

NOI-4 – Construction Ground-Borne Vibration Mitigation. Employ administrative controls such as notifying adjacent land uses of scheduled construction activities and limiting construction activities with the highest potential to produce significant vibration to the least sensitive times of the day. Along property lines, equipment and methods that generate less ground-borne vibration are to be used, to the extent feasible. Prior to construction, a qualified acoustical engineer shall review and monitor specific impact-generating and heavy equipment and site locations that might generate vibration levels above a conservative threshold of 0.2 in/sec at adjacent property lines. The study would also determine if additional mitigation measures, as feasible, are needed to reduce vibration to a level that would not be

expected to result in building damage.

NOI-5 – Construction Noise Mitigation. Construction impacts are expected to be temporary and vary depending on the construction phase. Mitigation measures outlined below are expected to reduce construction noise to be less than significant. Construction activities should be conducted in accordance with the following guidelines:

a. Construction shall be limited to the hours of 7:00 am and 6:00 pm on weekdays and 8:00 am and 5:00 pm on Saturdays. No construction shall be allowed on Sundays or federal holidays (in accordance with County Noise Element HS-8.3).

b. During construction, mufflers shall be provided for all heavy construction equipment and all stationary noise sources in accordance with the manufacturers' recommendations.

c. Limit unnecessary idling of internal combustion engines.

d. Stationary noise sources and staging areas shall be located as far as is feasible from existing noise sensitive receivers. Locating stationary noise sources near existing roadways away from adjacent properties is preferred. If located otherwise, stationary noise sources are to be enclosed or shielded from neighboring noise-sensitive properties with noise barriers to the extent feasible.

e. Air compressors and pneumatic equipment should be equipped with mufflers and impact tools should be equipped with shrouds or shields.

f. A construction liaison shall be designated to ensure coordination between construction staff and neighbors to minimize disruptions due to construction noise.

g. Neighboring property owners within 300 feet of construction activity shall be notified in writing of the contact information for the construction liaison. Neighboring property owners within 300 feet of construction activity shall be notified in writing of the construction schedule and at least 30 days prior to loud noise-generating activities. Notification is to include the nature and estimated duration of the activity.

h. Prior to construction, a qualified acoustical professional is to review specific equipment and site locations that would be expected to generate noise levels above 80 dBA at adjacent residential properties and 85 dBA at adjacent commercial properties. The study would also determine additional mitigation measures, as feasible, to reduce noise levels by at least five decibels and below the aforementioned limits. Additional measures might include local barriers around specific construction equipment or property line barriers. The location, height, and extent of the barriers should be provided by the acoustical professional.

i. A qualified acoustical professional should be retained as needed to address neighbor complaints as they occur. If complaints occur, noise measurements could be conducted to determine if construction noise levels at adjacent property lines are within the standards. Short-term or long-term construction noise monitoring could also be utilized to diagnose complaints and determine if additional mitigation is required for certain phases of construction as needed.

TRA-1 – Eastbound SR 156 Right Turn Lane. An eastbound right turn lane will be warranted on SR 156 at The Alameda under Cumulative conditions. The eastbound right turn lane improves operations at

the intersection to within acceptable operations during peak Cumulative conditions during Friday PM. The project proponent will be required to contribute a fair share payment to the City of San Juan Bautista to fund this future transportation improvement.

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5.0 Appendices

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APPENDIX B – BIOLOGICAL ASSESSMENT

APPENDIX C – ARBORIST REPORT

APPENDIX D – GEOTECHNICAL REPORT

APPENDIX E – NOISE STUDY

APPENDIX F – TRAFFIC STUDY

APPENDIX G – ARCHAEOLOGICAL REPORT

APPENDIX H – STORMWATER AND DRAINAGE CALCULATIONS

Appendix A

Air Quality and Greenhouse Gas Report

Air Quality and Greenhouse Gas Analysis Report
ARCO Gasoline Station
San Juan Bautista, San Benito County, California

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Date: June 26, 2014

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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
Basin	North Central Coast Air Basin
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CO	carbon monoxide
CO_2	carbon dioxide
DPM	diesel particulate matter
EPA	Environmental Protection Agency
MBUAPCD	Monterey Bay Unified Air Pollution Control District
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
$MTCO_2e$	metric tons of carbon dioxide equivalent
NCCAB	North Central Coast Air Basin
NO_X	nitrogen oxides
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
ppt	parts per trillion
ROG	reactive organic gases
SB	Senate Bill
SO_X	sulfur oxides
VOC	volatile organic compounds

SECTION 1: EXECUTIVE SUMMARY

1.1 - Purpose and Methods of Analysis

The following air quality and greenhouse gas (GHG) analysis was prepared to evaluate whether the estimated criteria air pollutant and GHG emissions generated from the project would cause significant impacts to air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The methodology follows the CEQA Air Quality Guidelines prepared by the Monterey Bay Unified Air Pollution Control District (MBUAPCD) for quantification of emissions and evaluation of potential impacts to air resources.

1.2 - Project Description

The project involves the development of a gas station with 12 pumps, a 6,322-square-foot convenience store, and a quick serve restaurant on an undeveloped 1.12-acre site. The quick serve restaurant will not have a drive through, but a driveway will be included behind the commercial building for deliveries. The project is located on the southeast corner of California State Route 156 and The Alameda. Exhibits 1 and 2 show the regional and local location of the project site and Exhibit 3 shows the site plan.

1.3 - Summary of Analysis Results

Impact AIR-1: The project would not conflict with or obstruct implementation of the applicable air quality plan. **Less than significant impact.**

Impact AIR-2: The project would not violate air quality standards or contribute substantially to an existing or projected air quality violation. **Less than significant impact.**

Impact AIR-3: The project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors). **Less than significant impact.**

Impact AIR-4: The project would not expose sensitive receptors to substantial pollutant concentrations. **Less than significant impact.**

Impact AIR-5: The project would not create objectionable odors affecting a substantial number of people. **Less than significant impact.**

Impact GHG-1: The project would not generate direct and indirect greenhouse gas emissions that would result in a significant impact on the environment. **Less than significant impact.**

Impact GHG-2: The project would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of greenhouse gases. **Less than significant impact**.

1.4 - Standard Conditions and Mitigation Measures Applied to the Project

No mitigation measures beyond compliance with mandatory regulations were required to demonstrate that the project would have less than significant air quality and GHG impacts.

Source: Census 2000 Data, The CaSIL, ESRI

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5 2.5 0 5 Miles

Exhibit 1
Regional Location Map

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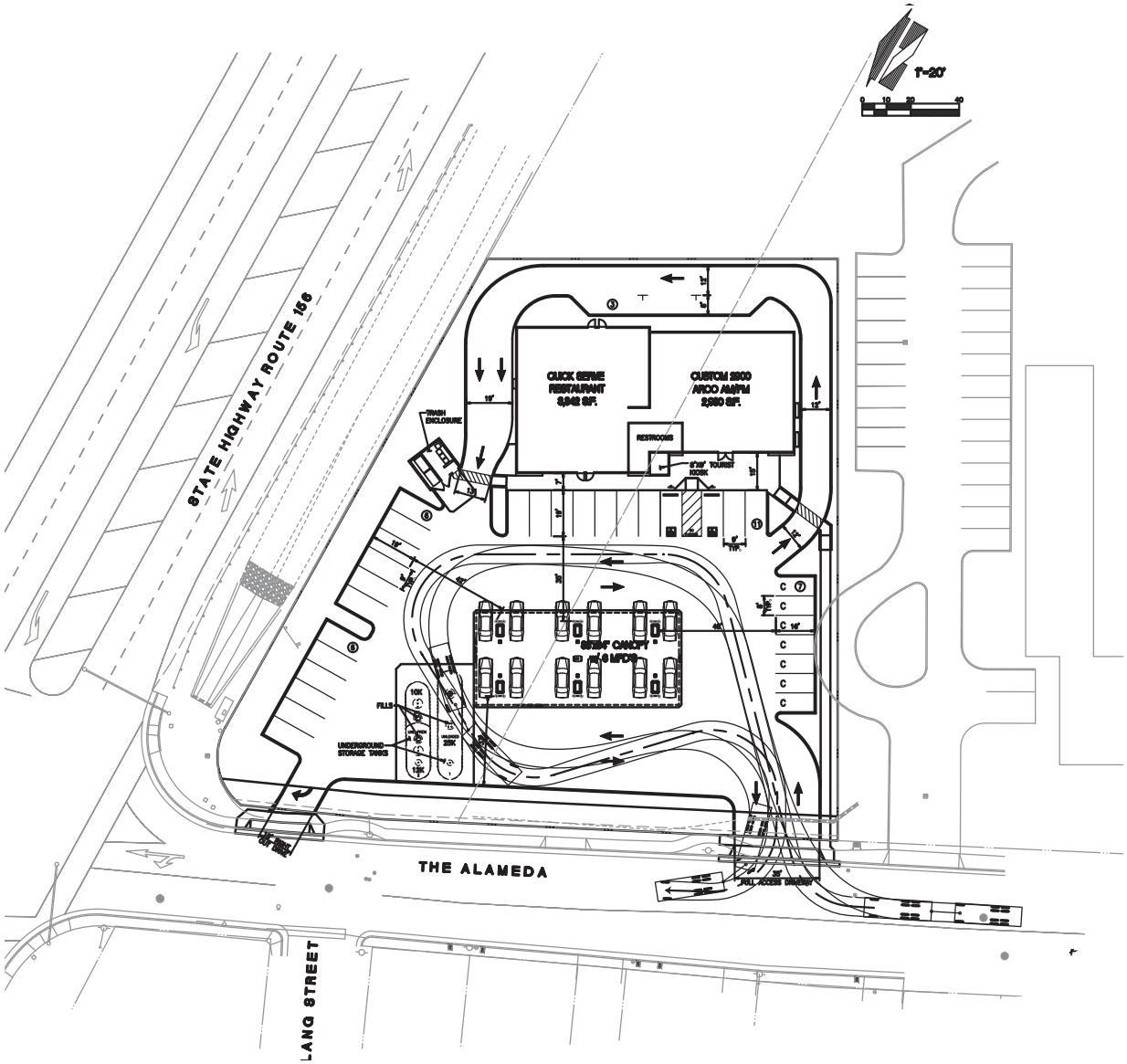
HATCH MOTT MACDONALD • ARCO GASOLINE STATION
AIR QUALITY AND GREENHOUSE GAS REPORT

Source: ESRI Imagery, San Benito County, 2014

FirstCarbon SOLUTIONS

1,000 500 0 1,000 Feet

Exhibit 2
Local Vicinity Map



Source: Barghausen Consulting Engineers, Inc 2014

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Exhibit 3
Site Plan

SECTION 2: AIR QUALITY SETTING

2.1 - Environmental Setting

The project is located in the North Central Coast Air Basin (NCCAB). The NCCAB consists of Monterey, Santa Cruz, and San Benito counties. The local agency with jurisdiction over air quality in the NCCAB is the MBUAPCD. Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The following section describes these conditions as they pertain to the NCCAB, and provides a description of pollutants and their health effects.

2.1.1 - North Central Coast Air Basin Environmental Setting

Climate and Meteorology

The NCCAB lies along the central coast of California covering an area of 5,159 square miles. NCCAB air quality is regulated by a limited local source of emissions, and by the overall marine character of the climate. A semi-permanent high-pressure cell in the eastern Pacific is the basic controlling factor in the climate of the NCCAB. In the summer, the high-pressure cell is dominant and causes the persistent west and northwest winds over the entire California coast. Air descends in the Pacific High forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft acts as a lid to inhibit vertical air movement.

The predominant on-shore flow is confined to a series of northwest to southeast trending mountains and valleys. The shallow marine layer is confined within each valley with only limited “spillover”. Intrusion of polluted air from more heavily developed areas in the San Francisco Bay area into the basin is normally restricted to only the communities closest to the Santa Clara Valley. Therefore, much of Monterey County enjoys the healthful air quality most of the time.

Meteorological conditions in the NCCAB are generally favorable for maintaining relatively good air quality. Onshore winds across Monterey Bay normally bring clean air into the project area. Degraded air quality may sometimes be experienced in San Benito County, due to airflow from the Santa Clara Valley; dust and odor may also be experienced around agricultural operations or other localized sources adjacent to the project site.

2.1.2 - Air Quality and Pollutants

The United States Environmental Protection Agency (EPA) sets National Ambient Air Quality Standards, also known as federal standards. There are federal standards for the following criteria air pollutants, which were identified from provisions of the Clean Air Act of 1970:

- Ozone
- Nitrogen dioxide
- Lead
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Carbon monoxide (CO)
- Sulfur dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health (ARB 2013b).

The California Air Resources Board (ARB) also administers California Ambient Air Quality Standards (state standards) for the 10 air pollutants designated in the California Clean Air Act. The 10 state air pollutants are the six federal standards listed above as well visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride.

The federal and state ambient air quality standards, relevant effects, properties, and sources of the pollutants are summarized in Table 1. Several pollutants listed in Table 1 are not addressed in this analysis. Analysis of lead is not included in this report because the project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The project is not expected to generate or be exposed to vinyl chloride because proposed project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The proposed project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

Table 1: Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Ozone	1 Hour	0.09 ppm	—	Irritate respiratory system; reduce lung function; breathing pattern changes; reduction of breathing capacity; inflame and damage cells that line the lungs; make lungs more susceptible to infection; aggravate asthma; aggravate other chronic lung diseases; cause permanent lung damage; some immunological changes; increased mortality risk; vegetation and property damage.	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), NO_x, and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO_x) are mobile sources (on-road and off-road vehicle exhaust).
	8 Hour	0.070 ppm	0.075 ppm			
Carbon monoxide (CO)	1 Hour	20 ppm	35 ppm	Ranges depending on exposure: slight headaches; nausea; aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; decreased exercise tolerance in persons with peripheral vascular disease and lung disease; impairment of central nervous system functions; possible increased risk to fetuses; death.	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.
	8 Hour	9.0 ppm	9 ppm			
Nitrogen dioxide[b] (NO_2)	1 Hour	0.18 ppm	0.100 ppm	Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; contribution to atmospheric discoloration; increased visits to hospital for respiratory illnesses.	During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides - NO_x (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4, and N_2O_5). NO_x is a precursor to ozone, PM_{10}, and $PM_{2.5}$ formation. NO_x can react with compounds to form nitric acid and related small particles and result in PM related health effects.	NO_x is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. Nitrogen dioxide (NO_2) forms quickly from NO_x emissions. NO_2 concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.
	Annual	0.030 ppm	0.053 ppm			

Table 1 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfur dioxide[c] (SO_2)	1 Hour	0.25 ppm	0.075 ppm	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO_x) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below state and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM_{10}.	Human caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethylsulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.
	3 Hour	—	0.5 ppm			
	24 Hour	0.04 ppm	0.14 (for certain areas)			
	Annual	—	0.030 ppm (for certain areas)			
Particulate matter (PM_{10})	24 hour	50 µg/m^3	150 µg/m^3	• Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravate existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. • Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter, (1 micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.
	Mean	20 µg/m^3	—			
Particulate matter ($PM_{2.5}$)	24 Hour	—	35 µg/m^3			
	Annual	12 µg/m^3	15 µg/m^3			
Visibility-reducing particles	8 Hour	See note below[d]				

Table 1 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfates	24 Hour	25 µg/m^3	—	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardio-pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.	The sulfate ion is a polyatomic anion with the empirical formula SO_4^{2-}. Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.
Lead[e]	30-day	1.5 µg/m^3	—	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.
	Quarter	—	1.5 µg/m^3			
	Rolling 3-month average	—	0.15 µg/m^3			
Vinyl chloride[e]	24 Hour	0.01 ppm	—	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, ARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.
Hydrogen sulfide	1 Hour	0.03 ppm	—	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause	Hydrogen sulfide (H_2S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide.

Table 1 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
				headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.		Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).
Volatile organic compounds (VOC)		There are no State or federal standards for VOCs because they are not classified as criteria pollutants.		Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants.	Reactive organic gases (ROG), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROG and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.
Diesel particulate matter (DPM)		There are no ambient air quality standards for DPM.		Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly	DPM is a source of $PM_{2.5}$—diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.

Table 1 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
				attributed to diesel exhaust exposure.	of which are found in diesel exhaust.	

Notes:
ppm = parts per million (concentration) $\mu g/m^3$ = micrograms per cubic meter Annual = Annual Arithmetic Mean 30-day = 30-day average Quarter = Calendar quarter

[a] Federal standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3 Hour SO_2, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[b] To attain the 1-hour NO_2 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 parts per billion (0.100 ppm).

[c] 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.

[d] Visibility-reducing particles: 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.

[e] 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.

Source of effects, properties, and sources: South Coast Air Quality Management District 2007; California Environmental Protection Agency 2002; California Air Resources Board 2009a; U.S. Environmental Protection Agency 2003, 2009a, 2009b, 2010, 2011, and 2012a; National Toxicology Program 2011a and 2011b.
Source of standards: California Air Resources Board 2013b.

Toxic Air Contaminants

A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. The California Almanac of Emissions and Air Quality (ARB 2009b) presents the relevant concentration and cancer risk data for the ten TACs that pose the most substantial health risk in California based on available data. These TACs are as follows: acetaldehyde, benzene, 1.3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (DPM).

Some studies indicate that DPM poses the greatest health risk among the TACs listed above. A 10-year research program (ARB 1998) demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Diesel PM differs from other TACs in that it is not a single substance but a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, however, no ambient monitoring data are available for DPM because no routine measurement method currently exists. The ARB has made preliminary concentration estimates based on a DPM exposure method. This method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of DPM.

Asbestos

Asbestos is listed as a toxic air contaminant by ARB and as a Hazardous Air Pollutant by the EPA. Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States. Exposure to asbestos is a health threat; exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease that causes scarring of the lungs).

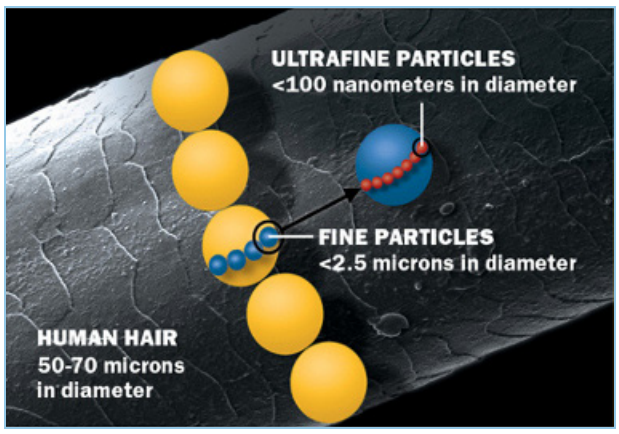
Asbestos occurs naturally in surface deposits of several types of rock formations. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine

rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Crushing or breaking these rocks, through construction or other means, can release asbestoform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. There is no known naturally occurring asbestos in the project area (U.S. Geological Survey 2011).

Ultrafine Particles

Ultrafine particles are particulate matter (PM) that exists in the ambient air and are less than 0.1 micrometer (µm or microns) in diameter. Ultrafine particles (UFP or $PM_{0.1}$) are included in the group called $PM_{2.5}$, particulate matter less than 2.5 micrometers in diameter. Figure 1 (source: Levin 2012) displays the relative size of the particles compared with a human hair, with PM_{10} (particulate matter less than 10 micrometers in diameter) indicated as yellow circles, $PM_{2.5}$ shown as blue circles, and ultrafine particles are shown as red circles.

Figure 1: Ultrafine Particles



Source: Levin 2012.

In its recent revisions to the national ambient air quality standards for particulate matter, the EPA states that, "In considering both the currently available health effects evidence and the air quality data, the Policy Assessment concluded that this information was still too limited to provide support for consideration of a distinct PM standard for ultrafine particles" (EPA 2013).

This assessment does not specifically distinguish between ultrafine particles and $PM_{2.5}$ or quantify in particular ultrafine particles. However, $PM_{2.5}$ emissions are estimated and a significance finding is provided for them.

2.2 - Existing Air Quality Conditions

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. Table 2 summarizes 2011 through 2013 published monitoring data, which is the most recent 3-year period available. The table displays data from two monitoring stations: Hollister-Fairview Road (approximately 9.41 miles east of the project site); and Salinas-#3 (approximately

11.67 miles southwest of the project site). Sulfur dioxide is not monitored in the NCCAB and is not included in the table below. The data shows that during the past few years, the project area has not exceeded any state or federal standards. The data in the table reflect the concentration of the pollutants in the air, measured using air monitoring equipment. This differs from emissions, which are calculations of a pollutant being emitted over a period.

Table 2: Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2011	2012	2013
Ozone	1 Hour	Max 1 Hour (ppm)	0.078	0.074	0.076
		Days > State Standard (0.09 ppm)	0	0	0
	8 Hour	Max 8 Hour (ppm)	0.067	0.064	0.070
		Days > State Standard (0.07 ppm)	0	0	0
		Days > National Standard (0.075 ppm)	0	0	0
Carbon monoxide[1]	8 Hour	Max 8 Hour (ppm)	0.99	1.39	ID
		Days > State Standard (9.0 ppm)	0	0	0
		Days > National Standard (9 ppm)	0	0	0
Nitrogen dioxide[1]	Annual	Annual Average (ppm)	6	5	5
	1 Hour	Max 1 Hour (ppm)	0.040	0.042	0.042
		Days > State Standard (0.18 ppm)	0	0	0
Inhalable coarse particles (PM_{10})	Annual	Annual Average ($\mu g/m^3$)	4.5	19.3	20.4
	24 hour	24 Hour ($\mu g/m^3$)	23.0	105.0	98.4
		Days > State Standard (50 $\mu g/m^3$)	ID	ID	ID
		Days > National Standard (150 $\mu g/m^3$)	ID	0	0
Fine particulate matter ($PM_{2.5}$)	Annual	Annual Average ($\mu g/m^3$)	5.9	5.1	6.1
	24 Hour	24 Hour ($\mu g/m^3$)	30.4	28.6	21.2
		Days > National Standard (35 $\mu g/m^3$)	0	0	0

Notes and Abbreviations:
> = exceed ppm = parts per million $\mu g/m^3$ = micrograms per cubic meter
ID = insufficient data ND = no data max = maximum
Bold text=exceedance
State Standard = California Ambient Air Quality Standard
National Standard = National Ambient Air Quality Standard
[1] Salinas-#3 Station
Source: California Air Resources Board 2014; Hollister-Fairview Road Station and Salinas-#3 Station.

2.2.1 - Attainment Status

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If

there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or "form" of what constitutes attainment, based on specific air quality statistics. For example, the federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the three-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard.

The current attainment designations for the basin are shown in Table 3. The basin is designated as nonattainment for ozone and PM_{10}.

Table 3: North Central Coast Air Basin Attainment Status

Pollutant	State Standards	National Standards
Ozone	Nonattainment	Attainment/Unclassified
Carbon monoxide	Monterey County – Attainment San Benito County – Unclassified Santa Cruz County - Unclassified	Attainment/Unclassified
Nitrogen dioxide	Attainment	Attainment/Unclassified
Sulfur dioxide	Attainment	Attainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Attainment	Attainment/Unclassified
Lead	Attainment	Attainment/Unclassified
Source of State and Federal Designation: MBUAPCD, 2013; NCCAB Area Designations and Attainment Status – January 2013.		

2.3 - Regulatory Setting

Air pollutants are regulated at the national, state, and air basin or county level; each agency has a different level of regulatory responsibility. The EPA regulates at the national level. The EPA is responsible for national and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs. The ARB regulates at the state level. The MBUAPCD regulates at the air basin level. The following section describes these federal, state, and regional standards and the health effects of the regulated pollutants.

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—air

district prepares their federal attainment plan, which sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms.

2.3.1 - Federal Regulations

Clean Air Act

Congress established much of the basic structure of the Clean Air Act (CAA) in 1970, and made major revisions in 1977 and 1990. Six common air pollutants (also known as "criteria pollutants") are addressed in the CAA. These are particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. EPA calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health is called primary standards. Another set of limits intended to prevent environmental and property damage is called secondary standards (EPA 2014. Clean Air Act Requirements and History. http://www.epa.gov/air/caa/requirements.html). The federal standards are called National Ambient Air Quality Standards (NAAQS). The air quality standards provide benchmarks for determining whether air quality is healthy at specific locations and whether development activities will cause or contribute to a violation of the standards. . The criteria pollutants are:

- Ozone
- Nitrogen dioxide
- Lead
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Carbon monoxide (CO)
- Sulfur dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, EPA is tasked with updating the standards as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health (ARB 2012a).

2.3.2 - State of California Regulations

California Clean Air Act

The California Legislature enacted the California Clean Air Act (CCAA) in 1988 to address air quality issues of concern not adequately addressed by the federal CAA at the time. California's air quality problems were and are some of the most severe in the nation and required additional actions beyond the federal mandates. The ARB administers California Ambient Air Quality Standards (CAAQS) for the 10 air pollutants designated in the CCAA. The 10 state air pollutants are the six federal standards listed above as well visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. EPA authorized California to adopt its own regulations for motor vehicles and other sources that are more stringent than similar federal regulations implementing the CAA. Generally, the planning requirements of the CCAA are less stringent than federal CAA; therefore, consistency with the CAA will also demonstrate consistency with the CCAA.

The 1990 Clean Air Act Amendments, significantly expanded EPA's authority to regulate hazardous air pollutants (HAP). Section 112 of the Clean Air Act lists 187 hazardous air pollutants to be regulated by source category. Authority to regulate these pollutants was delegated to the States. ARB and local air districts regulate toxic air contaminants (TACs) and HAPs in California. TACs are regulated in terms of health risks to individuals and populations exposed to the pollutants.

Federal Air Quality Plans

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—air district prepares their federal attainment plan, which is sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. The NCCAB has attained all national air quality standards. The most recent attainment plan for the NCCAB is the Federal Maintenance Plan (May 2007) for 8-hour ozone standard prepared to ensure that the NCCAB continues to maintain the standard in the future.

Areas designated non-attainment must develop air quality plans and regulations to achieve standards by specified dates depending on the severity of the exceedances. For much of the country, implementation of federal motor vehicle standards and compliance with federal permitting requirements for industrial sources are adequate to attain air quality standards on schedule. For many areas of California; however, additional state and local regulation is required to achieve the standards. Regulations adopted by California are described below.

Low-Emission Vehicle Program

The ARB first adopted Low-Emission Vehicle (LEV) program standards in 1990. These first LEV standards ran from 1994 through 2003. LEV II regulations, running from 2004 through 2010, represent continuing progress in emission reductions. As the State's passenger vehicle fleet continues to grow and more sport utility vehicles and pickup trucks are used as passenger cars rather than work vehicles, the more stringent LEV II standards were adopted to provide reductions necessary for California to meet federally mandated clean air goals outlined in the 1994 State Implementation Plan (SIP). In 2012, ARB adopted the LEV III amendments to California's Low-Emission Vehicle (LEV) regulations. These amendments include more stringent emission standards for both criteria pollutants and GHGs for new passenger vehicles (ARB 2012a).

On-Road Heavy-Duty Vehicle Program

The ARB has adopted standards for emissions from various types of new on-road heavy-duty vehicles. Section 1956.8, Title 13, California Code of Regulations contains California's emission standards for on-road heavy-duty engines and vehicles, and test procedures. ARB has also adopted programs to reduce emissions from in-use heavy-duty vehicles including the Heavy-Duty Diesel

Vehicle Idling Reduction Program, the Heavy-Duty Diesel In-Use Compliance Program, the Public Bus Fleet Rule and Engine Standards, and the School Bus Program and others (ARB 2013c).

Air pollutants are regulated at the national, state, and air basin or county level; each agency has a different level of regulatory responsibility. The EPA regulates at the national level. The California Air Resources Board (ARB) regulates at the state level. The MBUAPCD regulates at the air basin level.

The EPA is responsible for national and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Ambient Air Quality Standards, also known as federal standards described earlier.

ARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the ARB adopted a regulation to reduce diesel particulate matter and NO_x emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. The ARB is enforcing that part of the rule with fines up to $10,000 per day for each vehicle in violation. Performance requirements of the rule are based on a fleet's average NO_x emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

ARB Airborne Toxic Control Measure for Asbestos

In July 2001, the ARB approved an Air Toxic Control Measure for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of best management practices to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a "Dust Mitigation Plan" and approval by the air district prior to the start of a project.

Construction sometimes requires the demolition of existing buildings where construction occurs. Buildings often include materials containing asbestos, but no demolition is associated with this project. However, asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include

unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

The ARB has an Air Toxics Control Measure for construction, grading, quarrying, and surface mining operations requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. The measure applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally occurring asbestos on the site. The measure also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity.

Diesel Risk Reduction Plan

The ARB's Diesel Risk Reduction Plan has led to the adoption of new state regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce DPM emissions by about 90 percent overall from year 2000 levels as stated on page 1 of the plan. The projected emission benefits associated with the full implementation of this plan, including federal measures, are reductions in DPM emissions and associated cancer risks of 75 percent by 2010 and 85 percent by 2020 (ARB 2000).

Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 horsepower and Greater. Effective February 19, 2011, each fleet shall comply with weighted reduced particulate matter emission fleet averages by compliance dates listed in the regulation.

ARB Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling adopts new section 2485 within Chapter 10, Article 1, Division 3, title 13 in the California Code of Regulations. The measure limits the idling of diesel vehicles to reduce emissions of toxics and criteria pollutants. The driver of any vehicle subject to this section: (1) shall not idle the vehicle's primary diesel engine for greater than five minutes at any location; and (2) shall not idle a diesel-fueled auxiliary power system for more than five minutes to power a heater, air conditioner, or any ancillary equipment on the vehicle if it has a sleeper berth and the truck is located within 100 feet of a restricted area (homes and schools).

ARB Final Regulation Order, Requirements to Reduce Idling Emissions from New and In-Use Trucks, requires that new 2008 and subsequent model-year heavy-duty diesel engines be equipped with an engine shutdown system that automatically shuts down the engine after 300 seconds of continuous idling operation once the vehicle is stopped, the transmission is set to "neutral" or "park," and the parking brake is engaged. If the parking brake is not engaged, then the engine shutdown system shall shut down the engine after 900 seconds of continuous idling operation once the vehicle is stopped and the transmission is set to "neutral" or "park." Any project trucks manufactured after 2008 would be consistent with this rule, which would ultimately reduce air emissions.

ARB Regulation for In-Use Off-Road Diesel Vehicles. On July 26, 2007, the ARB adopted a regulation to reduce diesel particulate matter and NO_x emissions from in-use (existing) off-road heavy-duty

diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. The ARB is enforcing that part of the rule with fines up to $10,000 per day for each vehicle in violation. Performance requirements of the rule are based on a fleet's average NO_x emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

Statewide Truck and Bus Rule. On December 12, 2008, the ARB approved a new regulation to significantly reduce emissions from existing on-road diesel vehicles operating in California. The regulation requires affected trucks and buses to meet performance requirements between 2011 and 2023. By January 1, 2023, all vehicles must have a 2010 model year engine or equivalent. The regulation applies to all on-road heavy-duty diesel-fueled vehicles with a gross vehicle weight rating greater than 14,000 pounds, agricultural yard trucks with off-road certified engines, and certain diesel fueled shuttle vehicles of any gross vehicle weight rating. Out-of-state trucks and buses that operate in California are also subject to the regulation.

ARB Airborne Toxic Control Measure. In July 2001, the ARB approved an Air Toxic Control Measure for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of best management practices to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a "Dust Mitigation Plan" and approval by the air district prior to the start of a project.

2.3.3 - Monterey Bay Unified Air Pollution Control District

The MBUAPCD is responsible for air monitoring, permitting, enforcement, long-range air quality planning, regulatory development, education, and public information activities related to air pollution. The District also has roles under CEQA.

Air Quality Management Plan

The NCCAB is designated nonattainment of state health-based air quality standards for ozone and attainment for Federal ozone standards. The MBUAPCD is required to develop an attainment plan to address ozone violations. The CCAA requires the MBUAPCD to periodically prepare and submit a report to ARB that assesses its progress toward attainment of the state ambient air quality standards. The 1991 Air Quality Management Plan (AQMP) was the first plan prepared in response to the CAA that established specific planning requirements to meet the 1-hour ozone standard. An 8-hour standard was added in 2006 by ARB making the CAAQS more stringent. Both components of

the standard must be met before the ARB can designate that an area has attained the standard. The District's focus continue to be on achieving the 8-hour component of the ozone standard since the region has attained the 1-hour standard. The most recent AQMP is the 2012 Triennial Plan Revision, which was adopted on April 17, 2013. It is the sixth update to the 1991 AQMP with five plans completed in 1994, 1997, 2000, 2004, and 2008.

Particulate Matter Plan

The NCCAB was designated nonattainment of state health-based air quality standards for PM_{10}. The NCCAB is designated attainment of federal standards for PM_{10} and state and federal standards for $PM_{2.5}$. To meet Clean Air Act requirements for the PM_{10} standard, the District adopted a 2005 Particulate Matter Plan.

MBUAPCD Rules and Regulations

- Rule 200 – Permits Required. No person shall build, erect, alter, or replace, any article , machine, equipment, or other contrivance which may cause the issuance of air contaminants or use of which may eliminate or reduce or control the issuance of air contaminants unless the facility owner or operator has obtained a separate written Authority to Construction for each permit unit from the Air Pollution Control Officer.
- Rule 417 – Storage of Organic Liquids. No person shall place, store or hold in any container any organic liquid unless such container is designed and equipped with one of the vapor loss control devices. The control device shall be properly installed, properly maintained and in good operating order.
- Rule 1002 – Transfer of Gasoline into Vehicle Fuel Tanks. A person shall not transfer or permit the transfer of gasoline from a stationary storage container into any motor vehicle fuel tank with a capacity greater than 5 gallons unless such transfer is made through a fill nozzle which captures the gasoline vapors displaced by the transfer and directs them through the nozzle to an ARB-certified vapor recovery system.

CEQA

The MBUAPCD has three roles under CEQA:

1. Lead Agency: responsible for preparing environmental analyses for its own projects (adoption of rules, regulations, or plans) or permit projects filed with MBUAPCD where it has primary approval authority over the project.
2. Responsible Agency: The discretionary authority of a Responsible Agency is more limited than a Lead Agency; having responsibility for mitigating or avoiding only the environmental effects of those parts of the project which it decides to approve, carry out, or finance. The MBUAPCD defers to the Lead Agency for preparation of environmental documents for land use projects that also have discretionary air quality permits unless no document is prepared by the Lead Agency and potentially significant impacts related to the permit are possible.

The MBUAPCD comments on documents prepared by Lead Agencies to ensure that its concerns are addressed.

3. Commenting Agency: the MBUAPCD reviews and comments on air quality analyses prepared by other public agencies (such as the proposed project).

The MBUAPCD also provides guidance and thresholds for CEQA air quality and GHG analyses. In particular, the MBUAPCD's CEQA Air Quality Guidelines state the following:

> The purpose of these CEQA Air Quality Guidelines is to inform public agencies, consultants, project proponents and the general public of the Monterey Bay Unified Air Pollution Control District's adopted thresholds of significance and to provide guidance in the review and evaluation of air quality impacts of projects that are subject to the California Environmental Quality Act. The Guidelines are intended to provide uniform procedures for assessing air quality impacts and preparing the air quality section of environmental documents.

2.3.4 - Local

The City of San Juan Bautista is currently in the process of updating its General Plan. The most current General Plan was adopted in 1998. It does not include an air quality element or policies related to air quality.

SECTION 3: CLIMATE CHANGE SETTING

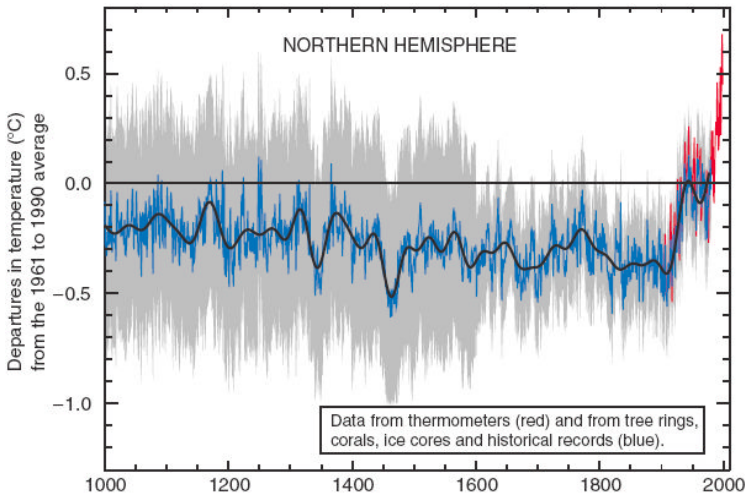
3.1 - Climate Change

Climate change is a change in the average weather of the earth that is measured by alterations in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use this data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Fourth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1 degrees Celsius (°C) to 6.4°C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios (IPCC 2007a). The report also concluded that "[w]arming of the climate system is unequivocal," and that "[m]ost of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations."

Some question the validity of the temperature graph used by the IPCC in some form in the Third and Fourth Assessment Reports. The graph is shown in Figure 5 (source IPCC 2001). The figure shows that temperatures are relatively stable until 1900, when the temperature increases rapidly. Some scientists have had trouble duplicating the data used for the graph (McIntyre and McKitrick 2003) and indicated when the data is correctly handled "shows the 20th century climate to be unexceptional compared to earlier centuries" (McKitrick 2005). Hans von Storch, a German climate scientist, claimed that the methods used by Mann et al. probably underestimated the temperature fluctuations in the past by a factor of two or more (Von Storch et al. 2004).

Figure 2: Historical Temperature Changes



Consequences of Climate Change in California

In California, climate change may result in consequences such as the following (from CCCC 2006 and Moser et al. 2009).

- **A reduction in the quality and supply of water from the Sierra snowpack.** If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.
- **Increased risk of large wildfires.** If rain increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30 percent toward the end of the 21st century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- **Reductions in the quality and quantity of certain agricultural products.** The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- **Exacerbation of air quality problems.** If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- **A rise in sea levels resulting in the displacement of coastal businesses and residences.** During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.
- **An increase temperature and extreme weather events.** Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- **A decrease in the health and productivity of California's forests.** Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.

3.2 - Greenhouse Gases

Gases that trap heat in the atmosphere are referred to as GHGs. The effect is analogous to the way a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Natural processes and human activities emit GHGs. The presence of GHGs in the atmosphere affects the earth's temperature. It is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Climate change is driven by forcings and feedbacks. Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. Positive forcing tends to warm the surface while negative forcing tends to cool it. Radiative forcing values are typically expressed in watts per square meter. A feedback is a climate process that can strengthen or weaken a forcing. For example, when ice or snow melts, it reveals darker land underneath which absorbs more radiation and causes more warming. The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere. The global warming potential of a gas is essentially a measurement of the radiative forcing of a GHG compared with the reference gas, carbon dioxide.

Individual GHG compounds have varying global warming potential and atmospheric lifetimes. Carbon dioxide, the reference gas for global warming potential, has a global warming potential of one. The global warming potential of a GHG is a measure of how much a given mass of a GHG is estimated to contribute to global warming. To describe how much global warming a given type and amount of GHG may cause, the carbon dioxide equivalent is used. The calculation of the carbon dioxide equivalent is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent reference gas, carbon dioxide. For example, methane's warming potential of 21 indicates that methane has 21 times greater warming affect than carbon dioxide on a molecule per molecule basis. A carbon dioxide equivalent is the mass emissions of an individual GHG multiplied by its global warming potential. Greenhouse gases defined by Assembly Bill (AB) 32 (see the Climate Change Regulatory Environment section for a description) include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. They are described in Table 4.

Table 4: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (laughing gas) is a colorless greenhouse gas. It has a lifetime of 114 years. Its global warming potential is 310.	Microbial processes in soil and water, fuel combustion, and industrial processes.
Methane	Methane is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 21.	Methane is extracted from geological deposits (natural gas fields). Other sources are landfills, fermentation of manure, and decay of organic matter.

Table 4 (cont.): Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Carbon dioxide	Carbon dioxide (CO_2) is an odorless, colorless, natural greenhouse gas. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	These are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987.
Hydrofluorocarbons	Hydrofluorocarbons are a group of greenhouse gases containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. Global warming potentials range from 6,500 to 9,200.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas.
Sources: Compiled from a variety of sources, primarily Intergovernmental Panel on Climate Change 2007a and 2007b.		

Other GHGs include water vapor, ozone, and aerosols. Water vapor is an important component of our climate system and is not regulated. Ozone and aerosols are short-lived GHGs; global warming potentials for short-lived GHGs are not defined by the IPCC. Aerosols can remain suspended in the atmosphere for about a week and can warm the atmosphere by absorbing heat and cool the atmosphere by reflecting light.

Black carbon is formed by incomplete combustion of fossil fuels, biofuels, and biomass. Sources of black carbon within a jurisdiction may include exhaust from diesel trucks, vehicles, and equipment,

as well as smoke from biogenic combustion. Biogenic combustion sources of black carbon include the burning of biofuels used for transportation, the burning of biomass for electricity generation and heating, prescribed burning of agricultural residue, and natural and unnatural wildfires. Black carbon is not a gas but an aerosol—particles or liquid droplets suspended in air. Black carbon only remains in the atmosphere for days to weeks, as opposed to other GHGs that can remain in the atmosphere for years. Black carbon can be deposited on snow, where it absorbs sunlight, reduces sunlight reflectivity, and hastens snowmelt. Direct effects include absorbing incoming and outgoing radiation; indirectly, black carbon can also affect cloud reflectivity, precipitation, and surface dimming (cooling).

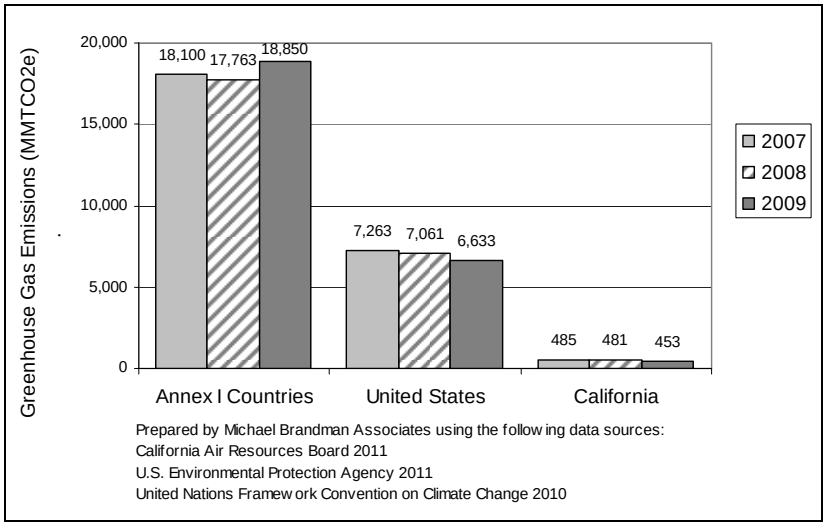
The project would emit black carbon through emissions of DPM during construction. However, procedures to quantify changes due to black carbon emissions have not been widely accepted or thoroughly researched (IPCC 2007; Wilson and Walters 2012). Therefore, impacts to climate change from black carbon are speculative at this time and no further discussion is necessary.

Although there could be health effects resulting from changes in the climate and the consequences that can bring about, inhalation of GHGs at levels currently in the atmosphere would not result in adverse health effects, with the exception of ozone and aerosols (particulate matter). The potential health effects of ozone and particulate matter are discussed in criteria pollutant analyses. At very high indoor concentrations (not at levels existing outside), carbon dioxide, methane, sulfur hexafluoride, and some chlorofluorocarbons can cause suffocation as the gases can displace oxygen (CDC 2010 and OSHA 2003).

3.2.1 - Emissions Inventories

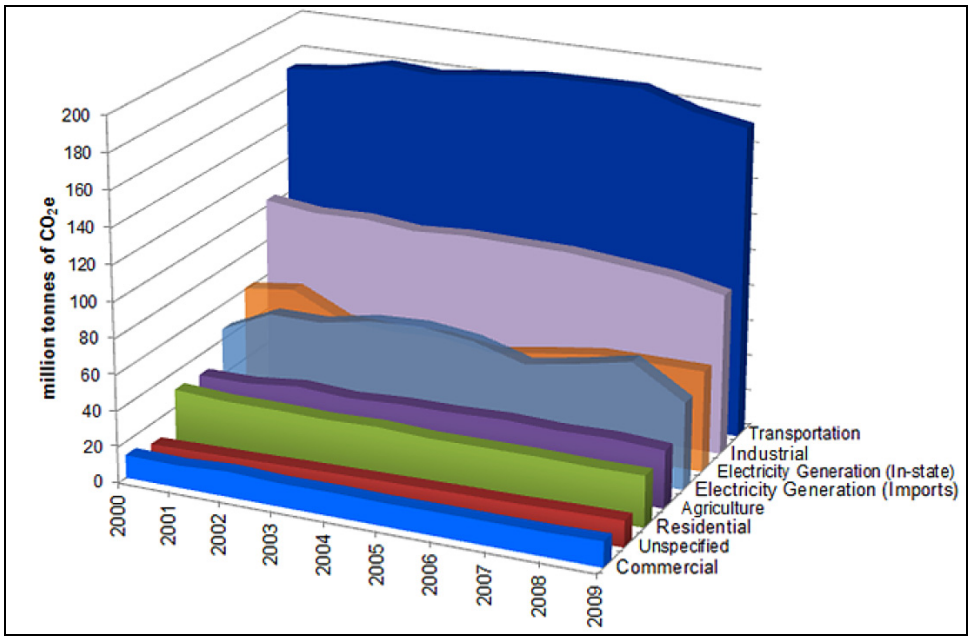
Emissions worldwide were approximately 49,000 million metric tons of carbon dioxide equivalents ($MMTCO_2e$) in 2004 (IPCC 2007b). Greenhouse gas emissions in 2007, 2008, and 2009 are shown in Figure 3. Annex I parties refer to countries that joined the United Nations Framework Convention on Climate Change.

Figure 3: Greenhouse Gas Emissions Trends



As shown in Figure 4, the main contribution of GHG emissions in California between the years 2000 and 2009 was transportation. The second highest sector was industrial, which includes sources from refineries, general fuel use, oil and gas extraction, cement plants, and cogeneration heat output.

Figure 4: Greenhouse Gas Emission Trends by Sector in California



Source: ARB 2011a.

3.3 - Regulatory Setting

3.3.1 - International

Climate change is a global issue involving GHG emissions from all around the world; therefore, countries such as the ones discussed below have made an effort to reduce GHGs.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations Framework Convention on Climate Change (Convention). On March 21, 1994, the United States joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol. The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at average of five per cent against 1990 levels over the five-year period 2008-2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

The United States has not entered into force of the Kyoto Protocol. However, other countries have entered, such as Australia, Canada, China, the European Union (Belgium, Denmark, Germany, the Hellenic Republic, Spain, France, Ireland, Italy, Luxembourg, Netherlands, Austria, Portugal, Finland, Sweden, Great Britain, and Northern Ireland), Japan, Mexico, and New Zealand.

In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2°C above pre-industrial levels, subject to a review in 2015. .The UN Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

3.3.2 - National

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.

Greenhouse Gas Endangerment. *Massachusetts v. EPA* (Supreme Court Case 05-1120) was argued before the United States Supreme Court on November 29, 2006, in which it was petitioned that the EPA regulate four GHGs, including carbon dioxide, under Section 202(a)(1) of the Clean Air Act. A decision was made on April 2, 2007, in which the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the 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 Clean Air Act:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—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 greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas 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.

The EPA denied ten petitions for Reconsideration of the Endangerment and Cause or Contribute Findings in 2010. Some of the petitioners included the Ohio Coal Association, Peabody Energy Company, and the State of Texas.

In September 2011, the EPA Office of Inspector General evaluated the EPA's compliance with established policy and procedures in the development of the endangerment finding, including processes for ensuring information quality. The evaluation concluded that the technical support document should have had more rigorous EPA peer review.

In June 2012, a federal appeals court rejected a lawsuit by thirteen states against the EPA. The suit alleged that the EPA violated the law by relying almost exclusively on data from the United Nations Intergovernmental Panel on Climate Change rather than doing its own research or testing data according to federal standards. The states include Virginia, Texas, Alabama, Florida, Hawaii, Indiana, Kentucky, Louisiana, Mississippi, Nebraska, North Dakota, Oklahoma, South Carolina, South Dakota, and Utah. Virginia intends to petition the Supreme Court to review the case.

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 United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration 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 United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide 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). On August 28, 2012, EPA and NHTSA issued a joint Final Rulemaking to extend the National Program of harmonized GHG and fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model years 2017-2025 standards, this program is projected to save approximately 4 billion barrels of oil and 2 billion metric tons of GHG emissions, with net benefits up to $451 billion.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce GHG emissions and improve fuel efficiency of *heavy-duty trucks and buses*. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20-percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks 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-percent reduction for gasoline vehicles and 15-percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year, which would achieve up to a 10-percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Mandatory Reporting of GHG**s.** 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 Greenhouse Gases Rule. The rule requires reporting of GHG emissions from large sources and suppliers in the United States, 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 or more per year 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 Clean Air Act 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, 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 Clean Air Act, 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 greenhouse gas sources, starting with the largest greenhouse gas 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 greenhouse gas emissions until at least April 30, 2016.

EPA estimates that facilities responsible for nearly 70 percent 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.

Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units. As required by a settlement agreement, the EPA proposed new performance standards for emissions of carbon dioxide for new affected fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatt would be

required to meet an output based standard of 1,000 pounds of carbon dioxide per megawatt-hour, based on the performance of widely used natural gas combined cycle technology.

Cap and Trade. Cap and trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. Successful examples in the United States include the Acid Rain Program and the NOx Budget Trading Program in the northeast. There is no federal cap and trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap and trade.

The Regional Greenhouse Gas Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008.

The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15 percent below 2005 levels by 2020. The partners are California, British Columbia, Manitoba, Ontario, and Quebec. Its cap and trade program is estimated to be fully implemented in 2015.

3.3.3 - California

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. ARB 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.

The ARB Board approved the 1990 GHG emissions level of 427 $MMTCO_2e$ on December 6, 2007 (ARB 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 $MMTCO_2e$. Emissions in 2020 in a "business as usual" scenario were previously estimated to be 596 $MMTCO_2e$. However, the most recent estimate for year 2020 business as usual is 545 $MMTCO_2e$ (California Air Resources Board, 2010). Therefore, a 21.7-percent reduction from the year 2020 business as usual forecast is required to achieve the year 1990 emissions target.

Under AB 32, the ARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or

are enforceable by January 1, 2010. The ARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of these early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The ARB estimates that the 44 recommendations are expected to result in reductions of at least 42 $MMTCO_2e$ by 2020.

The ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 (ARB 2008). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewable energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. Capped strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. Uncapped strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional GHG emission reductions.[1]

[1] On March 17, 2011, the San Francisco Superior Court issued a final decision in *Association of Irritated Residents v. California Air Resources Board* (Case No. CPF-09-509562). While the Court upheld the validity of the ARB Scoping Plan for the implementation of AB 32, the Court enjoined ARB from further rulemaking under AB 32 until ARB amends its CEQA environmental review of the Scoping Plan to address the flaws identified by the Court. On May 23, 2011, ARB filed an appeal. On June 24, 2011, the Court of Appeal granted ARB's petition staying the trail court's order pending consideration of the appeal. In the interest of informed

Executive Order S-3-05. Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be an aggressive, but achievable, mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Pavley Regulations and Fuel Efficiency Standards. California AB 1493, enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. The regulation was stalled by automaker lawsuits and by the EPA's denial of an implementation waiver. On January 21, 2009, the ARB requested that the EPA reconsider its previous waiver denial. On January 26, 2009, President Obama directed that the EPA assess whether the denial of the waiver was appropriate. On June 30, 2009, the EPA granted the waiver request. On September 8, 2009, the U.S. Chamber of Commerce and the National Automobile Dealers Association sued EPA to challenge its granting of the waiver to California for its standards. California assisted EPA in defending the waiver decision. The U.S. District Court for the District of Columbia denied the Chamber's petition on April 29, 2011.

The Pavley I standards are phased in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in about a 22-percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30-percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant. Pavley II was incorporated into Amendments to the Low-Emission Vehicle Program referred to as LEV III. The amendments, effective August 7, 2012, apply to vehicles for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025.

Low Carbon Fuel Standard - Executive Order S-01-07. The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the

decision-making, on June 13, 2011, ARB released the expanded alternatives analysis in a draft Supplement to the AB 32 Scoping Plan Functional Equivalent Document. The ARB Board approved the Scoping Plan and the CEQA document on August 24, 2011.

protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009. The Low Carbon Fuel Standard was challenged in the United States District Court in Fresno in 2011. The court's ruling issued on December 29, 2011 included a preliminary injunction against ARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012 pending final ruling on appeal, allowing the ARB to continue to implement and enforce the regulation. . The Renewable Fuels Association and Growth Energy filed a petition to the US Supreme Court on March 20, 2014 challenging the Court of Appeals decision.

Tire Pressure Regulation. A properly inflated tire helps to reduce fuel GHG emissions by reducing tire-rolling resistance. Low rolling resistance tires for passenger and light duty vehicles can result in a 1- to 2-percent reduction in GHGs.

Low Friction Oil Regulation. Engine oil formulations can also affect a vehicle's GHG emissions, because the more easily the internal parts of the engine move, the more efficiently the engine will run. This, in turn, reduces the engine load and fuel used. Requiring passenger cars to use low friction engine oils can result in a 2-percent GHG reduction.

Heavy Duty Vehicle Aerodynamic Efficiency. This measure would require existing trucks/trailers to be retrofitted with the best available technology and/or ARB approved technology. Technologies that reduce GHG emissions and improve the fuel efficiency of trucks may include devices that reduce aerodynamic drag and rolling resistance. The 2020 estimated GHG reductions could be up to 6.4 $MMTCO_2e$ nationwide, of which about 0.93 $MMTCO_2e$ or about 15 percent would occur within California.

Medium and Heavy Duty Vehicle Hybridization. Hybrid technology provides the greatest benefit when used in vocational applications that have significant urban, stop-and-go driving, idling, and power take-off operations in their duty cycle. Such applications include parcel delivery trucks and vans, utility trucks, garbage trucks, transit buses, and other vocational work trucks. The ARB Scoping Plan estimates that hybridization provides an estimated reduction of 0.5 $MMTCO_2e$ per year in 2020.

High GWP Gas Regulations. The State has adopted refrigerant management regulations that apply to commercial air conditioning and refrigeration systems. The regulations require increased leak detection and related repairs and maintenance. ARB estimated that the regulation would reduce emissions from regulated sources by 50 percent.

SB 1368. In 2006, the State Legislature adopted Senate Bill (SB) 1368, which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit

roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law will effectively prevent California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. Thus, SB 1368 will lead to dramatically lower GHG emissions associated with California's energy demand, as SB 1368 will effectively prohibit California utilities from purchasing power from out-of-state producers that cannot satisfy the performance standard for GHG emissions required by SB 1368. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007.

Renewable Electricity Standards. On September 12, 2002, Governor Gray Davis signed SB 1078 requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the ARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. The ARB Board approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23.

Title 24. During operation, the project is required to comply with Title 24 of the California Code of Regulations established by the Energy Commission regarding energy conservation standards. Although these regulations are not specifically enacted to reduce GHGs, they increase energy efficiency for new buildings, thus indirectly reducing GHG emissions. California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, 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. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The newest version of Title 24 was adopted by the CEC on May 31, 2012 and was scheduled to become effective on January 1, 2014. On December 11, 2013, the CEC extended the compliance date to July 1, 2014 to allow more time for the building industry and local building departments to prepare. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions.

Title 20. California Code of Regulations, 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. Twenty-three 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).

California Green Building Standards. The project is also required to comply with the California Green Building Standards. On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into

effect on January 1, 2011. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard, which buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

The California Green Building Standards Code (code section in parentheses) requires:

Construction waste. A minimum 50-percent diversion of construction and demolition waste from landfills, increasing voluntarily to 65 and 75 percent for new homes and 80-percent for commercial projects. All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled.

Water Efficiency and Conservation [Indoor Water Use (4.303.1)]. Fixtures and fixture fittings reducing the overall use of potable water within the building by at least 20 percent shall be provided. The 20-percent reduction shall be demonstrated by one of the following methods:

1. Prescriptive Method: Showerheads (≤ 2.0 gpm @ 80 psi); Residential Lavatory Faucets (≤ 1.5 gpm @ 60 psi); Nonresidential Lavatory Faucets (≤ 0.4 gpm @ 60 psi); Kitchen Faucets (≤ 1.8 gpm @ 60 psi); Toilets (≤ 1.28 gal/flush); and urinals (≤ 0.5 gal/flush).
2. Performance Method: Provide a calculation demonstrating a 20% reduction of indoor potable water using the baseline values set forth in Table 4.303.1. The calculation will be limited to the total water usage of showerheads, lavatory faucets, water closets and urinals within the dwelling.

Water Efficiency and Conservation [Outdoor Water Use (4.304.1)]. Irrigation Controllers. Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final inspection shall comply with the following:

- Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' watering needs as weather or soil conditions change.
- Weather-based controllers without integral rain sensors or communication systems that account for rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s).
- Materials pollution control. Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particleboard.

Building commissioning. Mandatory inspections of energy systems (e.g., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies.

Cap-and-Trade. California's Cap-and-Trade Regulation (Regulation) took effect on January 1, 2012, with amendments to the Regulation effective September 1, 2012. The enforceable compliance obligation began on January 1, 2013. Cap-and-trade is a market based regulation that is designed to reduce GHGs from multiple sources. Cap-and-trade sets a firm limit or "cap" on GHGs and minimize the compliance costs of achieving AB 32 goals. The cap will decline approximately 3 percent each year beginning in 2013. Trading creates incentives to reduce GHGs below allowable levels through investments in clean technologies. With a carbon market, a price on carbon is established for GHGs. Market forces spur technological innovation and investments in clean energy.

SB 375. Passing the Senate on August 30, 2008, SB 375 was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent 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: (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. The Fresno Council of Governments has adopted emissions reductions for per capita light duty vehicles from 2005 levels of 4.7 percent in 2020 and 7.6 percent in 2035.

Concerning CEQA, SB 375, section 21159.28 states that CEQA findings determinations 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 ARB accepts as achieving the greenhouse gas 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.

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 Office of Planning and Research 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 Office of Planning and Research 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 April 13, 2009, the Office of Planning and Research submitted to the Secretary for Natural Resources its recommended amendments to the CEQA Guidelines for addressing GHG emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Following a 55-day public comment period and two public hearings, the Natural Resources Agency proposed revisions to the text of the proposed Guidelines amendments. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

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.

A new section, CEQA Guidelines Section 15064.4, was added to assist agencies in determining the significance of GHG emissions. The new section allows agencies the discretion to determine whether a quantitative or qualitative analysis is best for a particular project. However, little guidance is offered on the crucial next step in this assessment process—how to determine whether the project's estimated GHG emissions are significant or cumulatively considerable.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts respectively. Greenhouse gas mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze GHG emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable, however it does not answer the question of when emissions are cumulatively considerable.

Section 15183.5 permits programmatic GHG analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to proposed Section 15183.5(b).

In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include GHG questions.

Executive Order S-13-08. Executive Order S-13-08 indicates that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of

its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resources Agency 2009) was adopted, which is the " . . . first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." 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.

3.3.4 - Monterey Bay Unified Air Pollution Control District

The MBUAPCD currently does not have any guidance or thresholds for GHGs.

3.3.5 - Local

The City of San Juan Bautista does not currently have formal GHG emissions reduction plans or recommended emissions thresholds for determining significance associated with GHG emissions from development projects.

General Plan

The City of San Juan Bautista is currently updating its General Plan; therefore, the applicable plan is the 1998 General Plan. The General Plan does not include goals and policies related to improving GHG concentrations.

SECTION 4: MODELING PARAMETERS AND ASSUMPTIONS

4.1 - Model Selection and Guidance

Air pollutant emissions can be estimated by using emission factors and a level of activity. Emission factors are the emission rate of a pollutant given the activity over time; for example, grams of NO_x per horsepower hour. The ARB has published emission factors for on-road mobile vehicles/trucks in the EMFAC mobile source emissions model and emission factors for off-road equipment and vehicles in the OFFROAD emissions model. An air emissions model (or calculator) combines the emission factors and the various levels of activity and outputs the emissions for the various pieces of equipment.

The California Emissions Estimator Model (CalEEMod) version 2013.2.2 was developed in cooperation with the South Coast Air Quality Management District and other air districts throughout the State. CalEEMod is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with construction and operation from a variety of land uses.

The modeling follows MBUAPCD guidance where applicable from its Guide for Assessing and Mitigating Air Quality Impacts.

The models used in this analysis are summarized as follows:

- Construction emissions: CalEEMod, version 2013.2.2
- Operational emissions: CalEEMod, version 2013.2.2

4.2 - Air Pollutants and Greenhouse Gases Assessed

4.2.1 - Criteria Pollutants Assessed

The following air pollutants are assessed in this analysis:

- Reactive organic gases (ROG)
- Nitrogen oxides (NO_x)
- Carbon monoxide (CO)
- Sulfur oxides (SO_x)
- Particulate matter less than 10 microns in diameter (PM_{10})
- Particulate matter less than 2.5 microns in diameter ($PM_{2.5}$)

Note that the project would emit ozone precursors ROG and NO_x. However, the project would not directly emit ozone, since it is formed in the atmosphere during the photochemical reaction of ozone precursors.

As noted previously, the project would emit ultrafine particles. However, there is currently no accepted methodology to quantify or assess the significance of such particles.

4.2.2 - Greenhouse Gases Assessed

This analysis is restricted to GHGs identified by AB 32, which include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The project would generate a variety of GHGs, including several defined by AB 32 such as carbon dioxide, methane, and nitrous oxide.

The project may emit GHGs that are not defined by AB 32. For example, the project may generate aerosols through emissions of diesel particulate matter from the vehicles and trucks that would access the project site. Aerosols are short-lived particles, as they remain in the atmosphere for about 1 week. Black carbon is a component of aerosol. Studies have indicated that black carbon has a high global warming potential; however, the Intergovernmental Panel on Climate Change states that it has a low level of scientific certainty (Intergovernmental Panel on Climate Change 2007a).

Water vapor could be emitted from evaporated water used for landscaping, but this is not a significant impact because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks rather than emissions from project-related activities.

The project would emit nitrogen oxides and volatile organic compounds, which are ozone precursors. Ozone is a GHG; however, unlike the other GHGs, ozone in the troposphere is relatively short-lived and can be reduced in the troposphere on a daily basis. Stratospheric ozone can be reduced through reactions with other pollutants.

Certain GHGs defined by AB 32 would not be emitted by the project. Perfluorocarbons and sulfur hexafluoride are typically used in industrial applications, none of which would be used by the project. Therefore, it is not anticipated that the project would emit perfluorocarbons or sulfur hexafluoride.

4.3 - Construction

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from onsite and offsite activities. Onsite emissions principally consist of exhaust emissions from the activity levels of heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly PM_{10}) from disturbed soil. Additionally, paving operations and application of architectural coatings would release VOC emissions. Offsite emissions are caused by motor vehicle exhaust from delivery vehicles, worker traffic, and road dust (PM_{10} and $PM_{2.5}$).

The activity for construction equipment is based on the horsepower and load factors of the equipment. In general, the horsepower is the power of an engine - the greater the horsepower, the greater the power. The load factor is the average power of a given piece of equipment while in operation compared with its maximum rated horsepower. A load factor of 1.0 indicates that a piece of equipment continually operates at its maximum operating capacity.

The construction equipment assumed for the project is shown in the CalEEMod output contained in Appendix A. The CalEEMod default construction equipment fleet mix was used in the analysis. The

number of pieces of construction equipment for the building construction phase was increased by one in order to reflect a shorted building construction phase schedule.

The construction schedule is shown in Table 5. CalEEMod defaults for building construction were 230 days. This was reduced by 38 percent of that that time in order to reflect the project's construction schedule.

Table 5: Construction Duration

Phase	Phase Start Date	Phase End Date
Site Preparation	12/01/2014	12/02/2014
Grading	12/03/2014	12/08/2014
Building Construction	12/09/2014	06/1/2015
Paving	06/2/2015	06/15/2015
Architectural Coating	06/16/2015	06/29/2015
Source: FirstCarbon Solutions and CalEEMod		

Construction Equipment Emission Factors

CalEEMod contains an inventory of construction equipment that incorporates estimates of the number of equipment, their age, their horsepower, and equipment tier from which rates of emissions are developed. The CalEEMod default tier mix was used in this analysis for the estimation of emissions from onsite construction equipment for the unmitigated scenario. CalEEMod's off-road emission factors are based on the equipment populations from the OFFROAD model.

Grading

During grading activities, fugitive dust can be generated from the movement of dirt on the project site. CalEEMod estimates dust from dozers moving dirt around, dust from graders or scrapers leveling the land, and loading or unloading dirt into haul trucks. Each of those activities is calculated differently in CalEEMod based on the number of acres traversed by the grading equipment.

Only some pieces of equipment generate fugitive dust in CalEEMod. The CalEEMod manual identifies various equipment and the acreage disturbed in an 8-hour day:

- Crawler tractors, graders, and rubber tired dozers: 0.5 acre per 8-hour day
- Scrapers: 1 acre per 8-hour day

Therefore, the following acres are the quantity disturbed per day, per phase, according to the acreage disturbed quantities listed above:

- Site preparation = 0.94 acre per day
- Grading = 1.19 acres per day
- Building Construction = 0.75 acre per day

- Paving = 0.5 acres per day

The project involves excavating an underground storage area for two gasoline storage tanks. The soil removed for this process would be approximately 713 cubic yards of soil.

Construction Offsite Trips

Worker trips are accounted for the construction phases based on 1.25 trips per piece of equipment (the CalEEMod default). The CalEEMod run used the default worker trip length of 10.8 miles. The CalEEMod run used the default vehicle fleet (LD Mix) for employee trips.

Vendor trips for the building construction phase are derived from a study performed by Sacramento Metropolitan Air Quality Management District (SMAQMD), based on their land use and their size. The CalEEMod defaults for vendor trips, trip length, and vehicle fleet (Heavy Duty Truck Mix) were used.

CalEEMod default haul trips were used; the project would generate approximately 89 haul trips during the grading phase.

A summary of the construction related trips is shown in Table 6. Note that the total number of offsite construction trips would not necessarily occur on the same day since the various construction activities would vary each day.

Table 6: Construction Offsite Trips

Activity	Construction Trips per Day		
	Worker	Vendor	Haul
Site Preparation	8	0	0
Grading	8	0	89
Building Construction	2	1	0
Paving	13	0	0
Architectural Coating	0	0	0
Source: FirstCarbon Solutions and CalEEMod.			

4.4 - Operation

Operational emissions are those emissions that occur during operation of the project. The major sources are summarized below.

Motor Vehicles

Motor vehicle emissions refer to exhaust and road dust emissions from the automobiles that would travel to and from the project site. Information from the traffic study was provided. The traffic study generated trip rates specifically for the project using ITE trip rates for Fast-Food Restaurant

without Drive-Through Window and Gasoline/Service Station with Convenience Market land uses. The total net project trip generation was estimated to be 1,391 daily trips and 1,370 Saturday trips with internal capture of 20 percent and a pass-by trip reduction of percentage of 60. A 40-percent primary trip percentage of no diverted trips was assumed.

The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the project. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). The CalEEMod default vehicle fleet mix for the NCCAB was used.

Architectural Coatings (Painting)

Paints release VOC emissions during application and drying. The buildings in the project would be repainted on occasion. CalEEMod defaults were used for this purpose.

Consumer Products

Consumer products are various solvents used in non-industrial applications, which emit VOCs during their product use. "Consumer Product" means a chemically formulated product used by household and institutional consumers including, but not limited to, detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products; but does not include other paint products, furniture coatings, or architectural coatings (ARB 2011b). The default emission factor developed for CalEEMod was used.

Landscape Equipment

CalEEMod estimated the landscaping equipment using the default assumptions in the model.

Electricity

There would be emissions from the power plants that would generate electricity to be used by the project (for lighting, etc.). CalEEMod default electricity demand rates were used to estimate these emissions from the project.

Electricity Emission Factor

The default CalEEMod emission factors for Pacific Gas and Electric Company (which are from the year 2006 to represent baseline rates prior to implementation of AB 32) are as follows:

- Carbon dioxide: 641.35 pounds per megawatt-hour (lbs/MWh)
- Methane: 0.029 lbs/MWh
- Nitrous oxide: 0.006 lbs/MWh

Electricity Consumption

CalEEMod has three categories for electricity consumption: electricity that is impacted by Title 24 regulations, non-Title 24 electricity, and lighting. The Title 24 uses are defined as the major building envelope systems covered by California's Building Code Title 24 Part 6, such as space heating, space

cooling, water heating, and ventilation. Lighting is separate since it can be both part and not part of Title-24. Since lighting is not considered as part of the building envelope energy budget, CalEEMod does not consider lighting to have any further association with Title 24 references in the program. Non-Title 24 includes everything else such as appliances and electronics. In order to properly divide the total electricity consumption into the three categories, the percentage for each category is determined by using percentages derived from the CalEEMod default electricity intensity. Use of the percentages are applied to the electricity consumption to result in the values used in the analysis.

Natural Gas

There would be emissions from the combustion of natural gas used for the project (water heaters, heat, etc.). CalEEMod has two categories for natural gas consumption: Title 24 and non-Title 24. CalEEMod defaults were used.

Water and Wastewater

There would be GHG emissions from the use of electricity to pump water to the project and to treat wastewater. CalEEMod defaults were used.

Solid Waste

Greenhouse gas emissions would be generated from the decomposition of solid waste generated by the project. CalEEMod was used to estimate the GHG emissions from this source. The CalEEMod default for the mix of landfill types is as follows:

- Landfill no gas capture: 6%
- Landfill capture gas flare: 94%
- Landfill capture gas energy recovery: 0%

SECTION 5: AIR QUALITY IMPACT ANALYSIS

This section calculates the expected emissions from construction and operation of the project as a requisite for assessing the regulatory significance of project emissions on a regional and localized level.

5.1 - CEQA Guidelines

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

d) Expose sensitive receptors to substantial pollutant concentrations; or

e) Create objectionable odors affecting a substantial number of people.

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, the MBUAPCD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. The applicable MBUAPCD thresholds and methodologies are contained under each impact statement below.

5.2 - Impact Analysis

Consistency with Air Quality Management Plan

Impact AIR-1:	**The project would not conflict with or obstruct implementation of the applicable air quality plan.**

Impact Analysis

The CEQA Guidelines indicate that a significant impact would occur if the proposed project would conflict with or obstruct implementation of the applicable air quality plan. The MBUAPCD's 2008

CEQA Air Quality Guidelines state that for stationary and area source emissions, consistency with direct emissions associated with equipment or process of operations of a commercial, industrial, or institution facility subject to MBUAPCD permit authority is determined by assessing whether the emission source complies with all applicable MBUAPCD rules and regulations, including emission offset and emission control requirements and/or whether or not project emissions are accommodated in the AQMP.

The project is subject to MBUAPCD permit authority and will comply with all MBUAPCD rules and regulations. In addition, the primary way of determining consistency with the AQMP's assumptions is determining consistency with the applicable General Plan to ensure that the project's population density and land use are consistent with the growth assumptions used in the AQPs for the NCCAB.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and designates locations for land uses to regulate growth. The applicable General Plan for the project is the City of San Juan Bautista General Plan, which was adopted in 1998. The General Plan is amended up to four times per year to allow changes to the planned land use and other plan elements as needed to accommodate development proposals that are not currently consistent with the General Plan. The changes in land use are then incorporated into the modeling assumptions of the regional transportation model on a periodic basis. Therefore, if the project's population growth and vehicle miles traveled are consistent with the General Plan, then the project is automatically consistent with the growth assumptions used in the applicable AQMPs. The project site's general plan land use designation is general commercial and the area is zoned as Business Park/Comm/ RecFlex, which is consistent with the project's proposed use. Therefore, the project's growth is consistent with the General Plan.

Consistency with the AQMP is also determined by whether or not the project's construction or operation emissions will conflict with the Air Bain meeting attainment. The NCCAB is in nonattainment for State Ozone and PM_{10}. The project's construction and operational emissions do not exceed the thresholds set forth for any criteria air pollutant, including those in nonattainment. Impacts are less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

Potential for Air Quality Standard Violation

Impact AIR-2: **The project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.**

Impact Analysis

Regional Emissions

Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the project's criteria pollutant emissions compared with MBUAPCD thresholds of significance for short-term construction activities and long-term operation of the project. Localized emissions from project construction and operation are also assessed using concentration-based thresholds compared with ambient air quality standards or significance thresholds.

The primary pollutants of concern during project construction is PM_{10} and during operation are ROG, NO_x, SO_x, CO, and PM_{10}. The MBUAPCD's current 2008 CEQA Air Quality Guidelines adopted in 2008 contains thresholds for ROG, NO_x, SO_x, CO, and PM_{10}. These thresholds are shown in Table 7.

Table 7: MBUAPCD Air Pollutant Emission Thresholds

Pollutant Source	Threshold(s) of Significance
Construction	
PM_{10}	82 lb/day
Operation	
ROG	137 lb/day
NO_x	137 lb/day
CO	LOS at intersection/road segment degrades from D or better to E or F or V/C ratio at intersection/road segment at LOS E or F increases by 0.05 or more or delay at intersection at LOS E or F increases by 10 seconds or more or reserve capacity at unsignalized intersection at LOS E or F decreases by 50 or more
	550 lb/day
SO_x	150 lb/day
PM_{10}	82 lb/day
Notes: ROG = reactive organic gases NO_x = nitrogen oxides PM_{10} = particulate matter Source: MBUAPCD 2008.	

Construction Emissions

Construction emissions associated with the project are shown in Table 8. For assumptions in estimating the emissions, please refer to Section 4, Modeling Parameters and Assumptions. As

shown in Table 8, the emissions are below the significance thresholds and, therefore, are less than significant on a project basis.

Table 8: Construction Air Pollutant Emissions

Source	Emissions (pounds per day)
	PM_{10}
Site Preparation	7.35
Grading	6.76
Building Construction 2014	2.87
Building Construction 2015	2.68
Paving	1.00
Architectural Coating	0.22
Maximum Daily 2014	7.35
Maximum Daily 2015	2.68
Significance threshold	82
Exceed threshold – significant impact?	No

Notes:
The maximum daily emissions refer to the maximum emissions that would occur in one day. Because the proposed project's construction phases are not expected to overlap, the maximum daily emissions value refers to the highest estimated value among the different phases.
PM_{10} = particulate matter
Source of emissions: Appendix A: CalEEMod Output.
Source of thresholds: MBUAPCD 2008.

Operational Emissions

Operational emissions occur over the lifetime of the project and are from two main sources: area sources and motor vehicles, or mobile sources. Operational emissions are shown in Table 9. For assumptions in estimating the emissions, please refer to Section 4, Modeling Parameters and Assumptions. Project vehicles generate entrained road dust (PM_{10}) while traveling on paved roads to and from the site. CalEEMod includes emissions from paved road dust and the total generated does not exceed the MBUAPCD PM_{10} threshold. As shown in the table, the emissions are below the adopted and recommended MBUAPCD significance thresholds for all criteria pollutants and, therefore, would result in a less than significant impact.

Table 9: Operational Air Pollutant Emissions

Source	Emissions (pounds per day)				
	ROG	NO_x	CO	SO_x	PM_{10}
Area	0.18	0.00	0.01	0.00	0.00
Energy	0.02	0.17	0.15	0.00	0.01
Mobile	6.34	10.11	49.44	0.06	3.66
Total Operational Emissions	6.53	10.28	49.59	0.06	3.67
Significance threshold	137	137	550	150	82
Exceed threshold – significant impact?	No	No	No	No	No
Source of emissions: Appendix A: CalEEMod Output. Source of thresholds: MBUAPCD 2008.					

Carbon Monoxide Hot Spot Analysis

Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. The MBUAPCD CEQA Air Quality Guidelines state that if the screening thresholds are met for operational CO, as described above in Table 5, further analysis should be undertaken. No traffic study was required for this project indicating that significant traffic impacts are not anticipated. In addition, the project does not exceed the 550 lb/day threshold. Therefore, a CO hotspot is unlikely to occur and no further CO hotspot analysis is necessary. Impacts are less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

Cumulative Impacts

Impact AIR-3: **The project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).**

Impact Analysis

The MBUAPCD's 2008 CEQA Air Quality Guidelines provides criteria for determining cumulative impacts and consistency. The Guidelines indicate that a project that is inconsistent with the AQMP will have a significant cumulative impact on regional air quality. As discussed in Impact AIR-1 above, the project is consistent with the applicable AQMP. In addition, cumulative air pollutant impacts

would occur if the project exceeded MBUAPCD thresholds given in Table 5. The project did not exceed any of the construction or operational thresholds.

The NCCAB is currently in nonattainment for State Ozone and PM_{10} standards. As discussed above, ozone precursors include ROG and NO_x. The project would not emit 137 lb/day of either air quality pollutant and therefore would not release emissions that exceed quantitative thresholds for these precursors. Similarly, PM_{10} thresholds also would not be exceeded for construction or operation of the project.

The regional analysis of construction and operational emissions indicates that the project would not exceed the MBUAPCD's significance thresholds. The project would not result in cumulative health impacts. Impacts are less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

Sensitive Receptors

Impact AIR-4:	**The project would not expose sensitive receptors to substantial pollutant concentrations.**

Impact Analysis

This discussion addresses whether the project would expose sensitive receptors to substantial pollutant concentrations of CO, DPM, or other toxic air contaminants of concern. Two scenarios have the potential for exposing sensitive receptors to toxic air contaminants. The first is when a project includes a new or modified source of toxic air contaminants and would be located near an existing or proposed sensitive receptor. The second scenario involves a residential or other sensitive receptor development locating near an existing or planned source of toxic air contaminants. The project is not considered a sensitive receptor land use since it is a commercial land use. The nearest sensitive receptor to the project site is located across The Alameda approximately 51 feet from the fence line of the project site. Therefore, this analysis examines potential exposure of offsite receptors from development of the project site.

Offsite Sensitive Receptors

The project proposes to construct a gasoline station with a convenience store and quick serve restaurant in a location with sensitive receptor in the vicinity. Therefore, the potential exposure to offsite receptors to criteria pollutants and toxic air contaminants from the development of the project is assessed.

Fugitive Dust

As discussed in Impact AIR-3, the project would not generate a significant impact for construction-generated, localized PM_{10}. Therefore, the project would not expose sensitive receptors to unhealthy levels of PM_{10}.

CO Hotspot

Carbon monoxide from mobile sources is the main pollutant of local concern and correlates to traffic volume, speed, and delay. Carbon monoxide emissions disperse quickly under normal meteorological conditions but can reach unhealthy levels with more stagnant meteorological conditions. High concentrations of CO can be found near signalized intersections or roadway segments operating at LOS E or worse during peak-hour traffic.

As discussed in Impact AIR-2, the MBUAPCD CEQA Air Quality Guidelines state that if the screening thresholds are met for operational CO, as described above in Table 5, further analysis should be undertaken. The project is not expected to result in significant traffic congestion and does not exceed the 550 lb/day threshold.

Toxic Air Contaminants

Toxic air contaminants (TACs), also known as hazardous air pollutants (HAPs), are another group of pollutants of concern. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts are not expected to occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the state and federal governments have set ambient air quality standards.

Construction equipment generates DPM, identified as a carcinogen by the ARB. The State of California has determined that DPM from diesel-fueled engines poses a chronic health risk with chronic (long-term) inhalation exposure. The California Office of Environmental Health Hazard Assessment (OEHHA) recommends using a 70-year exposure duration for determining residential cancer risks. Because of the project size and short duration, the project construction would not pose a toxic risk to nearby sensitive receptors. Therefore, health risks from construction-related DPM would be less than significant.

The operation of a gasoline fueling facility is a source of gasoline vapors, which include TACs, and other hazardous air pollutants such as DPM. ARB recommends avoiding siting sensitive such as schools, playgrounds, parks, daycares, nursing homes, hospitals, and residential uses within 300 feet of a large gasoline dispensing facility (defined as a facility with a throughput of 3.6 million gallons per year or greater). The project will have a throughput of 2.9 million gallons of gasoline per year and would not be considered a large gasoline station. A 50 foot separation is instead recommended for typical gas dispensing facilities. The nearest sensitive receptor to the project site is 51 feet from the

project's fence line. This is over the recommended 50 foot separation distance and under these conditions a health risk assessment is not required.

In addition, prior to construction and operation of a gasoline facility, the applicant is required to comply with District Rule 200, which requires project's to obtain a written Authority to Construct permit from the District. The project will also need to comply with District Rule 417, which requires any container holding organic liquid to be designed and equipped with a vapor loss control device, and District Rule 1002, which requires any transfer of gasoline to a vehicle fuel tank greater than 5 gallons must be made through a fill nozzle which captures the gasoline vapors displaced by the transfer. Based on the screening criteria and applicable regulations, no significant TAC impact is anticipated. The project will have a less than significant impact on offsite sensitive receptors. Operational TAC impacts to offsite sensitive receptors would be less than significant.

In summary, fugitive dust, CO hot spot, and TAC impacts from the proposed project would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant.

Objectionable Odors

Impact AIR-5:	**The project would not create objectionable odors affecting a substantial number of people.**

Impact Analysis

Thresholds of Significance

Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, schools, etc., warrant the closest scrutiny, but consideration could also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas. Therefore, this impact analysis is not limited to odor impacts on just sensitive receptors.

Two circumstances have the potential to cause odor impacts:

1) A source of odors is proposed to be located near existing or planned receptors, or
2) A receptor land use is proposed near an existing or planned source of odor.

The MBUAPCD CEQA Guidelines states the following: "Odors represent emissions of one or more pollutants that are a nuisance to healthy persons and my trigger asthma episodes in people with sensitive airways. Pollutants associated with objectionable odors include sulfur compounds and

[volatile organic compounds]. Typical sources of odors include landfills, rendering plants, chemical plans, agricultural uses, wastewater treatment plants, and refineries. Odors are a complex problem that can be caused by a minute quantities of substances. Because people have mixed reactions to odors, the nuisance level of an odor varies" (MBUAPCD 2008).

Project Analysis

The project would involve the development of a gasoline station with a convenience store and quick serve restaurant and may be a source of objectionable odors from the provision of gasoline. Vapor controls on gasoline tanks and dispensing equipment required by MBUAPCD regulation prevent significant odors from this source from occurring. The nearest sensitive receptor to the project fence line is located 51 feet across The Alameda. Gasoline stations are generally not considered a potential odor source. The project site does not include any sensitive receptors and is also not planned near an existing or planned source of odor. The type of restaurant has not been identified; therefore, the potential for odors from the restaurant component would be speculative.

The MBUAPCD does not have a recommended odor threshold for construction activities. Diesel exhaust and VOCs would be emitted during period of the construction of the project, which are objectionable to some; however, such odorous emissions are temporary, would disperse rapidly from the project site, and therefore should not reach an objectionable level at nearby residences. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

SECTION 6: GREENHOUSE GAS IMPACT ANALYSIS

6.1 - CEQA Guidelines

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on GHGs, the type, level, and impact of emissions generated by the project must be evaluated.

The following GHG significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

(b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

6.2 - Impact Analysis

Greenhouse Gas Inventory

Impact GHG-1:	**The project would generate direct and indirect greenhouse gas emissions; however, these emissions would not result in a significant impact on the environment.**

Impact Analysis

Threshold of Significance

The MBUAPCD has currently not established a Threshold of Significance for construction or operational related GHG emissions. In absence of GHG thresholds from the City of San Juan Bautista and the MBUAPCD, thresholds from the adjacent district, San Luis Obispo Air Pollution Control District, were reviewed. However, the adopted thresholds, which includes a bright line threshold of 1,150 metric tons of carbon dioxide equivalents ($MTCO_2e$) that would screen out small projects and an efficiency threshold of 4.9 $MTCO_2e$ per service population per year for mixed use projects, are not appropriate for all commercial projects. Instead, a threshold based on project consistency with the target established by ARB's AB 32 Scoping Plan was used. Projects that achieve reductions from business as usual emissions by 2020 of 21.7 percent would be consistent with the reductions required by the State to achieve the AB 32 target. Under these circumstances, the project would not hinder or obstruct the State's ability to reach AB 32 targets.

To determine significance, the analysis first will quantify project-related GHG emissions under a business-as-usual scenario, and then compare these emissions with those emissions that would occur when all project-related design features are accounted for, and when compliance with new

regulatory measures is assumed. The standard and methodology is explained in further detail, below. In addition, construction activities will be quantified and amortized over 30 years, which is the estimated life of the project, and then added to the annual operational emissions.

Business-as-Usual Operational Emissions

Operational emissions under the business-as-usual scenario were modeled using CalEEMod 2013.2.2. The analysis uses a modeling year of 2005 to represent the emissions that would occur in 2020 without regulations adopted since the 2002-2004 baseline used in the ARB Scoping Plan for its business as usual scenario. CalEEMod defaults were used for project energy usage, water usage, waste generation, and area sources (architectural coating, consumer products, and landscaping). The vehicle fleet mix was revised to reflect the fleet mix for year 2020. The year 2020 is the target year for AB 32 that requires the State to reduce emissions to 1990 levels by 2020. Full assumptions and CalEEMod model outputs are provided in Appendix A. Results of this analysis are presented below in Table 10.

2020 Operational Emissions

Operational emissions for the year 2020 were modeled using CalEEMod. CalEEMod assumes compliance with some, but not all applicable rules and regulations regarding energy efficiency, vehicle fuel efficiency, renewable energy usage, and other GHG reduction policies, as described in the CalEEMod User's Guide (CAPCOA 2011). The passenger vehicle efficiency standards under AB 1493 (Pavley) were adopted as revisions to the state's Low Emission Vehicle Program (LEV III), and are anticipated to be in place by 2020 and have been incorporated into CalEEMod assumptions.

In addition to these rules and regulations, the project would incorporate the following design features that would further reduce GHG emissions:

- Pedestrian Connections – The project is located adjacent to existing pedestrian infrastructure.
- Electrical Outlets for Landscaping Equipment: Outlets provided to power electric landscaping equipment.

GHG reductions from many of these design features can be quantified in CalEEMod. Note that CalEEMod nominally treats these design elements and conditions as "mitigation measures," despite their inclusion in the project description. Therefore, reported operational emissions are considered to represent unmitigated project conditions. Full assumptions and model outputs are provided in Appendix A. Results of this analysis are presented below in Table 10.

Table 10: Project Greenhouse Gas Emissions

Source	Emissions ($MTCO_2e$ per year)	
	Business as Usual	2020 (with Regulation and Design Features)
Area	0.00	0.00
Energy	83.50	66.12
Mobile	2,123.50	1,558.46
Waste	17.50	17.50
Water	3.36	2.90
Operation Subtotal	2,227.87	1,644.98
Construction Subtotal (amortize over 30 years)	7.62	7.62
Total	2,235.49	1,652.60
Reduction		26.07%
Significance Threshold		21.7%
Are emissions significant?		No

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents
Source of business as usual emissions: CalEEMod output for the year 2005 (Appendix A).
Source of 2020 emissions: CalEEMod output for the year 2020(Appendix A).

As shown in Table 10, the project has a reduction of 26.07% from 2020 Business as usual to the year 2020 with Regulations and Design features incorporated. This is above the 21.7-percent reduction outlined in the AB 32 Scoping Plan Update. The impact is less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

Greenhouse Gas Reduction Plans

Impact GHG-2 **The project would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of greenhouse gases.**

Impact Analysis

The City of San Juan Bautista does not currently have formal GHG emissions reduction plans or recommended emissions thresholds for determining significance associated with GHG emissions from development projects. In the absence of any formal GHG emissions reduction plans, the project is compared with the AB 32 scoping plan in order to determine compliance with any applicable plan, policy, or regulation adopted to reduce emissions of GHGs.

AB 32 Scoping Plan

The California State Legislature adopted AB 32 in 2006. AB 32 focuses on reducing GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, the ARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan calls for an "ambitious but achievable" reduction in California's GHG emissions, cutting approximately 30 percent from business-as-usual emission levels projected for 2020, or about 10 percent from today's levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman and child in California down to about 10 tons per person by 2020.

The Scoping Plan contains a variety of strategies to reduce the State's emissions. As shown in Table 11, the project is consistent with the strategies or the strategies are not applicable to the project. Therefore, the project is consistent with the applicable strategies.

Table 11: Scoping Plan Measures Consistency Analysis

Scoping Plan Reduction Measure	Project Consistency
1. California Cap-and-Trade Program Linked to Western Climate Initiative. Implement a broad-based California Cap-and-Trade program to provide a firm limit on emissions. Link the California cap-and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.	**Not directly applicable.** When this cap-and-trade system begins, products or services (such as electricity) would be covered and the cost of the cap-and-trade system would be transferred to the consumers.
2. California Light-Duty Vehicle Greenhouse Gas Standards. Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.	**Consistent.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. However, the standards would be applicable to the light-duty vehicles that would access the project site.

Table 11 (cont.): Scoping Plan Measures Consistency Analysis

Scoping Plan Reduction Measure	Project Consistency
3. Energy Efficiency. Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.	**Consistent.** This is a measure for the State to increase its energy efficiency standards in new buildings. The project is required to build to the new standards and would increase its energy efficiency through compliance.
4. Renewable Portfolio Standard. Achieve 33 percent renewable energy mix statewide. Renewable energy sources include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.	**Not directly applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. PG&E obtains 19 percent of its power supply from renewable sources such as geothermal. It is required to increase this percentage to 33 percent by the year 2020 pursuant to various regulations. The owners of the project would purchase power that is comprised of a greater amount of renewable sources.
5. Low Carbon Fuel Standard. Develop and adopt the Low Carbon Fuel Standard.	**Not directly applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. When this measure is initiated, the standard would be applicable to the fuel used by vehicles that would access the project site.
6. Regional Transportation-Related Greenhouse Gas Targets. Develop regional greenhouse gas emissions reduction targets for passenger vehicles. This measure refers to SB 375.	**Consistent.** SB 375 has no requirements that apply to development projects; however, the development and increased density proposed by the project will contribute to achieving SB 375 regional targets.
7. Vehicle Efficiency Measures. Implement light-duty vehicle efficiency measures.	**Not directly applicable.** When this measure is initiated, the standards would be applicable to the light-duty vehicles that would access the project site.
8. Goods Movement. Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.	**Not applicable.** The project does not propose any changes to maritime, rail, or intermodal facilities or forms of transportation.
9. Million Solar Roofs Program. Install 3,000 MW of solar-electric capacity under California's existing solar programs.	**Not applicable.** This measure is to increase solar throughout California, which is being done by various electricity providers and existing solar programs. The Proposed Project would not preclude the implementation of this strategy.
10. Medium/Heavy-Duty Vehicles. Adopt medium and heavy-duty vehicle efficiency measures.	**Not directly applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. When this measure is initiated, the standards would be applicable to the vehicles that access the project site.

Table 11 (cont.): Scoping Plan Measures Consistency Analysis

Scoping Plan Reduction Measure	Project Consistency
11. Industrial Emissions. Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.	**Not applicable.** This measure would apply to the direct greenhouse gas emissions at major industrial facilities emitting more than 500,000 $MTCO_2e$ per year. Furthermore, the project is not an industrial land use.
12. High Speed Rail. Support implementation of a high-speed rail system.	**Not applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency.
13. Green Building Strategy. Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	**Consistent.** The project would comply with existing green building regulation**.**
14. High Global Warming Potential Gases. Adopt measures to reduce high global warming potential gases.	**Not applicable.** This measure is applicable to the high global warming potential gases that would be used by sources with large equipment (such as in air conditioning and commercial refrigerators) that are not part of this commercial project.
15. Recycling and Waste. Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero waste.	**Consistent**. The project would utilize City of San Juan Bautista recycling services.
16. Sustainable Forests. Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.	**Not applicable.** The project site is not forested; therefore, no preservation is possible.
17. Water. Continue efficiency programs and use cleaner energy sources to move and treat water.	**Consistent. T**he project would comply with Green Building Code regulations and would implement required water conservation features.
18. Agriculture. In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.	**Not applicable.** The project site is not designated or in use for agriculture purposes. No grazing, feedlot, or other agricultural activities that generate manure occur onsite or are proposed to be implemented by the project.
Source of ARB Scoping Plan Reduction Measure: California Air Resources Board 2008. Source of Project Consistency or Applicability: FirstCarbon Solutions.	

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are necessary.

Level of Significance After Mitigation

Less than significant impact.

SECTION 7: REFERENCES

The following references were used in the preparation of this analysis and are referenced in the text and/or were used to provide the author with background information necessary for the preparation of thresholds and content.

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Appendix A: CalEEMod Output

Arco Gasoline Station

North Central Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	30.00	Space	0.27	0.00	0
Fast Food Restaurant w/o Drive Thru	3.34	1000sqft	0.08	3,342.00	0
Convenience Market With Gas Pumps	12.00	Pump	1.04	2,980.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2015
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Land Use - Based on site plan.

Construction Phase - Building construction phase reduced by 38% to reflect shorter than default construction schedule provided.

Off-road Equipment - Building construction equipment increased by 1 to conserve shorter building construction phase.

Grading - Soil exported for two underground storage tanks with a diameter of 120 inches and maximum length of 42.5 feet.

Vehicle Trips - Included 20% internal capture in trip generation rate based on traffic study data. Pass-by trips based on traffic study data; assumed no diverted trips.

Energy Mitigation - Newest Title 24 (2013) is not accounted for in this version of CalEEMod. Title 24 2013 is 30% more efficient than the Title 24 2008 for non-residential buildings.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	125.00
tblGrading	MaterialExported	0.00	712.96
tblLandUse	LandUseSquareFeet	12,000.00	0.00
tblLandUse	LandUseSquareFeet	3,340.00	3,342.00
tblLandUse	LandUseSquareFeet	1,694.10	2,980.00
tblLandUse	LotAcreage	0.04	1.04
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	PB_TP	65.00	60.00
tblVehicleTrips	PB_TP	12.00	60.00
tblVehicleTrips	PR_TP	14.00	40.00
tblVehicleTrips	PR_TP	51.00	40.00
tblVehicleTrips	ST_TR	204.47	130.20
tblVehicleTrips	ST_TR	696.00	556.79
tblVehicleTrips	SU_TR	166.88	130.20
tblVehicleTrips	SU_TR	500.00	556.79
tblVehicleTrips	WD_TR	542.60	130.20
tblVehicleTrips	WD_TR	716.00	572.71

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.0632	0.4399	0.2916	4.1000e-004	0.0168	0.0284	0.0452	8.3200e-003	0.0272	0.0355	0.0000	36.6106	36.6106	8.1000e-003	0.0000	36.7807
2015	0.4057	2.2208	1.4797	2.2100e-003	1.7200e-003	0.1491	0.1508	4.6000e-004	0.1433	0.1438	0.0000	191.1202	191.1202	0.0431	0.0000	192.0245
Total	**0.4689**	**2.6607**	**1.7713**	**2.6200e-003**	**0.0185**	**0.1775**	**0.1961**	**8.7800e-003**	**0.1705**	**0.1793**	**0.0000**	**227.7308**	**227.7308**	**0.0512**	**0.0000**	**228.8052**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.0632	0.4399	0.2916	4.1000e-004	0.0168	0.0284	0.0452	8.3200e-003	0.0272	0.0355	0.0000	36.6105	36.6105	8.1000e-003	0.0000	36.7807
2015	0.4057	2.2208	1.4797	2.2100e-003	1.7200e-003	0.1491	0.1508	4.6000e-004	0.1433	0.1438	0.0000	191.1200	191.1200	0.0431	0.0000	192.0243
Total	**0.4689**	**2.6607**	**1.7713**	**2.6200e-003**	**0.0185**	**0.1775**	**0.1961**	**8.7800e-003**	**0.1705**	**0.1793**	**0.0000**	**227.7305**	**227.7305**	**0.0512**	**0.0000**	**228.8050**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0321	0.0000	4.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.6000e-004
Energy	3.8400e-003	0.0349	0.0294	2.1000e-004		2.6600e-003	2.6600e-003		2.6600e-003	2.6600e-003	0.0000	81.5051	81.5051	2.6900e-003	1.1000e-003	81.9039
Mobile	2.6361	4.4221	23.1385	0.0228	1.4085	0.0480	1.4565	0.3773	0.0441	0.4214	0.0000	1,854.0863	1,854.0863	0.1221	0.0000	1,856.6508
Waste						0.0000	0.0000		0.0000	0.0000	7.8091	0.0000	7.8091	0.4615	0.0000	17.5006
Water						0.0000	0.0000		0.0000	0.0000	0.3614	1.9376	2.2990	0.0372	8.9000e-004	3.3578
Total	**2.6720**	**4.4570**	**23.1683**	**0.0230**	**1.4085**	**0.0507**	**1.4591**	**0.3773**	**0.0467**	**0.4241**	**8.1705**	**1,937.5298**	**1,945.7003**	**0.6235**	**1.9900e-003**	**1,959.4141**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0321	0.0000	4.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.6000e-004
Energy	3.4900e-003	0.0317	0.0266	1.9000e-004		2.4100e-003	2.4100e-003		2.4100e-003	2.4100e-003	0.0000	75.3033	75.3033	2.5100e-003	1.0100e-003	75.6704
Mobile	2.6256	4.3618	22.9303	0.0224	1.3803	0.0472	1.4275	0.3698	0.0433	0.4131	0.0000	1,819.6462	1,819.6462	0.1203	0.0000	1,822.1726
Waste						0.0000	0.0000		0.0000	0.0000	7.8091	0.0000	7.8091	0.4615	0.0000	17.5006
Water						0.0000	0.0000		0.0000	0.0000	0.3614	1.9376	2.2990	0.0372	8.9000e-004	3.3572
Total	**2.6611**	**4.3935**	**22.9573**	**0.0225**	**1.3803**	**0.0496**	**1.4299**	**0.3698**	**0.0457**	**0.4155**	**8.1705**	**1,896.8879**	**1,905.0584**	**0.6215**	**1.9000e-003**	**1,918.7017**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.41**	**1.43**	**0.91**	**1.91**	**2.00**	**2.11**	**2.00**	**2.00**	**2.14**	**2.02**	**0.00**	**2.10**	**2.09**	**0.32**	**4.52**	**2.08**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/1/2014	12/2/2014	5	2	
2	Grading	Grading	12/3/2014	12/8/2014	5	4	
3	Building Construction	Building Construction	12/9/2014	6/1/2015	5	125	
4	Paving	Paving	6/2/2015	6/15/2015	5	10	
5	Architectural Coating	Architectural Coating	6/16/2015	6/29/2015	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 9,483; Non-Residential Outdoor: 3,161 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	2	6.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Welders	4	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	89.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	12	2.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5500e-003	0.0272	0.0171	2.0000e-005		1.4800e-003	1.4800e-003		1.3600e-003	1.3600e-003	0.0000	1.6521	1.6521	4.9000e-004	0.0000	1.6623
Total	**2.5500e-003**	**0.0272**	**0.0171**	**2.0000e-005**	**5.8000e-003**	**1.4800e-003**	**7.2800e-003**	**2.9500e-003**	**1.3600e-003**	**4.3100e-003**	**0.0000**	**1.6521**	**1.6521**	**4.9000e-004**	**0.0000**	**1.6623**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	7.0000e-005	6.6000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0640	0.0640	1.0000e-005	0.0000	0.0641
Total	**5.0000e-005**	**7.0000e-005**	**6.6000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0640**	**0.0640**	**1.0000e-005**	**0.0000**	**0.0641**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5500e-003	0.0272	0.0171	2.0000e-005		1.4800e-003	1.4800e-003		1.3600e-003	1.3600e-003	0.0000	1.6521	1.6521	4.9000e-004	0.0000	1.6623
Total	**2.5500e-003**	**0.0272**	**0.0171**	**2.0000e-005**	**5.8000e-003**	**1.4800e-003**	**7.2800e-003**	**2.9500e-003**	**1.3600e-003**	**4.3100e-003**	**0.0000**	**1.6521**	**1.6521**	**4.9000e-004**	**0.0000**	**1.6623**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	7.0000e-005	6.6000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0640	0.0640	1.0000e-005	0.0000	0.0641
Total	**5.0000e-005**	**7.0000e-005**	**6.6000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0640**	**0.0640**	**1.0000e-005**	**0.0000**	**0.0641**

3.3 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8800e-003	0.0000	9.8800e-003	5.0600e-003	0.0000	5.0600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1500e-003	0.0444	0.0283	3.0000e-005		2.4200e-003	2.4200e-003		2.2300e-003	2.2300e-003	0.0000	2.7137	2.7137	8.0000e-004	0.0000	2.7306
Total	**4.1500e-003**	**0.0444**	**0.0283**	**3.0000e-005**	**9.8800e-003**	**2.4200e-003**	**0.0123**	**5.0600e-003**	**2.2300e-003**	**7.2900e-003**	**0.0000**	**2.7137**	**2.7137**	**8.0000e-004**	**0.0000**	**2.7306**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4800e-003	0.0167	0.0164	3.0000e-005	7.5000e-004	3.0000e-004	1.0600e-003	2.1000e-004	2.8000e-004	4.8000e-004	0.0000	3.0988	3.0988	3.0000e-005	0.0000	3.0993
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	1.5000e-004	1.3300e-003	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1280	0.1280	1.0000e-005	0.0000	0.1282
Total	**1.5800e-003**	**0.0168**	**0.0177**	**3.0000e-005**	**8.8000e-004**	**3.0000e-004**	**1.1900e-003**	**2.4000e-004**	**2.8000e-004**	**5.2000e-004**	**0.0000**	**3.2267**	**3.2267**	**4.0000e-005**	**0.0000**	**3.2276**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8800e-003	0.0000	9.8800e-003	5.0600e-003	0.0000	5.0600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1500e-003	0.0444	0.0283	3.0000e-005		2.4200e-003	2.4200e-003		2.2300e-003	2.2300e-003	0.0000	2.7137	2.7137	8.0000e-004	0.0000	2.7306
Total	**4.1500e-003**	**0.0444**	**0.0283**	**3.0000e-005**	**9.8800e-003**	**2.4200e-003**	**0.0123**	**5.0600e-003**	**2.2300e-003**	**7.2900e-003**	**0.0000**	**2.7137**	**2.7137**	**8.0000e-004**	**0.0000**	**2.7306**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4800e-003	0.0167	0.0164	3.0000e-005	7.5000e-004	3.0000e-004	1.0600e-003	2.1000e-004	2.8000e-004	4.8000e-004	0.0000	3.0988	3.0988	3.0000e-005	0.0000	3.0993
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	1.5000e-004	1.3300e-003	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1280	0.1280	1.0000e-005	0.0000	0.1282
Total	**1.5800e-003**	**0.0168**	**0.0177**	**3.0000e-005**	**8.8000e-004**	**3.0000e-004**	**1.1900e-003**	**2.4000e-004**	**2.8000e-004**	**5.2000e-004**	**0.0000**	**3.2267**	**3.2267**	**4.0000e-005**	**0.0000**	**3.2276**

3.4 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0546	0.3501	0.2246	3.3000e-004		0.0242	0.0242		0.0233	0.0233	0.0000	28.6328	28.6328	6.7600e-003	0.0000	28.7746
Total	**0.0546**	**0.3501**	**0.2246**	**3.3000e-004**		**0.0242**	**0.0242**		**0.0233**	**0.0233**	**0.0000**	**28.6328**	**28.6328**	**6.7600e-003**	**0.0000**	**28.7746**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	1.1600e-003	1.8600e-003	0.0000	5.0000e-005	2.0000e-005	8.0000e-005	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.1853	0.1853	0.0000	0.0000	0.1853
Worker	1.1000e-004	1.5000e-004	1.4100e-003	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1360	0.1360	1.0000e-005	0.0000	0.1362
Total	**2.8000e-004**	**1.3100e-003**	**3.2700e-003**	**0.0000**	**1.9000e-004**	**2.0000e-005**	**2.2000e-004**	**6.0000e-005**	**2.0000e-005**	**8.0000e-005**	**0.0000**	**0.3213**	**0.3213**	**1.0000e-005**	**0.0000**	**0.3216**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0546	0.3501	0.2246	3.3000e-004		0.0242	0.0242		0.0233	0.0233	0.0000	28.6327	28.6327	6.7600e-003	0.0000	28.7746
Total	**0.0546**	**0.3501**	**0.2246**	**3.3000e-004**		**0.0242**	**0.0242**		**0.0233**	**0.0233**	**0.0000**	**28.6327**	**28.6327**	**6.7600e-003**	**0.0000**	**28.7746**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	1.1600e-003	1.8600e-003	0.0000	5.0000e-005	2.0000e-005	8.0000e-005	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.1853	0.1853	0.0000	0.0000	0.1853
Worker	1.1000e-004	1.5000e-004	1.4100e-003	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1360	0.1360	1.0000e-005	0.0000	0.1362
Total	**2.8000e-004**	**1.3100e-003**	**3.2700e-003**	**0.0000**	**1.9000e-004**	**2.0000e-005**	**2.2000e-004**	**6.0000e-005**	**2.0000e-005**	**8.0000e-005**	**0.0000**	**0.3213**	**0.3213**	**1.0000e-005**	**0.0000**	**0.3216**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3212	2.1273	1.4011	2.0900e-003		0.1434	0.1434		0.1380	0.1380	0.0000	181.0739	181.0739	0.0409	0.0000	181.9337
Total	**0.3212**	**2.1273**	**1.4011**	**2.0900e-003**		**0.1434**	**0.1434**		**0.1380**	**0.1380**	**0.0000**	**181.0739**	**181.0739**	**0.0409**	**0.0000**	**181.9337**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1000e-004	6.2500e-003	0.0106	1.0000e-005	3.5000e-004	1.1000e-004	4.5000e-004	1.0000e-004	1.0000e-004	2.0000e-004	0.0000	1.1612	1.1612	1.0000e-005	0.0000	1.1615
Worker	5.8000e-004	8.7000e-004	7.8900e-003	1.0000e-005	8.6000e-004	1.0000e-005	8.7000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.8351	0.8351	6.0000e-005	0.0000	0.8364
Total	**1.4900e-003**	**7.1200e-003**	**0.0185**	**2.0000e-005**	**1.2100e-003**	**1.2000e-004**	**1.3200e-003**	**3.3000e-004**	**1.1000e-004**	**4.4000e-004**	**0.0000**	**1.9963**	**1.9963**	**7.0000e-005**	**0.0000**	**1.9979**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3212	2.1273	1.4011	2.0900e-003		0.1434	0.1434		0.1380	0.1380	0.0000	181.0737	181.0737	0.0409	0.0000	181.9335
Total	**0.3212**	**2.1273**	**1.4011**	**2.0900e-003**		**0.1434**	**0.1434**		**0.1380**	**0.1380**	**0.0000**	**181.0737**	**181.0737**	**0.0409**	**0.0000**	**181.9335**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1000e-004	6.2500e-003	0.0106	1.0000e-005	3.5000e-004	1.1000e-004	4.5000e-004	1.0000e-004	1.0000e-004	2.0000e-004	0.0000	1.1612	1.1612	1.0000e-005	0.0000	1.1615
Worker	5.8000e-004	8.7000e-004	7.8900e-003	1.0000e-005	8.6000e-004	1.0000e-005	8.7000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.8351	0.8351	6.0000e-005	0.0000	0.8364
Total	**1.4900e-003**	**7.1200e-003**	**0.0185**	**2.0000e-005**	**1.2100e-003**	**1.2000e-004**	**1.3200e-003**	**3.3000e-004**	**1.1000e-004**	**4.4000e-004**	**0.0000**	**1.9963**	**1.9963**	**7.0000e-005**	**0.0000**	**1.9979**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.0200e-003	0.0730	0.0459	7.0000e-005		4.4600e-003	4.4600e-003		4.1100e-003	4.1100e-003	0.0000	6.2708	6.2708	1.8400e-003	0.0000	6.3094
Paving	3.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.3700e-003**	**0.0730**	**0.0459**	**7.0000e-005**		**4.4600e-003**	**4.4600e-003**		**4.1100e-003**	**4.1100e-003**	**0.0000**	**6.2708**	**6.2708**	**1.8400e-003**	**0.0000**	**6.3094**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	5.2000e-004	4.7500e-003	1.0000e-005	5.2000e-004	1.0000e-005	5.2000e-004	1.4000e-004	1.0000e-005	1.4000e-004	0.0000	0.5026	0.5026	4.0000e-005	0.0000	0.5034
Total	**3.5000e-004**	**5.2000e-004**	**4.7500e-003**	**1.0000e-005**	**5.2000e-004**	**1.0000e-005**	**5.2000e-004**	**1.4000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**0.5026**	**0.5026**	**4.0000e-005**	**0.0000**	**0.5034**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.0200e-003	0.0730	0.0459	7.0000e-005		4.4600e-003	4.4600e-003		4.1100e-003	4.1100e-003	0.0000	6.2708	6.2708	1.8400e-003	0.0000	6.3094
Paving	3.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.3700e-003**	**0.0730**	**0.0459**	**7.0000e-005**		**4.4600e-003**	**4.4600e-003**		**4.1100e-003**	**4.1100e-003**	**0.0000**	**6.2708**	**6.2708**	**1.8400e-003**	**0.0000**	**6.3094**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	5.2000e-004	4.7500e-003	1.0000e-005	5.2000e-004	1.0000e-005	5.2000e-004	1.4000e-004	1.0000e-005	1.4000e-004	0.0000	0.5026	0.5026	4.0000e-005	0.0000	0.5034
Total	**3.5000e-004**	**5.2000e-004**	**4.7500e-003**	**1.0000e-005**	**5.2000e-004**	**1.0000e-005**	**5.2000e-004**	**1.4000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**0.5026**	**0.5026**	**4.0000e-005**	**0.0000**	**0.5034**

3.6 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0300e-003	0.0129	9.5100e-003	1.0000e-005		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	1.2766	1.2766	1.7000e-004	0.0000	1.2801
Total	**0.0753**	**0.0129**	**9.5100e-003**	**1.0000e-005**		**1.1000e-003**	**1.1000e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**1.2766**	**1.2766**	**1.7000e-004**	**0.0000**	**1.2801**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0733					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0300e-003	0.0129	9.5100e-003	1.0000e-005		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	1.2766	1.2766	1.7000e-004	0.0000	1.2801
Total	**0.0753**	**0.0129**	**9.5100e-003**	**1.0000e-005**		**1.1000e-003**	**1.1000e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**1.2766**	**1.2766**	**1.7000e-004**	**0.0000**	**1.2801**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.6256	4.3618	22.9303	0.0224	1.3803	0.0472	1.4275	0.3698	0.0433	0.4131	0.0000	1,819.6462	1,819.6462	0.1203	0.0000	1,822.1726
Unmitigated	2.6361	4.4221	23.1385	0.0228	1.4085	0.0480	1.4565	0.3773	0.0441	0.4214	0.0000	1,854.0863	1,854.0863	0.1221	0.0000	1,856.6508

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	1,562.40	1,562.40	1562.40	1,698,770	1,664,795
Fast Food Restaurant w/o Drive Thru	1,912.85	1,859.68	1859.68	2,067,547	2,026,196
Parking Lot	0.00	0.00	0.00		
Total	3,475.25	3,422.08	3,422.08	3,766,317	3,690,991

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	40	0	60
Fast Food Restaurant w/o Drive	9.50	7.30	7.30	1.50	79.50	19.00	40	0	60
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.464859	0.039088	0.210752	0.165462	0.051917	0.007362	0.015753	0.027922	0.002976	0.002213	0.008136	0.000842	0.002718

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	40.7900	40.7900	1.8400e-003	3.8000e-004	40.9470
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	43.4719	43.4719	1.9700e-003	4.1000e-004	43.6392
NaturalGas Mitigated	3.4900e-003	0.0317	0.0266	1.9000e-004		2.4100e-003	2.4100e-003		2.4100e-003	2.4100e-003	0.0000	34.5133	34.5133	6.6000e-004	6.3000e-004	34.7233
NaturalGas Unmitigated	3.8400e-003	0.0349	0.0294	2.1000e-004		2.6600e-003	2.6600e-003		2.6600e-003	2.6600e-003	0.0000	38.0332	38.0332	7.3000e-004	7.0000e-004	38.2647

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Fast Food Restaurant w/o Drive Thru	705296	3.8000e-003	0.0346	0.0290	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.6373	37.6373	7.2000e-004	6.9000e-004	37.8663
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market With Gas Pumps	7420.2	4.0000e-005	3.6000e-004	3.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.3960	0.3960	1.0000e-005	1.0000e-005	0.3984
Total		**3.8400e-003**	**0.0349**	**0.0294**	**2.1000e-004**		**2.6600e-003**	**2.6600e-003**		**2.6600e-003**	**2.6600e-003**	**0.0000**	**38.0332**	**38.0332**	**7.3000e-004**	**7.0000e-004**	**38.2647**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market With Gas Pumps	5194.14	3.0000e-005	2.5000e-004	2.1000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2772	0.2772	1.0000e-005	1.0000e-005	0.2789
Fast Food Restaurant w/o Drive Thru	641560	3.4600e-003	0.0315	0.0264	1.9000e-004		2.3900e-003	2.3900e-003		2.3900e-003	2.3900e-003	0.0000	34.2361	34.2361	6.6000e-004	6.3000e-004	34.4445
Total		**3.4900e-003**	**0.0317**	**0.0266**	**1.9000e-004**		**2.4100e-003**	**2.4100e-003**		**2.4100e-003**	**2.4100e-003**	**0.0000**	**34.5133**	**34.5133**	**6.7000e-004**	**6.4000e-004**	**34.7233**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	34836.2	10.1343	4.6000e-004	9.0000e-005	10.1733
Fast Food Restaurant w/o Drive Thru	114597	33.3376	1.5100e-003	3.1000e-004	33.4660
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**43.4719**	**1.9700e-003**	**4.0000e-004**	**43.6392**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	31823.4	9.2578	4.2000e-004	9.0000e-005	9.2934
Fast Food Restaurant w/o Drive Thru	108391	31.5322	1.4300e-003	2.9000e-004	31.6536
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**40.7900**	**1.8500e-003**	**3.8000e-004**	**40.9470**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0321	0.0000	4.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.6000e-004
Unmitigated	0.0321	0.0000	4.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.3300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0247					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.6000e-004
Total	**0.0321**	**0.0000**	**4.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**8.1000e-004**	**8.1000e-004**	**0.0000**	**0.0000**	**8.6000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.3300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0247					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.6000e-004
Total	**0.0321**	**0.0000**	**4.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**8.1000e-004**	**8.1000e-004**	**0.0000**	**0.0000**	**8.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.2990	0.0372	8.9000e-004	3.3572
Unmitigated	2.2990	0.0372	8.9000e-004	3.3578

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.125486 / 0.0769109	0.3157	4.1000e-003	1.0000e-004	0.4325
Fast Food Restaurant w/o Drive Thru	1.0138 / 0.0647108	1.9834	0.0331	8.0000e-004	2.9253
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.2990**	**0.0372**	**9.0000e-004**	**3.3578**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.125486 / 0.0769109	0.3157	4.1000e-003	1.0000e-004	0.4325
Fast Food Restaurant w/o Drive Thru	1.0138 / 0.0647108	1.9834	0.0331	7.9000e-004	2.9248
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.2990**	**0.0372**	**8.9000e-004**	**3.3572**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.8091	0.4615	0.0000	17.5006
Unmitigated	7.8091	0.4615	0.0000	17.5006

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	38.47	7.8091	0.4615	0.0000	17.5006
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**7.8091**	**0.4615**	**0.0000**	**17.5006**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	38.47	7.8091	0.4615	0.0000	17.5006
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**7.8091**	**0.4615**	**0.0000**	**17.5006**

Arco Gasoline Station

North Central Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	30.00	Space	0.27	0.00	0
Fast Food Restaurant w/o Drive Thru	3.34	1000sqft	0.08	3,342.00	0
Convenience Market With Gas Pumps	12.00	Pump	1.04	2,980.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2015
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Land Use - Based on site plan.

Construction Phase - Building construction phase reduced by 38% to reflect shorter than default construction schedule provided.

Off-road Equipment - Building construction equipment increased by 1 to conserve shorter building construction phase.

Grading - Soil exported for two underground storage tanks with a diameter of 120 inches and maximum length of 42.5 feet.

Vehicle Trips - Included 20% internal capture in trip generation rate based on traffic study data. Pass-by trips based on traffic study data; assumed no diverted trips.

Energy Mitigation - Newest Title 24 (2013) is not accounted for in this version of CalEEMod. Title 24 2013 is 30% more efficient than the Title 24 2008 for non-residential buildings.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	125.00
tblGrading	MaterialExported	0.00	712.96
tblLandUse	LandUseSquareFeet	12,000.00	0.00
tblLandUse	LandUseSquareFeet	3,340.00	3,342.00
tblLandUse	LandUseSquareFeet	1,694.10	2,980.00
tblLandUse	LotAcreage	0.04	1.04
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	PB_TP	65.00	60.00
tblVehicleTrips	PB_TP	12.00	60.00
tblVehicleTrips	PR_TP	14.00	40.00
tblVehicleTrips	PR_TP	51.00	40.00
tblVehicleTrips	ST_TR	204.47	130.20
tblVehicleTrips	ST_TR	696.00	556.79
tblVehicleTrips	SU_TR	166.88	130.20
tblVehicleTrips	SU_TR	500.00	556.79
tblVehicleTrips	WD_TR	542.60	130.20
tblVehicleTrips	WD_TR	716.00	572.71

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	6.4577	41.3367	26.7600	0.0392	5.8653	2.8489	7.3495	2.9711	2.7438	4.3366	0.0000	3,755.9521	3,755.9521	0.8778	0.0000	3,774.3850
2015	15.0578	39.5207	26.2442	0.0392	0.1068	2.6583	2.6813	0.0283	2.5568	2.5630	0.0000	3,738.0982	3,738.0982	0.8373	0.0000	3,755.6817
Total	**21.5156**	**80.8575**	**53.0042**	**0.0785**	**5.9721**	**5.5072**	**10.0308**	**2.9995**	**5.3005**	**6.8996**	**0.0000**	**7,494.0503**	**7,494.0503**	**1.7151**	**0.0000**	**7,530.0667**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	6.4577	41.3367	26.7600	0.0392	5.8653	2.8489	7.3495	2.9711	2.7438	4.3366	0.0000	3,755.9521	3,755.9521	0.8778	0.0000	3,774.3850
2015	15.0578	39.5207	26.2442	0.0392	0.1068	2.6583	2.6813	0.0283	2.5568	2.5630	0.0000	3,738.0982	3,738.0982	0.8373	0.0000	3,755.6817
Total	**21.5156**	**80.8575**	**53.0042**	**0.0785**	**5.9721**	**5.5072**	**10.0308**	**2.9995**	**5.3005**	**6.8996**	**0.0000**	**7,494.0503**	**7,494.0503**	**1.7151**	**0.0000**	**7,530.0667**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1759	5.0000e-005	4.7900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.9200e-003	9.9200e-003	3.0000e-005		0.0105
Energy	0.0211	0.1914	0.1608	1.1500e-003		0.0146	0.0146		0.0146	0.0146		229.7231	229.7231	4.4000e-003	4.2100e-003	231.1211
Mobile	14.0997	22.7152	110.8102	0.1308	8.0222	0.2634	8.2856	2.1436	0.2417	2.3854		11,760.8047	11,760.8047	0.7434		11,776.4154
Total	**14.2967**	**22.9067**	**110.9758**	**0.1320**	**8.0222**	**0.2780**	**8.3002**	**2.1436**	**0.2563**	**2.3999**		**11,990.5377**	**11,990.5377**	**0.7478**	**4.2100e-003**	**12,007.5470**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1759	5.0000e-005	4.7900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.9200e-003	9.9200e-003	3.0000e-005		0.0105
Energy	0.0191	0.1737	0.1459	1.0400e-003		0.0132	0.0132		0.0132	0.0132		208.4624	208.4624	4.0000e-003	3.8200e-003	209.7311
Mobile	14.0405	22.4076	109.5822	0.1284	7.8618	0.2589	8.1206	2.1008	0.2376	2.3383		11,541.9287	11,541.9287	0.7323		11,557.3073
Total	**14.2356**	**22.5814**	**109.7329**	**0.1295**	**7.8618**	**0.2721**	**8.1339**	**2.1008**	**0.2508**	**2.3516**		**11,750.4010**	**11,750.4010**	**0.7363**	**3.8200e-003**	**11,767.0489**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.43**	**1.42**	**1.12**	**1.92**	**2.00**	**2.11**	**2.00**	**2.00**	**2.14**	**2.02**	**0.00**	**2.00**	**2.00**	**1.53**	**9.26**	**2.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/1/2014	12/2/2014	5	2	
2	Grading	Grading	12/3/2014	12/8/2014	5	4	
3	Building Construction	Building Construction	12/9/2014	6/1/2015	5	125	
4	Paving	Paving	6/2/2015	6/15/2015	5	10	
5	Architectural Coating	Architectural Coating	6/16/2015	6/29/2015	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 9,483; Non-Residential Outdoor: 3,161 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	2	6.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Welders	4	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	89.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	12	2.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	2.5474	27.1661	17.0975	0.0171		1.4834	1.4834		1.3647	1.3647		1,821.0895	1,821.0895	0.5382		1,832.3907
Total	**2.5474**	**27.1661**	**17.0975**	**0.0171**	**5.7996**	**1.4834**	**7.2830**	**2.9537**	**1.3647**	**4.3184**		**1,821.0895**	**1,821.0895**	**0.5382**		**1,832.3907**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0496	0.0637	0.6693	8.4000e-004	0.0657	7.8000e-004	0.0665	0.0174	7.0000e-004	0.0181		74.5721	74.5721	5.7600e-003		74.6932
Total	**0.0496**	**0.0637**	**0.6693**	**8.4000e-004**	**0.0657**	**7.8000e-004**	**0.0665**	**0.0174**	**7.0000e-004**	**0.0181**		**74.5721**	**74.5721**	**5.7600e-003**		**74.6932**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	2.5474	27.1661	17.0975	0.0171		1.4834	1.4834		1.3647	1.3647	0.0000	1,821.0895	1,821.0895	0.5382		1,832.3907
Total	**2.5474**	**27.1661**	**17.0975**	**0.0171**	**5.7996**	**1.4834**	**7.2830**	**2.9537**	**1.3647**	**4.3184**	**0.0000**	**1,821.0895**	**1,821.0895**	**0.5382**		**1,832.3907**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0496	0.0637	0.6693	8.4000e-004	0.0657	7.8000e-004	0.0665	0.0174	7.0000e-004	0.0181		74.5721	74.5721	5.7600e-003		74.6932
Total	**0.0496**	**0.0637**	**0.6693**	**8.4000e-004**	**0.0657**	**7.8000e-004**	**0.0665**	**0.0174**	**7.0000e-004**	**0.0181**		**74.5721**	**74.5721**	**5.7600e-003**		**74.6932**

3.3 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9418	0.0000	4.9418	2.5298	0.0000	2.5298			0.0000			0.0000
Off-Road	2.0759	22.1752	14.1657	0.0141		1.2106	1.2106		1.1138	1.1138		1,495.6888	1,495.6888	0.4420		1,504.9706
Total	**2.0759**	**22.1752**	**14.1657**	**0.0141**	**4.9418**	**1.2106**	**6.1524**	**2.5298**	**1.1138**	**3.6436**		**1,495.6888**	**1,495.6888**	**0.4420**		**1,504.9706**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6614	8.0294	6.6057	0.0167	0.3876	0.1505	0.5381	0.1061	0.1384	0.2445		1,709.5751	1,709.5751	0.0153		1,709.8958
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0496	0.0637	0.6693	8.4000e-004	0.0657	7.8000e-004	0.0665	0.0174	7.0000e-004	0.0181		74.5721	74.5721	5.7600e-003		74.6932
Total	**0.7110**	**8.0931**	**7.2750**	**0.0175**	**0.4534**	**0.1513**	**0.6046**	**0.1236**	**0.1391**	**0.2627**		**1,784.1473**	**1,784.1473**	**0.0210**		**1,784.5889**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9418	0.0000	4.9418	2.5298	0.0000	2.5298			0.0000			0.0000
Off-Road	2.0759	22.1752	14.1657	0.0141		1.2106	1.2106		1.1138	1.1138	0.0000	1,495.6887	1,495.6887	0.4420		1,504.9706
Total	**2.0759**	**22.1752**	**14.1657**	**0.0141**	**4.9418**	**1.2106**	**6.1524**	**2.5298**	**1.1138**	**3.6436**	**0.0000**	**1,495.6887**	**1,495.6887**	**0.4420**		**1,504.9706**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6614	8.0294	6.6057	0.0167	0.3876	0.1505	0.5381	0.1061	0.1384	0.2445		1,709.5751	1,709.5751	0.0153		1,709.8958
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0496	0.0637	0.6693	8.4000e-004	0.0657	7.8000e-004	0.0665	0.0174	7.0000e-004	0.0181		74.5721	74.5721	5.7600e-003		74.6932
Total	**0.7110**	**8.0931**	**7.2750**	**0.0175**	**0.4534**	**0.1513**	**0.6046**	**0.1236**	**0.1391**	**0.2627**		**1,784.1473**	**1,784.1473**	**0.0210**		**1,784.5889**

3.4 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	6.4280	41.1896	26.4218	0.0388		2.8460	2.8460		2.7411	2.7411		3,713.2031	3,713.2031	0.8761		3,731.6003
Total	**6.4280**	**41.1896**	**26.4218**	**0.0388**		**2.8460**	**2.8460**		**2.7411**	**2.7411**		**3,713.2031**	**3,713.2031**	**0.8761**		**3,731.6003**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0173	0.1312	0.1709	2.4000e-004	6.5800e-003	2.7100e-003	9.2900e-003	1.8700e-003	2.4900e-003	4.3600e-003		24.1059	24.1059	2.6000e-004		24.1114
Worker	0.0124	0.0159	0.1673	2.1000e-004	0.0164	1.9000e-004	0.0166	4.3600e-003	1.8000e-004	4.5300e-003		18.6430	18.6430	1.4400e-003		18.6733
Total	**0.0297**	**0.1471**	**0.3382**	**4.5000e-004**	**0.0230**	**2.9000e-003**	**0.0259**	**6.2300e-003**	**2.6700e-003**	**8.8900e-003**		**42.7490**	**42.7490**	**1.7000e-003**		**42.7847**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	6.4280	41.1896	26.4218	0.0388		2.8460	2.8460		2.7411	2.7411	0.0000	3,713.2031	3,713.2031	0.8761		3,731.6003
Total	**6.4280**	**41.1896**	**26.4218**	**0.0388**		**2.8460**	**2.8460**		**2.7411**	**2.7411**	**0.0000**	**3,713.2031**	**3,713.2031**	**0.8761**		**3,731.6003**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0173	0.1312	0.1709	2.4000e-004	6.5800e-003	2.7100e-003	9.2900e-003	1.8700e-003	2.4900e-003	4.3600e-003		24.1059	24.1059	2.6000e-004		24.1114
Worker	0.0124	0.0159	0.1673	2.1000e-004	0.0164	1.9000e-004	0.0166	4.3600e-003	1.8000e-004	4.5300e-003		18.6430	18.6430	1.4400e-003		18.6733
Total	**0.0297**	**0.1471**	**0.3382**	**4.5000e-004**	**0.0230**	**2.9000e-003**	**0.0259**	**6.2300e-003**	**2.6700e-003**	**8.8900e-003**		**42.7490**	**42.7490**	**1.7000e-003**		**42.7847**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.9478	39.3950	25.9470	0.0388		2.6562	2.6562		2.5548	2.5548		3,696.2931	3,696.2931	0.8358		3,713.8448
Total	**5.9478**	**39.3950**	**25.9470**	**0.0388**		**2.6562**	**2.6562**		**2.5548**	**2.5548**		**3,696.2931**	**3,696.2931**	**0.8358**		**3,713.8448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0147	0.1117	0.1492	2.4000e-004	6.5800e-003	1.9800e-003	8.5600e-003	1.8700e-003	1.8200e-003	3.6900e-003		23.7813	23.7813	2.2000e-004		23.7859
Worker	0.0109	0.0141	0.1481	2.1000e-004	0.0164	1.8000e-004	0.0166	4.3600e-003	1.6000e-004	4.5200e-003		18.0238	18.0238	1.2900e-003		18.0510
Total	**0.0255**	**0.1258**	**0.2973**	**4.5000e-004**	**0.0230**	**2.1600e-003**	**0.0252**	**6.2300e-003**	**1.9800e-003**	**8.2100e-003**		**41.8051**	**41.8051**	**1.5100e-003**		**41.8369**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.9478	39.3950	25.9470	0.0388		2.6562	2.6562		2.5548	2.5548	0.0000	3,696.2931	3,696.2931	0.8358		3,713.8448
Total	**5.9478**	**39.3950**	**25.9470**	**0.0388**		**2.6562**	**2.6562**		**2.5548**	**2.5548**	**0.0000**	**3,696.2931**	**3,696.2931**	**0.8358**		**3,713.8448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0147	0.1117	0.1492	2.4000e-004	6.5800e-003	1.9800e-003	8.5600e-003	1.8700e-003	1.8200e-003	3.6900e-003		23.7813	23.7813	2.2000e-004		23.7859
Worker	0.0109	0.0141	0.1481	2.1000e-004	0.0164	1.8000e-004	0.0166	4.3600e-003	1.6000e-004	4.5200e-003		18.0238	18.0238	1.2900e-003		18.0510
Total	**0.0255**	**0.1258**	**0.2973**	**4.5000e-004**	**0.0230**	**2.1600e-003**	**0.0252**	**6.2300e-003**	**1.9800e-003**	**8.2100e-003**		**41.8051**	**41.8051**	**1.5100e-003**		**41.8369**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4041	14.5959	9.1695	0.0133		0.8919	0.8919		0.8215	0.8215		1,382.4703	1,382.4703	0.4054		1,390.9826
Paving	0.0707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4748**	**14.5959**	**9.1695**	**0.0133**		**0.8919**	**0.8919**		**0.8215**	**0.8215**		**1,382.4703**	**1,382.4703**	**0.4054**		**1,390.9826**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0706	0.0916	0.9625	1.3600e-003	0.1068	1.1500e-003	0.1080	0.0283	1.0500e-003	0.0294		117.1548	117.1548	8.4100e-003		117.3314
Total	**0.0706**	**0.0916**	**0.9625**	**1.3600e-003**	**0.1068**	**1.1500e-003**	**0.1080**	**0.0283**	**1.0500e-003**	**0.0294**		**117.1548**	**117.1548**	**8.4100e-003**		**117.3314**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4041	14.5959	9.1695	0.0133		0.8919	0.8919		0.8215	0.8215	0.0000	1,382.4703	1,382.4703	0.4054		1,390.9826
Paving	0.0707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4748**	**14.5959**	**9.1695**	**0.0133**		**0.8919**	**0.8919**		**0.8215**	**0.8215**	**0.0000**	**1,382.4703**	**1,382.4703**	**0.4054**		**1,390.9826**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0706	0.0916	0.9625	1.3600e-003	0.1068	1.1500e-003	0.1080	0.0283	1.0500e-003	0.0294		117.1548	117.1548	8.4100e-003		117.3314
Total	**0.0706**	**0.0916**	**0.9625**	**1.3600e-003**	**0.1068**	**1.1500e-003**	**0.1080**	**0.0283**	**1.0500e-003**	**0.0294**		**117.1548**	**117.1548**	**8.4100e-003**		**117.3314**

3.6 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	14.6512					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209		281.4481	281.4481	0.0367		282.2177
Total	**15.0578**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**		**281.4481**	**281.4481**	**0.0367**		**282.2177**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	14.6512					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209	0.0000	281.4481	281.4481	0.0367		282.2177
Total	**15.0578**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**	**0.0000**	**281.4481**	**281.4481**	**0.0367**		**282.2177**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	14.0405	22.4076	109.5822	0.1284	7.8618	0.2589	8.1206	2.1008	0.2376	2.3383		11,541.9287	11,541.9287	0.7323		11,557.3073
Unmitigated	14.0997	22.7152	110.8102	0.1308	8.0222	0.2634	8.2856	2.1436	0.2417	2.3854		11,760.8047	11,760.8047	0.7434		11,776.4154

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	1,562.40	1,562.40	1562.40	1,698,770	1,664,795
Fast Food Restaurant w/o Drive Thru	1,912.85	1,859.68	1859.68	2,067,547	2,026,196
Parking Lot	0.00	0.00	0.00		
Total	3,475.25	3,422.08	3,422.08	3,766,317	3,690,991

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas Pumps	9.50	7.30	7.30	0.80	80.20	19.00	40	0	60
Fast Food Restaurant w/o Drive Th	9.50	7.30	7.30	1.50	79.50	19.00	40	0	60
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.464859	0.039088	0.210752	0.165462	0.051917	0.007362	0.015753	0.027922	0.002976	0.002213	0.008136	0.000842	0.002718

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0191	0.1737	0.1459	1.0400e-003		0.0132	0.0132		0.0132	0.0132		208.4624	208.4624	4.0000e-003	3.8200e-003	209.7311
NaturalGas Unmitigated	0.0211	0.1914	0.1608	1.1500e-003		0.0146	0.0146		0.0146	0.0146		229.7231	229.7231	4.4000e-003	4.2100e-003	231.1211

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market With Gas Pumps	20.3293	2.2000e-004	1.9900e-003	1.6700e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.3917	2.3917	5.0000e-005	4.0000e-005	2.4062
Fast Food Restaurant w/o Drive Th	1932.32	0.0208	0.1894	0.1591	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.3314	227.3314	4.3600e-003	4.1700e-003	228.7149
Total		**0.0211**	**0.1914**	**0.1608**	**1.1500e-003**		**0.0146**	**0.0146**		**0.0146**	**0.0146**		**229.7231**	**229.7231**	**4.4100e-003**	**4.2100e-003**	**231.1211**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market With Gas Pumps	0.0142305	1.5000e-004	1.4000e-003	1.1700e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.6742	1.6742	3.0000e-005	3.0000e-005	1.6844
Fast Food Restaurant w/o Drive Thru	1.7577	0.0190	0.1723	0.1448	1.0300e-003		0.0131	0.0131		0.0131	0.0131		206.7882	206.7882	3.9600e-003	3.7900e-003	208.0467
Total		**0.0191**	**0.1737**	**0.1459**	**1.0400e-003**		**0.0132**	**0.0132**		**0.0132**	**0.0132**		**208.4624**	**208.4624**	**3.9900e-003**	**3.8200e-003**	**209.7311**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1759	5.0000e-005	4.7900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.9200e-003	9.9200e-003	3.0000e-005		0.0105
Unmitigated	0.1759	5.0000e-005	4.7900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.9200e-003	9.9200e-003	3.0000e-005		0.0105

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1353					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7000e-004	5.0000e-005	4.7900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.9200e-003	9.9200e-003	3.0000e-005		0.0105
Total	**0.1759**	**5.0000e-005**	**4.7900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**9.9200e-003**	**9.9200e-003**	**3.0000e-005**		**0.0105**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Tota	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1353					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7000e-004	5.0000e-005	4.7900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.9200e-003	9.9200e-003	3.0000e-005		0.0105
Total	**0.1759**	**5.0000e-005**	**4.7900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**9.9200e-003**	**9.9200e-003**	**3.0000e-005**		**0.0105**

Arco Gasoline Station

North Central Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	30.00	Space	0.27	0.00	0
Fast Food Restaurant w/o Drive Thru	3.34	1000sqft	0.08	3,342.00	0
Convenience Market With Gas Pumps	12.00	Pump	1.04	2,980.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2015
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Land Use - Based on site plan.

Construction Phase - Building construction phase reduced by 38% to reflect shorter than default construction schedule provided.

Off-road Equipment - Building construction equipment increased by 1 to conserve shorter building construction phase.

Grading - Soil exported for two underground storage tanks with a diameter of 120 inches and maximum length of 42.5 feet.

Vehicle Trips - Included 20% internal capture in trip generation rate based on traffic study data. Pass-by trips based on traffic study data; assumed no diverted trips.

Energy Mitigation - Newest Title 24 (2013) is not accounted for in this version of CalEEMod. Title 24 2013 is 30% more efficient than the Title 24 2008 for non-residential buildings.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	125.00
tblGrading	MaterialExported	0.00	712.96
tblLandUse	LandUseSquareFeet	12,000.00	0.00
tblLandUse	LandUseSquareFeet	3,340.00	3,342.00
tblLandUse	LandUseSquareFeet	1,694.10	2,980.00
tblLandUse	LotAcreage	0.04	1.04
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	PB_TP	65.00	60.00
tblVehicleTrips	PB_TP	12.00	60.00
tblVehicleTrips	PR_TP	14.00	40.00
tblVehicleTrips	PR_TP	51.00	40.00
tblVehicleTrips	ST_TR	204.47	130.20
tblVehicleTrips	ST_TR	696.00	556.79
tblVehicleTrips	SU_TR	166.88	130.20
tblVehicleTrips	SU_TR	500.00	556.79
tblVehicleTrips	WD_TR	542.60	130.20
tblVehicleTrips	WD_TR	716.00	572.71

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	6.4643	41.3473	26.8700	0.0392	5.8653	2.8490	7.3495	2.9711	2.7438	4.3366	0.0000	3,754.6871	3,754.6871	0.8778	0.0000	3,773.1201
2015	15.0578	39.5299	26.3493	0.0392	0.1068	2.6584	2.6814	0.0283	2.5568	2.5630	0.0000	3,736.8657	3,736.8657	0.8373	0.0000	3,754.4493
Total	**21.5221**	**80.8772**	**53.2193**	**0.0785**	**5.9721**	**5.5073**	**10.0308**	**2.9995**	**5.3006**	**6.8996**	**0.0000**	**7,491.5528**	**7,491.5528**	**1.7151**	**0.0000**	**7,527.5694**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	6.4643	41.3473	26.8700	0.0392	5.8653	2.8490	7.3495	2.9711	2.7438	4.3366	0.0000	3,754.6871	3,754.6871	0.8778	0.0000	3,773.1201
2015	15.0578	39.5299	26.3493	0.0392	0.1068	2.6584	2.6814	0.0283	2.5568	2.5630	0.0000	3,736.8657	3,736.8657	0.8373	0.0000	3,754.4493
Total	**21.5221**	**80.8772**	**53.2193**	**0.0785**	**5.9721**	**5.5073**	**10.0308**	**2.9995**	**5.3006**	**6.8996**	**0.0000**	**7,491.5528**	**7,491.5528**	**1.7151**	**0.0000**	**7,527.5694**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1759	5.0000e-005	4.7900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.9200e-003	9.9200e-003	3.0000e-005		0.0105
Energy	0.0211	0.1914	0.1608	1.1500e-003		0.0146	0.0146		0.0146	0.0146		229.7231	229.7231	4.4000e-003	4.2100e-003	231.1211
Mobile	16.0852	25.5417	148.4646	0.1256	8.0222	0.2678	8.2900	2.1436	0.2458	2.3894		11,240.8952	11,240.8952	0.7443		11,256.5261
Total	**16.2821**	**25.7332**	**148.6302**	**0.1268**	**8.0222**	**0.2824**	**8.3046**	**2.1436**	**0.2603**	**2.4040**		**11,470.6282**	**11,470.6282**	**0.7488**	**4.2100e-003**	**11,487.6578**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1759	5.0000e-005	4.7900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.9200e-003	9.9200e-003	3.0000e-005		0.0105
Energy	0.0191	0.1737	0.1459	1.0400e-003		0.0132	0.0132		0.0132	0.0132		208.4624	208.4624	4.0000e-003	3.8200e-003	209.7311
Mobile	16.0257	25.1923	147.2834	0.1233	7.8618	0.2633	8.1250	2.1008	0.2416	2.3424		11,031.8184	11,031.8184	0.7333		11,047.2173
Total	**16.2207**	**25.3661**	**147.4341**	**0.1243**	**7.8618**	**0.2765**	**8.1383**	**2.1008**	**0.2549**	**2.3556**		**11,240.2907**	**11,240.2907**	**0.7373**	**3.8200e-003**	**11,256.9588**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.38**	**1.43**	**0.80**	**1.91**	**2.00**	**2.08**	**2.00**	**2.00**	**2.11**	**2.01**	**0.00**	**2.01**	**2.01**	**1.53**	**9.26**	**2.01**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/1/2014	12/2/2014	5	2	
2	Grading	Grading	12/3/2014	12/8/2014	5	4	
3	Building Construction	Building Construction	12/9/2014	6/1/2015	5	125	
4	Paving	Paving	6/2/2015	6/15/2015	5	10	
5	Architectural Coating	Architectural Coating	6/16/2015	6/29/2015	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 9,483; Non-Residential Outdoor: 3,161 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	2	6.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Welders	4	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	89.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	12	2.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	2.5474	27.1661	17.0975	0.0171		1.4834	1.4834		1.3647	1.3647		1,821.0895	1,821.0895	0.5382		1,832.3907
Total	**2.5474**	**27.1661**	**17.0975**	**0.0171**	**5.7996**	**1.4834**	**7.2830**	**2.9537**	**1.3647**	**4.3184**		**1,821.0895**	**1,821.0895**	**0.5382**		**1,832.3907**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0537	0.0797	0.7084	7.9000e-004	0.0657	7.8000e-004	0.0665	0.0174	7.0000e-004	0.0181		70.2432	70.2432	5.7600e-003		70.3642
Total	**0.0537**	**0.0797**	**0.7084**	**7.9000e-004**	**0.0657**	**7.8000e-004**	**0.0665**	**0.0174**	**7.0000e-004**	**0.0181**		**70.2432**	**70.2432**	**5.7600e-003**		**70.3642**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	2.5474	27.1661	17.0975	0.0171		1.4834	1.4834		1.3647	1.3647	0.0000	1,821.0895	1,821.0895	0.5382		1,832.3907
Total	**2.5474**	**27.1661**	**17.0975**	**0.0171**	**5.7996**	**1.4834**	**7.2830**	**2.9537**	**1.3647**	**4.3184**	**0.0000**	**1,821.0895**	**1,821.0895**	**0.5382**		**1,832.3907**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0537	0.0797	0.7084	7.9000e-004	0.0657	7.8000e-004	0.0665	0.0174	7.0000e-004	0.0181		70.2432	70.2432	5.7600e-003		70.3642
Total	**0.0537**	**0.0797**	**0.7084**	**7.9000e-004**	**0.0657**	**7.8000e-004**	**0.0665**	**0.0174**	**7.0000e-004**	**0.0181**		**70.2432**	**70.2432**	**5.7600e-003**		**70.3642**

3.3 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9418	0.0000	4.9418	2.5298	0.0000	2.5298			0.0000			0.0000
Off-Road	2.0759	22.1752	14.1657	0.0141		1.2106	1.2106		1.1138	1.1138		1,495.6888	1,495.6888	0.4420		1,504.9706
Total	**2.0759**	**22.1752**	**14.1657**	**0.0141**	**4.9418**	**1.2106**	**6.1524**	**2.5298**	**1.1138**	**3.6436**		**1,495.6888**	**1,495.6888**	**0.4420**		**1,504.9706**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.8310	8.4710	9.9486	0.0167	0.3876	0.1510	0.5387	0.1061	0.1389	0.2451		1,705.5726	1,705.5726	0.0154		1,705.8968
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0537	0.0797	0.7084	7.9000e-004	0.0657	7.8000e-004	0.0665	0.0174	7.0000e-004	0.0181		70.2432	70.2432	5.7600e-003		70.3642
Total	**0.8846**	**8.5507**	**10.6570**	**0.0175**	**0.4534**	**0.1518**	**0.6052**	**0.1236**	**0.1396**	**0.2632**		**1,775.8158**	**1,775.8158**	**0.0212**		**1,776.2610**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9418	0.0000	4.9418	2.5298	0.0000	2.5298			0.0000			0.0000
Off-Road	2.0759	22.1752	14.1657	0.0141		1.2106	1.2106		1.1138	1.1138	0.0000	1,495.6887	1,495.6887	0.4420		1,504.9706
Total	**2.0759**	**22.1752**	**14.1657**	**0.0141**	**4.9418**	**1.2106**	**6.1524**	**2.5298**	**1.1138**	**3.6436**	**0.0000**	**1,495.6887**	**1,495.6887**	**0.4420**		**1,504.9706**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.8310	8.4710	9.9486	0.0167	0.3876	0.1510	0.5387	0.1061	0.1389	0.2451		1,705.5726	1,705.5726	0.0154		1,705.8968
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0537	0.0797	0.7084	7.9000e-004	0.0657	7.8000e-004	0.0665	0.0174	7.0000e-004	0.0181		70.2432	70.2432	5.7600e-003		70.3642
Total	**0.8846**	**8.5507**	**10.6570**	**0.0175**	**0.4534**	**0.1518**	**0.6052**	**0.1236**	**0.1396**	**0.2632**		**1,775.8158**	**1,775.8158**	**0.0212**		**1,776.2610**

3.4 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	6.4280	41.1896	26.4218	0.0388		2.8460	2.8460		2.7411	2.7411		3,713.2031	3,713.2031	0.8761		3,731.6003
Total	**6.4280**	**41.1896**	**26.4218**	**0.0388**		**2.8460**	**2.8460**		**2.7411**	**2.7411**		**3,713.2031**	**3,713.2031**	**0.8761**		**3,731.6003**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0228	0.1378	0.2711	2.4000e-004	6.5800e-003	2.7500e-003	9.3400e-003	1.8700e-003	2.5300e-003	4.4000e-003		23.9231	23.9231	2.7000e-004		23.9288
Worker	0.0134	0.0199	0.1771	2.0000e-004	0.0164	1.9000e-004	0.0166	4.3600e-003	1.8000e-004	4.5300e-003		17.5608	17.5608	1.4400e-003		17.5911
Total	**0.0363**	**0.1577**	**0.4482**	**4.4000e-004**	**0.0230**	**2.9400e-003**	**0.0260**	**6.2300e-003**	**2.7100e-003**	**8.9300e-003**		**41.4839**	**41.4839**	**1.7100e-003**		**41.5198**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	6.4280	41.1896	26.4218	0.0388		2.8460	2.8460		2.7411	2.7411	0.0000	3,713.2031	3,713.2031	0.8761		3,731.6003
Total	**6.4280**	**41.1896**	**26.4218**	**0.0388**		**2.8460**	**2.8460**		**2.7411**	**2.7411**	**0.0000**	**3,713.2031**	**3,713.2031**	**0.8761**		**3,731.6003**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0228	0.1378	0.2711	2.4000e-004	6.5800e-003	2.7500e-003	9.3400e-003	1.8700e-003	2.5300e-003	4.4000e-003		23.9231	23.9231	2.7000e-004		23.9288
Worker	0.0134	0.0199	0.1771	2.0000e-004	0.0164	1.9000e-004	0.0166	4.3600e-003	1.8000e-004	4.5300e-003		17.5608	17.5608	1.4400e-003		17.5911
Total	**0.0363**	**0.1577**	**0.4482**	**4.4000e-004**	**0.0230**	**2.9400e-003**	**0.0260**	**6.2300e-003**	**2.7100e-003**	**8.9300e-003**		**41.4839**	**41.4839**	**1.7100e-003**		**41.5198**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.9478	39.3950	25.9470	0.0388		2.6562	2.6562		2.5548	2.5548		3,696.2931	3,696.2931	0.8358		3,713.8448
Total	**5.9478**	**39.3950**	**25.9470**	**0.0388**		**2.6562**	**2.6562**		**2.5548**	**2.5548**		**3,696.2931**	**3,696.2931**	**0.8358**		**3,713.8448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0193	0.1172	0.2467	2.4000e-004	6.5800e-003	2.0100e-003	8.5900e-003	1.8700e-003	1.8500e-003	3.7200e-003		23.5984	23.5984	2.2000e-004		23.6031
Worker	0.0117	0.0177	0.1557	2.0000e-004	0.0164	1.8000e-004	0.0166	4.3600e-003	1.6000e-004	4.5200e-003		16.9742	16.9742	1.2900e-003		17.0014
Total	**0.0310**	**0.1349**	**0.4024**	**4.4000e-004**	**0.0230**	**2.1900e-003**	**0.0252**	**6.2300e-003**	**2.0100e-003**	**8.2400e-003**		**40.5726**	**40.5726**	**1.5100e-003**		**40.6045**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.9478	39.3950	25.9470	0.0388		2.6562	2.6562		2.5548	2.5548	0.0000	3,696.2931	3,696.2931	0.8358		3,713.8448
Total	**5.9478**	**39.3950**	**25.9470**	**0.0388**		**2.6562**	**2.6562**		**2.5548**	**2.5548**	**0.0000**	**3,696.2931**	**3,696.2931**	**0.8358**		**3,713.8448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0193	0.1172	0.2467	2.4000e-004	6.5800e-003	2.0100e-003	8.5900e-003	1.8700e-003	1.8500e-003	3.7200e-003		23.5984	23.5984	2.2000e-004		23.6031
Worker	0.0117	0.0177	0.1557	2.0000e-004	0.0164	1.8000e-004	0.0166	4.3600e-003	1.6000e-004	4.5200e-003		16.9742	16.9742	1.2900e-003		17.0014
Total	**0.0310**	**0.1349**	**0.4024**	**4.4000e-004**	**0.0230**	**2.1900e-003**	**0.0252**	**6.2300e-003**	**2.0100e-003**	**8.2400e-003**		**40.5726**	**40.5726**	**1.5100e-003**		**40.6045**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4041	14.5959	9.1695	0.0133		0.8919	0.8919		0.8215	0.8215		1,382.4703	1,382.4703	0.4054		1,390.9826
Paving	0.0707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4748**	**14.5959**	**9.1695**	**0.0133**		**0.8919**	**0.8919**		**0.8215**	**0.8215**		**1,382.4703**	**1,382.4703**	**0.4054**		**1,390.9826**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0759	0.1148	1.0120	1.2800e-003	0.1068	1.1500e-003	0.1080	0.0283	1.0500e-003	0.0294		110.3325	110.3325	8.4100e-003		110.5091
Total	**0.0759**	**0.1148**	**1.0120**	**1.2800e-003**	**0.1068**	**1.1500e-003**	**0.1080**	**0.0283**	**1.0500e-003**	**0.0294**		**110.3325**	**110.3325**	**8.4100e-003**		**110.5091**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4041	14.5959	9.1695	0.0133		0.8919	0.8919		0.8215	0.8215	0.0000	1,382.4703	1,382.4703	0.4054		1,390.9826
Paving	0.0707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4748**	**14.5959**	**9.1695**	**0.0133**		**0.8919**	**0.8919**		**0.8215**	**0.8215**	**0.0000**	**1,382.4703**	**1,382.4703**	**0.4054**		**1,390.9826**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0759	0.1148	1.0120	1.2800e-003	0.1068	1.1500e-003	0.1080	0.0283	1.0500e-003	0.0294		110.3325	110.3325	8.4100e-003		110.5091
Total	**0.0759**	**0.1148**	**1.0120**	**1.2800e-003**	**0.1068**	**1.1500e-003**	**0.1080**	**0.0283**	**1.0500e-003**	**0.0294**		**110.3325**	**110.3325**	**8.4100e-003**		**110.5091**

3.6 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	14.6512					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209		281.4481	281.4481	0.0367		282.2177
Total	**15.0578**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**		**281.4481**	**281.4481**	**0.0367**		**282.2177**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	14.6512					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209	0.0000	281.4481	281.4481	0.0367		282.2177
Total	**15.0578**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**	**0.0000**	**281.4481**	**281.4481**	**0.0367**		**282.2177**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	16.0257	25.1923	147.2834	0.1233	7.8618	0.2633	8.1250	2.1008	0.2416	2.3424		11,031.8184	11,031.8184	0.7333		11,047.2173
Unmitigated	16.0852	25.5417	148.4646	0.1256	8.0222	0.2678	8.2900	2.1436	0.2458	2.3894		11,240.8952	11,240.8952	0.7443		11,256.5261

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	1,562.40	1,562.40	1562.40	1,698,770	1,664,795
Fast Food Restaurant w/o Drive Thru	1,912.85	1,859.68	1859.68	2,067,547	2,026,196
Parking Lot	0.00	0.00	0.00		
Total	3,475.25	3,422.08	3,422.08	3,766,317	3,690,991

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas Pumps	9.50	7.30	7.30	0.80	80.20	19.00	40	0	60
Fast Food Restaurant w/o Drive Th	9.50	7.30	7.30	1.50	79.50	19.00	40	0	60
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.464859	0.039088	0.210752	0.165462	0.051917	0.007362	0.015753	0.027922	0.002976	0.002213	0.008136	0.000842	0.002718

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0191	0.1737	0.1459	1.0400e-003		0.0132	0.0132		0.0132	0.0132		208.4624	208.4624	4.0000e-003	3.8200e-003	209.7311
NaturalGas Unmitigated	0.0211	0.1914	0.1608	1.1500e-003		0.0146	0.0146		0.0146	0.0146		229.7231	229.7231	4.4000e-003	4.2100e-003	231.1211

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market With Gas Pumps	20.3293	2.2000e-004	1.9900e-003	1.6700e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.3917	2.3917	5.0000e-005	4.0000e-005	2.4062
Fast Food Restaurant w/o Drive Thru	1932.32	0.0208	0.1894	0.1591	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.3314	227.3314	4.3600e-003	4.1700e-003	228.7149
Total		**0.0211**	**0.1914**	**0.1608**	**1.1500e-003**		**0.0146**	**0.0146**		**0.0146**	**0.0146**		**229.7231**	**229.7231**	**4.4100e-003**	**4.2100e-003**	**231.1211**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market With Gas Pumps	0.0142305	1.5000e-004	1.4000e-003	1.1700e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.6742	1.6742	3.0000e-005	3.0000e-005	1.6844
Fast Food Restaurant w/o Drive Thru	1.7577	0.0190	0.1723	0.1448	1.0300e-003		0.0131	0.0131		0.0131	0.0131		206.7882	206.7882	3.9600e-003	3.7900e-003	208.0467
Total		**0.0191**	**0.1737**	**0.1459**	**1.0400e-003**		**0.0132**	**0.0132**		**0.0132**	**0.0132**		**208.4624**	**208.4624**	**3.9900e-003**	**3.8200e-003**	**209.7311**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1759	5.0000e-005	4.7900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.9200e-003	9.9200e-003	3.0000e-005		0.0105
Unmitigated	0.1759	5.0000e-005	4.7900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.9200e-003	9.9200e-003	3.0000e-005		0.0105

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Tota	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Landscaping	4.7000e-004	5.0000e-005	4.7900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.9200e-003	9.9200e-003	3.0000e-005		0.0105
Architectural Coating	0.0401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1353					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.1759**	**5.0000e-005**	**4.7900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**9.9200e-003**	**9.9200e-003**	**3.0000e-005**		**0.0105**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Tota	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1353					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7000e-004	5.0000e-005	4.7900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.9200e-003	9.9200e-003	3.0000e-005		0.0105
Total	**0.1759**	**5.0000e-005**	**4.7900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**9.9200e-003**	**9.9200e-003**	**3.0000e-005**		**0.0105**

Arco Gasoline Station - 2020 BAU Operation

North Central Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	30.00	Space	0.27	0.00	0
Fast Food Restaurant w/o Drive Thru	3.34	1000sqft	0.08	3,342.00	0
Convenience Market With Gas Pumps	12.00	Pump	1.04	2,980.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2005
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Land Use - Based on site plan.

Vehicle Trips - Included 20% internal capture in trip generation rate based on traffic study data. Pass-by trips based on traffic study data; assumed no diverted trips.

Vechicle Emission Factors - 2020 Fleet Mix

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	125.00
tblGrading	MaterialExported	0.00	712.96
tblLandUse	LandUseSquareFeet	12,000.00	0.00
tblLandUse	LandUseSquareFeet	3,340.00	3,342.00
tblLandUse	LandUseSquareFeet	1,694.10	2,980.00
tblLandUse	LotAcreage	0.04	1.04
tblProjectCharacteristics	OperationalYear	2014	2005
tblVehicleEF	HHD	0.04	0.03
tblVehicleEF	LDA	0.43	0.46
tblVehicleEF	LDT1	0.17	0.04
tblVehicleEF	LDT2	0.20	0.21
tblVehicleEF	LHD1	0.02	0.05
tblVehicleEF	LHD2	9.1020e-003	7.2900e-003
tblVehicleEF	MCY	0.01	8.2750e-003
tblVehicleEF	MDV	0.10	0.16
tblVehicleEF	MH	3.3460e-003	2.7090e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	OBUS	2.3250e-003	3.0800e-003
tblVehicleEF	SBUS	1.7340e-003	7.9900e-004
tblVehicleEF	UBUS	1.9080e-003	2.1640e-003
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	PB_TP	65.00	60.00
tblVehicleTrips	PB_TP	12.00	60.00
tblVehicleTrips	PR_TP	14.00	40.00
tblVehicleTrips	PR_TP	51.00	40.00
tblVehicleTrips	ST_TR	204.47	130.20
tblVehicleTrips	ST_TR	696.00	556.79
tblVehicleTrips	SU_TR	166.88	130.20
tblVehicleTrips	SU_TR	500.00	556.79
tblVehicleTrips	WD_TR	542.60	130.20
tblVehicleTrips	WD_TR	716.00	572.71

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.9000e-004
Energy											0.0000	83.0986	83.0986	2.7600e-003	1.1200e-003	83.5042
Mobile											0.0000	2,117.3766	2,117.3766	0.2917	0.0000	2,123.5032
Waste											7.8091	0.0000	7.8091	0.4615	0.0000	17.5006
Water											0.3614	1.9376	2.2990	0.0372	8.9000e-004	3.3578
Total											**8.1705**	**2,202.4136**	**2,210.5841**	**0.7932**	**2.0100e-003**	**2,227.8666**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.9000e-004
Energy											0.0000	83.0986	83.0986	2.7600e-003	1.1200e-003	83.5042
Mobile											0.0000	2,117.3766	2,117.3766	0.2917	0.0000	2,123.5032
Waste											7.8091	0.0000	7.8091	0.4615	0.0000	17.5006
Water											0.3614	1.9376	2.2990	0.0372	8.9000e-004	3.3572
Total											**8.1705**	**2,202.4136**	**2,210.5841**	**0.7932**	**2.0100e-003**	**2,227.8661**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	2,117.3766	2,117.3766	0.2917	0.0000	2,123.5032
Unmitigated											0.0000	2,117.3766	2,117.3766	0.2917	0.0000	2,123.5032

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	1,562.40	1,562.40	1562.40	1,698,770	1,698,770
Fast Food Restaurant w/o Drive Thru	1,912.85	1,859.68	1859.68	2,067,547	2,067,547
Parking Lot	0.00	0.00	0.00		
Total	3,475.25	3,422.08	3,422.08	3,766,317	3,766,317

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	40	0	60
Fast Food Restaurant w/o Drive	9.50	7.30	7.30	1.50	79.50	19.00	40	0	60
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.462716	0.038748	0.210376	0.164659	0.051247	0.007290	0.016776	0.031161	0.003080	0.002164	0.008275	0.000799	0.002709

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.0000	44.7740	44.7740	2.0200e-003	4.2000e-004	44.9464
Electricity Unmitigated											0.0000	44.7740	44.7740	2.0200e-003	4.2000e-004	44.9464
NaturalGas Mitigated											0.0000	38.3245	38.3245	7.3000e-004	7.0000e-004	38.5578
NaturalGas Unmitigated											0.0000	38.3245	38.3245	7.3000e-004	7.0000e-004	38.5578

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Fast Food Restaurant w/o Drive Thru	709473											0.0000	37.8602	37.8602	7.3000e-004	6.9000e-004	38.0906
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market With Gas Pumps	8701.6											0.0000	0.4644	0.4644	1.0000e-005	1.0000e-005	0.4672
Total												**0.0000**	**38.3245**	**38.3245**	**7.4000e-004**	**7.0000e-004**	**38.5578**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market With Gas Pumps	8701.6											0.0000	0.4644	0.4644	1.0000e-005	1.0000e-005	0.4672
Fast Food Restaurant w/o Drive Thru	709473											0.0000	37.8602	37.8602	7.3000e-004	6.9000e-004	38.0906
Total												**0.0000**	**38.3245**	**38.3245**	**7.4000e-004**	**7.0000e-004**	**38.5578**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	36505	10.6197	4.8000e-004	1.0000e-004	10.6606
Fast Food Restaurant w/o Drive Thru	117404	34.1543	1.5400e-003	3.2000e-004	34.2858
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**44.7740**	**2.0200e-003**	**4.2000e-004**	**44.9464**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	36505	10.6197	4.8000e-004	1.0000e-004	10.6606
Fast Food Restaurant w/o Drive Thru	117404	34.1543	1.5400e-003	3.2000e-004	34.2858
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**44.7740**	**2.0200e-003**	**4.2000e-004**	**44.9464**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.9000e-004
Unmitigated											0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.9000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.9000e-004
Total											**0.0000**	**8.1000e-004**	**8.1000e-004**	**0.0000**	**0.0000**	**8.9000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	8.1000e-004	8.1000e-004	0.0000	0.0000	8.9000e-004
Total											**0.0000**	**8.1000e-004**	**8.1000e-004**	**0.0000**	**0.0000**	**8.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.2990	0.0372	8.9000e-004	3.3572
Unmitigated	2.2990	0.0372	8.9000e-004	3.3578

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.125486 / 0.0769109	0.3157	4.1000e-003	1.0000e-004	0.4325
Fast Food Restaurant w/o Drive Thru	1.0138 / 0.0647108	1.9834	0.0331	8.0000e-004	2.9253
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.2990**	**0.0372**	**9.0000e-004**	**3.3578**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.125486 / 0.0769109	0.3157	4.1000e-003	1.0000e-004	0.4325
Fast Food Restaurant w/o Drive Thru	1.0138 / 0.0647108	1.9834	0.0331	7.9000e-004	2.9248
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.2990**	**0.0372**	**8.9000e-004**	**3.3572**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.8091	0.4615	0.0000	17.5006
Unmitigated	7.8091	0.4615	0.0000	17.5006

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	38.47	7.8091	0.4615	0.0000	17.5006
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**7.8091**	**0.4615**	**0.0000**	**17.5006**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	38.47	7.8091	0.4615	0.0000	17.5006
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**7.8091**	**0.4615**	**0.0000**	**17.5006**

Arco Gasoline Station 2020 Operation

North Central Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	30.00	Space	0.27	0.00	0
Fast Food Restaurant w/o Drive Thru	3.34	1000sqft	0.08	3,342.00	0
Convenience Market With Gas Pumps	12.00	Pump	1.04	2,980.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	491.65	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2020 emission factors: BAU emissions factors for Energy minus 33 percent for compliance with RPS

Land Use - Based on site plan.

Construction Phase - Building construction phase reduced by 38% to reflect shorter than default construction schedule provided.

Off-road Equipment - Building construction equipment increased by 1 to conserve shorter building construction phase.

Grading - Soil exported for two underground storage tanks with a diameter of 120 inches and maximum length of 42.5 feet.

Vehicle Trips - Included 20% internal capture in trip generation rate based on traffic study data. Pass-by trips based on traffic study data; assumed no diverted trips.

Vechicle Emission Factors - LEV III reductions incorporated (3% reduction in LDA, LDT1, and LDT2 EF)

Energy Mitigation - Newest Title 24 (2013) is not accounted for in this version of CalEEMod. Title 24 2013 is 30% more efficient than the Title 24 2008 for non-residential buildings.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	125.00
tblGrading	MaterialExported	0.00	712.96
tblLandUse	LandUseSquareFeet	12,000.00	0.00
tblLandUse	LandUseSquareFeet	3,340.00	3,342.00
tblLandUse	LandUseSquareFeet	1,694.10	2,980.00
tblLandUse	LotAcreage	0.04	1.04
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	8.3890e-003	8.1370e-003
tblVehicleEF	LDA	0.94	0.91
tblVehicleEF	LDA	2.20	2.13
tblVehicleEF	LDA	242.83	235.54
tblVehicleEF	LDA	51.93	50.37
tblVehicleEF	LDA	0.11	0.10
tblVehicleEF	LDA	0.13	0.13
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	7.7600e-003
tblVehicleEF	LDA	2.1870e-003	2.1210e-003
tblVehicleEF	LDA	3.6060e-003	3.4980e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	1.9400e-003

tblVehicleEF	LDA	2.0270e-003	1.9660e-003
tblVehicleEF	LDA	3.3440e-003	3.2440e-003
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.09	0.09
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.24	0.23
tblVehicleEF	LDA	0.15	0.14
tblVehicleEF	LDA	3.5420e-003	3.4360e-003
tblVehicleEF	LDA	7.7000e-004	7.4700e-004
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.09	0.09
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.24	0.23
tblVehicleEF	LDA	0.16	0.15
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.29	2.22
tblVehicleEF	LDT1	4.93	4.78
tblVehicleEF	LDT1	303.05	293.96
tblVehicleEF	LDT1	64.26	62.33
tblVehicleEF	LDT1	0.28	0.27
tblVehicleEF	LDT1	0.28	0.27
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	7.7600e-003
tblVehicleEF	LDT1	3.4720e-003	3.3680e-003
tblVehicleEF	LDT1	4.3530e-003	4.2220e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	1.9400e-003

tblVehicleEF	LDT1	3.2180e-003	3.1210e-003
tblVehicleEF	LDT1	4.0360e-003	3.9150e-003
tblVehicleEF	LDT1	0.07	0.07
tblVehicleEF	LDT1	0.20	0.19
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.07	0.07
tblVehicleEF	LDT1	0.72	0.69
tblVehicleEF	LDT1	0.33	0.32
tblVehicleEF	LDT1	4.1250e-003	4.0010e-003
tblVehicleEF	LDT1	9.3400e-004	9.0600e-004
tblVehicleEF	LDT1	0.07	0.07
tblVehicleEF	LDT1	0.20	0.19
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.09	0.09
tblVehicleEF	LDT1	0.72	0.69
tblVehicleEF	LDT1	0.36	0.35
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	1.54	1.49
tblVehicleEF	LDT2	3.59	3.48
tblVehicleEF	LDT2	363.50	352.59
tblVehicleEF	LDT2	77.06	74.75
tblVehicleEF	LDT2	0.22	0.21
tblVehicleEF	LDT2	0.30	0.29
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	7.7600e-003
tblVehicleEF	LDT2	2.4050e-003	2.3330e-003
tblVehicleEF	LDT2	3.8220e-003	3.7070e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	1.9400e-003

tblVehicleEF	LDT2	2.2300e-003	2.1630e-003
tblVehicleEF	LDT2	3.5440e-003	3.4380e-003
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.15	0.14
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.51	0.50
tblVehicleEF	LDT2	0.25	0.25
tblVehicleEF	LDT2	4.8350e-003	4.6900e-003
tblVehicleEF	LDT2	1.0680e-003	1.0360e-003
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.15	0.14
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.51	0.50
tblVehicleEF	LDT2	0.27	0.26
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	PB_TP	65.00	60.00
tblVehicleTrips	PB_TP	12.00	60.00
tblVehicleTrips	PR_TP	14.00	40.00
tblVehicleTrips	PR_TP	51.00	40.00
tblVehicleTrips	ST_TR	204.47	130.20
tblVehicleTrips	ST_TR	696.00	556.79
tblVehicleTrips	SU_TR	166.88	130.20
tblVehicleTrips	SU_TR	500.00	556.79
tblVehicleTrips	WD_TR	542.60	130.20
tblVehicleTrips	WD_TR	716.00	572.71

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000		8.1000e-004	0.0000	0.0000	8.6000e-004
Energy											0.0000		71.3582	2.2200e-003	1.0400e-003	71.7260
Mobile											0.0000		1,586.2338	0.0792	0.0000	1,587.8975
Waste											7.8091		7.8091	0.4615	0.0000	17.5006
Water											0.3614		1.8468	0.0372	8.9000e-004	2.9042
Total											**8.1705**		**1,667.2486**	**0.5801**	**1.9300e-003**	**1,680.0292**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000		8.0000e-004	0.0000	0.0000	8.4000e-004
Energy											0.0000		65.7823	2.0600e-003	9.5000e-004	66.1203
Mobile											0.0000		1,556.8205	0.0780	0.0000	1,558.4586
Waste											7.8091		7.8091	0.4615	0.0000	17.5006
Water											0.3614		1.8468	0.0372	8.9000e-004	2.9037
Total											**8.1705**		**1,632.2595**	**0.5788**	**1.8400e-003**	**1,644.9841**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.10**	**0.24**	**4.66**	**2.09**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000		1,556.8205	0.0780	0.0000	1,558.4586
Unmitigated											0.0000		1,586.2338	0.0792	0.0000	1,587.8975

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	1,562.40	1,562.40	1562.40	1,698,770	1,664,795
Fast Food Restaurant w/o Drive Thru	1,912.85	1,859.68	1859.68	2,067,547	2,026,196
Parking Lot	0.00	0.00	0.00		
Total	3,475.25	3,422.08	3,422.08	3,766,317	3,690,991

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	40	0	60
Fast Food Restaurant w/o Drive Th	9.50	7.30	7.30	1.50	79.50	19.00	40	0	60
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.462716	0.038748	0.210376	0.164659	0.051247	0.007290	0.016776	0.031161	0.003080	0.002164	0.008275	0.000799	0.002709

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.0000		31.2691	1.4000e-003	3.2000e-004	31.3970
Electricity Unmitigated											0.0000		33.3249	1.4900e-003	3.4000e-004	33.4613
NaturalGas Mitigated											0.0000		34.5133	6.6000e-004	6.3000e-004	34.7233
NaturalGas Unmitigated											0.0000		38.0332	7.3000e-004	7.0000e-004	38.2647

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Fast Food Restaurant w/o Drive Thru	705296											0.0000		37.6373	7.2000e-004	6.9000e-004	37.8663
Parking Lot	0											0.0000		0.0000	0.0000	0.0000	0.0000
Convenience Market With Gas Pumps	7420.2											0.0000		0.3960	1.0000e-005	1.0000e-005	0.3984
Total												**0.0000**		**38.0332**	**7.3000e-004**	**7.0000e-004**	**38.2647**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0											0.0000		0.0000	0.0000	0.0000	0.0000
Convenience Market With Gas Pumps	5194.14											0.0000		0.2772	1.0000e-005	1.0000e-005	0.2789
Fast Food Restaurant w/o Drive Thru	641560											0.0000		34.2361	6.6000e-004	6.3000e-004	34.4445
Total												**0.0000**		**34.5133**	**6.7000e-004**	**6.4000e-004**	**34.7233**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	34836.2	7.7688	3.5000e-004	8.0000e-005	7.8006
Fast Food Restaurant w/o Drive Thru	114597	25.5562	1.1400e-003	2.6000e-004	25.6608
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**33.3250**	**1.4900e-003**	**3.4000e-004**	**33.4613**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	31823.4	7.0969	3.2000e-004	7.0000e-005	7.1259
Fast Food Restaurant w/o Drive Thru	108391	24.1722	1.0800e-003	2.5000e-004	24.2711
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**31.2691**	**1.4000e-003**	**3.2000e-004**	**31.3970**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000		8.0000e-004	0.0000	0.0000	8.4000e-004
Unmitigated											0.0000		8.1000e-004	0.0000	0.0000	8.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000		0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000		0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000		8.1000e-004	0.0000	0.0000	8.6000e-004
Total											**0.0000**		**8.1000e-004**	**0.0000**	**0.0000**	**8.6000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000		0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000		0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000		8.0000e-004	0.0000	0.0000	8.4000e-004
Total											**0.0000**		**8.0000e-004**	**0.0000**	**0.0000**	**8.4000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.8468	0.0372	8.9000e-004	2.9037
Unmitigated	1.8468	0.0372	8.9000e-004	2.9042

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.125486 / 0.0769109	0.2513	4.1000e-003	1.0000e-004	0.3679
Fast Food Restaurant w/o Drive Thru	1.0138 / 0.0647108	1.5955	0.0331	7.9000e-004	2.5363
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.8468**	**0.0372**	**8.9000e-004**	**2.9042**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.125486 / 0.0769109	0.2513	4.1000e-003	1.0000e-004	0.3679
Fast Food Restaurant w/o Drive Thru	1.0138 / 0.0647108	1.5955	0.0331	7.9000e-004	2.5358
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.8468**	**0.0372**	**8.9000e-004**	**2.9037**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.8091	0.4615	0.0000	17.5006
Unmitigated	7.8091	0.4615	0.0000	17.5006

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive-Thru	38.47	7.8091	0.4615	0.0000	17.5006
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**7.8091**	**0.4615**	**0.0000**	**17.5006**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive-Thru	38.47	7.8091	0.4615	0.0000	17.5006
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**7.8091**	**0.4615**	**0.0000**	**17.5006**

Appendix B

Biological Assessment

Regan Biological and Horticultural Consulting
PO Box 337, Carmel Valley CA 93924- patrick@reganbhc.com

Roger Grimsley
City Manager - San Juan Bautista
311 Second Street, PO Box 1420
San Juan Bautista, CA 95045

June 16, 2014

Re: Proposed Gas Station at 404 The Alameda and Highway 156 APN#002-520-012

Dear Roger,

This letter is being written in response to a request from Mr. Harvey Dadwal to conduct a Biological assessment of the above referenced lot in San Juan Bautista California. Mr. Dadwal has proposed the construction of a Gas station at this corner of Highway 156 and The Alameda. On Monday May 12, 2014 I visited the subject property and walked around and through the entire parcel noting all the plant and animal life that could be observed and taking photographs to document the current conditions. Previous to my visit I conducted a query of the California Natural Diversity Database (CNDDB) to compile a list of the special status plant and animal species previously documented in the San Juan Bautista Quadrant of the US Geological survey mapping system. Special status species are those that are considered rare, threatened or endangered on a local, state or national level. That list and details about the required habitat conditions for each species are included in an appendix to this report. The list contains 3 Amphibian species; the California red-legged frog, the Coast range newt and the California Tiger Salamander; one reptile, the Pacific pond turtle; one insect, the Pinnacles optioservus riffle beetle and one mollusk, the Redwood shoulder band snail; all species dependent on aquatic habitat from streams to vernal pools. Also included are birds such as the Golden eagle, White-tailed Kite, least bell's vireo and tri-colored blackbird. This very diverse group of birds has broadly ranging nesting and foraging habitat requirements also tied to aquatic as well as open grassland conditions. Three mammals including two bats; the Hoary and pallid bat and the American badger round out the animal list. Four special status plant species including Pajaro manzanita, Pinnacles buckwheat, Round-leaf filaree and the fragrant fritillary have been documented within the San Juan Bautista Quad. Of the four, the only one that would

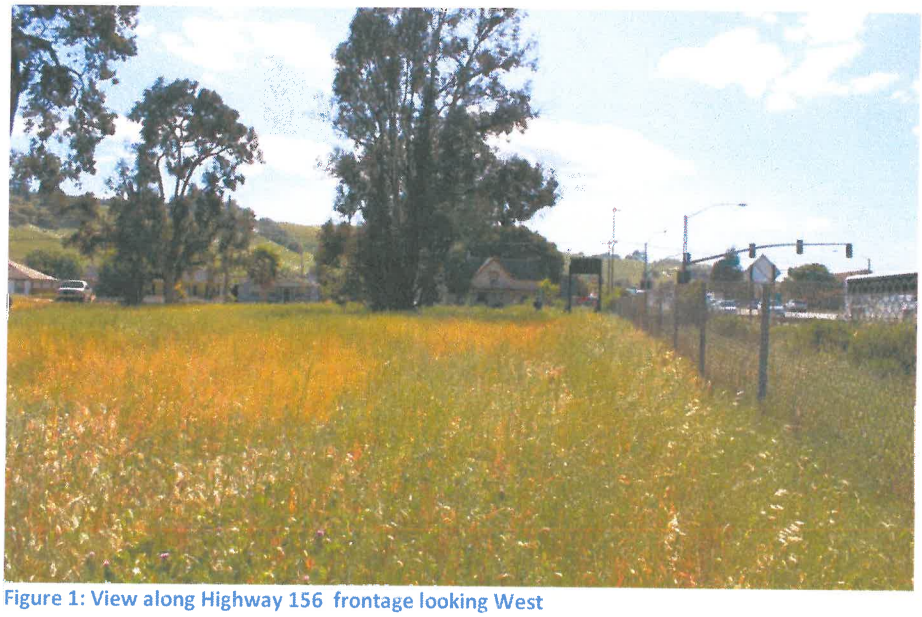


Figure 1: View along Highway 156 frontage looking West

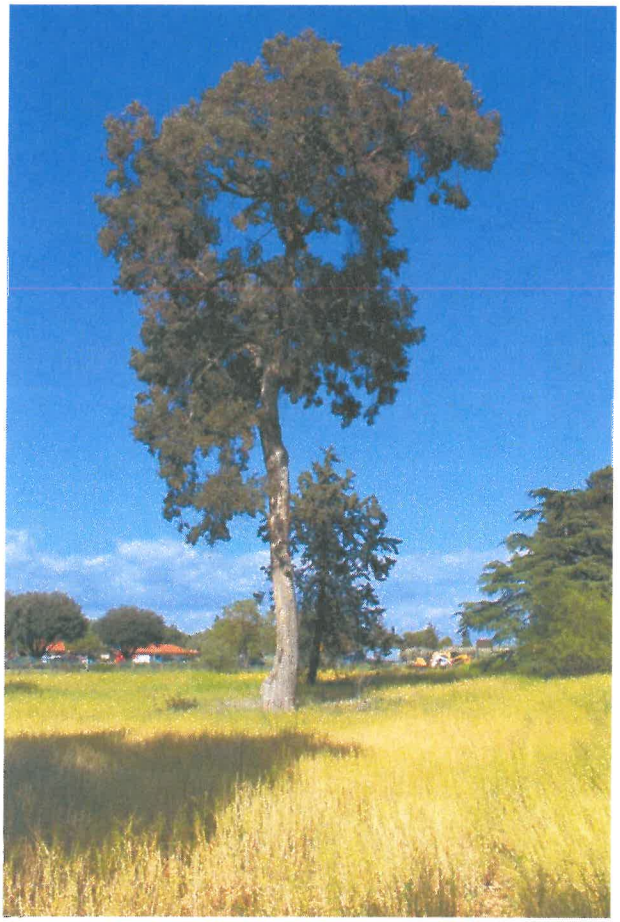
not be in bloom at this time of year is the Pajaro manzanita which is very easy to identify by its unique leaf structure and color at any time of year. The May survey period is appropriate for determining the presence of any of the plants and the potential habitat or individuals of most of the animal species.

Results

The proposed project site is generally flat and is within the open valley floor in the southern end of the urbanized portion of San Juan Bautista. The parcel is surrounded by various development; on the South by a Motel (San Juan Inn) that is in the midst of renovation, on the West by The Alameda, a road that cuts through the Center of San Juan Bautista and is fronted by single family residences across from the development site; on the East by Additional parking for the adjacent Motel and to the North by Highway 156 a primary travel route through the Hollister valley into the Central Valley and to the Coastal communities on the west. At no part of the property is there a direct interface with undeveloped natural habitat.

The property itself is densely covered in annual and perennial weed species typical of agricultural regions throughout California and a random mix of introduced tree species from throughout the world including Eucalyptus, Apricot, Walnut and others. I searched carefully throughout the entire property and could find no other native species of any kind until spotting a few Coyote bush (Baccharis pilularis) along a ditch running parallel to Highway 156 outside of the fence line. Coyote bush is an extremely common shrub throughout California and is considered a "pioneer plant" in disturbed soils. It's almost weed-like growth often overwhelms grasslands and converts them to scrublands. The fact that it barely has a foothold here is a testament to the density of the weed cover on the project site. No special status plant species of any kind were found on the proposed project property.

Figure 2: Large Eucalyptus tree in middle of property



Animal species encountered on the property were few. I only noted a group of the European starling landing in one of the apricot trees then moving on, a pair of common crows that flew over the site and a single Cabbage white butterfly moving about within a patch of black mustard and English pepper grass. I watched carefully throughout the property for signs of nesting or rearing of young birds in the trees on site. There are some taller trees that could support a variety of bird species, but none of the

native species that our native birds and bats prefer. I did not see any activity indicating active use of any of the trees for nest building or feeding of young birds. As previously mentioned there were few birds of any kind seen on site at all. We are currently right in the middle of the typical nesting and breeding season for resident and migrant bird species and it is possible that new nesting or breeding activity could yet take place on site. It is my understanding that on Monday May 19, per your approval, a number of trees were cut down on site. A California Department of Fish and Wildlife Game Warden was called to the site by an outside party and approved one of the tree trimmers climbing a tree to confirm that a nest that was spotted was not in active use. The Trimmer took a photograph of the unoccupied nest and the warden relayed this information to a CDFW Biologist who verbally approved the tree cutting over the phone. (June 16, 2014 update per conversation with Consultant: all the trees on the site were removed from the property between May 19 and May 23. Based on this information no further bird nest survey or monitoring is required.

Bat species listed in the CNDDB output would not utilize these scattered exotic trees and would find limited foraging habitat on site.

Amphibian and Reptile species on the CNDDB output (California red-legged frog, California Tiger salamander, Coast Range Newt and Pacific Pond turtle) are all extremely dependent on protected permanent or perennial water bodies for major portions of the their life cycle if not entire lives. No such bodies of water occur on or adjacent to the property. Upland grassland and woodland habitat near such bodies is utilized by these species during the dry season when it can be safely accessed from the water bodies. The Highway 156 corridor in particular and the other surface streets and adjacent development would greatly preclude safe overland dispersal into the project property from undeveloped areas further north, south, west and east of the site that could potentially provide habitat for native species. A small pond in grassland approximately 1.1 miles west-southwest of the project site would be an example. It is surrounded by reasonable upland habitat and it would take a very active imagination to consider that amphibians reared in that pond would travel 1.1 miles through agricultural and residential development to search for a hiding place on this property right next to a busy Highway. Finally, no evidence of Ground Squirrel or Pocket Gopher activity was noted on the project site. These two common rodents are important cohabitants of suitable habitat for the listed amphibian species, providing underground refugia during the dry season. Their

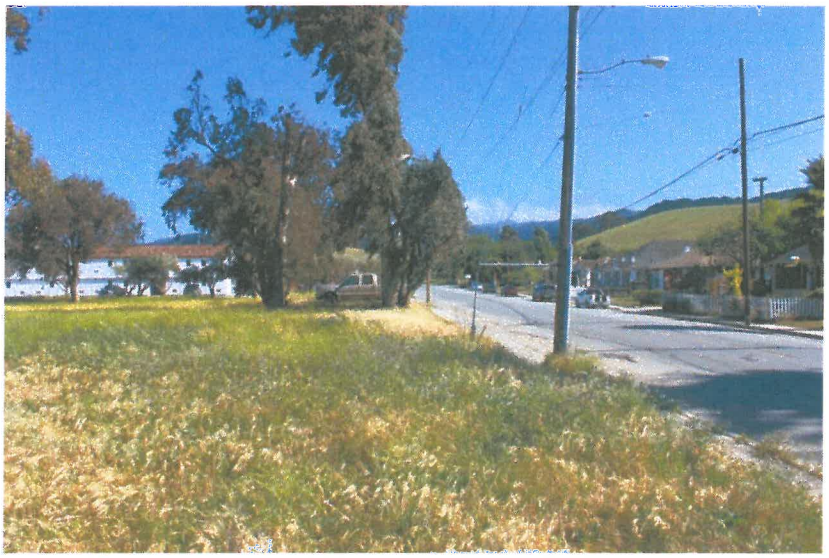


Figure 3: View looking south along the Alameda frontage from intersection of Highway 156

absence from the project site coupled with the other factors makes it very unlikely that any of the amphibian species would ever be found here.

The property at 404 The Alameda in San Juan Bautista is ecologically disturbed to such a level that that it likely does not support any native species of plants much less rare, threatened or endangered species, and the construction of a gas station on the site will not have any impact on native plant or animal species. This project should have no significant impact to sensitive biological resources on or directly adjacent to the site.

Please feel free to contact me if you require any other information or have questions.

Pat Regan

Appendix 1 Observed plant list

Scientific name	Common name	origin	family
Abies spp.	Fir	non-native	Pinaceae
Anagallis arvensis	scarlet pimpernel	non-native	Myrsinaceae
Anthemis cotula	mayweed	non-native	Asteraceae
Anthriscus caucalis	bur-chervil	non-native	Apiaceae
Avena barbata	slender wild oat	non-native	Poaceae
Avena fatua	wild oat	non-native	Poaceae
Baccharis pilularis	coyote bush	native	Asteraceae
Brassica nigra	black mustard	non-native	Brassicaceae
Bromus diandrus	ripgut brome	non-native	Poaceae
Bromus hordeaceus	soft chess brome	non-native	Poaceae
Bromus madritensis	Spanish brome	non-native	Poaceae
Capsella bursa-pastoris	shepherd's purse	non-native	Brassicaceae
Carduus pycnocephalus ssp. *pycnocephalus*	Italian thistle	non-native	Asteraceae
Centaurea melitensis	tocalote	non-native	Asteraceae
Centaurea solstitalis	yellow star thistle	non-native	Asteraceae
Chamaesyce maculata	spotted spurge	non-native	Euphorbiaceae
Chenopodium album	lamb's quarters	non-native	Chenopodiaceae
Cichorium intybus	chicory	non-native	Asteraceae
Cirsium vulgare	bull thistle	non-native	Asteraceae
Conium maculatum	poison hemlock	non-native	Apiaceae
Convolvulus arvensis	bindweed	non-native	Convolvulaceae
Cynodon dactylon	Bermuda grass	non-native	Poaceae
Erodium botrys	long-beaked filaree	non-native	Geraniaceae
Erodium cicutarium	red-stemmed filaree	non-native	Geraniaceae
Erodium moschatum	white-stemmed fliaree	non-native	Geraniaceae
Eucalyptus globulus	Blue gum	non-native	Myrtaceae
Eucalyptus spp.	Eucalyptus	non-native	Myrtaceae
Geranium dissectum	cut-leaved geranium	non-native	Geraniaceae
Geranium molle	dove's-foot geranium	non-native	Geraniaceae
Cupressus species	cypress	non-native	Cupressaceae
Hirschfeldia incana	summer mustard	non-native	Brassicaceae
Hordeum marinum	mediterranean barley	non-native	Poaceae
Hordeum murinum ssp. *leporinum*	barnyard foxtail	non-native	Poaceae
Juglans spp.	black walnut	non-native	Juglandaceae
Lactuca saligna	willow lettuce	non-native	Asteraceae
Lactuca serriola	prickly lettuce	non-native	Asteraceae
Lamium amplexicaule	common henbit	non-native	Lamiaceae
Lepidium campestre	English pepper-cress	non-native	Brassicaceae
Lepidium draba	heart-podded hoary cress	non-native	Brassicaceae

Lepidium heterophyllum	variable-leaved pepper-cress	non-native	Brassicaceae
Malva neglecta	common mallow	non-native	Malvaceae
Malva nicaeensis	bull mallow	non-native	Malvaceae
Marrubium vulgare	common horehound	non-native	Lamiaceae
Medicago polymorpha	bur-clover	non-native	Fabaceae
Melilotus alba	white sweetclover	non-native	Fabaceae
Picris echioides	bristly ox-tongue	non-native	Asteraceae
Plantago major	common plantain	non-native	Plantaginaceae
Polygonum arenastrum	doorweed	non-native	Polygonaceae
Polypogon interruptus	beard grass	non-native	Poaceae
Polypogon monspeliensis	rabbitfoot grass	non-native	Poaceae
Prunus spp.	Apricot	non-native	Roseaceae
Raphanus sativus	wild radish	non-native	Brassicaceae
Rumex pulcher	fiddle dock	non-native	Polygonaceae
Senecio vulgaris	common groundsel	non-native	Asteraceae
Silene gallica	common catchfly	non-native	Caryophyllaceae
Silybum marianum	milk thistle	non-native	Asteraceae
Sisymbrium officinale	hedge mustard	non-native	Brassicaceae
Sonchus asper ssp. *asper*	prickly sow thistle	non-native	Asteraceae
Sonchus oleraceus	common sow thistle	non-native	Asteraceae
Taraxacum officinale	common dandelion	non-native	Asteraceae

Native* = native to region but not to site

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Appendix 2 CNDDB special status species list

SPECIAL-STATUS PLANT SPECIES KNOWN OR WITH THE POTENTIAL TO OCCUR IN THE PROJECT VICINITY					
***Scientific* and Common name**	**Legal status Federal/State/CNPS**	**Habitat Requirements**	**Flowering period**	**Likelihood to naturally Occur within the Project Site**	**Observed on project site?**
Arctostaphylos pajaroensis Pajaro manzanita	-/-/1B.1	Sandstone outcrops, chaparral	December -March	Unlikely No suitable habitat occurs on site.	no
California macrophylla round-leaved filaree	-/-/1B.1	Open grassland and scrub, interior	March-May	Unlikely No suitable habitat occurs on site.	no
Fritillaria liliacea *Fragrant fritillary*	-/-/1B.2	Coastal Prairie, Valley Grassland, Northern Coastal Scrub, wetland-riparian	February-May	Unlikely No suitable habitat occurs on site.	no
Eriogonum nortonii Pinnacles buckwheat	-/-/1B.3	Chaparral, Valley Grassland	May-August	Unlikely No suitable habitat occurs on site.	no

Rare Plant rank - **1**: Rare, threatened, or endangered in California and elsewhere
.1: Seriously endangered in California
.2: Fairly endangered in California
.**3**: Not very threatened in California
All of the plants constituting California Rare Plant Rank 1B meet the definitions of Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA

SPECIAL-STATUS WILDLIFE SPECIES KNOWN OR WITH THE POTENTIAL TO OCCUR IN THE PROJECT VICINITY				
***Scientific* and Common name**	**Legal status Federal/State**	**Habitat Requirements**	**Likelihood to naturally Occur within the Project Site**	**Observed on project site?**
Rana draytonii California red-legged frog	Threatened/ none/SSC	Requires a fairly distinct habitat, combining both specific aquatic and riparian components. Adults need dense, shrubby or emergent riparian vegetation closely associated with deep, (greater than 2 1/3-foot deep) still or slow moving water. The largest densities of California red-legged frogs are associated with deep-water pools with dense stands of overhanging willows and an intermixed fringe of cattails.	Unlikely. No suitable habitat occurs on site	no
Ambystoma californiense California Tiger Salamander	Threatened/ Threatened/ SSC	Prime habitat in California is annual grassland, but seasonal ponds or vernal pools are crucial to breeding. Permanent ponds or reservoirs are sometimes used as well	Unlikely. No suitable habitat occurs on site	no
Taricha torosa Coast range newt	-/ SSC	Optimum habitats are in or near streams in valley-foothill hardwood and hardwood-conifer habitats.	Unlikely. No suitable habitat occurs on site	no
Emys marmorata Pacific pond turtle	-/-/SSC	Associated with permanent or nearly permanent water in a wide variety of habitats. Requires ponds or streams/rivers and adjacent woodland or grassland uplands	Unlikely. No suitable habitat occurs on site	no
Helminthoglypta sequoicola consors Redwood shoulder	none	Terrestrial snail, moist woodlands	Unlikely. No suitable habitat occurs on site	no

band				
Optioservus canus. Pinnacles optioservus riffle beetle	none	Species of this genus generally prefer gravelly or rocky streams and some often occur on moss covered rocks. Both adults and larvae crawl on rocks and gravel mostly in riffle areas	Unlikely. No suitable habitat occurs on site	no
Aquila chrysaetos Golden eagle	-/ FP	Chaparral and oak woodland, oak savanna and grassland amongst low rolling hills typified by diverse vegetation. Nesting typically occurs on high cliffs and other isolated high locations	Low for foraging, unlikely for nesting	no
Elanus leucurus White-tailed kite	-/-/FP	Savanna, open woodlands, marshes, desert grassland, partially cleared lands, and cultivated fields. White-tailed Kites hunt over lightly grazed or un-grazed fields where there may be larger prey populations than in more heavily grazed areas	Unlikely. No suitable habitat occurs on site	no
Agelaius tricolor Tri-colored blackbird	-/-/SSC	Breeding colonies require a nearby source of water, suitable nesting substrate (Dominant nest substrate species: cattails, bulrushes, Himalaya berry, agricultural silage. A variety of other plant species are used as nesting substrate, all either flooded, spinose or otherwise defended against easy access by mammalian predators.), and natural grassland, woodland, or agricultural cropland biomes in which to forage. Historically, breeding colonies had been strongly associated with emergent marshes, but more recently there has been a shift to non-natively vegetated and active agricultural areas	Unlikely. No suitable habitat occurs on site	no
Vireo bellii pusillus Least bell's vireo	Endangered/ Endangered/-	Lowland riparian habitat. Least Bell's Vireos place their nests in a variety of plants that provide concealment in the form of dense foliage. The most frequently used species include willows (*Salix* sp.),	Unlikely. No suitable habitat occurs on site	no

		mulefat (*Baccharis glutinosa*), California wild rose (*Rosa californica*),poison oak (*Toxicodendron diversilobum*), mugwort (*Artemisia douglasiana*), and cottonwood		
Taxidea taxus American badger	-/-/SSC	Suitable habitat for badgers is characterized by herbaceous, shrub, and open stages of most habitats with dry, friable soils.	Unlikely. No suitable habitat occurs on site	no
Lasiurus cinereus Hoary bat	none	A migratory species that occupies a variety of habitat types, including coniferous and broadleaf forests, chaparral, scrub and dune.	low	no
Antrozous pallidus Pallid Bat	-/-/SSC	Arid regions with rocky outcroppings, to open, sparsely vegetated grasslands. Water must be available close by to all sites. They typically will use three different types of roosts. A day roost which can be a warm, horizontal opening such as in attics, shutters or crevices; the night roost is in the open, but with foliage nearby; and the hibernation roost, which is often in buildings, caves, or cracks in rocks.	low	no
SSC = California Species of Special Concern FP = Fully Protected in State of California				

Appendix C

Arborist Report

The Alameda & Highway 156
Tree Assessment
Arborist report

Prepared for:

Dadwal Commercial Development

Prepared by:

Frank Ono
Urban Forestry
Society of American Foresters member #48004
ISA Certified Arborist #536
1213 Miles Avenue
Pacific Grove, CA 93950

May 14, 2014

Project Applicant:

Harbhajan Dadwal | President
Five Rivers Hospitality Inc.
1534 Suite-D Fremont Blvd.
Seaside, CA 93955

Engineer:

MH engineering
Allen Andrade RCE 58384, LS 7741
16075 Vineyard Blvd.
Morgan Hill, CA 95037

Urban Forester and Arborist

F.O. Consulting
Frank Ono, member SAF #48004, ISA Certified Arborist #536
1213 Miles Ave
Pacific Grove, CA 93950

SUMMARY

Development is proposed for the site located at the corner of The Alameda and Highway 156, San Juan Bautista CA. and requires removal of existing trees on site. Condition (both structurally and in health) of the trees are considered to range from fair condition to poor. A tree assessment/arborist report has been prepared that identifies the onsite trees found to prevent development effected by this design.

INTRODUCTION

This tree assessment/arborist report is prepared by Frank Ono, Urban Forester (member Society of American Foresters #48004) and Certified Arborist (International Society of Arboriculture Certified Arborist #536) for Dadwal Commercial Development due to proposed construction. Commercial development of a vacant lot will be located at the Southeast Corner of The Alameda & Highway 156, San Juan Bautista CA.

ASSIGNMENT/SCOPE OF PROJECT

Development of this parcel requires removal of trees located within the construction footprint. Consequently, Mr. Harbhajan Dadwal, the project applicant has requested an assessment of the trees within proposed development areas. The assessment is to be documented in an arborist report for submittal as part of the development application. To accomplish this assignment, the following tasks have been completed;

- Evaluate health, structure and preservation suitability for each tree within proposed development areas of trees greater than or equal to six diameter inches at 56 inches above grade.
- Review proposed building site plans as provided by MH Engineering.
- Document findings in the form of a report as required by the City of San Juan Bautista Planning Department.

LIMITATIONS

This assignment is limited to the review of plans dated March 27, 2014 prepared by MH Engineering. The drawings were submitted to me by Mr. Harbhajan Dadwal to assess potential construction effects to trees within or adjacent to construction activity areas. The assessment has been made of these plans specifically and no other plans were reviewed. Only minor grading and erosion details are discussed in this report as it relates to tree health.

PURPOSE AND GOAL

The purpose of the arborist report is for an independent assessment of existing trees on site affected by the proposed construction activities at Southeast Corner of The Alameda & Highway 156, San Juan Bautista CA. The goal of this report is to identify the tree resources effected by the proposed project.

SITE DESCRIPTION

1) Assessor's Parcel Number: 002-520-012

2) Location: Southeast Corner of The Alameda & Highway 156, San Juan Bautista CA

3) Parcel size: Approximately 1.12 acres.

4) Existing Land Use: The parcel is zoned C2 - General Commercial

5) Slope: The parcel is mildly sloped ranging from 3% to 10%.

6) Soils: The parcel is located on soils classified by the Natural Resource Conservation Service as Rincon and Salinas soils. The Rincon series consists of well drained soils that formed in alluvium derived from sandstone and shale on alluvial fans and terraces. Rincon soils are used mostly for irrigated field and row crops. Some areas are used for dry land grain and pasture. Rincon soil is a nearly level soil on alluvial fans and terraces with a profile described as representative of the series. Runoff is slow, and the erosion hazard is minimal. Roots can penetrate to a depth of more than 60 inches. The available water capacity is 9 to 11 inches. The Salinas series consists of well drained soils that formed in mixed alluvium derived from sedimentary and granitic rocks on alluvial fans and river terraces. Slopes are 0 to 9 percent. Runoff is slow, and the erosion hazard.is slight. The available water capacity is 10 to 12 inches.

7) Vegetation Condition and Health: The vegetation on site is composed of planted Eucalyptus (Eucalyptus polyanthemos and globulus compacta), Deodar cedar (Cedrus deodora), Cypress (Cupressus arizonica) and a fruit tree (Prunus sp.). All trees are in fair or poor health and condition. No understory is present other than mowed grasses and broadleaf vegetation. Grasses include Annual bluegrass (Poa annua), Ripgut Brome (Bromus rigidus roth), Wild oats (Avena fatua), and Italian rye grass (Lolium sp.); broad leaf is composed of Wild radish (Raphanus sativus L.), Wild turnip (Brassica campestris L.), Little Mallow (Malva parvifolia), White horehound (Marrubium vulgare L.), Common lambsquarters (Chenopodium album), Milk thistle (Silybum marianum l. Gaertn.), Nettleleaf Goosefoot (Chenopodium murale L.), Shortpod Mustard (Hirschfeldia incana), Black Mustard (Brassica nigra (l.) Koch), and Curly dock (Rumex crispus).

BACKGROUND

I was contacted May 5, 2014 by Mr. Mr. Harbhajan Dadwal who requested preparation of an arborist report for trees effected by proposed development of this property. A site visit was then made the following day for assessment of trees located within and adjacent to proposed development areas to determine treatments necessary to complete the project and meet the goals of the landowner. As a result trees within and immediately adjacent to the proposed development areas were located, measured, inspected, flagged and recorded and concludes with an opinion of whether the tree should be removed, or preserved, based on the extent and effect of construction activities for short and long term health of the trees. All field review is focused on the areas immediately surrounding the proposed development.

OBSERVATIONS/DISCUSSION

The following list includes observations made while on site, and summarizes details discussed during this stage of the planning process.

- The site is a previously disturbed site with planted ornamental or fruit trees.
- Most of the trees on the property are Eucalyptus trees ranging from 26" to 50" in diameter. The eucalyptus compose the majority of trees within the stand.
- Eight trees are proposed for removal; five Eucalyptus, one Deodar cedar, one fruit tree and one Cypress (marked Juniper on the site map). All trees are in fair or poor condition with the Cypress (#1709) and Eucalyptus (#1704) being in the poorest condition.
- Trees #1704 and #1705 are shown to be retained, however #1704 has a large dead stem with re-sprouting at the base. #1705 is misshaped due to utility pruning.

TREE CHARACTERISTICS

The trees listed in the following table have been tagged in the field and are rated Good, Fair, or Poor according to their health, vigor and structural condition. Trees with a good rating are trees that are in the best condition and health for the surrounding climate. Trees that are rated as fair are usually trees of lesser condition that may have some structural problem or health factor limiting them from fully developing as a healthy tree. Trees that are rated poor are of less quality condition and have either structural flaws that cannot be overcome over time, or that are in poor health.

Number	Diameter	Species	Condition	Native	Remarks	Building Footprint	Remove
1702	52	Euc. Poly	Fair	No	Weak structure	Yes	Yes
1703	20	Euc. Poly	Fair	No	Weak structure	Yes	Yes
1704	30	Euc. Poly	Poor	No	Stem Decay, Topped	No	Yes
1705	36	Euc. Poly	Fair	No	Weak structure	No	Yes
1706	48	Euc. Globulus Compacta	Fair	No	Weak structure	Yes	Yes
1707	26	Euc. Poly	Fair	No	Crown Breakage	Yes	Yes
1708	26	Euc. Poly	Fair	No	Weak structure	Yes	Yes
1709	16	Cypress	Poor	No	Bark Beetles	Yes	Yes
1710	18	Cedar Deodar	Good	No		Yes	Yes
1711	12	Apricot	Fair	No	Stressed, Nutrient deficient	Yes	Yes

CONCLUSION/PROJECT ASSESSMENT

This proposal, as submitted to me for review, requires the removal of eight trees to build a commercial structure, driveway and parking area. No native trees such as oaks or sycamores are located on this site, all trees being removed are introduced planted ornamental trees. No evidence of bird or animal nesting sites were observed in the trees during the assessment. Removal is necessitated because of their location within the design footprint. The design also shows retention of two Eucalyptus that will be in the parking area; however Eucalyptus are poor choices for retention in confined spaces such as driveways, parking areas, planters and buildings due to a history of limb breakage, especially when roots are disturbed through grading (this site requires grading for the driveway, parking areas and building foundation). If trees #1705 and #1704 are retained they require pruning to minimize limb drop and monitoring. Tree #1704 will need its dead stem removed and #1705 will need its crown reduced and thinned. These trees should be considered for removal and replacement with more appropriate trees.

RECOMMENDATIONS

Tree Removal and Tree Replacement

Eight trees, most significant sized, will need removal for the design as presented. Trees will be replaced as indicated in a landscape plan drawn by Wesley Sakamoto, Landscape Architect, which was submitted to me by Mr. Harbhajan Dadwal. The landscape plan shows replacement with 22 fifteen gallon trees.

Consideration should be given to the removal and replacement of trees #1704 and #1705 due to their proximity to higher human use. If allowed to be removed they should be replaced on a 2:1 ratio with new trees consistent with the species on the current landscape plan, If these trees are to remain they must be pruned and protected from construction effects.

Tree Pruning

It is to be understood that if Eucalyptus #1704 and #1705 are retained, pruning will be expected. These trees at minimum require structural enhancement and medium detail pruning. The pruning will entail detailed deadwood removal and pruning of limbs that are exhibiting structural defects or minor disease that must be compensated in the form of crown thinning and crown reduction. Trees after pruning should be occasionally monitored for health and vigor. Should the health and vigor of any tree decline it will be treated as appropriately recommended by a certified arborist or qualified forester.

The following are offered as guidelines when pruning

- In general the trees will be pruned first for safety, next for health, and finally for aesthetics.
- Type of pruning is determined by the size of branches to be removed. General guidelines for branch removal are:
    1. Fine Detail pruning- limbs under 2 inch diameter are removed
    2. Medium Detail Pruning – Limbs between 2 and 4 inch diameter
    3. Structural Enhancement – limbs greater than 4 inch diameter.
    4. Broken and cracked limbs-removed will be removed in high traffic areas of concern.

Crown thinning is the cleaning out of or removal of dead diseased, weakly attached, or low vigor branches from a tree crown

- All trees will be assessed on how a tree will be pruned from the top down.
- Trimmers will favor branches with strong, U- shaped angles of attachment and where possible remove branches with weak, V-shaped angles of attachment and/or included bark.
- Lateral branches will be evenly spaced on the main stem of young trees and areas of fine pruning.
- Branches that rub or cross another branch will be removed where possible.
- Lateral branches will be no more than one-half to three-quarters of the diameter of the stem to discourage the development of co-dominant stems where feasible.
- In most cases trimmers will not remove more than one- quarter of the living crown of a tree at one time. If it is necessary to remove more, it will be done over successive years.

Crown reduction is used to reduce the height and/or spread of trees and is used for maintaining the structural integrity and natural form of a tree.

- Crown reduction pruning will be used only when absolutely necessary. Pruning cuts will be at a lateral branch that is at least one-third the diameter of the stem to be removed wherever possible.
- When it is necessary to remove more than half of the foliage from a branch it may be necessary remove the entire branch.

Tree Protection

Tree protection around #1704 and #1705 shall be implemented prior to the commencement of construction activities and remain in place during the entire construction process:

- Trees located adjacent to the construction area shall be protected from damage by construction equipment by the use of temporary fencing and through wrapping of trunks with protective materials.
- Fencing shall consist of chain link, snowdrift, heavy-duty plastic mesh, hay bales, or field fencing. Existing fencing can also be used.
- Fencing shall be rigidly supported with cross bracing and shall stand a minimum of height of four feet above grade. Fencing is not to be attached to the tree but free standing or self-supporting so as not to damage trees.
- Soil compaction, parking of vehicles or heavy equipment, stockpiling of construction materials, and/or dumping of materials should not be allowed adjacent to trees on the property especially within fenced areas.
- Fenced areas and the trunk protection materials must remain in place during the entire construction period. Tree protection if damaged, must be immediately repaired or replaced in functional working order.

During grading and excavation activities:

- All trenching, grading or any other digging or soil removal that is expected to encounter tree roots should be monitored by a qualified arborist or forester to ensure against drilling or cutting into or through major roots.
- The project architect and qualified arborist should be on site during excavation activities to direct any minor field adjustments that may be needed.
- Trenching for the retaining wall and driveway located adjacent to any tree should be done by hand where practical and any roots greater than 3-inches diameter should be bridged or pruned appropriately.
- Any roots that must be cut should be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, narrow trencher with sharp blades, or other approved root pruning equipment.
- Any roots damaged during grading or excavation should be exposed to sound tissue and cut cleanly with a saw.

If at any time potentially significant roots are discovered:

- The arborist/forester will be authorized to halt excavation until appropriate mitigation measures are formulated and implemented.
- If significant roots are identified that must be removed that will destabilize or negatively affects the target trees negatively, the property owner will be notified immediately and a determination for removal will be assessed and made as required by law for treatment of the area that will not risk death decline or instability of the tree consistent with the implementation of appropriate construction design approaches to minimize affects, such as hand digging, bridging or tunneling under roots, etc..

Remedial pruning should occur prior to construction. Following construction, any above ground tree pruning/trimming should be delayed until one year after completion of construction.

Following construction, a qualified arborist should monitor trees adjacent to the improvements area and if any decline in health that is attributable to the construction is noted, additional trees should be planted on the site.

Best Management Practices (BMPs) to Observe

The trees preserved around the construction site and newly planted trees will have the greatest chance of success if the following practices are adhered to:

A) Do not deposit any fill around trees, which may compact soils and alter water and air relationships. Avoid depositing fill, parking equipment, or staging construction materials near existing trees. Covering and compacting soil around trees can alter water and air relationships with the roots. Fill placed within the drip-line may encourage the development of oak rot fungus (Armillaria mellea). As necessary, trees may be protected by boards, fencing or other materials to delineate protection zones.

B) Pruning shall be conducted so as not to unnecessarily injure the tree. General-principals for pruning include placing cuts immediately beyond the branch collar, making clean cuts by scoring the underside of the branch first, and for live oak, avoiding the period from February through May.

C) Root cutting should occur outside of the springtime. Late June and July would likely be the best. Pruning of the live crown should not occur February through May.

D) Cut material greater than 3 inches in diameter remaining on site more than one month that is not cut and split into firewood should be covered with clear plastic that is dug in securely around the pile. This will discourage infestation and dispersion of insects or bark beetles.

E) A mulch layer up to approximately 3-4 inches deep should be applied to the ground under selected trees following construction. Only 1 to 2 inches of mulch should be applied within 1 to 2 feet of the trunk, and under no circumstances should any soil or mulch be placed against the root crown (base) of trees. The best source of mulch would be from chipped material generated on site.

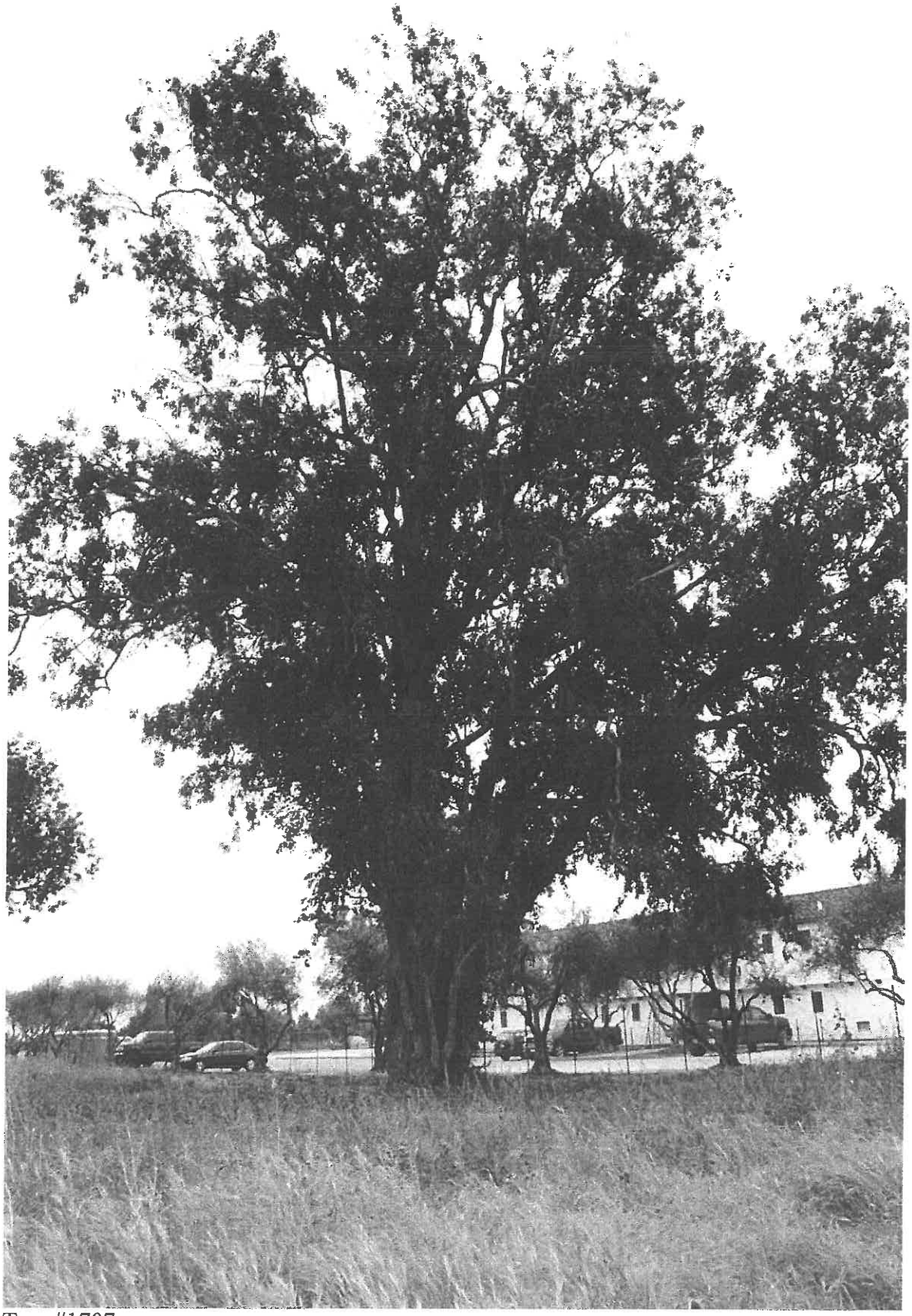
F) If trees along near the development are visibly declining in vigor, a Professional Forester or Certified Arborist should be contacted to inspect the site to recommend a course of action.

E) Absence of active bird or animal nesting sites must be verified by the tree removal contractor prior to tree removal. If nesting sites are found then a wildlife biologist must be consulted.

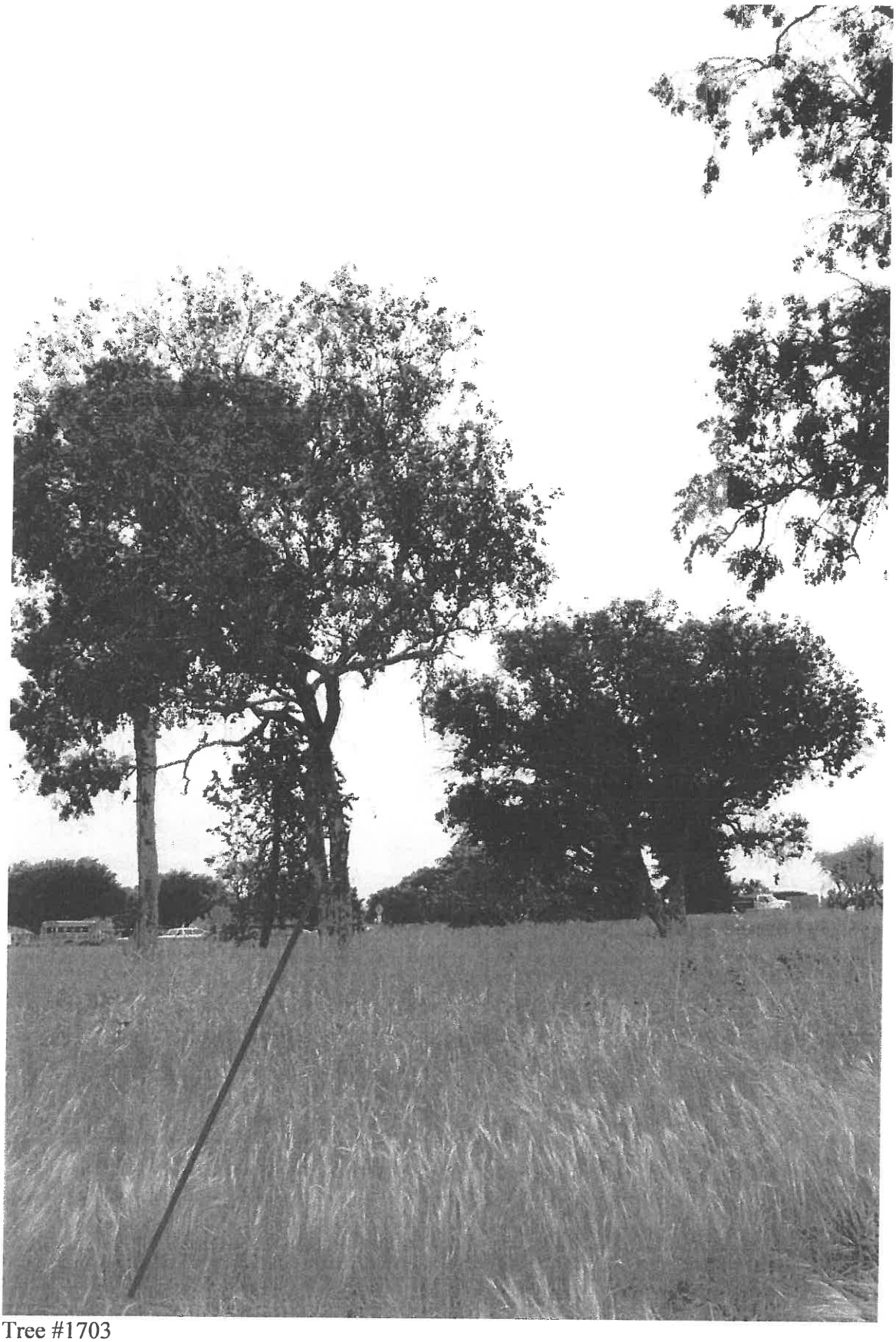
Report Prepared By:

Frank Ono, ISA Certified Arborist #536 Date May 14, 2014

PHOTOGRAPHS



Tree #1707



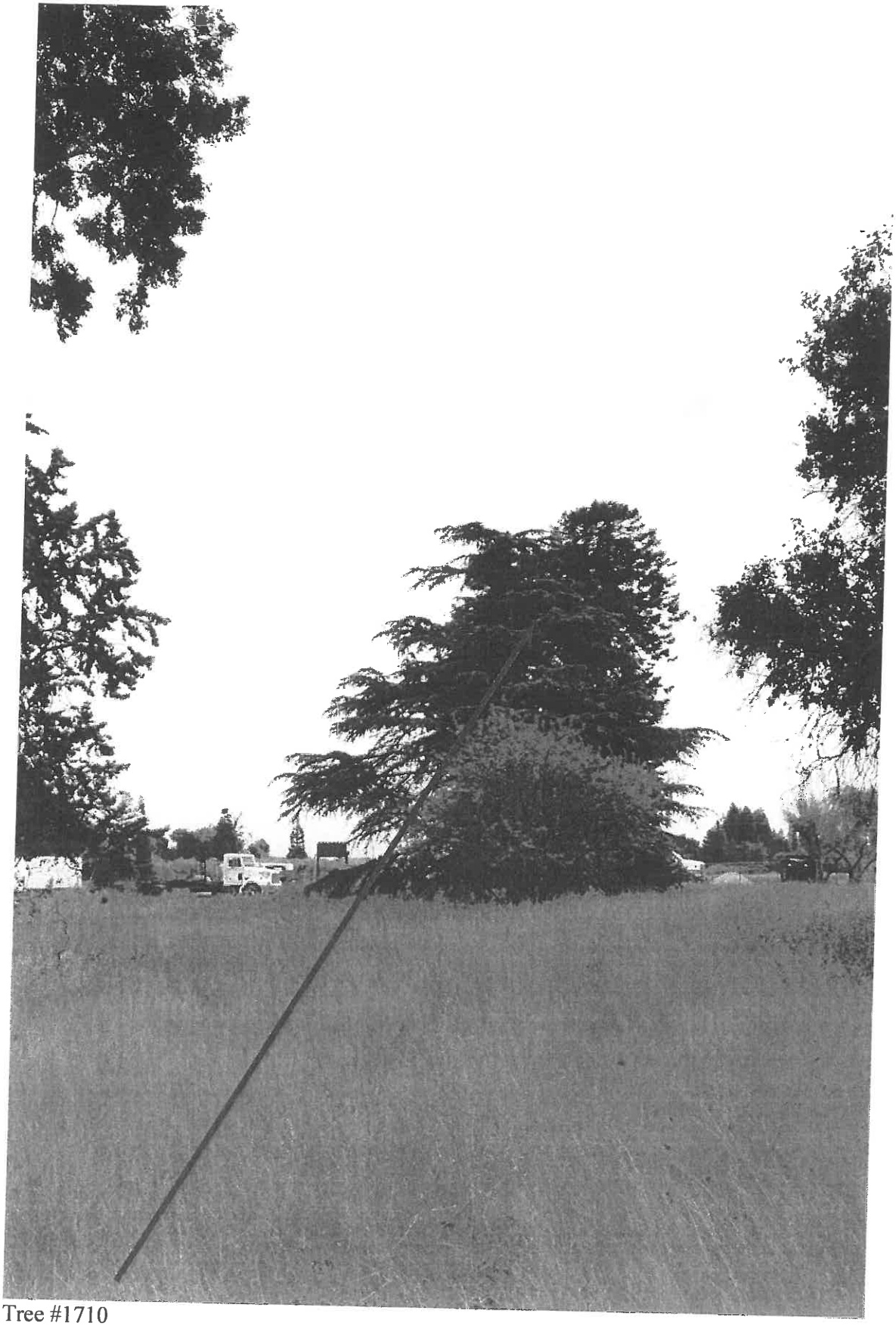
Tree #1703

Trees #1705 and #1704 (trees are shown to be retained) #1704 will need the dead stem removed.

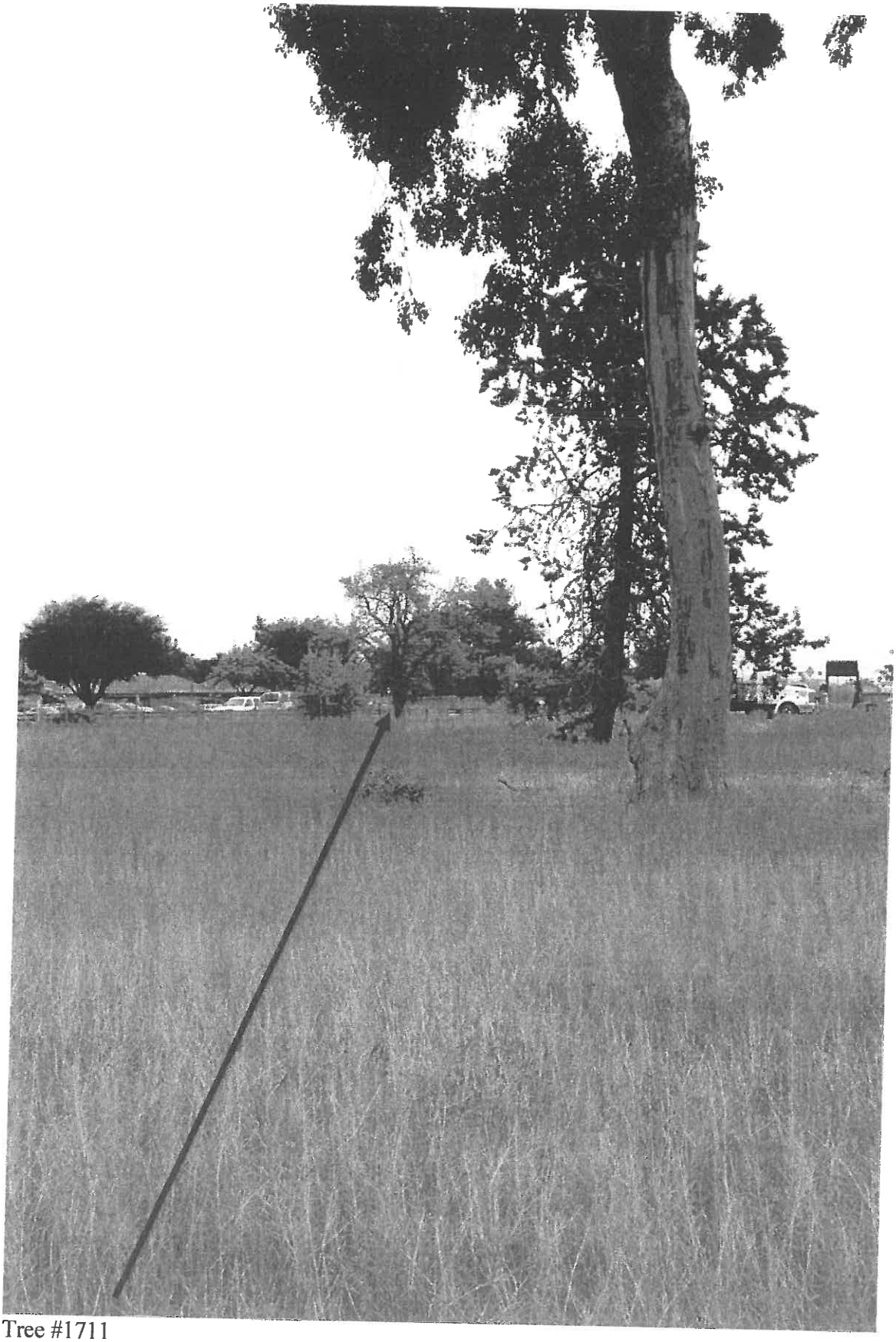
Tree #1706

Tree #1707

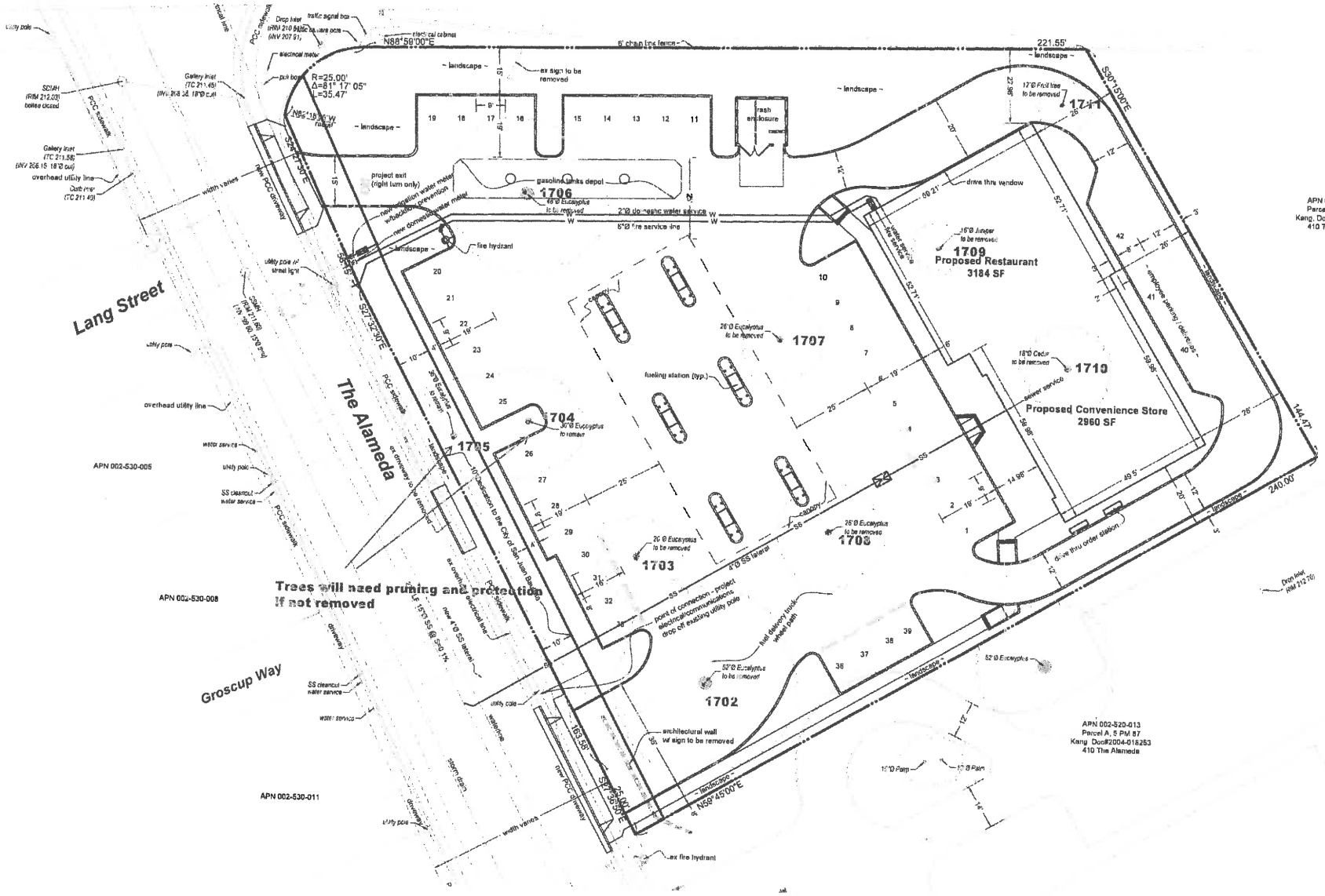
Tree #1709



Tree #1710



Tree #1711


Lang Street
The Alameda
Groscup Way
Trees will need pruning and protection if not removed
Proposed Restaurant
3184 SF
Proposed Convenience Store
2960 SF
drive thru window
drive thru order station
fueling station (typ.)
gasoline tanks depot
trash enclosure
project exit (right turn only)
fire hydrant
ex fire hydrant
6' chain link fence
ex sign to be removed
architectural wall w/ sign to be removed
point of connection - project electrical/communications drop off existing utility pole
fuel delivery truck wheel path
overhead utility line
APN 002-530-023
APN 002-530-005
APN 002-530-008
APN 002-530-011
APN 002-520-013
Parcel A, 5 PM 87
Kang Doc#2004-018253
410 The Alameda
1702
1703
1704
1705
1706
1707
1708
1709
1710
1711
N88°56'00"E
S30°15'00"E
S27°32'30"E
N59°45'00"E
R=25.00'
Δ=81° 17' 05"
L=35.47'
221.55'
240.00'
144.47'
153.55'
25.00'

Appendix D

Geotechnical Report

REPORT
to
HARVEY DADWAL
1534 FREMONT BOULEVARD, SUITE D
SEASIDE, CALIFORNIA
93955

GEOTECHNICAL REPORT
for the proposed
DADWAL COMMERCIAL DEVELOPMENT
THE ALAMEDA & HIGHWAY 156
SOUTHEAST CORNER
SAN JUAN BAUTISTA, CALIFORNIA
A. P. N. 002-520-012

by

GRICE ENGINEERING, INC.
561-A BRUNKEN AVENUE
SALINAS, CALIFORNIA
MARCH 2014

GRICE ENGINEERING AND GEOLOGY INC

ENGINEERING, GEOTECHNICS, HYDROLOGY, SOILS,
FOUNDATIONS, AND EARTH STRUCTURES

561A Brunken Avenue
Salinas, California 93901

Salinas: (831) 422-9619
Monterey: (831) 375-1198
FAX: (831) 422-1896

File No. 6261-14.03
March 26, 2014

Mr. Harvey Dadwal
1534 Fremont Boulevard, Suite D
Seaside, California 93955

Project: Dadwal Commercial Development
The Alameda & Highway 156, Southeast Corner
San Juan Bautista, California
A. P. N. 002-520-012

Subject: Geotechnical Report

Dear Mr. Dadwal;

Pursuant to your request, we have completed our geotechnical investigation and evaluation of the above named site. It is our opinion that this site is suitable for the proposed development, provided the recommendations made herein are followed.

In general, the near surface soils are loose and will need to be taken into account during design and construction of the new building. Recommendations are given relative to this and other characteristics within the report and especially under Special Recommendations.

The report contained herein is made with our best efforts to evaluate the site, determine the site's geotechnical conditions and provide recommendations for these conditions. We submit this report with the understanding that it is the responsibility of the owner, or his representative, to ensure incorporation of these recommendations into the final plans, and their subsequent implementation in the field.

In addition, we recommend that GRICE ENGINEERING, INC., be retained to review the project plans and provide the construction supervision and testing required to document compliance with these recommendations. Should any site condition not mentioned in this report be observed, this office should be notified so that additional recommendations can be made, if necessary.

This report and the recommendations herein are made expressly for the above referenced project and may not be utilized for any other site without written permission of GRICE ENGINEERING, INC.

Please feel free to call this office should you have any questions regarding this report.

Very truly yours,
GRICE ENGINEERING, INC.

REGISTERED PROFESSIONAL ENGINEER
LAWRENCE E GRICE
RCE 66857
EXP. 09-30-14
032614DIGITAL
CIVIL
STATE OF CALIFORNIA

Lawrence E. Grice, P.E.
R.C.E. 66857

NOTICE TO OWNER

Any earthwork and grading performed without direct engineering supervision and materials testing by Grice Engineering Inc., will not be certified as complete and in accordance with the requirements set forth herein.

Foundations placed without observation of bearing conditions will not be certified as being in accordance with the requirements set forth herein.

Inspection of Work

It is recommended that all site work be inspected and tested during performance by this firm to establish compliance with these recommendations.

NOTIFY:	GRICE ENGINEERING INC.	SALINAS	(831) 422-9619
	561-A Brunken Avenue	MONTEREY	(831) 375-1198
	Salinas, California 93901	FAX	(831) 422-1896

A minimum of 48 hours (2 working days) notification is required prior to commencement of work so that scheduling for testing and inspections can be made.

Please be advised that costs incurred during inspection and testing of all site work is separate and not considered part of the fees as charged by Grice Engineering, Inc. for the report contained herein.

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GEOTECHNICAL REPORT
for the proposed
DADWAL COMMERCIAL DEVELOPMENT
THE ALAMEDA & HIGHWAY 156
SOUTHEAST CORNER
SAN JUAN BAUTISTA, CALIFORNIA
A. P. N. 002-520-012

Introduction, Method and Scope of Investigation

The purpose of this report is to evaluate the geotechnical properties of the site relative to the construction of a new commercial building. From these findings recommendations are given for the design of the development and subsequent construction.

For this purpose, the site was investigated, and prior information concerning construction and subsurface exploration in this area was examined for soils and materials data. The investigation consisted of a detailed site evaluation, which included: a site inspection; a review of literature made available to GRICE ENGINEERING, INC., including Site Plans from M. H. Engineering Co.; geotechnical drilling and soil sampling; materials evaluation; and analysis of the geotechnical properties of the site soils. This report concludes the results of the investigation and provides recommendations based on that work.

The findings and recommendations contained in this report are applicable only to the above named site and its proposed development, and may not be utilized for any other site or purpose without written permission of GRICE ENGINEERING, INC.

Site Description

The project site is located to the southwest of the intersection of The Alameda and State Highway 156, southeast of the City of San Juan Bautista, an incorporated area of westernmost San Benito County, California. Please refer to the Vicinity and Location Maps and the Site Map in Appendix A for details.

The topography of the 1.12 acre site encompasses a level area at an elevation of approximately 212 feet above mean sea level (msl). The majority of the site is covered with grass and brush, dotted with a variety of trees.

Currently plans call for the construction of a commercial building on the site's eastern area, with asphalt paving on the remainder providing driveways, parking areas and an area for roofed pump kiosk accessed by a loop driveway from The Alameda. Landscaping is proposed for the perimeter.

Due to the removal of the majority of trees and presence of fill soils, some loose and disturbed soils may be encountered during construction.

The approximately 6,144 square foot building is to be of conventional wood construction with isolated and/or continuous spread footings. The interior floor will be concrete slab cast on grade.

Field Investigation

Our field investigation consisted of a site inspection, along with drilling and sampling 2 exploratory bores to establish the subsurface soil profile, and obtain sufficient soil specimens to determine the soil characteristics. Drilling was accomplished by continuous flight auger, with the spoil constantly examined, classified, and logged by field method in accordance with the Unified Soil Classification Chart[1] which is the basis of ASTM D2487-10.

Relatively undisturbed soil samples were obtained by the penetration resistance method, (ASTM Method D1586-08), by which a split barrel sampler (ASTM D-3550-01) was driven a minimum of 18 inches into the sampled materials by free dropping a 140 pound weight 30 inches. The number of blows required to drive the sampler were recorded in 6 inch increments after conversion to Standard Penetration Resistance values utilizing the Burmister Formula. The number of blows required to drive the sampler the last two increments taken as the Standard Penetration Resistance. The split barrel sampler (ASTM D-3550-01), with dimensions of 2.4" I.D. x 3.0" O.D., is provided with 1 inch tall brass ring liners for the purpose of returning the samples to the laboratory in as near *in-situ** condition as possible.

* *In-situ* refers to the in place state of soil. *In-situ* native soils are those which are in-place as deposited by nature and have not been disturbed by man's actions in the historic past.

---

[1] Adopted 1952 by Corps of Engineers and Bureau of Reclamation. ASTM D2487 was developed as based on the Uniform Soils Classification Chart and System. The methods are equivalent.

Site Soil Profile

As found in the exploratory drilling, the site soils are generally consistent between each of the bores.

Fill soils were observed at grade and to a depth of approximately 2.5 feet in the first bore located at the southwestern corner of the proposed structure. The fill was comprised of native topsoil and imported silty aggregates.

Beneath the fill soils and at grade at the second bore are the native topsoil. These soils were observed to be a dark greyish brown silty clay of low-medium plasticity and contained trace to few fine sands. These soils were moist and soft becoming medium stiff after a foot of penetration approximately.

A more plastic clay was observed to underlay the topsoil. This clay was observed to be of medium plasticity and slightly pliable to friable due to low moisture content. Slight false cementation was noted. With increasing depth this clay becomes notably silty and contains increasing amounts of sands ranging from very fine to medium with occasional fine gravels. These soils were of moist condition and were considered hard due to a slight to moderate false cementation.

At approximately 9.5 feet in the first bore and 6.0 feet in the second bore a clastic deposit derived from granite is encountered. This coarse material was observed to contain fine to coarse sands as well as gravels to approximately 3 inches. This deposit was slightly moist to moist and medium dense to dense.

In the first bore a silty clay of medium stiffness with similar clasts to that overlaying was encountered at 21 feet. The amount of clasts is this soils varied from some to trace. Additionally those horizons with less sands were observed to be generally more silty and were observed soft-medium stiff. These materials were very damp and free water was recovered on the bit at termination of the first bore.

Complete soil characteristics and comments are reported on the boring logs at the depths observed. The logs are located in Appendix B.

Groundwater

Free groundwater was encountered at this site at approximately 24 feet below grade in the first bore.

Laboratory Testing

Laboratory testing consisted of establishing the *in-situ* ** moisture content and dry density (ASTM D 2487-10) and unconfined penetration. Standard Penetration Resistance values gained during the exploratory drilling are also included.

The following is a tabulation of the field and laboratory test result extremes:

TABLE 1		
SUMMARY OF SOIL PROPERTIES		
TEST	MAXIMUM	MINIMUM
Standard Penetration Resistance	42 blows/foot	20 blows/foot
Unconfined Compression*	9+ kips/ft^2	9+ kips/ft^2
In-Situ Density	122.6 lbs/ft^3	102.7 lbs/ft^3
In-Situ Moisture	10.3 %	0.6 %

All data obtained is reported in Appendix B including the boring logs, with soil classified described at depth observed.

* Pocket Penetrometer

** *In-situ* refers to the in-place state.

Seismic History

Although no fault traces are thought to directly cross the building site, San Benito County is traversed by a number of both "active" and "potentially active" faults most of which are relatively minor hazards for the purposes of the site development. As such, this site will experience seismic activity of various magnitudes emanating from one or more of the numerous faults in the region.

Various maps presently exist, allowing observation on the site of distinctive geologic features. Faults have inherit variances within their zones, and discoveries of new fault segments or entire faults is ongoing. There is also some difference in exact fault line location from source map to map, making precise location of said faults difficult. Therefore, relative to the information contained within this report, the following is considered to be as accurate as is currently possible from information made available to Grice Engineering Inc..

Regional Faults

Of most concern are active faults which have tectonic movement in the last 11,000 years and as such are called Holocene Faults and potentially active faults. The following are those nearest listed (Reference No. 12).

The most active is the San Andreas Rift System (Creeping Segment), located approximately 0.11 miles to the northeast. It has the greatest potential for seismic activity with estimated intensities of VIII-IX Mercalli in this location.

Other fault zones are the Zayante-Vergeles Fault Zone, the center of which is located approximately 2.9 miles to the southwest, the Sargent Fault Zone, approximately 4.3 miles to the northeast, the Quien Sabe Fault Zone, approximately 10.9 miles to the northeast, and the Calaveras (South) Fault Zone, approximately 6.5 miles to the northeast. These zones are not as liable to rupture as the San Andreas and a seismic event at any of the above fault zones would likely produce earth movements of a lesser intensity at the site.

Local Faults

In addition to the fault zones as discussed above, the local faults are listed below as shown on the following maps, "Geologic Map of California, Olaf P. Jenkins edition, Santa Cruz sheet" (Reference No. 20), "Fault Activity Map of California: California Geological Survey Geologic Data Map" (Reference No. 21), "Map Showing Recently Active Breaks Along the Hayward Fault Zone and the Southern Part of the Calaveras Fault Zone, CA" (Reference No. 29), "Location Map of Ground Failures in the Monterey Bay Counties Region" (Reference No. 34), "Quaternary Fault and Fold Database for the United States" (Reference No. 35) including the USGS overlay on Google Earth, and "Geologic Map of the Monterey 30' x 60' Quadrangle and Adjacent Areas, CA" (Reference No. 40).

TABLE OF LOCAL FAULTS

FAULT, PERPENDICULAR TO SITE	APPROXIMATE DISTANCE FROM SITE	DIRECTION	TIME OF LAST DISPLACEMENT ON FAULT (Ref. 32)
San Andreas Fault	0.20 miles	northeast	Recent
San Andreas Fault, splay	0.24 miles	northeast	Recent
Vergeles Fault	2.10 miles	southwest	Late Quaternary

Liquefaction

The site soils are considered not susceptible to liquefaction as they are either un-saturated and medium dense to dense sands or contain or are cohesive clays.

Differential-Total Settlement - Static and Dynamic

The recommendations given in the Geotechnical Report are such that concerns of settlement are negligible. The total settlement is expected to be less than 1/2 inch and the expected differential settlement less than one half that.

Hydro-Collapse and Subsidence

As observed the near surface soils to an approximate depth of two feet are loose. These soils possess some capacity to settle under hydraulic loading or bearing loads when saturated. However this effect is not common in the area. The recommendations given in this report were established to reduce the potential of this occurring.

The area is not within a known Subsidence Zone.

Slope Stability

Inspection of the site indicates that no landslides are located above or below the building area and the area is generally not susceptible to slope failure as it is near level.

Seismic Strength Loss

The site soils are considered resistant to seismic strength loss and the resulting momentary liquefaction. The relatively short duration of earthquake loading will not provide a significant number of high amplitude stress cycles to alter the strain characteristics. Additionally the clay-silt fraction is not considered quick nor sensitive, as such it will not have the associated loss of strength.

Chemical Reactivity

The area is well developed with structures, generally found on Portland Cement products. Additionally these structures date back to the 1940's or earlier. Much of the concrete used in these structures has remained as cast. The area soils are not known for sulfate reaction with Portland cement products and as such chemical reactivity is not considered a problem in this area.

Expansive Soils

In general the near surface site soils are silty clays of low-moderate plasticity. These soils are typical to the area. Expansivity has apparently not been influential to adjacent structures as no deformations attributable to expansive soils were observed. Additionally there are no known problems with expansive soils in the area. Recommendations are given to address any potential expansivity of the site soils.

Surface Rupture and Lateral Spreading

The project site is located 0.2 miles to the southwest of the San Andreas Fault. The site inspection did not reveal any surface features indicating a fault rupture has occurred at the site. The existing roads do not reveal any strains which would be attributable to subsurface lateral or vertical displacements resulting from fault slip. Therefore surface rupture from fault activity across the site is considered improbable.

The project site is underlain by relatively strong soils. These materials are considered resistant to lateral spreading. As such surface rupture from lateral spreading is considered improbable.

Seismicity

It is recommended that all structures be designed and built in accordance with the requirements of the California Building Code's current edition. All buildings should be founded on undisturbed native soils and/or tested and accepted engineering fill to prevent resonance amplification between soils and the structure.

2013 California Building Code Geoseismic Classifications

The California Building Code, 2013 edition (Reference No. 13), provides for seismic design values. These values are to be utilized when evaluating structural elements. The soils profile determination is based on the penetration resistance data developed from advancement of exploratory bores. Using averaged penetration values per depth of soils type gives an overall site value of 32 blows/foot penetration resistance as per Equation 20.4-3, ASCE 7-05. The geoseismic character is as listed in the following table.

2012 I.B.C. - 2013 C.B.C. EARTHQUAKE LOADS: SECTION 1613				
LATITUDE	36.84026	SOIL PROFILE:	Stiff Soils	
LONGITUDE	-121.53277	SITE CLASS	D	
PERIOD	S	F	Sm	Sd
0.2 sec	Ss = 2.595	Fa = 1.0	Sms = 2.595	Sds = 1.730
1.0 sec	S1 = 1.246	Fv = 1.5	Sm1 = 1.869	Sd1 = 1.246
Seismic Design Category to be assigned by structural engineer or designer				

CONCLUSIONS OF INVESTIGATION

In general, the suitable, *in-situ**, native soils and certified engineered fill are acceptable for foundation purposes and display engineering properties adequate for the anticipated soil pressures, providing the recommendations in this report are followed.

Special Recommendations

As observed in the exploratory drilling, fill soils have been placed in the southern portion of the site and loose topsoil exists across the site. Additionally the development plans call for removal of several trees.

Due to this it is recommended that all loose and disturbed soils be processed as engineered fill within the building envelope and for any portion of development to receive on-grade engineered structures, eg. interior floor slabs, pavement, etc.. The minimum depth of processing is to include all existing fill soils and the upper 2 feet of *native in-situ** soils. The depth is to be increased, as necessary, to include all unacceptable soils. The actual depth of processing is to be determined in the field by the Soils Engineer or his representative.

Although the parcel appears to have never been developed, care should be taken to locate any buried objects or deeply disturbed soils. As such all care and practice is to be exercised to observe for and locate any such objects. Where these objects are to be removed or use discontinued, they are to be removed in their entirety and all disturbed soils are to be processed as engineered fill.

Due to the clayey nature of the site soils the following recommendations are given. The greatest potential for expansivity at this site is in allowing clayey soils, which are exposed and are to be covered by foundations or slabs, to dry and not be re-saturated prior to placement of concrete. Similar conditions may develop in open areas proposed for development where clayey soils have dried due to environmental conditions and which are similarly covered at that low moisture content. In these examples heave can distort the structure and on grade features during hydration and the accompanying increase in volume.

Therefore it is recommended that all exposed or naturally dry clayey soils which are to be covered by engineered fill, foundations or slabs be kept at or above natural moisture or placed moisture content and greater than 3 percent over optimum moisture content. For foundations and slabs these soils should be well saturated prior to placement of covering or concrete. All clayey soils placed as engineered fill are to be placed at 3 percent over optimum moisture content.

The base of all excavations and over-excavations are to be inspected by the Soils Engineer prior to further processing, steel or form placement.

Any further site activity, especially grading and foundation excavations, should be under the direction of a qualified Soils Engineer or their Representative.

Should the spectrum of development change, this office should be notified so that additional recommendations can be made, if necessary.

* Suitable, *in-situ,* native soils are those soils which are in-place as deposited by nature and have characteristics adequate for support of the intended load or application.

Foundations and Footings

Geotechnical evaluation indicates that square, round, and continuous spread footings are satisfactory types of support. The minimum embedment for shallow, spread foundations is 18 inches for single stories and two stories into suitable, *in-situ**, native soils or certified engineered fill. Embedment depths do not take into account the loose upper top soils, disturbed soils or any other unacceptable soils which exist at the site, e.g., any un-engineered fill, landscaping soils, etc.

VERTICAL SOIL PRESSURES[1]		
FOOTING TYPE	DEAD LOAD, kips/ft^2	DEAD + LL, kips/ft^2
Spread & Isolated	2.5	3.3
LATERAL SOIL PRESSURES[1]		
TYPE	VALUE, lbs/ft^2	
Active Earth Pressure	32 lbs/ft^3 (Equivalent Fluid Pressure)	
Restrained Earth Pressure	54 lbs/ft^3 (Equivalent Fluid Pressure)	
Seismic	4 lbs/ft^{3}xH^2 applied at 0.6H	
Friction at Base	0.30 × Dead Load	
Passive Earth Pressure	275 lbs/ft^3 × H^2 NOTE2	
Uplift Friction	140 lbs/ft^2 × H	

Notes: LL = Live Load; DL = Dead Load; H = Vertical height of material retained. One-third increase to be allowed for wind and seismic forces.
[1] For depths into acceptable native materials or engineered fill.
[2] Excludes near surface 0.5 feet of *in-situ* soils.

Pile and Pier foundation information is not provided as none are required or proposed. All foundation excavations are to be cleaned of debris and loose or otherwise unsuitable soils prior to placement of concrete.

* Suitable, *in-situ,* native soils are those soils which are in-place as deposited by nature and have characteristics adequate for support of the intended load or application.

Slabs-on-Grade

All slabs should be constructed over a prepared sub-grade placed on suitable *in-situ** native material or certified engineered fill. The sub-grade materials should be observed and accepted by a qualified Soils Engineer or their representative prior to concrete placement.

On-grade slabs, which are to receive impervious cover or where transmission of water vapor through the slab is not desirable, should be placed over a moisture vapor barrier consisting of a waterproof membrane (Moist Stop, 10 mil Visqueen, or equal) with a 2 inch protective sand cover. The waterproof membrane should be placed over a capillarity break consisting of 4 inches of open graded rock; round and sub-round rock is recommended to prevent puncture of the membrane. Open graded crushed aggregate may be utilized, provided the vapor barrier is protected from puncture by a cushion of filter fabric (Mirafi 140N or equal) laid over the aggregate prior to placement of the membrane. Where such concerns are not warranted, alternative underlayment may be utilized at the owners discretion.

All care and practice required to prevent puncture of the membrane during placement and pouring of covering slabs should be utilized during construction. Unless otherwise required for structural purposes, all slabs should be reinforced with a minimum of No.4, Grade 40, deformed steel reinforcing bar, 24 inches o.c., each way, to prevent separation and displacement in cases of cracking.

* Suitable, *in-situ,* native soils are those soils which are in-place as deposited by nature and have characteristics acceptable for support of the intended load or application.

Specifications for Rock Under Floor Slabs

Definition: Graded gravel of crushed rock for use under floor slabs shall consist of a minimum thickness of mineral aggregate placed in accordance with these specifications and in conformance with the dimensions shown on the project plans. The minimum thickness is specified in the accompanying report.

Material: The mineral aggregate for use under floor slabs shall consist of broken stone, crushed or uncrushed gravel, quarry waste, or a combination thereof. The aggregate shall be free from adobe, vegetable matter, loam, volcanic tuff, and other deleterious substances. It shall be of such quality that the absorption of water in a saturated dry condition does not exceed 3 percent of the oven dry

weight of the sample.

Grading: The mineral aggregate shall be of such size that the percentage composition by dry weight as determined by the use of laboratory sieves, U.S. Standard, in compliance with ASTM C 136-06, Standard Method for Sieve Analysis of Fine and Coarse Aggregates, will conform to the following grading specification:

SIEVE SIZE	PERCENTAGE PASSING SIEVE
3/4 inch	100 %
No. 4	0 - 10 %
No. 200	0 - 2 %

Placing: Sub-grade upon which gravel or crushed rock is to be placed shall be prepared as outlined in the Recommended Grading Specifications. In addition, the Sub-grade shall be kept moist so that no drying cracks appear prior to pouring slabs. If cracks appear, Sub-grade shall be moistened until cracks close.

Slope Ratio and Drainage

Analysis of site soils indicate that cut and fill slope ratios of 2 horizontal to 1 vertical will be satisfactory provided they are landscaped with soil retaining ground covers and are protected against concentrated over slope drainage.

Surface Drainage and Erosion Control

Design and construction of the project should fit the topographic and hydrologic features of the site. It is important to minimize unnecessary grading. Disturbing native vegetation and natural soil structure allows runoff velocity and transport of sediments to increase.

General surface drainage should be retained at low velocity by slope, sod or other energy reducing features sufficient to prevent erosion, with concentrated over-slope drainage carried in lined channels, flumes, pipe or other erosion-preventing installations.

Runoff flows should be directed into pipes or lined ditches and then onto an energy dissipater before discharging into streams or drainage ways. De-silting should be provided as necessary and may take form of stilling basins, gravel

berms, forested/vegetated screens, etc.

Preferably all concentrated roof and area drainage should be conveyed and released to the lower portions of the site or any adjacent drainage facility as available.

A sub-surface dispersal system may be used on this site. However, relative to dispersal of drainage to soil such a system would be preferably excavated in the more clastic soils encountered at approximately 6 to 10 feet below grade. The site soils above this horizon are dominantly silty clays and will not perform well for such applications.

During construction, never store cut and fill material where it may wash into streams or drainage ways. Keep all culverts and drainage facilities free of silt and debris. Keep emergency erosion control materials such as straw mulch, plastic sheeting, and sandbags on-site and install these at the end of each day as necessary.

Re-vegetate and protect exposed soils by October 15. Use appropriate grass/legume seed mixes and/or straw mulch for temporary cover. Plan permanent vegetation to include native and drought tolerant plants. Seeding and re-vegetation may.

Subsurface Drains

When placing subsurface drains we recommend that filter fabric not be used, as we have found that this type of drainage system may not be effective should the filter fabric become clogged. We would recommend placement of Caltrans Class 1, Type 'A" or "B" drain rock, and that any fabric only be placed over the top of the trench.

CLASS 1		
SIEVE SIZES	**PERCENTAGE PASSING**	
	TYPE A	TYPE B
50.0-mm/2 inches	----	100
37.5-mm/1.5 inches	----	95-100
19.0-mm/0.75 inches	100	50-100
12.5-mm/0.5 inches	95-100	-----
9.5-mm/0.415 inches	70-100	15-55
4.75-mm/No. 4	0-55	0-25
2.36-mm/No. 8	0-10	0-5
75.0-µm/No.200	0-3	0-3

General Grading Recommendations

For those items not directly addressed, it is recommended that all earthwork be performed in accordance with the following.

General: This item shall consist of all clearing and grubbing; preparation of land to be filled; excavation and fill of the land; spreading, compaction and control of the fill; and all subsidiary work necessary to complete the graded area to conform with the lines, grades and slopes as shown on the approved plans.

The Contractor shall provide all equipment and labor necessary to complete the work as specified herein, as shown on the approved plans as stated in the project specifications.

Preparation: Site preparation will consist of clearing and grubbing any existing structures and deleterious materials from the site, and the earthwork required to shape the site to receive the intended improvements, in accordance with the recommended grading specifications and the recommendations as provided above.

All vegetable matter, irreducible material greater than 4 inches and other deleterious materials shall be removed from the areas in which grading is to be done. Such materials not suitable for reuse shall be disposed of as directed.

After the foundation for fill has been cleared, it shall be brought to the proper moisture content by adding water or aerating and compacting to a Relative Compaction of not less than 90% or as specified. The soils shall be tested to a depth sufficient to determine quality and shall be approved by the Soils Engineer for foundation purposes prior to placing engineered fill.

General Fill: General fill shall be placed only on approved surfaces, as engineered fill, and shall be compacted to 90% Relative Compaction. Native soils accepted for fill or existing aggregate fill may be used for fill purposes provided all aggregate larger than 6 inches are removed. The material for engineered fill shall be approved by the Soils Engineer before commencement of grading operations.

Each layer shall be compacted to a Relative Compaction of not less than 90% or as specified in the soils report and on the accepted plans. Compaction shall be continuous over the entire area of each layer.

The selected fill material shall be placed in layers which, when compacted, shall not exceed 6 inches in thickness. Each layer shall be spread evenly and shall

be thoroughly mixed during the spreading to ensure uniformity of material in each layer. Fill shall be placed such that cross fall does not exceed 1 foot in 20 unless otherwise directed.

When fill material includes rock or concrete rubble, no irreducible material larger than 4 inches in greatest dimension will be allowed except under the direction of the Soils Engineer.

+Imported Materials: Materials imported for fill purposes shall be classified as: SAND, group symbol SW, SP, SC or SM, as given in ASTM 2487-10, "The Classification of Soils For Engineering Purposes." In all cases the portion finer than the No. 200 sieve shall not contain any greatly expansive clays and shall be free from vegetable matter and other deleterious materials. The material for engineered fill shall be approved by the Soils Engineer before commencement of grading operations.

Structural Backfill: Trench, wall and structural backfill shall be placed only on approved surfaces, as engineered fill, and shall be compacted to 95% Relative Compaction. Materials imported for backfill purposes shall have a Sand Equivalent of no less than 30 and shall be classified as Clean Sands as designated in "The Classification of Soils For Engineering Purposes" (ASTM 2487-10).

Pavement Grades: All pavement grades shall be of uniform thickness, density and moisture prior to placement of the next grade. Flexure of each or all grades shall not exceed 0.25 inches in 5 feet under an axial load of 18.5 kip.

Aggregate Base Course: All aggregates used for specified base courses, shall be handled in a manner which prevents segregation and non-uniformity of gradation.

Compaction: All re-compacted soils and/or engineered fill should be placed at a minimum 90% Relative Compaction or at the value required for that portion of the work. All pavement sections should be compacted to a minimum of 95% Relative Compaction.

Field density testing shall be completed by the Soils Engineer on each compacted layer or as determined by the Soils Engineer. At least one test shall be made for each 500 cubic yards or fraction thereof, placed with a minimum of two tests per layer in isolated areas. Where a sheeps'-foot roller is used, the soil may be disturbed to a depth of several inches. Density tests shall be taken in compacted materials below the disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof, is below the required density,

that particular layer or portion shall be reworked until the required density has been obtained.

Moisture: During compaction moisture content of native soils should be that consistent with the moisture relative to 95% Relative Compaction and in no case should these materials be placed at less than 3 percent above the specific optimum moisture content for the soil in question. The engineer may elect to accept high moisture compacted soils provided the materials are at 95% Relative Wet Density at that moisture content.

The moisture content of the fill material shall be maintained in a suitable range to permit efficient compaction. The Soils Engineer may require adding moisture, aerating, or blending of wet and dry soils.

All earth moving and work operations shall be controlled to prevent water from running into and pooling in excavated areas. All such water shall be promptly removed and the site kept drained.

Tests: All materials placed should be tested in accordance with the Compaction Control Tests: "Density of Soil In-Place by Sand Cone Method" (ASTM D-1556-07), "Moisture-Density Relationship of Soils" (ASTM D-1557-09), and "Density of Soils In-Place by Nuclear Method" (ASTM D-6938-10).

The standard test used to define maximum densities of all compaction work shall be the A.S.T.M. D-1557-09, Moisture Density of Soils, using a 10-pound ram and 18-inch drop. All densities shall be expressed as a relative density in terms of the maximum density obtained in the laboratory by the foregoing standard procedure.

Deleterious Materials: Materials containing an excess of 5% (by weight) of vegetative or other deleterious matter may be utilized in areas of landscaping or other non-structural fills. Deleterious material includes all vegetative and non-mineral material, and all non-reducible stone, rubble and/or mineral matter of greater than 6 inches.

Over-Excavations: Over-excavations, when required, should include the foundation and pavement envelopes. Such excavations should extend beyond edge of development a minimum of 5 feet and to an imaginary line extending away and downward at a slope of 45 degrees from the edge of development. The process shall include the complete removal of the required soils and subsequent placement of engineered fill. After removal of the soils to the required depth, the base of the excavation shall be inspected and approved by the Soils Engineer or his representative prior to further soils processing or

placement. Based on this inspection other recommendations may be made.

Existing Conditions: In developed areas underground utilities may be located within the area of proposed construction. In addition, buried objects or deeply disturbed soils may also be encountered. As such all care and practice is to be exercised to observe for and locate any such objects. Where these objects are to be removed or use discontinued, they are to be removed in their entirety and all disturbed soils are to be processed as engineered fill.

Key: All fills on slopes greater than 1 vertical to 6 horizontal shall be keyed into the adjacent soil. The toe of all slopes should be supported by a key cut a minimum of 3 feet into undisturbed soils to the inside of the fills toe. This key should be a minimum of 6 feet in width and slope at no less than 10% into the slope. In addition, as the fill advances up slope benches, 3 feet across, should be scarified into the fill/undisturbed soil interface.

Seasonal Limits: When the work is interrupted by rain, fill operations shall not be resumed until field tests by the Soils Engineer indicate that the moisture content and density of the fill is as previously specified and soils to be placed are in suitable condition

Unusual Conditions: In the event that any unusual conditions are encountered during grading operations which are not covered by the soil investigation or the specifications, the Soils Engineer shall be immediately notified such that additional recommendations may be made.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The recommendations of this report are based on our understanding of the project as represented by the plans, and the assumption that the soil conditions do not deviate from those represented in this site soils investigation. Therefore, should any variations or undesirable conditions be encountered during construction, or if the actual project will differ from that planned at this time, GRICE ENGINEERING INC. should be notified and provided the opportunity to make addendum recommendations if required.

NOTIFY:	GRICE ENGINEERING INC.	SALINAS	(831) 422-9619
	561-A Brunken Avenue	MONTEREY	(831) 375-1198
	Salinas, California 93901	FAX	(831) 422-1896

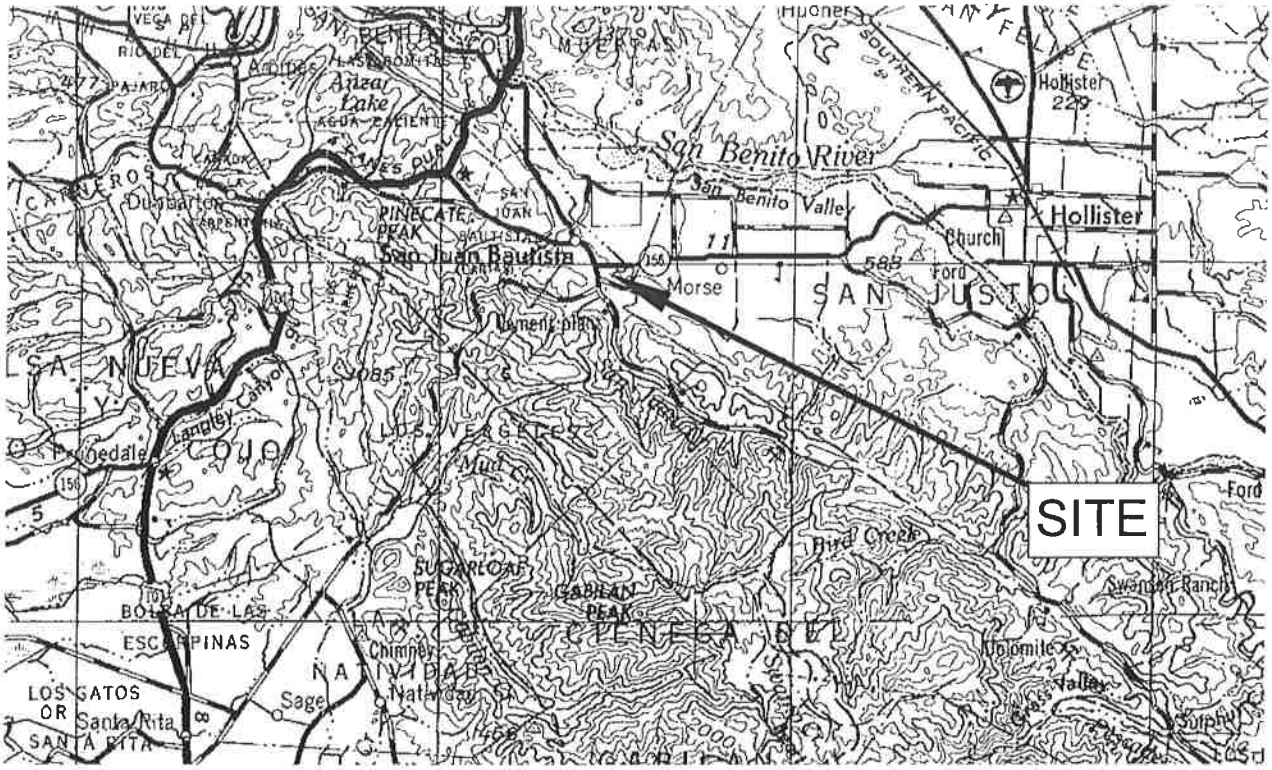
This report is issued with admonishment to the Owner and to his representative(s), that the information contained herein should be made available to the responsible project personnel including the architects, engineers, and contractors for the project. The recommendations contained herein should be incorporated into the plans, the specifications, and the final work.

It is requested that GRICE ENGINEERING INC. be retained to review the project grading and foundation plans to ensure compliance with these recommendations. Further, it is the position of GRICE ENGINEERING INC. that work performed without our knowledge and supervision, or the direction and supervision of a project responsible professional soils engineer renders this report invalid.

It is our opinion the findings of this report are **valid** as of the **present date**, **<u>however</u>**, changes in the **Codes and Requirements** can occur and change the recommendations given within this report concerning the property. In addition changes in the conditions of a property can occur with the passage of time, due either to natural processes or to the works of man and may effect this property. In addition, changes in **standards** may occur as a result of legislation, or the broadening of knowledge, and these changes may require re-evaluation of the conditions stated herein. Accordingly, the findings of this report may be invalidated wholly, or partially, by changes beyond our control. Therefore, this report is subject to review and should not be relied upon after a period of **<u>three years</u>**.

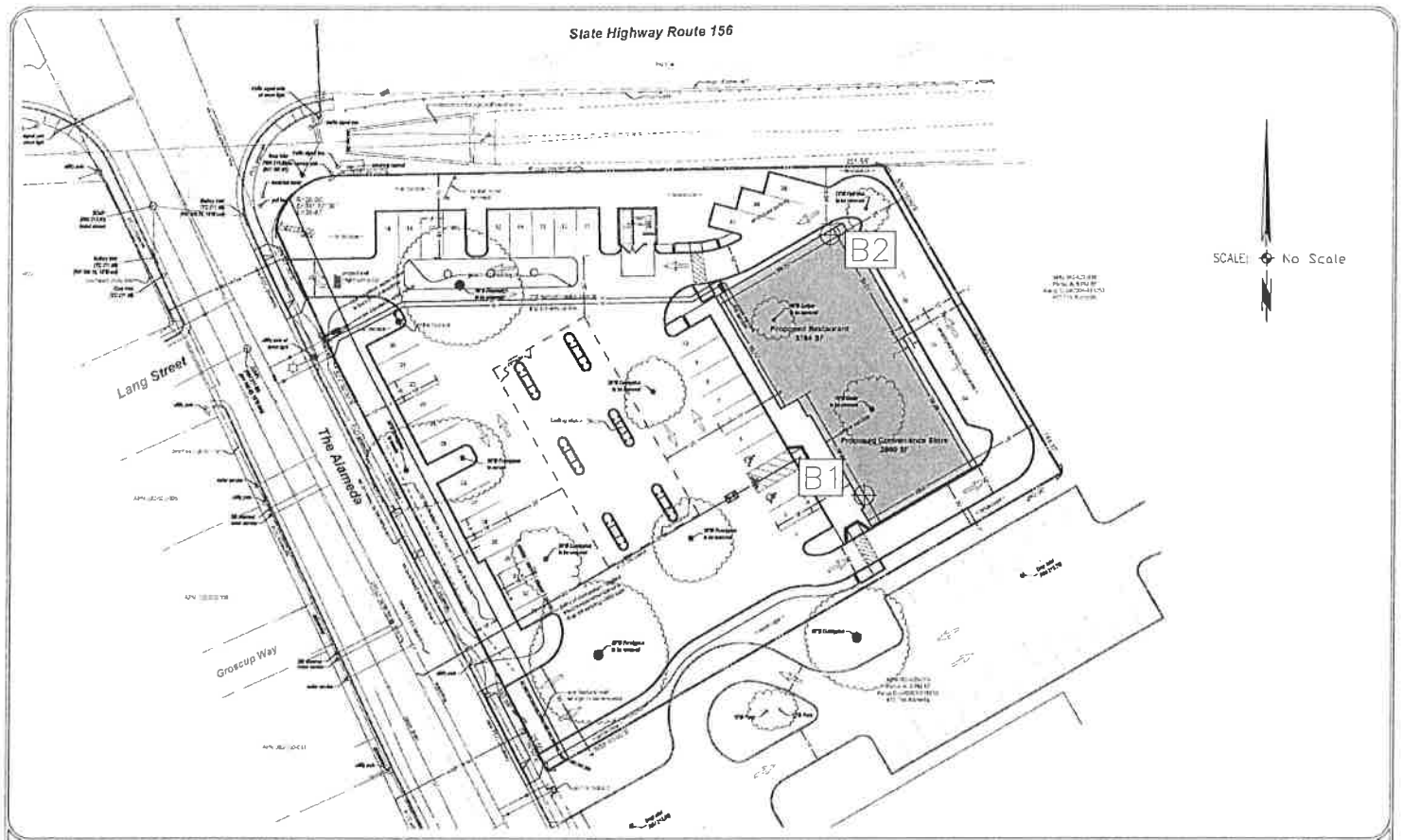
REVISED 01-07-2011

APPENDIX A



Vicinity Map

Location Map



GRICE ENGINEERING INC

SITE PLAN with BORE LOCATIONS

Dadwal Commercial Development The Alameda & Highway 156, Southeast Corner San Juan Bautista, CA A P N 002-520-012

APPENDIX B

Dadwel Commercial Development; SE Corner of The Alemeda & Highway 156, San Juan Bautista

Boring No. 1 March 25, 2014

Depth	Symbol	Sample	Field Blow Count per 6 inch	Standard Pen. Burmeister	Description	Auger Pen.	Density	Moisture	Unconfined	Cohesion	Shear
0.00	CL				(CUTTINGS) Dark grayish brown | silty CLAY; medium plasticity; moderately pliable-friable | trace-few: sand; very fine | moist; soft | fill soils . little bit of debris on surface, could have been building on site						
1.00											
					(CUTTINGS) Yellowish brown | SAND; very fine to medium | few to little: silty clay; low plasticity: friable | moist: loose | fill soils						
2.00	SC				(CUTTINGS) Dark grayish brown | silty CLAY; low-medium plasticity; moderately pliable-friable | trace-few: sand; very fine | moist; soft | topsoil						
		2.50	10.00	8							
3.00			12.50	10	(SHOE) Very dark yellowish brown; very lightly mottled | silty CLAY; medium plasticity; v. slightly pliable-friable | trace-few: sand; very fine | moist; stiff | interface between native topsoil and subsoil, light false cementation						
	CL		14.50	11			102.7	9.7	9+		
4.00				20							
5.00											
					more silt with depth and increasing sands pales some with a reddish-yellow hue						
6.00	CL				(CUTTINGS-SHOE at 7.5 ft) Yellowish brown; very lightly mottled | silty CLAY; low-medium plasticity; hard-friable | few: sand; very fine to medium ; occ. to fine gravel | moist; hard | native subsoil, light false cementation						
7.00											
		7.50	18.50	14							
8.00			23.00	17							
			33.00	25	same		105.8	7.9	9+		
9.00				42	little bit of chatter						
10.00					(CUTTINGS) Pale yellowish brown | CLASTS; fine sand to 2 inch gravel; angular to sub angular; granite | little; clay | moist; medium dense | native subsoil, cuttings are fine to coarse sand with few gravels to 2inch, drilling breaks clasts, appearance is close to weathered granite						
11.00					goes to a sand with silty clay, slightly moist, medium dense						
12.00	SFTRCK SM				(CUTTINGS) Pale yellowish brown | CLASTS; fine sand to 2 inch gravel; angular to sub angular; granite | trace: silt | slightly moist; medium dense | native subsoil, cuttings are fine to coarse sand with few gravels to 2inch. drilling breaks clasts, appearance is close to weathered granite						
13.00		13.00	19.50	15							
			26.50	20							
14.00			28.00	21			122.6	0.6	9+		
				41							
15.00											
16.00											
17.00											
18.00											
19.00					free drilling in sands						
20.00											

Dadwel Commercial Development; SE Corner of The Alemeda & Highway 156, San Juan Bautista

Boring No. 1

March 25, 2014

Depth	Symbol	Sample	Field Blow Count per 6 inch	Standard Pen Burmester	Description	Auger Pen.	Density	Moisture	Unconfined	Cohesion	Shear
21.00	CL				(CUTTINGS) Yellowish brown | silty CLAY; medium plasticity; moderately pliable | trace-some: sand; fine to coarse; occ to few gravels to 3/8 inch | very damp; medium stiff | few horizons of soft with still augur pens of 4 inches, very lensatic						
22.00											
23.00											
24.00											
25.00											
26.00											
27.00											
28.00											
29.00					End of bore at 29.0 feet. Free water at tip of cutting head. Bore back filled with cuttings.						
30.00											
31.00											
32.00											
33.00											
34.00											
35.00											
36.00											
37.00											
38.00											
39.00											
40.00											

Dadwel Commercial Development; SE Corner of The Alemeda & Highway 156, San Juan Bautista

Boring No. 2 March 25 2014

Depth	Symbol	Sample	Field Blow Count per 6 inch	Standard Pen. Burmeister	Description	Auger Pen.	Density	Moisture	Unconfined	Cohesion	Shear
0.00	CL				(CUTTINGS) Dark grayish brown | silty CLAY; low-medium plasticity; moderately pliable-friable | trace-few: sand; very fine | moist; soft | topsoil						
1.00											
					no y-b silty clay sands seen, other bore has 2 feet fill over native						
2.00	CL	2.00	17.50	13	(CUTTINGS-SAMPLE) Very dark yellowish brown; very lightly mottled | silty CLAY; medium plasticity; v. slightly pliable-friable | trace-few: sand; very fine | moist; stiff | native subsoil; light false cementation						
			19.00	14							
3.00			19.00	14			107.5	10.3	9+		
				28							
4.00											
	CL				(CUTTINGS) Yellowish brown; very lightly mottled | silty CLAY; low-medium plasticity; hard-friable | few: sand; very fine to medium; occ. to fine gravel | moist: hard | native subsoil, light false cementation						
5.00											
					clasts coming in as at 10 feet in bore 1						
6.00	SM				(SHOE at 7.0 feet; cuttings) Pale yellowish brown | CLASTS; fine sand to 2 inch gravel; angular to sub angular; granite | trace: silt | slightly moist; medium dense | native subsoil, cuttings are fine to coarse sand with few gravels to 2inch, drilling breaks clasts, appearance is close to weathered granite						
7.00											
		7.50	22.00	17							
8.00			21.50	16							
	CL		8.50	6	(SHOE) Yellowish brown: lightly mottled | silty CLAY; low-medium plasticity; slightly pliable-friable | few: sand; very fine to fine | damp; medium stiff | native subsoil, light false cementation		120.7	0.8	9+		
9.00				22							
10.00					(CUTTINGS) Pale yellowish brown | CLASTS: fine sand to 2 inch gravel; angular to sub angular; granite | trace: silt | slightly moist; medium dense | native subsoil, cuttings are fine to coarse sand with few gravels to 2inch, drilling breaks clasts, appearance is close to weathered granite						
11.00											
12.00											
13.00					no pen. slight spin in						
14.00											
15.00											
16.00											
17.00					same to end of bore						
18.00											
19.00					free drilling in sands End of bore at 19.0 feet. No free water encountered. Bore back filled with cuttings.						
20.00											

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UNIFIED SOIL CLASSIFICATION & ASTM D2487: INCLUDING IDENTIFICATION AND DESCRIPTION

FIELD IDENTIFICATION PROCEDURES

Excluding particles larger than 3 inches and basing fractions on estimated weights

					GROUP SYMBOLS N.	TYPICAL NAMES
COARSE GRAINED SOILS (More than half of material is larger than No. 200 sieve size is about the smallest particle visible to the naked eye)	GRAVELS (More than half of coarse fraction is larger than No. 4 sieve size)	CLEAN GRAVELS (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes.		GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			Predominantly one size or a range of sizes with some intermediate sizes missing.		GP	Poorly graded gravels, gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below).		GM	Silty gravels, poorly graded gravel-sand-silt mixtures.
			Plastic fines (for identification procedures see CL below).		GC	Clayey gravels, poorly graded gravel-sand-clay mixtures.
	SANDS (More than half of coarse fraction is smaller than No. 4 sieve size) (For visual classifications, the 1/4" size may be used as equivalent to the No. 4 sieve size.)	CLEAN SANDS (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes.		SW	Well graded sands, gravelly sands, little or no fines.
			Predominantly one size or a range of sizes with some intermediate sizes missing.		SP	Poorly graded sands, gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below).		SM	Silty sands, poorly graded sand-silt mixtures.
			Plastic fines (for identification procedures see CL below).		SC	Clayey sands, poorly graded sand-clay mixtures.
FINE GRAINED SOILS (More than half of material is smaller than No. 200 sieve size) (The No. 200 sieve size is about the smallest particle visible to the naked eye)	IDENTIFICATION PROCEDURES ON FRACTION SMALLER THAN No. 40 SIEVE SIZE		DRY STRENGTH (Crushing characteristics)	DILATANCY (Reaction to shaking)	TOUGHNESS (Consistency near plastic limit)	
	SILTS AND CLAYS Liquid limit less than 50		None to slight	Quick to slow	None	ML — Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity.
			Medium to high	None to very slow	Medium	CL — Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			Slight to medium	Slow	Slight	DL — Organic silts and organic silt-clays of low plasticity.
	SILTS AND CLAYS Liquid limit greater than 50		Slight to medium	Slow to none	Slight to medium	MH — Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			High to very high	None	High	CH — Inorganic clays of high plasticity, fat clays.
			Medium to high	None to very slow	Slight to medium	OH — Organic clays of medium to high plasticity.
HIGHLY ORGANIC SOILS	Readily identified by color, odor, spongy feel and frequently by fibrous texture.				P↑	Peat and other highly organic soils.

INFORMATION REQUIRED FOR DESCRIBING SOILS

Give typical name, indicate approximate percentages of sand and gravel, max. size; angularity, surface condition, and hardness of the coarse grains, local or geologic name and other pertinent descriptive information, and symbol in parentheses.

For undisturbed soils add information on stratification, degree of compactness, cementation, moisture conditions and drainage characteristics.

EXAMPLE

Silty Sand, gravelly; about 20% hard, angular gravel particles ½ inch maximum size; rounded and subangular sand grains coarse to fine, about 15% non-plastic fines with low dry strength, well compacted and moist in place, alluvial sand; (SM).

Give typical name, indicate degree and character of plasticity, amount and maximum size of coarse grains, color in wet conditions, odor if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses.

For undisturbed soils add information on structure, stratification, consistency in undisturbed and remolded states, moisture and drainage conditions.

EXAMPLE

Clayey silt, brown, slightly plastic, small percentage of fine sand, numerous vertical root holes, firm and dry in place, loess; (ML).

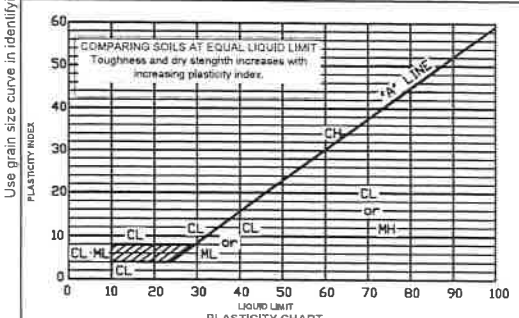
LABORATORY CLASSIFICATION CRITERIA

Use grain size curve in identifying the fractions as given under field identification.

Determine percentages of gravel and sand from grain size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size) coarse grained soils are classified as follows:

Less than 5% — GW, GP, SW, SP
More than 12% — GM, GC, SW, SC
5% to 12% — Borderline cases requiring use of dual symbols

$C_u = \frac{D_{60}}{D_{10}}$	Greater than 4	
$C_c = \frac{(D_{30})^2}{(D_{10} \times D_{60})}$	Between one and 3	
Not meeting all gradation requirements for GW		
Atterberg limits below "A" line or PI less than 4		Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
Atterberg limits above "A" line or PI greater than 7		
$C_u = \frac{D_{60}}{D_{10}}$	Greater than 6	
$C_c = \frac{(D_{30})^2}{(D_{10} \times D_{60})}$	Between one and 3	
Not meeting all gradation requirements for SW		
Atterberg limits below "A" line or PI less than 4		Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
Atterberg limits above "A" line or PI greater than 7		



PLASTICITY CHART
FOR LABORATORY CLASSIFICATION OF FINE GRAINED SOILS

N. **Boundary** classifications: Soils possessing characteristics of two groups are designated by combinations of group symbols. For example GW-GC, well graded gravel-sand mixture with clay binder.
N. All sieve sizes on this chart are U.S. Standard.

FIELD IDENTIFICATION PROCEDURES FOR FINE GRAINED SOILS OR FRACTIONS

These procedures are to be performed on the minus No. 40 sieve size particles, approximately 1/64 inches. For field classification purposes screening is not intended; simply remove by hands the coarse particles that interfere with the test.

DILATANCY (Reaction to shaking)

After removing portions larger than No. 40 sieve size, prepare a pot of moist soil with a volume of about one-half cubic inch. Add enough water if necessary to make the soil soft but not sticky.

Place the pot in the open palm of one hand and shake horizontally, stricking vigorously against the other hand several times. A positive reaction consists of the appearance of water on the surface of the pot which changes to a livery consistancy and becomes glossy. When the sample is squeezed between the fingers, the water and gloss disappear from the surface, the pot stiffens and finnally it crackes or crumbles. The rapidity of appearance of water during shaking and of its diappearance during squeezing assist in identifying the character of the fines in a soil.

Very fine clean sands give the quickes and most distinct reactoin whereas a plastic clay has no reaction. Inorganic silts, such as a typical rock flour, show a moderately quick reaction.

DRY STRENGTH (Crushing characteristics)

After removing particles larger than No. 40 sieve size, mold a pat of soil to the consistency of putty, adding water if necessary. Allow the pat to dry completely by oven, sun, or air drying, and then test its strength by breaking and crumbling between the fingers. This strength is a measure of the character and quality of the colloidal fraction contained in the soil. The dry strength increases with increasing plasticity.

High dry strength is characteristic for clays of the CH group. A typical inorganic silt possesses only very slight dry strength. Silty fine sand and silts have about the same slight dry strength, but can be distinguished by the feel when powdering the dried specimen. Fine sand feels gritty whereas a typical silt has the smooth feel of flour.

TOUGHNESS (Consistency near plastic limit)

After removing particles larger that the No. 40 sieve size, a specimen of soil about one-half inch cube in size is molded to the consistency of putty. If too dry, water must be added and if sticky, the specimen should be spread out in a thin layer and allowed to lose some moisture by evaporation. Then the specimen is rolled out by hand on a smooth surface of between the palms into a thread about one-eight inch in diameter. The thread is then folded and rerolled repeatedly. Durning this manipulation the moisture content is gradually reduced and the specimen stiffens, finally loses its plasticity, and crumbles when the plastic limit is reached.

After the thread crumbles, the pieces should be lumped together and a slight kneading action continued until the lump crumbles.

The tougher the thread near the plastic limit and the stiffer the lump when it finally crumbles, the more potent is the colloidal clay fraction in the soil. Weakness of the thread at the plastic limit and quick loss of coherence of the lump below the plastic limit indicate either inorganic clay of low plasticity, or materials such as kaolin-type clays and organic clays which occure below the A-line.

Highly organic clays have a very weak and spongy feel at the plastic limit.

ADOPTED BY: CORPS OF ENGINEERS AND BUREAU OF RECLAMATION-JANUARY 1962

IO3-D-347

SOIL CLASSIFICATION CHART
conforms to Unified Soils Classification
and ASTM D2487

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Roger Grimsley

From: Harvey Dadwal [hdadwal@aol.com]
Sent: Friday, March 28, 2014 12:44 PM
To: citymanager@san-juan-bautista.ca.us
Cc: rglenn.monterey@gmail.com; johnmccormackjr@montereybay.com
Subject: Fwd: Soil report of san juan Bautista
Attachments: 62611403Geotech_CBC_PUBLISH_032614.pdf

Mr.Roger,

Please see attached the soil report

Thanks,

Harbhajan Dadwal | President
Five Rivers Hospitality Inc
1534 Ste-D Fremont Blvd.
Seaside, CA 93955
Cell: (831)224-9191 Fax: (831)899-0104

-----Original Message-----
From: Sam Grice <samge@sbcglobal.net>
To: Harvey <hdadwal@aol.com>
Sent: Fri, Mar 28, 2014 9:33 am
Subject: san juan report

report - did not get back to office yesterday - paper copies are ready to pickup

Appendix E

Noise Study

The Alameda (Dadwal) Gas Station

San Juan Bautista, CA

Noise Impact Assessment

18 April 2016

Prepared for:

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CSA Project Number: 16-0157

Charles M. Salter
ASSOCIATES INC.

INTRODUCTION

This report presents the results of our noise impact assessment for The Alameda Gas Station project. It summarizes the policies and standards applicable to the project, noise data obtained from our on-site acoustical measurements, and our evaluation of potential noise impacts resulting from the project on existing land-uses. Those readers not familiar with the fundamental concepts of environmental noise may refer to Appendix A.

Project Description

The project consists of a 1.12 acre lot that will contain commercial uses including a gas station, a convenience store, and a restaurant. The site is bounded by Highway 156 to the north, The Alameda to the west, and the San Juan Inn to the south. Currently, the project site is an empty lot.

ACOUSTICAL CRITERIA

The State of California, the County of San Benito, and the City of San Juan Bautista establish regulations and policies designed to limit noise exposure at noise sensitive land uses. To outline this analysis, CEQA guidelines are used to determine whether a project will have a significant impact on the existing environment. Though we understand that the County General Plan and Code does not apply to this project directly, we are using it as a standard for our impact analysis in light of CEQA guidelines. Appendix G of the State CEQA Guidelines, San Benito County Noise Element of the General Plan, San Benito County Municipal Code, San Juan Bautista General Plan, and San Juan Bautista Municipal Code present the following:

State CEQA Guidelines and Impact Criteria

The California Environmental Quality Act (CEQA) contains guidelines to evaluate the significance of noise attributable to a proposed project. This would include (but is not limited to) added traffic noise, mechanical equipment noise, and construction noise. CEQA asks the following applicable questions. Would the project:

1. Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies;

2. Expose people to or generate excessive groundborne vibration or groundborne noise levels;

3. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

4. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

5. For projects within an area covered by an airport land use plan or within two miles of a public airport or public use airport when such an airport land use plan has not been adopted, or within the vicinity of a private airstrip, expose people residing or working in the project area to excessive aircraft noise levels;

6. For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels?

Since the project is not within two miles of a public airport or private airstrip, items 5 and 6 do not apply to this project. Regarding item 3, CEQA does not define the noise level increase that is considered substantial. Therefore, we offer the following criteria based published studies of human response to noise, local standards, and our experience.

- An increase in the day-night average noise level[1] (L_{dn}) of three decibels or greater at noise-sensitive receptors would be considered significant when projected noise levels would exceed those considered "normally acceptable" for the affected land use.
- An increase of five decibels or greater would be considered significant when projected noise levels would continue to meet those considered satisfactory for the affected land use.

Summary of Impacts

To evaluate whether the project will have a significant impact regarding the above items, the following impact criteria statements are evaluated:

Project-Specific Potential Impacts

Impact 1: Project-Generated Traffic Noise

1a: Project generated traffic noise would not exceed applicable standards. (Finding: less-than-significant impact)

1b: Project generated traffic would not substantially increase traffic noise levels in the area. (Finding: less-than-significant impact)

Impact 2: Mechanical Noise

2a: Operation of mechanical equipment would not exceed applicable standards. (Finding: less-than-significant impact with mitigation)

2b: Operation of mechanical equipment could result in a significant permanent increase in ambient noise levels. (Finding: less-than-significant impact with mitigation)

Impact 3: Operational Noise

3a: Noise generated from project-related activities and associated systems should not exceed applicable standards. (Finding: less-than-significant impact with mitigation)

3b: Noise generated from project-related activities and associated systems should not result in a significant permanent increase in ambient noise levels at existing adjacent properties. (Finding: less-than-significant impact)

Impact 4: Construction Noise. During construction, noise generated by equipment and activities on the site could substantially increase noise levels at neighboring land uses. (Finding: less-than-significant impact with mitigation)

---

[1] Day-Night Average Sound Level (DNL or L_{dn}) – A descriptor established by the U.S. Environmental Protection Agency to describe the average day-night level with a penalty applied to noise occurring during the nighttime hours (10 pm - 7 am) to account for the increased sensitivity of people during sleeping hours.

Impact 5: Operational Groundborne Vibration. Operation of the project could expose persons to excessive groundborne vibration. (Finding: less-than-significant impact with mitigation)

Impact 6: Construction Groundborne Vibration. The construction of the project could expose persons to excessive groundborne vibration. (Finding: less-than-significant impact with mitigation)

Since the project site is not located in the vicinity of a public or private airstrip, it would not be exposed to excessive noise levels from such sources. The closest airport is City of Hollister Municipal Airport, which is far more than two miles away. Therefore, no airport noise impact is expected.

San Benito County – Noise Element of the General Plan

Chapter 9 of the San Benito County General Plan (2035) sets forth noise and land use compatibility standards for proposed land uses (Figures A and B below). Applicable noise goals of the Noise Element are as follows:

Figure A: San Benito County Non-Transportation Noise Level Performance Standards for Noise-Sensitive Uses

Noise Level Descriptor	Daytime (7:00 am – 10:00 pm)	Nighttime (10:00 pm – 7:00 am)
Hourly L_{eq} dB	55	45
Maximum Level, dB	70	65

Notes: These standards apply to new or existing residential areas affected by new or existing non-transportation sources.

Figure B: San Benito County Land Use Compatibility Guidelines for Community Noise Environments

Land Use Category	Community Noise Exposure Ldn/CNEL, dB						
		55	60	65	70	75	80
Residential – Low Density Single Family, Duplex, Mobile Homes							
Residential – Multi. Family							
Transient Lodging – Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Course, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing Utilities, Agriculture							

CLEARLY ACCEPTABLE
The noise exposure is such that the activities associated with the land use may be carried out with essentially no interference from aircraft noise. (Residential areas: both indoor and outdoor noise environments are pleasant.)

NORMALLY ACCEPTABLE
The noise exposure is great enough to be of some concern, but common building construction will make the indoor environment acceptable, even for sleeping quarters.

NORMALLY UNACCEPTABLE
The noise exposure is significantly more severe so that unusual and costly building construction is necessary to insure adequate performance of activities. (Residential areas: barriers must be created between the site and prominent noise sources to make the outdoor environment tolerable.)

CLEARLY UNACCEPTABLE
The noise exposure is so severe that construction costs to make the indoor environment acceptable for performance of activities would be prohibitive. (Residential areas: the outdoor environment would be intolerable for normal residential use.)

- HS-8.1: Project Design - The County shall require new development to comply with the noise standards shown in Figures A and B through proper site and building design, such as building orientation, setbacks, barriers, and building construction practices. The County shall only consider use of soundwalls after all design-related noise mitigation measures have been evaluated or integrated into the project or found infeasible.

- HS-8.2: Acoustical Analysis - The County shall require an acoustical analysis to be performed prior to development approval where proposed land uses may produce or be exposed to noise levels exceeding the "normally acceptable" criteria shown in Figure B. Land uses should be prohibited from locating, or required to mitigate, in areas with noise environment within the "unacceptable" range.

- HS-8.3: Construction Noise - The County shall control the operation of construction equipment at specific sound intensities and frequencies during day time hours between 7:00 am and 6:00 pm on weekdays and 8:00 am and 5:00 pm on Saturdays. No construction shall be allowed on Sundays or federal holidays.

- HS-8.7 Acceptable Vibration Levels – The County shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby noise-sensitive uses based on FTA criteria.

- HS-8.10 Reduction in Noise Levels at Existing Land Uses – Reduce traffic noise levels where expected to significantly impact sensitive receptors through the installation of noise control measures such as quiet pavement surfaces, noise barriers, traffic calming measures, and interior sound insulation treatments.

- HS-8.11 New Project Noise Mitigation Requirements – Require new project to include appropriate noise mitigation measures to reduce noise levels in compliance with the Figure A and B standards within sensitive areas. If a project includes the creation of new non-transportation noise sources, require the noise generation of the sources to be mitigated so they do not exceed the interior and exterior noise level standards of Figure B at existing noise-sensitive areas in the project vicinity, unless an exception is made by the County on a case-by-case basis. However, if a noise-generating use is proposed adjacent to lands zoned for residential uses, then the noise generating use shall be responsible for mitigating its noise generation to a state of compliance with the standards shown in Figure B at the property line of the generating use in anticipation of the future residential development, unless an exception is made by the County on a case-by-case basis.

- HS-8.12 Construction Noise Control Plans – Require all construction projects to be constructed within 500 feet of sensitive receptors to develop and implement construction noise control plans that consider available controls in order to reduce construction noise levels as low as practical.

San Benito County Code

The County's Code contains quantitative standards for regulating noise. However, noise from mechanical equipment associated with commercial activity, is excluded from these regulations. Temporary construction, demolition or maintenance of structure between the hours of 7:00 am and 7:00 pm, except Sunday and federal holidays, is also excluded from these regulations.

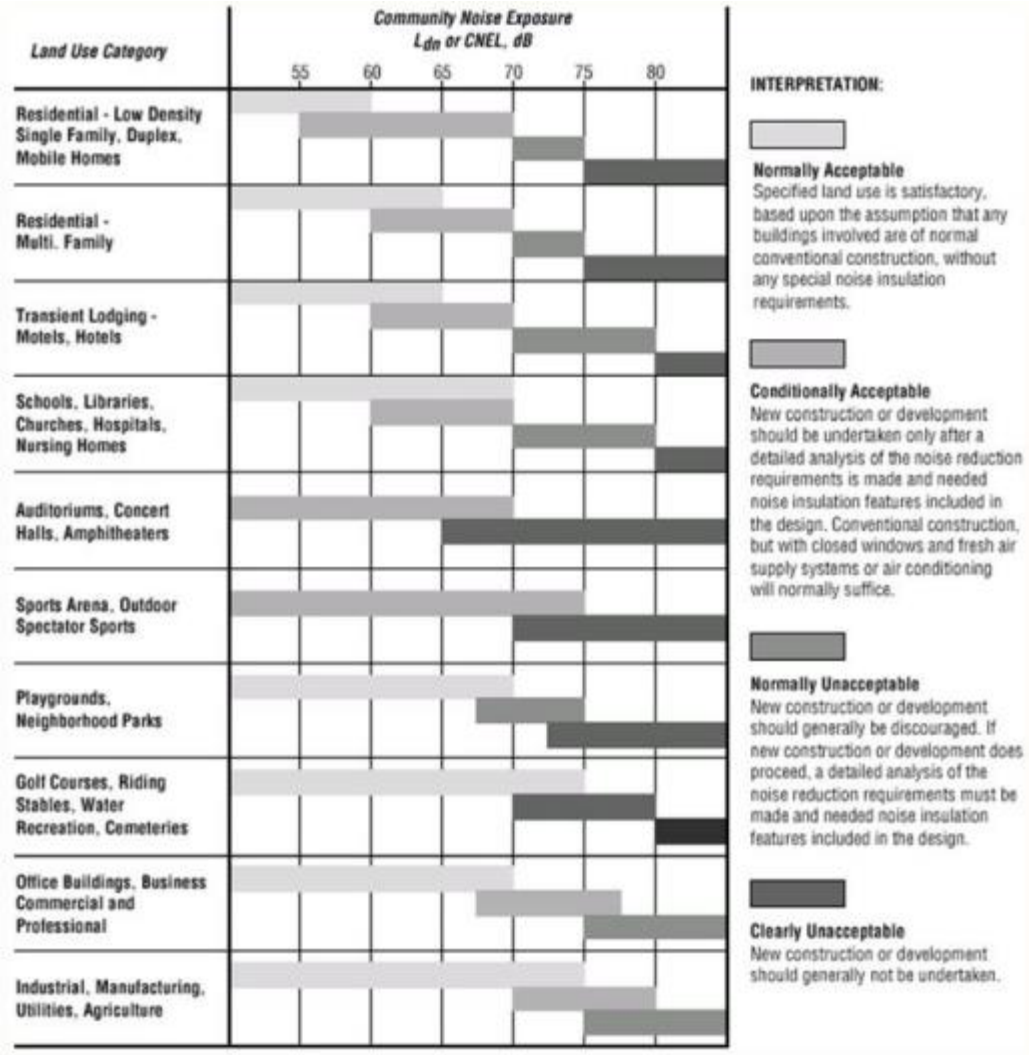
City of San Juan Bautista – Noise Element of the General Plan

Chapter 12 of the San Juan Bautista General Plan (2035) sets forth noise and land use compatibility standards for proposed land uses (Figure C below). Applicable noise goals, objectives, policies and programs of the Noise Element are as follows:

Goal N 1: Quiet Neighborhoods.

- Objective N 1.1: Separate noise sensitive land uses from land uses that traditionally produce high levels of noise.
  Policy N 1.1.1: San Juan Bautista shall avoid placing noise generators near sensitive land uses such as the Mission, churches, schools, cemeteries and health centers.
- Objective N 1.2: Minimize noise impact of traffic along State Route 156.
  Policy N 1.2.1: All interior noise levels for new development will be no greater than 45 dB and all exterior noise levels will be mitigated to a normally acceptable noise level as displayed in Figure C.
- Objective N 1.4: Reduce noise impacts of construction activity and other temporary noise sources.
  Policy N 1.4.1: Adopt regulations that limit construction activity to daylight hours.
  Program N 1.4.1.1: Require restrictions on hours of construction activity when issuing construction permits.

Figure C: San Juan Bautista Proposed Land Use Changes by 2035



San Juan Bautista Municipal Code

Chapter 11 of the current City Municipal Code states all commercial and industrial uses shall not cause noise levels in excess of the values listed in Table 1.

The City is currently working on a new Noise Ordinance. The draft Noise Ordinance has similar noise requirements to the County Code. If the draft Ordinance were adopted, our analysis of impacts would not be altered.

Table 1 – Maximum Allowed Noise Levels, dB (L_{dn})

Land Use	**Interior**	**Normally Acceptable[1]**	**Conditionally Acceptable[2]**	**Normally Unacceptable[3]**
Residential				
Low Density	45	<60	55 – 70	70 – 75
Medium/High Density		<65	60 – 70	70 – 75
Commercial				
Motel	50	<65	60 – 70	70 – 80
Office	55	<70	67 – 77	>75
Restaurant/Retail	60	<70	67 – 77	>75
Industrial	55	<75	70 – 80	>75
Public/Quasi-Public				
School, Library	45	<70	60 – 70	70 – 80
Church, Theater	45		<70	
Open Space				
Playgrounds/Parks	NA	<70	NA	>65 – 75
Golf Courses		<75		70 – 80
Cemeteries				

Notes:

1. Normally acceptable noise levels are those which pose no threat to the specified use. Standard construction would reduce external noise so that the interior noise level would not disrupt activities.

2. Conditionally acceptable noise levels are those in which standard building construction would not be adequate to protect the use. However, standard mitigation measures such as noise barriers, site design, architectural design to protect noise -sensitive activities, or acoustical insulation could be easily employed to achieve acceptable sound levels. Based on the noise levels along Highway 156 projected by Caltrans, some of the properties with highway frontage would fall into this category. The City will require mitigation for new projects proposed in these areas to ensure that noise levels are reduced to acceptable standards.

3. Normally unacceptable noise levels are those for which simple mitigation measures would not be adequate. The specified land uses would not be appropriate in these areas unless major noise attenuation measures have been designed into the projects by a professional who is competent in sound reduction and unless a detailed noise study has been conducted to assure the performance of the design. Construction of the specified use should be strongly discouraged in areas with these levels.

EXISTING NOISE ENVIRONMENT

To quantify the existing noise environment at the project site, we conducted two continuous long-term (48-hour minimum, LT-1 and LT-2), and two short-term (15-minute, ST-1 and ST-2) noise measurements between 2 and 9 March 2016. The purpose of the measurements is to quantify the noise levels at the site. A summary of the acoustical measurements and locations is listed below in Table 2. The locations are depicted in the enclosed Figure 1.

Table 2: On-Site Measured Noise Levels

Monitor	Location	Elevation (feet, above grade)	Measured Noise Level L_{dn}
LT-1	Along SR 156	12	78 dB
LT-2	Along The Alameda	12	65 dB
S-1	Along south edge of project site	5	62 dB*
S-2	Along west edge of project site	5	67 dB*

* Note: Daily average noise levels at short-term monitor locations are estimated based on adjacent long-term monitor data.

NOISE IMPACT ANALYSIS AND MITIGATION MEASURES

This analysis evaluates the potential noise impacts of the project with relation to the significance criteria listed above.

Project Specific Impacts

Impact 1: Project-Generated Traffic Noise

Impact 1a: Measured traffic noise levels along the local roadways are above the "normally acceptable" threshold of City and County guidelines for residential land uses. Future traffic noise levels will exceed this threshold as well. Therefore, our analysis of permanent traffic noise increases is based on relative noise increase (see Impact 1b below).

Impact 1b: The traffic report for the project, prepared by Hatch Mott MacDonald (HMM), dated 1 July 2014, projects additional traffic volumes on adjacent roadways that would be associated with the project. We evaluated the projected project traffic volumes relative to the existing traffic volumes. We calculated[2] that the project would result in up to a two decibel increase in traffic noise (L_{dn}) along The Alameda in the vicinity of the project site. Further from the project site, the projected noise increase would be less. Increased traffic along SR 156 would increase nearby noise levels by less than a decibel. These noise increases are less than the significance threshold of a three decibel increase. Therefore, there would be no significant noise impact from project-related traffic.

Projected future traffic noise increases are also available in the City General Plan EIR. Per the City General Plan EIR, "Growth expected by 2035 in San Juan Bautista and San Benito County will increase

[2] Traffic noise level calculations were based on the Federal Highway Administration Highway Noise Prediction Model.

traffic levels on SR 156. Traffic noise levels along SR 156 are projected to increase by 0 to 2 dBA, Ldn. Concurrently, The Alameda/Third Street (SR 156 to San Juan Hollister Road segment) is projected to experience increased traffic volumes resulting in a 8 dBA, Ldn noise increase by 2035 (Illingworth & Rodkin, 2012)."

In the year 2035, traffic noise on The Alameda is predicted to increase by 8 dB. Less than 1 dB of this future noise increase is attributed to project traffic. Therefore, project traffic does not constitute a significant portion of the future increase. Calculated traffic noise levels for The Alameda near the project site are shown in the following Table 3.

Table 3: Traffic Noise on The Alameda Near Project Site

Traffic Condition	**Calculated L_{dn}**	**Delta**
Existing	62 dB	2
Existing with Project	64 dB	
Cumulative Future without Project	70 dB	<1
Cumulative Future with Project	70 dB*	

*Calculated existing level of 62 dB plus 8 dB per City General Plan EIR

Mitigation 1a and 1b: None required.

Significance: Less than significant impact.

Impact 2: Mechanical Noise

Impact 2a: We understand that the building would be fully conditioned and that heating, ventilating, and air-conditioning units and other equipment could be located in areas exposed to adjacent property lines. The noise levels of project equipment cannot yet be calculated since the equipment locations and model selection have not yet been determined.

Mitigation 2a: Select or mitigate mechanical equipment to meet applicable noise standards. To be considered "Normally acceptable" according to the City General Plan and Municipal Code, mechanical noise would need to be limited to DNL 60 dB at the nearest residential property line and DNL 65 dB at the nearby hotel property line. These noise levels would also satisfy the County General Plan Goal HS-8.11 guidelines.

To meet the draft City Noise Ordinance limits and the County General Plan Goal HS-8.1, noise levels at the nearest residential receivers are to be limited to an hourly L_{eq} of 55 dB and maximum noise level of 70 dB during the daytime hours and hourly L_{eq} 45 dB and a maximum noise level of 65 dB during nighttime hours.

We expect the mechanical systems to include common commercial air-conditioning and ventilation equipment. Therefore, standard construction methods including selecting quieter equipment models, strategic siting, equipment setback, noise barriers or enclosures, acoustical louvers, and equipment noise attenuators should be sufficient. A qualified acoustical professional should be involved during the design phase of the project to advise the design team regarding effective noise reduction measures.

Impact 2b: We understand that the building would be fully conditioned and that noise from heating, ventilating, and air-conditioning units and other equipment could contribute to a permanent increase in the nearby ambient noise levels. The permanent increase in ambient noise levels due to project equipment cannot yet be calculated since the equipment locations and model selection have not yet been determined.

Mitigation 2b: On-site noise measurements indicate that the existing ambient noise levels at adjacent properties are between DNL 62 dB and DNL 78 dB, which varies by location and proximity to the roadways. To reduce the impact of mechanical equipment, it must be designed such that noise levels do not increase by three decibels or more at adjacent properties. Specific equipment plans have not been developed, and it is possible that mechanical equipment could exceed the threshold. Project equipment that generates a noise level of DNL 62 dB at the southern property line would be expected to increase ambient noise levels by up to three decibels. Therefore, project equipment that might generate noise exceeding DNL 62 dB at adjacent properties is to be evaluated further. Additional measures are to be incorporated to reduce equipment noise to DNL 62 dB or quieter. We expect the mechanical systems to include common commercial air-conditioning and ventilation equipment. Therefore, standard construction methods including selecting quieter equipment models, strategic siting, equipment setback, noise barriers or enclosures, acoustical louvers, and equipment noise attenuators should be sufficient. A qualified acoustical professional should be involved during the design phase of the project to advise the design team regarding effective noise reduction measures.

Significance: Less than significant with mitigation.

Impact 3: Operational Noise

Impact 3a: The planned project involves many noise generating activities such as vehicles parking on-site, voices, and site maintenance. Noise from these activities is not expected to violate any local ordinance. However, backup alarms from delivery trucks could generate noise levels up to 70 dB at the property line. If the deliveries take place during the night, this noise would violate the maximum nighttime noise criteria in the draft City Noise Ordinance and the County Noise Element Goal HS-8.11 noise limit of 65 dB (L_{max}).

Mitigation 3a: Truck deliveries at the site that require the use of backup alarms should be limited to daytime hours.

Impact 3b: The existing project site is undeveloped and does not create any noise. The planned project involves many noise generating activities such as vehicles parking on-site, voices, and site maintenance. These types of project-related operational noise are not expected to generate noise levels significantly greater than existing ambient noise levels due to the nearby roadways. Since truck deliveries would occur for short durations, they are not expected to increase the day-night-average noise level (DNL). From such activities, no significant noise impact is expected.

Mitigation 3b: None required.

Significance: Less than significant with mitigation.

Impact 4: Construction Noise

Completion of construction activities would include use of heavy equipment for excavation, grading, erection, and other activities. Heavy trucks would travel to, from, and within the site hauling soil, equipment, and building materials. Smaller equipment, such as pneumatic tools, and saws could also be used throughout construction.

Neighboring land-uses with direct line-of-sight to construction activities and construction traffic could be affected by construction noise. Potential construction noise impacts would vary with distance.

Potential baseline construction levels are listed in Table 4. We understand that the project would not involve pile driving, rock blasting, or similar extreme noise-generating activities.

Table 4: Construction Noise Levels

Phase	**Equipment**	**Noise Level (dB at 50-feet)[3]**
Rough Grading/ Shoring / Off Haul	Scraper, Compactor, Water Truck, Blade /Grader, Excavator, Dump Trucks, Drill Rig, Backhoe, Air Compressor	85
Utilities	Excavator, Rubber Tire Loader, Water Truck, Backhoe, Dump Truck	80
Concrete Works	Forklift, Compressor, Cement Mixer/Truck, Concrete Finisher, Concrete Boom Pump	85
Building Exterior	Gradall/Crane, Hand/PowerTools	85
Building Interior	Gradall, Metal Stud Saw (indoors), Paint Sprayer	80
Hardscape and Landscape	Backhoe, Compactor, Dump Truck, Cement Mixer/Truck, Bobcat	80

Some construction equipment is expected to generate intermittent noise levels up to 80 dBA to 85 dBA at a distance of 50-feet. Therefore, noise-generating activities over the construction period could cause a significant impact without implementation of reasonable measures to manage construction activities. The County Code includes a limitation of construction hours to between 7:00 am and 7:00 pm. The City Noise Element Policy N-1.4.1 supports the limitation of construction operations to "daylight hours." The County Noise Element also limits construction activity hours with Goal HS-8.3; "The County shall control the operation of construction equipment at specific sound intensities and frequencies during day time hours between 7:00 am and 6:00 pm on weekdays and 8:00 am and 5:00 pm on Saturdays. No construction shall be allowed on Sundays or federal holidays."

The County Noise Element Goal HS-8.12 also requires that construction projects within 500 feet of sensitive receivers develop a construction noise control plan.

Mitigation 4: To reduce potential noise impact from construction-related activities, they are to be conducted in accordance with the following:

- Construction shall be limited to the hours of 7:00 am and 6:00 pm on weekdays and 8:00 am and 5:00 pm on Saturdays. No construction shall be allowed on Sundays or federal holidays. (in accordance with County Noise Element HS-8.3)

- During construction, mufflers shall be provided for all heavy construction equipment and all stationary noise sources in accordance with the manufacturers' recommendations.

- Limit unnecessary idling of internal combustion engines.

[3] Equipment noise levels are from Section 9 of the Federal Highway Administration Highway Traffic Noise Construction Noise Handbook (August 2006).

- Stationary noise sources and staging areas shall be located as far as is feasible from existing noise-sensitive receivers. Locating stationary noise sources near existing roadways away from adjacent properties is preferred. If located otherwise, stationary noise sources are to be enclosed or shielded from neighboring noise-sensitive properties with noise barriers to the extend feasible.

- Air compressors and pneumatic equipment should be equipped with mufflers, and impact tools should be equipped with shrouds or shields.

- A construction liaison shall be designated to ensure coordination between construction staff and neighbors to minimize disruptions due to construction noise. Neighboring property owners within 300 feet of construction activity shall be notified in writing of the contact information for the construction liaison.

- Neighboring property owners within 300 feet of construction activity shall be notified in writing of the construction schedule and at least 30 days prior to loud noise-generating activities. Notification is to include the nature and estimated duration of the activity.

- Prior to construction, a qualified acoustical professional is to review specific equipment and site locations that would be expected to generate noise levels above 80 dBA at adjacent residential properties and 85 dBA at adjacent commercial properties. The study would also determine additional mitigation measures, as feasible, to reduce noise levels by at least five decibels and below the aforementioned limits. Additional measures might include local barriers around specific construction equipment or property line barriers. The location, height, and extent of the barriers should be provided by the acoustical professional.

- A qualified acoustical professional should be retained as needed to address neighbor complaints as they occur. If complaints occur, noise measurements could be conducted to determine if construction noise levels at adjacent property lines are within the standards. Short-term or long-term construction noise monitoring could also be utilized to diagnose complaints and determine if additional mitigation is required for certain phases of construction as needed.

Significance: Less than significant with mitigation. Construction impacts are expected to be temporary and vary through various phases. Mitigation measures outlined above, are expected to reduce construction noise, to the extent feasible, to be less than significant.

Impact 5: Operational Groundborne Vibration

Equipment located on-grade near property lines has the potential to generate vibration at neighboring properties. The City and County regulations do not include specific criteria to address operational vibration.

Mitigation 5: Vibration-generating mechanical equipment is to be adequately vibration isolated per ASHRAE Guidelines to reduce ground-borne vibration levels at neighboring properties.

Significance: Less than significant with mitigation.

Impact 6: Construction Groundborne Vibration

Construction activities would include site preparation work, excavation, foundation work, and new building framing. Excavation for underground fuel storage might produce vibration. Depending on the foundation type, vibration could occur during the installation of piers or similar deep foundation structures. Site preparation such as vibratory compaction can also be a source of vibration.

For structural damage, the Federal Transit Administration (FTA) uses a vibration limit of 0.5 in/sec, PPV for reinforced-concrete, steel or timber buildings, 0.2 in/sec, PPV for non-engineered timber and masonry buildings, and a conservative limit of 0.12 in/sec, PPV for buildings extremely susceptible to vibration damage.

Table 4 presents typical vibration levels that could be expected from construction equipment at distances of 25 and 50 feet. Project construction activities such as drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may generate substantial vibration in the immediate vicinity. Erection and finishing of the building structure is not anticipated to be a source of substantial vibration with the exception of sporadic events such as dropping of heavy objects, which should be avoided to the extent possible.

Since pile driving will not be part of the project, vibration due to construction is expected to be as shown in Table 5. Vibration levels on-site would vary depending on soil conditions, construction methods, and equipment used.

Table 5: Example Construction Vibration Levels[4]

Equipment	PPV at 25 ft. (in/sec)	PPV at 50 ft. (in/sec)
Vibratory Roller	0.210	0.074
Hoe Ram	0.089	0.031
Large bulldozer	0.089	0.031
Caisson drilling	0.089	0.031
Loaded trucks	0.076	0.027
Jackhammer	0.035	0.012
Small bulldozer	0.003	0.001

Therefore, as indicated in Table 4 above, vibration levels would not be expected to exceed the FTA guideline of 0.12 in/sec, PPV for buildings susceptible to vibration damage, at a distance of 50 feet or greater. Vibration due to construction will meet the County General Plan Goal HS-8.7 requirement.

Mitigation 6: With suggested mitigation measures listed below, vibration can be reduced and would result in a less-than-significant impact.

- Use administrative controls such as notifying adjacent land uses of scheduled construction activities, and limiting construction activities with the highest potential to produce significant vibration to the least sensitive times of the day.

- Along property lines, equipment and methods that generate less groundborne vibration are to be used, to the extent feasible.

---

[4] Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office of Planning and Environment, Federal Transit Administration, May 2006.

- Prior to construction, a qualified acoustical engineer shall review and monitor specific impact generating and heavy equipment and site locations that might generate vibration levels above a conservative threshold of 0.2 in/sec at adjacent property lines. The study would also determine if additional mitigation measures, as feasible, are needed to reduce vibration to a level that would not be expected to result in building damage.

Significance: Less than significant with mitigation.

* * *

APPENDIX A

Fundamental Concepts of Environmental Noise

This section provides background information to aid in understanding the technical aspects of this report.

Three dimensions of environmental noise are important in determining subjective response. These are:

- The intensity or level of the sound
- The frequency spectrum of the sound
- The time-varying character of the sound

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing.

The "frequency" of a sound refers to the number of complete pressure fluctuations per second in the sound. The unit of measurement is the cycle per second (cps) or hertz (Hz). Most of the sounds, which we hear in the environment, do not consist of a single frequency, but of a broad band of frequencies, differing in level. The name of the frequency and level content of a sound is its sound spectrum. A sound spectrum for engineering purposes is typically described in terms of octave bands, which separate the audible frequency range (for human beings, from about 20 to 20,000 Hz) into ten segments.

Many rating methods have been devised to permit comparisons of sounds having quite different spectra. Surprisingly, the simplest method correlates with human response practically as well as the more complex methods. This method consists of evaluating all of the frequencies of a sound in accordance with a weighting that progressively de-emphasizes the importance of frequency components below 1000 Hz and above 5000 Hz. This frequency weighting reflects the fact that human hearing is less sensitive at low frequencies and at extreme high frequencies relative to the mid-range.

The weighting system described above is called "A"-weighting, and the level so measured is called the "A-weighted sound level" or "A-weighted noise level." The unit of A-weighted sound level is sometimes abbreviated "dBA." In practice, the sound level is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting characteristic. All U.S. and international standard sound level meters include such a filter. Typical sound levels found in the environment and in industry are shown in Figure A-1.

Although a single sound level value may adequately describe environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise is a conglomeration of distant noise sources, which results in a relatively steady background noise having no identifiable source. These distant sources may include traffic, wind in trees, industrial activities, etc. and are relatively constant from moment to moment. As natural forces change or as human activity follows its daily cycle, the sound level may vary slowly from hour to hour. Superimposed on this slowly varying background is a succession of identifiable noisy events of brief duration. These may include nearby activities such as single vehicle pass-bys, aircraft flyovers, etc. which cause the environmental noise level to vary from instant to instant.

To describe the time-varying character of environmental noise, statistical noise descriptors were developed. "L10" is the A-weighted sound level equaled or exceeded during 10 percent of a stated time period. The L10 is considered a good measure of the maximum sound levels caused by discrete noise events. "L50" is the A-weighted sound level that is equaled or exceeded 50 percent of a stated time period; it represents the median sound level. The "L90" is the A-weighted sound level equaled or exceeded during 90 percent of a stated time period and is used to describe the background noise.

As it is often cumbersome to quantify the noise environment with a set of statistical descriptors, a single number called the average sound level or "L_{eq}" is now widely used. The term "L_{eq}" originated from the concept of a so-called equivalent sound level which contains the same acoustical energy as a varying sound level during the same time period. In simple but accurate technical language, the L_{eq} is the average A-weighted sound level in a stated time period. The L_{eq} is particularly useful in describing the subjective change in an environment where the source of noise remains the same but there is change in the level of activity. Widening roads and/or increasing traffic are examples of this kind of situation.

In determining the daily measure of environmental noise, it is important to account for the different response of people to daytime and nighttime noise. During the nighttime, exterior background noise levels are generally lower than in the daytime; however, most household noise also decreases at night, thus exterior noise intrusions again become noticeable. Further, most people trying to sleep at night are more sensitive to noise. To account for human sensitivity to nighttime noise levels, a special descriptor was developed. The descriptor is called the L_{dn} (Day/Night Average Sound Level), which represents the 24-hour average sound level with a penalty for noise occurring at night. The L_{dn} computation divides the 24-hour day into two periods: daytime (7:00 am to 10:00 pm); and nighttime (10:00 pm to 7:00 am). The nighttime sound levels are assigned a 10 dB penalty prior to averaging with daytime hourly sound levels.

For highway noise environments, the average noise level during the peak hour traffic volume is approximately equal to the L_{dn}.

The effects of noise on people can be listed in three general categories:

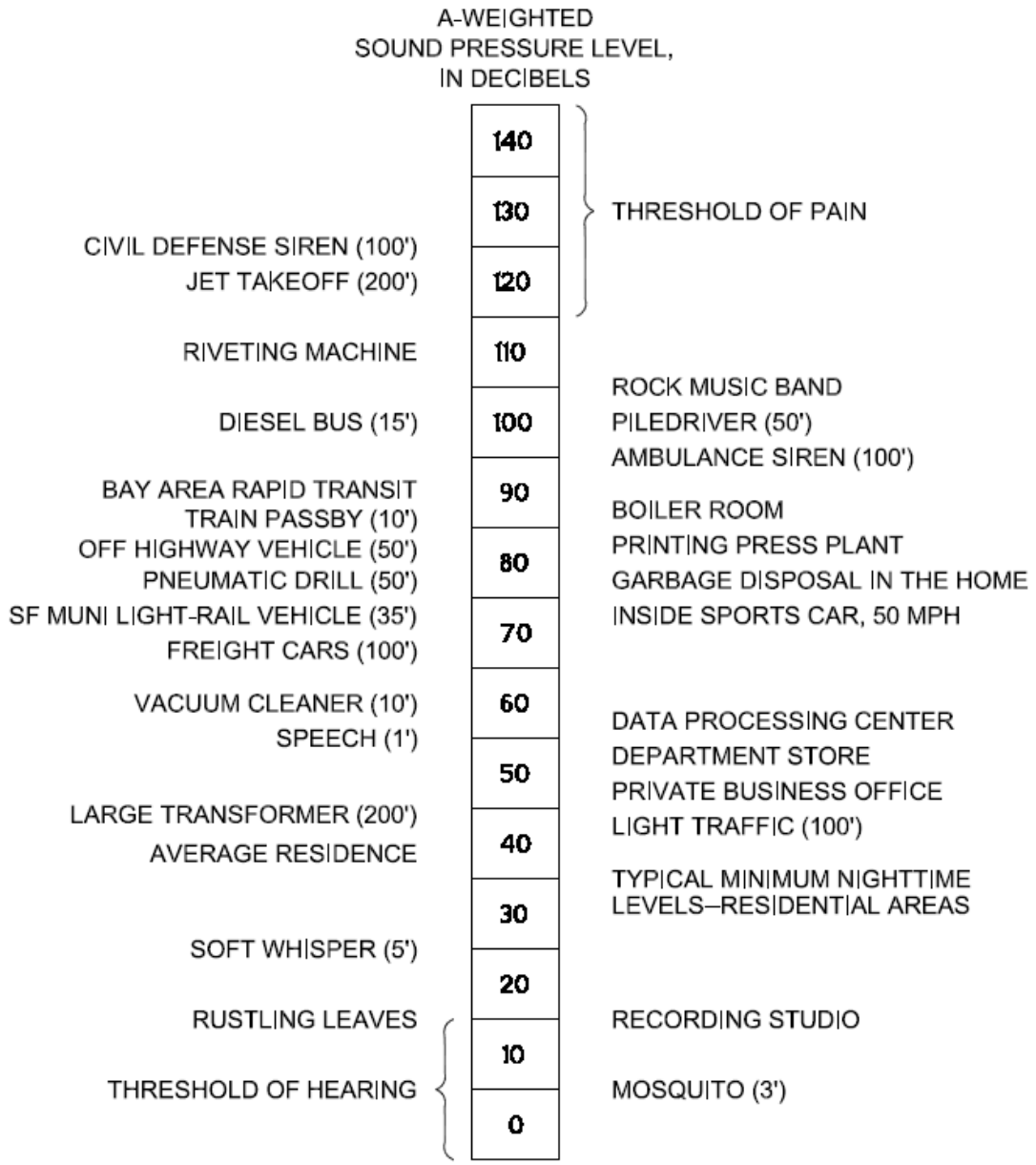
- Subjective effects of annoyance, nuisance, dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as startle, hearing loss

The sound levels associated with environmental noise usually produce effects only in the first two categories. Unfortunately, there has never been a completely predictable measure for the subjective effects of noise nor of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over time.

Thus, an important factor in assessing a person's subjective reaction is to compare the new noise environment to the existing noise environment. In general, the more a new noise exceeds the existing, the less acceptable the new noise will be judged.

With regard to increases in noise level, knowledge of the following relationships will be helpful in understanding the quantitative sections of this report:

Except in carefully controlled laboratory experiments, a change of only 1 dB in sound level cannot be perceived. Outside of the laboratory, a 3 dB change is considered a just-noticeable difference. A change in level of at least 5 dB is required before any noticeable change in community response would be expected. A 10 dB change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse community response.



(100') = DISTANCE IN FEET BETWEEN SOURCE AND LISTENER

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TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

FIGURE A1

1107 C 11.25.03

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DADWAL STATION MEASUREMENT LOCATIONS AND NOISE LEVELS

FIGURE 1

Salter # 16–0157

BCW/JLD 03.24.16

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Appendix F

Traffic Study

Hatch Mott MacDonald

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TECHNICAL MEMORANDUM

Date: July 1, 2014

To: Matt Leal, City of San Juan Bautista

From: Jeff Waller, TE, Hatch Mott MacDonald
Keith Higgins, PE, TE, Hatch Mott MacDonald

Re: SR 156 / The Alameda Intersection Study, San Juan Bautista, California

Hatch Mott MacDonald (HMM) has prepared traffic engineering services at the intersection of State Route 156 (SR 156) and The Alameda in San Juan Bautista, California. This report documents the traffic impact analysis that explores the operations with and without various improvements, including a conceptual design of the preferred improvement. **Exhibit 1** depicts the location of the intersection. **Exhibit 2** contains the proposed project site plan for the approved gas station, convenience market and quick-serve restaurant at the southeast corner of the intersection.

Note: More information about the approved gas station and restaurant project can be found within the report "San Juan Bautista Gas Station and Restaurant, San Juan Bautista, California," Hatch Mott MacDonald, December 30, 2013.

A. Existing Conditions

Intersection turning movement traffic volumes were collected by HMM staff on December 12-14, 2013 between 7:00 – 9:00 AM (Thursday, December 12th only), 4:00 – 6:00 PM (Thursday, December 12th and Friday, December 13th), and 12:00 – 2:00 PM (Saturday, December 14th).

The collected data included passenger cars, trucks, buses, pedestrians and bicyclists. From this data, the peak one-hour midweek AM, midweek PM, Friday PM and Saturday midday periods were identified for use in the analysis.

A seasonal adjustment of 1.20 (a.k.a. a 20% increase) was applied to the Existing volumes, in order to approximate peak summer month traffic within the study area.[1] **Exhibit 3A** depicts the unadjusted Existing volumes, while **Exhibit 3B** depicts the seasonally adjusted volumes. **Appendix A** includes the derivation of the seasonal adjustment factor, which is based upon variations in Caltrans quarterly traffic volumes along the SR 156 corridor over an entire year.

[1] This is less than the 1.30 (30%) increase that was used in the traffic study for the gas station project. Upon further review of Caltrans data, it was found that the 1.30 growth rate was overly conservative conversion factor, and a lesser increase of 1.20 was found to be more reflective of the conversion from December to August (the peak month). See **Appendix A** for more information.

B. Project Trip Generation, Distribution and Assignment

Note: The definition of the gas station, convenience store and quick-serve restaurant has changed slightly from that previously analyzed. Thus, the revisions of the trip generation, distribution, and pass-by trips are repeated herein.

The project is composed of two pieces. First is a gasoline/service station capable of servicing up to 12 vehicles at once. (A previous site plan called for the gas station being able to service up to 16 vehicles at once.) This station also has an associated convenience store. Adjacent to and within the same building as the convenience store is a 3,342 square foot quick-serve restaurant without a drive-through window. Although each use has its own separate entrance, an opening within their shared common wall would allow patrons to easily walk between the convenience store and quick-serve restaurant.

Exhibit 4 summarizes the project trip generation estimate. This trip generation estimate uses rates from *Trip Generation Manual*, 9th Edition, published by the Institute of Transportation Engineering in 2012.

An internal capture (a.k.a. trip reduction) of 20% has been applied to the trip generation estimate to account for interactions between the two uses, e.g. a patron of the gasoline station who also purchases food at the quick-serve restaurant.

The trip generation estimate also includes adjustments for pass-by trips, which are trips made to the site by traffic already on the surrounding street system. While pass-by trips would be new trips to the project site, they are effectively existing trips on the street system that would divert from their route to visit the project site and subsequently continue on their way to their originally-intended destination.

Both gasoline/service stations and quick-serve restaurants typically have high pass-by trip percentages, which represent the estimated proportion of the total trip activity that would be from the existing street traffic (i.e. drivers already passing by the project site who would divert into the project site to utilize one or more of the site services, then leave to continue to their ultimate destinations). The pass-by trip percentages used in this trip generation estimate are based upon those within the publication *Trip Generation Handbook*, 2nd Edition, published by the Institute of Transportation Engineers in June 2004, which average over 50%, depending upon the land use and time of day. A conservative pass-by trip percentage of 50% was thus applied to both the gasoline-service station and quick-serve restaurant traffic.

As shown within **Exhibit 4**, the project would generate a net new 1,391 weekday daily trips, with 86 weekday AM peak hour trips (57 in, 29 out) and 81 weekday PM peak hour trips (41 in, 40 out), and 1,370 Saturday daily trips, with 138 Saturday midday peak hour trips (70 in, 68 out). Note that Friday PM trips are assumed to be identical to PM trips.

Project trip distribution represents the percentage of project traffic that would travel to and from the project site at a localized level. **Exhibit 5A** graphically depicts the estimated project trip distribution. This distribution was developed based upon the relative locations of compatible land uses and the relative magnitude of the existing traffic volumes within the study area.

Exhibit 5A also depicts the project trip assignment for the net new project trips on the study network, using both the aforementioned trip generation and trip distribution to quantify the number of new project trips added to each direction of travel at each of the study intersections.

Exhibit 5B contains the project trip assignment for the pass-by trips. Similar to the net new project trip assignment, the pass-by trip assignment has been split between the roadways within the study area based upon the relative magnitude of the existing traffic volumes within the study area. As the pass-by trips are essentially existing traffic diverting from their existing routes to visit the project site before continuing to their ultimate destinations, the pass-by trip assignment contains both negative and positive trips, in order to depict the net gain and loss in traffic for each affected traffic movement within the study area.

C. Cumulative Conditions Analysis

Cumulative Conditions represent projected traffic operations in the Year 2035, or 22 years into the future. This scenario includes both traffic from the proposed project (i.e. **Exhibits 5A and 5B**) and future traffic growth on the study street system. This future growth is projected using traffic volume growth rates – 2% per year (for 22 years) for mainline traffic on SR 156 and 0.5% per year (for 22 years) for all other roadways and turning movements. (The 2%-per-year growth rate for SR 156 is based off of historical traffic volume growth rates, as shown within **Appendix B**. It is also consistent with growth rates projected in the *San Benito 156 Improvement Project Final Environmental Impact Report / Environmental Assessment with Finding of No Significant Impact*, California Department of Transportation, October 2008. The 0.5%-per-year growth rate for all other roadways and turning movements reflect the low level of new residential and commercial development projected within the greater San Juan Bautista region and the City's General Plan.) Cumulative Condition traffic volumes are depicted within **Exhibit 6A** (Average) and **6B** (Peak Month).

Exhibit 7 summarizes the levels of service at the study intersections under Cumulative conditions. **Appendix C** contains the level of service calculations for this scenario.

As shown within **Exhibit 7**, operations of most of the study intersections would operate within acceptable levels of service at LOS C. The lone exception is during the Friday PM peak, when the study intersection would operate at LOS D.

D. Acceleration and Deceleration Lane Evaluation

The City of San Juan Bautista staff has raised concerns regarding the potential need for acceleration and deceleration lanes onto and off of SR 156 at The Alameda. Specifically, this would include an eastbound SR 156 right turn lane and an eastbound SR 156 acceleration lane into which northbound The Alameda traffic can turn into while speeding up to the speed of mainline traffic (i.e. a minimum of 55 MPH). Each of these alternatives was evaluated.

Eastbound SR 156 Right Turn Lane:
An eastbound right turn lane will be warranted on SR 156 at The Alameda under Cumulative conditions. (See **Appendix D**. Note that while this warrant is typically used at high-speed, unsignalized locations, it gives a good general indication as to when a right turn lane is warranted.) The benefits of this right turn lane are clear from **Exhibit 7** – the eastbound right turn lane improves operations at the intersection to within acceptable operations during peak Cumulative conditions during Friday PM.

Existing Caltrans right-of-way near The Alameda/SR 156 intersection is sufficiently wide enough to allow the addition of an eastbound right turn lane and still maintain a standard four-foot wide shoulder adjacent to the right turn lane, per Caltrans standards.

Eastbound SR 156 Acceleration Lane:
There are no generally recognized warrants for right turn acceleration lanes. For this reason, an acceleration lane is not recommended at this location.

In addition, there are some feasibility issues with the implementation of an eastbound acceleration lane. Although the width of the existing Caltrans right-of-way near The Alameda/SR 156 intersection is sufficiently widen enough to allow the addition of an eastbound acceleration lane, two drainage improvements would need to be made to the southeast corner of the intersection. First would be replacement of two existing drainage inlets on the northbound side of The Alameda immediately south of the existing curb return. Adding the acceleration lane would require reconstruction of the existing sidewalk at the southeastern corner, which would likely require relocation of both inlets. Second, there is an underground drainage ditch along the south frontage of SR 156 that becomes exposed approximately 50 feet east of The Alameda. This ditch would need to be undergrounded or otherwise adjusted for hundreds of additional feet further east of the intersection, in order to allow for the new acceleration lane and relocated paved shoulder to be placed on top or alongside of it.

A conceptual design of both improvements are included within **Appendix E**, along with a cost estimate for the combined improvement. It is recommended that only the right turn lane improvements be implemented by the year 2035, or 19 years into the future, if not as part of the SR 156 widening project to be implemented by Caltrans at an earlier date.

E. Conclusion

In summary, the preferred improvement at The Alameda/SR 156 intersection under Cumulative conditions is an eastbound right turn lane. Such an improvement is feasible to implement to Caltrans standards.

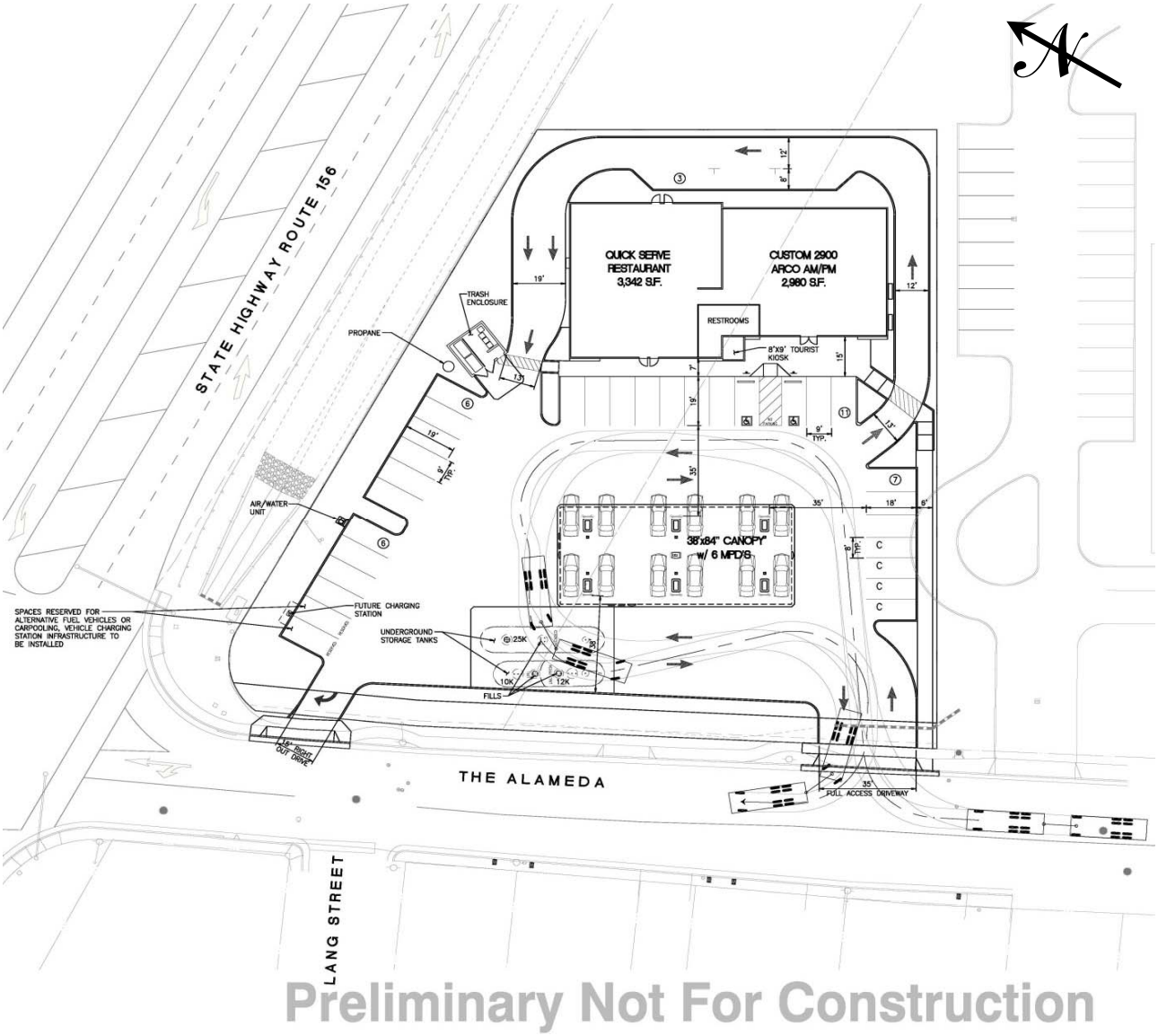
As for an eastbound acceleration lane, there is not warrant for this improvement. In addition, there are two drainage improvements that will have to be implemented alongside this improvement.

It is recommended that the right turn improvement be implemented by 2035, if not as part of the SR 156 widening project to be implemented by Caltrans at an earlier date.

If you have any questions regarding this analysis or need additional information, please do not hesitate to contact Jeff Waller at your convenience. Thank you for the opportunity to assist you with this project.

Map Source: Google Maps, 2013

EXHIBIT 1
Project Location Map



Source: Barghausen Consulting Engineers, June 2014.

EXHIBIT 2
Project Site Plan - Gas Station and Restaurant

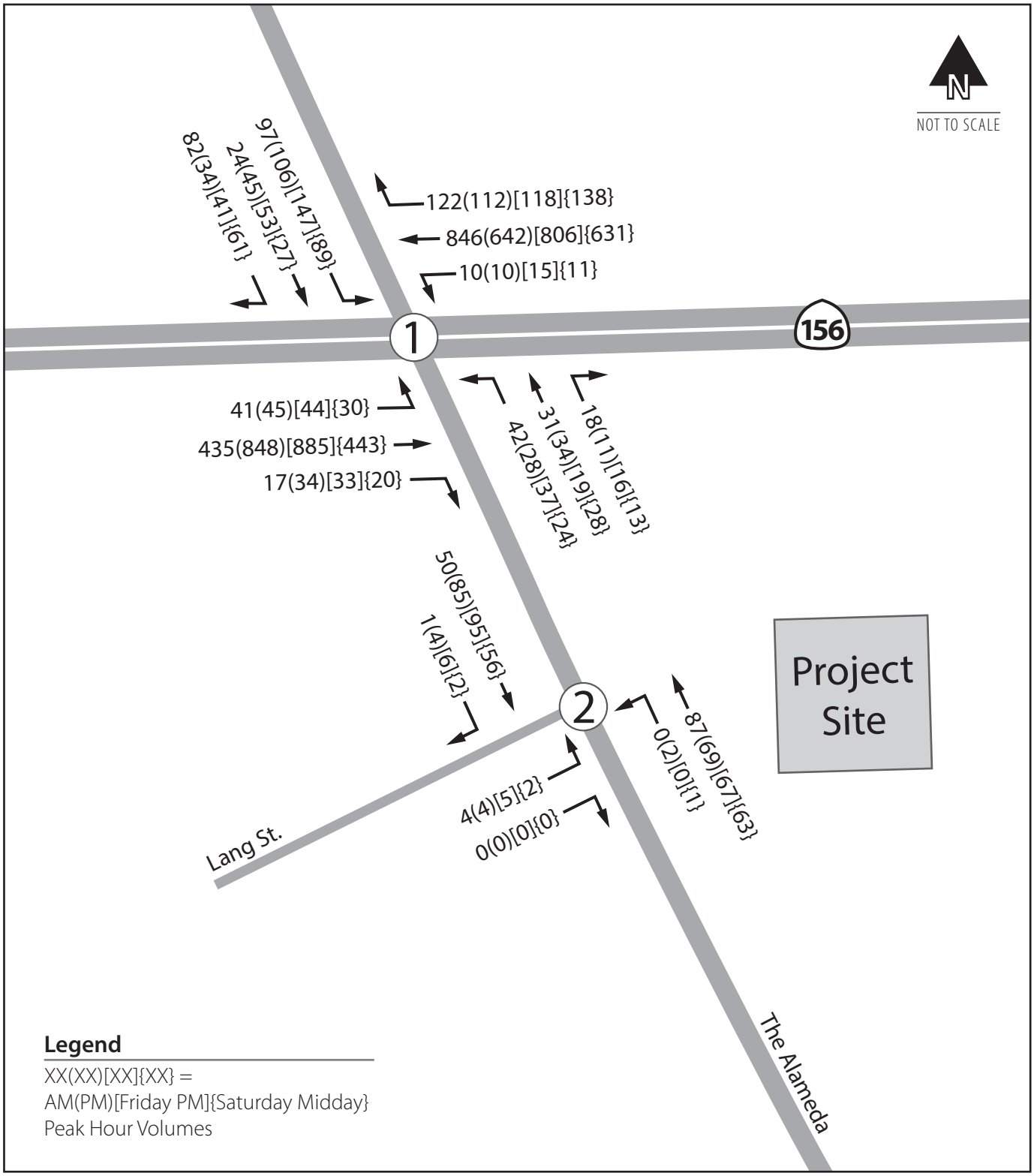


EXHIBIT 3A

Existing Conditions

Peak Hour Volumes

Hatch Mott MacDonald

333927-Exhibit 3A Existing Conditions.PDF 12/19/13 12:37 PM BR065005

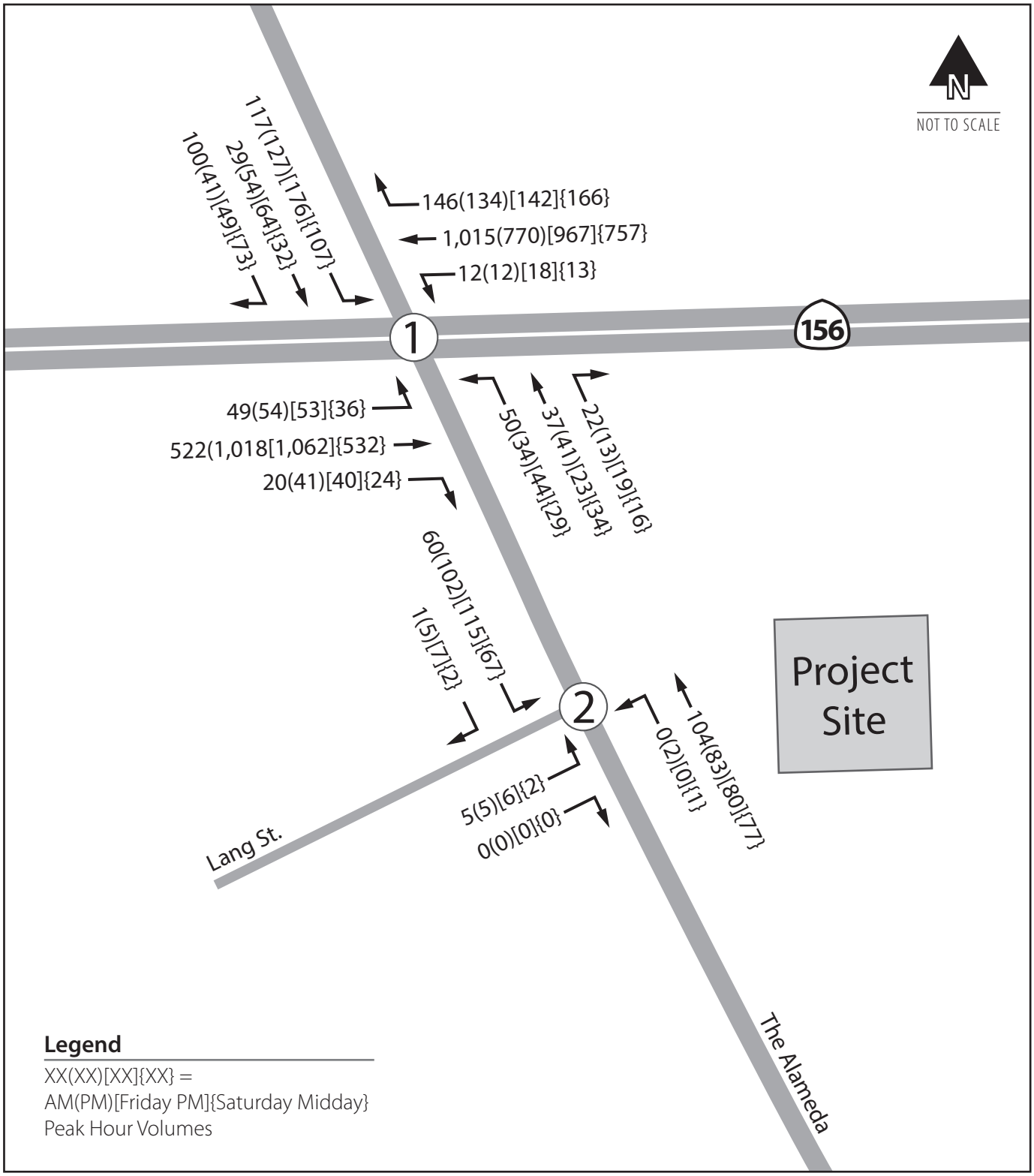


EXHIBIT 3B

Existing Conditions

Peak Hour Volumes
(with Seasonal Adjustment)

Hatch Mott MacDonald

333927-Exhibit 3B Existing Conditions-Seasonal.PDF 12/19/13 12:37 PM BRO65005

Trip Generation - Gas Station and Restaurant

TRIP GENERATION RATES	ITE LAND USE CODE	WEEKDAY DAILY TRIP RATE	WEEKDAY AM PEAK HOUR PEAK HOUR RATE	% OF ADT	% IN	% OUT	WEEKDAY PM PEAK HOUR PEAK HOUR RATE	% OF ADT	% IN	% OUT	SATURDAY DAILY TRIP RATE	SATURDAY MIDDAY PEAK HOUR PEAK HOUR RATE	% OF ADT	% IN	% OUT
Fast-Foot Restaurant without Drive-Through Window (per 1,000 sq. ft.)[2]	933	716.00	43.87	6%	60%	40%	26.15	4%	51%	49%	696.00	59.00	8%	51%	49%
Gasoline/Service Station with Convenience Market (per VFP)[3,4]	945	162.78	10.16	3%	50%	50%	13.51	8%	50%	50%	162.78	19.46	12%	50%	50%
Gas Station/Convenience Store/Fast Food Restauran	Pk Hr of Generator		33.84		40%	60%	35.97		43%	57%					
	Street Peak Hour		26.33		40%	60%	28.52		43%	57%					

GENERATED TRIPS	PROJECT SIZE	DAILY TRIPS	AM PEAK HOUR PEAK HOUR TRIPS	% OF ADT	TRIPS IN	TRIPS OUT	PM PEAK HOUR PEAK HOUR TRIPS	% OF ADT	TRIPS IN	TRIPS OUT	SATURDAY DAILY TRIPS	SATURDAY MIDDAY PEAK HOUR PEAK HOUR TRIPS	% OF ADT	TRIPS IN	TRIPS OUT
Proposed Uses															
Fast-Food Restaurant without Drive-Through Window	3,342 sq. ft.	2,393	147	6%	88	59	87	4%	44	43	2,326	197	8%	100	97
Gasoline/Service Station with Convenience Market	12 VFPs	1,953	122	6%	61	61	162	8%	81	81	1,953	234	12%	117	117
Subtotal (Proposed Uses):		**4,346**	**269**		**149**	**120**	**249**		**125**	**124**	**4,279**	**431**		**217**	**214**
Internal Capture (20%):[5]		-869	-54		-27	-27	-50		-25	-25	-856	-86		-43	-43
Subtotal (Net Trips)		**3,477**	**215**		**122**	**93**	**199**		**100**	**99**	**3,423**	**345**		**174**	**171**
Pass-by Trip Reduction (60%):[6,7]		-2,086	-129		-65	-64	-118		-59	-59	-2,053	-207		-104	-103
Total Net Project Trip Generation:		**1,391**	**86**		**57**	**29**	**81**		**41**	**40**	**1,370**	**138**		**70**	**68**

Notes:
1. Trip generation rates from Institute of Transportation Engineers, "Trip Generation Manual," 9th Edition, 2012, unless otherwise noted.
2. "Trip Generation Manual" does not provide Saturday rates for Fast-Food Restaurant without Drive-Through Window. Cited trip rates are from Fast-Food Restaurant with Drive-Through Window" (ITE Land Use #934).
3. VFP = Vehicle Fueling Positions, i.e. the maximum number of vehicles that can be simultaneously fueling.
4. "Trip Generation Manual" does not provide trip rates for Gasoline/Service Station with Convenience Market (ITE Land Use #945) during a Saturday. Daily Saturday rate is assumed equal to weekday daily rate. Cited trip rates during Saturday peak hour are from Gasoline/Service Station with Convenience Market and Car Wash (ITE Land Use #946).
5. Internal Capture rate represents trip reduction due to interactions between the on-site uses (e.g. a patron visits both the gas station and fast-food restaurant versus just one or the other). Internal Capture assumed at 20%.
6. Passby Trips are existing trips on the area street network that are projected to temporarily diver to the project site while en route to their ultimate destinations.
7. Passby Trip rate source: Institute of Transportation Engineers, "Trip Generation Handbook," 2nd Edition, June 2004.

EXHIBIT 4
Trip Generation - Gas Station and Restaurant

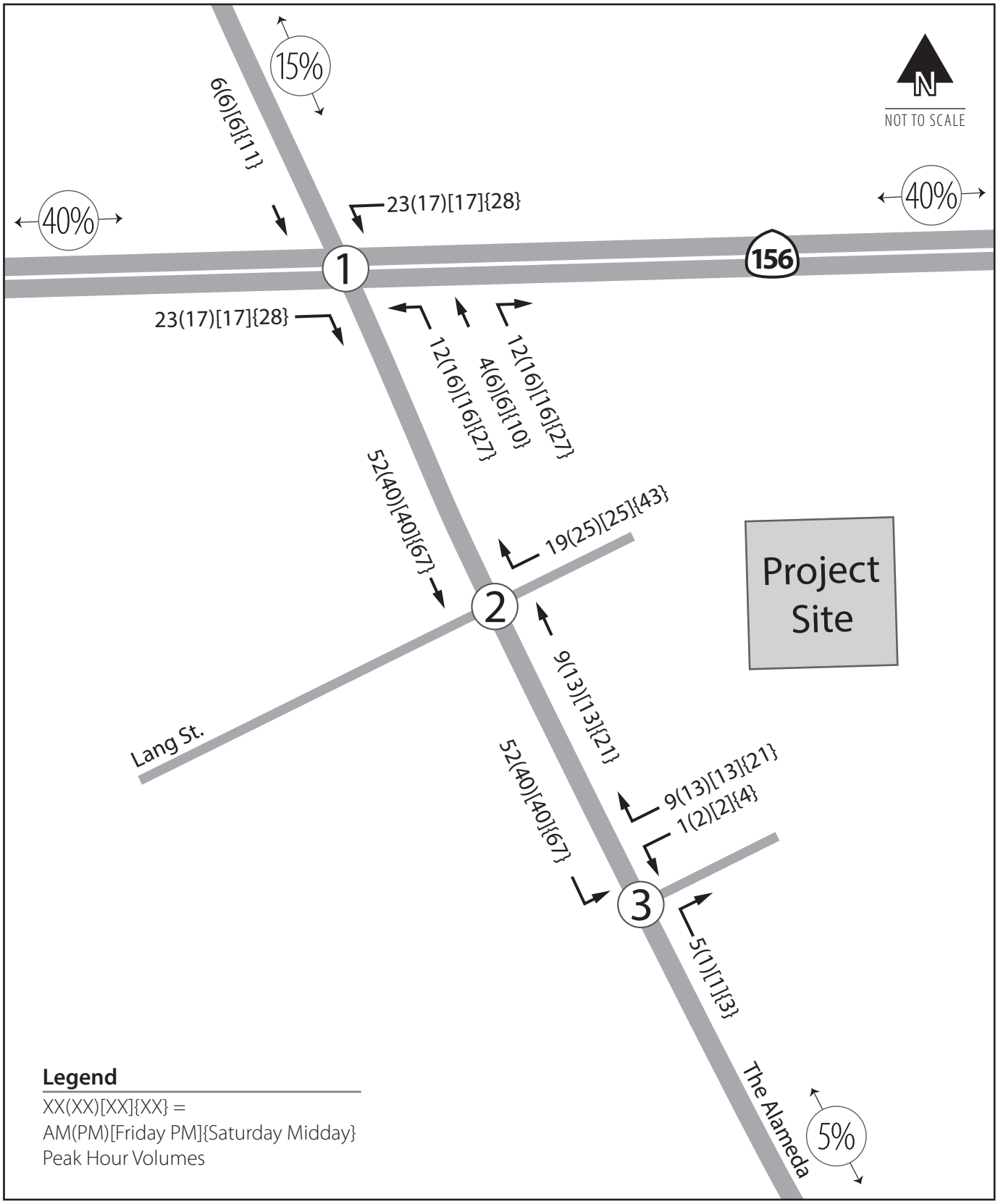


EXHIBIT 5A

Project Trip Assignment

Peak Hour Volumes

Hatch Mott MacDonald

333927-Exhibit 6A Project Trip Assignment.PDF 12/19/13 12:37 PM BRO65005

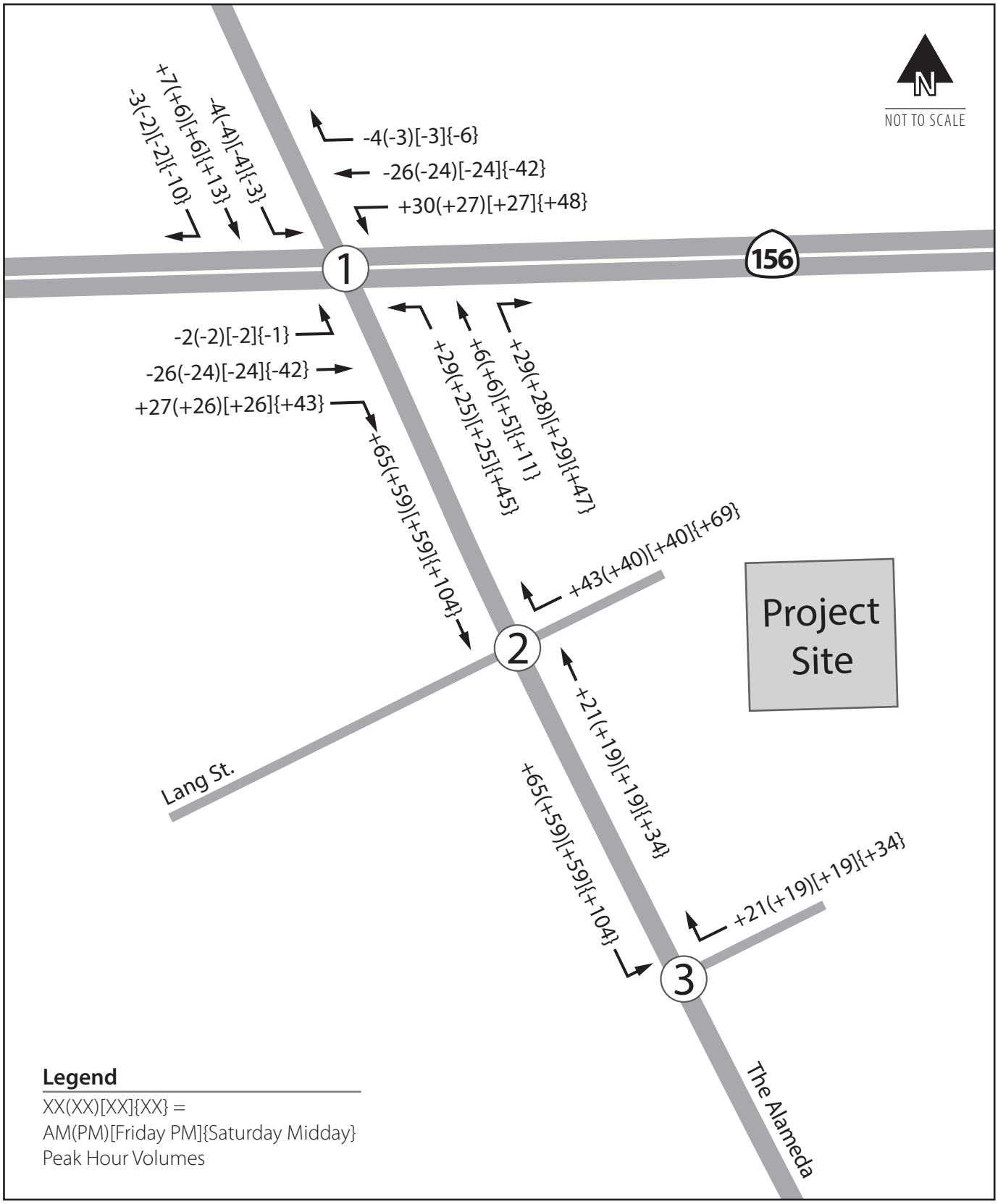


EXHIBIT 5B

Project Pass-by Trips

Peak Hour Volumes

Hatch Mott MacDonald

333927-Exhibit 6B Project Pass-by Trips.PDF 12/19/13 12:37 PM BR065005

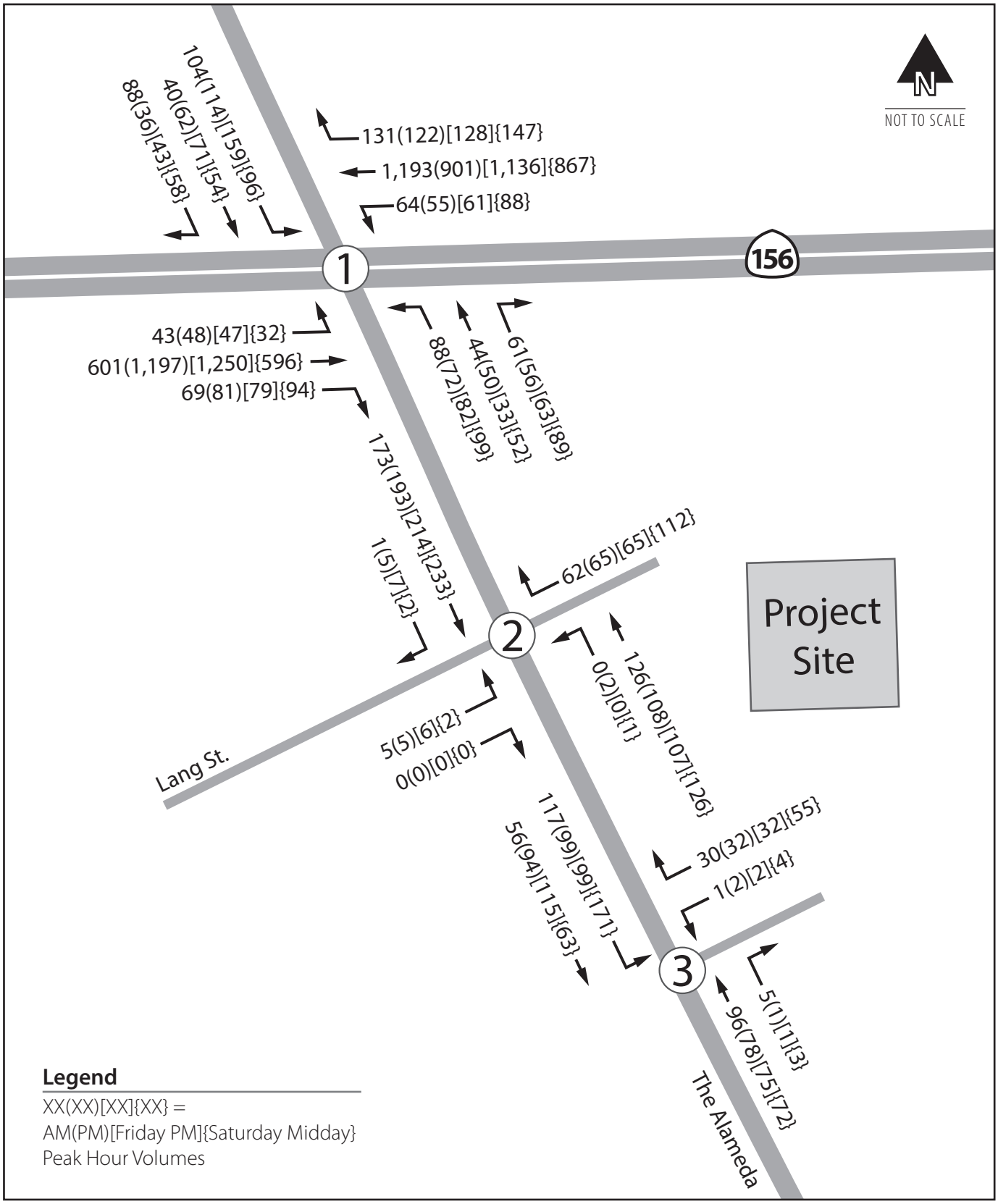


EXHIBIT 6A

Cumulative Conditions

Peak Hour Volumes (Average)

Hatch Mott MacDonald

333927-Exhibit 8 Cumulative Conditions.PDF 12/19/13 12:37 PM BRO65005

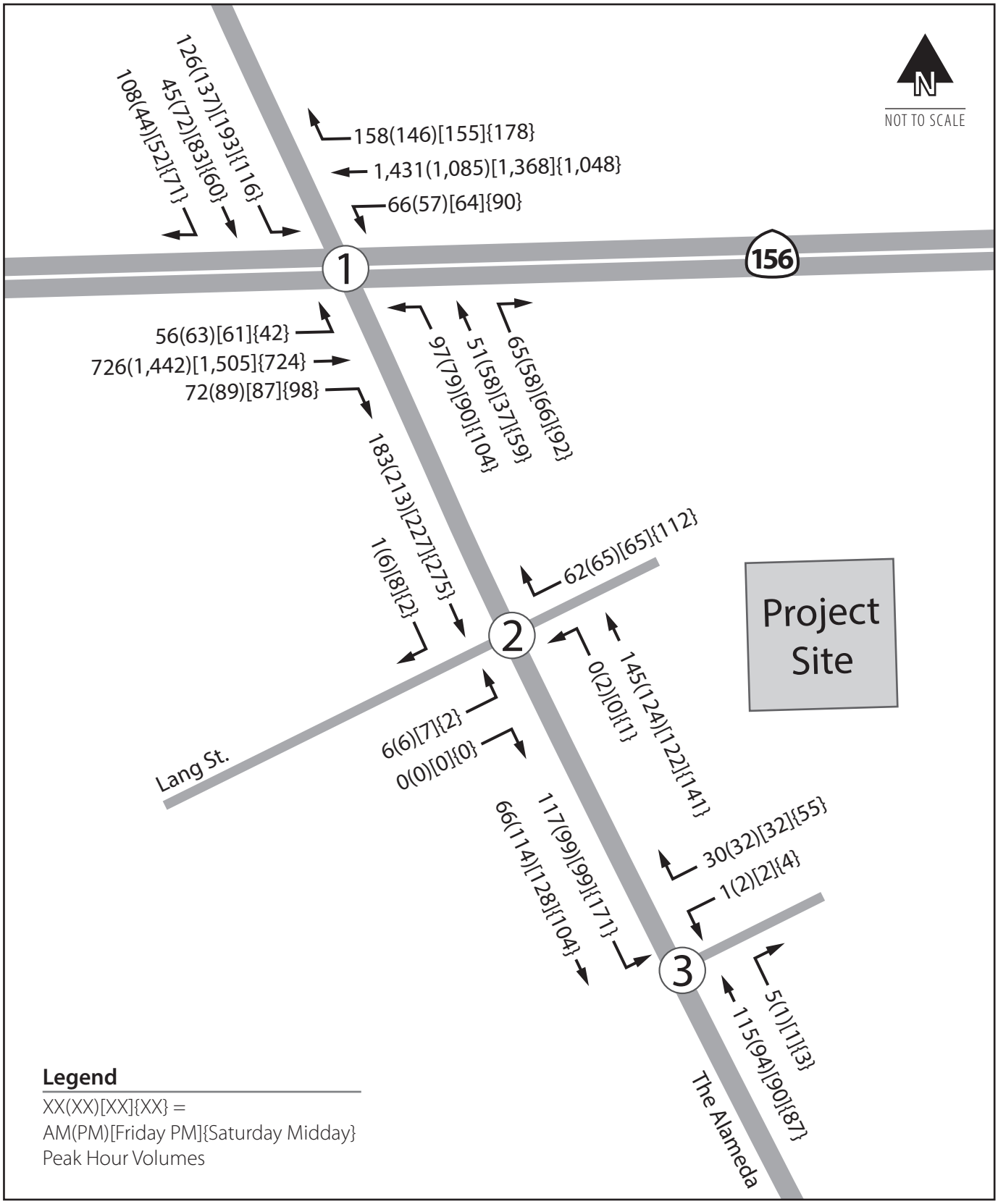


EXHIBIT 6B

Cumulative Conditions

Peak Hour Volumes (Peak Season)

Hatch Mott MacDonald

333927-Exhibit 7 Existing Plus Project.PDF 12/19/13 12:37 PM BR065005

	N-S Street	E-W Street	Existing Lane Configuration	Existing Intersection Control	LOS Standard	Geometric Alternative	Cumulative Conditions (Average)								Cumulative Conditons (Peak Season)							
							Weekday AM Peak Hr		Weekday PM Peak Hr		Friday PM Peak Hr		Saturday Mid Peak Hr		Weekday AM Peak Hr		Weekday PM Peak Hr		Friday PM Peak Hr		Saturday Mid Peak Hr	
							Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1	The Alameda	State Route 156	NB 1-L/T, 1-R SB 1-L, 1-T/R EB 1-L, 1-T, 1-T/R WB 1-L, 2-T, 1-R	Signal	**C/D**	***Existing***	26.3	C	24.7	C	28.5	C	24.2	C	33.4	C	30.8	C	**40.0**	**D**	26.3	C
						EB Right Lane	26.0	C	26.3	C	27.0	C	23.6	C	33.1	C	28.2	C	34.9	C	25.7	C
						EB Accel. Lane	26.3	C	24.7	C	28.5	C	24.2	C	33.4	C	30.8	C	**40.0**	**D**	26.3	C

NOTES:
1. L, T, R = Left, Through, Right.
2. NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound.
3. Analysis performed using 2010 Highway Capacity Manual methodologies.
4. Overall level of service standard for for Caltrans is the threshld between LOS C and D.
5. Overall level of service standard for the City of San Juan Bautista is LOS C.
6. Worst approach level of service standard is generally LOS E. Level of service "F" is the level of service at which improvements would be required.

Hatch Mott MacDonald

EXHIBIT 7
Intersection Levels of Service

APPENDIX A

SEASONAL ADJUSTMENT FACTOR

11:30:25

MONTHLY AVERAGE DAILY TRAFFIC L R AND I FACTORS

DISTRICT	COUNTY	ROUTE	POSTMILE	-	LEG
05	SBT	156	000.000	-	A

Traffic Station : 249
Location Type : C
Lanes : East 1 West 1
Lane Code : 1

Location Description

NORTH JCT. RTE. 101, SAN JUAN BAUTISTA

DIR	DAY	FACTORS L	- R	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AADT
E	SUN	0.832	0.320		5011			9900			9833			8350		8274
E	MON	0.904	0.348		4798			10687			10746			9717		8987
E	TUE	1.000	0.219		7533	7533		11143			10920			10167		9941
E	WED	1.026	0.179		8200	8200		11207			10986			10433		10207
E	THU	1.045	0.185		8282			11448			11171			10655		10389
E	FRI	1.153	0.211		9231			12661			12365			11594		11463
E	SAT	1.041	0.236		8364			11395			11658			10002		10355
	Avg	1.000	0.243		7346			11206			11097			10131		9945
W	SUN	0.887	0.170		9144			11197			10691			8915		9987
W	MON	0.998	0.118		10336			11865			11939			10820		11240
W	TUE	0.976	0.083		10256	10256		11578			11322			10769		10981
W	WED	1.004	0.109		10265	10265		11780			12050			11105		11300
W	THU	1.029	0.125		10362			12157			12411			11387		11579
W	FRI	1.137	0.128		11952			13489			13544			12200		12796
W	SAT	0.969	0.119		10155			11551			11610			10337		10913
	Avg	1.000	0.122		10353			11945			11938			10790		11257
T	SUN	0.861	0.241		14155			21097			20524			17265		18260
T	MON	0.954	0.226		15134			22552			22685			20537		20227
T	TUE	0.987	0.147		17789	17789		22721			22242			20936		20922
T	WED	1.014	0.142		18465	18465		22987			23036			21538		21507
T	THU	1.036	0.153		18644			23605			23582			22042		21968
T	FRI	1.144	0.167		21183			26150			25909			23794		24259
T	SAT	1.003	0.173		18519			22946			23268			20339		21268
	Avg	1.000	0.178		17698			23151			23035			20922		21202
	I Factors				-0.928			0.516			0.486			-0.074		
	R * I				-0.166			0.092			0.087			-0.013		

Factor = 23035/17698 = 1.30 → February to August
= 23035/20922 = 1.10 → November to August

APPENDIX B

DERIVATION OF CUMULATIVE GROWTH RATE

SR 156, West of The Alameda

Year	ADT	Increase		Growth Percentage	
		Total	Yearly	Total	Yearly
2012	20600	-	-	-	-
2011	20600	0	0	0	0
2000	17500	3100	258.3333	17.71%	1.48%
1997	15300	5300	353.3333	34.64%	2.31%
1994	14000	6600	366.6667	47.14%	2.62%
1990	13100	7500	340.9091	57.25%	2.60%
1987	12100	8500	340	70.25%	2.81%

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	43	601	69	64	1193	131	88	44	61	104	40	88
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1900	1712	1712	1712	1900	1759	1759	1810	1810	1900
Adj Flow Rate, veh/h	45	633	73	67	1256	138	93	46	64	109	42	93
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	12	12	11	11	11	8	8	8	5	5	5
Cap, veh/h	100	1469	169	137	1712	766	115	57	150	203	59	131
Arrive On Green	0.06	0.50	0.50	0.08	0.53	0.53	0.10	0.10	0.10	0.12	0.12	0.12
Sat Flow, veh/h	1616	2913	335	1630	3252	1455	1139	563	1486	1723	500	1107
Grp Volume(v), veh/h	45	350	356	67	1256	138	139	0	64	109	0	135
Grp Sat Flow(s),veh/h/ln	1616	1612	1637	1630	1626	1455	1702	0	1486	1723	0	1607
Q Serve(g_s), s	2.9	14.7	14.8	4.2	32.0	5.3	8.6	0.0	4.3	6.4	0.0	8.7
Cycle Q Clear(g_c), s	2.9	14.7	14.8	4.2	32.0	5.3	8.6	0.0	4.3	6.4	0.0	8.7
Prop In Lane	1.00		0.20	1.00		1.00	0.67		1.00	1.00		0.69
Lane Grp Cap(c), veh/h	100	813	826	137	1712	766	172	0	150	203	0	190
V/C Ratio(X)	0.45	0.43	0.43	0.49	0.73	0.18	0.81	0.00	0.43	0.54	0.00	0.71
Avail Cap(c_a), veh/h	140	936	951	202	2011	900	218	0	190	643	0	600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.5	16.8	16.8	46.9	19.6	13.3	47.2	0.0	45.3	44.5	0.0	45.5
Incr Delay (d2), s/veh	3.1	0.5	0.5	2.7	1.4	0.2	16.3	0.0	1.9	2.2	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.6	6.7	2.0	14.6	2.2	4.8	0.0	1.9	3.2	0.0	4.1
LnGrp Delay(d),s/veh	51.7	17.3	17.3	49.6	21.0	13.5	63.5	0.0	47.2	46.7	0.0	50.4
LnGrp LOS	D	B	B	D	C	B	E		D	D		D
Approach Vol, veh/h		751			1461			203			244	
Approach Delay, s/veh		19.4			21.6			58.4			48.8	
Approach LOS		B			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	60.5		17.9	10.3	62.8		16.1
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	13.3	62.3		40.0	9.3	66.3		13.7
Max Q Clear Time (g_c+I1), s	6.2	16.8		10.7	4.9	34.0		10.6
Green Ext Time (p_c), s	0.1	28.1		1.1	0.0	22.5		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	26.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	48	1197	81	55	901	122	72	50	56	114	62	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1776	1776	1776	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	50	1247	84	57	939	127	75	52	58	119	65	38
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	7	7	7	2	2	2	2	2	2
Cap, veh/h	110	1759	118	138	1874	835	96	67	141	183	114	66
Arrive On Green	0.06	0.54	0.54	0.08	0.56	0.56	0.09	0.09	0.09	0.10	0.10	0.10
Sat Flow, veh/h	1723	3269	220	1691	3374	1504	1068	741	1568	1774	1100	643
Grp Volume(v), veh/h	50	655	676	57	939	127	127	0	58	119	0	103
Grp Sat Flow(s),veh/h/ln	1723	1719	1770	1691	1687	1504	1809	0	1568	1774	0	1743
Q Serve(g_s), s	3.1	31.4	31.6	3.5	19.0	4.5	7.6	0.0	3.9	7.1	0.0	6.2
Cycle Q Clear(g_c), s	3.1	31.4	31.6	3.5	19.0	4.5	7.6	0.0	3.9	7.1	0.0	6.2
Prop In Lane	1.00		0.12	1.00		1.00	0.59		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	110	925	952	138	1874	835	163	0	141	183	0	180
V/C Ratio(X)	0.45	0.71	0.71	0.41	0.50	0.15	0.78	0.00	0.41	0.65	0.00	0.57
Avail Cap(c_a), veh/h	145	1043	1074	142	2047	912	208	0	180	645	0	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.9	19.1	19.1	48.3	15.1	11.9	49.2	0.0	47.5	47.7	0.0	47.2
Incr Delay (d2), s/veh	2.9	2.2	2.2	2.0	0.3	0.1	13.4	0.0	1.9	3.8	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	15.3	16.0	1.7	8.8	1.9	4.4	0.0	1.7	3.7	0.0	3.1
LnGrp Delay(d),s/veh	52.8	21.3	21.3	50.3	15.4	12.1	62.6	0.0	49.4	51.5	0.0	50.1
LnGrp LOS	D	C	C	D	B	B	E		D	D		D
Approach Vol, veh/h		1381			1123			185			222	
Approach Delay, s/veh		22.5			16.8			58.5			50.8	
Approach LOS		C			B			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	65.9		16.7	10.8	67.8		15.3
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	9.3	67.1		40.2	9.3	67.1		12.7
Max Q Clear Time (g_c+I1), s	5.5	33.6		9.1	5.1	21.0		9.6
Green Ext Time (p_c), s	0.0	25.9		0.9	0.0	32.9		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	47	1250	79	61	1136	128	82	33	63	159	71	43
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1810	1810	1810	1900	1827	1827	1863	1863	1900
Adj Flow Rate, veh/h	51	1359	86	66	1235	139	89	36	68	173	77	47
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	4	4	4	2	2	2
Cap, veh/h	106	1777	112	130	1908	853	110	45	136	216	132	81
Arrive On Green	0.06	0.54	0.54	0.08	0.56	0.56	0.09	0.09	0.09	0.12	0.12	0.12
Sat Flow, veh/h	1723	3285	207	1723	3438	1537	1256	508	1553	1774	1084	662
Grp Volume(v), veh/h	51	710	735	66	1235	139	125	0	68	173	0	124
Grp Sat Flow(s),veh/h/ln	1723	1719	1773	1723	1719	1537	1764	0	1553	1774	0	1746
Q Serve(g_s), s	3.4	38.4	38.8	4.4	29.7	5.3	8.3	0.0	5.0	11.3	0.0	8.0
Cycle Q Clear(g_c), s	3.4	38.4	38.8	4.4	29.7	5.3	8.3	0.0	5.0	11.3	0.0	8.0
Prop In Lane	1.00		0.12	1.00		1.00	0.71		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	106	930	959	130	1908	853	155	0	136	216	0	213
V/C Ratio(X)	0.48	0.76	0.77	0.51	0.65	0.16	0.81	0.00	0.50	0.80	0.00	0.58
Avail Cap(c_a), veh/h	135	971	1001	135	1942	868	188	0	166	596	0	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.1	21.4	21.4	52.9	18.4	13.0	53.4	0.0	51.8	50.9	0.0	49.4
Incr Delay (d2), s/veh	3.3	3.8	3.8	3.0	0.9	0.1	19.0	0.0	2.8	6.7	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	19.1	19.8	2.2	14.3	2.3	4.8	0.0	2.2	5.9	0.0	4.0
LnGrp Delay(d),s/veh	57.4	25.1	25.2	56.0	19.3	13.1	72.3	0.0	54.6	57.6	0.0	52.0
LnGrp LOS	E	C	C	E	B	B	E		D	E		D
Approach Vol, veh/h		1496			1440			193			297	
Approach Delay, s/veh		26.3			20.3			66.1			55.3	
Approach LOS		C			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	70.9		19.8	11.0	72.5		15.8
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	9.3	67.3		40.0	9.3	67.3		12.7
Max Q Clear Time (g_c+I1), s	6.4	40.8		13.3	5.4	31.7		10.3
Green Ext Time (p_c), s	0.0	23.7		1.2	0.0	30.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	596	94	88	867	147	99	52	89	96	54	58
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1776	1776	1776	1900	1845	1845	1792	1792	1900
Adj Flow Rate, veh/h	33	608	96	90	885	150	101	53	91	98	55	59
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	6	6	6
Cap, veh/h	97	1098	173	181	1437	643	139	73	183	258	118	127
Arrive On Green	0.06	0.38	0.38	0.11	0.43	0.43	0.12	0.12	0.12	0.15	0.15	0.15
Sat Flow, veh/h	1691	2920	460	1691	3374	1509	1171	615	1536	1707	785	842
Grp Volume(v), veh/h	33	351	353	90	885	150	154	0	91	98	0	114
Grp Sat Flow(s),veh/h/ln	1691	1687	1693	1691	1687	1509	1786	0	1536	1707	0	1628
Q Serve(g_s), s	1.6	13.7	13.8	4.2	17.1	5.3	7.0	0.0	4.7	4.3	0.0	5.4
Cycle Q Clear(g_c), s	1.6	13.7	13.8	4.2	17.1	5.3	7.0	0.0	4.7	4.3	0.0	5.4
Prop In Lane	1.00		0.27	1.00		1.00	0.66		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	97	635	637	181	1437	643	212	0	183	258	0	246
V/C Ratio(X)	0.34	0.55	0.55	0.50	0.62	0.23	0.73	0.00	0.50	0.38	0.00	0.46
Avail Cap(c_a), veh/h	188	847	850	248	1814	812	313	0	269	818	0	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.0	20.6	20.6	35.3	18.7	15.3	35.6	0.0	34.6	32.1	0.0	32.5
Incr Delay (d2), s/veh	2.0	1.1	1.1	2.1	0.6	0.3	4.7	0.0	2.1	0.9	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.5	6.6	2.1	8.0	2.3	3.7	0.0	2.1	2.1	0.0	2.5
LnGrp Delay(d),s/veh	40.0	21.7	21.7	37.4	19.4	15.6	40.3	0.0	36.7	33.0	0.0	33.9
LnGrp LOS	D	C	C	D	B	B	D		D	C		C
Approach Vol, veh/h		737			1125			245			212	
Approach Delay, s/veh		22.5			20.3			39.0			33.5	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	37.9		18.0	8.5	42.1		15.3
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	12.3	42.1		40.2	9.3	45.1		14.7
Max Q Clear Time (g_c+I1), s	6.2	15.8		7.4	3.6	19.1		9.0
Green Ext Time (p_c), s	0.1	15.8		1.0	0.0	15.6		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	24.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	43	601	69	64	1193	131	88	44	61	104	40	88
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1712	1712	1712	1900	1759	1759	1810	1810	1900
Adj Flow Rate, veh/h	45	633	73	67	1256	138	93	46	64	109	42	93
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	12	12	11	11	11	8	8	8	5	5	5
Cap, veh/h	100	1628	728	137	1714	767	115	57	150	203	59	131
Arrive On Green	0.06	0.51	0.51	0.08	0.53	0.53	0.10	0.10	0.10	0.12	0.12	0.12
Sat Flow, veh/h	1616	3223	1442	1630	3252	1455	1139	563	1486	1723	500	1107
Grp Volume(v), veh/h	45	633	73	67	1256	138	139	0	64	109	0	135
Grp Sat Flow(s),veh/h/ln	1616	1612	1442	1630	1626	1455	1702	0	1486	1723	0	1607
Q Serve(g_s), s	2.9	13.0	2.8	4.2	32.0	5.3	8.6	0.0	4.3	6.4	0.0	8.7
Cycle Q Clear(g_c), s	2.9	13.0	2.8	4.2	32.0	5.3	8.6	0.0	4.3	6.4	0.0	8.7
Prop In Lane	1.00		1.00	1.00		1.00	0.67		1.00	1.00		0.69
Lane Grp Cap(c), veh/h	100	1628	728	137	1714	767	171	0	150	203	0	189
V/C Ratio(X)	0.45	0.39	0.10	0.49	0.73	0.18	0.81	0.00	0.43	0.54	0.00	0.71
Avail Cap(c_a), veh/h	140	1869	836	202	2007	898	217	0	190	641	0	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.6	16.4	13.9	47.0	19.6	13.3	47.3	0.0	45.4	44.6	0.0	45.6
Incr Delay (d2), s/veh	3.1	0.2	0.1	2.7	1.4	0.2	16.4	0.0	1.9	2.2	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	5.8	1.1	2.0	14.6	2.2	4.8	0.0	1.9	3.2	0.0	4.1
LnGrp Delay(d),s/veh	51.8	16.6	14.0	49.8	21.0	13.4	63.8	0.0	47.3	46.8	0.0	50.5
LnGrp LOS	D	B	B	D	C	B	E		D	D		D
Approach Vol, veh/h		751			1461			203			244	
Approach Delay, s/veh		18.4			21.6			58.6			48.9	
Approach LOS		B			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	60.7		18.0	10.4	63.0		16.1
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	13.3	62.3		40.0	9.3	66.3		13.7
Max Q Clear Time (g_c+I1), s	6.2	15.0		10.7	4.9	34.0		10.6
Green Ext Time (p_c), s	0.1	29.1		1.1	0.0	22.6		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	26.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	48	1197	81	55	901	122	72	50	56	114	62	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1776	1776	1776	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	50	1247	84	57	939	127	75	52	58	119	65	38
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	7	7	7	2	2	2	2	2	2
Cap, veh/h	111	1838	821	139	1864	831	97	67	142	184	114	67
Arrive On Green	0.06	0.53	0.53	0.08	0.55	0.55	0.09	0.09	0.09	0.10	0.10	0.10
Sat Flow, veh/h	1723	3438	1535	1691	3374	1504	1068	741	1568	1774	1100	643
Grp Volume(v), veh/h	50	1247	84	57	939	127	127	0	58	119	0	103
Grp Sat Flow(s),veh/h/ln	1723	1719	1535	1691	1687	1504	1809	0	1568	1774	0	1743
Q Serve(g_s), s	3.1	29.0	3.0	3.5	18.9	4.5	7.5	0.0	3.8	7.1	0.0	6.2
Cycle Q Clear(g_c), s	3.1	29.0	3.0	3.5	18.9	4.5	7.5	0.0	3.8	7.1	0.0	6.2
Prop In Lane	1.00		1.00	1.00		1.00	0.59		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	111	1838	821	139	1864	831	164	0	142	184	0	180
V/C Ratio(X)	0.45	0.68	0.10	0.41	0.50	0.15	0.77	0.00	0.41	0.65	0.00	0.57
Avail Cap(c_a), veh/h	146	2104	939	143	2065	920	210	0	182	650	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.4	18.6	12.6	47.8	15.2	12.0	48.7	0.0	47.1	47.2	0.0	46.8
Incr Delay (d2), s/veh	2.9	0.9	0.1	1.9	0.3	0.1	12.6	0.0	1.9	3.8	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	13.9	1.3	1.7	8.8	1.9	4.4	0.0	1.7	3.7	0.0	3.1
LnGrp Delay(d),s/veh	52.3	19.5	12.6	49.7	15.5	12.1	61.4	0.0	48.9	51.0	0.0	49.6
LnGrp LOS	D	B	B	D	B	B	E		D	D		D
Approach Vol, veh/h		1381			1123			185			222	
Approach Delay, s/veh		20.3			16.9			57.5			50.4	
Approach LOS		C			B			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	65.0		16.7	10.7	67.0		15.3
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	9.3	67.1		40.2	9.3	67.1		12.7
Max Q Clear Time (g_c+I1), s	5.5	31.0		9.1	5.1	20.9		9.5
Green Ext Time (p_c), s	0.0	27.6		0.9	0.0	33.2		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	23.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	47	1250	79	61	1136	128	82	33	63	159	71	43
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1900	1827	1827	1863	1863	1900
Adj Flow Rate, veh/h	51	1359	86	66	1235	139	89	36	68	173	77	47
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	4	4	4	2	2	2
Cap, veh/h	106	1854	830	131	1903	851	110	45	136	216	132	81
Arrive On Green	0.06	0.54	0.54	0.08	0.55	0.55	0.09	0.09	0.09	0.12	0.12	0.12
Sat Flow, veh/h	1723	3438	1538	1723	3438	1537	1256	508	1553	1774	1084	662
Grp Volume(v), veh/h	51	1359	86	66	1235	139	125	0	68	173	0	124
Grp Sat Flow(s),veh/h/ln	1723	1719	1538	1723	1719	1537	1764	0	1553	1774	0	1746
Q Serve(g_s), s	3.4	35.7	3.2	4.4	29.6	5.3	8.2	0.0	4.9	11.2	0.0	8.0
Cycle Q Clear(g_c), s	3.4	35.7	3.2	4.4	29.6	5.3	8.2	0.0	4.9	11.2	0.0	8.0
Prop In Lane	1.00		1.00	1.00		1.00	0.71		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	106	1854	830	131	1903	851	155	0	136	216	0	213
V/C Ratio(X)	0.48	0.73	0.10	0.50	0.65	0.16	0.81	0.00	0.50	0.80	0.00	0.58
Avail Cap(c_a), veh/h	135	1953	874	135	1953	873	189	0	167	599	0	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.7	20.8	13.3	52.6	18.4	13.0	53.0	0.0	51.5	50.6	0.0	49.1
Incr Delay (d2), s/veh	3.3	1.5	0.1	3.0	0.9	0.1	18.6	0.0	2.8	6.7	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	17.2	1.4	2.2	14.1	2.3	4.8	0.0	2.2	5.9	0.0	4.0
LnGrp Delay(d),s/veh	57.0	22.3	13.4	55.6	19.3	13.1	71.7	0.0	54.3	57.3	0.0	51.7
LnGrp LOS	E	C	B	E	B	B	E		D	E		D
Approach Vol, veh/h		1496			1440			193			297	
Approach Delay, s/veh		23.0			20.3			65.5			54.9	
Approach LOS		C			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	70.3		19.8	11.0	72.0		15.7
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	9.3	67.3		40.0	9.3	67.3		12.7
Max Q Clear Time (g_c+I1), s	6.4	37.7		13.2	5.4	31.6		10.2
Green Ext Time (p_c), s	0.0	26.2		1.2	0.0	30.9		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	27.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	596	94	88	867	147	99	52	89	96	54	58
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1776	1776	1776	1776	1900	1845	1845	1792	1792	1900
Adj Flow Rate, veh/h	33	608	96	90	885	150	101	53	91	98	55	59
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	6	6	6
Cap, veh/h	98	1246	556	184	1417	634	141	74	185	260	120	128
Arrive On Green	0.06	0.37	0.37	0.11	0.42	0.42	0.12	0.12	0.12	0.15	0.15	0.15
Sat Flow, veh/h	1691	3374	1505	1691	3374	1509	1171	615	1537	1707	785	843
Grp Volume(v), veh/h	33	608	96	90	885	150	154	0	91	98	0	114
Grp Sat Flow(s),veh/h/ln	1691	1687	1505	1691	1687	1509	1786	0	1537	1707	0	1628
Q Serve(g_s), s	1.6	11.5	3.6	4.2	17.1	5.3	6.9	0.0	4.6	4.3	0.0	5.3
Cycle Q Clear(g_c), s	1.6	11.5	3.6	4.2	17.1	5.3	6.9	0.0	4.6	4.3	0.0	5.3
Prop In Lane	1.00		1.00	1.00		1.00	0.66		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	98	1246	556	184	1417	634	215	0	185	260	0	248
V/C Ratio(X)	0.34	0.49	0.17	0.49	0.62	0.24	0.72	0.00	0.49	0.38	0.00	0.46
Avail Cap(c_a), veh/h	190	1714	765	251	1836	821	317	0	273	828	0	790
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.5	20.1	17.6	34.8	18.9	15.5	35.1	0.0	34.1	31.6	0.0	32.0
Incr Delay (d2), s/veh	2.0	0.4	0.2	2.0	0.6	0.3	4.4	0.0	2.0	0.9	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.4	1.5	2.0	8.0	2.3	3.6	0.0	2.0	2.1	0.0	2.5
LnGrp Delay(d),s/veh	39.5	20.5	17.8	36.8	19.5	15.8	39.5	0.0	36.1	32.5	0.0	33.4
LnGrp LOS	D	C	B	D	B	B	D		D	C		C
Approach Vol, veh/h		737			1125			245			212	
Approach Delay, s/veh		21.0			20.4			38.3			33.0	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	37.0		17.9	8.5	41.2		15.3
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	12.3	42.1		40.2	9.3	45.1		14.7
Max Q Clear Time (g_c+I1), s	6.2	13.5		7.3	3.6	19.1		8.9
Green Ext Time (p_c), s	0.1	16.7		1.0	0.0	15.7		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	23.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	43	601	69	64	1193	131	88	44	61	104	40	88
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1900	1712	1712	1712	1900	1759	1759	1810	1810	1900
Adj Flow Rate, veh/h	45	633	73	67	1256	138	93	46	64	109	42	93
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	12	12	11	11	11	8	8	8	5	5	5
Cap, veh/h	100	1469	169	137	1712	766	115	57	150	203	59	131
Arrive On Green	0.06	0.50	0.50	0.08	0.53	0.53	0.10	0.10	0.10	0.12	0.12	0.12
Sat Flow, veh/h	1616	2913	335	1630	3252	1455	1139	563	1486	1723	500	1107
Grp Volume(v), veh/h	45	350	356	67	1256	138	139	0	64	109	0	135
Grp Sat Flow(s),veh/h/ln	1616	1612	1637	1630	1626	1455	1702	0	1486	1723	0	1607
Q Serve(g_s), s	2.9	14.7	14.8	4.2	32.0	5.3	8.6	0.0	4.3	6.4	0.0	8.7
Cycle Q Clear(g_c), s	2.9	14.7	14.8	4.2	32.0	5.3	8.6	0.0	4.3	6.4	0.0	8.7
Prop In Lane	1.00		0.20	1.00		1.00	0.67		1.00	1.00		0.69
Lane Grp Cap(c), veh/h	100	813	826	137	1712	766	172	0	150	203	0	190
V/C Ratio(X)	0.45	0.43	0.43	0.49	0.73	0.18	0.81	0.00	0.43	0.54	0.00	0.71
Avail Cap(c_a), veh/h	140	936	951	202	2011	900	218	0	190	643	0	600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.5	16.8	16.8	46.9	19.6	13.3	47.2	0.0	45.3	44.5	0.0	45.5
Incr Delay (d2), s/veh	3.1	0.5	0.5	2.7	1.4	0.2	16.3	0.0	1.9	2.2	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.6	6.7	2.0	14.6	2.2	4.8	0.0	1.9	3.2	0.0	4.1
LnGrp Delay(d),s/veh	51.7	17.3	17.3	49.6	21.0	13.5	63.5	0.0	47.2	46.7	0.0	50.4
LnGrp LOS	D	B	B	D	C	B	E		D	D		D
Approach Vol, veh/h		751			1461			203			244	
Approach Delay, s/veh		19.4			21.6			58.4			48.8	
Approach LOS		B			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	60.5		17.9	10.3	62.8		16.1
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	13.3	62.3		40.0	9.3	66.3		13.7
Max Q Clear Time (g_c+I1), s	6.2	16.8		10.7	4.9	34.0		10.6
Green Ext Time (p_c), s	0.1	28.1		1.1	0.0	22.5		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	26.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	48	1197	81	55	901	122	72	50	56	114	62	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1776	1776	1776	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	50	1247	84	57	939	127	75	52	58	119	65	38
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	7	7	7	2	2	2	2	2	2
Cap, veh/h	110	1759	118	138	1874	835	96	67	141	183	114	66
Arrive On Green	0.06	0.54	0.54	0.08	0.56	0.56	0.09	0.09	0.09	0.10	0.10	0.10
Sat Flow, veh/h	1723	3269	220	1691	3374	1504	1068	741	1568	1774	1100	643
Grp Volume(v), veh/h	50	655	676	57	939	127	127	0	58	119	0	103
Grp Sat Flow(s),veh/h/ln	1723	1719	1770	1691	1687	1504	1809	0	1568	1774	0	1743
Q Serve(g_s), s	3.1	31.4	31.6	3.5	19.0	4.5	7.6	0.0	3.9	7.1	0.0	6.2
Cycle Q Clear(g_c), s	3.1	31.4	31.6	3.5	19.0	4.5	7.6	0.0	3.9	7.1	0.0	6.2
Prop In Lane	1.00		0.12	1.00		1.00	0.59		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	110	925	952	138	1874	835	163	0	141	183	0	180
V/C Ratio(X)	0.45	0.71	0.71	0.41	0.50	0.15	0.78	0.00	0.41	0.65	0.00	0.57
Avail Cap(c_a), veh/h	145	1043	1074	142	2047	912	208	0	180	645	0	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.9	19.1	19.1	48.3	15.1	11.9	49.2	0.0	47.5	47.7	0.0	47.2
Incr Delay (d2), s/veh	2.9	2.2	2.2	2.0	0.3	0.1	13.4	0.0	1.9	3.8	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	15.3	16.0	1.7	8.8	1.9	4.4	0.0	1.7	3.7	0.0	3.1
LnGrp Delay(d),s/veh	52.8	21.3	21.3	50.3	15.4	12.1	62.6	0.0	49.4	51.5	0.0	50.1
LnGrp LOS	D	C	C	D	B	B	E		D	D		D
Approach Vol, veh/h		1381			1123			185			222	
Approach Delay, s/veh		22.5			16.8			58.5			50.8	
Approach LOS		C			B			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	65.9		16.7	10.8	67.8		15.3
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	9.3	67.1		40.2	9.3	67.1		12.7
Max Q Clear Time (g_c+I1), s	5.5	33.6		9.1	5.1	21.0		9.6
Green Ext Time (p_c), s	0.0	25.9		0.9	0.0	32.9		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	47	1250	79	61	1136	128	82	33	63	159	71	43
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1810	1810	1810	1900	1827	1827	1863	1863	1900
Adj Flow Rate, veh/h	51	1359	86	66	1235	139	89	36	68	173	77	47
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	4	4	4	2	2	2
Cap, veh/h	106	1777	112	130	1908	853	110	45	136	216	132	81
Arrive On Green	0.06	0.54	0.54	0.08	0.56	0.56	0.09	0.09	0.09	0.12	0.12	0.12
Sat Flow, veh/h	1723	3285	207	1723	3438	1537	1256	508	1553	1774	1084	662
Grp Volume(v), veh/h	51	710	735	66	1235	139	125	0	68	173	0	124
Grp Sat Flow(s),veh/h/ln	1723	1719	1773	1723	1719	1537	1764	0	1553	1774	0	1746
Q Serve(g_s), s	3.4	38.4	38.8	4.4	29.7	5.3	8.3	0.0	5.0	11.3	0.0	8.0
Cycle Q Clear(g_c), s	3.4	38.4	38.8	4.4	29.7	5.3	8.3	0.0	5.0	11.3	0.0	8.0
Prop In Lane	1.00		0.12	1.00		1.00	0.71		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	106	930	959	130	1908	853	155	0	136	216	0	213
V/C Ratio(X)	0.48	0.76	0.77	0.51	0.65	0.16	0.81	0.00	0.50	0.80	0.00	0.58
Avail Cap(c_a), veh/h	135	971	1001	135	1942	868	188	0	166	596	0	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.1	21.4	21.4	52.9	18.4	13.0	53.4	0.0	51.8	50.9	0.0	49.4
Incr Delay (d2), s/veh	3.3	3.8	3.8	3.0	0.9	0.1	19.0	0.0	2.8	6.7	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	19.1	19.8	2.2	14.3	2.3	4.8	0.0	2.2	5.9	0.0	4.0
LnGrp Delay(d),s/veh	57.4	25.1	25.2	56.0	19.3	13.1	72.3	0.0	54.6	57.6	0.0	52.0
LnGrp LOS	E	C	C	E	B	B	E		D	E		D
Approach Vol, veh/h		1496			1440			193			297	
Approach Delay, s/veh		26.3			20.3			66.1			55.3	
Approach LOS		C			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	70.9		19.8	11.0	72.5		15.8
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	9.3	67.3		40.0	9.3	67.3		12.7
Max Q Clear Time (g_c+I1), s	6.4	40.8		13.3	5.4	31.7		10.3
Green Ext Time (p_c), s	0.0	23.7		1.2	0.0	30.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	596	94	88	867	147	99	52	89	96	54	58
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1776	1776	1776	1900	1845	1845	1792	1792	1900
Adj Flow Rate, veh/h	33	608	96	90	885	150	101	53	91	98	55	59
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	6	6	6
Cap, veh/h	97	1098	173	181	1437	643	139	73	183	258	118	127
Arrive On Green	0.06	0.38	0.38	0.11	0.43	0.43	0.12	0.12	0.12	0.15	0.15	0.15
Sat Flow, veh/h	1691	2920	460	1691	3374	1509	1171	615	1536	1707	785	842
Grp Volume(v), veh/h	33	351	353	90	885	150	154	0	91	98	0	114
Grp Sat Flow(s),veh/h/ln	1691	1687	1693	1691	1687	1509	1786	0	1536	1707	0	1628
Q Serve(g_s), s	1.6	13.7	13.8	4.2	17.1	5.3	7.0	0.0	4.7	4.3	0.0	5.4
Cycle Q Clear(g_c), s	1.6	13.7	13.8	4.2	17.1	5.3	7.0	0.0	4.7	4.3	0.0	5.4
Prop In Lane	1.00		0.27	1.00		1.00	0.66		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	97	635	637	181	1437	643	212	0	183	258	0	246
V/C Ratio(X)	0.34	0.55	0.55	0.50	0.62	0.23	0.73	0.00	0.50	0.38	0.00	0.46
Avail Cap(c_a), veh/h	188	847	850	248	1814	812	313	0	269	818	0	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.0	20.6	20.6	35.3	18.7	15.3	35.6	0.0	34.6	32.1	0.0	32.5
Incr Delay (d2), s/veh	2.0	1.1	1.1	2.1	0.6	0.3	4.7	0.0	2.1	0.9	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.5	6.6	2.1	8.0	2.3	3.7	0.0	2.1	2.1	0.0	2.5
LnGrp Delay(d),s/veh	40.0	21.7	21.7	37.4	19.4	15.6	40.3	0.0	36.7	33.0	0.0	33.9
LnGrp LOS	D	C	C	D	B	B	D		D	C		C
Approach Vol, veh/h		737			1125			245			212	
Approach Delay, s/veh		22.5			20.3			39.0			33.5	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	37.9		18.0	8.5	42.1		15.3
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	12.3	42.1		40.2	9.3	45.1		14.7
Max Q Clear Time (g_c+I1), s	6.2	15.8		7.4	3.6	19.1		9.0
Green Ext Time (p_c), s	0.1	15.8		1.0	0.0	15.6		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	24.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	56	726	72	66	1431	158	97	51	65	126	45	108
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1900	1712	1712	1712	1900	1759	1759	1810	1810	1900
Adj Flow Rate, veh/h	59	764	76	69	1506	166	102	54	68	133	47	114
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	12	12	11	11	11	8	8	8	5	5	5
Cap, veh/h	103	1534	153	120	1717	768	119	63	159	227	62	149
Arrive On Green	0.06	0.52	0.52	0.07	0.53	0.53	0.11	0.11	0.11	0.13	0.13	0.13
Sat Flow, veh/h	1616	2962	295	1630	3252	1455	1114	590	1487	1723	468	1135
Grp Volume(v), veh/h	59	416	424	69	1506	166	156	0	68	133	0	161
Grp Sat Flow(s),veh/h/ln	1616	1612	1644	1630	1626	1455	1704	0	1487	1723	0	1603
Q Serve(g_s), s	4.3	20.4	20.4	5.0	49.6	7.4	11.0	0.0	5.2	8.9	0.0	11.8
Cycle Q Clear(g_c), s	4.3	20.4	20.4	5.0	49.6	7.4	11.0	0.0	5.2	8.9	0.0	11.8
Prop In Lane	1.00		0.18	1.00		1.00	0.65		1.00	1.00		0.71
Lane Grp Cap(c), veh/h	103	835	852	120	1717	768	182	0	159	227	0	211
V/C Ratio(X)	0.57	0.50	0.50	0.57	0.88	0.22	0.86	0.00	0.43	0.59	0.00	0.76
Avail Cap(c_a), veh/h	123	835	852	178	1768	791	191	0	167	565	0	526
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.5	19.1	19.1	54.6	25.3	15.3	53.5	0.0	51.0	49.8	0.0	51.1
Incr Delay (d2), s/veh	4.9	0.7	0.6	4.3	5.4	0.2	28.8	0.0	1.8	2.4	0.0	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	9.2	9.3	2.4	23.5	3.0	6.6	0.0	2.2	4.4	0.0	5.6
LnGrp Delay(d),s/veh	60.4	19.7	19.7	58.9	30.7	15.5	82.4	0.0	52.8	52.2	0.0	56.8
LnGrp LOS	E	B	B	E	C	B	F		D	D		E
Approach Vol, veh/h		899			1741			224			294	
Approach Delay, s/veh		22.4			30.4			73.4			54.7	
Approach LOS		C			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	69.6		21.3	11.5	70.8		18.3
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	13.3	62.3		40.0	9.3	66.3		13.7
Max Q Clear Time (g_c+I1), s	7.0	22.4		13.8	6.3	51.6		13.0
Green Ext Time (p_c), s	0.1	31.2		1.4	0.0	12.7		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	33.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	63	1442	89	57	1085	146	79	58	58	137	72	44
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1776	1776	1776	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	66	1502	93	59	1130	152	82	60	60	143	75	46
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	7	7	7	2	2	2	2	2	2
Cap, veh/h	114	1792	110	126	1865	831	99	72	148	204	124	76
Arrive On Green	0.07	0.54	0.54	0.07	0.55	0.55	0.09	0.09	0.09	0.11	0.11	0.11
Sat Flow, veh/h	1723	3290	203	1691	3374	1504	1045	765	1568	1774	1078	661
Grp Volume(v), veh/h	66	782	813	59	1130	152	142	0	60	143	0	121
Grp Sat Flow(s),veh/h/ln	1723	1719	1773	1691	1687	1504	1810	0	1568	1774	0	1740
Q Serve(g_s), s	4.5	45.9	46.6	4.0	27.2	6.1	9.3	0.0	4.3	9.4	0.0	8.0
Cycle Q Clear(g_c), s	4.5	45.9	46.6	4.0	27.2	6.1	9.3	0.0	4.3	9.4	0.0	8.0
Prop In Lane	1.00		0.11	1.00		1.00	0.58		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	114	936	966	126	1865	831	171	0	148	204	0	200
V/C Ratio(X)	0.58	0.83	0.84	0.47	0.61	0.18	0.83	0.00	0.40	0.70	0.00	0.61
Avail Cap(c_a), veh/h	133	955	985	130	1875	836	190	0	165	591	0	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.7	23.0	23.1	53.6	18.2	13.4	53.7	0.0	51.5	51.5	0.0	50.8
Incr Delay (d2), s/veh	4.5	6.7	6.9	2.7	0.7	0.1	23.6	0.0	1.8	4.4	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	23.5	24.4	2.0	12.7	2.5	5.8	0.0	2.0	4.9	0.0	4.0
LnGrp Delay(d),s/veh	59.2	29.6	30.0	56.3	18.8	13.6	77.3	0.0	53.2	55.8	0.0	53.8
LnGrp LOS	E	C	C	E	B	B	E		D	E		D
Approach Vol, veh/h		1661			1341			202			264	
Approach Delay, s/veh		31.0			19.9			70.1			54.9	
Approach LOS		C			B			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	72.2		19.2	11.7	73.2		16.7
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	9.3	67.1		40.2	9.3	67.1		12.7
Max Q Clear Time (g_c+I1), s	6.0	48.6		11.4	6.5	29.2		11.3
Green Ext Time (p_c), s	0.0	17.2		1.1	0.0	33.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	30.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	61	1505	87	64	1368	155	90	37	66	193	83	52
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1810	1810	1810	1900	1827	1827	1863	1863	1900
Adj Flow Rate, veh/h	66	1636	95	70	1487	168	98	40	72	210	90	57
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	4	4	4	2	2	2
Cap, veh/h	111	1748	101	123	1843	824	117	48	145	253	152	96
Arrive On Green	0.06	0.53	0.53	0.07	0.54	0.54	0.09	0.09	0.09	0.14	0.14	0.14
Sat Flow, veh/h	1723	3304	191	1723	3438	1537	1253	511	1553	1774	1067	676
Grp Volume(v), veh/h	66	847	884	70	1487	168	138	0	72	210	0	147
Grp Sat Flow(s),veh/h/ln	1723	1719	1776	1723	1719	1537	1764	0	1553	1774	0	1743
Q Serve(g_s), s	4.7	57.7	59.0	5.0	44.7	7.2	9.7	0.0	5.6	14.5	0.0	10.0
Cycle Q Clear(g_c), s	4.7	57.7	59.0	5.0	44.7	7.2	9.7	0.0	5.6	14.5	0.0	10.0
Prop In Lane	1.00		0.11	1.00		1.00	0.71		1.00	1.00		0.39
Lane Grp Cap(c), veh/h	111	909	940	123	1843	824	165	0	145	253	0	248
V/C Ratio(X)	0.60	0.93	0.94	0.57	0.81	0.20	0.84	0.00	0.50	0.83	0.00	0.59
Avail Cap(c_a), veh/h	127	916	946	127	1843	824	177	0	156	562	0	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.5	27.6	27.9	56.8	24.0	15.3	56.3	0.0	54.4	52.7	0.0	50.7
Incr Delay (d2), s/veh	5.8	15.8	17.0	5.6	2.9	0.2	26.8	0.0	2.6	6.9	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	31.3	33.2	2.6	21.8	3.1	6.0	0.0	2.5	7.6	0.0	5.0
LnGrp Delay(d),s/veh	63.3	43.4	44.9	62.4	26.9	15.4	83.2	0.0	57.1	59.6	0.0	53.0
LnGrp LOS	E	D	D	E	C	B	F		E	E		D
Approach Vol, veh/h		1797			1725			210			357	
Approach Delay, s/veh		44.9			27.2			74.2			56.9	
Approach LOS		D			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	73.2		23.3	11.8	74.1		17.1
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	9.3	67.3		40.0	9.3	67.3		12.7
Max Q Clear Time (g_c+I1), s	7.0	61.0		16.5	6.7	46.7		11.7
Green Ext Time (p_c), s	0.0	5.8		1.5	0.0	19.9		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	40.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	724	98	90	1048	178	104	59	92	116	60	71
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1776	1776	1776	1900	1845	1845	1792	1792	1900
Adj Flow Rate, veh/h	43	739	100	92	1069	182	106	60	94	118	61	72
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	6	6	6
Cap, veh/h	111	1231	167	168	1504	673	134	76	180	245	107	126
Arrive On Green	0.07	0.41	0.41	0.10	0.45	0.45	0.12	0.12	0.12	0.14	0.14	0.14
Sat Flow, veh/h	1691	2986	404	1691	3374	1509	1141	646	1536	1707	743	877
Grp Volume(v), veh/h	43	417	422	92	1069	182	166	0	94	118	0	133
Grp Sat Flow(s),veh/h/ln	1691	1687	1703	1691	1687	1509	1788	0	1536	1707	0	1620
Q Serve(g_s), s	2.2	17.6	17.6	4.7	23.4	6.9	8.2	0.0	5.2	5.8	0.0	7.0
Cycle Q Clear(g_c), s	2.2	17.6	17.6	4.7	23.4	6.9	8.2	0.0	5.2	5.8	0.0	7.0
Prop In Lane	1.00		0.24	1.00		1.00	0.64		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	111	695	702	168	1504	673	210	0	180	245	0	232
V/C Ratio(X)	0.39	0.60	0.60	0.55	0.71	0.27	0.79	0.00	0.52	0.48	0.00	0.57
Avail Cap(c_a), veh/h	173	782	789	229	1675	749	289	0	249	755	0	717
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.7	20.8	20.9	39.0	20.4	15.9	39.0	0.0	37.7	35.8	0.0	36.3
Incr Delay (d2), s/veh	2.2	1.4	1.4	2.8	1.5	0.3	9.7	0.0	2.3	1.5	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	8.4	8.5	2.3	11.1	2.9	4.6	0.0	2.3	2.8	0.0	3.2
LnGrp Delay(d),s/veh	42.9	22.2	22.2	41.8	21.9	16.2	48.7	0.0	40.0	37.3	0.0	38.5
LnGrp LOS	D	C	C	D	C	B	D		D	D		D
Approach Vol, veh/h		882			1343			260			251	
Approach Delay, s/veh		23.2			22.5			45.6			37.9	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	43.9		18.3	9.7	46.9		16.0
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	12.3	42.1		40.2	9.3	45.1		14.7
Max Q Clear Time (g_c+I1), s	6.7	19.6		9.0	4.2	25.4		10.2
Green Ext Time (p_c), s	0.1	16.8		1.2	0.0	15.1		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	26.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	56	726	72	66	1431	158	97	51	65	126	45	108
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1696	1712	1712	1712	1900	1759	1759	1810	1810	1900
Adj Flow Rate, veh/h	59	764	76	69	1506	166	102	54	68	133	47	114
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	12	12	11	11	11	8	8	8	5	5	5
Cap, veh/h	103	1670	747	120	1717	768	119	63	159	227	62	149
Arrive On Green	0.06	0.52	0.52	0.07	0.53	0.53	0.11	0.11	0.11	0.13	0.13	0.13
Sat Flow, veh/h	1616	3223	1442	1630	3252	1455	1114	590	1487	1723	468	1135
Grp Volume(v), veh/h	59	764	76	69	1506	166	156	0	68	133	0	161
Grp Sat Flow(s),veh/h/ln	1616	1612	1442	1630	1626	1455	1704	0	1487	1723	0	1603
Q Serve(g_s), s	4.3	18.3	3.3	5.0	49.6	7.4	11.0	0.0	5.2	8.9	0.0	11.8
Cycle Q Clear(g_c), s	4.3	18.3	3.3	5.0	49.6	7.4	11.0	0.0	5.2	8.9	0.0	11.8
Prop In Lane	1.00		1.00	1.00		1.00	0.65		1.00	1.00		0.71
Lane Grp Cap(c), veh/h	103	1670	747	120	1717	768	182	0	159	227	0	211
V/C Ratio(X)	0.57	0.46	0.10	0.57	0.88	0.22	0.86	0.00	0.43	0.59	0.00	0.76
Avail Cap(c_a), veh/h	123	1670	747	178	1768	791	191	0	167	565	0	526
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.5	18.6	15.0	54.6	25.3	15.3	53.5	0.0	51.0	49.9	0.0	51.1
Incr Delay (d2), s/veh	4.9	0.3	0.1	4.3	5.4	0.2	28.9	0.0	1.8	2.4	0.0	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	8.1	1.3	2.4	23.5	3.0	6.6	0.0	2.2	4.4	0.0	5.6
LnGrp Delay(d),s/veh	60.4	18.8	15.0	58.9	30.7	15.5	82.4	0.0	52.8	52.3	0.0	56.8
LnGrp LOS	E	B	B	E	C	B	F		D	D		E
Approach Vol, veh/h		899			1741			224			294	
Approach Delay, s/veh		21.3			30.4			73.4			54.8	
Approach LOS		C			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	69.6		21.3	11.5	70.8		18.4
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	13.3	62.3		40.0	9.3	66.3		13.7
Max Q Clear Time (g_c+I1), s	7.0	20.3		13.8	6.3	51.6		13.0
Green Ext Time (p_c), s	0.1	32.7		1.4	0.0	12.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	33.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	63	1442	89	57	1085	146	79	58	58	137	72	44
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1776	1776	1776	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	66	1502	93	59	1130	152	82	60	60	143	75	46
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	7	7	7	2	2	2	2	2	2
Cap, veh/h	115	1867	834	127	1860	829	99	72	148	204	124	76
Arrive On Green	0.07	0.54	0.54	0.07	0.55	0.55	0.09	0.09	0.09	0.11	0.11	0.11
Sat Flow, veh/h	1723	3438	1535	1691	3374	1504	1045	765	1568	1774	1078	661
Grp Volume(v), veh/h	66	1502	93	59	1130	152	142	0	60	143	0	121
Grp Sat Flow(s),veh/h/ln	1723	1719	1535	1691	1687	1504	1810	0	1568	1774	0	1740
Q Serve(g_s), s	4.5	42.6	3.5	4.0	27.1	6.1	9.3	0.0	4.3	9.3	0.0	7.9
Cycle Q Clear(g_c), s	4.5	42.6	3.5	4.0	27.1	6.1	9.3	0.0	4.3	9.3	0.0	7.9
Prop In Lane	1.00		1.00	1.00		1.00	0.58		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	115	1867	834	127	1860	829	171	0	148	204	0	200
V/C Ratio(X)	0.57	0.80	0.11	0.47	0.61	0.18	0.83	0.00	0.40	0.70	0.00	0.61
Avail Cap(c_a), veh/h	133	1921	858	131	1886	840	192	0	166	594	0	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.4	22.3	13.3	53.2	18.2	13.4	53.4	0.0	51.2	51.1	0.0	50.5
Incr Delay (d2), s/veh	4.5	2.7	0.1	2.6	0.7	0.2	23.2	0.0	1.8	4.3	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	20.7	1.5	2.0	12.7	2.5	5.7	0.0	2.0	4.8	0.0	4.0
LnGrp Delay(d),s/veh	58.8	24.9	13.4	55.9	18.8	13.6	76.6	0.0	52.9	55.5	0.0	53.5
LnGrp LOS	E	C	B	E	B	B	E		D	E		D
Approach Vol, veh/h		1661			1341			202			264	
Approach Delay, s/veh		25.7			19.9			69.6			54.6	
Approach LOS		C			B			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	71.6		19.1	11.7	72.6		16.7
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	9.3	67.1		40.2	9.3	67.1		12.7
Max Q Clear Time (g_c+I1), s	6.0	44.6		11.3	6.5	29.1		11.3
Green Ext Time (p_c), s	0.0	20.6		1.1	0.0	33.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	28.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	61	1505	87	64	1368	155	90	37	66	193	83	52
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1900	1827	1827	1863	1863	1900
Adj Flow Rate, veh/h	66	1636	95	70	1487	168	98	40	72	210	90	57
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	4	4	4	2	2	2
Cap, veh/h	111	1818	813	123	1842	823	117	48	145	253	152	96
Arrive On Green	0.06	0.53	0.53	0.07	0.54	0.54	0.09	0.09	0.09	0.14	0.14	0.14
Sat Flow, veh/h	1723	3438	1538	1723	3438	1537	1253	511	1553	1774	1067	676
Grp Volume(v), veh/h	66	1636	95	70	1487	168	138	0	72	210	0	147
Grp Sat Flow(s),veh/h/ln	1723	1719	1538	1723	1719	1537	1764	0	1553	1774	0	1743
Q Serve(g_s), s	4.7	54.0	3.9	5.0	44.7	7.2	9.7	0.0	5.6	14.5	0.0	10.0
Cycle Q Clear(g_c), s	4.7	54.0	3.9	5.0	44.7	7.2	9.7	0.0	5.6	14.5	0.0	10.0
Prop In Lane	1.00		1.00	1.00		1.00	0.71		1.00	1.00		0.39
Lane Grp Cap(c), veh/h	111	1818	813	123	1842	823	165	0	145	253	0	248
V/C Ratio(X)	0.60	0.90	0.12	0.57	0.81	0.20	0.84	0.00	0.50	0.83	0.00	0.59
Avail Cap(c_a), veh/h	127	1833	820	127	1842	823	178	0	156	562	0	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.5	26.7	14.9	56.7	24.0	15.3	56.3	0.0	54.4	52.6	0.0	50.7
Incr Delay (d2), s/veh	5.7	6.6	0.1	5.6	2.9	0.2	26.8	0.0	2.6	6.9	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	27.1	1.7	2.6	21.8	3.1	6.0	0.0	2.5	7.6	0.0	5.0
LnGrp Delay(d),s/veh	63.2	33.3	15.0	62.3	26.9	15.4	83.0	0.0	57.0	59.6	0.0	52.9
LnGrp LOS	E	C	B	E	C	B	F		E	E		D
Approach Vol, veh/h		1797			1725			210			357	
Approach Delay, s/veh		33.5			27.2			74.1			56.8	
Approach LOS		C			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	73.1		23.3	11.8	74.0		17.1
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	9.3	67.3		40.0	9.3	67.3		12.7
Max Q Clear Time (g_c+I1), s	7.0	56.0		16.5	6.7	46.7		11.7
Green Ext Time (p_c), s	0.0	10.7		1.5	0.0	19.9		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	34.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	724	98	90	1048	178	104	59	92	116	60	71
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1776	1776	1776	1776	1900	1845	1845	1792	1792	1900
Adj Flow Rate, veh/h	43	739	100	92	1069	182	106	60	94	118	61	72
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	6	6	6
Cap, veh/h	111	1392	621	167	1505	673	134	76	180	245	107	126
Arrive On Green	0.07	0.41	0.41	0.10	0.45	0.45	0.12	0.12	0.12	0.14	0.14	0.14
Sat Flow, veh/h	1691	3374	1506	1691	3374	1509	1141	646	1536	1707	743	877
Grp Volume(v), veh/h	43	739	100	92	1069	182	166	0	94	118	0	133
Grp Sat Flow(s),veh/h/ln	1691	1687	1506	1691	1687	1509	1788	0	1536	1707	0	1620
Q Serve(g_s), s	2.2	15.0	3.8	4.7	23.4	6.9	8.2	0.0	5.2	5.8	0.0	7.0
Cycle Q Clear(g_c), s	2.2	15.0	3.8	4.7	23.4	6.9	8.2	0.0	5.2	5.8	0.0	7.0
Prop In Lane	1.00		1.00	1.00		1.00	0.64		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	111	1392	621	167	1505	673	210	0	180	245	0	232
V/C Ratio(X)	0.39	0.53	0.16	0.55	0.71	0.27	0.79	0.00	0.52	0.48	0.00	0.57
Avail Cap(c_a), veh/h	173	1562	697	229	1674	749	289	0	248	755	0	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.7	20.1	16.8	39.0	20.4	15.9	39.0	0.0	37.7	35.8	0.0	36.3
Incr Delay (d2), s/veh	2.2	0.4	0.2	2.8	1.5	0.3	9.8	0.0	2.3	1.5	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	7.1	1.6	2.3	11.1	2.9	4.6	0.0	2.3	2.8	0.0	3.2
LnGrp Delay(d),s/veh	42.9	20.5	17.0	41.8	21.9	16.2	48.8	0.0	40.0	37.3	0.0	38.6
LnGrp LOS	D	C	B	D	C	B	D		D	D		D
Approach Vol, veh/h		882			1343			260			251	
Approach Delay, s/veh		21.2			22.5			45.6			38.0	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	43.9		18.3	9.7	46.9		16.0
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	12.3	42.1		40.2	9.3	45.1		14.7
Max Q Clear Time (g_c+I1), s	6.7	17.0		9.0	4.2	25.4		10.2
Green Ext Time (p_c), s	0.1	18.3		1.2	0.0	15.2		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	25.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	56	726	72	66	1431	158	97	51	65	126	45	108
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1696	1696	1900	1712	1712	1712	1900	1759	1759	1810	1810	1900
Adj Flow Rate, veh/h	59	764	76	69	1506	166	102	54	68	133	47	114
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	12	12	11	11	11	8	8	8	5	5	5
Cap, veh/h	103	1534	153	120	1717	768	119	63	159	227	62	149
Arrive On Green	0.06	0.52	0.52	0.07	0.53	0.53	0.11	0.11	0.11	0.13	0.13	0.13
Sat Flow, veh/h	1616	2962	295	1630	3252	1455	1114	590	1487	1723	468	1135
Grp Volume(v), veh/h	59	416	424	69	1506	166	156	0	68	133	0	161
Grp Sat Flow(s),veh/h/ln	1616	1612	1644	1630	1626	1455	1704	0	1487	1723	0	1603
Q Serve(g_s), s	4.3	20.4	20.4	5.0	49.6	7.4	11.0	0.0	5.2	8.9	0.0	11.8
Cycle Q Clear(g_c), s	4.3	20.4	20.4	5.0	49.6	7.4	11.0	0.0	5.2	8.9	0.0	11.8
Prop In Lane	1.00		0.18	1.00		1.00	0.65		1.00	1.00		0.71
Lane Grp Cap(c), veh/h	103	835	852	120	1717	768	182	0	159	227	0	211
V/C Ratio(X)	0.57	0.50	0.50	0.57	0.88	0.22	0.86	0.00	0.43	0.59	0.00	0.76
Avail Cap(c_a), veh/h	123	835	852	178	1768	791	191	0	167	565	0	526
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.5	19.1	19.1	54.6	25.3	15.3	53.5	0.0	51.0	49.8	0.0	51.1
Incr Delay (d2), s/veh	4.9	0.7	0.6	4.3	5.4	0.2	28.8	0.0	1.8	2.4	0.0	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	9.2	9.3	2.4	23.5	3.0	6.6	0.0	2.2	4.4	0.0	5.6
LnGrp Delay(d),s/veh	60.4	19.7	19.7	58.9	30.7	15.5	82.4	0.0	52.8	52.2	0.0	56.8
LnGrp LOS	E	B	B	E	C	B	F		D	D		E
Approach Vol, veh/h		899			1741			224			294	
Approach Delay, s/veh		22.4			30.4			73.4			54.7	
Approach LOS		C			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	69.6		21.3	11.5	70.8		18.3
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	13.3	62.3		40.0	9.3	66.3		13.7
Max Q Clear Time (g_c+I1), s	7.0	22.4		13.8	6.3	51.6		13.0
Green Ext Time (p_c), s	0.1	31.2		1.4	0.0	12.7		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	33.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	63	1442	89	57	1085	146	79	58	58	137	72	44
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1776	1776	1776	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	66	1502	93	59	1130	152	82	60	60	143	75	46
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	7	7	7	2	2	2	2	2	2
Cap, veh/h	114	1792	110	126	1865	831	99	72	148	204	124	76
Arrive On Green	0.07	0.54	0.54	0.07	0.55	0.55	0.09	0.09	0.09	0.11	0.11	0.11
Sat Flow, veh/h	1723	3290	203	1691	3374	1504	1045	765	1568	1774	1078	661
Grp Volume(v), veh/h	66	782	813	59	1130	152	142	0	60	143	0	121
Grp Sat Flow(s),veh/h/ln	1723	1719	1773	1691	1687	1504	1810	0	1568	1774	0	1740
Q Serve(g_s), s	4.5	45.9	46.6	4.0	27.2	6.1	9.3	0.0	4.3	9.4	0.0	8.0
Cycle Q Clear(g_c), s	4.5	45.9	46.6	4.0	27.2	6.1	9.3	0.0	4.3	9.4	0.0	8.0
Prop In Lane	1.00		0.11	1.00		1.00	0.58		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	114	936	966	126	1865	831	171	0	148	204	0	200
V/C Ratio(X)	0.58	0.83	0.84	0.47	0.61	0.18	0.83	0.00	0.40	0.70	0.00	0.61
Avail Cap(c_a), veh/h	133	955	985	130	1875	836	190	0	165	591	0	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.7	23.0	23.1	53.6	18.2	13.4	53.7	0.0	51.5	51.5	0.0	50.8
Incr Delay (d2), s/veh	4.5	6.7	6.9	2.7	0.7	0.1	23.6	0.0	1.8	4.4	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	23.5	24.4	2.0	12.7	2.5	5.8	0.0	2.0	4.9	0.0	4.0
LnGrp Delay(d),s/veh	59.2	29.6	30.0	56.3	18.8	13.6	77.3	0.0	53.2	55.8	0.0	53.8
LnGrp LOS	E	C	C	E	B	B	E		D	E		D
Approach Vol, veh/h		1661			1341			202			264	
Approach Delay, s/veh		31.0			19.9			70.1			54.9	
Approach LOS		C			B			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	72.2		19.2	11.7	73.2		16.7
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	9.3	67.1		40.2	9.3	67.1		12.7
Max Q Clear Time (g_c+I1), s	6.0	48.6		11.4	6.5	29.2		11.3
Green Ext Time (p_c), s	0.0	17.2		1.1	0.0	33.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	30.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	61	1505	87	64	1368	155	90	37	66	193	83	52
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1810	1810	1810	1900	1827	1827	1863	1863	1900
Adj Flow Rate, veh/h	66	1636	95	70	1487	168	98	40	72	210	90	57
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	4	4	4	2	2	2
Cap, veh/h	111	1748	101	123	1843	824	117	48	145	253	152	96
Arrive On Green	0.06	0.53	0.53	0.07	0.54	0.54	0.09	0.09	0.09	0.14	0.14	0.14
Sat Flow, veh/h	1723	3304	191	1723	3438	1537	1253	511	1553	1774	1067	676
Grp Volume(v), veh/h	66	847	884	70	1487	168	138	0	72	210	0	147
Grp Sat Flow(s),veh/h/ln	1723	1719	1776	1723	1719	1537	1764	0	1553	1774	0	1743
Q Serve(g_s), s	4.7	57.7	59.0	5.0	44.7	7.2	9.7	0.0	5.6	14.5	0.0	10.0
Cycle Q Clear(g_c), s	4.7	57.7	59.0	5.0	44.7	7.2	9.7	0.0	5.6	14.5	0.0	10.0
Prop In Lane	1.00		0.11	1.00		1.00	0.71		1.00	1.00		0.39
Lane Grp Cap(c), veh/h	111	909	940	123	1843	824	165	0	145	253	0	248
V/C Ratio(X)	0.60	0.93	0.94	0.57	0.81	0.20	0.84	0.00	0.50	0.83	0.00	0.59
Avail Cap(c_a), veh/h	127	916	946	127	1843	824	177	0	156	562	0	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.5	27.6	27.9	56.8	24.0	15.3	56.3	0.0	54.4	52.7	0.0	50.7
Incr Delay (d2), s/veh	5.8	15.8	17.0	5.6	2.9	0.2	26.8	0.0	2.6	6.9	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	31.3	33.2	2.6	21.8	3.1	6.0	0.0	2.5	7.6	0.0	5.0
LnGrp Delay(d),s/veh	63.3	43.4	44.9	62.4	26.9	15.4	83.2	0.0	57.1	59.6	0.0	53.0
LnGrp LOS	E	D	D	E	C	B	F		E	E		D
Approach Vol, veh/h		1797			1725			210			357	
Approach Delay, s/veh		44.9			27.2			74.2			56.9	
Approach LOS		D			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	73.2		23.3	11.8	74.1		17.1
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	9.3	67.3		40.0	9.3	67.3		12.7
Max Q Clear Time (g_c+I1), s	7.0	61.0		16.5	6.7	46.7		11.7
Green Ext Time (p_c), s	0.0	5.8		1.5	0.0	19.9		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	40.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	724	98	90	1048	178	104	59	92	116	60	71
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1776	1776	1776	1900	1845	1845	1792	1792	1900
Adj Flow Rate, veh/h	43	739	100	92	1069	182	106	60	94	118	61	72
Adj No. of Lanes	1	2	0	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	6	6	6
Cap, veh/h	111	1231	167	168	1504	673	134	76	180	245	107	126
Arrive On Green	0.07	0.41	0.41	0.10	0.45	0.45	0.12	0.12	0.12	0.14	0.14	0.14
Sat Flow, veh/h	1691	2986	404	1691	3374	1509	1141	646	1536	1707	743	877
Grp Volume(v), veh/h	43	417	422	92	1069	182	166	0	94	118	0	133
Grp Sat Flow(s),veh/h/ln	1691	1687	1703	1691	1687	1509	1788	0	1536	1707	0	1620
Q Serve(g_s), s	2.2	17.6	17.6	4.7	23.4	6.9	8.2	0.0	5.2	5.8	0.0	7.0
Cycle Q Clear(g_c), s	2.2	17.6	17.6	4.7	23.4	6.9	8.2	0.0	5.2	5.8	0.0	7.0
Prop In Lane	1.00		0.24	1.00		1.00	0.64		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	111	695	702	168	1504	673	210	0	180	245	0	232
V/C Ratio(X)	0.39	0.60	0.60	0.55	0.71	0.27	0.79	0.00	0.52	0.48	0.00	0.57
Avail Cap(c_a), veh/h	173	782	789	229	1675	749	289	0	249	755	0	717
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.7	20.8	20.9	39.0	20.4	15.9	39.0	0.0	37.7	35.8	0.0	36.3
Incr Delay (d2), s/veh	2.2	1.4	1.4	2.8	1.5	0.3	9.7	0.0	2.3	1.5	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	8.4	8.5	2.3	11.1	2.9	4.6	0.0	2.3	2.8	0.0	3.2
LnGrp Delay(d),s/veh	42.9	22.2	22.2	41.8	21.9	16.2	48.7	0.0	40.0	37.3	0.0	38.5
LnGrp LOS	D	C	C	D	C	B	D		D	D		D
Approach Vol, veh/h		882			1343			260			251	
Approach Delay, s/veh		23.2			22.5			45.6			37.9	
Approach LOS		C			C			D			D	

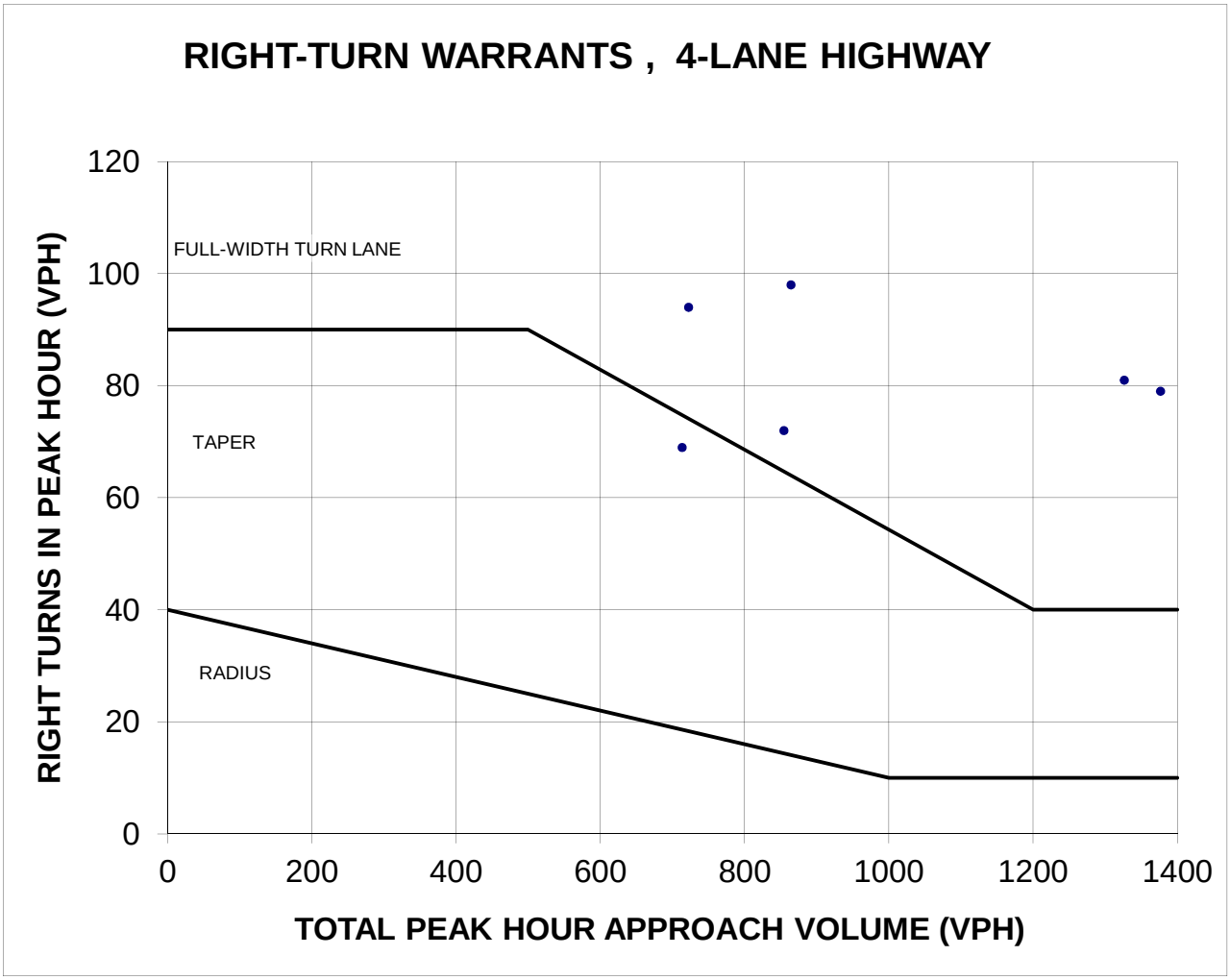
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	43.9		18.3	9.7	46.9		16.0
Change Period (Y+Rc), s	3.7	6.4		5.3	3.7	6.4		5.3
Max Green Setting (Gmax), s	12.3	42.1		40.2	9.3	45.1		14.7
Max Q Clear Time (g_c+I1), s	6.7	19.6		9.0	4.2	25.4		10.2
Green Ext Time (p_c), s	0.1	16.8		1.2	0.0	15.1		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	26.3
HCM 2010 LOS	C

APPENDIX D

WARRANT WORKSHEET

Intersection #1 - The Alameda/SR 156
Eastbound Direction



Scenario	Total	Right-Turning	Warrant Met?
A. CumAM_Aver	713	69	Taper
B. CumPM_Aver	1326	81	Yes
C. CumFriPM_Aver	1376	79	Yes
D. CumSatMid_Aver	722	94	Yes
E. CumAM_PkSea	854	72	Yes
F. CumPM_PkSea	1594	89	Yes
G. CumFriPM_PkSea	1643	87	Yes
H. CumSatMid_PkSea	864	98	Yes

Source: Transportation Research Board, "Intersection Channelization Guide", NCHRP Report 287, November, 1985, p. 64.

Note: For application on high speed highways.

APPENDIX E

CONCEPTUAL DESIGN AND COST ESTIMATES

NOTES & ASSUMPTIONS:

1. THE EXISTING CONDITIONS BASE FOR THIS PLAN WAS PREPARED WITH THE ASSUMPTION THAT SR 156 WOULD HAVE TWO LANES IN THE EASTBOUND DIRECTION EAST OF THE PROJECT INTERSECTION.

2. POSTED SPEED LIMIT = 55 MPH. DESIGN SPEED = 60 MPH. FOR CALCULATING DECELERATION LENGTH, ALLOW 10 MPH OF DECELERATION IN THRU LANE.

3. SIGNAL CYCLE LENGTH = 150 SEC.

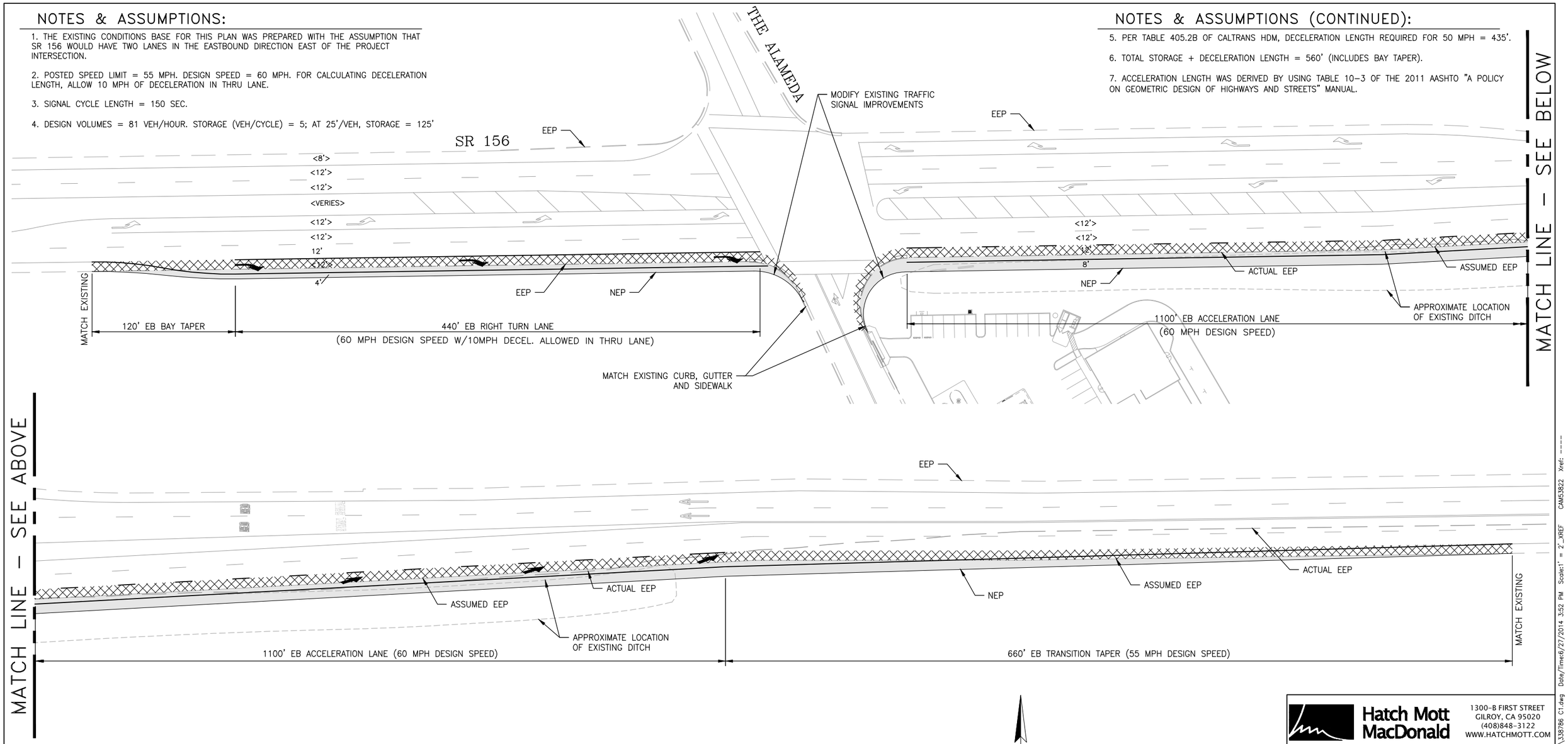
4. DESIGN VOLUMES = 81 VEH/HOUR. STORAGE (VEH/CYCLE) = 5; AT 25'/VEH, STORAGE = 125'

NOTES & ASSUMPTIONS (CONTINUED):

5. PER TABLE 405.2B OF CALTRANS HDM, DECELERATION LENGTH REQUIRED FOR 50 MPH = 435'.

6. TOTAL STORAGE + DECELERATION LENGTH = 560' (INCLUDES BAY TAPER).

7. ACCELERATION LENGTH WAS DERIVED BY USING TABLE 10-3 OF THE 2011 AASHTO "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" MANUAL.



CONCEPTUAL PLAN ONLY
NOT FOR CONSTRUCTION

THIS PLAN IS CONCEPTUAL ONLY, AND IS PREPARED FROM AVAILABLE AERIAL PHOTOS, NOT TOPOGRAPHIC SURVEY DATA. ASSUMPTIONS HAVE BEEN MADE FOR FUTURE IMPROVEMENTS. FINAL DESIGN WILL BE CONTINGENT UPON PHYSICAL, TOPOGRAPHIC, UTILITY AND RIGHT-OF-WAY CONSTRAINTS.

PROPOSED	LEGEND	EXISTING
	EDGE OF PAVEMENT	
	PAVEMENT ARROW	
	STRIPING CHANNELIZING LANE LINE MEDIAN	

= ROADWAY WIDENING AREA (~22,000sf)

= SHOULDER REMOVAL & REPLACEMENT (~19,500sf)

= AREA OF DITCH AFFECTED (~7,830sf)

EEP = EXISTING EDGE OF PAVEMENT
NEP = NEW EDGE OF PAVEMENT

GRAPHIC SCALE
80 0 40 80 160 320
(IN FEET)
1 inch = 80 ft.

Hatch Mott MacDonald
1300-B FIRST STREET
GILROY, CA 95020
(408)848-3122
WWW.HATCHMOTT.COM

PLANNED IMPROVEMENTS FOR SR 156 / THE ALAMEDA

CONCEPTUAL ACCEL/DECEL IMPROVEMENTS ALONG SR 156

DATE: 6-27-14	SCALE:	SAN BENITO COUNTY	PD-1
ACAD FILE NO: 338786 C1	1"=40'	CALIFORNIA	SHEET 1 OF 1

File:J:\2014\338786 - SR 156-The Alameda Imp Study\338786 C1.dwg Date/Time:6/27/2014 3:52 PM Scale:1" = 2' _XREF CAM53822 Xref: ----

PLANNING-LEVEL ENGINEER'S ESTIMATE

Hatch Mott MacDonald

Estimator: FC
Revised by: LT
Date: 06-27-14

Project: SR 156/THE ALAMEDA
Proj. #: 338786

ROADWAY WIDENING IMPROVEMENTS RIGTH TURN LANE

ITEM	UNIT	QTY	UNIT PRICE	TOTAL
Mobilization	LS	1	$20,000.00	$20,000.00
Traffic Control	LS	1	$10,000.00	$10,000.00
Clearing & Grubbing	LS	1	$10,000.00	$10,000.00
Erosion Control	LS	1	$15,000.00	$15,000.00
Traffic Signal Modification	LS	1	$40,000.00	$40,000.00
Remove & Replace Existing Sidewalk	SF	375	$12.00	$4,500.00
Remove & Replace Existing C&G	LF	75	$30.00	$2,250.00
Roadway Removal & Replacement	SF	4780	$15.00	$71,700.00
New Roadway Widen	SF	4175	$12.00	$50,100.00
Roadway Signing & Striping	LS	1	$2,500.00	$2,500.00
CONSTRUCTION SUB-TOTAL:				**$226,050.00**

PROJECT SUB-TOTAL:		**$226,050.00**
Contingencies	25.00%	$56,513.00
Design Engineering	15.00%	$33,908.00
Construction Inspection	15.00%	$33,908.00
Environmental	10.00%	$22,605.00
Subtotal		$372,984.00
Overhead	7.00%	$26,109.00
TOTAL:		**$399,093.00**

Notes:
1. This planning-level stimate does not include cost for ROW acquisition or utility improvements.

PLANNING-LEVEL ENGINEER'S ESTIMATE

Hatch Mott MacDonald

Estimator: FC
Revised by: LT
Date: 06-27-14

Project: SR 156/THE ALAMEDA
Proj. #: 338786

ROADWAY WIDENING IMPROVEMENTS ACCELERATION LANE

ITEM	UNIT	QTY	UNIT PRICE	TOTAL
Mobilization	LS	1	$20,000.00	$20,000.00
Traffic Control	LS	1	$10,000.00	$10,000.00
Clearing & Grubbing	LS	1	$10,000.00	$10,000.00
Erosion Control	LS	1	$15,000.00	$15,000.00
Traffic Signal Modification	LS	1	$40,000.00	$40,000.00
Remove & Replace Exist. Guardrail	LF	340	$150.00	$51,000.00
Remove & Replace Existing Sidewalk	SF	375	$12.00	$4,500.00
Remove & Replace Existing C&G	LF	75	$30.00	$2,250.00
Roadway Removal & Replacement	SF	14680	$15.00	$220,200.00
New Roadway Widen	SF	17818	$12.00	$213,816.00
Existing Ditch Impact	SF	7830	$8.00	$62,640.00
Roadway Signing & Striping	LS	1	$2,500.00	$2,500.00
CONSTRUCTION SUB-TOTAL:				**$651,906.00**

PROJECT SUB-TOTAL:		**$651,906.00**
Contingencies	25.00%	$162,977.00
Design Engineering	15.00%	$97,786.00
Construction Inspection	15.00%	$97,786.00
Environmental	10.00%	$65,191.00
Subtotal		$1,075,646.00
Overhead	7.00%	$75,296.00
TOTAL:		**$1,150,942.00**

Notes:
1. This planning-level estimate does not include cost for ROW acquisition or utility improvements.

Appendix G

Archaeological Report

ARCHAEOLOGICAL CONSULTING

P.O. BOX 3377
SALINAS, CA 93912
(831) 422-4912

PRELIMINARY ARCHAEOLOGICAL RECONNAISSANCE FOR ASSESSOR'S PARCEL 02-520-12, SAN JUAN BAUTISTA, SAN BENITO COUNTY, CALIFORNIA

by

Mary Doane, B.A., and Gary S. Breschini, Ph.D., RPA

December 19, 2013

RECEIVED DEC 1 9 2013

Prepared for

Harbhajan Dadwal

SUMMARY: PROJECT 4888
RESULTS: SEE TEXT
AREA: ±1.0 ACRE
SITES: ADJACENT TO P-35-294
UTMG: 6.3090/40.7797
MAP: USGS 7.5 MINUTE SAN JUAN BAUTISTA QUADRANGLE

For Planning Department:		Yes	No	N/A	See text
Evidence of:	Sacred/Religious site			X	
	Native American Remains		X		
	Anything of Archaeological Significance		X		
	Findings of Historical Significance		X		X

INTRODUCTION

In December 2013 Archaeological Consulting was authorized by Harbhajan Dadwal of Five Rivers Hospitality, Inc. to prepare a Preliminary Archaeological Reconnaissance report for a parcel in the City of San Juan Bautista, San Benito County, California.

As part of our methodology in the preparation of this report, we have 1) completed a background records search at the Northwest Information Center of the California Historical Resources Information System, located at Sonoma State University and 2) conducted a field reconnaissance of the project area. The following report contains the results of these investigations as well as our conclusions and recommendations.

PROJECT LOCATION AND DESCRIPTION

The 1+ acre project area, APN 02-520-12, is located on the southeastern corner of State Route 156 and the Alameda in San Juan Bautista, San Benito County, California (see Maps 1 and 2). The Universal Transverse Mercator Grid (UTMG) coordinates for the approximate center of the project area 6.3090/40.7797 on the USGS 7.5 minute San Juan Bautista Quadrangle (1955; photorevised 1980). The project proposes new construction of a service station on the parcel.

At the time of the reconnaissance the project area was vacant and vegetated with several mature ornamental and fruit trees. Dry grasses had been disked recently. Except in small peripheral areas still containing grass cover, surface visibility was good. Overall, soil visibility was considered adequate for the purposes of this reconnaissance.

PROJECT METHODOLOGY

The methodology used in the preparation of this report included two primary steps, as follows:

Background Research

The background research for this project included an examination of the archaeological site records, maps, and project files of the Northwest Information Center of the California Historical Resources Information System (CHRIS), located at Sonoma State University. In addition, our own extensive personal files and maps were examined for supplemental information, such as rumors of historic or prehistoric resources in the general area. These literature searches are undertaken to determine if there are any recorded archaeological resources within the project area and whether the area has been included in any previous archaeological research or reconnaissance projects.

The regional Information Centers, established by the California Office of Historic Preservation, are the local repository for all archaeological reports prepared under cultural resource management regulations. A background literature search at the appropriate Information Center is required by state guidelines and current professional standards. Following completion of a project, a copy of the report also must be deposited with that organization.

Field Reconnaissance

The field reconnaissance, conducted by Mary Doane, B.A., on December 17, 2013, consisted of a "general surface reconnaissance" of all project areas which could reasonably be expected to contain visible cultural resources, and which could be viewed without major vegetation removal or excavation.

RESULTS OF THE RECONNAISSANCE

Background Research

The project area lies within the currently recognized ethnographic Mutsun territory of the Costanoan (often called Ohlone) linguistic group. Discussions of this group and their territorial boundaries can be found in Breschini, Haversat, and Hampson (1983), Kroeber (1925), Levy (1978), Margolin (1978), and other sources. In brief, the group followed a general hunting and gathering subsistence pattern with partial dependence on the natural acorn crop. Habitation is considered to have been semi-sedentary and occupation sites can be expected most often at the confluence of streams, other areas of similar topography along streams, or in the vicinity of springs. These original sources of water may no longer be present or adequate. Resource gathering and processing areas and associated temporary campsites are frequently found on the coast and in other locations containing resources utilized by the group. Factors that may influence the locations of these archaeological sites include the presence of suitable exposures of rock for bedrock mortars or other milling activities, ecotones, the presence of specific resources (oak groves, marshes, quarries, game trails, trade routes, etc.), proximity to water, and the availability of shelter. Temporary camps or other activity areas may also be found along ridges or other travel corridors.

The search of the CHRIS files at the Northwest Information Center found two prehistoric archaeological sites recorded within one kilometer of the project area, including CA-SBN 35 (P-35-36), recorded a short distance to the south. Many historic resources are located in San Juan Bautista, including the Mission District, and several structures in the town. The historic resource formerly called the Breen Grove or the Taix Grove, P-35-294, is recorded primarily on the adjacent parcel, 02-520-13. Outlying trees associated with the Grove are found on the current project parcel. These trees may have potential for local listing as an historic resource. But they are not eligible for the National Register or the California Inventory.

The CHRIS search of the California Inventory of Historical Resources (March 1976), California Historical Landmarks, and the National Register of Historic Places discovered no listed resources within the project area. The GLO plat map from 1868 depicts no structures in the project area.

Several previous archaeological studies have included parts of the project area or areas adjacent (Breschini and Haversat 1980; Archaeological Resource Management 2001; Nettles and Price 2007; Breschini 2010). A recent geoarchaeological overview includes the project area in the southern part its extensive study area (Rosenthal and Meyer 2004). This study places the project area within quaternary alluvium that has a low potential for surface evidence of archaeological sites but a high potential for buried prehistoric resources.

Field Research

None of the materials frequently associated with prehistoric cultural resources in this area (dark midden soil, fire affected rocks, bone fragments, flaked lithics, ground stone, eroded marine shell fragments, etc.) were observed in the project area during the field survey. The native surface soil in the project area was dry gray brown silt.

Although some ceramic and glass sherds were noted in the project area along with moderate amounts of trash and construction debris, no surface evidence of potentially significant historic period cultural resources was seen on the parcel during the survey.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the background research and the surface reconnaissance, we have concluded that the project area does not provide surface evidence of potentially significant archaeological resources. Therefore, we recommend the following:

- The proposed service station construction should not be delayed for archaeological reasons.

Because of the possibility of unidentified (e.g., buried) cultural resources being found during any construction, we recommend that the following standard language, or the equivalent, be included in any permits issued for the project area:

- If prehistoric or historic archaeological resources or human remains are unexpectedly discovered during construction, work shall be halted within 50 meters (±160 feet) of the find until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated and implemented.

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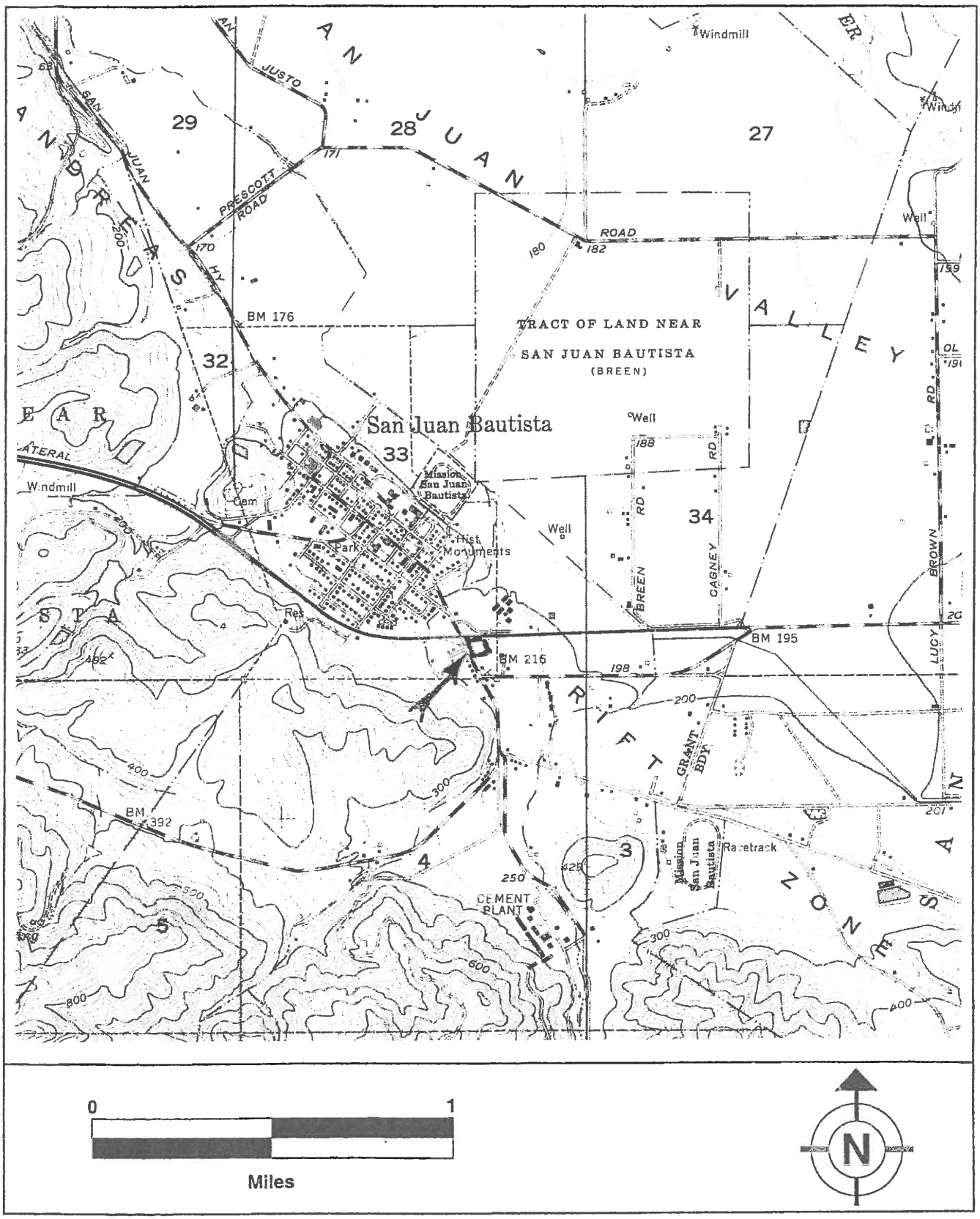

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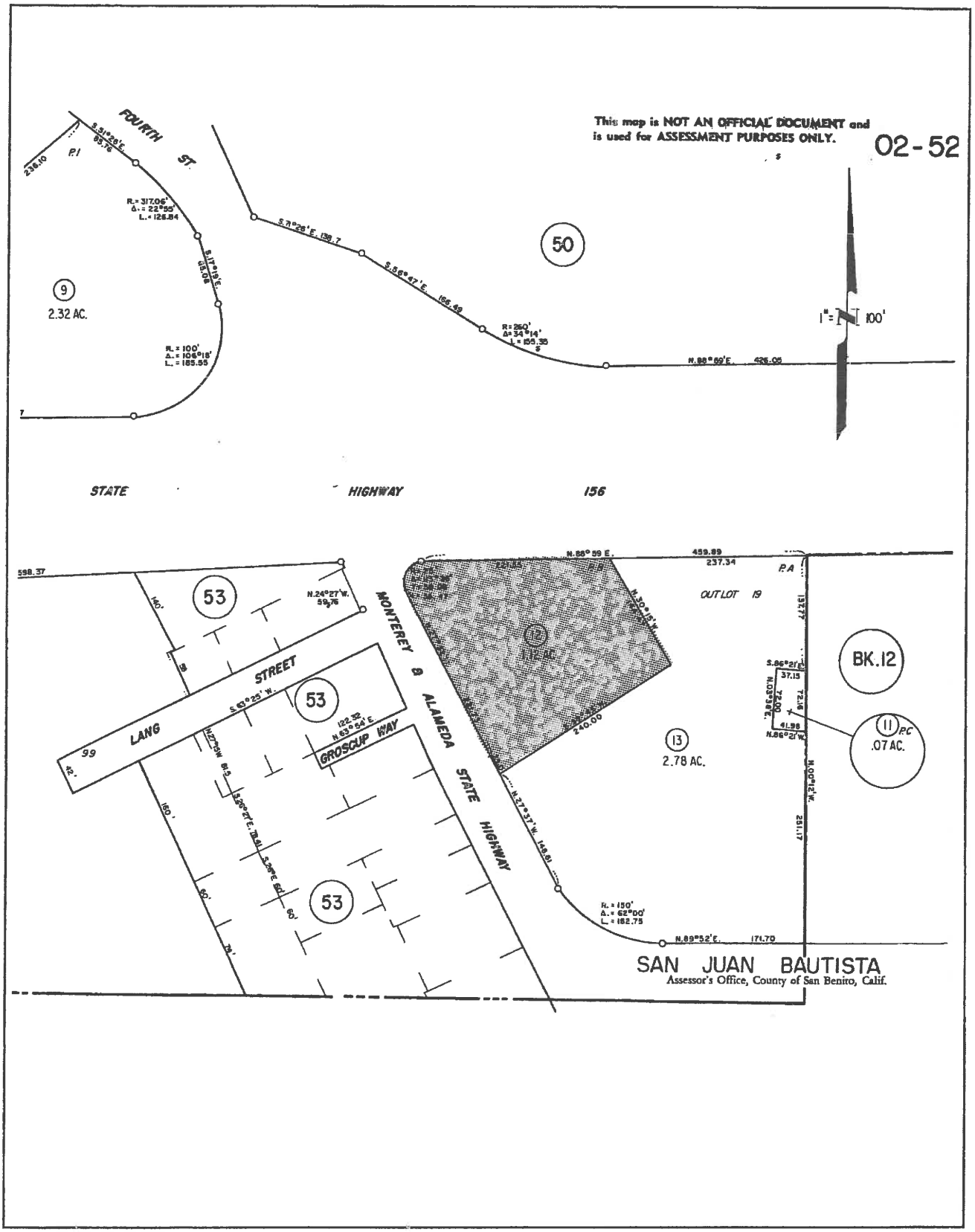
Map 1. Project Location.



Map 2. Project Location.

Appendix H

Stormwater and Drainage Calculations

MH engineering Co.
16075 Vineyard Blvd., Morgan Hill, CA 95037 - (408) 779-7381

Preliminary Drainage Analysis & Storm Water Management Calculations

for:

Harbhajan (Harvey) Dadwal
APN 002-520-012
The Alameda & Hwy 156, San Juan Bautista, CA
Job# 213086 July 15, 2014

Item	Description
01	Cover
02	Drainage Synopsis
03	LID & Post Construction Calculations
04	SCS routing Calculations
05	SCS Routing Summary
06	SCS Hydrographs

REGISTERED PROFESSIONAL ENGINEER
ALLEN T. ANDRADE
C58384
EXP. 12/31/14
CIVIL
STATE OF CALIFORNIA

7/16/2014

Dadwal - APN 02-520-012
Job#: 213086
Date: 7/15/2014

Drainage Synopsis

Project Description

The proposed project is the construction of a quick serve restaurant, convineince store and fuel station at the southeast corner of the intersection of Stat Highway Route 156 and the Alameda in San Juan Bautista, California. The site is in San Benito County and is Assessor's Parcel Number 002-520-012. This site is currently vacant and a number of large non-native trees have recently been removed. No structures or regular permanent uses have occured on the site according to available records and the site has been a vacant commercial property at one of the primary gateways to San Juan Bautista. The site is bound on the north by State Highway Route 156, on the east by an undeveloped portion of APN 002-520-013, on the south by the San Juan Inn and on the West by The Alameda.

According to FIRM 06069C0158D, effective 4/16/2009, the northern poriton of the site is within flood Zone AH (elevation 213) and the southern portion of the site is in flood zone AO (depth 2'). These flood zone designations are due to runoff from the un-named tributary of San Juan Creek that drains the areas along Salinas Road to the southwest of the project exceeding the capacity of the small creek channel during periods prolonged intense rainfall and flowing along The Alameda to the ditch that flows along the south side of Highway 156. There is no evidence of any wetland or riparian habitat on the project site and the City is in the process of beginning a flood study and drainage improvements to eliminate potential flooding along The Alameda. The project site itself is flat and generally drains to the northeast at 0.7% where it enters the drainage channel along the southside of Highway 156. A storm drain inlet near the northwest corner of the project is a point where site runoff enters the storm drain system at the intersection of The Alameda and Hwy 156, this storm drain system also drains the City Stre

The proposed project will include the constuction of a building, fuel island and parking lot. The proposed structures will be elevated above the 100 year flood elevation and all runoff from the proposed improvements will be routed through landscape areas and bio-retention swales. In accordance with the post-construction requirements of the Central Coast Regional Water Quality Control Board, the design of the site includes the developemnt of best management practices (BMPs) to meet the Low Impact Development (LID) standards for the Pajaro River Watershed as documented int he Storm Water Mangement Guidance Manual published by the City of Gilroy, City of Morgan Hill and County of Santa Clara dated March 6, 2014. While San Juan Bautista and San Benito County have yet to implement these LID standards, the developer of this project intends to meet this more stringent LID requirement for the benifit of the community at large.

Due to the proposed parking lot and strutures proposed, the runoff from the site will increase. The landscape areas and bio-retention swales have been designed so that all project runoff is routed through these features where it will be filtered by the vegetation, detained to allow the suspended sediments to fall out of the solution and to allow the water to infiltreate and evapotranspirate to mimic the pre development drainage pattern. The calculations included in this report substantiate the sizing and performance of these BMP's.

Post Construction Storm Water Control Measure Calculations

Section 3 of this report details the analysis used to size the storm water control measures according to the 2014 Storm Water Guidance Manual as previously mentioned. First the tributary drainage area is defined and the proposed project's %impervious area is calculated. Based on this %imperviousness and the project's location the required retention volume is calculated. Bio-retention swales are then sized to fit within the project landscape areas and their volumes are calculated to show that they meet the requirements for the proposed development.

Hydrology & Routing

In addition to the LID requirements, the City requires that the post-development runoff does not exceed the pre-development runoff. In order to substantiate the performance of the proposed bio-retention swales, Section 4 of this report details the SCS routing of the design storm through the site both pre & post development. The calculations include the determination of the proper SCS curve numbers, calculation of the 24 hour design storm depth for a number of return periods and application of these to the drainage area to develop hydrographs of the pre & post development site for comparison.

Upon development of these pre & post development hydrographs, the post development hydrograph is then routed through the proposed bio-retention swales and the swales/outfalls/overflows are sized/re-sized to meet the requirements for retention volume and peak discharge. This iterative design process concludes when the design criteria is met within the confines of the development

Summary

This project has been designed in accordance with the FEMA policies regarding development within mapped flood hazard areas. It also addresses the City of San Juan's requirement that post-development peak runoff does not exceed the pre-development rates. Additionally the project has been designed to meet the requirements for storm water management as it related sot low impact development and post-construction requirements as set forth by the Regional Water Quality Control Board and the upper Pajaro River Watershed.

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Job#: 213086
Date: 7/15/2014

Hydrologic Analysis & Stormwater Control Measure Sizing
Per Appendix E, Stormwater Management Guudance Manual for Low Impact Developemnt & Post Construction Requirements, City of Gilroy City of Morgan Hill and County of Santa Clara March 6,2014

1.) Determination of Retention Tributary Area

1a.) Compute the Retention Tributary Area

(sf)	(acres)	Description
0	0.00	= $A_{r/w}$ = Tributary Area in County Right of Way
0	0.00	= A_{adj} = Tributary Area from adjacent parcels
48,602	1.12	= A_{prp} = Tributary Area on Project Property
48,602	1.12	= A_{trib} = Retention Tributary Area

1b.) Adjustments for Redevelopment Project
NONE

1c.) Equivalent Impervious Surface Area (page 2 of handbook)
Apply correction factors for Equivalent Impervious Surface Area
$CF_{DMA\#} = ((A_{AC}*CF_{AC})+(A_{AB}*CF_{AB})+(A_{lndscp}*CF_{lndscp}))/A_{trib}$ (weighted DMA correction factor)
$EISA_{DMA\#} = A_{DMA2} * CF_{DMA2}$

DMA 1

48,602	= A_{DMA1} = Drainage Management Area Tributary Area (sf)
6,322	= A_{roof} = Area of ex&new roofs/structures (sf) {canopy included in PCC}
32,678	= A_{PCC} = Area of Portland Cement Concrete (sf)
0	= A_{AC} = Area of Asphaltic Concrete (sf)
0	= A_{AB} = Area of Aggregate Base (sf)
9601.2	= A_{lndscp} = Area of landscape/natural areas (sf)
1	= CF_{roof} = Correction Factor Roof Areas
1	= CF_{PCC} = Correction Factor Portland Cement Concrete
1	= CF_{AC} = Correction Factor Asphaltic Concrete
0.4	= CF_{AB} = Correction Factor of Aggregate Base
0	= CF_{lndscp} = Correction Factor of landscape/natural areas
0.80	= CF_{DMA1} = Drainage Management Area 1 Correction Factor
39,000	**= $EISA_{DMA1}$ = Drainage Management Area 1 EISA (sf)**
80.2%	**= Project % impervious**

2.) Determinaton of Retention Volume

2a.) Project Watershed Management Zone per attach 1b
1 = $WMZ_{project}$

Runoff Retention Requirement = Prevent offsite discharge from events up to the 95th percentile 24-hour rainfall event

2b.) Determine the 95th percentile 24-hour rainfall event

1.35 = i = 95th % 24-hour rainfall per 95th percentile poster for posting (in.)

2c.) Compute the Runoff Coefficient

$C = 0.858i^3 - 0.78i^2 + 0.774i + 0.04$

where i is the fraction of the tributary area that is impervious

DMA 1 Runoff Coefficient

48,602 = A_{DMA1} = Drainage Management Area Tributary Area (sf)

39,000 = $EISA_{DMA1}$ = Drainage Management Area 1 EISA (sf)

0.80 = i_{DMA1} fraction of the tributary area that is impervious (CF_{DMA})

0.60 = C_{DMA1}

2d.) Compute Retention Volume

Retention $Volume_{DMA\#} = C_{DMA\#} * i * A_{DMA\#}$

DMA 1 Retention Volume

0.60 = C_{DMA1}

1.35 = 95th % 24-hour rainfall (in.)

39,000 = $EISA_{DMA1}$ = Drainage Management Area 1 EISA (sf)

2,642 = Retention Volume DMA1 (cf) [required for BMP]

3.) Structural Stormwater Control Measure Sizing

Bio-Retention Swale along north Property Line

contour elevation (ft.)	surface area (sf)	incremental Volume (cf)	cummulative Volume (cf)
210.00	648		0
210.50	1074	431	431
211.00	1507	645	1,076
211.50	1946	863	1,939
212.00	2931	1,219	3,158
212.50	2843	1,444	4,602

Bio-Retention Swale along north The Alameda

contour elevation (ft.)	surface area (sf)	incremental Volume (cf)	cummulative Volume (cf)
210.50	325		0
211.00	656	245	245
211.50	993	412	658
212.00	1336	582	1,240
212.50	1686	756	1,995

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48,602 **= A = Tributary Area (sf)**

Time of Concentration

$t_c = 0.0078 * ((L^2/S)^{0.385}) + 10$ equation 3-2

326 = L = maximum length of travel from headwater to outlet (ft)
0.003 = S = effective slope along L (ft/ft)
16.3 = t_c = Time of Concentration (min.)

Site SCS Curve # determination

C = Hydrologic Soils Group, *per USDA Web soil survey*
98 = CN_{roofs} = roof area curve number
98 = CN_{PCC} = PCC area curve number
98 = CN_{AC} = AC area curve number
85 = CN_{gravel} = gravel drive area curve number
65 = CN_{nat} = brush/weed/grass mix

Pre-Development SCS Curve #

0 = A_{roofs} = roof areas (sf)
0 = A_{PCC} = PCC areas (sf)
0 = A_{AC} = AC areas (sf)
0 = A_{gravel} = gravel drive areas (sf)
48602 = A_{nat} = natural areas (sf)

65 = CN_{pre} = Weighted CN pre-development

Post-Development SCS Curve #

6322 = A_{roofs} = roof areas (sf)
32678 = A_{PCC} = PCC areas (sf)
0 = A_{AC} = AC areas (sf)
0 = A_{gravel} = gravel drive areas (sf)
01 = A_{nat} = natural areas (sf)

02 = CN_{post} = Weighted CN post-development

Rainfall Depth / Intensity

17 = MAP = site mean annual precipitation, SBC *figure 3-1*

24 hour storm Depth from SBC figure 3-5

Return	MAP	factor	24 hour storm depth (in)
2	17	1	1.85
10	17	1.48	2.74
25	17	1.73	3.21
100	17	2.22	4.11

Summary of SCS output

Event	pre development peak runoff	post-development peak runoff	post development runoff out of pond	max pond water height	pond storage volume
[year]	[cfs]	[cfs]	[cfs]	[ft]	[cf]
2	0.02	0.19	0.02	211.41	2317
10	0.10	0.31	0.10	211.76	3410
25	0.15	0.37	0.12	211.95	4052
100	0.25	0.50	0.42	212.07	4489

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Summary for Subcatchment 2S: DMA #1 PRE Development

Runoff = 0.25 cfs @ 18.25 hrs, Volume= 0.102 af, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
SCVWD 1956 Storm 100 year Rainfall=4.11"

	Area (sf)	CN	Description
*	48,602	65	Brush, Fair, HSG C
	48,602		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3					**Direct Entry,**

Summary for Subcatchment 3S: DMA #1 POST Development

Runoff = 0.50 cfs @ 18.40 hrs, Volume= 0.291 af, Depth= 3.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
SCVWD 1956 Storm 100 year Rainfall=4.11"

	Area (sf)	CN	Description
*	6,322	98	roof areas
*	32,768	98	PCC areas
*	9,602	65	natural/landscape areas
	48,692	91	Weighted Average
	9,602		19.72% Pervious Area
	39,090		80.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0					**Direct Entry,**

Summary for Pond 10P: Bio-Retention Swales

Inflow Area = 1.118 ac, 80.28% Impervious, Inflow Depth = 3.12" for 100 year event
Inflow = 0.50 cfs @ 18.40 hrs, Volume= 0.291 af
Outflow = 0.47 cfs @ 18.60 hrs, Volume= 0.284 af, Atten= 5%, Lag= 12.4 min
Discarded = 0.05 cfs @ 18.60 hrs, Volume= 0.126 af
Primary = 0.42 cfs @ 18.60 hrs, Volume= 0.158 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 212.07' @ 18.60 hrs Surf.Area= 3,828 sf Storage= 4,489 cf

Plug-Flow detention time= 388.8 min calculated for 0.284 af (97% of inflow)
Center-of-Mass det. time= 376.1 min (1,338.4 - 962.3)

Volume	Invert	Avail.Storage	Storage Description
#1	210.00'	4,318 cf	**North Bio Retention Swale (Irregular)** Listed below (Recalc)
#2	210.50'	1,984 cf	**Swale along The Alameda (Irregular)** Listed below (Recalc)
		6,302 cf	Total Available Storage

6,302 cf Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
210.00	648	426.0	0	0	648
210.50	1,074	430.0	426	426	994
211.00	1,507	436.0	642	1,068	1,461
211.50	1,946	442.0	861	1,929	1,934
212.00	2,391	449.0	1,082	3,011	2,478
212.50	2,843	455.0	1,307	4,318	2,966

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
210.50	325	327.8	0	0	325
211.00	656	334.1	240	240	696
211.50	993	340.3	409	650	1,069
212.00	1,336	346.6	580	1,230	1,454
212.50	1,686	353.0	754	1,984	1,851

Device	Routing	Invert	Outlet Devices
#1	Primary	212.00'	**Overflow Spillway, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 Width (feet) 5.00 7.00
#2	Primary	211.30'	**2.5" Vert. Orifice/Grate** C= 0.600
#3	Discarded	210.00'	**0.607 in/hr Infiltration & Evapotranspiration over Surface area** Conductivity to Groundwater Elevation = 0.00'

Discarded OutFlow Max=0.05 cfs @ 18.60 hrs HW=212.07' (Free Discharge)
└**3=Infiltration & Evapotranspiration** (Controls 0.05 cfs)

Primary OutFlow Max=0.41 cfs @ 18.60 hrs HW=212.07' (Free Discharge)
├**1=Overflow Spillway** (Weir Controls 0.28 cfs @ 0.83 fps)
└**2=Orifice/Grate** (Orifice Controls 0.13 cfs @ 3.92 fps)

Events for Subcatchment 2S: DMA #1 PRE Deve

Event	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2 year	0.02	0.009	0.10
10 year	0.10	0.036	0.39
25 year	0.15	0.056	0.61
100 year	**0.25**	**0.102**	**1.09**

Events for Subcatchment 3S: DMA #1 POST De

Event	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2 year	0.19	0.096	1.03
10 year	0.31	0.170	1.83
25 year	0.37	0.211	2.27
100 year	**0.50**	**0.291**	**3.12**

Events for Pond 10P: Bio-Retention Swales

Event	Inflow (cfs)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2 year	0.19	0.06	0.04	0.02	211.41	2,317
10 year	0.31	0.15	0.05	0.10	211.76	3,410
25 year	0.37	0.17	0.05	0.12	211.95	4,052
100 year	**0.50**	**0.47**	**0.05**	**0.42**	**212.07**	**4,489**

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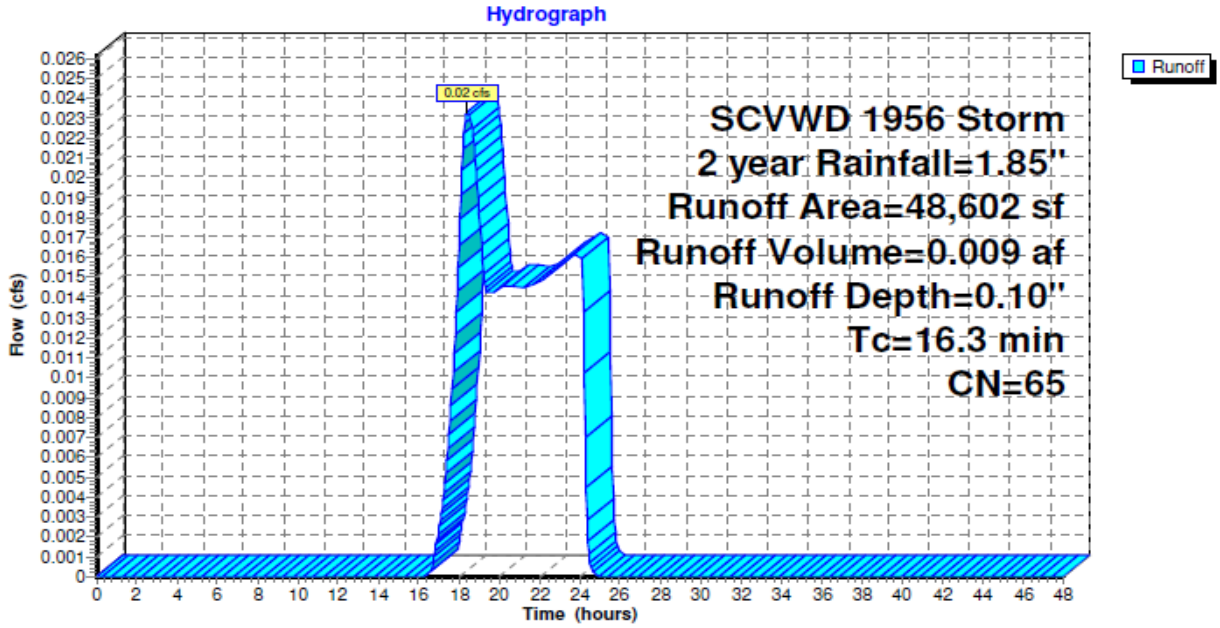
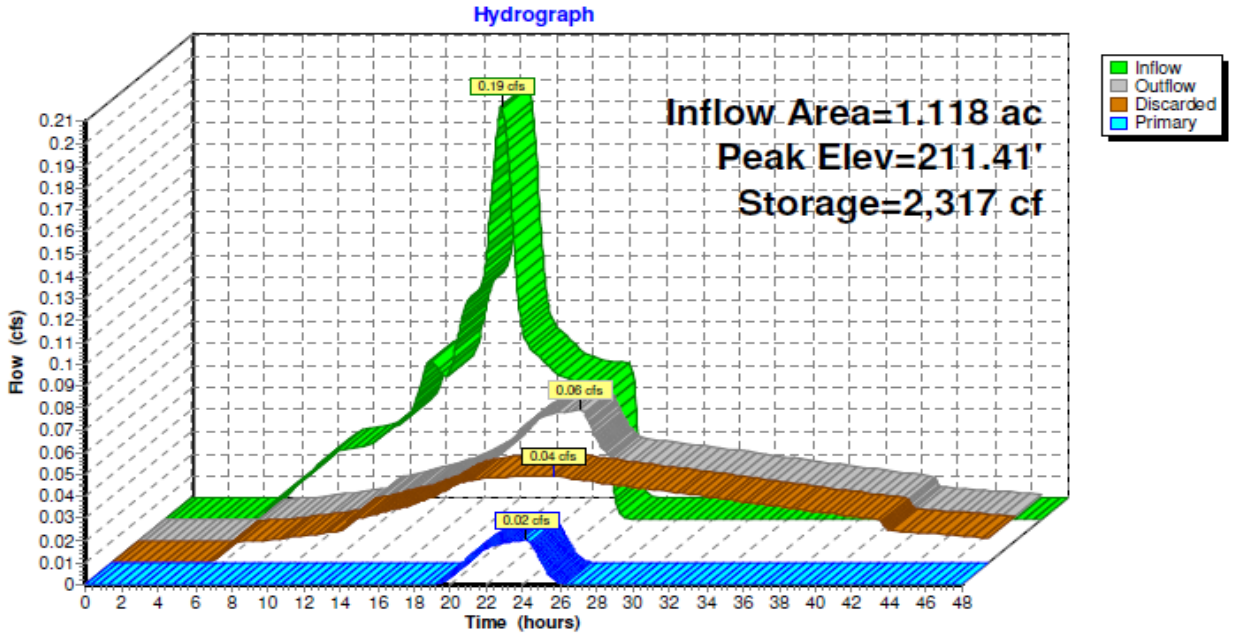
2 year - Hydrographs

Subcatchment 2S: DMA #1 PRE Development

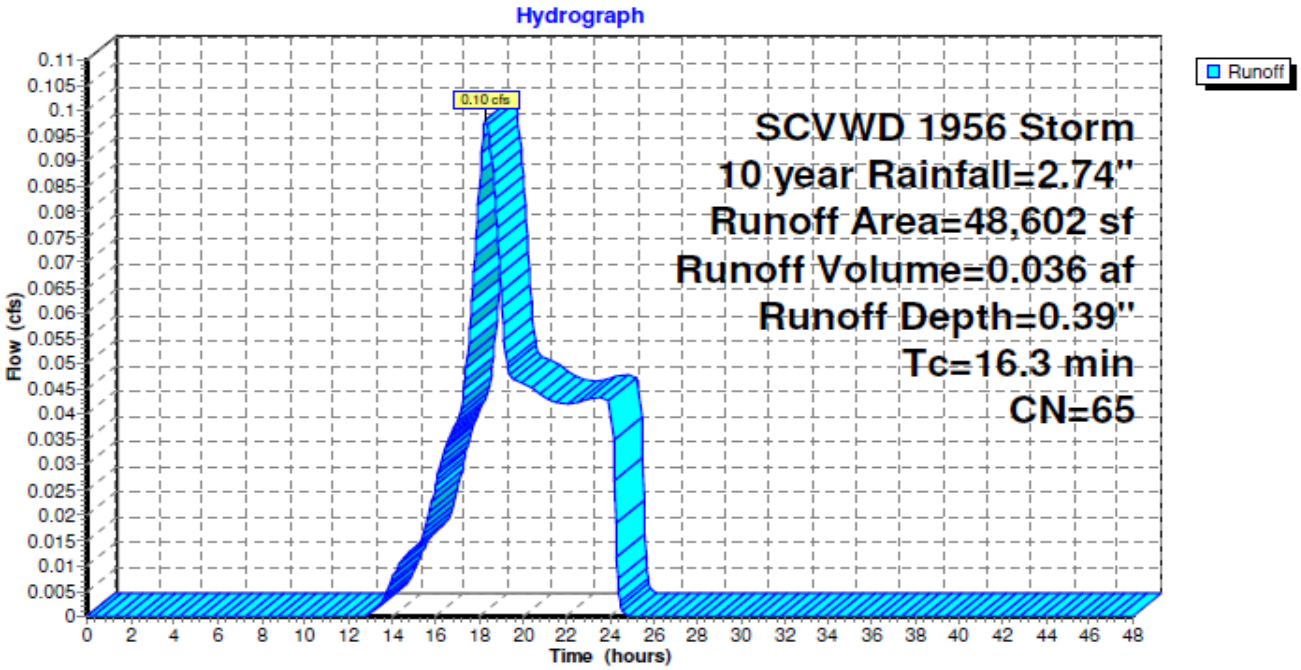


Pond 10P: Bio-Retention Swales

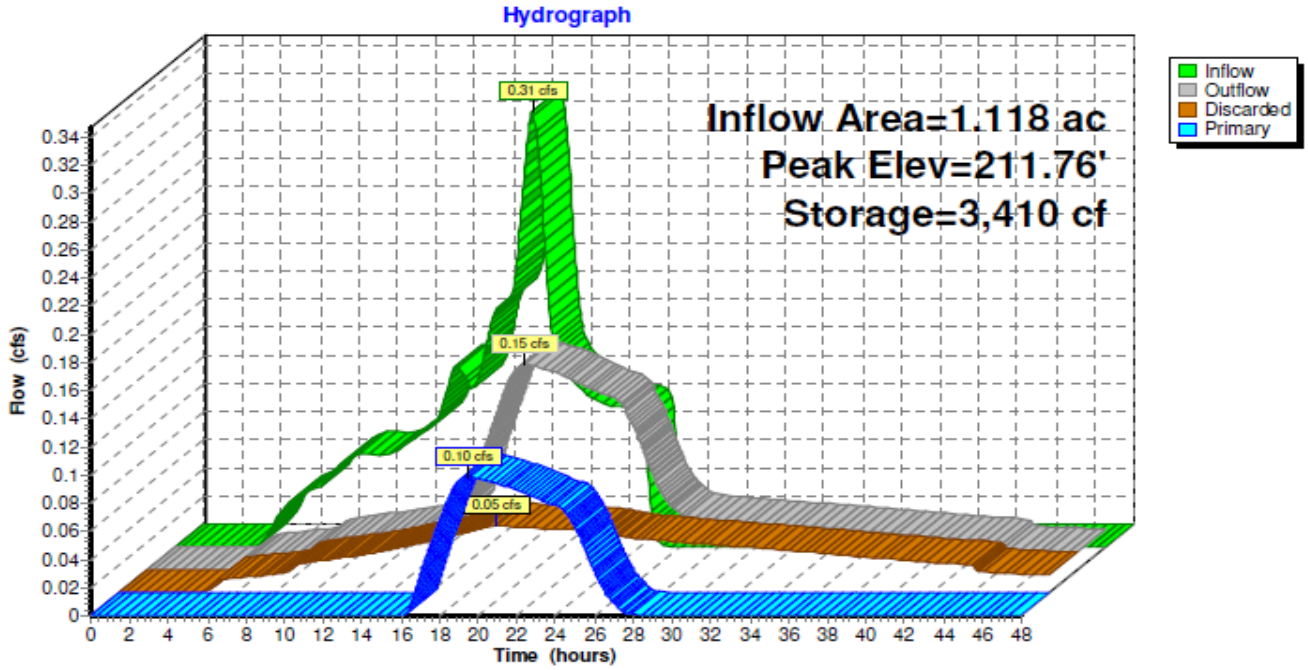


10 year - Hydrographs

Subcatchment 2S: DMA #1 PRE Development

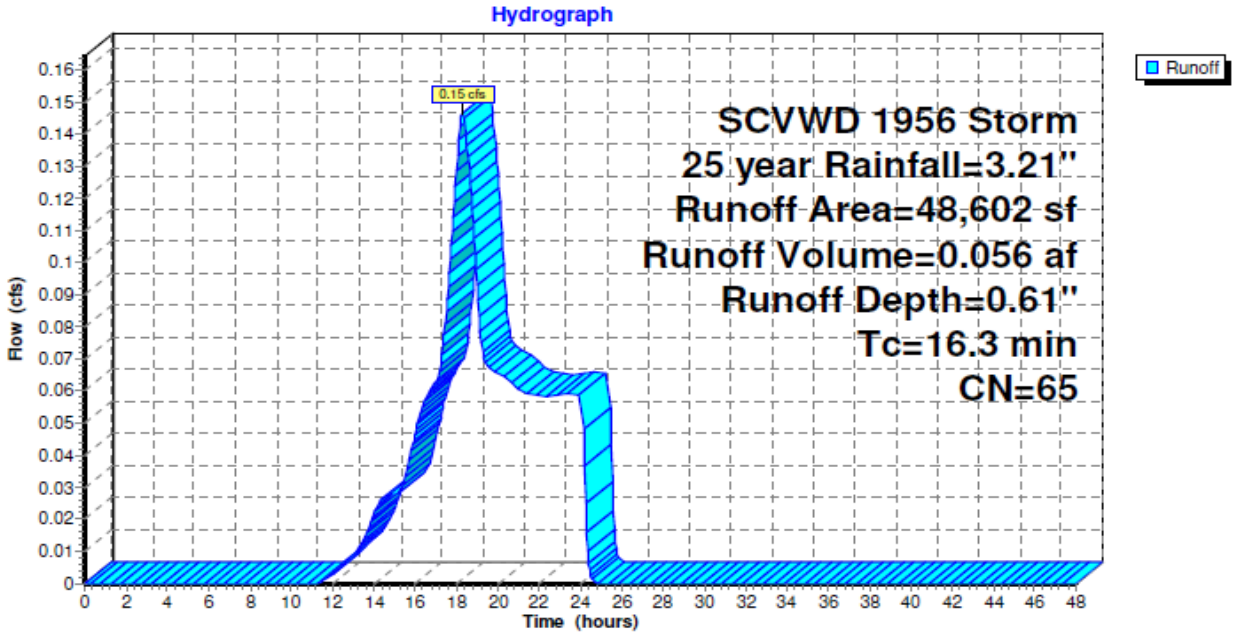


Pond 10P: Bio-Retention Swales

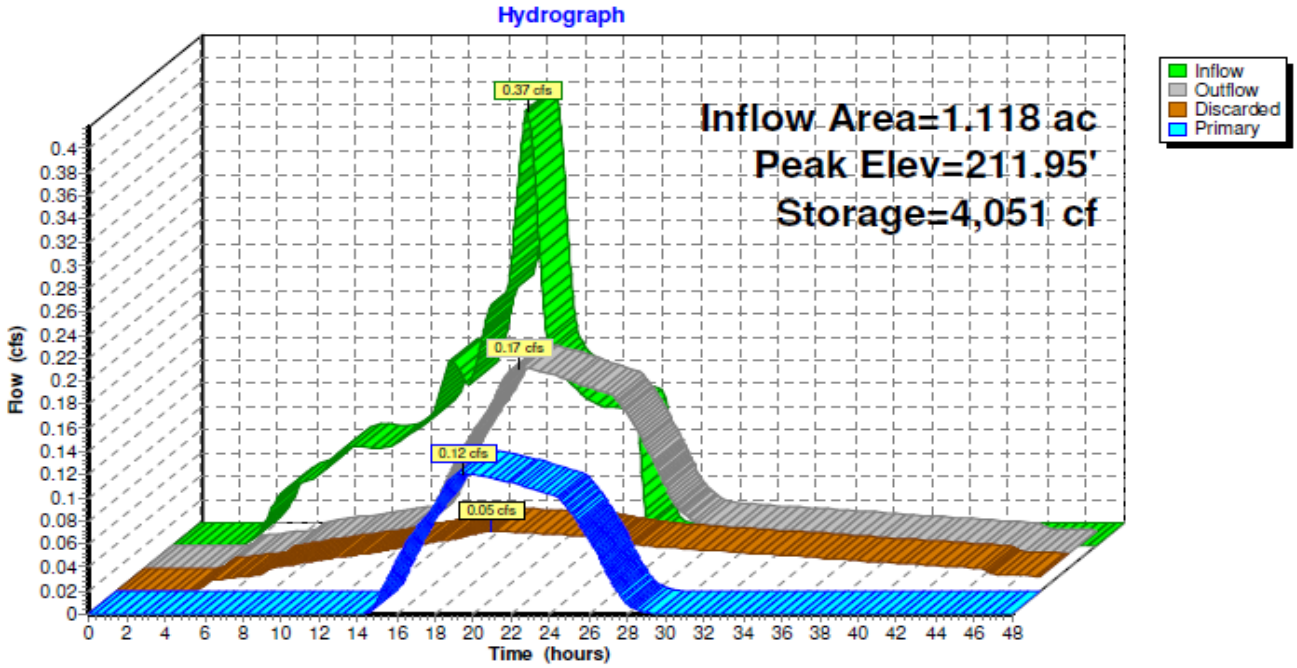


25 year - Hydrographs

Subcatchment 2S: DMA #1 PRE Development

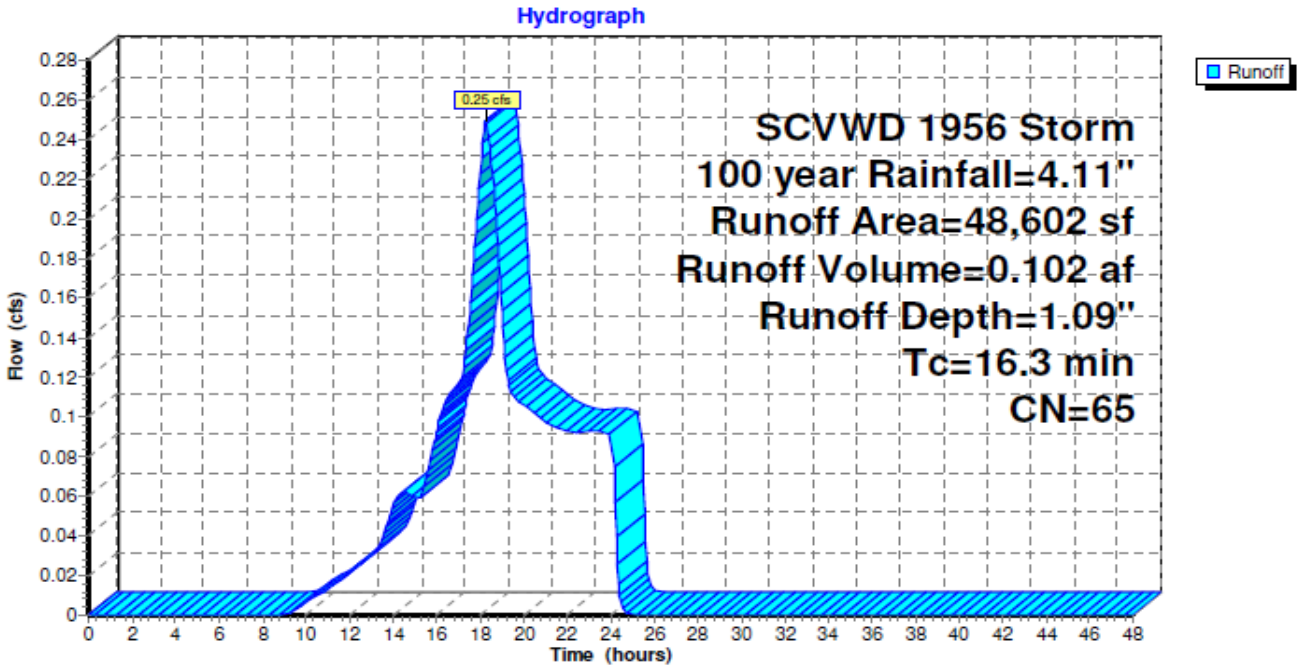
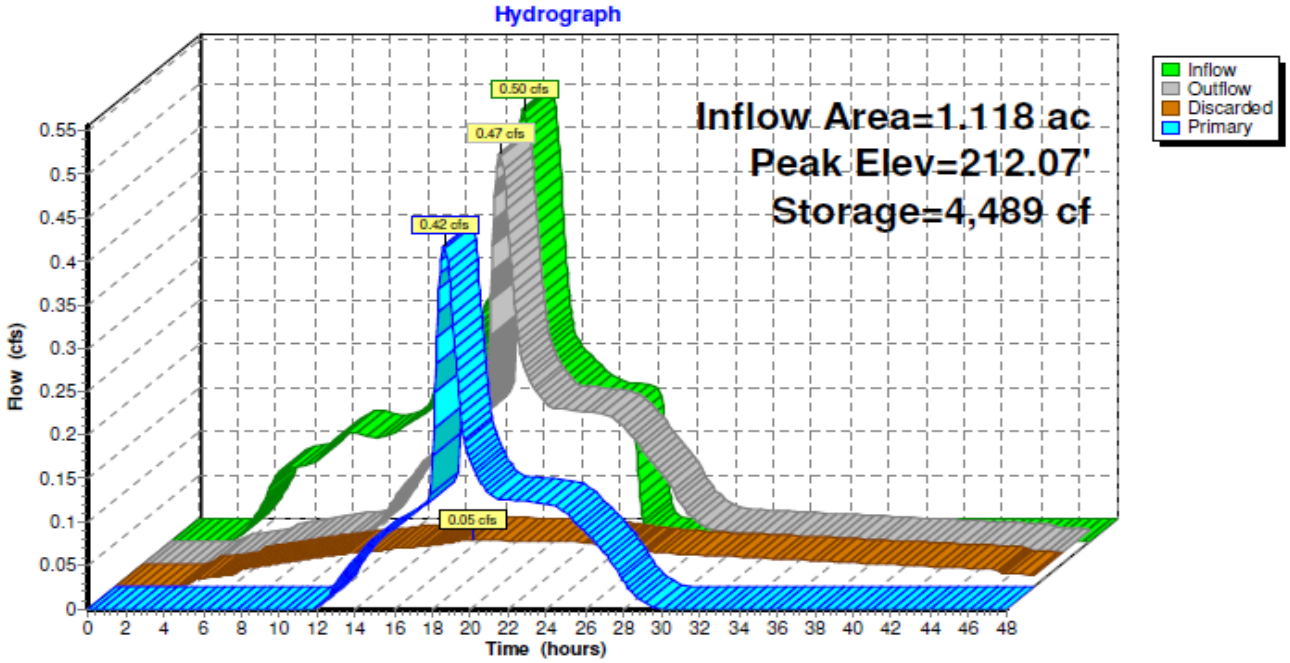


Pond 10P: Bio-Retention Swales



100 year - Hydrographs

Subcatchment 2S: DMA #1 PRE Development



Pond 10P: Bio-Retention Swales