



**NOTICE OF AVAILABILITY
for Public Review of a
Mitigated Negative Declaration
Distribution Date: April 19, 2019**

As Lead Agency, the City of Lafayette hereby provides a 20-day public review period for a Mitigated Negative Declaration (MND) prepared pursuant to the California Environmental Quality Act (CEQA) for the following project:

PROJECT TITLE: 3255 Stanley Boulevard- Shell Station Car Wash

FILE: L04-17

LOCATION: Existing Shell Gas Station at 3255 Stanley Boulevard (APN 177-061-027-5) in the City of Lafayette. The project site encompasses approximately 0.6 acres and is bounded by Pleasant Hill Road to the west, Stanley Boulevard to the north, and one-story, single family residences to the south and east.

APPLICANT: Vanita Bindal (Property Owner)

REQUEST: Request for a Land Use Permit to demolish an existing 566 square foot office space and install a new self-service car wash and a 763 square foot office space, replacing the 173 square foot retail area in kind on a commercially developed property at 3255 Stanley Blvd, APN 177-061-027.

DETERMINATION

An Initial Study/ Mitigated Negative Declaration (IS/MND) was completed by Rincon Consultants, Inc. staff in accordance with the California Environmental Quality Act (CEQA), as is available for review in the project file in the Planning Department at 3675 Mt. Diablo Boulevard, Suite 210 in the City of Lafayette from 8 am to 5 pm, Monday through Friday or online at www.lovelafayette.org/CEQA. The IS/MND finds that the **project will not have a significant effect on the environment** because mitigation measures have been incorporated into/added to the project by conditions of approval that will reduce potential impacts to a less than significant level.

COMMENTS

Pursuant Section 15073 of the CEQA Guidelines, comments on the MND may be submitted during the 20-day review period beginning **Monday, April 22, 2019 and ending Monday, May 13, 2019**. Please submit comments to the project planner listed below. The Planning Commission will consider the IS/MND and all comments submitted in writing or verbally at public hearings prior to acting on the Project.

Lead Agency: City of Lafayette, Planning Department

Project Planner: Katrina Lapira, Planning Technician • Tel. (925) 299-3205 • Email: klapira@lovelafayette.org

Planning Commission email: planningcommission@lovelafayette.org

NOTE NEW PROJECT PLANNER



Katrina Lapira, Planning Technician



April 19, 2019

May 2, 2019 Note:
NEW Project Planner: Jonathan Fox, Planning Technician • Tel. (925) 299-3242 • Email: jfox@lovelafayette.org



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Katrina Lapira, Planning Technician

April 19, 2019



3255 Stanley Boulevard Car Wash and Convenience Store Project

Draft Initial Study – Mitigated Negative Declaration

prepared for

City of Lafayette

3675 Mt. Diablo Boulevard, #210

Lafayette, California 94549

Contact: Katrina Lapira

prepared with the assistance of

Rincon Consultants, Inc.

449 15th Street, Suite 303

Oakland, California 94612

April 2019



RINCON CONSULTANTS, INC.

Environmental Scientists | Planners | Engineers

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Appendix C	Noise Measurement Data, Car Wash Equipment Noise Specifications, and SoundPlan Modeling Results
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Initial Study

1. Project Title

3255 Stanley Boulevard Car Wash and Convenience Store Project

2. Lead Agency Name and Address

City of Lafayette
3675 Mt. Diablo Boulevard, #210
Lafayette, California 94549

3. Contact Person and Phone Number

Katrina Lapira: (925) 284-1976

4. Project Location

The project site is an existing Shell Gas Station at 3255 Stanley Boulevard (Assessor Parcel Number 177-061-027-5) in the City of Lafayette. The project site encompasses approximately 0.6 acres. Figure 1 shows the location of the site in the region and Figure 2 shows the project site in its neighborhood context.

5. Project Sponsor's Name and Address

Vanita Bindal
3225 Stanley Boulevard
Lafayette, California 94549

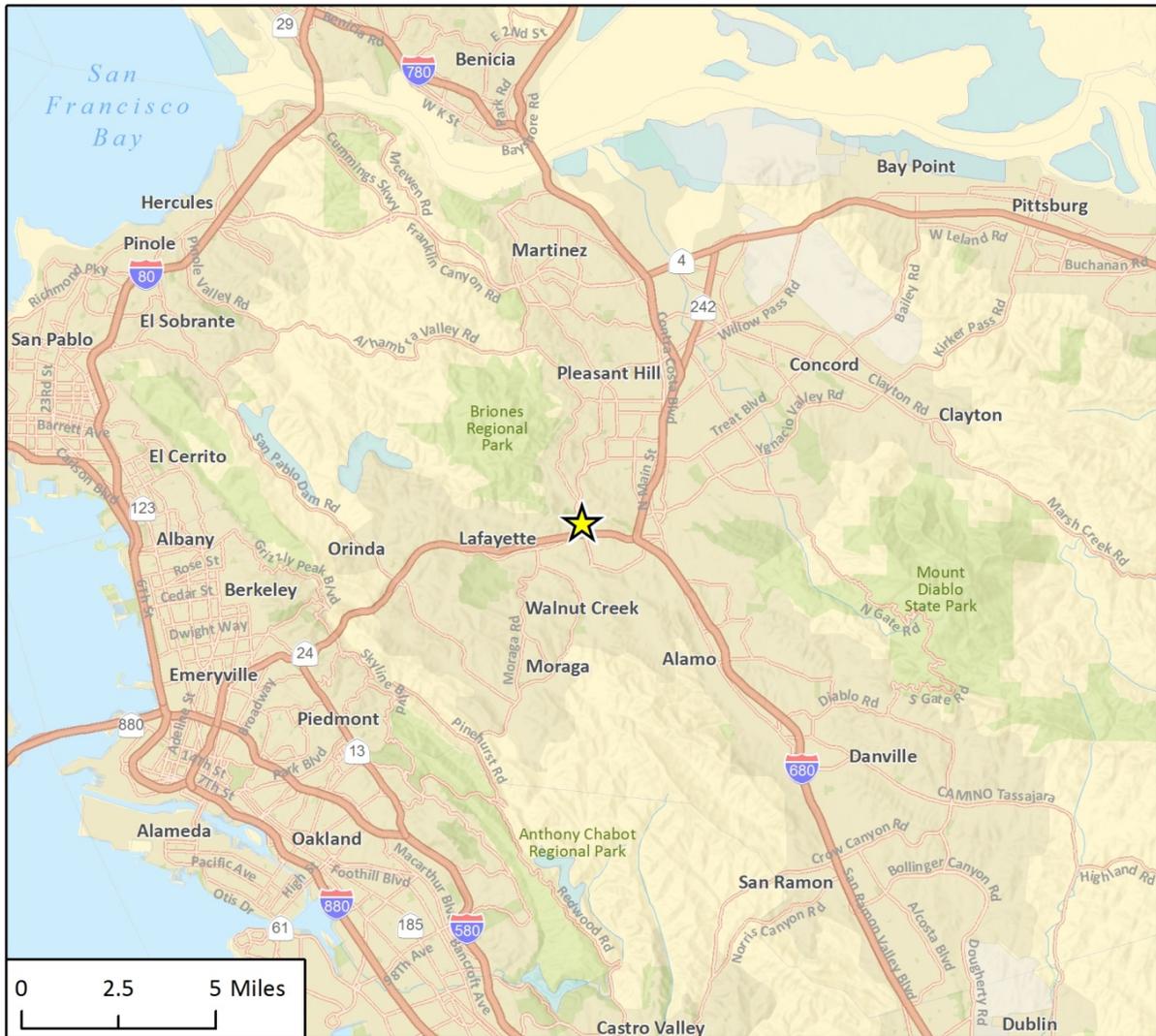
6. General Plan Designation

Pleasant Hill Road Commercial

7. Zoning

Pleasant Hill Road Commercial District (PHC)

Figure 1 Regional Location



Imagery provided by Esri and its licensors © 2018.

★ Project Location

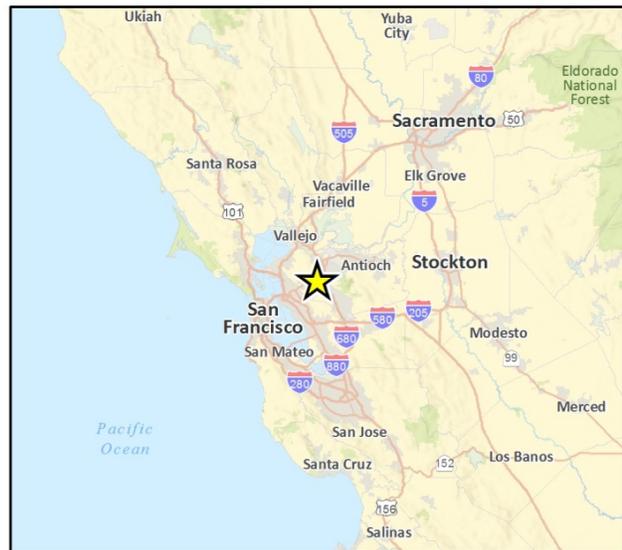
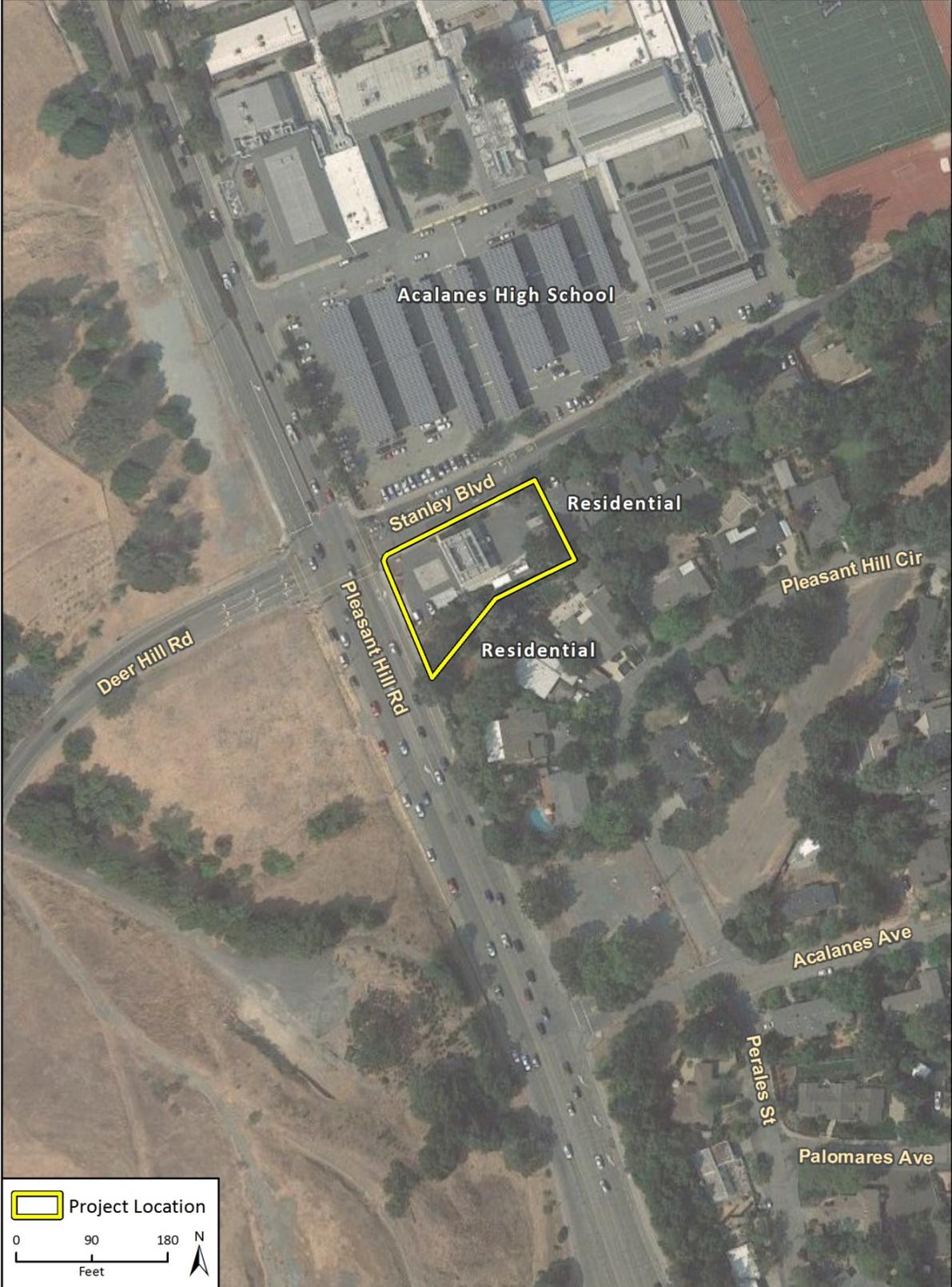


Fig 1 Regional Location

Figure 2 Project Location



Imagery provided by Google and its licensors © 2018.

Fig. 2 Project Location

8. Description of Project

The proposed project involves the redevelopment of an existing gas station to add a car wash, replace the existing convenience store, and reconfigure the site access and circulation patterns. The existing 2,349 square-foot gas station service pumps and canopy area would remain. The site plan for the proposed project is shown on Figure 3.

The proposed new car wash would be an 866-square-foot self-serve car wash tunnel with a 502-square-foot car wash equipment room, located on the southern portion of the project site. Self-service air/water and vacuum units would be located near the car wash exit on the southwestern corner of the project site.

The project would also involve demolition of the existing convenience store, which includes a cashier's office, retail space, and restrooms, and construction of a 763-square foot snack shop and office structure near the southeast corner of the site. This structure would include 600 square feet of office space and 173 square feet of retail space.

Additional site improvements would include construction of a masonry trash enclosure, site lighting, landscaping, and an extension of the retaining walls on the eastern and southern portion of the site. The project would also include construction of six-foot tall concrete masonry unit (CMU) noise barriers along the eastern, southeastern, and southwestern boundaries of the project site.

Currently, the gas station is staffed with three full-time employees over three shifts. With the project, the number of employees would increase to five full-time employees and two part-time employees over three shifts per day. Similar to the existing conditions, the gas station and snack shop would operate 24 hours per day, 7 days a week. The project application includes operating hours for the car wash of 24 hours per day, 7 days a week.

Fuel delivery trucks would make deliveries six times per week and the convenience store would receive a truck delivery once per week. Goods and services sold at the station would include gasoline, snacks, beverages, automobile accessories, and car wash services.

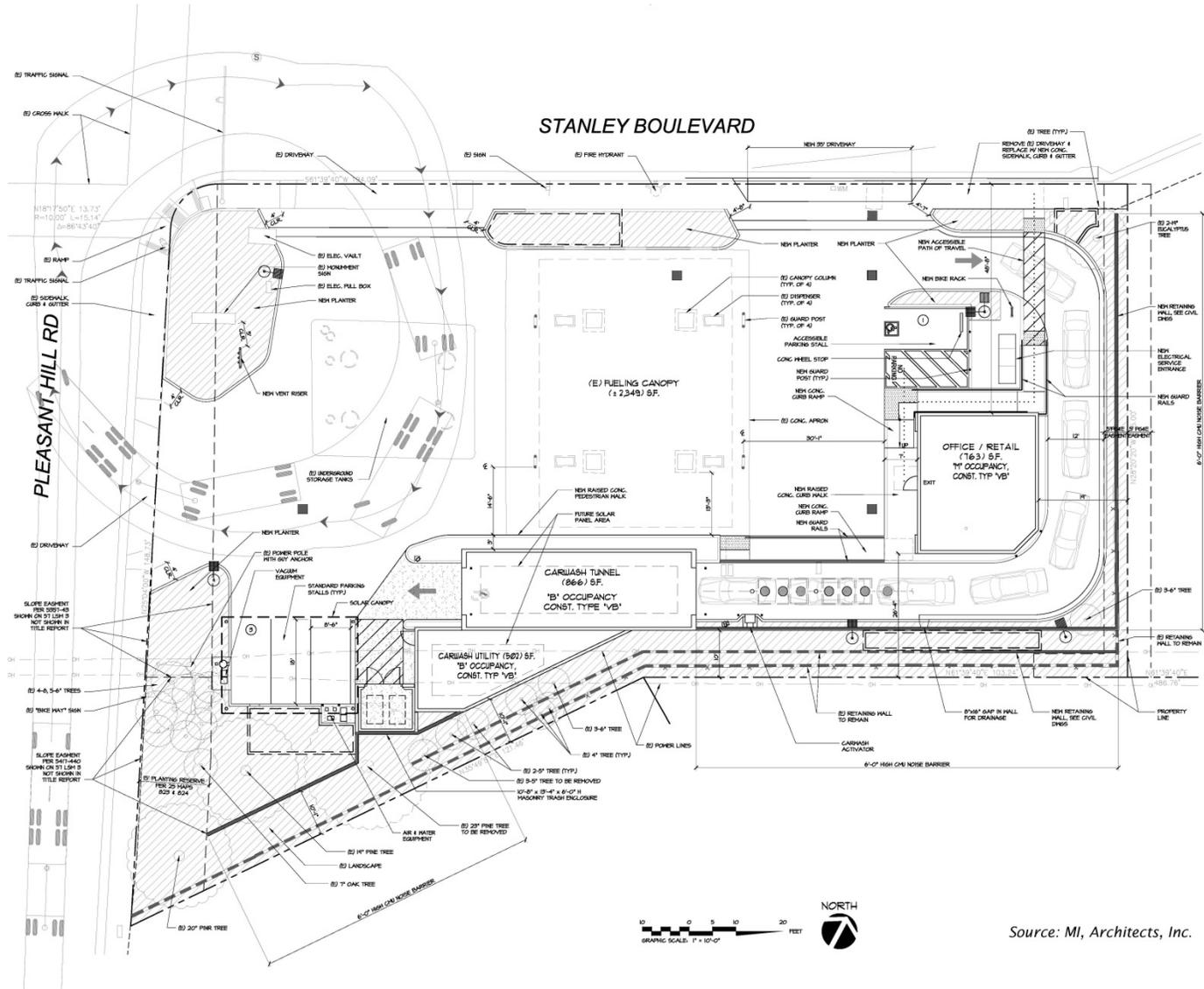
Access, Circulation, and Parking

The proposed project would reduce the number of on-site parking spaces from seven to four spaces. One space would be located north of the proposed new snack shop and would be Americans with Disabilities Act (ADA) compliant. Three spaces would be located near the car wash tunnel exit. One of these spaces would have air/water equipment and one would have vacuum equipment.

The project site is currently accessed via three driveways, one on Pleasant Hill Road and two on Stanley Boulevard. The driveway on Pleasant Hill Road operates as a right-in and right-out only access. While left turns are not prohibited at the western Stanley Boulevard Driveway, it primarily operates as a right-in and right-out only access due to proximity with the intersection. The eastern Stanley Boulevard Driveway provides full access. The existing Pleasant Hill driveway and the existing western Stanley Boulevard driveway would remain. The eastern Stanley Boulevard driveway would be removed and replaced with a 35-foot driveway approximately 30 feet to the west, positioned to provide access to the car wash queue and tunnel.

The site's existing sidewalk along the western and northern boundaries would remain, and a new bicycle rack would be added north of the proposed snack shop. The proposed project would involve pedestrian access from the sidewalk along Stanley Boulevard to the proposed new snack shop.

Figure 3 Site Plan



Source: MI, Architects, Inc.

Landscaping

The project site is currently landscaped with approximately 26 trees mostly located along the southern perimeter and in the southwestern corner of the site. A eucalyptus tree is located in the site's northeast corner, and several small trees exist in the landscaping along the northern Stanley Boulevard street frontage. Six of these trees would be removed with the project, including four Monterey pine (*Pinus radiata*) trees and two privet (*Ligustrum sp.*) trees. Three trees to be removed are located along or near the southern boundary of the site. Approximately eleven new trees would be planted around the perimeter of the site, including two along the Stanley Boulevard frontage and one along the Pleasant Hill Road frontage. New planted trees would include Sterling Silver Linden (*Tilia tomentosa 'Sterling'*) and strawberry trees (*Arbutus 'Marina' Std.*). The project would also include additional shrubs and vines in planters around the site.

Construction and Grading

Project construction is estimated to occur over an approximately three-month period and would include demolition, site preparation and grading, and construction. Overall, approximately 420 cubic yards cut of cut and 120 cubic yards of fill would be required. Approximately 300 cubic yards of earth materials would be exported from the site.

9. Surrounding Land Uses and Setting

The project site is located at 3255 Stanley Boulevard in the City of Lafayette. The 0.6-acre site is currently developed with a Shell gas station and building including a cashier's office, 173 square feet of retail space, and restrooms. The existing gas station operates 24-hours per day and has a staff of three employees. The site is mostly paved but includes several landscaping planters around the perimeter of the site and approximately 26 mature landscaping trees, including one eucalyptus tree, six Monterey pines, one oak tree, and several other varieties of landscaping trees. Gas station operations occur in the central portion of the site, with a fueling canopy shading the station's eight gas pumps. Photographs of the project site are included on Figure 4.

The project site is bounded by Pleasant Hill Road to the west, Stanley Boulevard to the north, and one-story, single family residences to the south and east. Across Stanley Boulevard to the north is Acalanes High School and across Pleasant Hill Road to the west is undeveloped land currently under review for a 315 unit project known as The Terraces of Lafayette. Sidewalks are located along both Pleasant Hill Road and Stanley Boulevard. There is one driveway entrance to the site via Pleasant Hill Road and two driveway entrances to the site via Stanley Boulevard. Approximately three- to six-foot high wood fencing is located along the eastern and southern boundaries of the site. Strips of landscaping with small trees run interior to the sidewalk, and some larger trees exist along the retaining walls.

The land to the north, east, and south is designated single-family residential, and land to the west is designated administrative professional office.

10. Other Public Agencies Whose Approval is Required

The city of Lafayette is the lead agency with responsibility for approving the proposed project. Discretionary approval from other public agencies is not required.

Figure 4 Site Photographs



Photo 1: View looking north from Pleasant Hill Boulevard toward its intersection with Stanley Boulevard. The project site is visible in the center-right portion of the frame.



Photo 2: View of the project site looking east from the southeast corner of and Stanley Boulevard.

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Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is “Potentially Significant” or “Less than Significant with Mitigation Incorporated” as indicated by the checklist on the following pages.

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

Determination

Based on 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 to 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 “less than significant with mitigation incorporated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

3255 Stanley Boulevard Car Wash and Convenience Store Project

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

Signature

Date

Printed Name

Title

Environmental Checklist

1 Aesthetics

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

Would the project:

a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. *Would the project have a substantial adverse effect on a scenic vista?*

Map I-5 of the City of Lafayette General Plan (City of Lafayette 2002a) identifies scenic viewing corridors. The south-facing view from Pleasant Hill Road at the intersection of State Route 24 (SR 24) is a scenic view corridor because it provides views of Mount Ridge and mountain ridges in Moraga. However, the project site is northeast of the scenic viewing corridor on Pleasant Hill Road and would not interrupt views of Mount Ridge or other ridges from this corridor. The project site is currently developed with a snack shop that is 14 feet in height and a fuel canopy that is 17 feet in height. The project would involve replacing the snack shop with a structure up to 20 feet in height and adding a car wash 16 feet in height. Therefore, the project would increase the height of structures compared to current conditions. However, although the project would increase the height of on-site structures, the addition of these structures would not interrupt views of vistas surrounding the site compared to existing conditions as such views are and would continue to be unavailable through the site due to intervening trees (see Photo 2 in Figure 4). This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

3255 Stanley Boulevard Car Wash and Convenience Store Project

- b. *Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

SR 24 through Lafayette is an officially designated State Scenic Highway (Caltrans 2011). Pleasant Hill Road intersects with SR 24 approximately 0.4 mile south of the project site but the project site itself is not visible from SR 24. Therefore, the project would not block, obstruct, or degrade scenic views from SR 24. In addition, the project site does not contain other scenic resources such as rock outcroppings. Although the project site does include the removal of approximately six trees, these trees are not prominent scenic resources on the site such that their removal would substantially change the overall aesthetic of the site and surroundings, and the project would include replacing removed trees with additional tree plantings around the site. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- c. *Would the project substantially degrade the existing visual character or quality of the site and its surroundings?*

The project site is currently developed with a gas station and a snack shop and includes landscaped areas around its perimeter, including approximately 26 trees mostly located along the southern perimeter and in the southwestern corner of the site. The project would replace and expand the existing snack shop and add a new car wash tunnel. The visual character of the site after project completion would be similar to the site's current conditions. The addition of a car wash structure would not substantially change the visual character of the site, which is typical of a gas station. Further, the project involves planting 11 additional trees to replace the six trees that would be removed. Therefore, the project would add landscaping compared to current conditions. The project would not substantially alter the visual character of the project site or its surroundings and this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- d. *Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

The project site is currently fully developed. Existing sources of light are present from the gas station and snack shop. As the station currently operates 24-hours per day, these light sources are present overnight. The proposed project would not substantially change the site's overall generation of light and glare. No new sources of light or glare would be added with a greater height than the existing fuel canopy. The project plans include use of exterior lighting that would ensure the safety of the facility but would not provide light spillage onto adjacent properties or the public right-of-way. According to the site plans, exterior lighting would be light-emitting diode (LED) fixtures and would be oriented towards the site and fully shielded. Therefore, impacts due to light and glare would be less than significant.

LESS THAN SIGNIFICANT IMPACT

2 Agriculture and Forestry Resources

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

Would the project:

<p>a. Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>b. Conflict with existing zoning for agricultural use or a Williamson Act contract?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>d. Result in the loss of forest land or conversion of forest land to non-forest use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>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?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. *Would the project convert Prime Farmland, Unique Farmland, 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?*

The California Department of Conservation (DOC) manages the Farmland Mapping and Monitoring Program (FMMP). The FMMP prepares maps and statistical data to record the agricultural suitability of land throughout the state.

The project site is currently used as a gas station, classified by the FMMP as Urban and Built-Up Land. There is no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance in the vicinity of the project site (DOC 2016). The project would not convert any land from agricultural to non-agricultural use. There would be no impact.

NO IMPACT

3255 Stanley Boulevard Car Wash and Convenience Store Project

- b. *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

A Williamson Act contract is an agreement between a local government and a private landowner restricting a parcel of land to agricultural or related open space use. There are no Williamson Act contracts in the vicinity of the project site (Contra Costa County 2017). There would be no impact.

NO IMPACT

- c. *Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?*

- d. *Would the project result in the loss of forest land or conversion of forest land to non-forest use?*

The project site is zoned Pleasant Hill Road Commercial District (PHC), with a General Plan designation of Pleasant Hill Road Commercial. The site is small and developed, and does not contain forest land or timberland. Therefore, there would be no impact.

NO IMPACT

- e. *Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?*

The proposed project would redevelop a fully developed site. The area is moderately urbanized, with the project site bounded to the north by Stanley Boulevard and Acalanes High School, to the east and south by single family residences, and to the west by Pleasant Hill Road and undeveloped land. Because there is no farmland surrounding the project site, and the project would not cause changes that substantially alter its surroundings, there would be no impact.

NO IMPACT

3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Setting

Air Quality Background

The City of Lafayette is within the Diablo Valley-San Ramon Valley subregion of the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). Air quality in the SFBAAB is affected by the region’s emission sources and by natural factors. Topography, speed and direction of wind, and air temperature gradient all influence air quality. The SFBAAB is affected by a Mediterranean climate, with warm, dry summers and cool, damp winters.

Air pollutant emissions within the SFBAAB are generated by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and include sources such as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction

equipment. Air pollutants can also be generated by the natural environment such as when high winds suspend fine dust particles.

The U.S. EPA has set primary national ambient air quality standards (NAAQS) for ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter with a diameter of up to ten microns¹ (PM₁₀) and up to 2.5 microns (PM_{2.5}), and lead (Pb). Primary standards are those levels of air quality deemed necessary, with an adequate margin of safety, to protect public health. In addition, California has established health-based ambient air quality standards for these and other pollutants, some of which are more stringent than the federal standards.

As the local air quality management agency, the BAAQMD is required to monitor air pollutant levels to ensure that state and federal air quality standards are met and, if they are not met, to develop strategies to meet them. Depending on whether or not standards are met or exceeded, a local air basin is classified as in “attainment” or non-attainment.” The BAAQMD is in non-attainment for the federal standards for ozone (O₃) and PM_{2.5} and in nonattainment for the state standard for O₃, PM_{2.5}, and PM₁₀. The health effects associated with criteria pollutants for which the SFAAB is in non-attainment are described in Table 1.

Table 1 Health Effects Associated with Non-Attainment Criteria Pollutants

Pollutant	Adverse Effects
Ozone	(1) Short-term exposures: (a) pulmonary function decrements and localized lung edema in humans and animals and (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage.
Suspended particulate matter (PM ₁₀)	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma). ^a
Suspended particulate matter (PM _{2.5})	(1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma. ^a

^a More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following documents: EPA, Air Quality Criteria for Particulate Matter, October 2004.

Source: U.S. EPA 2018

Regulatory Setting

Air Quality Management

The BAAQMD is primarily responsible for assuring that the national and State ambient air quality standards are attained and maintained in the Bay Area. The BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to

¹ One micron equals one-millionth of a meter; i.e., 10⁻⁶

citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities. The BAAQMD has jurisdiction over much of the nine-county Bay Area, including Contra Costa County.

The BAAQMD adopted the 2017 Clean Air Plan (2017 Plan) as an update to the 2010 Clean Air Plan. The 2017 Plan provides a regional strategy to protect public health and protect the climate. Consistent with the GHG reduction targets adopted by the State, the 2017 Plan lays the groundwork for a long-term effort to reduce Bay Area GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050 (BAAQMD 2017a). To fulfill State ozone planning requirements, the 2017 control strategy includes all feasible measures to reduce emissions of ozone precursors—reactive organic gases (ROG) and nitrogen oxides (NO_x)—and reduce transport of ozone and its precursors to neighboring air basins. In addition, the 2017 Plan builds upon and enhances the BAAQMD's efforts to reduce emissions of fine particulate matter and toxic air contaminants (BAAQMD 2017a).

Emissions Thresholds

The BAAQMD has developed screening criteria to provide lead agencies and project applicants with a conservative indication of whether a project could result in potentially significant air quality impacts. If all of the screening criteria are met by a project, then the lead agency or applicant would not need to perform a detailed air quality assessment of their project's air pollutant emissions. These screening levels are generally representative of new development on greenfield sites without any form of mitigation measures taken into consideration. For projects that are infill, such as the proposed project, emissions would be less than the greenfield-type project on which the screening criteria are based (BAAQMD 2017b). For convenience markets (24-hour operation), the BAAQMD's operational criteria pollutant screening size is 5,000 square feet and the construction screening threshold is 277,000 sf. However, there are no screening levels included in the BAAQMD *CEQA Air Quality Guidelines* for car wash facilities. Therefore, although the project would be less than 5,000 square feet of new development, this analysis quantifies emissions associated with the project and compares them to BAAQMD's numeric significance thresholds.

The BAAQMD *CEQA Air Quality Guidelines* quantify project-level air quality thresholds with defined numeric values and evaluation criteria for pollutant emissions. These project-level thresholds, shown in Table 2, represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. For the purposes of this analysis, the proposed project would result in a significant impact if construction or operational emissions would exceed any of the thresholds shown in Table 2.

Table 2 Air Quality Thresholds of Significance

Pollutant/Precursor	Construction-Related Thresholds		Operational-Related Thresholds	
	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tpy)	Average Daily Emissions (lbs/day)	
ROG	54	10	54	
NO _x	54	10	54	
PM ₁₀	82 (exhaust)	15	82	
PM _{2.5}	54 (exhaust)	10	54	

Notes: tpy = tons per year; lbs/day = pounds per day; NO_x = oxides of nitrogen; PM_{2.5} = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM₁₀ = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; tpy = tons per year.

Source: Table 2-1, Bay Area Air Quality Management District, CEQA Air Quality Guidelines, May 2017

Localized Carbon Monoxide Concentrations

A project’s indirect CO emissions would be significant if they contribute to a violation of the State standards for CO (9.0 ppm averaged over 8 hours and 20 ppm over 1 hour).

Toxic Air Contaminant Emissions

TACs, including PM_{2.5}, can have significant health impacts on local communities. The BAAQMD’s *CEQA Air Quality Guidelines* sets thresholds applicable to projects that would site new sensitive receptors in proximity to permitted or non-permitted sources of TACs or PM_{2.5} emissions. If impacts due to emissions of TACs or PM_{2.5} from any individual source would exceed any of the thresholds listed below, the project would result in a significant impact:

- Non-compliance with a Community Risk Reduction Plan
- An excess cancer risk level of more than 10 in one million (10E-06), or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0 from any individual source would be a significant cumulatively considerable contribution
- An incremental increase of greater than 0.3 micrograms per cubic meter (µg/m³) annual average PM_{2.5} from any individual source would be a significant cumulatively considerable contribution

City of Lafayette

LAFAYETTE 2002 GENERAL PLAN

The Open Space and Conservation Chapter (Chapter 3) of the Lafayette General Plan sets goals to ensure that residents enjoy the benefits of open space as the city continues to develop. The following policies and programs addressing air quality relate to the proposed project:

Goal OS-10: Improve Air Quality

- Policy OS-10.1** Regional Planning: Work with the BAAQMD to implement the Regional Clean Air Plan

Policy OS-10.2 Air Quality Standards: Seek to comply with State and Federal standards for air quality.

Program OS-10.2.1: Incorporate the provisions of the BAAQMD's *Air Quality and Urban Development: Guidelines for Assessing Impacts of Projects and Plans* into CEQA project review procedures.

Program OS-10.2.4: Evaluate new businesses for air pollutant emissions and the storage and handling of hazardous materials.

Program OS-10.2.5: Amend the grading ordinance to include thorough dust control provisions.

Program OS-10.2.6: The City will establish buffers around sites where businesses emit toxic air contaminants and odors. The buffers will be established consistent with the BAAQMD's *Air Quality and Urban Development: Guidelines for Assessing Impacts of Projects and Plans* and the regional Clean Air Plan.

Methodology for Estimating Emissions

An air quality study was prepared for this project, and is included as Appendix A. This section discusses the methodology used to conduct air quality analysis for the proposed project.

The significance thresholds described in the previous subsection represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. The California Emissions Estimator Model (CalEEMod) version 2016.3.2 was used to calculate total project emissions, which include construction and operational emissions. CalEEMod does not contain a specific land use category for car washes; therefore, the "Automobile Care Center"² land use was used as a proxy for the car wash. As the convenience store is proposed to be open 24 hours a day, seven days a week, the "Convenience Market (Open 24 Hours)" land use was used to model the associated emissions with the new convenience store.

Short-Term Emissions

Construction-related emissions are generally short-term in duration, but may still cause adverse air quality impacts. Temporary emissions would result from three primary sources: operation of construction vehicles (e.g., scrapers, loaders, and excavators); ground disturbance during clearing and grading, which creates fugitive dust; and the application of asphalt, paint, or other oil-based substances. The extent of daily emissions, particularly ROG and NO_x emissions, generated by construction equipment depend on the quantity of equipment used and the hours of operation for each project. The extent of fugitive dust (PM_{2.5} and PM₁₀) emissions would depend upon the following factors: 1) the amount of disturbed soils; 2) the length of disturbance time; 3) whether

² According to the *CalEEMod Users Guide*, there are only two primary automobile-related land use subtypes to choose from in CalEEMod: "Automobile Care Center," which houses numerous businesses that provide automobile-related services, such as repair and servicing; stereo installation; and seat cover upholstery and "Gasoline/Service Station," which includes service stations where the primary business is the fueling of motor vehicles; they may also have ancillary facilities for servicing and repairing motor vehicles. There is already an existing fueling station on-site and the project would not result in the addition of any new facilities where the primary business is the fueling of motor vehicles. Instead, the "Automobile Care Center" land use more closely aligns with the proposed project design. However, to more accurately reflect trips associated with the car wash component of the proposed project, the trip generation rates were updated in CalEEMod based on the "Automated Car Wash" (International Trip Engineers (ITE) Code 948) land use trip generation rates included in the ITE 9th edition.

3255 Stanley Boulevard Car Wash and Convenience Store Project

existing structures are demolished; 4) whether excavation is involved; and 5) whether transporting excavated materials offsite is necessary. The amount of ROG emissions generated by paints and oil-based substances, such as asphalt, depends upon the type and amount of material used.

CalEEMod was used to estimate air pollutant emissions associated with project construction, which was assumed to begin in January 2019 with full operation in 2020 based on default construction phase timeframes incorporated into the model (see Appendix A). Construction would include site preparation, grading, construction, paving, and architectural coating. Construction activities would result in temporary air quality impacts that may vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. It was assumed the project would comply with all applicable regulatory standards.

Long-Term Emissions

CalEEMod was also used to estimate operational emissions, which included emissions from area sources, energy use, and mobile sources. Area source emissions, which would be generated by landscape maintenance equipment, consumer products, and architectural coating, were estimated using CalEEMod defaults. Mobile source emissions would be generated by the increase in motor vehicle trips to and from the project site as compared to existing conditions. The default trip generation rates for the “Convenience Market (Open 24 Hours)” land use was used in CalEEMod. Default rates are based on the land use specific trip generate rates included in the International Trip Engineers (ITE) 9th edition. For the car wash component of the proposed project, the “Automobile Care Center” trip generation rates were replaced with the “Automated Car Wash” trip generation rates, which were included in the ITE 9th edition. Based on the updated trip generation rate, the car wash and convenience store would generate approximately 580 trips during the weekdays, 675 trips on Saturdays, and 596 trips on Sunday (this does not take into account trips to the gas station). This trip generation estimate is conservative for the purposes of assuming a “worst-case” air emissions scenario. As shown in Table 15 in Section 16, *Transportation and Traffic*, actual trip generation estimates for the project show lower trips than these assumptions because most trips to the car wash would be “pass-by” trips (i.e., stopping by the car wash on the way to another destination) rather than specific trips to the car wash itself (Kittelsohn & Associates, Inc. 2018, Appendix D).

Localized Carbon Monoxide Concentrations

According to the BAAQMD CEQA Guidelines, emissions and ambient concentrations of CO have decreased in the SFBAAB with the introduction of the catalytic converter in 1975 and no exceedance of CAAQS or NAAQS for CO have been recorded at nearby monitoring stations since 1991. Additionally, the SFBAAB is currently designated as an attainment area for the CAAQS and NAAQS for CO. However, occurrences of localized CO concentrations, known as hotspots, are often associated with heavy traffic congestion, which most frequently occurs at signalized intersections of high-volume roadways (BAAQMD 2017).

BAAQMD provides a preliminary screening methodology to conservatively determine whether a proposed project would exceed CO thresholds. If the following criteria are met, a project would result in a less than significant impact related to local CO concentrations:

1. The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.

2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
3. Project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

Toxic Air Contaminant Emissions

Local community risk and hazard impacts are associated with TACs and PM_{2.5} because emissions of these pollutants can have significant health impacts at the local level. BAAQMD's *CEQA Air Quality Guidelines* include risk and hazard thresholds that are intended to apply to projects that would site new permitted or non-permitted sources in proximity to receptors and for projects that would site new sensitive receptors in proximity to permitted or non-permitted sources of TACs or PM_{2.5} emissions. According to BAAQMD, sensitive receptors consist of facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. The proposed project itself is not a land use or facility that would be considered a new sensitive receptor. However, the proposed project would be located within the vicinity of nearby sensitive receptors, including the surrounding residences and Acalanes High School.

Impact Analysis

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

To be consistent with an air quality management plan (AQMP), a project must conform to the local General Plan and must not result in or contribute to an exceedance of the local jurisdiction's forecasted future population. A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding the forecasts used in the development of the AQMP. Population growth would lead to increased vehicle use, energy consumption, and associated air pollutant emissions. The most recent and applicable adopted air quality plan is the 2017 Plan. Therefore, the proposed project would result in a significant impact if it would conflict with or obstruct implementation of the 2017 Plan (BAAQMD 2017b).

The proposed project would increase the employment in Lafayette by adding two additional full time and two additional part-time employees for a total of four new employees. BAAQMD uses the Association of Bay Area Government's (ABAG) growth forecast. The ABAG employment projection for 2040 is 9,900 and in 2010 there were approximately 9,000 employees based on ABAG forecasts, which represents an increase of 900 employees. As mentioned above, according to the project applicant, the project would generate approximately four employees. This would represent an increase of approximately less than one percent increase. Because this employment increase would be within ABAG's projected 2040 employment growth for the City of Lafayette, employment growth generated by the project would be consistent with the AQMP. Therefore, the project would not generate growth beyond AQMP forecasts and the project would be consistent with the AQMP.

LESS THAN SIGNIFICANT IMPACT

- b. *Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*
- c. *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?*

Construction of the project would involve site preparation, grading, excavation, building construction, and other construction-related activities that have the potential to generate air pollutant emissions. The temporary construction emissions and long term operational emissions for the proposed project were calculated using CalEEMod, and are discussed below.

Construction Emissions

Project construction would generate temporary air pollutant emissions. Table 3 summarizes the estimated maximum daily emissions of pollutants during project construction. As shown, project emissions for all criteria pollutants would not exceed BAAQMD thresholds. Therefore, the average daily emissions would not exceed the BAAQMD project-level construction thresholds.

Table 3 Project Construction Emissions

Year	Estimated Emissions (lbs/day)					
	ROG	NO _x	CO	PM ₁₀ (exhaust)	PM _{2.5} (exhaust)	SO _x
2019 Maximum Daily Emissions	2.4	22.1	11.1	0.6	0.6	<0.1
BAAQMD Thresholds (average daily emissions)	54	54	N/A	82	54	N/A
Threshold Exceeded?	No	No	N/A	No	No	N/A

See Table 2.0 "Overall Construction-Mitigated Construction" emissions. Winter emissions results are shown for all emissions except CO, which has higher summer emissions. See CalEEMod worksheets in Appendix A.

N/A = not applicable; no BAAQMD threshold for CO or SO_x

Operational Emissions

Long-term emissions associated with project operation, as shown in Table 4 and Table 5, would include emissions from vehicle trips (mobile sources), natural gas and electricity use (energy sources), and landscape maintenance equipment, consumer products and architectural coating associated with on-site development (area sources). As shown in Table 4 and Table 5, emissions would not exceed BAAQMD daily or annual thresholds.

Table 4 Project Operational Average Daily Emissions

Sources	Average Daily Emissions (lbs/day)					
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}	SO _x
Area	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Energy	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mobile	1.0	3.0	7.0	1.1	0.3	<0.1
Total Project Emissions	1.1	3.0	7.0	1.1	0.3	<0.1
BAAQMD Thresholds	54	54	N/A	82	54	N/A
Threshold Exceeded?	No	No	N/A	No	No	N/A

See Table 2.0 "Overall operational-mitigated" Winter emissions. See CalEEMod worksheets in Appendix A. Numbers may not add up due to rounding.

N/A = not applicable; no BAAQMD threshold for CO or SO_x

Table 5 Project Operational Maximum Annual Emissions

Sources	Maximum Annual Emissions (tons/year)					
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}	SO _x
Area	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Energy	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mobile	0.1	0.5	1.0	0.2	<0.1	<0.1
Total Project Emissions	0.1	0.5	1.0	0.2	<0.1	<0.1
BAAQMD Thresholds	10	10	N/A	15	10	N/A
Threshold Exceeded?	No	No	N/A	No	No	N/A

See Table 2.0 "Overall operational-mitigated" Winter emissions. See CalEEMod worksheets in Appendix A. Numbers may not add up due to rounding.

N/A = not applicable; no BAAQMD threshold for CO or SO_x

Carbon Monoxide Hotspots

As mentioned under "Localized Carbon Monoxide Concentrations," the proposed project would result in a less than significant impact related to local CO concentrations if the project is consistent with an applicable congestion management program; would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway). There are no applicable congestion management programs or plans in which the project must comply with.

The project site is located on the southeast corner of the intersection of Stanley Boulevard/Deer Hill Road and Pleasant Hill Road. Pleasant Hill Road north of Stanley Boulevard has the greatest number of trips out of the roadways at the intersection (City of Lafayette 2018a). Specifically, Pleasant Hill Road north of Stanley Boulevard has approximately 32,200 estimated daily two-way trips. With the increase of an estimated 580 trips during the weekdays, 675 trips on Saturdays, and 596 trips on Sunday, the project would not result in an increase in traffic volumes at affected intersections to more than 44,000 vehicles per hour. Furthermore, the project would include construction of a car wash facility and convenience store and would not be located in an area where vertical and/or horizontal mixing is substantially limited; therefore, the 24,000 vehicle per hour standard is not

applicable. As a result, the project would not result in individually or cumulatively significant impacts from CO emissions.

Development of the on-site car wash would involve idling vehicles queuing along the eastern boundary of the site adjacent to nearby residences. Site plan measurements for the proposed car wash shows the site can accommodate about 175 feet of queued vehicles, or approximately eight total vehicles (Kittelson & Associates Inc. 2018, Appendix D). Exhaust CO gas from the eight vehicles while idling would not result in substantial CO emissions such that a CO hotspot would occur in the queue. In addition, the vehicle queueing line would be separated from residences by vegetation and trees that would absorb some CO emissions.

Toxic Air Contaminants

A TAC is defined by California law as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. In the Bay Area, there are a number of urban or industrialized communities where the exposure to TACs is relatively high in comparison to others. However, according to the BAAQMD CEQA Guidelines (Figure 5-1), the project site is not located within an impacted community.

Sources of TACs include, but are not limited to, land uses such as freeways and high volume roadways, truck distribution centers, ports, rail yards, refineries, chrome plating facilities, dry cleaners using perchloroethylene, and gasoline dispensing facilities (BAAQMD 2017). Although gasoline stations are typically identified as sources of TACs, the proposed project does not involve expansion of the existing gas dispensing facilities. The proposed project would involve construction of a new car wash facility and convenience store. The proposed car wash and convenience store are not sources of TACs and are not stationary sources regulated by the BAAQMD.

The project would not violate any air quality standards or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment. Therefore, these impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project expose sensitive receptors to substantial pollutant concentrations?

Certain population groups, such as children, the elderly, and people with health problems, are particularly sensitive to air pollution. Sensitive receptors are defined as population groups that are more susceptible to exposure to pollutants and examples include health care facilities, retirement homes, school and playground facilities, and residential areas. The proposed project itself is not a land use or facility considered a new sensitive receptor. However, the proposed project would be located within the vicinity of nearby sensitive receptors, including the surrounding residences and Acalanes High School.

As discussed above in the response to questions (b) and (c), the project would not create emissions that would exceed BAAQMD thresholds and would not generate new sources of TACs. Therefore, it would not expose sensitive receptors to substantial pollutant concentrations. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

e. Would the project create objectionable odors affecting a substantial number of people?

During construction activities temporary odors from vehicle exhaust and construction equipment engines would occur. Construction-related odors would disperse and dissipate and would not cause substantial odors at the closest sensitive receptors (adjacent residences). In addition, construction-related odors would be temporary and would cease upon completion of construction.

The proposed project would involve construction of a car wash and convenience store, as well as other site improvements to the existing Shell Gas Station. The site improvements would involve a new accessible path of travel, a new trash enclosure, a new self-service air/water and vacuum units, and new lighting and landscaping. The new trash enclosure would reduce existing odors from trash stores on-site. In addition, car washes and convenience stores are not considered sources of substantial objectionable odors as listed on Table 3-3 in the BAAQMD *CEQA Air Quality Guidelines* (BAAQMD 2017b).

As discussed above, approximately eight total vehicles could queue in line for the car wash (Kittelson & Associates Inc. 2018, Appendix D). Exhaust gas from a total of eight vehicles while idling would not result in substantial odors. Additionally, the vehicle queueing line would be separated from residences by vegetation and trees that would absorb and block some potential exhaust odors. As a result, impacts from odors would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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4 Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The project site is located in the city of Lafayette, approximately ten miles west of Mount Diablo and eleven miles east of the San Francisco Bay. The project site is 0.6 acre and fully developed with a gas station and a snack shop. The project site is currently landscaped with approximately 26 trees mostly located along the southern perimeter and in the southwestern corner of the site. The project site is fully developed with a gas station and has low habitat value.

Regulatory Setting

Federal

MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations. These regulatory standards include disturbance of nests during construction.

City of Lafayette

CITY OF LAFAYETTE TREE PRESERVATION ORDINANCE

The Tree Protection Ordinance seeks to protect trees for their added value to scenic beauty, property value, wildlife habitat, and other ecosystem services. A Tree Permit is required to remove, destroy, or excessively prune a protected tree. Any tree within a commercial zoning district is considered to be protected.

Impact Analysis

- a. *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?*
- b. *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*
- d. *Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

The project site is located in an urbanized area and is currently developed with a gas station. As discussed in the project description, the site contains a number of landscaping trees. The project site does not contain riparian habitat or sensitive natural communities (USFWS 2018a) and is not located within a known regional wildlife movement corridor or any other sensitive biological area as indicated by the USFWS Critical Habitat portal or CDFW BIOS (USFWS 2018b; CDFW 2018). Based on the developed nature of the site and lack of native or riparian habitat located on the site, no federal- or state-listed endangered, threatened, rare, or otherwise sensitive flora or fauna or wildlife nursery sites are anticipated to be located on site.

While the project site is highly unlikely to provide habitat for special status species, due to its small size, commercial use, and moderately urban surroundings, the site does contain approximately 26 trees. These trees could contain bird nests and birds that are protected under the Migratory Bird Treaty Act (MBTA). Protected birds include all common songbirds, waterfowl, shorebirds, hawks, owls, eagles, ravens, crows, native doves and pigeons, swifts, martins, swallows, and others, including their body parts (feathers, plumes etc.), nests, and eggs. Although the proposed landscaping includes planting additional trees to replace the trees to be removed, and would involve planting additional on-site landscaping trees along the project site boundary, the removal of the existing trees and general construction activity may affect protected nesting birds. Therefore, impacts would be potentially significant without mitigation. The following mitigation measure is required to protect nesting birds.

Mitigation Measure

The following mitigation measure is required.

BIO-1 Nesting Bird Avoidance and Minimization Efforts

If project construction activities occur between February 15 and August 31, a qualified biologist shall conduct a pre-construction survey for nesting birds no more than 14 days prior to construction. The survey shall include the entire project site and a 300-foot buffer to account for nesting raptors. If nests are found, the qualified biologist shall establish an appropriate species-specific avoidance buffer of sufficient size to prevent disturbance by project activity to the nest (up to 300 feet for raptors, up to 150 feet for all other birds). The qualified biologist shall perform at least two hours of pre-construction monitoring of the nest to characterize “typical” bird behavior.

During construction, if active nests are present, the qualified biologist shall monitor the nesting birds to determine if construction activities are causing any disturbance to the bird, and shall increase the buffer if it is determined the birds are showing signs of unusual or distressed behavior associated with project activities. Atypical nesting behaviors that may cause reproductive harm include, but are not limited to, defensive flights, vocalizations directed towards project personnel/activities, standing up from a brooding position, and flying away from the nest. The qualified biologist shall have authority, through the resident engineer, to order the cessation of all project activities if the nesting birds exhibit atypical behavior that may cause reproductive failure (i.e., nest abandonment and loss of eggs and/or young) until a refined appropriate buffer is established. To prevent encroachment, the established buffer(s) should be clearly marked by high visibility material. The established buffer(s) should remain in effect until the young have fledged or the nest has been abandoned as confirmed by the qualified biologist. Any sign of nest abandonment should be reported to the City and CDFW within 48 hours. The monitoring biologist, in consultation with the resident engineer and project manager shall determine the appropriate protection for active nests on a case by case basis using the criteria described above.

Significance After Mitigation

Implementation of mitigation measure BIO-1 would ensure protection of nesting birds that may be present on the site during construction activities. These measures would reduce the potentially significant impact to special status species to a less than significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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- c. *Would the project 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?*

The National Wetlands Inventory (NWI) was reviewed to determine if any wetland and or non-wetland waters had been previously documented on or in the vicinity of the project site (United States Fish and Wildlife Service 2018). No wetlands resources were identified on the site. Riverine and Freshwater Emergent wetlands habitat types were identified within 0.25 mile southwest of the site. The project would involve redevelopment of a fully developed site. The project would not require and ground disturbance off-site. No direct removal, filling, or hydrological interruption of wetlands would occur. Drainage and erosion would be controlled, as described in Section 6, *Geology and Soils*, and Section 9, *Hydrology and Water Quality*. Because the site has no wetlands resources and would not impact nearby wetlands resources, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- e. *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

The project would include removal of six trees to accommodate the car wash structure. Under the City's Tree Protection Ordinance, all trees in commercial districts to be protected, regardless of size or species. Therefore, tree removal associated with the project would be prohibited without a Tree Removal Permit. The City would require the planting of replacement trees to mitigate the tree loss and enhance the landscaping of the site. According to the City's Tree Protection Ordinance, for each six inches of the diameter of the tree to be removed, two 15 gallons species are required to be planted. The City also accepts in-lieu payments for tree replacement, with proceeds funding tree education or tree planting programs. The proposed project involves planting 11 additional trees on the site in order to comply with the City's Tree Protection Ordinance. City approval of landscape plans, including plans for mitigation tree planting, is required as a condition of approval for the project. Compliance with the City's Tree Protection Ordinance and Tree Removal Permit conditions would reduce this impact to a less than significant level.

LESS THAN SIGNIFICANT IMPACT

- f. *Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

There are no habitat conservation plans or natural community conservation plans that apply to the project site or its surroundings (CDFW 2017). There would be no impact.

NO IMPACT

5 Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. *Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?*

The City of Lafayette General Plan identifies six properties as historical landmarks, and recognizes an additional nine properties as significant to the community. None of these properties are on or adjacent to the project site, which is currently developed with a gas station. There would be no impact.

NO IMPACT

b. *Would the project cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?*

The project site is currently developed, and the ground has been previously disturbed during construction of the existing gas station, including excavation associated with fuel storage tanks. Because the site has been previously disturbed and excavated and no cultural resources were found, the potential to uncover an archaeological resource is very low. However, ground disturbing activities always involve the possibility of uncovering previously unidentified cultural resources. Mitigation Measure CR-1 is required to reduce impacts to a less than significant level.

Mitigation Measures

The following mitigation measure is required.

CR-1 Archaeological Resources Recovery Procedures

If prehistoric or historical archaeological deposits are discovered during Project activities, all work within 25 feet of the discovery shall be redirected, the Planning Department shall be contacted directly, and a qualified archaeologist shall be contacted to assess the situation, consult with agencies as appropriate, and make recommendations regarding the treatment of the discovery. Preservation in place shall be implemented in feasible. Excavation as mitigation shall be limited to those parts of resources that would be damaged or destroyed by the proposed Project. Possible mitigation under CEQA emphasizes preservation in place measures, including planning construction to avoid archaeological sites, incorporating sites into open spaces, covering sites with stable soils, and deeding the site into a permanent conservation easement. Project personnel should not collect or move any archaeological materials or human remains and associated materials. Archaeological resources can include flaked-stone tools (e.g., projectile points, knives, choppers) or obsidian, chert, basalt, or quartzite tool-making debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, faunal bones, and cultural materials); and stone-milling equipment (e.g., mortars, pestles, handstones). Prehistoric archaeological sites often contain human remains. Historical materials can include wood, stone, concrete, or adobe footings, walls, and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal, and other refuse.

Significance After Mitigation

With implementation of Mitigation Measure CR-1, impacts would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

- c. *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?*

As described above, the project site covers less than one acre and the ground has been previously excavated without the discovery of paleontological resources. Therefore, the potential to unearth a paleontological resource or unique geological feature is very low. However, discovery of such resources could result in a significant impact. Mitigation Measure CR-2 is required.

Mitigation Measure

The following mitigation measure is required.

CR-2 Paleontological Resources Recovery Procedures

If paleontological resources are encountered during grading or excavation, all construction activities within 50 feet must stop and the City shall be notified. A qualified archaeologist shall inspect the findings within 24 hours of discovery. Cultural resources shall be recorded on California Department of Parks and Recreation (DPR) Form 523 (Historic Resource Recordation form). If it is determined that the proposed development could damage unique paleontological resources, mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines. Possible mitigation under Public Resources Code Section 21083.2 requires that reasonable efforts be made for resources to be preserved in place or left undisturbed. Preservation in place shall be implemented if feasible. Excavation as mitigation shall be limited to those parts of resources that would be damaged or destroyed by a project. Possible mitigation under CEQA emphasizes preservation in place measures, including planning construction to avoid archaeological

sites, incorporating sites into parks and other open spaces, covering sites with stable soil, and deeding the site into a permanent conservation easement. Under CEQA Guidelines, when preservation in place is not feasible, data recovery through excavation shall be conducted with a data recovery plan in place. Therefore, when considering these possible mitigations, the City shall have a preference for preservation in place.

Significance After Mitigation

With implementation of Mitigation Measure CR-2, impacts would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

- d. *Would the project disturb any human remains, including those interred outside of formal cemeteries?*

In the event that human remains are discovered, Public Resources Code Section 5097, Section 7050.5 of the Health and Safety Code, and Section 15064.5 of the CEQA Guidelines require that construction or excavation be stopped in the vicinity of discovered human remains until the County Coroner can determine whether the remains are those of a Native American and that the remains be reported to the Native American Heritage Commission. Compliance with these regulations would ensure that human remains are handled appropriately and that associated impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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6 Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project:

a. Expose people or structures to potentially substantial adverse effects, including the risk of loss, injury, or death involving:				
1. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The project site is located in Lafayette, approximately ten miles west of Mount Diablo and eleven miles east of the San Francisco Bay. Lafayette is in the California Coast Ranges geomorphic province. The western edge of the continental plates runs along the California shoreline, resulting in a complex network of faults. Major faults in the region include the San Andreas, Franklin, Hayward, Calaveras, and Concord fault zones. The region is seismically active, and Lafayette has experienced damage from earthquakes (City of Lafayette 2009).

While faults have been mapped in Lafayette, none of them are identified as active or potentially active, meaning that recorded earth movement or displacement has not occurred within the past 10,000 years. However, future seismic activity along faults in Lafayette is possible, from either a major earthquake nearby or an independent movement along one of the local faults (City of Lafayette 2009).

Regulatory Setting

State

CALIFORNIA BUILDING CODE (CBC)

California law provides a minimum standard for building design through the CBC. The CBC specifies acceptable design criteria for construction of facilities with respect to seismic design and load-bearing capacity, as summarized below:

- Chapter 23 contains specific requirements for seismic safety.
- Chapter 29 regulates excavation, foundations, and retaining walls.
- Chapter 33 contains specific requirements pertaining to site demolition, excavation, and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials.
- Chapter 70 regulates grading activities, including drainage and erosion control.

Construction activities are subject to occupational safety standards for excavation, shoring, and trenching as specified in California Division of Occupational Safety and Health (Cal/OSHA) regulations (Title 8 of the California Code of Regulations [CCR]) and in Section A33 of the CBC.

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

The Alquist-Priolo Earthquake Fault Zoning Act was signed into law in 1972, in response to widespread damage caused by the 1971 San Fernando Earthquake. The purpose of this Act is to avoid or reduce damage to structures in the future, by prohibiting the location of most structures intended for human occupancy across the traces of active faults, thereby mitigating the hazard of fault rupture. Under the Act, the State Geologist is required to delineate “Earthquake Fault Zones” along known active faults in California. Cities and counties affected by the zones must regulate certain development projects within the zones by withholding development permits for sites within the zones until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting.

SEISMIC HAZARDS MAPPING ACT

The California Geologic Survey, formerly the California Department of Conservation, Division of Mines and Geology (CDMG), provides guidance with regard to seismic hazards. Under CDMG's Seismic Hazards Mapping Act (1990), seismic hazard zones are identified and mapped in order to assist local governments in land use planning. The intent of this publication is to protect the public from the effects of strong ground shaking, liquefaction, landslides, ground failure, or other hazards caused by earthquakes. In addition, CDMG's Special Publications 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California, provides guidance for the evaluation and mitigation of earthquake-related hazards for projects within designated zones of required investigations.

City of Lafayette

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The Safety Element (Chapter 6) of the Lafayette General Plan addresses earthquake risks and seismic hazards. The following policies and programs addressing geology and soils relate to the proposed project:

Goal S-2: Minimize risks to Lafayette residents and property from earthquakes.

Policy S-2.1 Seismic Hazards: New development, including subdivisions, new construction, and remodels or expansions of existing structures, shall minimize exposure to seismic hazards through site planning and building design.

Program S-2.1.1: Comply with the provisions of the State *Alquist-Priolo Act*, as appropriate. *The Alquist-Priolo Act was adopted by the State legislature which established special Studies Zones throughout California. Geologic investigations must be prepared prior to certain types of new development in these zones. There are, at present, no Special Studies Zones in the Lafayette Planning Area.*

Program S-2.12: Strengthen existing structures against seismic events to applicable nationally-recognized standards. Give priority to emergency buildings, schools, theaters, meeting halls, apartment complexes and major transportation facilities. *There are no high priority buildings such as schools, theaters, or hospitals located on an active fault in Lafayette.*

Program S-2.13: Provide information to the public on ways to reinforce buildings to reduce damage from earthquakes and what to do in the event of an earthquake.

Program S-2.14: Require, as conditions of approval, measures to mitigate potential seismic hazards for structures.

Program S-2.15: Require geotechnical reports by a state registered geologist for development proposals on sites located in known or suspected seismically or geologically hazardous areas and for all critical structures.

Policy S-2.2 Areas of Significant Risk Potential: Locate construction of high density residential and other critical, high-occupancy or essential services buildings outside high risk zones.

Program S-2.2.1: Require that development in areas identified by Map VI-3: Earthquake Hazard be supervised and certified by a geotechnical engineer and, where necessary, by an engineering geologist.

Program S-2.2.2: Establish setbacks from active or potentially active fault lines or traces for structures intended for human occupancy. *Although there are no active fault lines or traces identified in the Planning Area, new information about faults may be discovered in the future. Under the Alquist-Priolo Act special studies Zone Act construction of new facilities within 50 feet of designated active faults is prohibited. (Designation of newly discovered faults under this Act may occur in the future.) Setback areas should be established where deemed necessary by geologists or soils engineers. Parking lots and landscaped areas are examples of uses that could be located in these setbacks.*

Impact Analysis

- a.1. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*

Active faults in the region surrounding Lafayette include the Hayward Fault to the west, the Concord Fault to the east, and the Calaveras Fault to the southeast. An inactive fault mapped within Lafayette runs north-south approximately 0.4 mile west of the project site (City of Lafayette 2002a). However, no active or potentially active faults are mapped within Lafayette in the most recent Alquist-Priolo Earthquake Fault Zoning Map. Therefore, the project would have very low potential for fault rupture, and no potential for rupture of a known fault. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- a.2. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?*

As with any site in the San Francisco Bay Area, the project site is susceptible to strong seismic ground shaking in the event of a major earthquake. As described above, there are active faults in the region.

The project would involve construction of a new snack shop and car wash facility. While the structures would be small and would be built in an already developed site, structural damage would be potentially hazardous in the event of strong seismic ground shaking.

The project would be required to comply with the latest California Building Code (CBC) requirements, which have been adopted by reference in the City of Lafayette Municipal Code. The 2016 California Building Code (California Code of Regulations, Title 24, Part 2, Volumes 1 and 2), the 2016 California Residential Code (California Code of Regulations, Title 24, Part 2.5), the 2016 California Green Building Standards Code (California Code of Regulations, title 24, Part 11), the 2016 California Existing Building Code (California Code of Regulations, Title 24, Part 10), and Title 7, Division 74 of the Contra Costa County Ordinance Code, as amended, are incorporated in Chapter 74-2 of the City of Lafayette Municipal Code (City of Lafayette 2017a). The 2016 California Building Code requires that every structure shall be designed and constructed to resist the effects of earthquake motions.

City of Lafayette General Plan Program S-2.2.1 requires that development in areas identified by Map VI-3: Earthquake Hazard be supervised and certified by a geotechnical engineer and, where necessary, by an engineering geologist. Map VI-3 identifies the inactive faults within the City's limits. The nearest fault is approximately 0.4 mile west of the project site. Therefore, the project would not require special geologic clearance. Modern construction practices and adherence to the City of Lafayette building code would reduce this impact to a less than significant level.

LESS THAN SIGNIFICANT IMPACT

a.3. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

As described above, the project site is in a region with seismic-related risks. Liquefaction is a process in which saturated or partially saturated soil behaves like liquid in response to an applied stress such as seismic shaking. The area of the project site has been classified as a zone of "moderate" liquefaction potential (USGS 2006). However, the California Office of Emergency Services (Cal OES) does not identify the project site as with a Liquefaction Zone (Cal OES 2015). Because the site is not in a Liquefaction Zone, this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.4. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

The project site is relatively flat, fully developed, 0.6 acre lot. As there are no significant slopes, there are no substantial landslide risks on the site. Construction activities would not create conditions that could lead to a landslide risk. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project result in substantial soil erosion or the loss of topsoil?

The project site is fully developed, with most of the surface area paved or built on. The proposed project would involve demolition and grading activities prior to construction of new structures. During demolition and grading, there would be a potential for soil erosion or topsoil loss to occur. However, Chapter 3-7 of the City of Lafayette Municipal Code requires projects that involve more than 50 cubic yards of grading to have a grading permit and develop a grading plan subject to review and approval by the City engineer and the zoning administrator. The grading plan must show that grading would not significantly increase erosion. In addition, as required under Section 716-2.604, "no person shall grade...such that dirt, soil, rock, debris, or other material washed, eroded or moved from the property natural or artificial means does not create a public nuisance or hazard."

Therefore, with compliance with City of Lafayette Municipal Code requirements, impacts related to erosion and topsoil loss would be reduced to a less than significant level.

LESS THAN SIGNIFICANT IMPACT

c. Would the project be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

A landslide is a movement of surface material down a slope. Lateral spread and liquefaction are processes in which material flows in a fluid-like movement; lateral spread refers to this movement

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over a gentle slope during a landslide, and liquefaction refers to water-saturated sediment losing strength due to ground-shaking. Subsidence and collapse refer to the caving in or sinking of land (USGS 2018).

The project site is relatively flat, and approximately 0.6 acres in size. The project would involve the demolition the existing snack shop and construction of a new snack shop and a car wash facility. Such activity is unlikely to destabilize soil to an extent that could result in geologic hazards. Further, the project would be required to comply with the City of Lafayette Municipal Code, described above, which regulates ground disturbing activities. Specifically, the adopted Grading Ordinance prohibits issuance of a grading permit if the zoning administrator or Design Review Commission find that grading would endanger the stability of the site or adjacent property or pose a significant ground movement hazard. Therefore, compliance with applicable regulations would reduce this impact to a less than significant level.

LESS THAN SIGNIFICANT IMPACT

- d. *Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?*

Expansive soils are generally clays, which increase in volume when saturated and shrink when dried. The swelling that occurs in expansive soils exerts pressure that can damage the foundation of a building. When expansive soil is present, foundations must be designed to prevent uplift of the supported structure or to resist forces exerted on the foundation due to soil volume changes.

According to Web Soil Survey mapping by the United States Department of Agriculture Natural Resources Conservation Service (NRCS), various clay soil types are present at the project site (NRCS 2017). Therefore, ground disturbance on the site could potentially result in hazards due to expansive soils.

The Contra Costa County Grading Ordinance, adopted by reference by the City, authorizes the county building official to require a soil investigation and report prior to issuance of a grading permit. If such a report was deemed necessary, it would be performed by a soil engineer and would be required to indicate the presence of critically expansive soils. If expansive soils are found, CBC Section 1808.6 requires special foundation design for buildings constructed on expansive soils. If the soil is not removed or stabilized, then foundations must be designed to prevent uplift of the supported structure or to resist forces exerted on the foundation due to soil volume changes or shall be isolated from the expansive soil.

Compliance with the CBC and City of Lafayette Municipal Code requirements would ensure that hazards related to expansive soils are avoided. Therefore, this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- e. *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

The proposed project would be connected to the local wastewater treatment system and would not involve a septic tank. There would be no impact.

NO IMPACT

7 Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with any applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Setting

Climate change is the observed increase in the average temperature of the earth’s atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. Climate change is the result of numerous, cumulative sources of greenhouse gases (GHG), gases that trap heat in the atmosphere, analogous to the way in which a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxides (N₂O), fluorinated gases, and ozone (O₃). GHGs are emitted by both natural processes and human activities. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO₂, include fluorinated gases, such as hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF₆) (California Environmental Protection Agency [Cal EPA] 2015).

The accumulation of GHGs in the atmosphere regulates the earth’s temperature. Without the natural heat trapping effect of GHGs, Earth’s surface would be about 34° C cooler (Cal EPA 2015). However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Regulatory Setting

Pursuant to the requirements of Senate Bill (SB) 97, the California Natural Resources Agency adopted amendments to the CEQA Guidelines for the feasible mitigation of GHG emissions and analysis of the effects of GHG emissions. The adopted CEQA Guidelines provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

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The vast majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]).

According to the *CEQA Guidelines*, projects can tier off of a qualified GHG reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the project's consistency with the GHG reduction policies included in a qualified GHG reduction plan. This approach is considered by the Association of Environmental Professionals (AEP) in their white paper, *Beyond Newhall and 2020*, to be the most defensible approach presently available under CEQA to determine the significance of a project's GHG emissions (2016). The City of Lafayette does not currently have a qualified GHG reduction plan, and thus this approach is not currently feasible.

To evaluate whether a project may generate a quantity of GHG emissions that may have a significant impact on the environment, a number of operational bright-line significance thresholds have been developed by state agencies. Significance thresholds are numeric mass emissions thresholds that identify the level at which additional analysis of project GHG emissions is necessary. Projects that attain the significance target, with or without mitigation, would result in less than significant GHG emissions. Many significance thresholds have been developed to reflect a 90 percent capture rate tied to the 2020 reduction target established in AB 32. These targets have been identified by numerous lead agencies (including the City of Palo Alto) as appropriate significance screening tools for residential, commercial, industrial, and public land uses and facilities projects with horizon years before 2020.

Regional

BAAQMD CEQA AIR QUALITY GUIDELINES

In the 2017 BAAQMD CEQA Air Quality Guidelines, the BAAQMD outlines an approach to determine the significance of projects. For residential, commercial, industrial, and public land use development projects, the thresholds of significance for operational-related GHG emissions are as follows:

- Compliance with a qualified GHG Reduction Strategy
- Annual emissions less than 1,100 metric tons per year (MT/yr) of CO₂e
- Service person threshold of 4.6 MT CO₂e/SP/yr (residents + employees)

The BAAQMD annual emissions threshold of 1,100 MT of CO₂e per year was designed to capture 90 percent of all emissions associated with projects in the Basin and require implementation of mitigation so that a considerable reduction in emissions from new projects would be achieved. According to the California Air Pollution Control Officers Association (CAPCOA) white paper, *CEQA & Climate Change* (2008), a quantitative threshold based on a 90 percent market capture rate is generally consistent with AB 32 (CAPCOA 2008). SB 32, codified in 2016, sets a more conservative emission reduction target of 40 percent below the 1990 level by 2030. However, because the project is estimated to be operational in 2020, the BAAQMD emissions threshold of 1,100 MT of CO₂e consistent with AB 32 is the threshold used for the project.

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The City's General Plan includes policies and programs to address air pollution. Implementation of these items would also reduce or mitigate GHG emissions. Refer to the Regulatory Setting portion of Section 3, Air Quality, for a list of General Plan items related to air quality.

CITY OF LAFAYETTE ENVIRONMENTAL ACTION PLAN

To monitor the City's progress in meeting its sustainability goals, the Environmental Task Force developed an Environmental Action Plan to document how the City can reduce its environmental footprint. The Environmental Action Plan is a living document intended to change in response to changing requirements, regulations, and circumstances. Regarding GHG emissions, the Plan states that the City is on track to reduce emissions by 19.5 percent below 1990 levels by 2020. The plan states that it will meet its own reduction goal by 2020 based on State regulations alone.

Operational Emissions

Operational emissions for the proposed project were modeled using CalEEMod and compared to BAAQMD thresholds.

CalEEMod provides operational emissions of CO₂, N₂O, and CH₄. Emissions from energy use include electricity and natural gas use. The emissions factors for natural gas combustion are based on EPA's AP-42 (Compilation of Air Pollutant Emissions Factors) and CCAR. Electricity emissions are calculated by multiplying the energy use times the carbon intensity of the utility district per kilowatt hour. The default electricity consumption values in CalEEMod include the CEC-sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies. CalEEMod incorporates 2016 Title 24 CALGreen Building Standards, which are the most recent and thus apply to the proposed project.

Emissions associated with area sources, including consumer products, landscape maintenance, and architectural coating were calculated in CalEEMod and utilize standard emission rates from CARB, U.S. EPA, and emission factor values provided by the local air district (CAPCOA 2016).

Emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CalEEMod User Guide 2017). Waste disposal rates by land use and overall composition of municipal solid waste in California was primarily based on data provided by the California Department of Resources Recycling and Recovery (CalRecycle).

Emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Northern and Southern California.

For mobile sources, CO₂ and CH₄ emissions were quantified in CalEEMod. Because CalEEMod does not calculate N₂O emissions from mobile sources, N₂O emissions were quantified using the CCAR General Reporting Protocol (CCAR 2009) direct emissions factors for mobile combustion. Estimates of vehicle trips associated with the proposed development are based on default rates provided in CalEEMod. Emission rates for N₂O emissions were based on the vehicle mix output generated by CalEEMod and the emission factors found in the CCAR General Reporting Protocol.

Construction Emissions

Construction of the development would generate temporary GHG emissions primarily due to the operation of construction equipment and truck trips. Site preparation and grading typically generate the greatest amount of emissions due to the use of grading equipment and soil hauling. Although construction activity is addressed in this analysis, CAPCOA does not discuss whether any of the suggested threshold approaches adequately address impacts from temporary construction activity. As stated in the CEQA and Climate Change white paper, “more study is needed to make this assessment or to develop separate thresholds for construction activity” (CAPCOA 2008). Additionally, the BAAQMD does not have specific quantitative thresholds for construction activity. Therefore, although estimated in CalEEMod and provided for informational purposes, construction activity is not included in the total emissions calculations.

Impact Analysis

- a. *Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?*

The project’s proposed construction activities, energy use, daily operational activities, and mobile sources (traffic) would generate GHG emissions. CalEEMod was used to calculate emissions resulting from project construction and long-term operation (see Appendix B for model output).

Construction Emissions

Emissions generated by construction of the proposed project are estimated at 67 MT of CO₂e. However, as mentioned under *Construction Emissions*, the BAAQMD does not have a recommended threshold for construction-related GHG emissions. Therefore, emissions associated with construction are not included in Table 6 and compared to BAAQMD significance thresholds.

Operational Indirect and Stationary Direct Emissions

Long-term emissions relate to area sources, energy use, solid waste, water use, and transportation. Each of the operational sources of emissions is discussed further below.

Area Source Emissions

CalEEMod was used to calculate direct sources of air emissions associated with the proposed project. These include consumer product use and landscape maintenance equipment. Area emissions are estimated at less than 1 MT of CO₂e per year.

Energy Use Emissions

Operation of the residential development would consume both electricity and natural gas. The generation of electricity through combustion of fossil fuels emits CO₂, and to a smaller extent, N₂O and CH₄. The proposed project would generate approximately 8 MT of CO₂e per year associated with overall energy use, of which approximately 6 MT of CO₂e per year is due to electricity consumption and approximately 2 MT of CO₂e per year is due to natural gas use.

Solid Waste Emissions

The project would, at a minimum, be required to comply with AB 939 and AB 341, which would increase waste diversion to 75 percent by 2020. CalEEMod does not take into account these diversion requirements, and therefore provides a conservative estimate of emissions associated with solid waste decomposition at landfills. Based on this estimate, solid waste associated with the proposed project would generate approximately 4 MT of CO₂e per year.

Water Use Emissions

Based on the amount of electricity generated in order to supply and convey water for the project, the proposed project would generate an estimated 1 MT of CO₂e per year.

Transportation Emissions

As calculated by CalEEMod, the proposed project would generate an estimated 470,102 annual VMT. As noted above, CalEEMod does not calculate N₂O emissions related to mobile sources. As such, N₂O emissions were calculated based on the project’s VMT using calculation methods provided by the CCAR General Reporting Protocol (January 2009). The proposed project would emit an estimated 224 MT of CO₂e per year from mobile sources.

Combined Stationary and Mobile Source Emissions

Table 6 combines the operational and mobile GHG emissions associated with the proposed project. The annual emissions would total approximately 238 MT of CO₂e per year. These emissions do not exceed the 1,110 MT of CO₂e per year threshold for compliance with BAAQMD thresholds. Since GHG emissions would not exceed the adjusted BAAQMD threshold, the project would not generate a substantial increase in GHG emissions and would not conflict with AB 32 or SB 32. This impact would be less than significant.

Table 6 Operational GHG Emissions

Emissions Source	Annual Emissions (MT of CO ₂ e/year)
Operational	
Area	1
Energy	8
Waste	4
Water	1
Mobile	
CO ₂ and CH ₄	215
N ₂ O	9
Total	328
BAAQMD Threshold	1,110
Exceeds Threshold?	No

See Table 2.2 “Overall Operational” emissions. CalEEMod worksheets in Appendix B.

LESS THAN SIGNIFICANT IMPACT

3255 Stanley Boulevard Car Wash and Convenience Store Project

- b. *Would the project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

The City of Lafayette does not currently have a qualified GHG reduction plan. As described above, the proposed project does not exceed thresholds established by the BAAQMD.

SB 375, signed in August 2008, requires the inclusion of Sustainable Communities' Strategies (SCS) in Regional Transportation Plans (RTP) for the purpose of reducing GHG emissions. The Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) adopted an SCS that meets GHG reduction targets. Plan Bay Area 2040 is a state-mandated, integrated long-range transportation, land-use, and housing plan that would support a growing economy, provide more housing and transportation choices and reduce transportation-related pollution in the nine-county San Francisco Bay Area (ABAG 2017). The SCS builds on earlier efforts to develop an efficient transportation network and grow in a financially and environmentally responsible way. Plan Bay Area 2040 would be updated every four years to reflect new priorities. A goal of the SCS is to reduce vehicle miles traveled (VMT) per capita by 10 percent (ABAG 2017).

The proposed project would be infill development and would maintain sidewalk access around its perimeter. The project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Therefore, impacts related to GHG emissions would be less than significant.

LESS THAN SIGNIFICANT IMPACT

8 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on a site that is included on a list of hazardous material 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. For a project located in 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The project would involve demolition of the site’s existing snack shop, and addition of a car wash and a new snack shop. The components associated with the gas station, including the fuel tanks and pumps, would not change under this project. The baseline for project analysis includes the site’s current gas station and snack shop uses. The gas station fueling canopy area covers 2,349 square feet. Fuel is delivered six times per week and is stored on-site in underground tanks west-adjacent to the canopy area.

Regulatory Setting

Federal

THE FEDERAL TOXIC SUBSTANCES CONTROL ACT AND THE RESOURCE CONSERVATION RECOVERY ACT

These Acts, signed in 1976, established a program administered by the United States Environmental Protection Agency for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. The Resource Conservation and Recovery Act (RCRA) was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the “cradle to grave” system of regulating hazardous wastes. Among other things, the use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by HSWA.

THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT

This Act was enacted in 1980 and amended by the Superfund Amendments and Reauthorization Act (SARA) in 1986. This law provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. Among other things, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) established requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enabled revision of the National Contingency Plan (NCP), which provided the guidelines

and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also established the National Priorities List (NPL).

HAZARDOUS MATERIALS TRANSPORTATION ACT

The Secretary of the U.S. Department of Transportation (DOT) receives the authority to regulate the transportation of hazardous materials from the Hazardous Materials Transportation Act (HMTA). This act administers container design, labelling, shipper and carrier responsibilities, training requirements, and incident reporting requirements. These regulations are contained in Title 49 – Transportation, Code of Federal Regulations, Parts 100 to 180 and includes all modes of transportation – air, highway, rail, and water (Federal Motor Carrier Safety Administration [FMCSA] 2014).

State

THE DEPARTMENT OF TOXIC SUBSTANCES CONTROL (DTSC)

This department of the California Environmental Protection Agency is the primary agency in California that regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of RCRA and the California Health and Safety Code.

DTSC also administers the California Hazardous Waste Control Law (HWCL) to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, until the USEPA approves the California program, both State and federal laws apply in California. The HWCL lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; proscribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

Government Code section 65962.5 requires the DTSC, the State Department of Health Services, the SWRCB, and CalRecycle to compile and annually update lists of hazardous waste sites and land designated as hazardous waste sites throughout the State. The Secretary for Environmental Protection consolidates the information submitted by these agencies and distributes it to each city and county where sites on the lists are located. Before the lead agency accepts an application for any development project as complete, the applicant must consult these lists to determine if the site at issue is included.

If any soil is excavated from a site containing hazardous materials, it would be considered a hazardous waste if it exceeded specific criteria in Title 22 of the California Code of Regulations. Remediation of hazardous wastes found at a site may be required if excavation of these materials is performed; it may also be required if certain other activities are proposed. Even if soil or groundwater at a contaminated site does not have the characteristics required to be defined as hazardous waste, remediation of the site may be required by regulatory agencies subject to jurisdictional authority. Cleanup requirements are determined on a case-by-case basis by the agency taking lead jurisdiction.

Regional

REGIONAL WATER QUALITY CONTROL BOARD (RWQCB)

San Francisco Bay RWQCB regulates discharges and releases to surface and groundwater in the project area. The RWQCB is one of nine RWQCBs in the state. The San Francisco Bay RWQCB oversees preservation of water resources and drinking water, and generally oversees cases involving groundwater contamination.

City of Lafayette

LAFAYETTE 2002 GENERAL PLAN

The Safety Element (Chapter 6) of the Lafayette General Plan addresses safety risks associated with hazardous materials and fire hazards. The following policies and programs addressing hazards and hazardous materials relate to the proposed project:

Goal S-5: Reduce the hazards of the storage, transportation and disposal of hazardous materials.

Policy S-5.1 Storage of Hazardous Materials: Strictly enforce the regulations governing the storage of chemical, biological and other hazardous materials as set forth in California Code of Regulations, Title 22, Division 4.5.

Policy S-5.2 Transport of Hazardous Materials: Develop, in cooperation with the County and neighboring cities, regulations prohibiting through-transport by truck of hazardous materials on the local street systems and require that this activity be limited to State highways.

Program S-5.2.1: Consider establishing and enforcing a Local Hazardous Material Route Plan, installing signage and publicizing routes for hazardous materials transport in the Lafayette Planning Area. Adopt an ordinance designating specific routes within the Planning area for transport of hazardous materials.

Policy S-5.3 Transportation, Storage and Disposal Facilities: Provide measures to protect the public from the hazards associated with the Transportation, Storage and Disposal ("TSD") of hazardous wastes.

Program S-5.3.1: Develop, in cooperation with the County and neighboring cities, regulations prohibiting through-transport by truck of hazardous materials on the local street systems and require that this activity be limited to State highways.

Program S-5.3.2: Support the establishment of a household hazardous waste disposal program.

Program S-5.3.3: Maintain the Hazardous Materials and Waste Ordinance.

Program S-5.3.4: Require as a condition of City development project approvals, that the Contra Costa County Fire Protection District be notified of all hazardous substances that are transported, stored, treated or could be released accidentally into the environment.

Program S-5.3.5: Support thorough environmental review for Hazardous Waste Transportation, Storage and disposal (TSD) Facilities proposed in the Lafayette

Planning Area and throughout Contra Costa County, since the potentially significant, widespread and long-term impacts on public health and safety of these facilities do not respect jurisdictional boundaries.

Goal S-8: Provide adequate response and support services in the event of a major emergency or natural disaster.

Policy S-8.1 Emergency Operations Plan: Periodically review the Emergency Operations Plan to assure that it meets current needs in the event of a major disaster.

Program S-8.1.3: Maintain designated emergency evacuation routes in a passable condition at all times, as feasible.

Impact Analysis

- a. *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*
- b. *Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Existing conditions at the project site include six fuel deliveries per week and one snack shop delivery per week. With development of the project, the number and frequency of deliveries would not change. Transport, use, and disposal of materials involved in the operation of the existing gas station and snack shop would be unchanged by the project.

The project would add a car wash to the site's commercial operations. The car wash would not involve the use of hazardous materials other than standard cleaning materials used for automobiles. The recycled car wash water would run through a sand/oil separator treatment tank, followed by a clarifier tank. This recycling process would allow for disposal of sand and oil separately from the wastewater disposal, and would also capture some water for reuse. Oil would be disposed of in accordance with regulatory requirements. Because the project would not introduce significant new source of hazardous materials, and would include a recycled water process for safe disposal of wastewater, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- c. *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?*

There are three schools within 0.25 mile of the project site: ILM Tree Homeschooling Cooperative, Happy Days Learning Center, and Acalanes High School.

The project would involve routine demolition, grading, and construction activities. As stated in the response to questions (a) and (b), the project itself would not emit hazardous emissions or handle hazardous materials. Substantial amounts of hazardous materials would not be required for development and operation of the car wash or convenience store. The project would result in emissions related to minor construction activities, but these would not be hazardous and would be below BAAQMD thresholds. For analysis of the project's emissions, refer to Section 3, *Air Quality*. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

3255 Stanley Boulevard Car Wash and Convenience Store Project

- d. *Would the project be located on a site included on a list of hazardous material 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?*

A Leaking Underground Storage Tank (LUST) Cleanup previously occurred on the project site. The cleanup is recorded in the State Water Resources Control Board GeoTracker database (2018) with global ID number T0601329788. The potential contaminant of concern was gasoline. The cleanup involved several tons of material excavated from the former underground storage tank (UST) and from beneath the gas station's fuel dispensers during UST replacement activities in 2005. The case was closed on September 30, 2015, meaning that all prescribed corrective actions have been taken and no further action is required (SWRCB 2015).

Two other LUST Cleanup sites in the vicinity of the project site are listed in the GeoTracker database, each within 0.25 mile of the project site: a former Chevron station at 1175 Pleasant Hill Road, and Acalanes High School at 3210 Stanley Boulevard. The cases were closed in 1997 and 1994, respectively.

The Department of Toxic Substances Control (DTSC) EnviroStor database was also reviewed for additional hazardous materials sites in the vicinity of the project site. EnviroStor is the DTSC's data management system for tracking cleanup, permitting, enforcement and investigation efforts at hazardous waste facilities and sites with known contamination. No cleanup sites are listed within one mile of the project site (DTSC 2018).

The gas station operations at the project site do involve the storage and sale of gasoline, which is stored in tanks west-adjacent to the fueling canopy area. However, the project would not involve ground disturbance above or near the storage tanks.

Because there are no unresolved hazardous materials cleanups on or near the project site, and the project would not result in hazards to the public or environment related to the release of hazardous materials, this impact would be less than significant.

LESS THAN SIGNIFICANT 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?*
- f. *For a project near a private airstrip, would it result in a safety hazard for people residing or working in the project area?*

There are no public airports or private airstrips within two miles of the project site. The nearest public use airport is Buchanan Field Airport, located at 550 Sally Ride Drive in the City of Concord, approximately 6.5 miles northeast of the project site. The proposed project is not in the Safety Zone of the airport (Contra Costa County 2000). Therefore, no impacts would occur.

NO IMPACT

- g. *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

The City of Lafayette's Emergency Operations Plan (EOP) provides guidance for a safe and effective community response to a wildfire or other emergency incident that could require an evacuation of the City (City of Lafayette 2016). The EOP lists Pleasant Hill Road at Stanley Boulevard as a critical intersection for evacuating routes.

The proposed project would involve the addition of a car wash and other site improvements on a 0.6 acre site. The project does not change traffic patterns or involve any components that would interfere with the City's EOP. As discussed in Section 16, *Transportation/Traffic*, the project would not create significant traffic congestion and queues from the car wash would not block traffic on Stanley Boulevard. The project would not interfere with an emergency evacuation and this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- h. Would the project 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?*

The California Department of Forestry and Fire Protection (CAL FIRE) prepares maps of fire threat potential throughout California. Lafayette is listed as a city with Very High Fire Hazard Severity Zones (VHFHSZ). However, the project site is not within one of these zones, and is identified as Non-VHFHSZ (CAL FIRE 2009). Further, the proposed project is for infill development on a 0.6 acre site that is already used as a gas station; thus, the project would not impact the site's existing level of fire risk. Therefore, the project would not expose people or structures to risks related to wildfire. No impact would occur.

NO IMPACT

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9 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 that would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Substantially alter the existing drainage pattern of the site or area, including the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g. Place housing in a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Place structures in a 100-year flood hazard area that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including that occurring as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j. Result in inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The project site is 0.6 acre and generally flat. The project site is developed with an existing gas station and is mostly paved with strips of landscaping around the perimeter. Several creeks and streams are present in Lafayette and are affected by pollution from storm drains and other sources (City of Lafayette 2002a). The nearest stream to the project site is an unnamed stream approximately 0.5 mile to the south. Las Trampas Creek is approximately 0.75 mile to the southwest. Lafayette receives approximately 19.8 inches of rain annually, with rainfall concentrated in the winter months (Intellicast 2018).

Regulatory Setting

Federal

CLEAN WATER ACT

Congress enacted the Clean Water Act (CWA), formerly the Federal Water Pollution Control Act of 1972, with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and non-point source discharges to surface water. The NPDES permit process regulates those discharges (CWA Section 402). NPDES permitting authority is administered by the California State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs). The project site is in a watershed administered by the San Francisco Bay RWQCB (San Francisco Bay RWQCB 2017).

Individual projects in the City that disturb more than one acre would be required to obtain NPDES coverage under the California General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit). The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) describing Best Management Practices (BMP) the discharger would use to prevent and retain storm water runoff. The SWPPP must contain a visual monitoring program; a chemical monitoring program for “non-visible” pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a waterbody listed on the 303(d) list for sediment.

Section 401 of the CWA requires that any activity that would result in a discharge into waters of the U.S. be certified by the RWQCB. This certification ensures that the proposed activity does not violate State and/or federal water quality standards. Section 404 of the CWA authorizes the U.S. Army Corps of Engineers to regulate the discharge of dredged or fill material to the waters of the U.S. and adjacent wetlands. Discharges to waters of the U.S. must be avoided where possible, and minimized and mitigated where avoidance is not possible. Section 303(d) of the CWA requires states to establish TMDL programs for streams, lakes and coastal waters that do not meet certain water quality standards.

NATIONAL FLOOD INSURANCE ACT/FLOOD DISASTER PROTECTION ACT

The National Flood Insurance Act of 1968 made flood insurance available for the first time. The Flood Disaster Protection Act of 1973 made the purchase of flood insurance mandatory for the protection of property located in Special Flood Hazard Areas. These laws are relevant to development projects because they led to mapping of regulatory floodplains and to local management of floodplain areas according to guidelines that include prohibiting or restricting development in flood hazard zones.

State

CALIFORNIA PORTER COLOGNE WATER QUALITY CONTROL ACT

The Porter Cologne Water Quality Control Act of 1967 requires the SWRCB and the nine RWQCBs to adopt water quality criteria to protect State waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The criteria for State waters within the region are contained in the *Water Quality Objectives* Chapter of the Basin Plan for the San Francisco Bay RWQCB (San Francisco Bay RWQCB 2017). The Water Quality Control Plan, or Basin Plan, protects designated beneficial uses of State waters through the issuance of Waste Discharge Requirements (WDR) and through the development of TMDL. Anyone proposing to discharge waste that could affect the quality of the waters of the State must make a report of the waste discharge to the RWQCB or SWRCB as appropriate, in compliance with Porter-Cologne.

City of Lafayette

LAFAYETTE 2002 GENERAL PLAN

The Land Use Element and the Safety Element of the General Plan addresses hydrology and water quality issues. The following policies and programs relate to the proposed project:

Goal LU-18: Coordinate with other jurisdictions to protect and restore environmental resources and to provide public services.

Policy LU-18.2 Coordination of Public Services: Coordinate water supply, flood control, wastewater and solid waste disposal, soil conservation, and open space preservation with other jurisdictions to create the greatest public benefit and the least degree of environmental impact.

Program LU-18.2.1: Periodically review level of service standards with the districts providing water supply, flood control, wastewater and solid waste disposal, soil conservation, and open space preservation.

Program LU-18.2.2: Monitor growth and infrastructure capacity through project review under CEQA and through coordination with provider agencies.

Program LU-18.2.3: Consider infrastructure and service capacity when reviewing development proposals.

Goal S-3: Reduce Flood Hazards.

Policy S-3.1 Reduce Flood Hazards: Reduce flood risk by maintaining effective flood drainage systems and regulating construction.

Program S-3.1.1: Condition new development to maintain post development peak runoff rate and average volume similar to the predevelopment condition, to the maximum extent feasible. Consider use of alternative drainage systems that utilize on-site infiltration or slow runoff during peak periods. Where this is not feasible, the increase must be mitigated. Include clear and comprehensive mitigation measures as part of project approvals with financial and other measures to ensure their implementation.

Program S-3.1.2: Require runoff rate/volume analysis and flow-duration analysis of projects where deemed necessary by City staff and/or required by provisions of the NPDES municipal stormwater permit. .

Program S-3.1.3: Require analysis of the cumulative effects of development upon runoff, discharge into natural watercourses, and increased volumes and velocities in watercourses and their impacts on downstream properties. Include clear and comprehensive mitigation measures as part of project approvals with financial and other measures to ensure their implementation.

Policy S-3.2 Flood Protection Standard: In the review of flood control for proposed new development, establish as a standard the flow recurrence intervals used by the Contra costa County Flood Control District (e.g., the 100-year flood event).

Program S-3.2.1: Utilize the Federal Emergency Management Agency's Flood Insurance Rate Map (FIRM) to reduce the risk of flooding, to identify 100 Year Flood Events, to calculate flow rates within identified stream channels, and to review development proposals.

Policy S-3.3 Storm Drainage System: Maintain unobstructed water flow in the storm drainage system.

Program S-3.3.1: Enforce measures to minimize the volume and velocity of surface runoff, soil erosion, and sedimentation both during and after construction through implementation of the Grading Ordinance.

Policy S-3.5 Building Location: Consider potential flood hazards when siting a building. Intensity of development shall be the lowest in areas of high risk.

Impact Analysis

- a. *Would the project violate any water quality standards or waste discharge requirements?*
- e. *Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*
- f. *Would the project otherwise substantially degrade water quality?*

The project site is currently developed with a gas station and snack shop and is mostly covered in impermeable surfaces. The proposed project would involve demolition of the existing snack shop and construction of a new snack shop and a car wash as well as other site improvements. Redevelopment could create changes to stormwater flow and introduce additional urban pollutants to the stormwater system through runoff. Further, construction activities could result in temporary impacts to water quality of runoff leaving the site. Water quality impacts associated with construction and operation are discussed further below.

Construction Impacts

Grading activity during construction has the potential to impact water quality through erosion and through debris carried in runoff. Further, the project would introduce heavy equipment during construction which could result in an increase in fuel, oil, and lubricants in the stormwater runoff due to leaks or accidental releases. To minimize these impacts, the project would be required to comply with the Stormwater Management and Discharge Control Chapter of the City's Municipal Code (Chapter 5-4) which requires all construction projects to incorporate site-specific best management practices for erosion control. In addition, the project is required to comply with the City's Grading Ordinance, which adopts by reference the Contra Costa County Grading Ordinance. Section 716-4.202 prohibits grading without a permit. To grant a permit, the zoning administrator or Design Review Commission must make a number of findings related to preventing adverse environmental impacts of grading activities. Findings must include a determination that the grading would not significantly increase erosion or flooding of the site, or cause impacts to water quality that cannot be substantially mitigated. These regulations would prevent degradation of water quality from runoff at the project site. Each grading permit requires a final grading plan that is subject to review and approval by the City engineer and the zoning administrator. With compliance with existing regulations, impacts during construction would be less than significant.

Operational Impacts

Parking areas and gas stations typically contain urban pollutants such as oil, grease, and fuel that may be carried into the City's storm drain system during storm events through stormwater. The project involves an existing gas station and parking areas and would not change gas station operations. The project would reduce the amount of parking spaces from seven to four spaces and would add structures associated with a car wash. The project would be required to comply with the

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Stormwater Management and Discharge Control Chapter of the City's Municipal Code (Chapter 5-4) which requires any person owning or operating premises that may contribute pollutants to the city's stormwater system to undertake best management practices to reduce the potential for pollutants entering the system to the maximum extent practicable (LMC Section 5-409(a)). Further, persons owning, operating or maintaining the paved areas of a gasoline station are required to clean the premises as frequently and thoroughly as practicable in a manner that does not result in the discharge of pollutants to the city's stormwater system (LMC Section 5-409(e)).

The project involves adding a car wash feature to the site. Wastewater from the car wash would be captured and disposed of through the sewer system. The recycled car wash water would run through a sand/oil separator treatment tank, followed by a clarifier tank. This recycling process would allow for disposal of sand and oil separately from the wastewater disposal, which would reduce pollutants entering the sewer system. Further, the Central Contra Costa Sanitary District (Central San) would be authorized to review and approve the project's plans to prevent water quality impacts from the additional wastewater discharge. For more detail on the project's car wash equipment and requirements by Central San, refer to Section 18, *Utilities and Service Systems*. Overall, with compliance with existing regulations, water quality impacts during operation would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- b. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering or the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?*

The project would have an impact related to groundwater if it resulted in depletion of groundwater supplies or disruption of groundwater recharge. Because the project site is currently fully developed, the project would not substantially change the site's amount of impermeable surface. Minimal groundwater recharge occurs at the site currently. The proposed project would not change the site's limited groundwater recharge potential.

The project would increase demand for water at the site but would not increase demand for groundwater supplies such that a substantial depletion of groundwater supplies would occur. Water to the site is provided by the East Bay Municipal Utility District (EBMUD) and EBMUD does not source water from groundwater. Water from EBMUD is from surface water sources, primarily the Mokelumne River (EBMUD 2015; EBMUD 2018a).

Because the project would be served by a water utility with sufficient demand that does not extract groundwater, and the project would not interfere with groundwater recharge, this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- c. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?*
- d. *Would the project substantially alter the existing drainage pattern of the site or area, including the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?*

The project would not involve the alteration of natural drainage channels or watercourses. Currently, the project site is almost entirely paved. Stormwater from the site drains to the City's storm drain system. The nearest bodies of water are the Leland Reservoir, approximately 0.65 miles southeast, and the Las Trampas Creek, approximately 0.75 mile southwest. The proposed project would not substantially alter the site's amount of impervious surfaces and would add stormwater bioretention planters along Stanley Boulevard and along the southern boundary of the site. These would capture and treat runoff before entering the storm drain system. Wastewater associated with the car wash would be captured and disposed of through the sewer system, not the storm drain system. Therefore, the project would not alter the existing drainage pattern of the site and would not substantially increase the rate or amount of surface runoff from the site. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- g. *Would the project place housing in a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map?*

The proposed project does not involve housing or substantial changes in the area's population. Flood risks are discussed below in the response to question (h). There would be no flood risk impacts related to housing.

NO IMPACT

- h. *Would the project place structures in a 100-year flood hazard area that would impede or redirect flood flows?*

The Federal Emergency Management Agency (FEMA) produces maps that identify areas at risk for flooding. Special Flood Hazard Areas are areas that would be inundated by the flood event having a 1-percent chance (100-year flood) of being equaled or exceeded in any given year. Moderate flood hazard areas are areas with flood risks between 1-percent and 0.2 percent (500-year flood) annual flood chance in a given year (FEMA 2018). The majority of the project site is mapped as Area of Minimal Flood Hazard. The northeast corner of the site is overlapped by a 0.2 percent annual flood zone (FEMA 2009).

As discussed above, the project would not substantially impact the site's drainage. The square footage of overall structures on the site would slightly increase, while impervious surface would be similar to existing conditions. The only project components occurring in the northeastern corner of the site would be removal of a driveway, extension of the existing retention wall, and addition of a six-foot tall noise barrier. The wall and barrier would end at the project site's northern boundary, which is open to the street. Thus, there would be no substantial obstruction of stormwater flow. Further, the project would be required to submit for approval a grading and drainage plan, described above, with provisions for stormwater management. If deemed necessary by the City Engineer, these provisions would include subsurface drains, detention basins, and drop structures to

help manage stormwater. Therefore, impacts on the redirection of flood flows would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- i. Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including that occurring as a result of the failure of a levee or dam?*

There are two reservoirs near the project site: Leland Reservoir, approximately 0.65 miles southeast, and Lafayette Reservoir, approximately 2.65 miles southwest. The project site is not within the inundation zone for either reservoir (City of Lafayette 2010b). There are no levees in the proximity of the project site. Therefore, impacts involving failures of a levee or dam would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- j. Would the project result in inundation by seiche, tsunami, or mudflow?*

The project site is approximately 11.75 miles east of the San Francisco Bay and is outside of the tsunami inundation zone (DOC 2018). The project site is outside of the inundation zone for the Leland Reservoir and the Lafayette reservoir, and there are no other significant bodies of water in the vicinity. Thus there is no risk for seiche. The site is also outside of debris flow areas mapped by ABAG (ABAG 2016). The site is generally flat, making it less susceptible to mudflow. Further, the proposed project would not involve changes to the already developed site that would alter its susceptibility to mudflow. Therefore, no impact would occur.

NO IMPACT

10 Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Conflict with an applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. Would the project physically divide an established community?

The proposed project involves construction and improvements on an existing developed site. The project would not divide the surrounding physical arrangement of existing uses. No linear or other features are proposed that would affect physical or access between areas. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project 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?

The project site is zoned Pleasant Hill Road Commercial (PHC) District. The PHC zone allows automotive servicing as a permitted use (LMC Section 6-998.3) and allows automotive clearing as an ancillary use with approval of a land use permit (LMC Section 6-998.4). Therefore, assuming that a land use permit is approved, the project would be consistent with uses allowed in the PHC zone. Further, the maximum height for buildings or other structures in the PHC district is 17 feet (LMC Section 6-888.8) and structures require a landscaped setback of ten landscaped feet from street lines (LMC 6-998.9). The proposed project would comply with these requirements.

The project site has a General Plan designation of Pleasant Hill Road Commercial. The proposed project would be consistent with the Pleasant Hill Road Commercial General Plan land use designation.

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Because the proposed use is permitted in the PHC District and consistent with the Pleasant Hill Road Commercial designation, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- c. *Would the project conflict with an applicable habitat conservation plan or natural community conservation plan?*

There are no habitat conservation plans or natural community conservation plans that apply to the project site or its surroundings (CDFW 2017). There would be no impact.

NO IMPACT

11 Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*
- b. *Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*

The project site is currently developed with a gas station and snack shop. The project site is not used for mineral extraction, and the project would not result in the loss of availability of mineral resources. There would be no impact.

NO IMPACT

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12 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in:				
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. A substantial permanent increase in ambient noise levels above those existing prior to implementation of the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. For a project near a private airstrip, would it expose people residing or working in the project area to excessive noise?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

General Noise Background

Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).

Sound pressure level is measured on a logarithmic scale with the 0 dBA level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound

pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dBA, and a sound that is 10 dBA less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dBA greater than the ambient noise level to be judged as twice as loud. In general, a 3 dBA change in the ambient noise level is noticeable, while 1-2 dBA changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while areas adjacent to arterial streets are typically in the 50 to 60+ dBA range. Normal conversational levels are usually in the 60 to 65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise from point sources, such from individual pieces of machinery, typically attenuates (or drop off) at a rate of 6 dBA per doubling of distance from the noise source. Noise levels from lightly traveled roads typically attenuate at a rate of about 4.5 dBA per doubling of distance. Noise levels from heavily traveled roads typically attenuate at about 3 dBA per doubling of distance. Noise levels may also be reduced by intervening structures. Generally, a single row of buildings between the receptor and the noise source reduces noise levels by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA (Federal Transit Administration [FTA] 2006). The manner in which buildings in California are constructed generally provides a reduction of exterior-to-interior noise levels of approximately 20 to 25 dBA with closed windows (FTA 2006).

In addition to the instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, Leq is summed over a one-hour period. Lmax is the highest RMS (root mean squared) sound pressure level within the measurement period, and Lmin is the lowest RMS sound pressure level within the measurement period.

The time period in which noise occurs is also important since nighttime noise tends to disturb people more than daytime noise. Community noise is usually measured using Day-Night Average Level (Ldn), which is the 24-hour average noise level with a 10-dBA penalty for noise occurring during nighttime (10:00 PM to 7:00 AM) hours, or Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a 5 dBA penalty for noise occurring from 7:00 PM to 10:00 PM and a 10 dBA penalty for noise occurring from 10:00 PM to 7:00 PM. Noise levels described by Ldn and CNEL typically do not differ by more than 1 dBA. In practice, CNEL and Ldn are often used interchangeably.

The relationship between peak hourly Leq values and associated Ldn/CNEL values depends on the distribution of traffic over the entire day. There is no precise way to convert a peak hourly Leq to Ldn/CNEL. However, in less heavily developed areas, such as suburban areas, the peak hourly Leq is often roughly equal to the daily Ldn/CNEL (California State Water Resources Control Board [SWRCB] 1999). The project site is located in a suburban area. Therefore, the peak hourly Leq at the project site would be roughly equal to the daily Ldn/CNEL value.

General Vibration Background

Vibration refers to groundborne noise and perceptible motion. Vibration is a unique form of noise because its energy is carried through buildings, structures, and the ground, whereas noise is simply carried through the air. Thus, vibration is generally felt rather than heard. Some vibration effects can be caused by noise (e.g., the rattling of windows from passing trucks). This phenomenon is

caused by the coupling of the acoustic energy at frequencies that are close to the resonant frequency of the material being vibrated. Typically, groundborne vibration generated by manmade activities attenuates rapidly as distance from the source of the vibration increases. The ground motion caused by vibration is measured as particle velocity in inches per second and is referenced as vibration decibels (VdB) in the U.S.

The background vibration velocity level in residential areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Most perceptible indoor vibration is caused by sources in buildings such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel wheeled trains, and traffic on rough roads.

Project Area Noise Conditions

The primary source of noise in the project area is motor vehicles (e.g., automobiles, buses, and trucks) along Stanley Boulevard and Pleasant Hill Road. Motor vehicle noise is characterized by a high number of individual events, which often create sustained noise levels. Ambient noise levels would be expected to be highest during the daytime and rush hour unless congestion slows speeds substantially. To determine ambient noise levels in the project site vicinity, two 15-minute noise measurements were taken using an ANSI Type II integrating sound level meter during the PM peak hour (between 4:00 PM and 6:00 PM) on April 10, 2018 (refer to Appendix C for noise measurement data). Figure 5 shows the location of the on-site noise measurements. Results from the noise measurements are shown in Table 7, and include the measurement locations, distances to primary noise sources, and associated measured noise levels in dBA Leq.

Table 7 Noise Monitoring Results

Measurement Number	Measurement Location ¹	Sample Times	Approximate Distance to Centerline (feet ²)	Leq[15] (dBA)
1	Pleasant Hill Circle - South of project site	4:03 to 4:18 PM	5	55
2	Pleasant Hill Road - South of Stanley Boulevard	4:36 to 4:51 PM	45	70

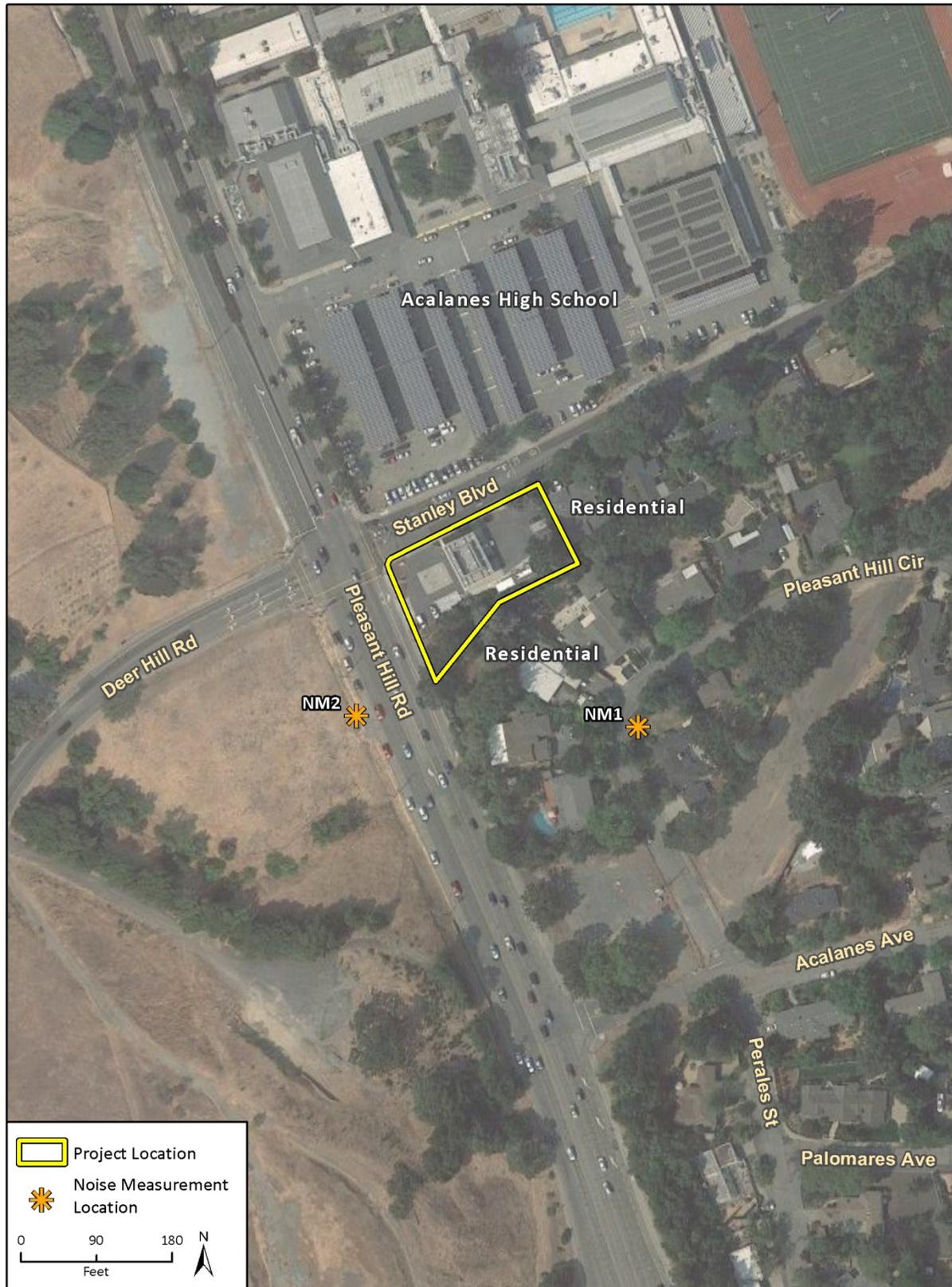
See Appendix C for noise monitoring data.

¹ See Figure 5 for a map of locations.

² Distance to centerline of Pleasant Hill Circle; ³ Distance to centerline of Pleasant Hill Road

Source: Rincon Consultants, field measurements on April 10, 2018, using ANSI Type II integrating sound level meter

Figure 5 Noise Measurement Locations



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Fig 5 Noise Measurements

As shown in Table 7, the existing residences to the south currently experience an ambient noise level of approximately 55 dBA Leq during PM peak hour conditions. The primary source of noise in the project area is traffic noise from Stanley Boulevard and Pleasant Hill Road, which, as measured from approximately 45 feet from Pleasant Hill Road’s centerline during the PM peak hour, is approximately 70 dBA Leq.

Regulatory Setting

CALIFORNIA NOISE INSULATION STANDARDS

The Noise Insulation Standards of the California Building Code, contained in California Code of Regulations (CCR) Title 24, require that interior noise attributable to exterior noise sources not exceed a CNEL of 45 dBA in any habitable room with windows closed.

CITY OF LAFAYETTE GENERAL PLAN

The City of Lafayette General Plan Noise Element identifies sources of noise, provides standards for indoor and outdoor noise exposure, and sets forth policies and implementation programs to reduce noise in the City (City of Lafayette 2002b). To ensure that land uses are developed in compatible noise environments, the City’s General Plan establishes noise guidelines for land use planning. The General Plan Noise Element provides land use compatibility guidelines for community noise to determine whether or not the noise exposure requires mitigation in order to achieve a compatible noise environment.

The General Plan Noise Element includes specific objectives and policies to reduce noise that apply to new development (City of Lafayette 2002b). Goals and policies that are relevant to the proposed project include:

Goal N-1 Ensure that all new development is consistent with the standards for noise.

Policy N-1.2: Reduce Noise Impacts. Avoid or reduce noise impacts first through site planning and project design. Barriers and structural changes may be used as mitigation techniques only when planning and design prove insufficient.

CITY OF LAFAYETTE MUNICIPAL CODE

Chapter 5 of the City of Lafayette Municipal Code sets forth the City’s noise standards, guidelines, and procedures concerning noise regulation. Section 5-205 provides the noise standards for various categories of land uses, as shown in Table 8.

Table 8 Outdoor Noise Limits

Receiving Land Use Category	Time Period	Noise Level Limit (dBA Leq)
Single Family Residential	10:00 PM – 7:00 AM	45
	7:00 AM – 10:00 PM	50
Multifamily Residential, Schools, Libraries, Public Spaces	10:00 PM – 7:00 AM	50
	7:00 AM – 10:00 PM	55
Commercial	10:00 PM – 7:00 AM	55
	7:00 AM – 10:00 PM	60

Source: City of Lafayette Municipal Code Section 5-205, Table 5-205

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In addition, Section 5-205 provides the following noise standards:

- (b) No person shall produce, suffer or allow to be produced by any machine, animal or device, or any combination of same on any property owned, leased, occupied or otherwise controlled by such person, any noise which causes the noise level when measured on any other property to exceed:
 - (1) The noise standard for that land use as specified in Table 8 for a cumulative period of more than 30 minutes in any hour;
 - (2) The noise standard plus five dB for a cumulative period of more than 15 minutes in any hour
 - (3) The noise standard plus 10 dB for a cumulative period of more than five minutes in any hour
 - (4) The noise standard plus 15 dB for a cumulative period of more than one minutes in any hour
 - (5) The noise standard plus 20 dB for any period of time
- (c) If the measured local background noise level exceeds the permissible noise levels outlined in Table 8, or within any of the first four noise limit categories described in subsection (b) the allowable noise exposure standard is increased in five dB increments in each category as appropriate to encompass or reflect said ambient noise level.

Section 5-207(e) of the City of Lafayette Municipal Code prohibits the operation of construction equipment between the hours of 10:00 PM and 7:00 AM on weekdays or at any time on Sundays or holidays, such that the noise from construction equipment creates a disturbance across a residential or commercial property line or at any time violates the standards outlined in Table 8. Section 5-208(d) includes special provisions for construction noise. This section permits construction between the hours of 8:00 AM and 8:00 PM on weekdays, and between 10:00 AM and 6:00 PM on Sundays and holidays with authorization of a valid city permit. With a valid city permit construction noise is allowed during these hours if it meets at least one of the following noise limitations:

- No individual piece of equipment may produce a noise level exceeding 83 dBA at a distance of 50 feet. If the device is housed within a structure on the property, the measurement must be made outside the structure at a distance as close to 25 feet from the equipment as possible.
- The noise level at the nearest affected property may not exceed 80 dBA.

Section 5-207 prohibits loading and unloading between the hours of 10:00 PM and 7:00 AM, except for the regular collection of trash, in a manner that causes a noise disturbance across a residential property line. In addition, per Section 5-207, the operating or permitting the operation of any air-conditioning or air-handling equipment (such as HVAC equipment) are subject to the applicable sound level thresholds contained in Table 9.

Table 9 Maximum Sound Levels for Air Conditioning and Air Handling Equipment

Measurement Location	Noise Level Limit ¹
Any point on neighboring residential property line, 5 feet above grade level, no closer than 3 feet from any wall	45
Center of neighboring patio, 5 feet above grade level, no closer than 3 feet from any wall	40
Outside the neighboring living area window nearest the equipment location, not more than 3 feet from the window opening, but at least 3 feet from any other surface	40
At 50 feet from equipment if the above locations are at greater distance: Commercial and Residential Zones	55

¹ Units Installed on or After 1-1-1978

Source: As derived from Section 5-207, Table 5-207 of the City of Lafayette Municipal Code

Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with each of these uses. The City of Lafayette General Plan considers sensitive land uses to be residences, schools, hospitals, convalescent homes, schools, libraries, and other similar uses.

As shown in Figure 5, the project site is adjacent to single family residences on the eastern and southern boundary that are accessed from Pleasant Hill Circle. For construction noise, this analysis assumes a distance of 25 feet from the project site to the residence east of the site, and 50 feet to the residences south of the site. This assumption was made because construction equipment and vehicles would not entirely be located at the property line but would move around the site.

For operational noise, specific distances were measured between individual noise-generating sources (e.g., vacuums, HVAC systems, idling cars) associated with the operation of the proposed project to the nearest residential property lines, and distance to Acalanes High School, located across Stanley Boulevard to the north. This analysis assumes a distance of 350 feet to the High School, which is the distance from nearest classroom building to the project site and where receptors would be located. The high school parking lot located north of the project site across Stanley Boulevard is not considered a noise-sensitive use. Additional residences are located approximately 500 feet west of the project site.

Methodology

To determine project noise levels from the proposed car wash noise levels were modeled using SoundPlan, a three-dimensional noise modeling software that accounts for the shielding and reflective effects associated with intervening buildings and walls. The model also takes into account intervening topography to accurately represent the noise environment. Existing buildings surrounding the project site were modeled at 10 feet for one-story buildings and 20 feet for two-story buildings, with a reflection loss of 1, which is consistent with acoustically hard surfaces. A ground factor of 0 was applied to account for the existing hard asphalt and concrete surfaces. Noise specifications for vacuums and washers/blowers were provided by the project applicant.

Impact Analysis

- a. *Would the project result in 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?*
- c. *Would the project result in a substantial permanent increase in ambient noise levels above levels existing without the project?*

Operational Noise Impacts

The project site is currently developed with a convenience store and gas pumps. Existing operations generate noise through idling cars, human conversation on the project site, delivery and trash hauling trucks, and HVAC equipment. The project would generate increased use of the site through the development of the retail/office space, car wash tunnel, and car wash utility room, and would shift the location, frequency, and/or timing of idling vehicles, conversations, delivery and trash trucks, and HVAC equipment. Potential noise impacts associated with car wash operations, idling vehicles, vacuum use, delivery and trash trucks, convenience store operations, and HVAC equipment are analyzed in the following sections.

Car Wash Operations

The project would include a one-lane, 866-square-foot drive through car wash tunnel. The main sources of operational noise from the car wash would be the washer at the entrance (eastern side) of the car wash tunnel and the blowers used during the drying process after the washing cycle is complete near the exit of the tunnel (western side). The blowers for the car wash would be Ryko Drying Fans with a quiet kit installed. Blowers emit a noise level of approximately 62 dBA Leq at 100 feet measured from the center of the car wash (see Appendix C). The project also includes the installation of an auto vacuum unit in the southwest corner of the site near the exit of the car wash tunnel. The new vacuum unit would be located approximately 40 feet from the property line of the residence to the south. According to the manufacturer's specifications (see Appendix C), which do not take into account potential sound attenuation, on-site vacuum equipment would generate a noise level of 62 dBA at 40 feet.

Noise levels from the car wash and vacuum unit were modeled using SoundPlan, a three-dimensional noise modeling software that accounts for the shielding and reflective effects associated with intervening buildings and walls. The noise model takes into account the proposed six-foot CMU sound wall on the southern and eastern boundaries of the site, as well as intervening topography to accurately represent the noise environment. Existing buildings surrounding the project site were modeled with a reflection loss of 1, which is consistent with acoustically hard surfaces. Due to model limitations, the car wash tunnel was modeled without a roof. Therefore, results represent a conservative assumption of car wash noise.

The following analysis assumes that the equipment located at the entrance and exit of the car wash tunnel would be separate noise-generating sources associated with full operation of the car wash. However, it was conservatively assumed that equipment located at the entrance and exit would operate simultaneously. Pumps and water sprayers located in the car wash building would also generate noise; however, this equipment would operate in the wash tunnel, and therefore would be shielded from noise-sensitive receptors. The car wash utility building and office building would break the line of site between the car wash tunnel and sensitive receptors south of the project site

and buildings were accounted for in SoundPlan. Although blocked, noise from equipment (washer and dryer) at the exit of the tunnel would remain audible.

The City of Lafayette Municipal Code Section Chapter 5-2 includes regulations with respect to noise. Section 5-205 establishes exterior noise standards for all receptor properties within a designated zone. For single-family residential properties, the allowed exterior noise level is 50 dBA Leq from 7:00 AM to 10:00 PM and 45 dBA Leq from 10:00 PM to 7:00 AM. For Acalanes High School, the allowed exterior noise level is 55 dBA Leq from 7:00 AM to 10:00 PM (hours when school is in session).

As shown in Table 10 and illustrated on Figure 6, noise levels generated from the project are anticipated to range from approximately 38 to 51 dBA Leq at the prediction receivers representing the sensitive receptors at the adjoining property lines and nearby buildings. The analysis models noise levels at the four closest noise-sensitive receptors to the car wash: 1) the residential property line to the southwest approximately 25 feet away, 2) the residential property line to the southeast approximately 75 feet away, 3) the residential property line to the east approximately 15 feet away, and 4) the school property line approximately 35 feet away.

The proposed project would result in an exceedance of the City’s daytime noise standard of 50 dBA Leq at the residential receptors southwest of the project site near the car wash entrance. The City’s nighttime noise standard of 45 dBA Leq would also be exceeded at the residential property lines to the east, southwest, and southeast (see Appendix C for noise modeling results). Therefore, impacts are potentially significant and Mitigation Measure N-1 is required.

Table 10 Modeled Project Noise Levels

Receiver Number	Receiver Name	Noise Level Exposure (dBA Leq)
1	Residential property line to the southwest	49.1
2	Residential Property line to the southeast	50.8
3	Residential property line to the east	49.8
4	School property line to the north	44.9

Source: See Appendix C for SoundPlan data and results

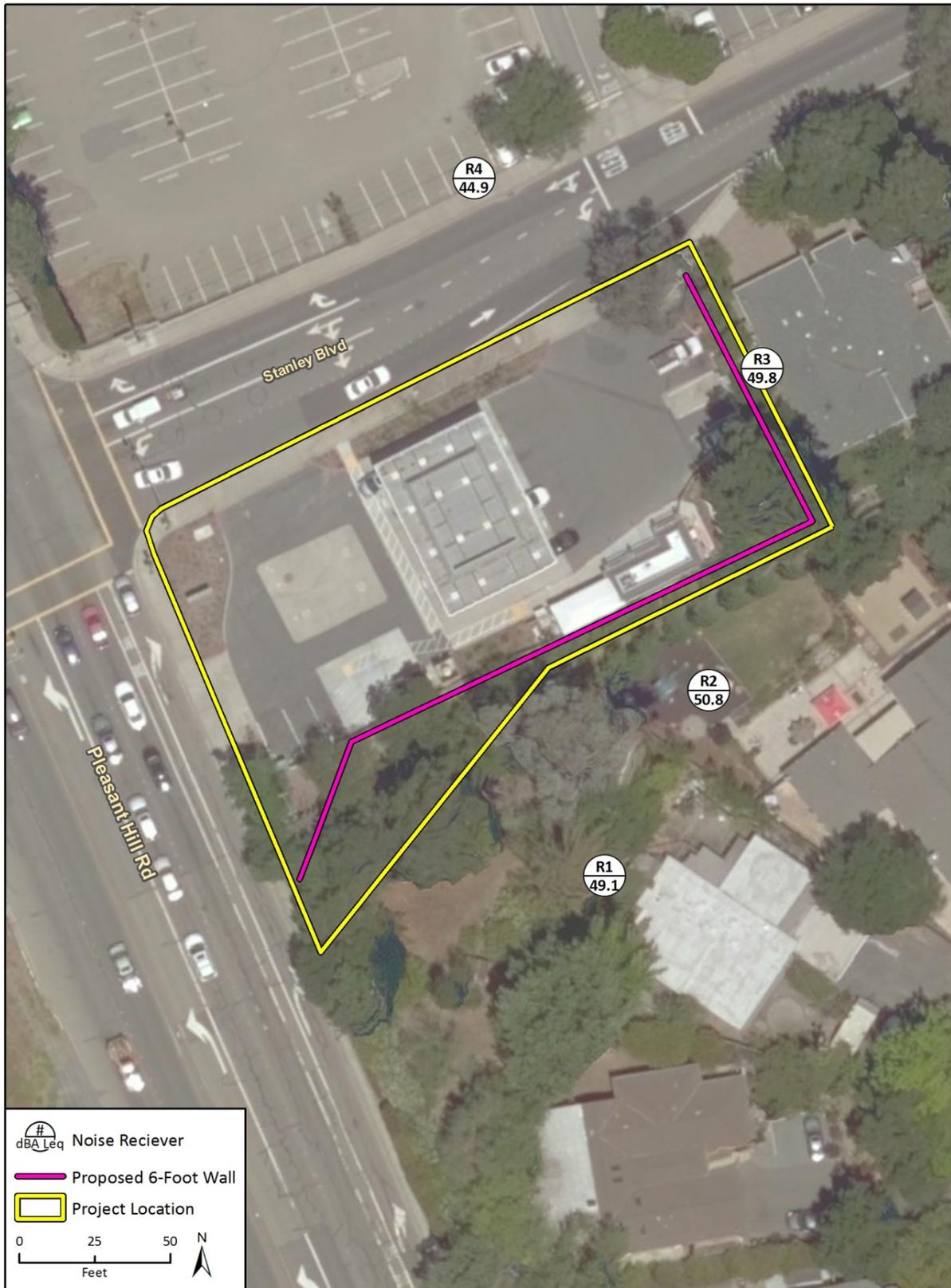
Convenience Store Operations

Operation of the convenience store would be similar to that of the existing store on-site, which is located at along the southern boundary of the site. The new office/retail space and proposed car wash equipment room would generate operational noise from new HVAC systems, and increased delivery and waste-hauling truck trips. These sources of operational noise are discussed below.

HVAC SYSTEMS

Mechanical equipment on the project site would include commercial HVAC equipment. The location and type of equipment is currently unknown at the time of this report. Commercial HVAC equipment typically has noise shielding cabinets, when placed on the roof or within mechanical equipment rooms, and is not usually a substantial source of noise impacts. Typically, the shielding and location of these units reduces noise levels to approximately 60-70 dBA Leq at 15 feet from the source (Illington & Rodkin 2009). Based on the configuration of the project site in Figure 1, HVAC

Figure 6 Car Wash Noise Levels with Six-Foot Sound Wall



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R1, R2, R3, R4 Noise Levels with Proposed 6-Foot Wall

equipment on the office/retail building would likely be located a minimum of 25 feet from the residential property line to the east, and 50 feet from the residential property to the south. Accounting for noise attenuation over distance, noise levels from HVAC equipment would be approximately 66 dBA Leq at the residence to the east and approximately 60 dBA Leq at residences to the south. As shown in Table 9, the City's Municipal Code threshold for HVAC systems at a receiving residential land use is 45 dBA. Since residences to the east and south would experience a noise level of approximately 60 and 66 dBA, respectively, the addition of HVAC systems would exceed the noise level threshold of 45 dBA established by the City of Lafayette. Therefore, impacts are potentially significant and Mitigation Measure N-2 is required.

DELIVERY TRUCKS

On-site activities would include the use of delivery and trash-hauling trucks, which would use available areas for loading and unloading activities, generating noise throughout the site. Noise levels associated with delivery trucks and trash hauling trucks would be similar to existing uses, and would not change substantially from the existing operations. Based on Applicant-provided information, the project would be serviced by a fuel delivery truck six times per week, and convenience store deliveries once per week. The exact number of current fuel and convenience store delivery truck trips is unknown, but assumed to be comparable to seven truck trips per week.

The average noise level for a single idling truck is generally 68 dBA at a distance of 30 feet (Charles M. Salter Associates 2014). Based on the configuration of the project site and layout of the area accessible for delivery, delivery and trash-hauling trucks would operate an estimated 150 feet from the residences to the east and south. Based on attenuation of 6 dBA per doubling of distance, noise levels from trucks would be 54 dBA Leq at the eastern and southern residential property lines. In addition, California State law prohibits trucks from idling for longer than 5 minutes and delivery and trash truck trips to the site would only be periodic sources of operational noise. These noise levels would conflict with the City's daytime noise standards (50 dBA Leq), and would exceed the City's evening noise standard (45 dBA Leq) if delivery and trash-hauling trucks were to operate at night. Although delivery truck noise would exceed the City's residential standards, truck operations would be an intermittent and temporary source of noise that would not be new to the project site. In addition, compliance with Section 5-207 of the City's Municipal Code requires that scheduled truck deliveries occur during daytime hours between 7:00 AM to 10:00 PM, which would avoid disturbance of adjacent residences during noise-sensitive evening hours. Because the project would not result in a substantial change in delivery truck noise when compared to existing conditions, overall noise impacts from truck operations would not be significant.

Mitigation Measures

The following mitigation measures are required to reduce operational noise associated with the proposed project.

N-1 Car Wash Noise Reduction

The applicant shall implement one of the following options to reduce noise associated with operation of the car wash to below City of Lafayette standards:

- **Option 1: Ten-Foot Sound Wall and Car Wash Hours.** The height of the proposed six-foot CMU sound wall on the southern project boundary shall be increased to 10 feet in height. The proposed wall shall be made of outdoor weather-resistant solid material. All gaps between barrier panels and between the barrier and ground shall be sealed. The wall shall be finished

with material that matches the aesthetics of the project site surroundings, such as smooth finely textured stucco or native stone, and landscaped with low trees or non-invasive plant or vine species. In addition, in order to avoid car wash noise in exceedance of City of Lafayette nighttime standards at adjacent residences, operational hours of the car wash and auto vacuums shall be limited to the daytime only between the hours of 7:00 AM and 10:00 PM.

- **Option 2: Silencers.** The applicant shall install silencers to the proposed car wash dryers. The silencers shall reduce car wash noise by at least 6 dBA.
- **Option 3: Tunnel Doors.** The applicant shall install quick-opening tunnel doors at the entrance and exit of the car wash. Tunnel doors shall remain closed until the blow drying cycle is finished for each vehicle. After the blowers stop the doors shall open for the vehicles to exit and enter the car wash. The car wash doors shall reduce car wash noise by at least 6 dBA.

N-2 *HVAC Systems*

HVAC units installed on-site shall be placed as far away from the residences to the east and south as practical. The project applicant shall install a solid screen or parapet around each installed HVAC unit. To be an effective noise barrier, the screen or parapet shall extend at least one foot above the tallest rooftop unit and be of sufficient length to block line-of-sight between the HVAC units and offsite planned residences. The screen shall be designed to achieve a noise reduction such that noise does not exceed 45 dBA at the nearest property line. The applicant shall retain a qualified acoustical engineer upon occupancy of the project (or a similar point after construction of the project) to monitor noise generated by the equipment to verify that it does not exceed the applicable standard at the property line. If noise exceeds this standard, the engineer shall recommend further noise control measures to meet the standard. The applicant shall implement the recommendations of the engineer to meet the standard.

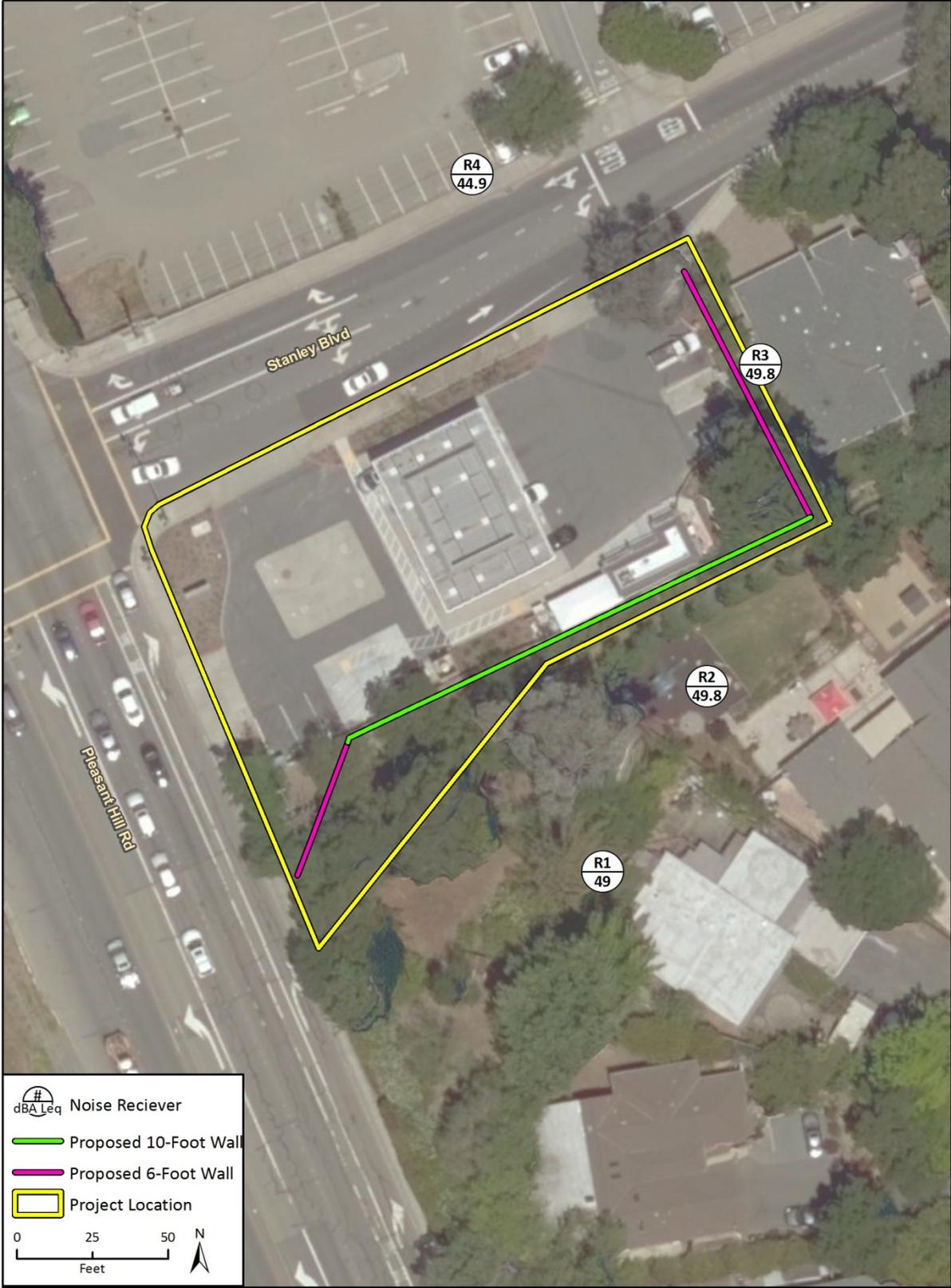
Significance After Mitigation

With implementation of Mitigation Measure N-1, the applicant would be required to implement one of three options to reduce car wash noise to below City standards.

Table 11 and Figure 7 show the estimated noise levels at adjacent residences with construction of a 10-foot sound wall under option 1 of Mitigation Measure N-1. As shown, with option 1, noise levels would not exceed the City's daytime noise standards. However, construction of a 10-foot sound wall along the southern property line would not result in a noise reduction below 45 dBA. Therefore, Mitigation Measure N-1 also requires that the hours of operation for the car wash be limited. Implementation of Mitigation Measure N-1 would restrict operations to daytime use only between 7:00 AM and 10:00 PM, which would avoid exceedances of 45 dBA evening noise thresholds established by the City of Lafayette.

Silencers, such as Proto-Vest Silencers, have the capability to reduce noise up to approximately 10 dBA (Appendix C). Silencers include three components the blower inlet, blower/motor cover, and riser can. The blower inlet reduces noise generated by air drawn into the blower assembly, while the blower/motor cover completely covers the dryer absorbing noise from the motor and impeller. The riser muffles noise created by the blower and impeller and the movement of air as it leaves the blower and advances through the dryers plenum. This silencer "package" reduces car wash noise by approximately 10 dBA. Therefore, as shown in Table 12, application of silencers as described under option 2 of Mitigation Measure N-1 would reduce noise levels below the City daytime and nighttime noise standards of 50 dBA Leq and 45 dBA Leq, respectively.

Figure 7 Car Wash Noise Levels with 10 Foot Sound Wall Mitigation Option



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Similarly, car wash doors would reduce equipment noise by approximately 13 dBA when the doors are closed. Table 12 shows the estimated noise levels at adjacent residences with implementation of car wash doors as described under option 3 of Mitigation Measure N-1. As shown, with mitigation, noise levels would not exceed the City’s daytime or nighttime noise standards.

With implementation of HVAC system recommendations under Mitigation Measure N-2, potential HVAC systems would be designed such that City of Lafayette noise standards would not be exceeded. Therefore, with mitigation, operational noise impacts would be less than significant.

Table 11 Mitigated Car Wash Noise Levels with Option 1 of Mitigation Measure N-1

Receiver number	Receiver Name	City Daytime Noise Standard (dBA Leq)	City Nighttime Noise Standard (dBA Leq)	Estimated Maximum Noise Level from Car Wash Operations (dBA Leq)	Mitigated Noise Level with 10-Foot Sound Wall (dBA Leq)
1	Residential property line to the southwest	50	45	49.1	49.0
2	Residential Property line to the southeast	50	45	50.8	49.8
3	Residential property line to the east	50	45	49.8	49.8
4	School property line to the north	50	45	44.9	44.9

Source: See Appendix C for SoundPlan data and results

Table 12 Mitigated Car Wash Noise Levels with Options 2 or 3 of Mitigation Measure N-1

Receiver number	Receiver Name	City Daytime Noise Standard (dBA Leq)	City Nighttime Noise Standard (dBA Leq)	Estimated Maximum Noise Level from Car Wash Operations (dBA Leq)	Mitigated Noise Level with Silencer (dBA Leq) ¹	Mitigated Noise Level with Car Wash Doors (dBA Leq) ²
1	Residential property line to the southwest	50	45	49.1	39.1	36.1
2	Residential Property line to the southeast	50	45	50.8	40.8	37.8
3	Residential property line to the east	50	45	49.8	39.7	36.7
4	School property line to the north	50	45	44.9	34.9	31.9

Source: See Appendix C for equipment specifications

¹ Silencers can reduce noise by up to 10 dBA

² Car Wash doors reduce noise by up to 13 dBA

Residual Impacts

The increase in the height of sound wall under option 1 of Mitigation Measure N-1 could result in residual aesthetic impacts, as the wall would be four feet higher than that proposed by the applicant and would be visible from Pleasant Hill and Stanley boulevards and Deer Hill Road. However, as discussed in Section 1, *Aesthetics*, there are no scenic views through the project site. Therefore, the increase in height of the sound wall from six to 10 feet would not interrupt scenic views. In addition, the introduction of a 10-foot wall would not substantially degrade the visual character of the site. The height of the wall would be below the height of the car wash structure, which would be 16 feet in height, and the snack shop, which would be 20 feet in height. Views of the wall would be limited as it would be largely blocked by intervening structures. Further, option 1 of Mitigation Measure N-1 also requires aesthetic treatments such that the sound wall would be designed in a way that would not substantially degrade visual quality. Residual impacts would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

- b. *Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

Construction Vibration Impacts

Certain types of construction equipment generate substantial levels of vibration. Table 13 provides vibration levels associated with typical vibratory construction equipment.

Table 13 Vibration Source Levels for Construction Equipment

Equipment	Approximate VdB ¹			
	25 feet	50 feet	350 feet	500 feet
Vibratory Roller	94	87	69	65.4
Loaded trucks	86	79	61	57
Jackhammer	79	72	54	50
Small Bulldozer	58	51	33	29

¹ FTA provides equipment vibration levels in approximate vibration levels (Lv VdB) at a distance of 25 feet. These were converted to VdB at other distances using methods provided in *Transit Noise and Vibration Assessment* (2006).

Source: FTA 2006

Vibration at the nearest receptors, between 25 and 50 feet from construction activities would range from 51 VdB to 94 VdB. Vibration levels would not exceed the threshold of physical damage to buildings (100 VdB) and would occasionally exceed 85 VdB, at distances 50 feet or closer. As discussed above, the project's construction would occur during the City's normally permitted hours of construction. Therefore, construction would be restricted to daytime hours, and would not occur during recognized sleep hours for nearby residences that are 25 and 50 feet away. Overall, vibration impacts from project construction would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- d. *Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Construction Noise Impacts

The main sources of noise during construction activities would include heavy machinery used in demolition, grading, as well as equipment used during building construction and paving, creating temporary or periodic increases in ambient noise. Noise levels are a function of the type of activity undertaken and the distance to the receptor location. Table 14 demonstrates the typical noise levels associated with heavy construction equipment during phases of construction at distances of 25, 50, 350, and 500 feet from the noise source. Noise levels at a distance of 50 feet are provided by the FTA, while the other distances under evaluation are calculated at an attenuation rate of 6 dBA per doubling of distance, based on the distances of the project site to the nearest sensitive receptors. It is assumed that no sources of impulse noise, such as pile driving, would be used during project construction.

As shown in Table 14, construction noise would be as high as 95 dBA Leq at the nearest sensitive receptor 25 feet away. Furthermore, construction noise would be as high as 89 dBA at 50 feet, 72 dBA at 350 feet, and 69 dBA at 500 feet. Construction could result in temporary periods of elevated ambient noise levels and the potential for annoyance.

Table 14 Typical Noise Levels from Construction Equipment

Type of Equipment	Typical Sound Levels (dBA)			
	25 Feet	50 Feet	350 Feet	500 Feet
Air Compressor	87	81	64	61
Backhoe	86	80	63	60
Crane	89	83	66	63
Concrete Mixer	91	85	68	65
Dozer	91	85	68	65
Grader	91	85	68	65
Jack Hammer	94	88	71	68
Paver	95	89	72	69
Roller	80	74	57	54
Saw	82	76	59	56
Truck	94	88	71	68

Noise levels assume a noise attenuation rate of 6 dBA per doubling of distance, numbers rounded to nearest whole number.

Source: FTA 2006

The City of Lafayette establishes allowable hours of operation and noise limits for construction activities to minimize disturbance associated with such activities. According to the City of Lafayette Municipal Code Section 5-207(e), noise sources associated with construction are exempt from Municipal Code requirements, provided the activities do not take place before 8:00 AM or after 8:00 PM on weekdays (Monday through Saturday) or before 10:00 AM or after 6:00 PM on Sundays and federal holidays. In addition, either noise levels produced by individual pieces of equipment shall not exceed 83 dBA at 50 feet, or the noise level at the nearest affected property shall not exceed 80 dBA. As shown in Table 14, noise from construction equipment has the potential to exceed the City's standard 80 dBA at the residences both 25 and 50 feet away from the site, but would not exceed at distances of 350 feet and 500 feet. These impacts would be temporary and would only last during the construction period. Nonetheless, due to the exceedance of construction noise standards in the City of Lafayette Municipal Code, impacts are potentially significant and mitigation is required.

Mitigation Measure

The following mitigation measure is required.

N-3 Construction Noise Reduction

As required by the City Municipal Code Section 5-208(d), construction activities shall only take place between the hours of 6:00 AM to 8:00 PM weekdays and Saturdays, or between 10:00 AM and 6:00 PM Sundays and federal holidays. In addition, either noise levels produced by individual pieces of equipment shall not exceed 83 dBA at 50 feet, or the noise level at the nearest affected property shall not exceed 80 dBA. Furthermore, the following requirements are provided to reduce construction noise:

- Prior to the start of and for the duration of construction, the contractor shall properly maintain and tune all construction equipment in accordance with the manufacturer's recommendations to minimize noise emissions.
- During construction, the contractor shall place temporary sound barriers along the eastern and southern boundaries of the site, to further reduce noise levels from construction equipment.
- Prior to use of any construction equipment, the contract shall fit all equipment with properly operating mufflers, air intake silencers, and engine shrouds no less effective than as originally equipped by the manufacturer.
- During construction, the construction contractor shall place stationary construction equipment and material delivery (loading/unloading) areas to maintain the greatest distance from the nearest residences.
- The construction contractor shall post a sign at the work site that is clearly visible to the public, providing a contact name and telephone number for filing a noise complaint.
- These measures shall be listed on all grading plans and monitored by the City of Lafayette during construction.

Significance After Mitigation

Construction activity during allowed hours would increase noise levels to approximately 94 dBA Leq before mitigation. Implementation of Mitigation Measure N-3 would reduce noise levels from construction activity. The use of manufacturer-certified mufflers associated with construction equipment has been shown to reduce noise levels by 8-10 dBA Leq (City of West Hollywood 2014).

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Further, installation of a temporary sound barrier between construction activities and adjacent sensitive receptors typically provides an estimated 8 dBA Leq attenuation (FHWA 2006). In combination, these measures would be sufficient to reduce ambient noise during construction by at least 16 dBA Leq where the temporary sound barrier obstructs line-of-sight between construction equipment and noise-sensitive receptors, which would reduce construction noise to an estimated maximum of 78 dBA Leq. Resultant hourly noise levels from construction activity at adjacent sensitive receptors after mitigation would not exceed 80 dBA. Therefore, construction noise impacts would not be significant with implementation of Mitigation Measure N-3.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

- e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*
- 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?*

The project is not located in the vicinity of public or private airstrips. The closest airport is the Buchanan Field Airport, located approximately 6.5 miles northeast of the project site. No impact would occur.

NO IMPACT

13 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project:

a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Displace substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a. *Would the project 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)?*
- b. *Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*
- c. *Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

The project would not involve the construction or removal of any residences, and would not extend roads or add other infrastructure that could induce population growth. No housing or people would be displaced, and the project would not result in the need for housing to be constructed elsewhere. The project would add two additional full time and two additional part time employees to the existing gas station staff. Because the need for new employees is minimal and the work is not specialized, it is anticipated that employees would be existing local or regional residents. Impacts related to population and housing would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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14 Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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:				
1 Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2 Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3 Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4 Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5 Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a.1. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the 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?*

a.2. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?*

Lafayette is served by the Contra Costa County Fire Protection District (CCCFFPD) for fire protection services and the Lafayette Police Department (LPD) for police services. The nearest fire station to the project site is the CCCFFPD Station 15, approximately 0.6 mile southwest, and the nearest LPD Station is at 3471 Mt. Diablo Boulevard, approximately 1.1 miles southwest (CCCFFPD 2014 and City of Lafayette 2018a).

The proposed project would not add residents to the area. The project would redevelop an existing gas station. The use of the site after project buildout, in regards to demand for fire and police services, would be similar to existing conditions. The gas station would continue to operate 24-

hours daily, with no special additional demands on emergency services. Therefore, impacts on fire and police protection would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

The project would have no impact on the area's population, housing, or visitation. The project is the redevelopment of an existing gas station, and is not connected to schools or recreation. There would be no impact on the need for new schools or parks.

NO IMPACT

a.5. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 other public facilities?

The proposed project would not involve physical changes or service ratio impacts to public facilities, such as libraries. There would be no impact. Impacts to fire, schools, police, and parks are discussed above, and impacts to public utilities, such as roads and sewers, are discussed in Section 18, *Utilities and Service Systems*.

NO IMPACT

15 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- 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?*

The proposed project is a redevelopment of a gas station. The project has no direct involvement with recreational facilities or parks, nor would it facilitate a change in population or visitation that would impact such facilities. There would be no impact.

NO IMPACT

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16 Transportation/Traffic

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Setting

Analysis of the potential traffic impacts resulting from the project are based primarily on the *Detailed Traffic Analysis Memorandum* prepared for the project by Kittelson & Associates dated June 15, 2018 and the *Transportation Site Plan Review* prepared by Kittelson & Associates dated April 20, 2018. Both memoranda are contained in Appendix D.

Trip Generation

Based on a conservative trip generation estimate prepared by Kittelson & Associates (Appendix D), the automated car wash itself is estimated to generate 11 AM peak hour trips, 11 PM peak hour trips, and 169 average daily trips (ADT), as shown in Table 15. The increase in ADT was estimated by assuming the AM and PM peak hours represent about 13 percent of the daily traffic volumes consistent with the time of day distribution patterns of gas stations from the Institute of Transportation Engineers (ITE).

Table 15 Estimated Net New Trips Due to the Car Wash

	AM Peak Hour	PM Peak Hour	ADT
Shell Station with Car Wash	11	11	169

Source: Kittelson and Associates, Inc., 2018

Impact Analysis

- a. *Would the project conflict with an applicable plan, ordinance or policy establishing a measure 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?*

Intersection Operations

The project site is adjacent to the intersection of Stanley Boulevard/Deer Hill Road and Pleasant Hill Road, which operates at LOS D during AM peak hour traffic and LOS F during PM peak hour traffic. The proposed project would contribute to increased traffic in the area.

Field observations by Kittelson & Associates during the PM peak traffic period showed that the northbound approach on Pleasant Hill Road was queued from Stanley Boulevard/Deer Hill Road to the off-ramp merge for SR 24 westbound, which is a distance of approximately 1,000 feet. The eastbound approach on Deer Hill Road was queued to the top of the hill, a distance of approximately 1,300 feet. Assuming these distances, a vehicle spacing of 25 feet per vehicle, and the number of lanes, unmet demand at the end of the PM peak hour was assumed to be approximately 107 vehicles for the northbound approach and approximately 53 vehicles for the eastbound approach. These unmet demand estimates were added to the traffic counts for these directions in the PM peak hour to better estimate the delay and level of service (LOS) for the intersection. The AM peak hour, while congested, does not appear to have unmet demand, based on field observations. Kittelson also used Vistro traffic analysis software and operations methodology of the Highway Capacity Manual 6th Edition to calculate the proposed project's traffic impacts on the intersection.

The City of Lafayette General Plan identifies LOS D as the standard for intersections in the City. The City does not identify a significance threshold for intersections operating below LOS D prior to implementation of a project. Therefore, the following thresholds were used for locations operating below LOS D without the proposed project:

- At a signalized intersection where the motor vehicle level of service is LOS E, the project would cause the total intersection average vehicle delay to increase by four or more seconds
- At a signalized intersection for all areas where the level of service is LOS F, the project would cause the overall volume-to-capacity (V/C) ratio to increase 0.03 or more.

As shown in Table 16, the intersections operate at LOS D in the AM peak hour and LOS F in the PM peak hour. For the AM peak hour, the project would not increase V/C or delay and therefore would not significantly impact the intersection during the AM peak hour. For the PM peak hour, the project would not cause the intersection average delay to increase by four or more seconds and would not increase the V/C ratio. Therefore, based on the City of Lafayette’s LOS D standard and the supplemental criteria for intersections already below this standard, the project would not significantly affect traffic during the AM or PM peak hours.

Table 16 Traffic Operations at Pleasant Hill Road and Stanley Boulevard/Deer Hill Road

	Existing			Existing + Project			Change with Project	
	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS	V/C	Delay
AM Peak Hour	0.795	40.9	D	0.795	40.9	D	0	0
PM Peak Hour	1.094	122.0	F	1.096	122.8	F	0	0.8

Source: Kittelson and Associates, Inc., 2018

Queue Length

Because the car wash operations would involve cars queueing at the car wash tunnel to await service, queue length analysis was performed, using field data from a car wash at a comparable site. Kittelson collected field data on queue information for the ANDOIL car wash during the AM (7 AM – 9 AM) and PM (4 PM – 6 PM) peak periods. Table 17 shows the maximum queue length for each 15-minute period. Queues length did not exceed two vehicles at any time during the study period. The proposed project would include queue storage for up to eight vehicles. Therefore, the queue storage provided by the project would be sufficient to accommodate the demand without blocking on-site circulation (see also the queue storage discussion the response to question (d)).

Table 17 Car Wash Queue Length for the ANDOIL Station

Time	Queue Length (vehicles)	Time	Queue Length (vehicles)
7:00 AM	0	4:00 PM	1
7:15 AM	0	4:15 PM	1
7:30 AM	0	4:30 PM	0
7:45 AM	0	4:45 PM	0
8:00 AM	0	5:00 PM	2
8:15 AM	0	5:15 PM	2
8:30 AM	0	5:30 PM	1
8:45 AM	0	5:45 PM	1

Source: Kittelson and Associates, Inc., 2018

Overall, as described above, the proposed project would not conflict with applicable measures of effectiveness for the circulation system. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- b. Would the project 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?*

The Contra Costa Transportation Authority (CCTA) is the designated Congestion Management Agency representing the jurisdictions of Contra Costa County. The CCTA is responsible for preparing and adopting a Congestion Management Program (CMP) and updating it every other year. The CMP was most recently updated in 2017. The CCTA has established a level-of-service standard of LOS E for all parts of the CMP network except those that were already operating at a worse LOS in 1991. The City of Lafayette, which is responsible for maintaining compliance with the CMP, identifies LOS D as its standard for intersections. The intersection of Pleasant Hill Road and Stanley Boulevard/Deer Hill Road currently operates at LOS D in the AM peak hour and LOS F in the PM peak hour. As described above, the City does not identify a threshold for intersections that are operating an LOS worse than LOS D. Therefore, traffic analysis for this project established V/C ratio criteria, as described above in the setting section of this impact analysis. As shown in Table 16, the proposed project would result in an increase of 0.8 seconds per vehicle during the PM peak hour, and the V/C ratio would change from 1.094 to 1.096. These impacts would not exceed established thresholds or thresholds used for this project’s analysis, and would not change the LOS at the intersection. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- c. Would the project 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?*

There are no public airports or private airstrips within two miles of the project site. The nearest public use airport is Buchanan Field Airport, located at 550 Sally Ride Drive in the City of Concord, approximately 6.5 miles northeast of the project site. The proposed project is not in the Safety Zone

of the airport (Contra Costa County 2000). The project would not increase levels or affect air traffic patterns such that substantial safety risks would occur. No impact would occur.

NO IMPACT

- d. *Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?*

The proposed project involves site improvements and a car wash at an existing gas station and would not create an incompatible use compared to existing conditions. Kittelson & Associates prepared a qualitative analysis of the effects of the proposed project related to site access and circulation to determine if the project would substantially increase hazards due to a design feature. The analysis focused on adequacy of the driveway widths, queue lengths of the car wash, and vehicle traffic flow. A detailed discussion of these items is provided below.

Adequacy of Driveway Widths

The site is currently accessed via three driveways, one on Pleasant Hill road and two on Stanley Boulevard. The driveway on Pleasant Hill Road and the western Stanley Boulevard driveway would remain with the proposed project. The eastern driveway on Stanley Boulevard would be relocated approximately 30 feet west to allow for access to the car wash. The driveway on Pleasant Hill Road operates as a right-in and right-out only access. While left turns are not prohibited at the western Stanley Boulevard driveway, it primary operates as a right-in and right-out only access due to proximity with the intersection. The eastern Stanley Boulevard driveway provides full access.

Widths for the Pleasant Hill Road driveway, western and eastern Stanley Boulevard driveways are 29 feet, 34 feet, and 35 feet, respectively. These widths are all below the maximum commercial driveway widths stated in the California Highway Design Manual (page 200-26) and the total driveway widths do not exceed 60 percent of the project frontage. Therefore, the driveways would comply the Caltrans Highway Design Manual.

Queue Storage

Site plan measurements for the proposed car wash shows the site can accommodate about 175 feet of queued vehicles, which equates to approximately eight total vehicles, without blocking driveways or conflicting with the normal gas station operations. Assuming every car wash takes about four minutes to complete, the wait time for the eighth vehicle in the queue would be about 32 minutes. It is reasonable to assume that most drivers would not be willing to wait for more than 32 minutes to get a car wash at a gas station. Therefore, it is anticipated that the eight-vehicle queue provided by the proposed design is sufficient and queuing would not extend onto Stanley Boulevard or impede normal onsite gas station operations.

Vehicle Conflict Points

Kittelson & Associates analyzed three vehicle-to-vehicle conflict points: 1) vehicles exiting the car wash and leaving the vacuum parking space; 2) vehicles accessing the car wash when fueling bays are occupied; and, 3) vehicles exiting onto Stanley Boulevard, especially accessing the westbound right turn lane.

Vehicles Exiting Car Wash

Three of the four parking spaces for the project are located approximately 25 feet from the car wash exit. One space allows access to the air & water equipment, one space is standard parking, and the third is the vacuum area. Vehicles exiting the car wash would be anticipated to drive at a slow rate of speed, especially if the drying feature is a fixed point at the end of the car wash. In addition to the slow speeds, there is almost 25 feet of separation between the car wash and nearest parking space and the site lines are good. Based on these three factors the parking stall locations in relation to the car wash exit would not present a significant conflict point.

Vehicles Accessing Car Wash

Potential conflicts may exist for vehicles already onsite at the fueling stations attempting to reach the car wash entry. While the northern and southern drive aisles between the fueling stations are insufficient to allow another vehicle to pass at around 13 feet, the middle fueling stations are about 25 feet apart. Since a typical parking space is about 8 feet wide, two vehicles fueling on either side should still leave about 9 feet of room between them for another vehicle to access the car wash. If vehicles are unable to pass due to size of the fueling vehicles or inefficient parking at the pump, a vehicle trying to access the car wash could either wait for the vehicle fueling to depart or use the two driveways on Stanley Boulevard to go around the blockage and access the car wash entrance.

Vehicles Exiting onto Stanley Boulevard

The final potential conflict point may arise when vehicles exiting left out of the driveways on Stanley Boulevard, especially accessing the westbound right turn lane desiring to travel north of Pleasant Hill Road. The western driveway on Stanley Boulevard would not change with the project, so vehicles desiring to turn left out of the western driveway would still be challenged due to proximity to the intersection and any westbound queued vehicles blocking this movement. The eastern driveway is proposed to move to the west by about 30 feet putting it closer to the intersection at Pleasant Hill Road. While this would provide less space for a vehicle exiting left to get into the correct westbound lane (especially if westbound left-turn traffic is queued up at the intersection), it would not be substantially more difficult because the number of lanes a vehicle must cross is the same at either driveway location. Vehicles desiring to travel north of Pleasant Hill Road would also still have the option to turn right out of the Pleasant Hill Road Driveway. Outside of the AM, School, and PM peak hours, Stanley Boulevard has only minimal traffic and the relocation of the east driveway 30 feet to the west would have little effect.

Overall, the project would not add design features that would substantially increase hazards. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

e. Would the project result in inadequate emergency access?

Adequacy of emergency access after buildout of the proposed project would be similar to existing conditions at the site. The project would not result in a significant traffic increase. The site would continue to maintain three driveway entrances, and the new driveway added by the project would be 35-foot wide, meeting the minimum width of 20 feet required by the Lafayette Municipal Code Section 6-623 for two-way traffic entrances. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- f. Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?*

The Transportation Site Plan Analysis prepared by Kittelson & Associates (April 2018) included an analysis of project pedestrian and bicycle access. The project site is currently served by sidewalk around its western and northern boundaries. The proposed project would include replacement of some of the sidewalk in order to replace one of its driveway entrances, but would not eliminate sidewalk access. The proposed project would involve a pedestrian access point from the sidewalk along Stanley Boulevard to the snack shop. This connection would improve pedestrian access to the retail area from Acalanes High School. This pedestrian connection would cross the drive-through for the car wash, but adequate site distances and signage would be provided such that pedestrians would be able to avoid vehicle conflicts.

The project would not alter bicycle access, which would generally be the same as motor vehicle access, and would provide a bicycle storage rack to the east of the accessible parking space near the snack shop.

The project would not eliminate any transit stop, or interfere with any bicycle, transit, or pedestrian facility. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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17 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
<p>Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</p>				
<p>a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 2024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As of July 1, 2015, California Assembly Bill 52 of 2014 (AB 52) was enacted and expands CEQA by defining a new resource category, “tribal cultural resources.” AB 52 establishes that “A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment” (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” and is:

1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

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AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to “begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.” Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

- a. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?*
- b. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 2024.1?*

There are no resources listed in the California Register of Historical Resources in the vicinity of the project site (California State Parks 2018). As described in Section 5, *Cultural Resources*, the project site is small, developed, and does not contain known significant cultural resources, including tribal resources. The City of Lafayette has not received any requests from tribes to be notified about projects in Lafayette under AB 52. Because no tribes have requested to be contacted, no notices in accordance with AB 52 were sent and no further action is required.

Although no tribal cultural resources are expected to be present on-site, new ground disturbance would occur with the project. As a result, there is the possibility of encountering undisturbed subsurface tribal cultural resources. The proposed grading could potentially result in adverse effects on unanticipated tribal cultural resources. However, impacts from the unanticipated discovery of tribal cultural resources during construction would be less than significant with Mitigation Measure TCR-1.

Mitigation Measure

The following mitigation measure would reduce impacts regarding disrupting tribal cultural resources to a less than significant level.

TCR-1 Unanticipated Discovery of Tribal Cultural Resources

In the event that cultural resources of Native American origin are identified during construction, all earth disturbing work within the vicinity of the find must be temporarily suspended or redirected until an archaeologist has evaluated the nature and significance of the find and an appropriate Native American representative, based on the nature of the find, is consulted. If the City determines that the resource is a tribal cultural resource and thus significant under CEQA, a mitigation plan shall be prepared and implemented in accordance with state guidelines and in consultation with Native American groups. The plan would include avoidance of the resource or, if avoidance of the resource is infeasible, the plan would outline the appropriate treatment of the resource in coordination with the archeologist and the appropriate Native American tribal representative.

Significance After Mitigation

With incorporation of Mitigation Measure TCR-1, impacts related to the unanticipated discovery of tribal cultural resources would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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18 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Setting

Potable Water

The City of Lafayette receives potable water service from the East Bay Municipal Utility District (EBMUD). Approximately 90 percent of raw water entering EBMUD's system is sourced from the

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Mokelumne River watershed, which drains over 600 miles of mountains and foothills on the western slope of the Sierra Nevada (EBMUD 2016). The remaining 10 percent of the water supply is from local watershed runoff in the East Bay Area. Water entering the EBMUD system is treated at one of six treatment plants before distribution. EBMUD can filter and process more than 375 MGD (EBMUD 2018b). As described in EBMUD's 2015 Urban Water Management Plan and 2012 Water Supply Management Program 2040 Plan, the district must prepare for population growth and drought years. Water transfer agreements have been developed to meet these needs, including agreements with the Placer County and Yuba County Water agencies. EBMUD continues to investigate the potential for participation in a regional desalination project that would be sited near the City of Pittsburgh, and could improve the water supply outlook throughout the Bay Area (EBMUD 2015).

Wastewater

Central San provides wastewater collection, treatment, and disposal services for the City of Lafayette. Central San operates a treatment plant in the City of Martinez that cleans an average of 34 MGD of wastewater. The plant has a treatment capacity of 54 MGD and 240 MGD of wet weather flow (Central San 2018).

Solid Waste

Solid waste collection and disposal and recycling services are provided to the City of Lafayette by the Central Contra Costa Solid Waste Authority (RecycleSmart). RecycleSmart has contracted with Republic Services for the collection, transfer, and disposal of residential and commercial garbage, recycling, and organics, and has contracted with Mt. Diablo Recycling for the processing of residential and commercial recyclable materials (RecycleSmart 2016).

Other Utilities

Gas and electric utilities to the project site would be provided by Pacific Gas and Electric Company (PG&E).

Regulatory Setting

State of California

CALIFORNIA GREEN BUILDING STANDARDS CODE

In January 2010, the State of California adopted the California Green Building Standards Code that establishes mandatory green building standards for all buildings in California. The code covers five categories: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and indoor environmental quality. These standards include a mandatory set of guidelines, as well as more rigorous voluntary measures, for new construction projects to achieve specific green building performance levels:

- Reducing indoor water use by 20 percent;
- Reducing wastewater by 20 percent;
- Recycling and/or salvaging 50 percent of nonhazardous construction and demolition debris; and
- Providing readily accessible areas for recycling by occupant.

Regional

CENTRAL SAN TITLE 10 (CCCSD'S SOURCE CONTROL ORDINANCE)

Central San's Title 10 Ordinance, also known as the Source Control Ordinance, sets forth uniform requirements for contributors to the wastewater collection and treatment system and enables Central San to comply with applicable state and federal laws required by the Clean Water Act. The objectives of the Source Control Ordinance are as follows:

- Comply with the laws of the State of California and of the United States relating to the protection of the environment, control of water pollution, disposal of hazardous wastes, and pretreatment of industrial discharges to publicly owned treatment works.
- Prevent the introduction of wastes into the District wastewater system which will interfere with the operation of the system or other District operations.
- Prevent the introduction of wastes into the District wastewater system which will pass through the system, inadequately treated, into receiving waters or the atmosphere or otherwise be incompatible with the system's overall operations.
- Prevent introduction of toxic substances to the District wastewater system which could reach the environment in toxic amounts.
- Prevent the introduction of wastes into the system which may affect the district's ability to dispose of its ash, sludge, or other residuals.
- Improve the opportunity to recycle and reclaim wastewater and sludge from the system.
- Prevent the introduction of wastes that may be inadequately treated by District facilities and may adversely affect the environment or may cause a violation of the District's NPDES permit or may contribute to the need for modification of the District's NPDES permit.
- Protect District personnel while conducting activities related to the collection, treatment, and disposal of wastes through the District facilities.
- Prevent a public hazard or public nuisance arising from the collection, treatment, and disposal of wastes through the District system.
- Prevent the introduction of wastes to sewers connected to the District system that could result in the District being classified as a hazardous waste treatment, storage, or disposal facility under the laws of the State of California or the United States.
- Provide for equitable distribution of the cost of the District's Source Control Program.

The Source Control Ordinance provides for the regulation of wastewater contributors through the issuance of permits. The Source Control Ordinance authorizes monitoring and enforcement activities, requires user reporting, and provides for the setting of fees.

City of Lafayette

LAFAYETTE 2002 GENERAL PLAN

The Land Use Element (Chapter 1) of the Lafayette General Plan addresses utilities. The following policies and programs addressing utilities and service systems relate to the proposed project:

Goal LU-18: Coordinate with other jurisdictions to protect and restore environmental resources and to provide public services.

- Policy LU-18.2** Coordination of Public Services: Coordinate water supply, flood control, wastewater and solid waste disposal, soil conservation, and open space preservation with other jurisdictions to create the greatest public benefit and the least degree of environmental impact.
- Program LU-18.2.3: Consider infrastructure and service capacity when reviewing development proposals.

Goal LU-20: Match the demand for public utilities and infrastructure generated by new development with the capacity of existing facilities, capital improvement programs and development mitigation programs.

- Policy LU-20.7** Water: Coordinate planning with the East Bay Municipal Utility District (EBMUD) to ensure the availability of an adequate potable water supply to meet the needs of the future population. The standard for development review shall be the capacity to provide sufficient water to all residents and businesses in the City, as indicated by EBMUD.
- Program LU-20.7.2: Require developers to enter into agreements in accordance with the regulations and ordinances of the EBMUD and pay for the cost of potable and appropriate non-potable water infrastructure required for each project. (*Resolution 2009-021, 2009*)
- Program LU-20.7.3: Require fair share payments and/or mitigation measures to ensure that these standards or their equivalent are maintained.
- Program LU-20.7.4: Do not approve new development if EBMUD cannot assure an adequate supply of water.
- Program LU-20.7.5: Request EBMUD to complete a water supply assessment when required by Sections 10910 to 10915 of the California Water Code and Section 15155 of the California Environmental Quality Act Guidelines. (*Resolution 2009-021, 2009*)
- Program LU-20.7.8: Make project sponsors aware of the water efficiency requirements of the EBMUD Water Service Regulations and local codes early in the design development process. Request that project applicants meet with EBMUD staff to discuss water efficient technology and best management practice applicable to their project. (*Resolution 2009-021, 2009*)
- Program LU-20.7.9: Require project sponsors of new or redevelopment projects within the City, where a new main is required, to coordinate and consult with EBMUD regarding the feasibility of providing recycled water for appropriate non-potable purposes per EBMUD's policy 8.01. (*Resolution 2009-021, 2009*)
- EBMUD adopted a Water Supply Management Program in 1993. This program recognized that there may be supply limitations to the future expansion of EBMUD's service area. In the event of a threatened or actual

water shortage, the District will give first priority to existing water customers within its existing service area. Several of the District's supply lines need to be rebuilt and seismically strengthened. The rehabilitation of EBMUD's delivery system is being addressed by the District's Capital Improvement Program. EBMUD has developed an extensive recycled water and water conservation program. The District recommends certain types of landscaping for new and existing development which require minimal water. It is up to local jurisdictions, however, to implement water conservation regulations. Refer to the Open Space and Conservation Chapter for policies regarding water conservation and the Growth Management Section of this Chapter for policies regarding the coordination of future development with water supply. (Resolution 2009-021, 2009)

Impact Analysis

- a. *Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

The addition of a car wash to the project site would increase on-site generation of wastewater. As described in the response to question (d), sand and oil would be separated from the wastewater and would be disposed of separately which would prevent these pollutants from entering wastewater systems. In addition, Central San's Source Control Ordinance, described above, would be applicable to the proposed project. Central San has commented on the project, acknowledging that the project site already receives service from Central San. Central San would be authorized to review and approve the project's plans, require wastewater source control measures, and charge capital improvement fees. Central San has stated that the project would not be expected to produce an unmanageable added capacity demand, but that the applicant would be required to construct a private, six-inch diameter lateral and likely a new trunk manhole (City of Lafayette 2018). Compliance with Central San requirements would reduce impacts to a less than significant level.

LESS THAN SIGNIFICANT IMPACT

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

The Central San Treatment Plant has a treatment capacity of 54 MGD and 240 MGD of wet weather flow. The plant cleans an average of 34 MGD. Available capacity is 20 MGD. The proposed project would not require new or expanded wastewater treatment facilities. Central San has stated that the project would not produce an unmanageable added capacity demand on the wastewater system, nor interfere with existing public facilities. In addition, the project would be required to comply with the Central San Source Control Ordinance, as described above. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

3255 Stanley Boulevard Car Wash and Convenience Store Project

- c. *Would the project 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?*

The project would involve redevelopment of a gas station. The project site is currently fully developed and contains mostly impervious surfaces. As discussed in Section 9, *Hydrology and Water Quality*, the project would not substantially increase stormwater runoff from the project site. Therefore, construction of new storm drain facilities would not be required. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- d. *Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

The existing gas station at the project site receives water service from EBMUD. EBMUD collects, transmits, treats, and distributes water from the Mokelumne River to customers in the San Francisco East Bay Area. EBMUD has the rights and capacity to divert up to 364,037 acre-feet per year (AFY) from the Mokelumne River for municipal and industrial use, and currently produces an average of 246,431 AFY of potable water (EBMUD 2012). Estimated available capacity, therefore, is 117,606 AFY.

Adding a car wash to the existing gas station would increase the station's water demand. Water use by a car wash facility varies widely depending on the equipment used. On a gallon-per-vehicle (gpv) basis, professional car wash water usage ranges from 8 to 85 gpv (Brown 2000). A car wash can limit potable water demand by capturing and recycling some of the water used on each vehicle. This process is known as reclamation. The amount of water reclaimed by a car wash depends on the equipment and the selected equipment settings. The process typically involves capturing the used water, separating the water from grit, grease, and oil in a sedimentation phase, and then applying more advanced cleaning in a separate tank. The recycled water can be used in the initial phases of vehicle cleaning.

The project would use a SoftGloss Maxx car wash system by Ryko. SoftGloss Maxx uses a two-compartment sand/oil separator tank, and a three-compartment clarified tank. Sand, oil, and unusable water are separated from the portion of water that can be recycled. This reclamation process substantially reduces freshwater demand.

The gpv of a SoftGloss Maxx system, or any car wash, varies widely depending on the model specifications and the selected settings. A rough, conservative gpv estimate provided by Ryko staff for a SoftGloss Maxx is 72 gpv. This estimate includes 32 gallons of reclaimed water. Thus, the freshwater estimate is 40 gpv (McDermott 2018). As described above in Section 16, *Transportation/Traffic*, a conservatively estimated 169 new trips would be added per day to the site due to addition of a car wash. Assuming that each new trip accounted for a wash, the project would add a water demand of 6,760 gallons daily, or 7.57 AFY. As stated above, EBMUD has an estimated available capacity of 117,606 AFY.

While the project would result in increased water use at the site, , the project would not exceed the available EBMUD capacity to source and supply potable water. Therefore, the project would have sufficient water supplies available to serve its needs, and this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- f. Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*
- g. Would the project comply with federal, state, and local statutes and regulations related to solid waste?*

Waste management services to the project site are provided by RecycleSmart. RecycleSmart has contracted with Republic Services for the collection, transfer, and disposal of residential and commercial garbage, recycling, and organics. Solid waste from the project would be transferred to the Keller Canyon Landfill in unincorporated Contra Costa County. The Keller Canyon Landfill is permitted to accept for disposal a maximum of 3,500 tons of refuse per day. The landfill has remaining capacity of 55 million cubic yards, or 14,850,000 tons as of 2015, which is sufficient for several decades of continued operations (Contra Costa County 2015). The project site currently contains a gas station and snack shop. The addition of a car wash would not add a substantial amount of solid waste generation.

The City of Lafayette is required to comply with Assembly Bill (AB) 939, the California Integrated Waste Management Act of 1989, which requires cities and counties to divert 50 percent of solid waste from landfill disposal. In 2011, the City of Lafayette adopted a goal of reaching a 75 percent waste diversion rate, in line with the updated State goal of 75 percent by 2020 (City of Lafayette 2017b). As of 2012, the City diverts 63 percent of solid waste, with plans in place to continue improvements towards the 75 percent goal. Because the proposed project would not generate substantial new solid waste, would receive waste management services, and would not violate district guidelines, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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19 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Does the project:				
a. Have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. 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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a. *Does the project have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, 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?*

The project does not have the potential to substantially reduce the habitat or population of any fish or wildlife species. However, the project could potentially adversely affect nesting birds. As detailed in Section 4, *Biological Resources*, required mitigation (BIO-1) would include scheduling construction activities outside of nesting season. If construction could not be scheduled outside of nesting season, then pre-construction surveys for nesting birds would be required, with establishment of buffer zones if active nests were found. Implementation of this mitigation measure would reduce potential impacts to wildlife to a less than significant level.

As discussed in Section 5, *Cultural Resources*, and Section 17, *Tribal Cultural Resources*, the project site is not on or near any known cultural resources. Project activities would be unlikely to unearth

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any resources of cultural, historical, paleontological, or tribal significance. However, because ground disturbing activities always involve the possibility of uncovering previously unidentified cultural resources, mitigation is required. Mitigation measures CR-1, CR-2, and TCR-1 require that in the event of discovery of an archaeological, paleontological, or tribal cultural resource, work in the vicinity of the discovery is halted and the City is notified. Implementation of these mitigation measures would reduce potential impacts on important examples of California history to a less than significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

- 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)?*

As described in the discussion of environmental checklist Sections 1 through 18, the project would have no impact, a less than significant impact, or a less than significant impact with mitigation incorporated, with respect to all environmental issues. Cumulative impacts of several resource areas have been addressed in the individual resource sections above: Air Quality, Greenhouse Gases, Noise, Transportation/Traffic, and Utilities and Service Systems (See CEQA Guidelines Section 15064(h)(3)). CalEEMod was utilized to assess the air quality and greenhouse gas impacts resulting from the project, concluding that the impacts associated with these two issues were less than significant impacts. Noise analysis concluded that cumulative impacts to this issue area would be less than significant after implementation of mitigation measures. Traffic analysis concluded that traffic added by the project would not constitute a significant impact. Analysis of available service by utility providers, including potable water, wastewater service, and solid waste service, concluded that the project’s demand would be met by service providers without violating applicable regulations or standards. Therefore, the project would not result in cumulatively considerable impacts. Several issue areas (e.g., geology and soils, hazards and hazardous materials) are by their nature project-specific and impacts at one location do not add to impacts at other locations or create additive impacts. As such, cumulative impacts would be less than significant.

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- c. *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

In general, impacts to human beings are associated with air quality, hazards and hazardous materials, and noise. As detailed in the analyses for these issue areas, project impacts in these areas would be less than significant or less than significant with mitigation incorporated. Noise impacts would be less than significant with implementation of mitigation measures N-1, N-2, and N-3. Therefore, impacts on human beings would be less than significant with mitigation.

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List of Preparers

Rincon Consultants, Inc. prepared this IS-MND under contract to the City of Lafayette. Persons involved in data gathering analysis, project management, and quality control are listed below.

RINCON CONSULTANTS, INC.

Abe Leider, AICP CEP, Principal in Charge
Karly Kaufman, MESM, Project Manager
Kari Zajac, MESM, Associate Planner
Kelly Miller, MAIEP, Associate Planner

Appendix A

Air Quality Technical Study



3255 Stanley Boulevard Carwash and Convenience Store Project

Air Quality Study

prepared for

City of Lafayette

3675 Mt. Diablo Boulevard, #210

Lafayette, California 94549

Contact: Emily Carroll

prepared with the assistance of

Rincon Consultants, Inc.

449 15th Street, Suite 303

Oakland, California 94612

April 2018

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Appendix B	Kittelson & Associates Transportation Site Plan Review Memorandum

1 Introduction and Project Description

1.1 Introduction

This study is an analysis of the potential air quality impacts of a proposed project located at 3255 Stanley Boulevard in Lafayette, California. The study has been prepared by Rincon Consultants, Inc. under contract to the City of Lafayette Planning Department for use in support of the environmental documentation being prepared for the project. This analysis considers both temporary impacts that would result from project construction and long-term impacts associated with operation of the project.

1.2 Project Location

The project site is the existing Shell Gas Station located at 3255 Stanley Boulevard (Accessor Parcel Number 177-061-027-5) in the City of Lafayette, as shown in Figure 1. The project site encompasses approximately 0.6 acres and is zoned PHC, Pleasant Hill Commercial District, with a General Plan designation of Administrative Professional Office. The project site is bordered to the north by Stanley Boulevard and Acalanes High School, to the east and south by single family residences, and to the west by Pleasant Hill Road and vacant land.

1.3 Project Description

The project would involve the addition of a carwash, office/retail building, and a carwash utility room, as well as other site improvements, to the existing gas station and snack shop. The site plan for the project is shown in Figure 2, and illustrates existing and proposed uses. To accommodate the project, the existing snack shop building would be demolished and the existing driveway and parking striping would be removed. The existing 2,349 square foot gas station would remain. The proposed carwash would be an 866 square-foot self-serve carwash tunnel with a 502 square foot carwash equipment room located on the southern portion of the project site. A new 35-foot wide driveway along Stanley Boulevard would provide access to the carwash. In addition, the project would include the development of a 763 square foot office/retail building at the eastern portion of the site. New site improvements would include onsite parking, a masonry trash enclosure, site lighting, landscaping, self-service air/water and vacuum units, and extension of the retaining walls on the eastern and southern portion of the project site.

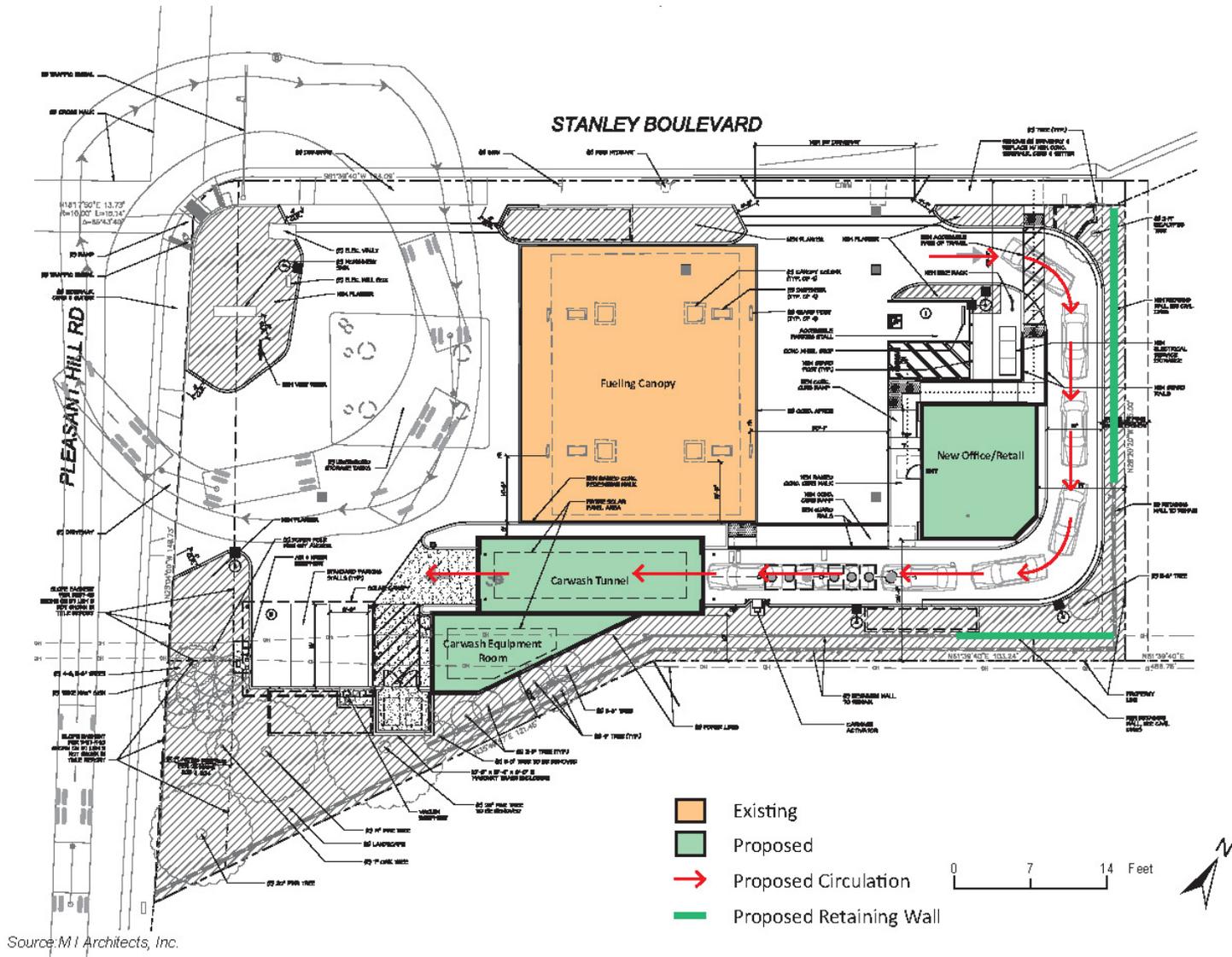
Figure 1 Project Location



Imagery provided by Google and its licensors © 2018.

Fig. 2 Project Location

Figure 2 Proposed Site Plan



2 Background and Setting

2.1 Air Quality Background

Local Climate and Meteorology

The project site is located in the San Francisco Bay Area Air Basin (SFBAAB). Air quality in the SFBAAB is affected by the emission sources located in the region, as well as by natural factors. Atmospheric conditions such as wind speed and direction, air temperature gradients, and local and regional topography influence air quality. The SFBAAB is affected by a Mediterranean climate of warm, dry summers and cool, damp winters. Topographical features, the location of the Pacific high-pressure system, and varying circulation patterns resulting from temperature gradients affect the speed and direction of local winds. The winds play a major role in the dispersion of pollutants. Strong winds can carry pollutants far from their source; a lack of wind will allow pollutants to concentrate in an area.

Air pollutant emissions within the SFBAAB are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and include sources such as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment such as when high winds suspend fine dust particles.

Air Pollutants of Primary Concern

The federal and State governments have established ambient air quality standards for the protection of public health. The United State Environmental Protection Agency (U.S. EPA) is the federal agency designated to administer air quality regulation, while the California Air Resources Board (CARB) is the State equivalent. County-level Air Quality Management Districts (AQMDs) provide local management of air quality. The ARB has established air quality standards and is responsible for the control of mobile emission sources, while the local AQMDs are responsible for enforcing standards and regulating stationary sources. CARB has established 15 air basins statewide, including SFBAAB.

The U.S. EPA has set primary national ambient air quality standards (NAAQS) for ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter with a diameter of up to ten microns (PM₁₀) and up to 2.5 microns (PM_{2.5}), and lead (Pb). Primary standards are those levels of air quality deemed necessary, with an adequate margin of safety, to protect public health. In addition, California has established health-based ambient air quality standards for these and other pollutants, some of which are more stringent than the federal standards.

Local air districts and CARB monitor ambient air quality to ensure that air quality standards are met, and if they are not met, develop strategies to meet the standards. Air quality monitoring stations measure pollutant ground-level concentrations (typically, ten feet above ground level). Depending on whether the standards are met or exceeded, the local air basin is classified as in “attainment” or “non-attainment.” Some areas are unclassified, which means no monitoring data are available. Unclassified areas are considered to be in attainment.

The Bay Area Air Quality Management District (BAAQMD) is the designated air quality control agency in the SFBAAB. Table 1 on the following page lists the current federal and State standards for regulated pollutants. As shown, the SFBAAB is in nonattainment for the federal standards for ozone (O_3) and $PM_{2.5}$ and in nonattainment for the state standard for O_3 , $PM_{2.5}$, and PM_{10} . Characteristics of O_3 and suspended particulate matter are described below .

Ozone

O_3 is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_x) and reactive organic gases (ROG). NO_x is formed during the combustion of fuels, while reactive organic gases are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in substantial concentrations between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Suspended Particles

Atmospheric particulate matter is comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. The particulates that are of particular concern are PM_{10} (which measures no more than 10 microns in diameter) and $PM_{2.5}$ (a fine particulate measuring no more than 2.5 microns in diameter). The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and $PM_{2.5}$ can be different. Major man-made sources of PM_{10} are agricultural operations, industrial processes, combustion of fossil fuels, construction, demolition operations, and entrainment of road dust into the atmosphere. Natural sources include windblown dust, wildfire smoke, and sea spray salt. The finer, $PM_{2.5}$ particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. $PM_{2.5}$ is more likely to penetrate deeply into the lungs and poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage. These materials can damage health by interfering with the body’s mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Table 1 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8 Hour	0.070 ppm	N	0.070 ppm	N
	1 Hour	0.09 ppm	N		
Carbon Monoxide	8 Hour	9.0 ppm	A	9 ppm	A
	1 Hour	20 ppm	A	35 ppm	A
Nitrogen Dioxide	1 Hour	0.18 ppm	A	0.100 ppm	U
	Annual Arithmetic Mean	0.030 ppm		0.053 ppm	A
Sulfur Dioxide	24 Hour	0.04 ppm	A	0.14 ppm	A
	1 Hour	0.25 ppm	A	0.075 ppm	A
	Annual Arithmetic Mean			0.030 ppm	A
Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	N		
	24 Hour	50 µg/m ³	N	150 µg/m ³	U
Particulate Matter - Fine (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	N	12 µg/m ³	U/A
	24 Hour			35 µg/m ³	N
Sulfates	24 Hour	25 µg/m ³	A		
Lead	Calendar Quarter			1.5 µg/m ³	A
	Rolling 3 Month Average			0.15 µg/m ³	
	30 Day Average	1.5 µg/m ³			A
Hydrogen Sulfide	1 Hour	0.03 ppm	U		
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm	No information available		
Visibility Reducing particles	8 Hour(10:00 to18:00 PST)		U		

A=Attainment; N=Nonattainment; U=Unclassified; mg/m³=milligrams per cubic meter; ppm=parts per million; µg/m³=micrograms per cubic meter
Source: BAAQMD 2017a

2.2 Current Ambient Air Quality

The BAAQMD operates a network of air quality monitoring stations throughout the SFBAAB. The purpose of the monitoring stations is to measure ambient concentrations of pollutants and determine whether ambient air quality meets the California and federal standards. The SFBAAB monitoring station closest to the project site is the Concord-2975 Treat Boulevard station located approximately 4.5 miles northeast of the project site. Data from this station was used to determine

emission concentrations in the project vicinity. Table 2 indicates the number of days that each of the standards has been exceeded at these stations in each of the last three years for which data is available. As shown in Table 2, ozone exceeded the one-hour State standard in 2014 and 2016; the 8-hour ozone standard was exceeded two times each year between 2014 and 2016; and the PM_{2.5} standard was exceeded one time in 2015. No other State or federal standards were exceeded at this station between 2014 and 2016.

Table 2 Ambient Air Quality at the Nearest Monitoring Stations

Pollutant	2014	2015	2016
Ozone (ppm), Worst 1-Hour	0.095	0.088	0.095
Number of days of State exceedances (>0.09 ppm)	1	0	1
Ozone (ppm), 8-Hour Average	0.080	0.073	0.074
Number of days of State exceedances (>0.07 ppm)	2	2	2
Number of days of Federal exceedances (>0.07 ppm)	2	2	2
Carbon Monoxide (ppm), Highest 8-Hour Average	*	*	*
Number of days of above State or Federal standard (>9.0 ppm)	*	*	*
Particulate Matter <10 microns, $\mu\text{g}/\text{m}^3$, Worst 24 Hours	40.8	22.5	18.7
Number of days above State standard (>50 $\mu\text{g}/\text{m}^3$)	0	0	0
Number of days above Federal standard (>150 $\mu\text{g}/\text{m}^3$)	0	0	0
Particulate Matter <2.5 microns, $\mu\text{g}/\text{m}^3$, Worst 24 Hours	30.6	31.0	20.7
Number of days above Federal standard (>35 $\mu\text{g}/\text{m}^3$)	0	1	0

ppm = parts per million; $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
 Data obtained from Concord-2975 Treat Boulevard station
 Source: ARB 2017
 * Currently no available data.

2.3 Air Quality Management Plan

The BAAQMD is responsible for assuring that the federal and State ambient air quality standards are attained and maintained in the Bay Area. The BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities.

The BAAQMD adopted the 2017 Clean Air Plan (2017 Plan) on April 19, 2017 as an update to the 2010 Clean Air Plan. The 2017 Plan, which focuses on protecting public health and the climate, defines an integrated, multi-pollutant control strategy that includes all feasible measures to reduce emissions of ozone precursors (including transport of ozone and its precursors to neighboring air basins), PM, and toxic air contaminants (TACs). To protect public health, the control strategy will decrease population exposure to PM and TACs in communities that are most impacted by air pollution with the goal of eliminating disparities in exposure to air pollution between communities. The control strategy will protect the climate by reducing GHG emissions and developing a long-

range vision of how the Bay Area could look and function in a year 2050 post-carbon economy (BAAQMD 2017b).

2.4 Sensitive Receptors

Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect people most susceptible to respiratory distress, such as children under 14; persons over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. The majority of sensitive receptor locations are therefore residences, schools, and hospitals. The sensitive receptors nearest to the project site are the adjacent residences east and south of the project site and Acalanes High School, located across Stanley Boulevard north of the project site.

3 Impact Analysis

3.1 Methodology and Significance Thresholds

This air quality analysis conforms to the methodologies recommended in the BAAQMD's May 2017 *CEQA Air Quality Guidelines* to evaluate air quality. The May 2017 *CEQA Air Quality Guidelines* include revisions made to the 2010 Guidelines, addressing the California Supreme Court's 2015 opinion in the *Cal. Bldg. Indus. Ass'n vs. Bay Area Air Quality Mgmt. Dist.*, 62 Cal. 4th 369 (BAAQMD 2017c).

Significance Thresholds

To determine whether a project would have a significant impact to air quality, Appendix G of the *State CEQA Guidelines* asks whether a project would:

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

Emissions Thresholds

The BAAQMD has developed screening criteria to provide lead agencies and project applicants with a conservative indication of whether a project could result in potentially significant air quality impacts. If all of the screening criteria are met by a project, then the lead agency or applicant would not need to perform a detailed air quality assessment of their project's air pollutant emissions. These screening levels are generally representative of new development on greenfield sites without any form of mitigation measures taken into consideration. For projects that are infill, such as the proposed project, emissions would be less than the greenfield-type project on which the screening criteria are based (BAAQMD 2017c). For convenience markets (24-hour operation), the BAAQMD's operational criteria pollutant screening size is 5,000 square feet (sf) and the construction screening threshold is 277,000 sf. However, there are no screening levels included in the BAAQMD *CEQA Air Quality Guidelines* for car wash facilities. Therefore, although the project would be less than 5,000 sf, this analysis quantifies emissions associated with the project and compares them to BAAQMD's numeric significance thresholds.

The BAAQMD *CEQA Air Quality Guidelines* quantify project-level air quality thresholds with defined numeric values and evaluation criteria for pollutant emissions. These project-level thresholds, shown in Table 3, represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. For the purposes of this analysis, the proposed project would result in

a significant impact if construction or operational emissions would exceed any of the thresholds shown in Table 3.

Table 3 Air Quality Thresholds of Significance

Pollutant/Precursor	Construction-Related Thresholds	Operational-Related Thresholds	
	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tpy)	Average Daily Emissions (lbs/day)
ROG	54	10	54
NO _x	54	10	54
PM ₁₀	82 (exhaust)	15	82
PM _{2.5}	54 (exhaust)	10	54

Notes: tpy = tons per year; lbs/day = pounds per day; NO_x = oxides of nitrogen; PM_{2.5} = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM₁₀ = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; tpy = tons per year.

Source: Table 2-1, Bay Area Air Quality Management District, CEQA Air Quality Guidelines, May 2017

Localized Carbon Monoxide Concentrations

A project’s indirect CO emissions would be significant if they contribute to a violation of the State standards for CO (9.0 ppm averaged over 8 hours and 20 ppm over 1 hour).

Toxic Air Contaminant Emissions

TACs, including PM_{2.5}, can have significant health impacts on local communities. The BAAQMD’s *CEQA Air Quality Guidelines* sets thresholds applicable to projects that would site new sensitive receptors in proximity to permitted or non-permitted sources of TACs or PM_{2.5} emissions. If impacts due to emissions of TACs or PM_{2.5} from any individual source would exceed any of the thresholds listed below, the project would result in a significant impact:

- Non-compliance with a Community Risk Reduction Plan
- An excess cancer risk level of more than 10 in one million (10E-06), or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0 from any individual source would be a significant cumulatively considerable contribution
- An incremental increase of greater than 0.3 micrograms per cubic meter (µg/m³) annual average PM_{2.5} from any individual source would be a significant cumulatively considerable contribution

Methodology for Estimating Emissions

The significance thresholds described in the previous subsection represent the levels at which a project’s individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB’s existing air quality conditions. The California Emissions Estimator Model (CalEEMod) version 2016.3.2 was used to calculate total project emissions, which include construction and operational emissions. CalEEMod does not contain a specific land use category for car washes; therefore, the “Automobile Care Center”¹ land use was used as a proxy for

¹ According to the *CalEEMod Users Guide*, there are only two primary automobile-related land use subtypes to choose from in CalEEMod: “Automobile Care Center,” which houses numerous businesses that provide automobile-related services, such as repair and servicing; stereo installation; and seat cover upholstery and “Gasoline/Service Station,” which includes service stations where the primary business is the fueling of motor vehicles; they may also have ancillary facilities for servicing and repairing motor vehicles. There is already

the car wash. As the convenience store is proposed to be open 24 hours a day, seven days a week, the “Convenience Market (Open 24 Hours)” land use was used to model the associated emissions with the new convenience store.

Short-Term Emissions

Construction-related emissions are generally short-term in duration, but may still cause adverse air quality impacts. Temporary emissions would result from three primary sources: operation of construction vehicles (e.g., scrapers, loaders, and excavators); ground disturbance during clearing and grading, which creates fugitive dust; and the application of asphalt, paint, or other oil-based substances. The extent of daily emissions, particularly ROG and NO_x emissions, generated by construction equipment depend on the quantity of equipment used and the hours of operation for each project. The extent of fugitive dust (PM_{2.5} and PM₁₀) emissions would depend upon the following factors: 1) the amount of disturbed soils; 2) the length of disturbance time; 3) whether existing structures are demolished; 4) whether excavation is involved; and 5) whether transporting excavated materials offsite is necessary. The amount of ROG emissions generated by paints and oil-based substances, such as asphalt, depends upon the type and amount of material used.

CalEEMod was used to estimate air pollutant emissions associated with project construction, which was assumed to begin in January 2019 with full operation in 2020 based on default construction phase timeframes incorporated into the model (see Appendix A). Construction would include site preparation, grading, construction, paving, and architectural coating. It was assumed that 880 cubic yards of material would be exported offsite based on applicant provided information. Additionally, architectural coating was assumed to begin halfway through building construction, consistent with typical construction schedules. Construction activities would result in temporary air quality impacts that may vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions.

In addition, it was assumed the project would comply with all applicable regulatory standards, including BAAQMD rules and regulations regarding construction emission control measures. These include watering twice daily and using low volatile organic compound (VOC) architectural coatings. Therefore, CalEEMod was run using low VOC paint (50 grams/liter) for architectural coatings and watering was assumed to occur twice daily in CalEEMod.

Long-Term Emissions

CalEEMod was also used to estimate operational emissions, which included emissions from area sources, energy use, and mobile sources. Area source emissions, which would be generated by landscape maintenance equipment, consumer products, and architectural coating, were estimated using CalEEMod defaults. Mobile source emissions would be generated by the increase in motor vehicle trips to and from the project site as compared to existing conditions. The default trip generation rates for the “Convenience Market (Open 24 Hours)” land use was used in CalEEMod. Default rates are based on the land use specific trip generate rates included in the International Trip Engineers (ITE) 9th edition. For the carwash component of the proposed project, the “Automobile Care Center” trip generation rates were replaced with the “Automated Car Wash” trip generation rates, which were included in the ITE 9th edition. Based on the updated trip generation rate, the car

an existing fueling station onsite and the project would not result in the addition of any new facilities where the primary business is the fueling of motor vehicles. Instead, the “Automobile Care Center” land use more closely aligns with the proposed project design. However, to more accurately reflect trips associated with the car wash component of the proposed project, the trip generation rates were updated in CalEEMod based on the “Automated Car Wash” (International Trip Engineers (ITE) Code 948) land use trip generation rates included in the ITE 9th edition.

wash and convenience store would generate approximately 580 trips during the weekdays, 675 trips on Saturdays, and 596 trips on Sunday (this does not take into account trips to the gas station). This trip generation estimate is conservative for the purposes of assuming a “worst-case” air emissions scenario. Trip generation would likely be lower than these assumptions because most trips to the car wash would be “pass-by” trips (i.e., stopping by the car wash on the way to another destination) rather than specific trips to the car wash itself (Kittelson & Associates, Inc. 2018, Appendix B).

Localized Carbon Monoxide Concentrations

According to the BAAQMD CEQA Guidelines, emissions and ambient concentrations of CO have decreased in the SFBAAB with the introduction of the catalytic converter in 1975 and no exceedance of CAAQS or NAAQS for CO have been recorded at nearby monitoring stations since 1991. Additionally, the SFBAAB is currently designated as an attainment area for the CAAQS and NAAQS for CO. However, occurrences of localized CO concentrations, known as hotspots, are often associated with heavy traffic congestion, which most frequently occurs at signalized intersections of high-volume roadways (BAAQMD 2017).

BAAQMD provides a preliminary screening methodology to conservatively determine whether a proposed project would exceed CO thresholds. If the following criteria are met, a project would result in a less than significant impact related to local CO concentrations:

1. The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
3. Project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

Toxic Air Contaminant Emissions

Local community risk and hazard impacts are associated with TACs and PM_{2.5} because emissions of these pollutants can have significant health impacts at the local level. BAAQMD’s *CEQA Air Quality Guidelines* include risk and hazard thresholds that are intended to apply to projects that would site new permitted or non-permitted sources in proximity to receptors and for projects that would site new sensitive receptors in proximity to permitted or non-permitted sources of TACs or PM_{2.5} emissions. According to BAAQMD, sensitive receptors consist of facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. The proposed project itself is not a land use or facility considered a new sensitive receptor. However, the proposed project would be located within the vicinity of nearby sensitive receptors, including the surrounding residences and Acalanes High School.

3.2 Project Impacts

Construction Emissions

Project construction would generate temporary air pollutant emissions. Table 4 summarizes the estimated maximum daily emissions of pollutants during project construction. Maximum daily emissions account for compliance with BAAQMD dust-control watering and low-VOC requirements, but do not include any additional mitigation. As shown in Table 4, project emissions for all criteria pollutants would not exceed BAAQMD thresholds. Therefore, the average daily emissions would not exceed the BAAQMD project-level construction thresholds.

Table 4 Project Construction Emissions

Year	Estimated Emissions (lbs/day)					
	ROG	NO _x	CO	PM ₁₀ (exhaust)	PM _{2.5} (exhaust)	SO _x
2019 Maximum Daily Emissions	2.4	22.1	11.1	0.6	0.6	<0.1
BAAQMD Thresholds (average daily emissions)	54	54	N/A	82	54	N/A
Threshold Exceeded?	No	No	N/A	No	No	N/A

See Table 2.0 "Overall Construction-Mitigated Construction" emissions. Winter emissions results are for all emissions except CO, which has higher summer emissions. See CalEEMod worksheets in Appendix A.

N/A = not applicable; no BAAQMD threshold for CO or SO_x

Operational Emissions

Long-term emissions associated with project operation, as shown in Table 5 and Table 6, would include emissions from vehicle trips (mobile sources), natural gas and electricity use (energy sources), and landscape maintenance equipment, consumer products and architectural coating associated with on-site development (area sources). As shown in Table 5 and Table 6, emissions would not exceed BAAQMD daily or annual thresholds for any criteria pollutant.

Table 5 Project Operational Average Daily Emissions

Sources	Average Daily Emissions (lbs/day)					
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}	SO _x
Area	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Energy	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mobile	1.0	3.0	7.0	1.1	0.3	<0.1
Total Project Emissions	1.1	3.0	7.0	1.1	0.3	<0.1
BAAQMD Thresholds	54	54	N/A	82	54	N/A
Threshold Exceeded?	No	No	N/A	No	No	N/A

See Table 2.0 "Overall operational-mitigated" Winter emissions. See CalEEMod worksheets in Appendix A. Numbers may not add up due to rounding.

N/A = not applicable; no BAAQMD threshold for CO or SO_x

Table 6 Project Operational Maximum Annual Emissions

Sources	Maximum Annual Emissions (tons/year)					
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}	SO _x
Area	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Energy	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mobile	0.1	0.5	1.0	0.2	<0.1	<0.1
Total Project Emissions	0.1	0.5	1.0	0.2	<0.1	<0.1
BAAQMD Thresholds	10	10	N/A	15	10	N/A
Threshold Exceeded?	No	No	N/A	No	No	N/A

See Table 2.0 "Overall operational-mitigated" Winter emissions. See CalEEMod worksheets in Appendix A. Numbers may not add up due to rounding.

N/A = not applicable; no BAAQMD threshold for CO or SO_x

Carbon Monoxide Hotspots

As mentioned under "Localized Carbon Monoxide Concentrations," the proposed project would result in a less than significant impact related to local CO concentrations if the project is consistent with an applicable congestion management program; would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway). There are no applicable congestion management programs or plans in which the project must comply with.

The project site is located on the southeast corner of the intersection of Stanley Boulevard/Deer Hill Road and Pleasant Hill Road. Pleasant Hill Road north of Stanley Boulevard has the greatest number of trips out of the roadways at the intersection (City of Lafayette 2018b). Specifically, Pleasant Hill Road north of Stanley Boulevard has approximately 32,200 estimated daily two-way trips. With the increase of an estimated 580 trips during the weekdays, 675 trips on Saturdays, and 596 trips on Sunday, the project would not result in an increase in traffic volumes at affected intersections to more than 44,000 vehicles per hour. Furthermore, the project would include construction of a car wash facility and convenience store and would not be located in an area where vertical and/or horizontal mixing is substantially limited; therefore, the 24,000 vehicle per hour standard is not applicable. As a result, the project would not result in individually or cumulatively significant impacts from CO emissions.

Development of the on-site carwash would involve idling vehicles queuing along the eastern boundary of the site adjacent to nearby residences. Site plan measurements for the proposed carwash shows the site can accommodate about 175 feet of queued vehicles, or approximately eight total vehicles (Kittelson & Associates Inc. 2018, Appendix B). Exhaust CO gas from the eight vehicles while idling would not result in substantial CO emissions such that a CO hotspot would occur in the queue. In addition, the vehicle queueing line would be separated from residences by vegetation and trees that would absorb some CO emissions.

Toxic Air Contaminants

A TAC is defined by California law as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to

human health. In the Bay Area, there are a number of urban or industrialized communities where the exposure to TACs is relatively high in comparison to others. However, according to the BAAQMD CEQA Guidelines (Figure 5-1), the project site is not located within an impacted community.

Sources of TACs include, but are not limited to, land uses such as freeways and high volume roadways, truck distribution centers, ports, rail yards, refineries, chrome plating facilities, dry cleaners using perchloroethylene, and gasoline dispensing facilities (BAAQMD 2017). Although gasoline stations are typically identified as sources of TACs, the proposed project does not involve expansion of the existing gas dispensing facilities. The proposed project would involve construction of a new car wash facility and convenience store. The proposed carwash and convenience store are not sources of TACs and are not stationary sources regulated by the BAAQMD.

Odors

During construction activities temporary odors from vehicle exhaust and construction equipment engines would occur. Construction-related odors would disperse and dissipate and would not cause substantial odors at the closest sensitive receptors (adjacent residences). In addition, construction-related odors would be temporary and would cease upon completion of construction.

The proposed project would involve construction of a carwash and convenience store, as well as other site improvements to the existing Shell Gas Station. The site improvements would involve development of four new parking stalls, a new accessible path of travel, a new trash enclosure, a new self-service air/water and vacuum units, and new lighting and landscaping. The new trash enclosure would reduce existing odors from trash stores on-site. In addition, car washes and convenience stores are not considered sources of substantial objectionable odors as listed on Table 3-3 in the BAAQMD *CEQA Air Quality Guidelines* (BAAQMD 2017c).

As discussed above, approximately eight total vehicles could queue in line for the car wash (Kittelson & Associates Inc. 2018, Appendix B). Exhaust gas from a total of eight vehicles while idling would not result in substantial odors. In addition the vehicle queueing line would be separated from residences by vegetation and trees that would absorb and block some potential exhaust odors.

Air Quality Plan Consistency

To be consistent with an air quality management plan (AQMP), a project must conform to the local General Plan and must not result in or contribute to an exceedance of the local jurisdiction's forecasted future population. A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding the forecasts used in the development of the AQMP. Population growth would lead to increased vehicle use, energy consumption, and associated air pollutant emissions. The most recent and applicable adopted air quality plan is the 2017 Plan. Therefore, the proposed project would result in a significant impact if it would conflict with or obstruct implementation of the 2017 Plan (BAAQMD 2017c).

The proposed project would increase the employment in Lafayette by adding one additional full time and three additional part-time employees for a total of four new employees. BAAQMD uses the Association of Bay Area Government's (ABAG) growth forecast. The ABAG employment projection for 2040 is 9,900 and in 2010 there were approximately 9,000 employees based on ABAG forecasts, which represents an increase of 900 employees. As mentioned above, according to the project applicant, the project would generate approximately four employees. This would represent an increase of approximately less than one percent increase. Because this employment increase would be within ABAG's projected 2040 employment growth for the City of Lafayette, employment

growth generated by the project would be consistent with the AQMP. Therefore, the project would not generate growth beyond AQMP forecasts and the project would be consistent with the AQMP.

3.3 Summary of Conclusions

Implementation of the proposed project would not result in exceedances of applicable temporary construction and long-term operational air quality thresholds. The project would not result in significant impacts related to CO hotspots or odors, and the project would be consistent with the AQMP. Therefore, no additional measures beyond those required by BAAQMD rules are needed to reduce project-related air quality impacts to less than significant levels.

4 References

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Air Quality Study Appendix A

California Emissions Estimator Model (CalEEMod) Results

Shell Lafayette Carwash - Contra Costa County, Summer

**Shell Lafayette Carwash
Contra Costa County, Summer**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	4.00	Space	0.04	1,600.00	0
Automobile Care Center	1.37	1000sqft	0.03	1,368.00	0
Convenience Market (24 Hour)	0.76	1000sqft	0.02	763.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2020
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

Shell Lafayette Carwash - Contra Costa County, Summer

Project Characteristics -

Construction Phase - extended arch coating to reflect accurate schedule

Grading -

Demolition -

Architectural Coating - CALGreen Requirement

Fleet Mix -

Area Coating -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblGrading	MaterialExported	0.00	880.00
tblLandUse	LandUseSquareFeet	1,370.00	1,368.00
tblLandUse	LandUseSquareFeet	760.00	763.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	130.00	125.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblVehicleTrips	ST_TR	23.72	14.12
tblVehicleTrips	SU_TR	11.88	14.12
tblVehicleTrips	WD_TR	23.72	14.12

2.0 Emissions Summary

Shell Lafayette Carwash - Contra Costa County, Summer

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	0.0525	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3400e-003	1.3400e-003	0.0000		1.4300e-003
Energy	1.1200e-003	0.0102	8.5500e-003	6.0000e-005		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004		12.2147	12.2147	2.3000e-004	2.2000e-004	12.2873
Mobile	1.0298	2.9564	6.1216	0.0156	1.1022	0.0156	1.1178	0.2949	0.0146	0.3095		1,578.2404	1,578.2404	0.0807		1,580.2570
Total	1.0835	2.9665	6.1307	0.0157	1.1022	0.0163	1.1185	0.2949	0.0153	0.3103		1,590.4565	1,590.4565	0.0809	2.2000e-004	1,592.5457

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	0.0525	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3400e-003	1.3400e-003	0.0000		1.4300e-003
Energy	1.1200e-003	0.0102	8.5500e-003	6.0000e-005		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004		12.2147	12.2147	2.3000e-004	2.2000e-004	12.2873
Mobile	1.0298	2.9564	6.1216	0.0156	1.1022	0.0156	1.1178	0.2949	0.0146	0.3095		1,578.2404	1,578.2404	0.0807		1,580.2570
Total	1.0835	2.9665	6.1307	0.0157	1.1022	0.0163	1.1185	0.2949	0.0153	0.3103		1,590.4565	1,590.4565	0.0809	2.2000e-004	1,592.5457

Shell Lafayette Carwash - Contra Costa County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/7/2019	1/18/2019	5	10	
2	Site Preparation	Site Preparation	1/19/2019	1/21/2019	5	1	
3	Grading	Grading	1/22/2019	1/23/2019	5	2	
4	Building Construction	Building Construction	1/24/2019	6/12/2019	5	100	
5	Paving	Paving	6/13/2019	6/19/2019	5	5	
6	Architectural Coating	Architectural Coating	6/20/2019	6/26/2019	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.04

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,197; Non-Residential Outdoor: 1,066; Striped Parking Area: 96 (Architectural Coating – sqft)

OffRoad Equipment

Shell Lafayette Carwash - Contra Costa County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	3.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	87.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	1.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	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

Shell Lafayette Carwash - Contra Costa County, Summer

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2019

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					0.0557	0.0000	0.0557	8.4400e-003	0.0000	8.4400e-003			0.0000			0.0000
Off-Road	0.9399	8.4761	8.2228	0.0120		0.5271	0.5271		0.5033	0.5033		1,164.2516	1,164.2516	0.2226		1,169.8156
Total	0.9399	8.4761	8.2228	0.0120	0.0557	0.5271	0.5828	8.4400e-003	0.5033	0.5117		1,164.2516	1,164.2516	0.2226		1,169.8156

Shell Lafayette Carwash - Contra Costa County, Summer

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.6900e-003	0.0915	0.0165	2.4000e-004	5.2400e-003	3.6000e-004	5.6000e-003	1.4400e-003	3.5000e-004	1.7800e-003		25.5065	25.5065	1.1300e-003		25.5349
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	0.0399	0.0246	0.3132	8.7000e-004	0.0822	5.4000e-004	0.0827	0.0218	5.0000e-004	0.0223		86.3508	86.3508	2.3400e-003		86.4093
Total	0.0426	0.1161	0.3297	1.1100e-003	0.0874	9.0000e-004	0.0883	0.0232	8.5000e-004	0.0241		111.8573	111.8573	3.4700e-003		111.9441

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					0.0251	0.0000	0.0251	3.8000e-003	0.0000	3.8000e-003			0.0000			0.0000
Off-Road	0.9399	8.4761	8.2228	0.0120		0.5271	0.5271		0.5033	0.5033	0.0000	1,164.2516	1,164.2516	0.2226		1,169.8156
Total	0.9399	8.4761	8.2228	0.0120	0.0251	0.5271	0.5522	3.8000e-003	0.5033	0.5071	0.0000	1,164.2516	1,164.2516	0.2226		1,169.8156

Shell Lafayette Carwash - Contra Costa County, Summer

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.6900e-003	0.0915	0.0165	2.4000e-004	5.2400e-003	3.6000e-004	5.6000e-003	1.4400e-003	3.5000e-004	1.7800e-003		25.5065	25.5065	1.1300e-003		25.5349
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	0.0399	0.0246	0.3132	8.7000e-004	0.0822	5.4000e-004	0.0827	0.0218	5.0000e-004	0.0223		86.3508	86.3508	2.3400e-003		86.4093
Total	0.0426	0.1161	0.3297	1.1100e-003	0.0874	9.0000e-004	0.0883	0.0232	8.5000e-004	0.0241		111.8573	111.8573	3.4700e-003		111.9441

3.3 Site Preparation - 2019

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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.9988	9.9037	6.9026	9.3100e-003		0.5794	0.5794		0.5331	0.5331		922.8653	922.8653	0.2920		930.1649
Total	0.9988	9.9037	6.9026	9.3100e-003	0.5303	0.5794	1.1097	0.0573	0.5331	0.5903		922.8653	922.8653	0.2920		930.1649

Shell Lafayette Carwash - Contra Costa County, Summer

3.3 Site Preparation - 2019

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	0.0200	0.0123	0.1566	4.3000e-004	0.0411	2.7000e-004	0.0413	0.0109	2.5000e-004	0.0111		43.1754	43.1754	1.1700e-003		43.2046
Total	0.0200	0.0123	0.1566	4.3000e-004	0.0411	2.7000e-004	0.0413	0.0109	2.5000e-004	0.0111		43.1754	43.1754	1.1700e-003		43.2046

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					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.9988	9.9037	6.9026	9.3100e-003		0.5794	0.5794		0.5331	0.5331	0.0000	922.8653	922.8653	0.2920		930.1649
Total	0.9988	9.9037	6.9026	9.3100e-003	0.2386	0.5794	0.8181	0.0258	0.5331	0.5589	0.0000	922.8653	922.8653	0.2920		930.1649

Shell Lafayette Carwash - Contra Costa County, Summer

3.3 Site Preparation - 2019

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	0.0200	0.0123	0.1566	4.3000e-004	0.0411	2.7000e-004	0.0413	0.0109	2.5000e-004	0.0111		43.1754	43.1754	1.1700e-003		43.2046
Total	0.0200	0.0123	0.1566	4.3000e-004	0.0411	2.7000e-004	0.0413	0.0109	2.5000e-004	0.0111		43.1754	43.1754	1.1700e-003		43.2046

3.4 Grading - 2019

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					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.9399	8.4761	8.2228	0.0120		0.5271	0.5271		0.5033	0.5033		1,164.2516	1,164.2516	0.2226		1,169.8156
Total	0.9399	8.4761	8.2228	0.0120	0.7528	0.5271	1.2799	0.4138	0.5033	0.9171		1,164.2516	1,164.2516	0.2226		1,169.8156

Shell Lafayette Carwash - Contra Costa County, Summer

3.4 Grading - 2019

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	0.3897	13.2703	2.3908	0.0348	0.7598	0.0528	0.8126	0.2082	0.0505	0.2587		3,698.4447	3,698.4447	0.1645		3,702.5567
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	0.0399	0.0246	0.3132	8.7000e-004	0.0822	5.4000e-004	0.0827	0.0218	5.0000e-004	0.0223		86.3508	86.3508	2.3400e-003		86.4093
Total	0.4296	13.2949	2.7041	0.0357	0.8419	0.0534	0.8953	0.2300	0.0510	0.2810		3,784.7954	3,784.7954	0.1668		3,788.9659

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					0.3387	0.0000	0.3387	0.1862	0.0000	0.1862			0.0000			0.0000
Off-Road	0.9399	8.4761	8.2228	0.0120		0.5271	0.5271		0.5033	0.5033	0.0000	1,164.2516	1,164.2516	0.2226		1,169.8156
Total	0.9399	8.4761	8.2228	0.0120	0.3387	0.5271	0.8658	0.1862	0.5033	0.6895	0.0000	1,164.2516	1,164.2516	0.2226		1,169.8156

Shell Lafayette Carwash - Contra Costa County, Summer

3.4 Grading - 2019

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	0.3897	13.2703	2.3908	0.0348	0.7598	0.0528	0.8126	0.2082	0.0505	0.2587		3,698.4447	3,698.4447	0.1645		3,702.5567
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	0.0399	0.0246	0.3132	8.7000e-004	0.0822	5.4000e-004	0.0827	0.0218	5.0000e-004	0.0223		86.3508	86.3508	2.3400e-003		86.4093
Total	0.4296	13.2949	2.7041	0.0357	0.8419	0.0534	0.8953	0.2300	0.0510	0.2810		3,784.7954	3,784.7954	0.1668		3,788.9659

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9521	9.7557	7.5184	0.0113		0.6026	0.6026		0.5544	0.5544		1,121.4877	1,121.4877	0.3548		1,130.3584
Total	0.9521	9.7557	7.5184	0.0113		0.6026	0.6026		0.5544	0.5544		1,121.4877	1,121.4877	0.3548		1,130.3584

Shell Lafayette Carwash - Contra Costa County, Summer

3.5 Building Construction - 2019

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	4.8800e-003	0.1255	0.0311	2.8000e-004	6.7700e-003	9.3000e-004	7.7000e-003	1.9500e-003	8.9000e-004	2.8400e-003		29.2284	29.2284	1.4800e-003		29.2654
Worker	3.9900e-003	2.4600e-003	0.0313	9.0000e-005	8.2100e-003	5.0000e-005	8.2700e-003	2.1800e-003	5.0000e-005	2.2300e-003		8.6351	8.6351	2.3000e-004		8.6409
Total	8.8700e-003	0.1279	0.0624	3.7000e-004	0.0150	9.8000e-004	0.0160	4.1300e-003	9.4000e-004	5.0700e-003		37.8634	37.8634	1.7100e-003		37.9063

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9521	9.7557	7.5184	0.0113		0.6026	0.6026		0.5544	0.5544	0.0000	1,121.4877	1,121.4877	0.3548		1,130.3584
Total	0.9521	9.7557	7.5184	0.0113		0.6026	0.6026		0.5544	0.5544	0.0000	1,121.4877	1,121.4877	0.3548		1,130.3584

Shell Lafayette Carwash - Contra Costa County, Summer

3.5 Building Construction - 2019

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	4.8800e-003	0.1255	0.0311	2.8000e-004	6.7700e-003	9.3000e-004	7.7000e-003	1.9500e-003	8.9000e-004	2.8400e-003		29.2284	29.2284	1.4800e-003		29.2654
Worker	3.9900e-003	2.4600e-003	0.0313	9.0000e-005	8.2100e-003	5.0000e-005	8.2700e-003	2.1800e-003	5.0000e-005	2.2300e-003		8.6351	8.6351	2.3000e-004		8.6409
Total	8.8700e-003	0.1279	0.0624	3.7000e-004	0.0150	9.8000e-004	0.0160	4.1300e-003	9.4000e-004	5.0700e-003		37.8634	37.8634	1.7100e-003		37.9063

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8203	7.7394	7.0501	0.0111		0.4374	0.4374		0.4059	0.4059		1,039.5165	1,039.5165	0.2967		1,046.9334
Paving	0.0210					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8412	7.7394	7.0501	0.0111		0.4374	0.4374		0.4059	0.4059		1,039.5165	1,039.5165	0.2967		1,046.9334

Shell Lafayette Carwash - Contra Costa County, Summer

3.6 Paving - 2019

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	0.0718	0.0443	0.5638	1.5600e-003	0.1479	9.7000e-004	0.1488	0.0392	9.0000e-004	0.0401		155.4314	155.4314	4.2100e-003		155.5367
Total	0.0718	0.0443	0.5638	1.5600e-003	0.1479	9.7000e-004	0.1488	0.0392	9.0000e-004	0.0401		155.4314	155.4314	4.2100e-003		155.5367

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8203	7.7394	7.0501	0.0111		0.4374	0.4374		0.4059	0.4059	0.0000	1,039.5165	1,039.5165	0.2967		1,046.9334
Paving	0.0210					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8412	7.7394	7.0501	0.0111		0.4374	0.4374		0.4059	0.4059	0.0000	1,039.5165	1,039.5165	0.2967		1,046.9334

Shell Lafayette Carwash - Contra Costa County, Summer

3.6 Paving - 2019

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	0.0718	0.0443	0.5638	1.5600e-003	0.1479	9.7000e-004	0.1488	0.0392	9.0000e-004	0.0401		155.4314	155.4314	4.2100e-003		155.5367
Total	0.0718	0.0443	0.5638	1.5600e-003	0.1479	9.7000e-004	0.1488	0.0392	9.0000e-004	0.0401		155.4314	155.4314	4.2100e-003		155.5367

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.1094					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	2.3758	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423

Shell Lafayette Carwash - Contra Costa County, Summer

3.7 Architectural Coating - 2019

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							

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.1094					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	2.3758	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423

Shell Lafayette Carwash - Contra Costa County, Summer

3.7 Architectural Coating - 2019

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							

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Shell Lafayette Carwash - Contra Costa County, Summer

	ROG	NOx	CO	SO2	Fugitive 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	1.0298	2.9564	6.1216	0.0156	1.1022	0.0156	1.1178	0.2949	0.0146	0.3095		1,578.2404	1,578.2404	0.0807		1,580.2570
Unmitigated	1.0298	2.9564	6.1216	0.0156	1.1022	0.0156	1.1178	0.2949	0.0146	0.3095		1,578.2404	1,578.2404	0.0807		1,580.2570

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	19.34	19.34	19.34	19,271	19,271
Convenience Market (24 Hour)	560.87	655.96	576.42	439,184	439,184
Parking Lot	0.00	0.00	0.00		
Total	580.22	675.30	595.77	458,455	458,455

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	21	51	28
Convenience Market (24 Hour)	9.50	7.30	7.30	0.90	80.10	19.00	24	15	61
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Shell Lafayette Carwash - Contra Costa County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Automobile Care Center	0.577244	0.040114	0.186710	0.126359	0.018084	0.005120	0.010527	0.023222	0.001588	0.001850	0.005513	0.002759	0.000910
Convenience Market (24 Hour)	0.577244	0.040114	0.186710	0.126359	0.018084	0.005120	0.010527	0.023222	0.001588	0.001850	0.005513	0.002759	0.000910
Parking Lot	0.577244	0.040114	0.186710	0.126359	0.018084	0.005120	0.010527	0.023222	0.001588	0.001850	0.005513	0.002759	0.000910

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.1200e-003	0.0102	8.5500e-003	6.0000e-005		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004		12.2147	12.2147	2.3000e-004	2.2000e-004	12.2873
NaturalGas Unmitigated	1.1200e-003	0.0102	8.5500e-003	6.0000e-005		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004		12.2147	12.2147	2.3000e-004	2.2000e-004	12.2873

Shell Lafayette Carwash - Contra Costa County, Summer

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					
Automobile Care Center	98.8708	1.0700e-003	9.6900e-003	8.1400e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.6319	11.6319	2.2000e-004	2.1000e-004	11.7010
Convenience Market (24 Hour)	4.95427	5.0000e-005	4.9000e-004	4.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.5829	0.5829	1.0000e-005	1.0000e-005	0.5863
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
Total		1.1200e-003	0.0102	8.5500e-003	6.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004		12.2147	12.2147	2.3000e-004	2.2000e-004	12.2873

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					
Automobile Care Center	0.0988708	1.0700e-003	9.6900e-003	8.1400e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004		11.6319	11.6319	2.2000e-004	2.1000e-004	11.7010
Convenience Market (24 Hour)	0.00495427	5.0000e-005	4.9000e-004	4.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.5829	0.5829	1.0000e-005	1.0000e-005	0.5863
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
Total		1.1200e-003	0.0102	8.5500e-003	6.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004		12.2147	12.2147	2.3000e-004	2.2000e-004	12.2873

6.0 Area Detail

Shell Lafayette Carwash - Contra Costa County, Summer

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	0.0525	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3400e-003	1.3400e-003	0.0000		1.4300e-003
Unmitigated	0.0525	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3400e-003	1.3400e-003	0.0000		1.4300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.2700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0462					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3400e-003	1.3400e-003	0.0000		1.4300e-003
Total	0.0525	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3400e-003	1.3400e-003	0.0000		1.4300e-003

Shell Lafayette Carwash - Contra Costa County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.2700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0462					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3400e-003	1.3400e-003	0.0000		1.4300e-003
Total	0.0525	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3400e-003	1.3400e-003	0.0000		1.4300e-003

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

Shell Lafayette Carwash - Contra Costa County, Summer

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

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

Equipment Type	Number
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11.0 Vegetation

Air Quality Study Appendix B

Kittelson & Associates Transportation Site Plan Review Memorandum

MEMORANDUM

Date: April 20, 2018

Project #: 22399

To: Karly Kaufman
Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, CA 94612

From: Aaron Elias, P.E. and Damian Stefanakis
Project: Lafayette Carwash and Snack Station Project
Subject: Transportation Site Plan Review

The City of Lafayette has received an application requesting a Land Use permit for the operation of a carwash and a 763 square foot office/retail building at the existing Shell gas station located on the southeast corner of the intersection of Stanley Boulevard and Pleasant Hill Road (parcel 177-061-027). The project site is zoned PHC with a General Plan of Administrative Professional Office.

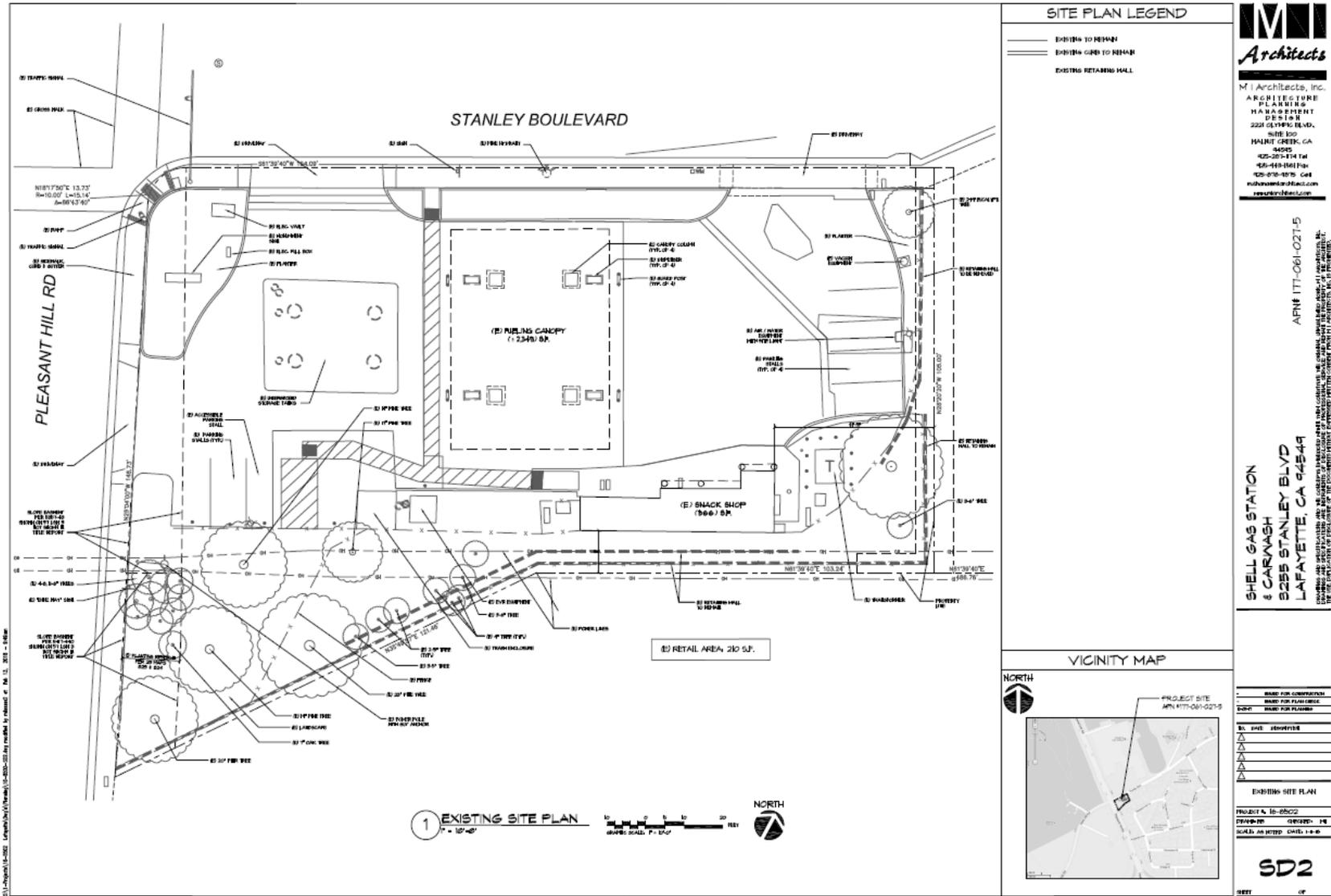
The project is expanding a non-conforming use, but otherwise complies with the development requirements. Staff has some significant concerns about the project related to transportation. This memorandum provides a qualitative analysis of the effects the proposed expansion has on site circulation and access. This report did not evaluate detailed quantitative analysis of carwash trip generation and intersection level of service operations at the Pleasant Hill Road and Stanley Boulevard intersection. This may not be necessary given that most new trips would likely be pass by trips, but further studies could be done if required.

The primary focus areas include:

- Adequacy of the driveway widths for the three access points
- Queue storage length of the carwash
- City of Lafayette parking code requirements
- Onsite vehicle traffic flow conflict points
- Conflict points between pedestrians, bicycles and vehicles

The qualitative analysis described below is based on site plans last modified on February 13, 2018. For reference, the existing site plan is shown in Figure 1 and the proposed site plan showing the carwash, snack shop and relocation of the Stanley driveway is shown in Figure 2.

Figure 1: Existing Site Plan



Source: MI Architects, 2018

ADEQUACY OF DRIVEWAY WIDTHS

The site is currently accessed via three driveways, one on Pleasant Hill Road and two on Stanley Boulevard. The driveway on Pleasant Hill Road and the western Stanley Boulevard Driveway will remain with the proposed carwash expansion. The eastern driveway on Stanley Boulevard will be relocated approximately 30 feet west to allow for access to the carwash.

The driveway on Pleasant Hill Road operates as a right-in and right-out only access. While left turns are not prohibited at the western Stanley Boulevard Driveway, it primary operates as a right-in and right-out only access due to proximity with the intersection. The eastern Stanley Boulevard Driveway provides full access.

Widths for the Pleasant Hill Road driveway, western and eastern Stanley Boulevard driveways are 29 feet, 34 feet, and 35 feet, respectively. These widths are all below the maximum commercial driveway widths stated in the California Highway Design Manual (Page 200-26) and the total driveway widths do not exceed 60 percent of the project frontage. Therefore, the driveways comply the Caltrans Highway Design Manual.

QUEUE STORAGE

Site plan measurements for the proposed carwash shows the site can accommodate about 175 feet of queued vehicles (about 8 total) without blocking driveways or conflicting with the normal gas station operations. Assuming every carwash takes about 4 minutes to complete, the wait time for the 8th vehicle in the queue would be about 32 minutes. It is reasonable to assume that most drivers would not be willing to wait for more than 32 minutes to get a carwash at a gas station. Therefore, it is anticipated that the eight-vehicle queue provided by the proposed design is sufficient and queueing would not extend onto Stanley Boulevard or impede normal onsite gas station operations.

PARKING CODE REQUIREMENTS

The proposed site plan will provide a total of four parking spaces in addition to the eight fueling locations. One of the parking spaces would be accessible. Chapter 6-6 Article 3 of the Lafayette Municipal Code requires automotive servicing businesses to provide one parking space per 250 square feet of net floor area. The proposed project would incorporate a 763 square foot office/retail area requiring four parking spaces. Since the site plan provides four spaces, the proposed project meets City parking code requirements.

VEHICLE CONFLICT POINTS

There are three primary vehicle-to-vehicle potential conflict points. These include:

1. Vehicles exiting the carwash and those leaving the vacuum parking space;
2. Vehicles accessing the carwash when all fueling bays are occupied; and
3. Vehicles exiting onto Stanley Boulevard, especially accessing the westbound right turn lane.

Vehicles Exiting Carwash

Three of the four parking spaces for the project are located approximately 25 feet from the carwash exit. One space allows access to the air & water equipment, one space is standard parking, and the third is the vacuum area. Vehicles exiting the carwash would be anticipated to drive at a slow rate of speed, especially if the drying feature is a fixed point at the end of the carwash. In addition to the slow speeds, there is almost 25 feet of separation between the carwash and nearest parking space and the site lines are good. Based on these three factors the parking stall locations in relation to the carwash exit are not anticipated to present a significant conflict point. One recommendation related to this area is to put no parking anytime on the doors of the trash enclosure to help prohibit parking in the hashed-out area between the vacuum parking space and the carwash exit. If a vehicle parks in this area, it may be more difficult to see by vehicles exiting the carwash.

Vehicles Accessing Carwash

Potential conflicts may exist for vehicles already onsite at the fueling stations attempting to reach the carwash entry. While the northern and southern drive aisles between the fueling stations are insufficient to allow another vehicle to pass at around 13 feet, the middle fueling stations are about 25 feet apart. Since a typical parking space is about 8 feet wide, two vehicles fueling on either side should still leave about 9 feet of room between them for another vehicle to access the carwash. If vehicles are unable to pass due to size of the fueling vehicles or inefficient parking at the pump, a vehicle trying to access the carwash could either wait for the vehicle fueling to depart or use the two driveways on Stanley Boulevard to go around the blockage and access the carwash entrance.

Vehicles Exiting onto Stanley Boulevard

The final potential conflict point may arise when vehicles exiting left out of the driveways on Stanley Boulevard, especially accessing the westbound right turn lane desiring to travel north of Pleasant Hill Road. The western driveway on Stanley Boulevard has not changed, so vehicles desiring to turn left out of the western driveway will still be challenged due to proximity to the intersection and any westbound queued vehicles blocking this movement. The eastern driveway is proposed to move to the west by about 30 feet putting it closer to the intersection at Pleasant Hill Road. While this would provide less space for a vehicle exiting left to get into the correct westbound lane (especially if westbound left-turn traffic is queued up at the intersection), it is not going to be substantially more difficult because the number of lanes a vehicle must cross is the same at either driveway location. Vehicles desiring to travel north of Pleasant Hill Road also still have the option to turn right out of the Pleasant Hill Road Driveway. Outside of the AM, School, and PM peak hours, Stanley Boulevard has only minimal traffic and the relocation of the east driveway 30 feet to the west should have little effect.

PEDESTRIAN AND BICYCLE CONFLICT POINTS

Pedestrian circulation in the site is generally well laid out. The site plan provides an access point from the sidewalk along Stanley Boulevard to the retail snack shop. This connection is important to better serve pedestrians accessing the retail portion of the site from Acalanes High School. This pedestrian connection does cross the drive-through for the carwash, but the sight distances are good and the crossing is well marked. Appropriate scale signage should be added to the crosswalk to notify motorist of the crosswalk.

Bicycle circulation within the site would be about the same as the motor vehicle circulation. The site plan does provide a bicycle storage rack to the east of the accessible parking space. It is unclear the type of bicycle rack that is proposed, but it should be a rack that allows bicycles to be parked in a north/south orientation. There is insufficient space in the bicycle rack area to allow for east/west parking orientation without hanging over the curb for the pedestrian crosswalk across the carwash drive through.

SUMMARY

This memorandum provided a qualitative analysis of the proposed carwash expansion for the existing Shell gas station located in the southeast corner of the intersection of Pleasant Hill Road and Stanley Boulevard. The primary findings and recommendations include:

- The driveway widths comply with the Caltrans Highway Design Manual
- The site plan provides sufficient queue storage for the carwash
- While there are potential vehicle conflict points, they are not anticipated to be problematic for the gas station patrons practicing due care.
- Pedestrian and bicycle access with the site is adequate
- Recommendations include:
 - Place “No Parking” signs in front of the trash enclosure to prevent vehicles from parking closer to the carwash exit than the parking stall for the vacuum.
 - Ensure the bicycle rack is placed so that bicycles can be parked in a north/south orientation.
 - Add signage for the pedestrian crosswalk across the carwash drive through.

This report did not evaluate detailed quantitative analysis of carwash trip generation and intersection level of service operations at the Pleasant Hill Road and Stanley Boulevard intersection. This may not be necessary given that most new trips would likely be pass by trips (i.e.: already in the system), but further studies could be done if required.

Appendix B

Greenhouse Gas Emissions Modeling Results

Shell Lafayette Carwash - Contra Costa County, Annual

**Shell Lafayette Carwash
Contra Costa County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	4.00	Space	0.04	1,600.00	0
Automobile Care Center	1.37	1000sqft	0.03	1,368.00	0
Convenience Market (24 Hour)	0.76	1000sqft	0.02	763.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Shell Lafayette Carwash - Contra Costa County, Annual

Project Characteristics -

Construction Phase - extended arch coating to reflect accurate schedule

Grading -

Demolition -

Architectural Coating - CALGreen Requirement

Fleet Mix -

Area Coating -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblGrading	MaterialExported	0.00	880.00
tblLandUse	LandUseSquareFeet	1,370.00	1,368.00
tblLandUse	LandUseSquareFeet	760.00	763.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	130.00	125.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblVehicleTrips	ST_TR	23.72	14.12
tblVehicleTrips	SU_TR	11.88	14.12
tblVehicleTrips	WD_TR	23.72	14.12

2.0 Emissions Summary

Shell Lafayette Carwash - Contra Costa County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-7-2019	4-6-2019	0.3524	0.3524
2	4-7-2019	7-6-2019	0.2918	0.2918
		Highest	0.3524	0.3524

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	9.5800e-003	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004
Energy	2.0000e-004	1.8600e-003	1.5600e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	7.8452	7.8452	3.0000e-004	9.0000e-005	7.8800
Mobile	0.1345	0.4837	1.0263	2.3600e-003	0.1712	2.5200e-003	0.1738	0.0460	2.3600e-003	0.0483	0.0000	215.6566	215.6566	0.0121	0.0000	215.9600
Waste						0.0000	0.0000		0.0000	0.0000	1.5245	0.0000	1.5245	0.0901	0.0000	3.7768
Water						0.0000	0.0000		0.0000	0.0000	0.0588	0.4071	0.4658	6.0500e-003	1.5000e-004	0.6607
Total	0.1443	0.4855	1.0280	2.3700e-003	0.1712	2.6600e-003	0.1739	0.0460	2.5000e-003	0.0485	1.5832	223.9090	225.4922	0.1086	2.4000e-004	228.2777

Shell Lafayette Carwash - Contra Costa County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.5800e-003	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004
Energy	2.0000e-004	1.8600e-003	1.5600e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	7.8452	7.8452	3.0000e-004	9.0000e-005	7.8800
Mobile	0.1345	0.4837	1.0263	2.3600e-003	0.1712	2.5200e-003	0.1738	0.0460	2.3600e-003	0.0483	0.0000	215.6566	215.6566	0.0121	0.0000	215.9600
Waste						0.0000	0.0000		0.0000	0.0000	1.5245	0.0000	1.5245	0.0901	0.0000	3.7768
Water						0.0000	0.0000		0.0000	0.0000	0.0588	0.4071	0.4658	6.0500e-003	1.5000e-004	0.6607
Total	0.1443	0.4855	1.0280	2.3700e-003	0.1712	2.6600e-003	0.1739	0.0460	2.5000e-003	0.0485	1.5832	223.9090	225.4922	0.1086	2.4000e-004	228.2777

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Shell Lafayette Carwash - Contra Costa County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/7/2019	1/18/2019	5	10	
2	Site Preparation	Site Preparation	1/19/2019	1/21/2019	5	1	
3	Grading	Grading	1/22/2019	1/23/2019	5	2	
4	Building Construction	Building Construction	1/24/2019	6/12/2019	5	100	
5	Paving	Paving	6/13/2019	6/19/2019	5	5	
6	Architectural Coating	Architectural Coating	6/20/2019	6/26/2019	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.04

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,197; Non-Residential Outdoor: 1,066; Striped Parking Area: 96 (Architectural Coating – sqft)

OffRoad Equipment

Shell Lafayette Carwash - Contra Costa County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	3.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	87.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	1.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	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

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3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.8000e-004	0.0000	2.8000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7000e-003	0.0424	0.0411	6.0000e-005		2.6400e-003	2.6400e-003		2.5200e-003	2.5200e-003	0.0000	5.2810	5.2810	1.0100e-003	0.0000	5.3062
Total	4.7000e-003	0.0424	0.0411	6.0000e-005	2.8000e-004	2.6400e-003	2.9200e-003	4.0000e-005	2.5200e-003	2.5600e-003	0.0000	5.2810	5.2810	1.0100e-003	0.0000	5.3062

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3.2 Demolition - 2019

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	1.0000e-005	4.7000e-004	9.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1149	0.1149	1.0000e-005	0.0000	0.1150
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	1.8000e-004	1.4000e-004	1.4100e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3593	0.3593	1.0000e-005	0.0000	0.3596
Total	1.9000e-004	6.1000e-004	1.5000e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4742	0.4742	2.0000e-005	0.0000	0.4746

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					1.3000e-004	0.0000	1.3000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7000e-003	0.0424	0.0411	6.0000e-005		2.6400e-003	2.6400e-003		2.5200e-003	2.5200e-003	0.0000	5.2810	5.2810	1.0100e-003	0.0000	5.3062
Total	4.7000e-003	0.0424	0.0411	6.0000e-005	1.3000e-004	2.6400e-003	2.7700e-003	2.0000e-005	2.5200e-003	2.5400e-003	0.0000	5.2810	5.2810	1.0100e-003	0.0000	5.3062

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3.2 Demolition - 2019

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	1.0000e-005	4.7000e-004	9.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1149	0.1149	1.0000e-005	0.0000	0.1150
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	1.8000e-004	1.4000e-004	1.4100e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3593	0.3593	1.0000e-005	0.0000	0.3596
Total	1.9000e-004	6.1000e-004	1.5000e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4742	0.4742	2.0000e-005	0.0000	0.4746

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0000e-004	4.9500e-003	3.4500e-003	0.0000		2.9000e-004	2.9000e-004		2.7000e-004	2.7000e-004	0.0000	0.4186	0.4186	1.3000e-004	0.0000	0.4219
Total	5.0000e-004	4.9500e-003	3.4500e-003	0.0000	2.7000e-004	2.9000e-004	5.6000e-004	3.0000e-005	2.7000e-004	3.0000e-004	0.0000	0.4186	0.4186	1.3000e-004	0.0000	0.4219

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3.3 Site Preparation - 2019

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	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0180	0.0180	0.0000	0.0000	0.0180
Total	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0180	0.0180	0.0000	0.0000	0.0180

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					1.2000e-004	0.0000	1.2000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0000e-004	4.9500e-003	3.4500e-003	0.0000		2.9000e-004	2.9000e-004		2.7000e-004	2.7000e-004	0.0000	0.4186	0.4186	1.3000e-004	0.0000	0.4219
Total	5.0000e-004	4.9500e-003	3.4500e-003	0.0000	1.2000e-004	2.9000e-004	4.1000e-004	1.0000e-005	2.7000e-004	2.8000e-004	0.0000	0.4186	0.4186	1.3000e-004	0.0000	0.4219

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3.3 Site Preparation - 2019

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	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0180	0.0180	0.0000	0.0000	0.0180
Total	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0180	0.0180	0.0000	0.0000	0.0180

3.4 Grading - 2019

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					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.4000e-004	8.4800e-003	8.2200e-003	1.0000e-005		5.3000e-004	5.3000e-004		5.0000e-004	5.0000e-004	0.0000	1.0562	1.0562	2.0000e-004	0.0000	1.0612
Total	9.4000e-004	8.4800e-003	8.2200e-003	1.0000e-005	7.5000e-004	5.3000e-004	1.2800e-003	4.1000e-004	5.0000e-004	9.1000e-004	0.0000	1.0562	1.0562	2.0000e-004	0.0000	1.0612

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3.4 Grading - 2019

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	3.9000e-004	0.0135	2.4800e-003	3.0000e-005	7.4000e-004	5.0000e-005	7.9000e-004	2.0000e-004	5.0000e-005	2.5000e-004	0.0000	3.3316	3.3316	1.5000e-004	0.0000	3.3355
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	2.8000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0719	0.0719	0.0000	0.0000	0.0719
Total	4.3000e-004	0.0136	2.7600e-003	3.0000e-005	8.2000e-004	5.0000e-005	8.7000e-004	2.2000e-004	5.0000e-005	2.7000e-004	0.0000	3.4035	3.4035	1.5000e-004	0.0000	3.4074

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					3.4000e-004	0.0000	3.4000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.4000e-004	8.4800e-003	8.2200e-003	1.0000e-005		5.3000e-004	5.3000e-004		5.0000e-004	5.0000e-004	0.0000	1.0562	1.0562	2.0000e-004	0.0000	1.0612
Total	9.4000e-004	8.4800e-003	8.2200e-003	1.0000e-005	3.4000e-004	5.3000e-004	8.7000e-004	1.9000e-004	5.0000e-004	6.9000e-004	0.0000	1.0562	1.0562	2.0000e-004	0.0000	1.0612

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3.4 Grading - 2019

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	3.9000e-004	0.0135	2.4800e-003	3.0000e-005	7.4000e-004	5.0000e-005	7.9000e-004	2.0000e-004	5.0000e-005	2.5000e-004	0.0000	3.3316	3.3316	1.5000e-004	0.0000	3.3355
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	2.8000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0719	0.0719	0.0000	0.0000	0.0719
Total	4.3000e-004	0.0136	2.7600e-003	3.0000e-005	8.2000e-004	5.0000e-005	8.7000e-004	2.2000e-004	5.0000e-005	2.7000e-004	0.0000	3.4035	3.4035	1.5000e-004	0.0000	3.4074

3.5 Building Construction - 2019

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	0.0476	0.4878	0.3759	5.7000e-004		0.0301	0.0301		0.0277	0.0277	0.0000	50.8698	50.8698	0.0161	0.0000	51.2722
Total	0.0476	0.4878	0.3759	5.7000e-004		0.0301	0.0301		0.0277	0.0277	0.0000	50.8698	50.8698	0.0161	0.0000	51.2722

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3.5 Building Construction - 2019

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	2.5000e-004	6.3600e-003	1.6600e-003	1.0000e-005	3.3000e-004	5.0000e-005	3.8000e-004	1.0000e-004	4.0000e-005	1.4000e-004	0.0000	1.3118	1.3118	7.0000e-005	0.0000	1.3136
Worker	1.8000e-004	1.4000e-004	1.4100e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3593	0.3593	1.0000e-005	0.0000	0.3596
Total	4.3000e-004	6.5000e-003	3.0700e-003	1.0000e-005	7.3000e-004	5.0000e-005	7.8000e-004	2.1000e-004	4.0000e-005	2.5000e-004	0.0000	1.6711	1.6711	8.0000e-005	0.0000	1.6731

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	0.0476	0.4878	0.3759	5.7000e-004		0.0301	0.0301		0.0277	0.0277	0.0000	50.8698	50.8698	0.0161	0.0000	51.2721
Total	0.0476	0.4878	0.3759	5.7000e-004		0.0301	0.0301		0.0277	0.0277	0.0000	50.8698	50.8698	0.0161	0.0000	51.2721

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3.5 Building Construction - 2019

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	2.5000e-004	6.3600e-003	1.6600e-003	1.0000e-005	3.3000e-004	5.0000e-005	3.8000e-004	1.0000e-004	4.0000e-005	1.4000e-004	0.0000	1.3118	1.3118	7.0000e-005	0.0000	1.3136
Worker	1.8000e-004	1.4000e-004	1.4100e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3593	0.3593	1.0000e-005	0.0000	0.3596
Total	4.3000e-004	6.5000e-003	3.0700e-003	1.0000e-005	7.3000e-004	5.0000e-005	7.8000e-004	2.1000e-004	4.0000e-005	2.5000e-004	0.0000	1.6711	1.6711	8.0000e-005	0.0000	1.6731

3.6 Paving - 2019

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	2.0500e-003	0.0194	0.0176	3.0000e-005		1.0900e-003	1.0900e-003		1.0100e-003	1.0100e-003	0.0000	2.3576	2.3576	6.7000e-004	0.0000	2.3744
Paving	5.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.1000e-003	0.0194	0.0176	3.0000e-005		1.0900e-003	1.0900e-003		1.0100e-003	1.0100e-003	0.0000	2.3576	2.3576	6.7000e-004	0.0000	2.3744

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3.6 Paving - 2019

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	1.7000e-004	1.2000e-004	1.2600e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3234	0.3234	1.0000e-005	0.0000	0.3236
Total	1.7000e-004	1.2000e-004	1.2600e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3234	0.3234	1.0000e-005	0.0000	0.3236

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	2.0500e-003	0.0194	0.0176	3.0000e-005		1.0900e-003	1.0900e-003		1.0100e-003	1.0100e-003	0.0000	2.3576	2.3576	6.7000e-004	0.0000	2.3744
Paving	5.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.1000e-003	0.0194	0.0176	3.0000e-005		1.0900e-003	1.0900e-003		1.0100e-003	1.0100e-003	0.0000	2.3576	2.3576	6.7000e-004	0.0000	2.3744

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3.6 Paving - 2019

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	1.7000e-004	1.2000e-004	1.2600e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3234	0.3234	1.0000e-005	0.0000	0.3236
Total	1.7000e-004	1.2000e-004	1.2600e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3234	0.3234	1.0000e-005	0.0000	0.3236

3.7 Architectural Coating - 2019

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	5.2700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7000e-004	4.5900e-003	4.6000e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.6383	0.6383	5.0000e-005	0.0000	0.6397
Total	5.9400e-003	4.5900e-003	4.6000e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.6383	0.6383	5.0000e-005	0.0000	0.6397

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3.7 Architectural Coating - 2019

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							

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	5.2700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7000e-004	4.5900e-003	4.6000e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.6383	0.6383	5.0000e-005	0.0000	0.6397
Total	5.9400e-003	4.5900e-003	4.6000e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.6383	0.6383	5.0000e-005	0.0000	0.6397

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3.7 Architectural Coating - 2019

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							

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Shell Lafayette Carwash - Contra Costa County, Annual

	ROG	NOx	CO	SO2	Fugitive 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	0.1345	0.4837	1.0263	2.3600e-003	0.1712	2.5200e-003	0.1738	0.0460	2.3600e-003	0.0483	0.0000	215.6566	215.6566	0.0121	0.0000	215.9600
Unmitigated	0.1345	0.4837	1.0263	2.3600e-003	0.1712	2.5200e-003	0.1738	0.0460	2.3600e-003	0.0483	0.0000	215.6566	215.6566	0.0121	0.0000	215.9600

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	19.34	19.34	19.34	19,271	19,271
Convenience Market (24 Hour)	560.87	655.96	576.42	439,184	439,184
Parking Lot	0.00	0.00	0.00		
Total	580.22	675.30	595.77	458,455	458,455

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	21	51	28
Convenience Market (24 Hour)	9.50	7.30	7.30	0.90	80.10	19.00	24	15	61
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Automobile Care Center	0.577244	0.040114	0.186710	0.126359	0.018084	0.005120	0.010527	0.023222	0.001588	0.001850	0.005513	0.002759	0.000910
Convenience Market (24 Hour)	0.577244	0.040114	0.186710	0.126359	0.018084	0.005120	0.010527	0.023222	0.001588	0.001850	0.005513	0.002759	0.000910
Parking Lot	0.577244	0.040114	0.186710	0.126359	0.018084	0.005120	0.010527	0.023222	0.001588	0.001850	0.005513	0.002759	0.000910

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.8229	5.8229	2.6000e-004	5.0000e-005	5.8457
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.8229	5.8229	2.6000e-004	5.0000e-005	5.8457
NaturalGas Mitigated	2.0000e-004	1.8600e-003	1.5600e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.0223	2.0223	4.0000e-005	4.0000e-005	2.0343
NaturalGas Unmitigated	2.0000e-004	1.8600e-003	1.5600e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.0223	2.0223	4.0000e-005	4.0000e-005	2.0343

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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					
Automobile Care Center	36087.8	1.9000e-004	1.7700e-003	1.4900e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	1.9258	1.9258	4.0000e-005	4.0000e-005	1.9372
Convenience Market (24 Hour)	1808.31	1.0000e-005	9.0000e-005	7.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.0965	0.0965	0.0000	0.0000	0.0971
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
Total		2.0000e-004	1.8600e-003	1.5600e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.0223	2.0223	4.0000e-005	4.0000e-005	2.0343

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					
Automobile Care Center	36087.8	1.9000e-004	1.7700e-003	1.4900e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	1.9258	1.9258	4.0000e-005	4.0000e-005	1.9372
Convenience Market (24 Hour)	1808.31	1.0000e-005	9.0000e-005	7.0000e-005	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.0965	0.0965	0.0000	0.0000	0.0971
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
Total		2.0000e-004	1.8600e-003	1.5600e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.0223	2.0223	4.0000e-005	4.0000e-005	2.0343

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	11299.7	3.2872	1.5000e-004	3.0000e-005	3.3001
Convenience Market (24 Hour)	8156.47	2.3728	1.1000e-004	2.0000e-005	2.3821
Parking Lot	560	0.1629	1.0000e-005	0.0000	0.1636
Total		5.8229	2.7000e-004	5.0000e-005	5.8458

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	11299.7	3.2872	1.5000e-004	3.0000e-005	3.3001
Convenience Market (24 Hour)	8156.47	2.3728	1.1000e-004	2.0000e-005	2.3821
Parking Lot	560	0.1629	1.0000e-005	0.0000	0.1636
Total		5.8229	2.7000e-004	5.0000e-005	5.8458

6.0 Area Detail

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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	9.5800e-003	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004
Unmitigated	9.5800e-003	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-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	1.1400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.4300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004
Total	9.5800e-003	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.4300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004
Total	9.5800e-003	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004

7.0 Water Detail

7.1 Mitigation Measures Water

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.4658	6.0500e-003	1.5000e-004	0.6607
Unmitigated	0.4658	6.0500e-003	1.5000e-004	0.6607

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.128891 / 0.0789978	0.3242	4.2100e-003	1.0000e-004	0.4599
Convenience Market (24 Hour)	0.0562951 / 0.0345035	0.1416	1.8400e-003	4.0000e-005	0.2009
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.4658	6.0500e-003	1.4000e-004	0.6607

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.128891 / 0.0789978	0.3242	4.2100e-003	1.0000e-004	0.4599
Convenience Market (24 Hour)	0.0562951 / 0.0345035	0.1416	1.8400e-003	4.0000e-005	0.2009
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.4658	6.0500e-003	1.4000e-004	0.6607

8.0 Waste Detail

8.1 Mitigation Measures Waste

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Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.5245	0.0901	0.0000	3.7768
Unmitigated	1.5245	0.0901	0.0000	3.7768

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	5.23	1.0616	0.0627	0.0000	2.6302
Convenience Market (24 Hour)	2.28	0.4628	0.0274	0.0000	1.1466
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		1.5245	0.0901	0.0000	3.7768

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8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	5.23	1.0616	0.0627	0.0000	2.6302
Convenience Market (24 Hour)	2.28	0.4628	0.0274	0.0000	1.1466
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		1.5245	0.0901	0.0000	3.7768

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

Greenhouse Gas Emission Worksheet
N2O Mobile Emissions

From CalEEMod Vehicle Fleet Mix Output: 3255 Stanley Carwash Project

Annual VMT: 458,455

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4 Emission (g/mile)**	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)**
Light Auto	60.8%	0.04	0.0243159	0.04	0.024316
Light Truck < 3750 lbs	3.7%	0.05	0.0018717	0.06	0.002246
Light Truck 3751-5750 lbs	18.4%	0.05	0.0092002	0.06	0.01104
Med Truck 5751-8500 lbs	10.7%	0.12	0.0128713	0.2	0.021452
Lite-Heavy Truck 8501-10,000 lbs	1.5%	0.12	0.0017903	0.2	0.002984
Lite-Heavy Truck 10,001-14,000 lbs	0.5%	0.09	0.0004492	0.125	0.000624
Med-Heavy Truck 14,001-33,000 lbs	1.2%	0.06	0.0007468	0.05	0.000622
Heavy-Heavy Truck 33,001-60,000 lbs	2.1%	0.06	0.0012395	0.05	0.001033
Other Bus	0.2%	0.06	0.0001269	0.05	0.000106
Urban Bus	0.2%	0.06	9.324E-05	0.05	7.77E-05
Motorcycle	0.5%	0.09	0.0004801	0.01	5.33E-05
School Bus	0.1%	0.06	3.738E-05	0.05	3.12E-05
Motor Home	0.1%	0.09	6.849E-05	0.125	9.51E-05
Total	100.0%		0.053291		0.06468

Total Emissions (metric tons) =

Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)

CH4 21 GWP
 N2O 310 GWP
 1 ton (short, US) = 0.90718474 metric ton

Annual Mobile Emissions:

	Total Emissions	Total CO2e units
N2O Emissions:	0.0297 metric tons N2O	9.19 metric tons CO2e
Project Total:	9.19 metric tons CO2e	

References

* from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile).
 in California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
 Assume Model year 2000-present, gasoline fueled.

** Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.

Appendix C

Noise Measurement Data, Car Wash Equipment Noise Specifications, and SoundPlan Modeling Results

Freq Weight : A
Time Weight : FAST
Level Range : 40-100
Max dB : 76.6 - 2018/04/10 16:03:56
Level Range : 40-100
SEL : 84.8
Leq : 55.3

No. s	Date Time	(dB)
1	2018/04/10 15:55:14	52.1
2	2018/04/10 15:55:15	52.9
3	2018/04/10 15:55:16	54.1
4	2018/04/10 15:55:17	52.2
5	2018/04/10 15:55:18	56.6
6	2018/04/10 15:55:19	54.7
7	2018/04/10 15:55:20	54.7
8	2018/04/10 15:55:21	54.0
9	2018/04/10 15:55:22	53.9
10	2018/04/10 15:55:23	53.7
11	2018/04/10 15:55:24	53.9
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870	2018/04/10	16:09:43	53.1
871	2018/04/10	16:09:44	53.5
872	2018/04/10	16:09:45	53.0
873	2018/04/10	16:09:46	52.6
874	2018/04/10	16:09:47	53.5
875	2018/04/10	16:09:48	54.0
876	2018/04/10	16:09:49	53.6
877	2018/04/10	16:09:50	53.8

878	2018/04/10	16:09:51	54.5
879	2018/04/10	16:09:52	54.1
880	2018/04/10	16:09:53	54.2
881	2018/04/10	16:09:54	54.2
882	2018/04/10	16:09:55	54.4
883	2018/04/10	16:09:56	54.0
884	2018/04/10	16:09:57	54.1
885	2018/04/10	16:09:58	53.8
886	2018/04/10	16:09:59	53.8
887	2018/04/10	16:10:00	53.9
888	2018/04/10	16:10:01	53.5
889	2018/04/10	16:10:02	53.5
890	2018/04/10	16:10:03	53.7
891	2018/04/10	16:10:04	54.1
892	2018/04/10	16:10:05	53.6
893	2018/04/10	16:10:06	53.8
894	2018/04/10	16:10:07	54.2
895	2018/04/10	16:10:08	54.3
896	2018/04/10	16:10:09	55.0
897	2018/04/10	16:10:10	53.6
898	2018/04/10	16:10:11	55.0
899	2018/04/10	16:10:12	54.5
900	2018/04/10	16:10:13	53.6

Freq Weight : A
Time Weight : FAST
Level Range : 40-100
Max dB : 93.4 - 2018/04/10 16:36:09
Level Range : 40-100
SEL : 99.5
Leq : 70.0

No. s	Date Time	(dB)
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3	2018/04/10 16:26:32	55.5
4	2018/04/10 16:26:33	55.8
5	2018/04/10 16:26:34	56.1
6	2018/04/10 16:26:35	54.9
7	2018/04/10 16:26:36	54.8
8	2018/04/10 16:26:37	55.5
9	2018/04/10 16:26:38	54.2
10	2018/04/10 16:26:39	54.2
11	2018/04/10 16:26:40	54.4
12	2018/04/10 16:26:41	54.9
13	2018/04/10 16:26:42	54.9
14	2018/04/10 16:26:43	54.0
15	2018/04/10 16:26:44	54.1
16	2018/04/10 16:26:45	54.4
17	2018/04/10 16:26:46	54.7
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20	2018/04/10 16:26:49	54.6
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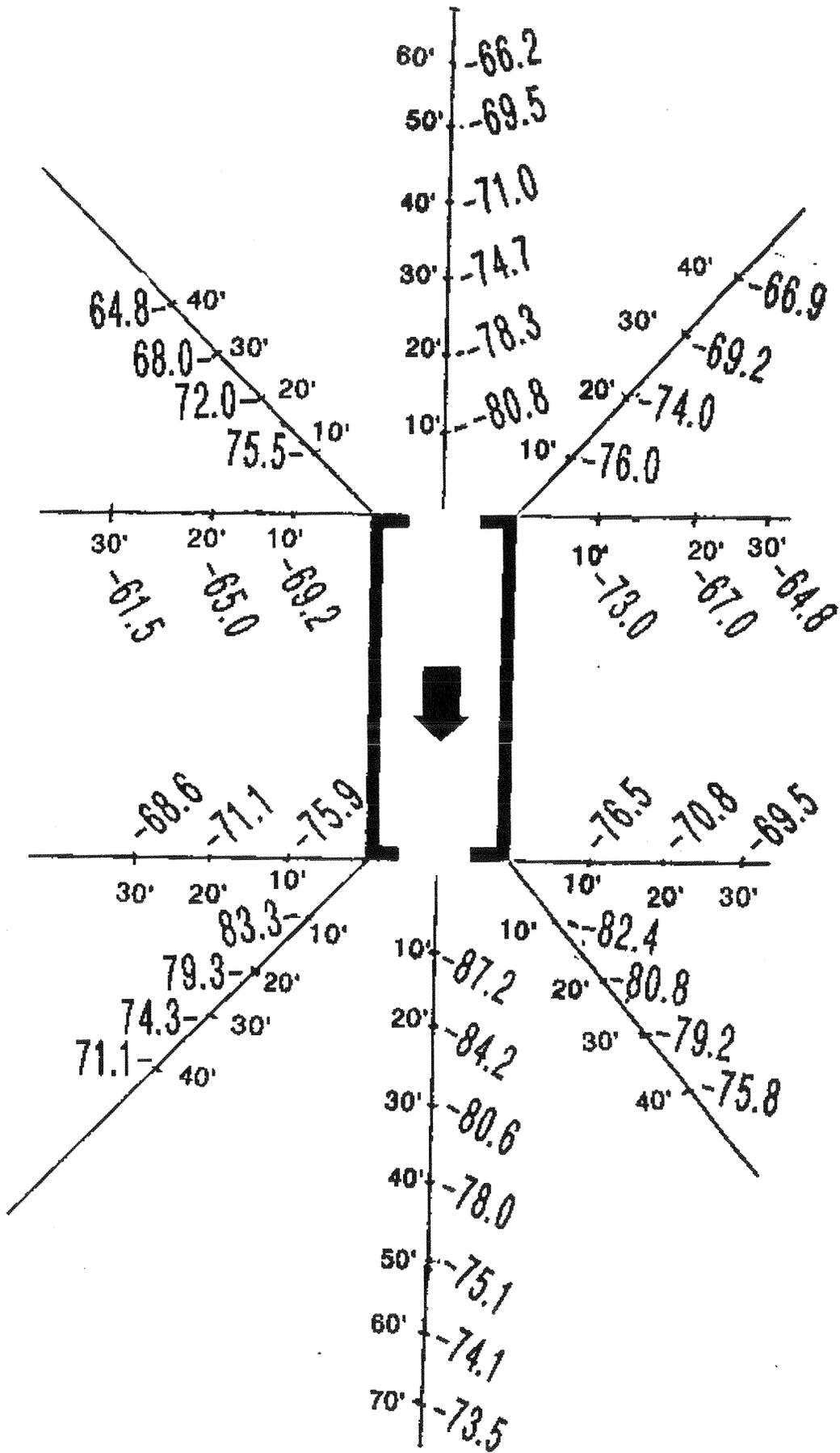
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819	2018/04/10	16:40:08	64.8
820	2018/04/10	16:40:09	65.2
821	2018/04/10	16:40:10	62.7
822	2018/04/10	16:40:11	62.2
823	2018/04/10	16:40:12	59.3
824	2018/04/10	16:40:13	57.3
825	2018/04/10	16:40:14	55.3
826	2018/04/10	16:40:15	54.8
827	2018/04/10	16:40:16	56.4
828	2018/04/10	16:40:17	54.0
829	2018/04/10	16:40:18	54.5
830	2018/04/10	16:40:19	57.2
831	2018/04/10	16:40:20	55.4
832	2018/04/10	16:40:21	56.0
833	2018/04/10	16:40:22	55.1
834	2018/04/10	16:40:23	55.8
835	2018/04/10	16:40:24	56.1
836	2018/04/10	16:40:25	55.0
837	2018/04/10	16:40:26	54.0
838	2018/04/10	16:40:27	54.0
839	2018/04/10	16:40:28	53.2
840	2018/04/10	16:40:29	53.4
841	2018/04/10	16:40:30	53.6
842	2018/04/10	16:40:31	53.7
843	2018/04/10	16:40:32	55.0
844	2018/04/10	16:40:33	54.8
845	2018/04/10	16:40:34	54.6
846	2018/04/10	16:40:35	55.3
847	2018/04/10	16:40:36	56.8
848	2018/04/10	16:40:37	57.6
849	2018/04/10	16:40:38	60.5
850	2018/04/10	16:40:39	64.5
851	2018/04/10	16:40:40	69.4
852	2018/04/10	16:40:41	71.2
853	2018/04/10	16:40:42	74.6
854	2018/04/10	16:40:43	72.3
855	2018/04/10	16:40:44	71.8
856	2018/04/10	16:40:45	66.6
857	2018/04/10	16:40:46	64.0
858	2018/04/10	16:40:47	63.6
859	2018/04/10	16:40:48	63.1
860	2018/04/10	16:40:49	60.4
861	2018/04/10	16:40:50	61.0
862	2018/04/10	16:40:51	58.8
863	2018/04/10	16:40:52	58.6
864	2018/04/10	16:40:53	59.1
865	2018/04/10	16:40:54	58.9
866	2018/04/10	16:40:55	59.5
867	2018/04/10	16:40:56	59.5
868	2018/04/10	16:40:57	61.8
869	2018/04/10	16:40:58	63.5
870	2018/04/10	16:40:59	66.3
871	2018/04/10	16:41:00	69.5
872	2018/04/10	16:41:01	72.8
873	2018/04/10	16:41:02	65.3
874	2018/04/10	16:41:03	65.4
875	2018/04/10	16:41:04	66.8
876	2018/04/10	16:41:05	66.7
877	2018/04/10	16:41:06	67.5

878	2018/04/10	16:41:07	68.4
879	2018/04/10	16:41:08	72.1
880	2018/04/10	16:41:09	76.5
881	2018/04/10	16:41:10	72.8
882	2018/04/10	16:41:11	74.0
883	2018/04/10	16:41:12	72.2
884	2018/04/10	16:41:13	72.0
885	2018/04/10	16:41:14	74.0
886	2018/04/10	16:41:15	77.8
887	2018/04/10	16:41:16	71.4
888	2018/04/10	16:41:17	74.6
889	2018/04/10	16:41:18	73.9
890	2018/04/10	16:41:19	73.6
891	2018/04/10	16:41:20	70.1
892	2018/04/10	16:41:21	68.5
893	2018/04/10	16:41:22	67.8
894	2018/04/10	16:41:23	66.4
895	2018/04/10	16:41:24	66.2
896	2018/04/10	16:41:25	65.1
897	2018/04/10	16:41:26	64.6
898	2018/04/10	16:41:27	66.9
899	2018/04/10	16:41:28	65.8
900	2018/04/10	16:41:29	65.9



RYKO Mfg. 3-Fan Slimline Dryer

Soft Gloss XS Car Wash

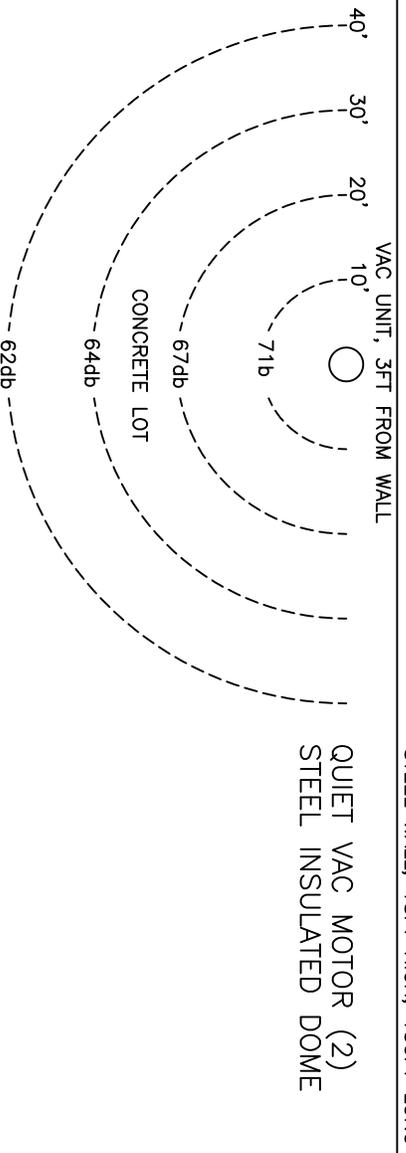
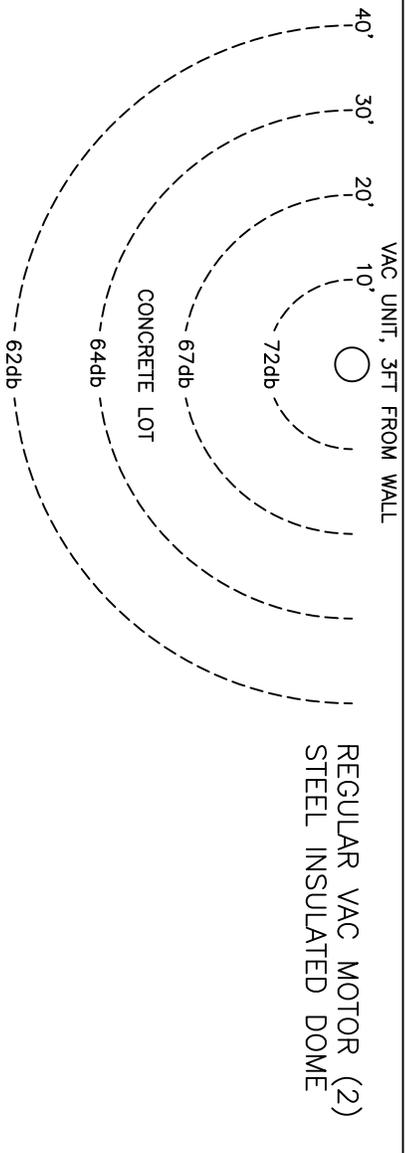
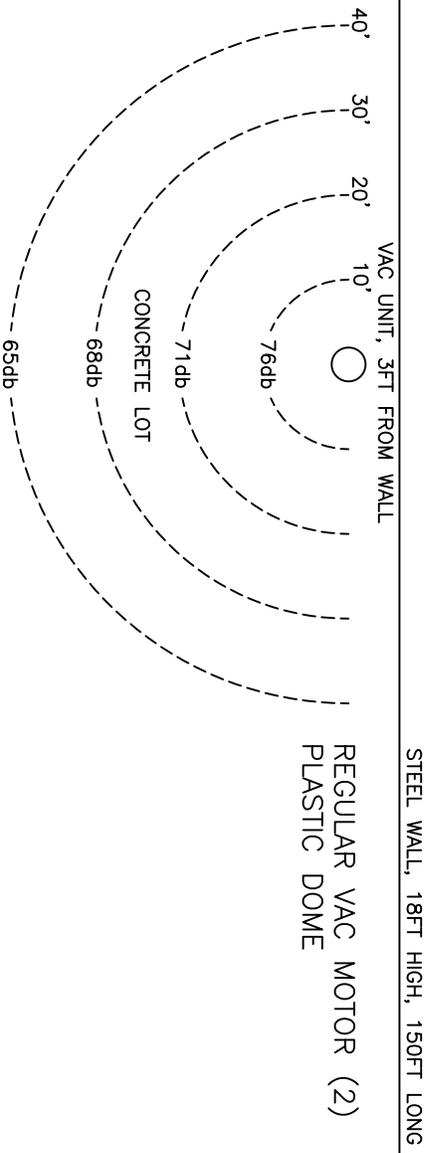


Ryko Manufacturing Company • 11600 NW 54th Avenue
 Grimes, Iowa 50111 • Phone: 515-986-3700 • Fax: 515-986-3621
 E-mail: sales@ryko.com • www.ryko.com

TABLE II. Sound Levels Measured For Ryko Drying Fans With Quiet Kit Installed In a Long Tunnel Structure As A Function Of Distance From The Face Of The Building And Angle Measured From The Tunnel Centerline.

Exit From Car Wash							
Distance Feet	Left Side			Center		Right Side	
	BldgCntr	90°	45°	0°	45°	90°	BldgCntr
20	56	66	77	81	74	62	60
40	55	58	71	74	71	58	59
60	56	61	70	70	66	58	59
80	57	62	66	67	63	58	57
100	58	58	66	65	63	57	58

Entrance To Car Wash							
Distance Feet	Left Side			Center		Right Side	
	BldgCntr	90°	45°	0°	45°	90°	BldgCntr
20	56	60	68	74	67	61	60
40	55	55	62	66	63	58	59
60	56	55	61	65	62	58	60
80	57	56	62	63	60	--	--
100	58	56	60	62	61	--	--





Models- 9200, 9210, 9213 Series Vacuums
9200-1, 9200-3, 9200-4, 9200-5 Series Vacuums*
9209, 9209-6 Series Vacuums
9220, 9230, 9230-3 Series Vacuums
9240, 9250, 9253 Series Vacuums
**not pictured*



9200



9209



9230



9250

Page 2	Product Information
Page 3	Specifications
Page 4	Important Safety Instructions
Page 5-6	Product Dimensions
Page 7-12	Installation
Page 12-18	Programming
Page 19	Operating Instructions
Page 19-20	Maintenance & Troubleshooting
Page 21-30	Parts List
Page 31-34	Wiring Diagram

PRODUCT INFORMATION

Please take a moment to fill out the information below in order to aid us with any future sales or service inquiries. Model number and serial number information can be found on the serial tag located inside the control box and/or on the lower exterior of the can. Key number can be found on the tag that comes attached to the keys. There may be more than one key number depending on unit.

Please keep this information with your records.

MODEL#: _____

SERIAL#: _____

KEY NUMBER(S): _____

DATE PURCHASED: _____

DISTRIBUTOR: _____

**J.E. Adams Industries
1025 63rd Ave. S.W.
Cedar Rapids, IA 52404
1-800-553-8861
www.jeadams.com**

Specifications

Unit specifications: *(All 2 vacuum motor units)*

Voltage: 120VAC, 60Hz
Amperage: (1) 20 amp service is required for this unit
Weight: 135-155 lbs
Motors: (2) 120VAC vacuum motor
Fuses: (2) 10 amp inline fuses

Unit specifications: *(All 3 vacuum motor units)*

Voltage: 120VAC, 60Hz
Amperage: (1) 30 amp service is required for this unit
Weight: 135-155 lbs
Motors: (3) 120VAC vacuum motor
Fuses: (3) 10 amp inline fuses

220VAC units:

Unit specifications: *(All 2 vacuum motor units)*

Voltage: 220VAC, 50Hz
Amperage: (1) 10 amp service is required for this unit
Weight: 135-155 lbs
Motors: (2) 220VAC vacuum motor
Fuses: (2) 8 amp inline fuses

Unit specifications: *(All 3 vacuum motor units)*

Voltage: 220VAC, 50Hz
Amperage: (1) 15 amp service is required for this unit
Weight: 135-155 lbs
Motors: (3) 220VAC vacuum motor
Fuses: (3) 8 amp inline fuses

Duty cycle time 4 minutes on, 4 minutes off.

NOTE: "UNIT INTENDED FOR COMMERCIAL USE ONLY"

IMPORTANT SAFETY INSTRUCTIONS

When using an electrical appliance, basic precautions should always be followed, including the following:

READ ALL INSTRUCTIONS BEFORE USING (THIS APPLIANCE)

WARNING – To reduce the risk of fire, electric shock, or injury:

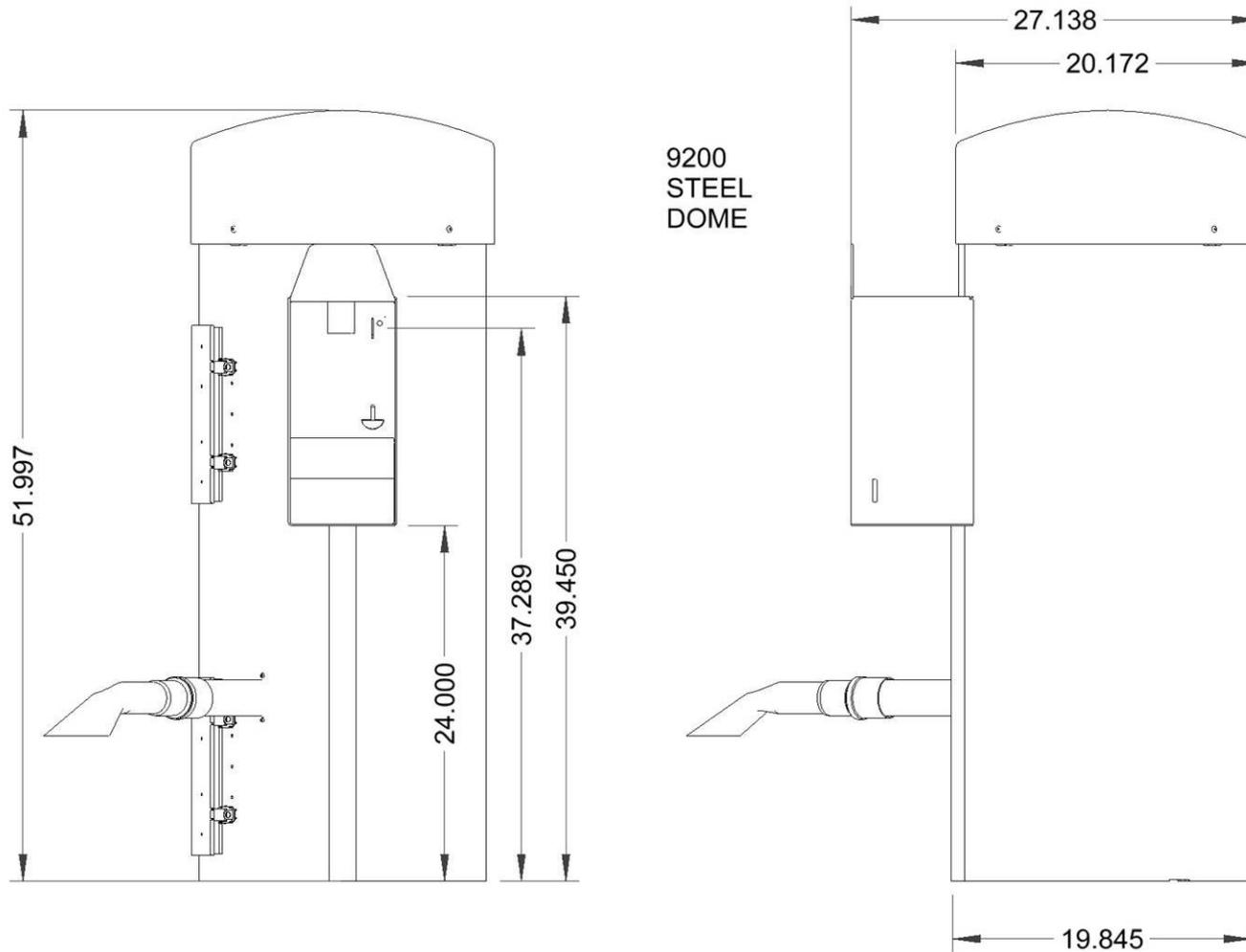
- Do not use on wet surfaces.
- Use only as described in manual. Use only manufactures recommended attachments.
- Do not allow to be used as a toy. Close attention is necessary when used by or near children.
- Do not put any object into openings. Do not use with any opening blocked; keep free of dust, lint, hair and anything that may reduce air flow.
- Keep hair, loose clothing, fingers, and all parts of body away from openings and moving parts.
- Do not use to pick up flammable or combustible liquids, such as gasoline, or use in areas where they may be present.
- Do not pick up anything that is burning or smoking, such as cigarettes, matches, or hot ashes.
- Do not use without dust bag and/or filters in place.



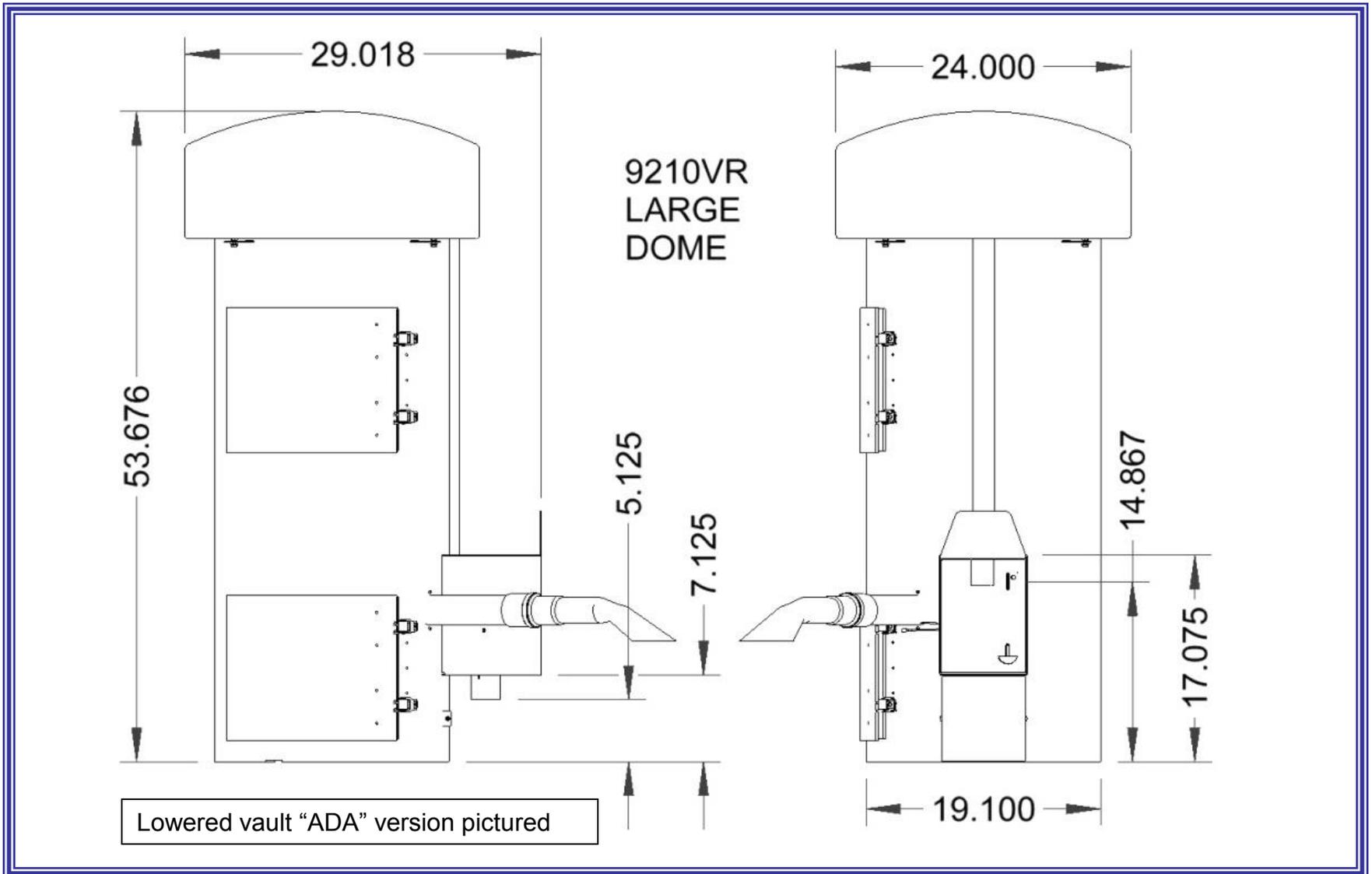
SAVE THESE INSTRUCTIONS

- **Installation Instructions:**
- Determine location to mount unit (“**DANGER**” “**THIS EQUIPMENT INCORPORATES PARTS SUCH AS SWITCHES, MOTORS, OR THE LIKE THAT TEND TO PRODUCE ARCS OR SPARKS THAT CAN CAUSE AN EXPLOSION. WHEN LOCATED IN GASOLINE-DISPENSING AND SERVICE STATIONS INSTALL AND USE AT LEAST 20 FEET (6 M) HORIZONTALLY FROM THE EXTERIOR ENCLOSURE OF ANY DISPENSING PUMP AND AT LEAST 18 INCHES (450 MM) ABOVE A DRIVEWAY OR GROUND LEVEL.**”
- Run service to the location
- **Grounding Instructions:** This appliance must be connected to a grounded metal, permanent wiring system; or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the appliance.
- All local and national electric codes must be followed for installation and use.
- Licensed electricians are recommended for installation.

Product Dimensions

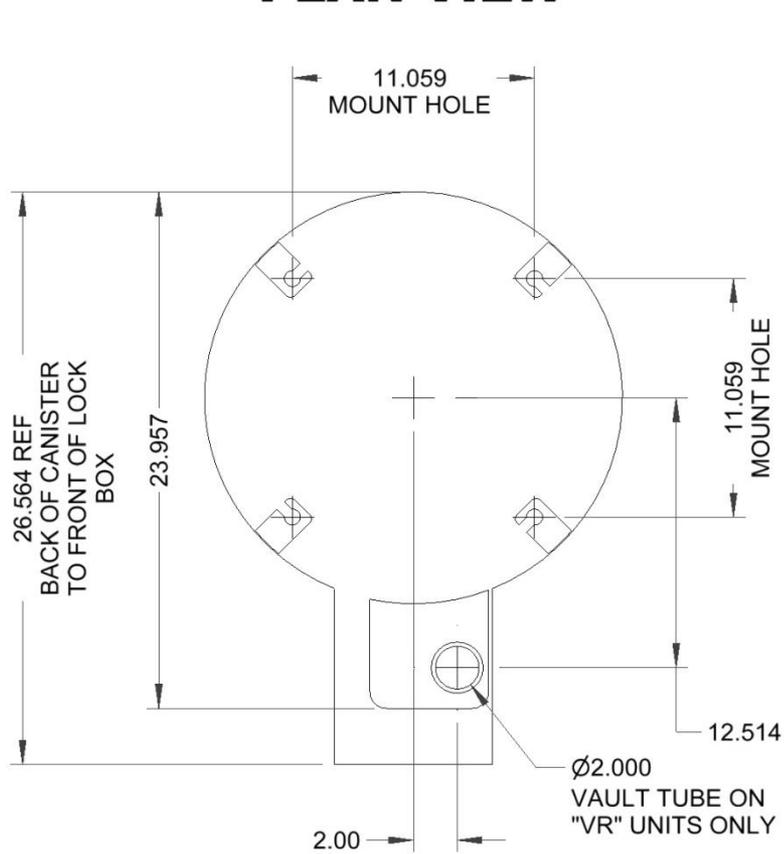


Product Dimensions

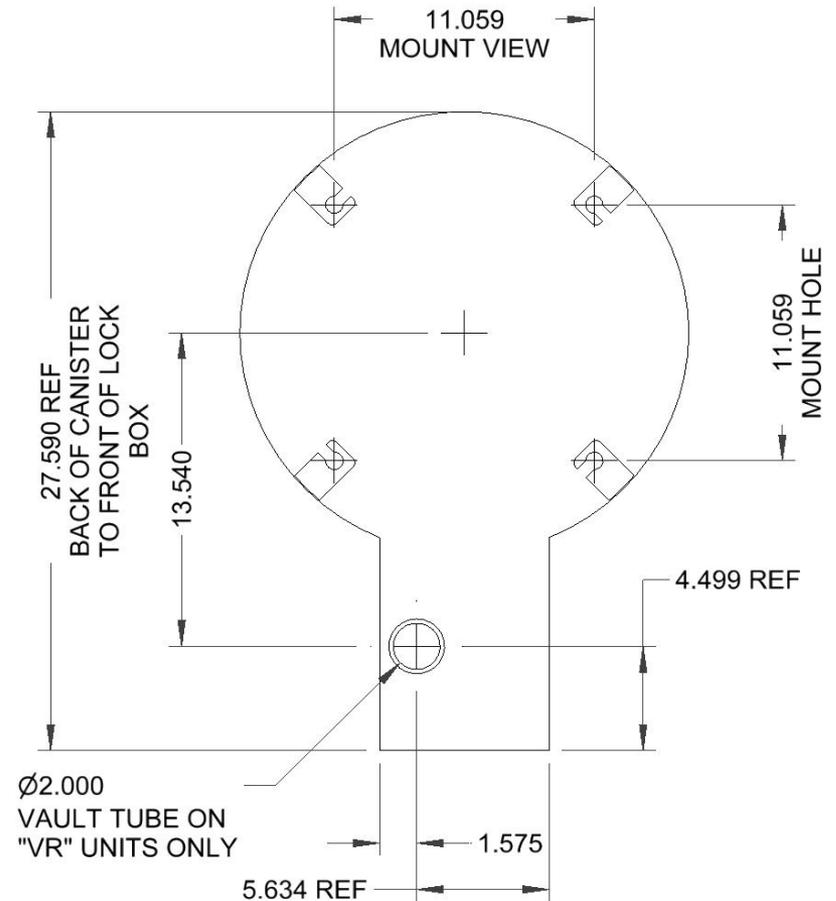


Installation:

PLAN VIEW



NOTE: when mounting, provide clearance so cleanout doors can open!!



5.634 REF

THIS VIEW FOR MOUNTING TO BE USED ON UNIT THAT HAVE A LONG BOX WITH BILL ACCEPTORS.

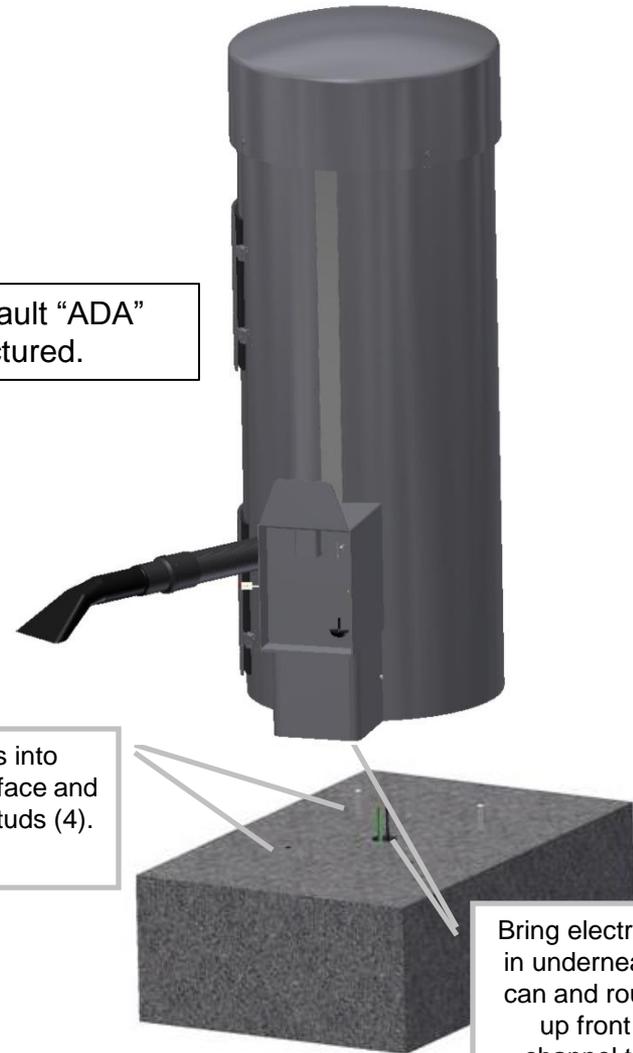
Installation:

NOTE: when mounting, provide clearance so cleanout doors can open!!

Lowered vault "ADA" version pictured.

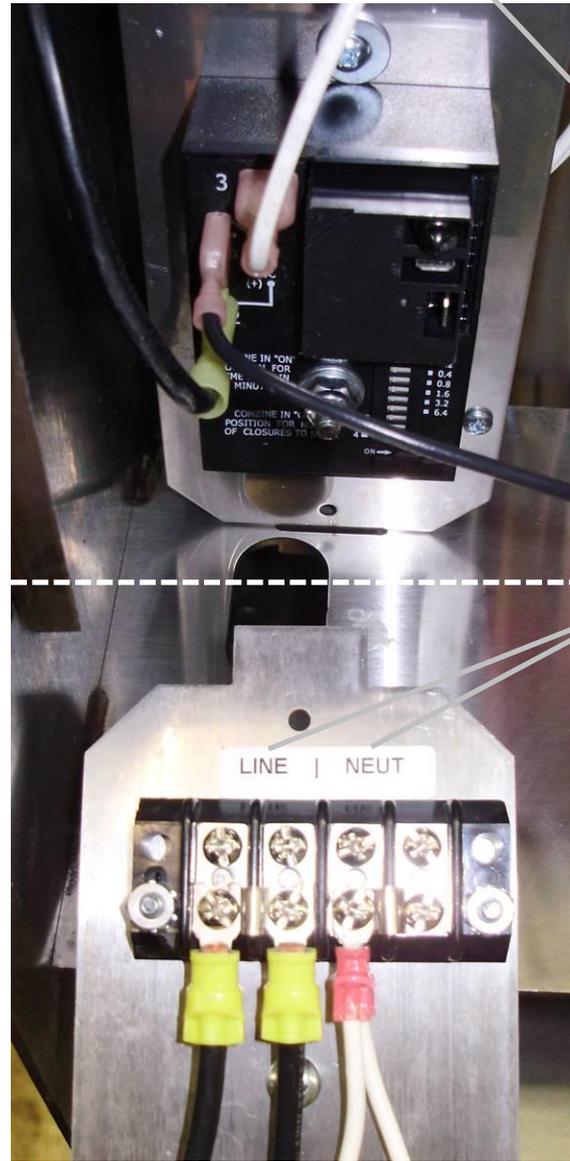
Drill holes into concrete surface and install 3/8" studs (4).

Bring electrical in underneath can and route up front channel to terminal strip.





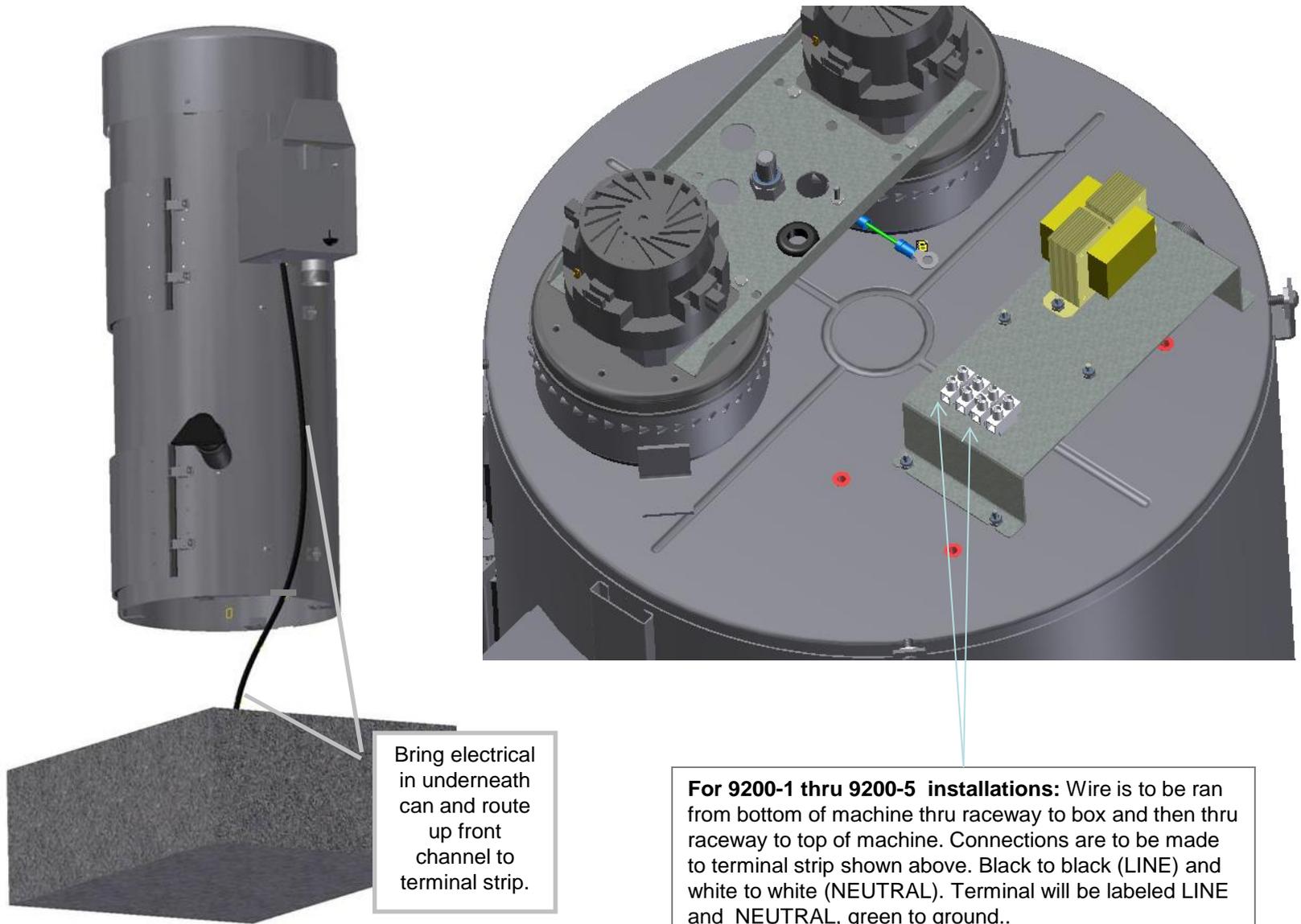
Bring electrical in underneath can and route up front channel to terminal strip.



9200 Style Vacs

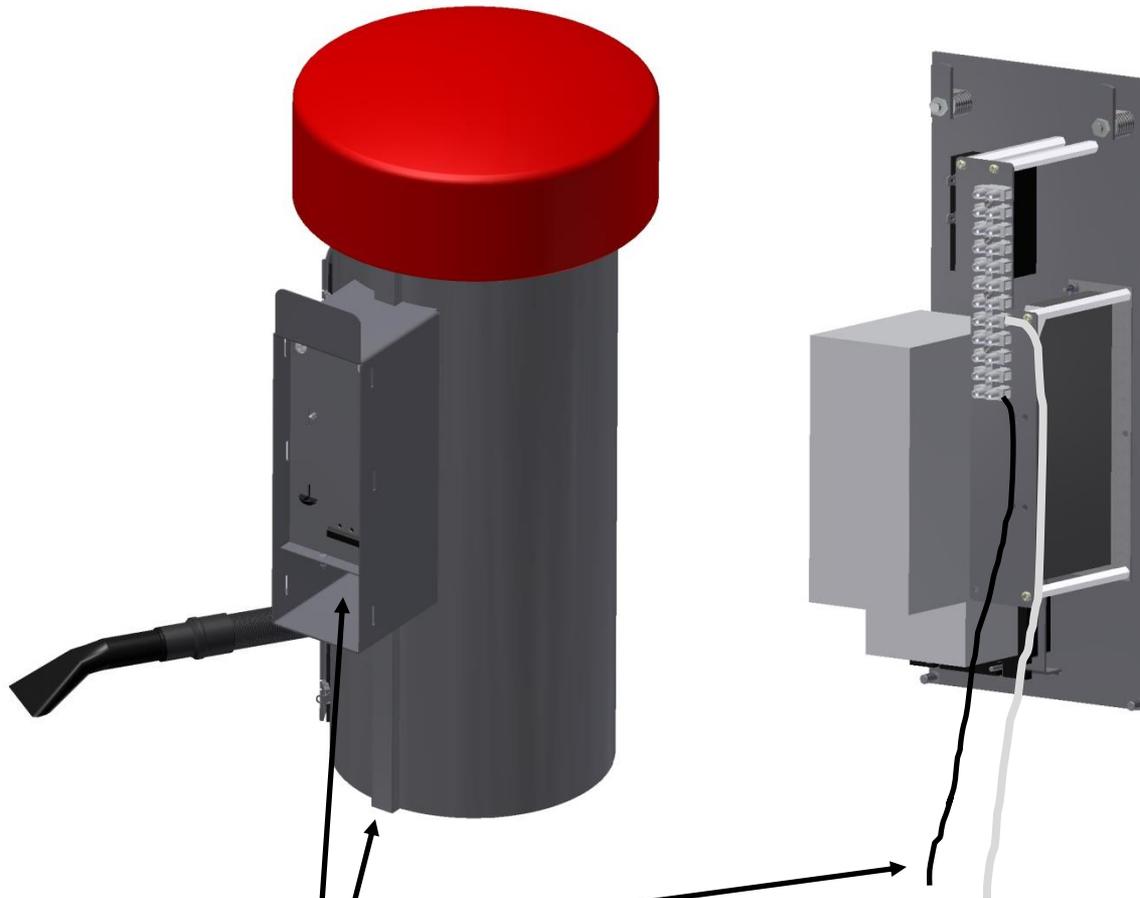
Remove screw from uppermost point of timer plate and tilt/flip down as shown below.

With timer plate flipped down as shown, add incoming power "line and neutral" to terminal strip. (120V) . Green to ground.



Bring electrical in underneath can and route up front channel to terminal strip.

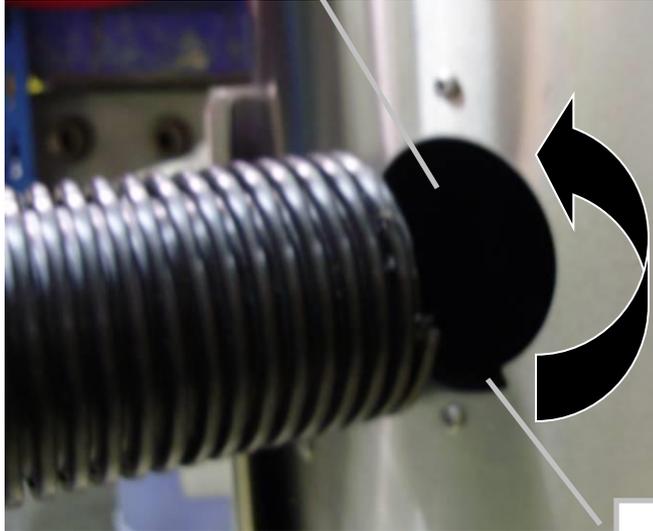
For 9200-1 thru 9200-5 installations: Wire is to be ran from bottom of machine thru raceway to box and then thru raceway to top of machine. Connections are to be made to terminal strip shown above. Black to black (LINE) and white to white (NEUTRAL). Terminal will be labeled LINE and NEUTRAL, green to ground..



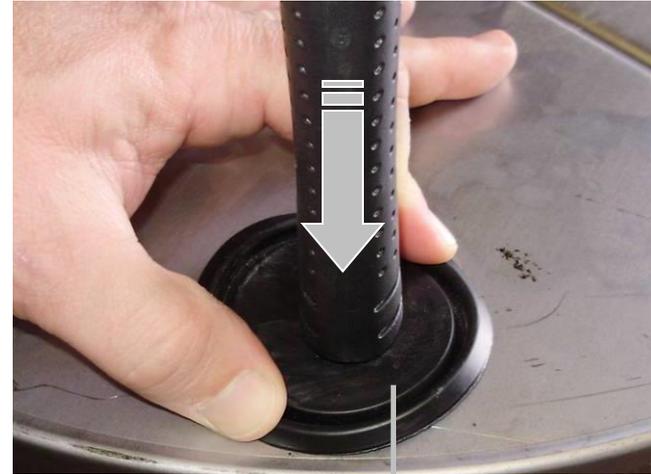
For 9209 style vacuums, - bring electrical in underneath can and route up thru front channel raceway to behind coin box where factory has supplied a wiring harness to tie into. Black to black (LINE) and white to white (NEUTRAL). Green to ground.

To attach hose, thread into metal hole counter clockwise.

Once unit has been installed use 5871B8 cap plugs (supplied with unit) to seal holes in canister bottom located in lower cleanout door. Extra cap plugs are included with the unit in case plug becomes damaged during shipping removal.



Edge of hose will need to start here.



To insert 5871B8 cap plugs into bottom holes, pinch cap plug into place using index finger and thumb. With edges of plug resting against edges of hole, firmly push down on plug with end of hammer or other blunt object until plug snaps into place.

Now the unit can be turned on and programmed.

Programming Instructions:

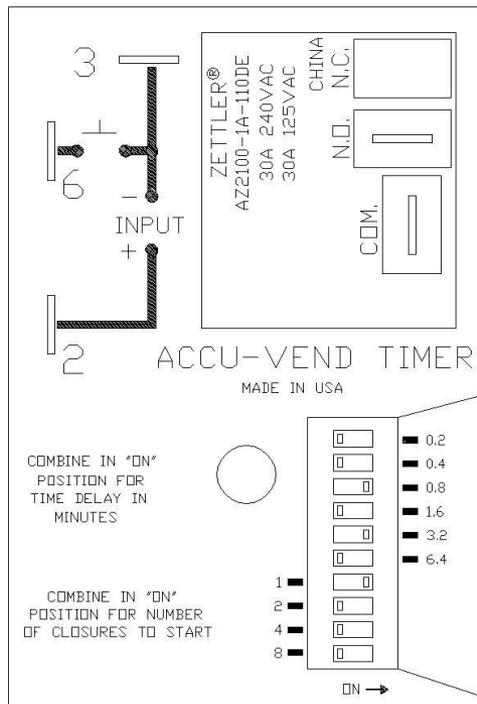
Coin acceptor:

No programming to acceptor needed if unit was purchased with the standard Imonex Z3 acceptor (8149 JEA part number) as it is built to accept US quarters.

If different acceptor was purchased, see additional literature sent with unit for programming information.

Programming:

The below timer pictured is the standard SSAC model that allows the end user to select the "coins to start" and the "time per coin" by settings series of dip switches. The number of "coins to start" dip switch is how many quarters are needed to make the machine come on. In the below example, the "one coin" dip is selected which makes the unit come on with one coin. The "time per coins" will then need to be set, but a good rule of thumb would be 4 minutes which requires dip switches 3.2 and .8 to be set to on. This scenario means 1 quarter will provide 4 minutes of vacuum time. The time per coin setting can be modified as desired by simply adding or subtracting time. If the operator would later decide to increase the cost of the unit to "2" quarters, the 2 dip switch would need to be in the on position (all others off) and the time dip switches would need to have the 1.6 and 0.4 dips selected. This would allow 2 minutes of time for each quarter for a total of 4 minutes for two quarters.



Time in minutes/per coin dip switch settings:

0.2 = 12 seconds

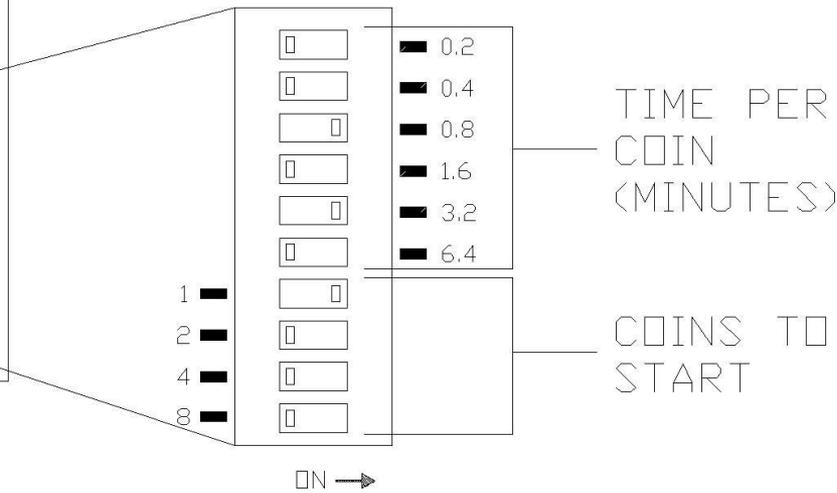
0.4 = 24 seconds

0.8 = 48 seconds

1.6 = 96 seconds

3.2 = 192 seconds

6.4 = 384 seconds



Bill acceptor (optional on some models):

Bill acceptor comes pre programmed from J.E. Adams and should not require any changes. If additional programming is needed to bill acceptor please refer to additional literature included with this unit.

Display (optional on some models):

Unit may be pre-programmed when received depending on the information given at that the time of order.

To program the optional digital display, follow the steps below or go to JEADAMS.COM and visit the Learning Center:

Dixmor LED 7 operating and programming instructions

Push MODE to change from item to item. Push SET to set desired value or choose option for that item. Pushing SET repeatedly causes numbers to increase. Holding SET causes numbers to decrease. The letter "X" below represents a programmable digit. Default values are shown in [].

<u>ITEM</u>	<u>DISPLAY</u>	<u>REPRESENTS</u>
1	COIN VALU [\$.25]	The monetary value assigned to a single coin pulse. Adj from \$.05 to \$5.00.
2	C: XX [30]	Time per coin/pulse. Adj from 0:01 to 9:59.
3	S XXX [008]	Number of coins/pulses to start. Adj from 1 to 200.
4	AUX VALU CN. XX [4]	Auxiliary coin/pulse input pulse multiplier. Adj from 1 to 80.
5	B XXX [9]	Coin/pulses to bonus. Bonus time is given when this coin/pulse is received.
6A	BONUS TIME XX:##	Amount of time added for bonus coin/pulse.
6B	XXXX [00:00]	Adj from 00:00 to 99:59.
7	[SINGLE BONUS]	Bonus time is only added one time when bonus coin pulse is received.
	[MULTIPLE BONUS]	Bonus time is added for every coin after bonus coin pulse is received.
8	[DEBIT MODE]	Money counts down as coins are inserted.
	[CREDIT MODE]	Money counts up as coins are inserted.
	[BOTH]	Money counts up as coins are inserted, plus a prompt of "ADD \$X MORE" if start price is not reached.
9	[DELAYED START]	Two second delay before timing starts after start price is reached.
	[INSTANT START]	Timing starts as soon as start price is reached.
10	HL XX [10]	Length of warning horn in seconds at one minute of time remaining.

11	[PULSED HORN] CONTINUOUS HORN	Horn output will pulse for amount of time set in HL:XX. Horn output will stay on continuously for entire last minute.
12	[RESTART OFF] RESTART ON	Restart feature turned off. Full price required after time expires. Timer may be restarted with one coin for 20 seconds after time expires.
13	[STD] USER MIX	Standard greeting message displayed. User programmed custom message is displayed. Standard and custom message are displayed.
14	M X:XX [5:00]	Length of washdown cycle using remote control. Adj from 0:00 to 9:59.
15	XXXX [1 2 3 4]	Adjustable remote access code (1234 is default).
16	CC PULSE VALUE \$X:XX [\$.25]	Monetary value assigned to credit card pulse received on pin #8 during count up.
17	[ENG] SPH E & S	Standard message and prompt is displayed in English. Standard message and prompt is displayed in Spanish. Standard message and prompt is displayed in English then Spanish.
18	EXIT	Timer returns to standby.

Inventory

Timer keeps a running count of coins deposited, auxiliary pulses and manual cycles.

To show inventory press **SET**. Timer will display COINS XXXX (Number of coin pulses since last cleared), AUX XXXX (Number of pulses on auxiliary input) then MANUAL XXXX (Number of washdown cycles used since last cleared).

To clear inventory: Press **SET** to display inventory. Press and hold **MODE** until display reads "CLR?". Release **MODE**. Press and hold **MODE** again until timer reads "DONE".

Bonus Time Settings

Amount of time set in bonus time is added to time remaining on timer when bonus coin/pulse is received.

Bonus is disabled by setting bonus time to 00:00.

If "SINGLE BONUS" is selected, bonus time is only added once, when bonus coin/pulse is received. Any coins deposited after that bonus coin will receive the regular time per coin.

If "MULTIPLE BONUS" is selected, every coin deposited after bonus coin/pulse is reached will receive amount of time set in "BONUS TIME".

Debit/Credit Mode:

Debit Mode: As coins are deposited display shows "\$1.75 MORE, \$1.50 MORE, \$1.25 MORE" etc. until start price is reached. Once start price is reached display switches to time accumulating until no more coins have been deposited.

Credit Mode: As coins are deposited display shows money accumulating (\$.25, \$.50, \$.75 etc.). If timer is also set to Delayed Start Mode timer will continue to show money accumulating until no more coins have been deposited. If timer is set to Instant Start mode, as soon as start price is reached, timer will change to time counting down.

Both Mode: As coins are deposited display shows money accumulating (\$.25, \$.50, \$.75 etc). If start price is not reached, after 5 seconds timer will alternate between "ADD \$X.XX MORE" and amount of money already deposited.

Credit Card Input:

Count up mode: No pre-set amount is charged to card. Timer will count up and run until terminated by credit card system. For count up: Close pin #9 (input) to 24 VAC common for more than 400ms. Timer will continue to count up until closure is released for more than 400ms.

To have timer display amount charged to card at end of cycle: Close input as above. Open input for less than 400ms and re-close at intervals determined by pulse value set in "CC PULSE VALUE" (For example: if time per coin is set at 30 sec and "CC Pulse Value" is set at \$.25, open and close input every 30 seconds. If time per coin is set at 30 sec and "CC Pulse Value" is set at \$.05, open and close input every 6 seconds.)

Pre-pay mode: A pre-determined amount is charged to credit card each time card is swiped and credit card system sends pulses to input.

Pulses between 16ms and 200ms will register on timer like coin pulses. A pulse between 200ms and 400ms will cause timer to display "VERIFYING CARD". Should a second pulse of 200ms to 400ms be received on input timer will display "TRY DIFFERENT CARD". Minimum time between pulses is 16ms.

Note: Not all credit card systems can utilize all modes of operation. Contact your credit card system manufacturer for more information on what your system can do.

Messages

Standard greeting message (English): "PLEASE DEPOSIT \$2.00 TO START".

Standard greeting message (Spanish): "POR FAVOR DEPOSITO \$2.00 PARA EMPEZAR"

Standard exit message (English): "THANK YOU"

Standard exit message (Spanish): "GRACIAS"

Custom Message Programming:

A custom message can be programmed up to 64 characters (a space counts as a character).

To program a custom message: Push **MODE** until STD appears on display. Push **SET** until USER appears on display. Push and hold **MODE** until "/" appears on right side of display. Push **SET** until first letter of your custom message appears on right side of display. Push **MODE**. The first letter of your message will move over one position to the left and an "A" will appear on the far right. Push **SET** until the second letter of your message appears on the right. Continue in this fashion until you message is complete. (Push **MODE** to advance to the next space in your message, push **SET** to display the letter or character you need. The character you are programming will always be the far right digit.) At the end of your message you MUST put a "/" to indicate the end of the message. Once your message is complete, push and hold **MODE** until USER appears on the display. Push **MODE** until EXIT appears. Message programming is now complete.

Count Up Message:

During count up mode an operator programmable message of up to 31 characters can be displayed every five seconds. To program message push and hold **MODE** when timer is displaying "CC PULSE VALUE" until "/" appears on display, then proceed as above, use **SET** to set letter or character required then press **MODE** to advance to next space. When message is complete, hold **MODE** until timer shows "DONE".

Remote Control Operation & Method of Programming:

Remote control will hold program setup for 15 minutes without batteries to allow you to change batteries without reprogramming remote. If remote loses its program for any reason use the following instructions.

1. Hold down the set button until the red LED blinks twice, then release the button.
2. Enter **0000**

Wash Down: Press red power button. Display will show **0000**. Enter your four digit access Code (Default is 1 2 3 4). Timer will show **OK** if code is correct.

Press red power button on remote control. Timer will display **M0:00** and start counting up. Timer will continue to run until washdown cycle length is reached or washdown cycle is stopped by operator. Note: to stop washdown cycle press red power button .

Inventory: Press red power button . Display will show 0000. Enter your four digit access code (Default is 1 2 3 4). Timer will show **OK** if code is correct. Press **VOL +** on remote control.

Timer will show **COINS 0000 AUX 0000 MANUAL 0000**. Press **VOL +** again to return to standby message. Coins represents coins deposited. Manual represents the number of washdown cycles.

To clear inventory: With inventory showing, press and hold **CH +** until **CLR?** appears on timer. Press and hold **CH +** again until **DONE** appears on timer. Inventory has now been reset to zero. Clearing inventory resets both coins and manual to zero.

Press **VOL +** to return to standby.

Timer Programming: Press red power button. Timer will show **0000**. Enter four digit access code (Default is 1 2 3 4). Timer will show **OK** if code is correct.

Press **CH +** . Timer will display **COIN VALU \$.25**. Use **VOL +** or **VOL -** to set monetary value of one coin pulse.

Press **CH +** to advance to next item. Use **VOL +** or **VOL -** to set value or make choice for that item.

Continue in this manner until all modes have been programmed. Use **CH +** to move to the next mode. Use **VOL +** or **VOL -** to set required value.

NOTE: Remote control access will automatically become disabled when no buttons have been pushed for approximately one minute.

Operating Instructions:

- Insert payment (coins, bills, or credit card) to start vacuum.
- Once service is used, hang up hose.

Maintenance:

- **All servicing of machine should be conducted by an authorized service representative!**
- Filter bags should be accessed and shaken down weekly. It is recommended to keep a new set of bags on hand so that once every few months the bags can be replaced and then laundered.
- To maintain performance, empty dirt bin from the canister on a regular basis.
- Periodically inspect wires and connections for wear or fatigue.
- Check door and motor gaskets periodically for signs of wear or damage and replace as needed.
- Check vac hose for cracks on a weekly basis.
- Clean canister with a stainless steel cleaner as needed. Decals can be cleaned with mild soap and water.
- Check motor brushes every month for excessive wear. Motor brushes should be changed immediately if they are shorter than $\frac{1}{4}$ ". **Please disconnect power before doing this!**



DISCONNECT POWER BEFORE SERVICING OR TROUBLESHOOTING!



Troubleshooting:

Problem	Possible cause	Solution
Unit is not powered.	Breaker inside unit is not in the on position.	Flip breaker on.
	No power to machine.	Check incoming power.
	Loose connection.	Check incoming power connection.
Display is not powering.	Breaker inside unit is not in the on position.	Flip breaker on.
	Open unit and check 24 volts coming out of transformer.	If no voltage, replace transformer.
Machine is behaving erratically.	Is the incoming power at 120V?	Check voltage and monitor while machine runs. Low voltage can cause erratic behavior.
	Are any of the machines wires worn through or connections not making contact?	Inspect wiring and connections. Look for sharp bends in wires and places where wire is against the metal chassis.

Display reads "closed" or "coin."	This indicates a continuous coin pulse coming to the timer or a shorted coin signal wire.	Disconnect coin signal wire at timer to see if problem goes away.
Display reads "error."	This indicated the program may be lost due to a bad battery or a power spike.	Reprogram timer, if problem comes back replace battery.
Display reads "aux."	This means continuous signal to auxiliary input.	
Display reads "fail."	Coin acceptor putting out continuous pulse.	Press mode button on display. If fail does not go away replace coin acceptor.
	Program in display may be lost.	Reprogram display. If fail goes away and then comes back, replace battery in display.
Unit keeps tripping breaker.	Inadequate wire size ran to machine.	Call electrician and install proper wire size for 30amp service versus length or run.
	Wrong size breaker.	Install correct breaker (only if wire size is adequate to handle 30 amp breaker).
Fuses for vac motors keep blowing.	Inadequate wire size ran to machine.	Call electrician and install proper wire size for 30amp service versus length or run.
	Motor brushes may be bad or too short.	Replace motor brushes.
Lack of vacuum suction.	Vac hose clogged?	Clean debris from vac hose.
	Filter bags need cleaned or dirt chamber needs emptied?	Shake or clean filter bags or replace and empty lower dirt chamber.
	Vac hose is split?	Replace/repair vac hose.
	Cleanout door gaskets torn or worn?	Replace gaskets.
	Vac motor gaskets are worn or motor is not tight against.	Inspect/replace gaskets and assure motor is tight against them.
	Lower chamber cap plugs/mounting hole covers have popped out?	Open lower chamber and inspect plugs, order new if needed.
	Cleanout door gaskets torn or worn?	Replace gaskets.
	One of the vac motors is not working?	Check line motor fuse and replace. Replace motor if necessary.

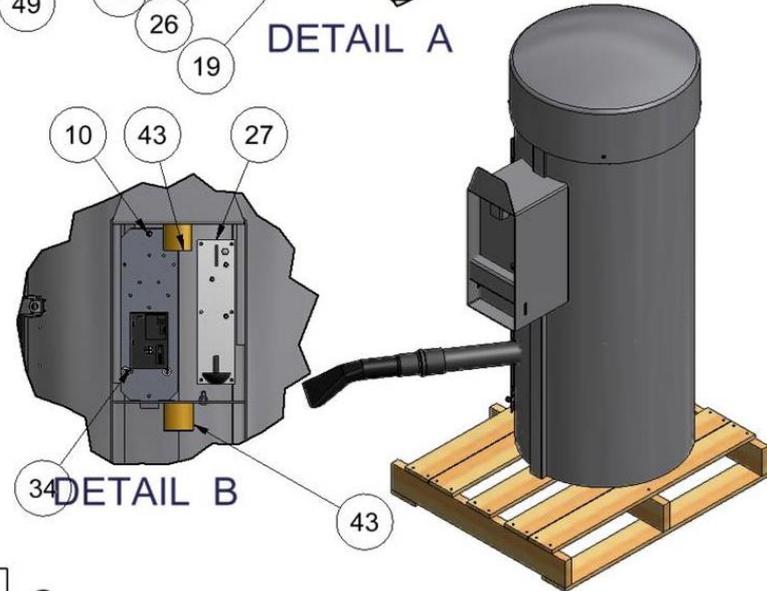
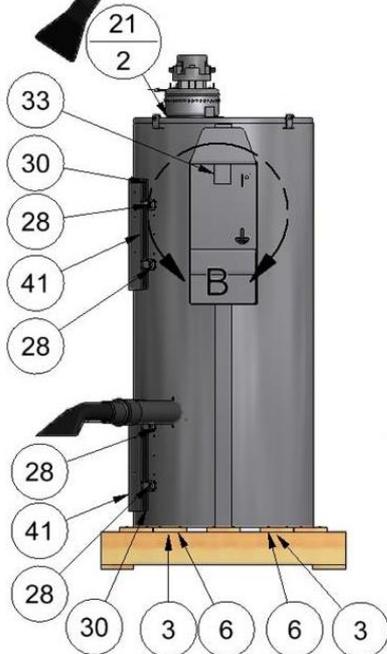
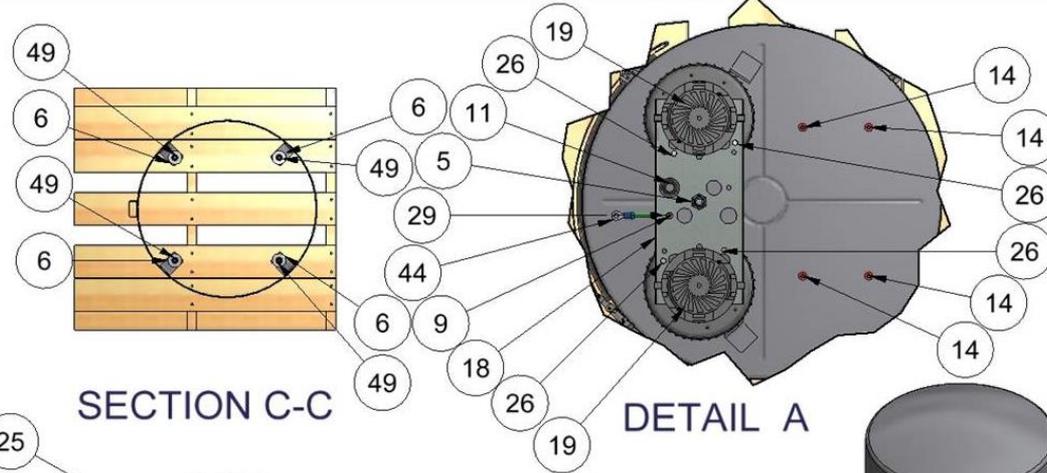
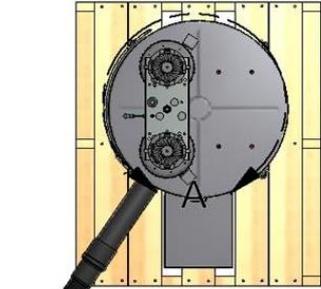
PART NO.		9200		BILL OF MATERIALS				BILL OF MATERIALS			
ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY				
33	8211RW	FACEPLATE WELDMENT, R.H	1	1	2036	HOSE, 2" X 15' BLACK VACUUM	1				
34	8221SS4	TIMER ASSY, 110 SSAC	1	2	2058	CLAW/CUFF ASSEMBLY, 2"	1				
35	8221WH2	WIRING HARNESS, 2 MOTOR	1	3	5600D4	3/8-16 X 1.5 HHCS	4				
36	8423-2	DECAL, VACUUM DOME	1	4	5603D1	10 Std NC Nylock Nut	1				
37	8424-1	DECAL, CANISTER	1	5	5603D11	1/2 Std NC Nylock Nut	1				
38	8429-1	DECAL, HANG HOSE	1	6	5606D22	WASHER, 3/8 FENDER	8				
39	8437D001	DECAL, ETL LISTED	1	7	5606D7	FLAT WASHER, .160 ID X .500 OD	1				
41	8615-5W	CLEANOUT DOOR WELDMENT	2	8	5619D1	SCR, HEX SOC BUT, HD CPCW, 1	4				
42	8631	11 X 55 PAD FOR VACS	1	9	5627D2	Pan Head, Slotted, 6-32 x 5/8	1				
43	8638	PIN LOCK	2	10	5629D1	#8 x 1 SELF TAPPING SCREW	1				
44	8673-11	GROUND WIRE 28"	1	11	5639D4	RUBBER GROMMET	1				
45	8732	NAMEPLATE, PRODUCT SPEC'S	1	12	5647D2	1/8" SS POP RIVET	16				
46	8754	DECAL, WARNING	1	13	5647D8	3/16" SS POP RIVET	14				
47	9200FPD	DECAL, FACEPLATE	1	14	5871B9	PLASTIC VAC LID PLUG	4				
48	9201W	CAN W/C 2DRVAC ECONO/PIN	1	15	5871b8	PLUG, VAC BOTTOM 2-1/2"	8				
49	B5722-002	NUT, 3/8-16 UNC HEX LOCK NUT	4	16	6082	BAG 9 X 12	1				
35	8605	PALLET, VAC, 26" X 30.5"	1	17	8047	BAG, 60 X 72	1				
				18	8051G	BRACKET, MOTOR MOUNT	1				
				19	8055EM	MOTOR, ELECTRO 120V	2				
				20	8055LEAD-EM	WIRE LEAD, EM VAC MOTOR	4				
				21	8057	MOTOR GASKET	2				
				22	8076	FILTER BAG	4				
				23	8081	CABLE TIE MOUNT	2				
				24	8084	CABLE TIE	4				
				25	8101	20" STAINLESS STEEL DOME	1				
				26	8108	#10 x 1/2 TAP SCREW	4				
				27	8149	IMONEX COIN ACCEPTOR	1				
				28	8153-1	LATCH, CLEANOUT DOOR	4				
				29	8157	NUT, #6-32 KEPP NUT STAINLESS	5				
				30	8159	DOOR GASKET	2				
				31	8183	DISCONNECT POWER DECAL	2				
				32	8204RW	WELDMENT, COIN BOX	1				



TITLE		2DR VAC, ECONO DOME PIN LOCK		
UNSPECIFIED TOLERANCES	MATERIAL	CEDAR RAPIDS, IOWA		
1 PL ±.030	SCALE			
2 PL ±.010	DRAWN BY			CHAD K.
3 PL ±.003	DATE			3/8/2011
ANGLE ±1.0°	PART NO.			9200
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PART NO.

9200



TITLE		CEDAR RAPIDS, IOWA	
2DR VAC, ECONO DOME PIN LOCK			
UNSPECIFIED TOLERANCES	MATERIAL		
1 PL ±.030	SCALE		
2 PL ±.010	DRAWN BY CHAD K.		
3 PL ±.003	DATE 3/8/2011	PART NO. 9200	REV.
ANGLE ±1.0°			

REV	NO.	DESCRIPTION	DATE	BY
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PART NO.

9200-1LD

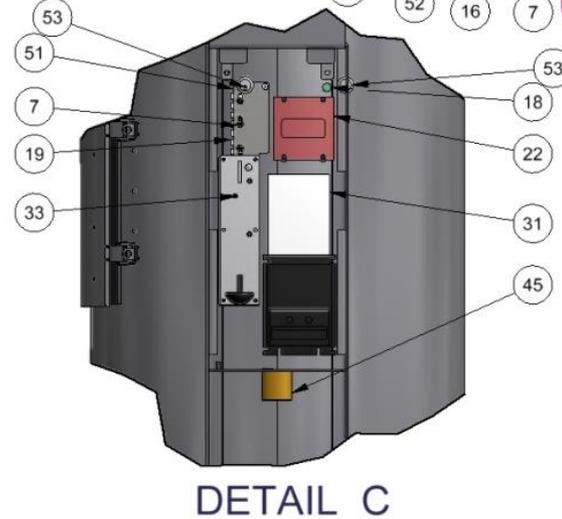
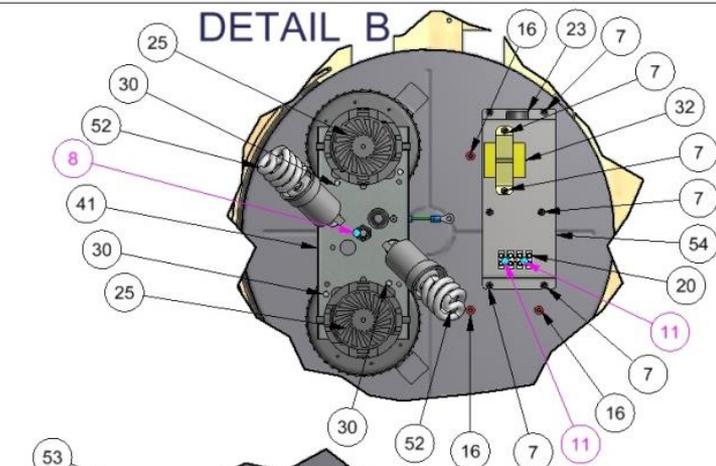
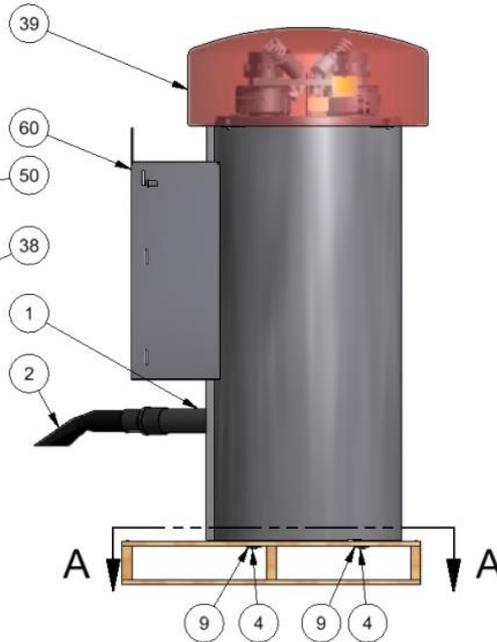
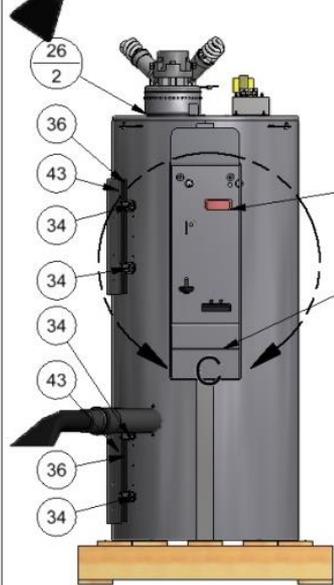
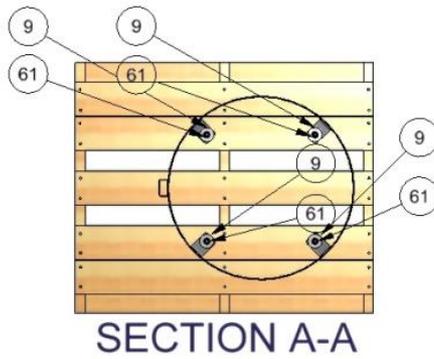
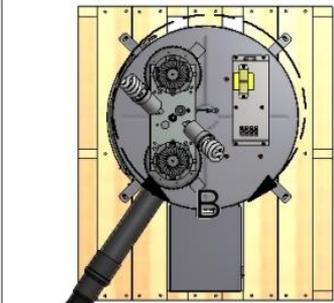


BILL OF MATERIALS				BILL OF MATERIALS			
ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
40	8437D001	DECAL, ETL LISTED	1	1	2036	HOSE, 2" X 15' BLACK VACUUM	1
41	8543K	2 MOTOR LIGHT KIT	1	2	2058	CLAW/CUFF ASSEMBLY, 2"	1
42	8605	PALLET, VAC, 26" X 30.5"	1	3	5000D5	STAND-OFF, 6-32	4
43	8615-5W	CLEANOUT DOOR WELDMENT	2	4	5600D4	3/8-16 X 1.5 HHCS	4
44	8630	TUBE, 30.5 X 26 X 60	1	5	5601D13	SCR, 1/4-20x1/2 PPHSqConeStepZP	4
45	8638	PIN LOCK	1	6	5603D1	10 Std NC Nylock Nut	1
46	8673-11	GROUND WIRE 28"	1	7	5603D10	6 Std NC Nylock Nut	16
47	8732	NAMEPLATE, PRODUCT SPECS	1	8	5603D11	1/2 Std NF Nylock Nut	1
48	8754	WARNING DECAL	1	9	5606D22	WASHER, 3/8 FENDER	8
49	8761	RELAY, 3PDT-24VAC-20A@1HP	1	10	5606D7	FLAT WASHER, .160 ID X .500 OD	1
50	8900-7VW	FACEPLATE WELDMENT, W/VALI	1	11	5627D1	6-32 x 1.0 PHIL. PAN -MACHINE SCREW	6
51	8900-82	TERMINAL BRACKET, VAC-SCENT	1	12	5627D2	6-32 x .625 PHIL. PAN -MACHINE SCREW	1
52	8925	FLOURESCENT BULB	2	13	5647D2	1/8" SS POP RIVET	16
53	8953	MEDECO CAM LOCK W/2 KEYS	2	14	5647D8	3/16" SS POP RIVET	14
54	9200-10	BRACKET, 9200 W/VALIDATOR	1	15	5662D2	6-32 x 1/2 PHIL. PAN -MACHINE SCREW	8
55	9200-1D-1-10	DECAL, FACEPLATE	1	16	5871B9	PLASTIC VAC LID PLUG	4
56	9200-1D-1-10-BA	DECAL, INSERT BILL	1	17	5871b8	PLUG, VAC BOTTOM 2-1/2"	8
57	9200-1D-1-10-LC	DECAL, LAST COIN	1	18	5913D8	LAMP, PANEL MT-3/8, 12V,LED, GRN	1
58	9200-1WKIT	WIRING KIT	1	19	5944D001	TERMINAL STRIP, 12 POLES, 8AMP MAX	1
59	9200FPD	DECAL, FACEPLATE	1	20	5944D004	TERMINAL STRIP, C-60 SERIES, 4 POLE	1
60	9201W2	CANISTER WELDMENT, BILL ACCEPTOR, 2M	1	21	6082	BAG, 9 X 12	1
61	B5722-002	NUT, 3/8-16 UNC HEX LOCK NUT	4	22	8000-10	DIXMOR DISPLAY TIMER	1
				23	8000-11	ALARM, LAST COIN ALERT	1
				24	8047	BAG, 60 X 72	1
				25	8055EM	MOTOR, ELECTRO 120V	2
				26	8057	MOTOR GASKET	2
				27	8076	FILTER BAG	4
				28	8081	CABLE TIE MOUNT	2
				29	8084	CABLE TIE	4
				30	8108	#10 x 1/2 TAP SCREW	4
				31	8130-6	MEI MARS, 110V BILL VALIDATOR	1
				32	8131-2	TRANSFORMER, 110/220-24 1.66A	1
				33	8149	IMONEX COIN ACCEPTOR	1
				34	8153-1	LATCH, CLEANOUT DOOR	4
				35	8157	NUT, #6-32 KEPP NUT STAINLESS	5
				36	8159	DOOR GASKET	2
				37	8183	DECAL, WARNING	2
				38	8204RW	WELDMENT, COIN BOX	1
				39	8306	24" PLASTIC DOME	1

TITLE
2DR VAC, 2MTR, DISPLAY, BILL ACCEPTOR VAC, LD

B	7413	ADD DECALS, ADD DOME SCREWS	031015	JF	UNSPECIFIED TOLERANCES	MATERIAL	<p>CEDAR RAPIDS, IOWA</p>
A	6552	REVISED AND DRAWN TO INVENTOR; NO PREVIOUS DRAWING	6-14-11	CK	1 PL ±.030	SCALE	
REV	NO.	DESCRIPTION	DATE	BY	2 PL ±.010	DRAWN BY CHAD K.	
THIS DOCUMENT SHALL NOT BE REPRODUCED NOR SHALL THE INFORMATION THEREIN BE USED BY OR DISCLOSED TO OTHERS EXCEPT AS AUTHORIZED BY J.E. ADAMS INDUSTRIES					3 PL ±.003	DATE 6/13/2011	
					ANGLE ±1.0°	PART NO. 9200-1LD	REV. B

PART NO. 9200-1LD



TITLE 2DR VAC, 2MTR, DISPLAY, BILL ACCEPTOR VAC, LD

UNSPECIFIED TOLERANCES
 1 PL ±.030
 2 PL ±.010
 3 PL ±.003
 ANGLE ±1.0°

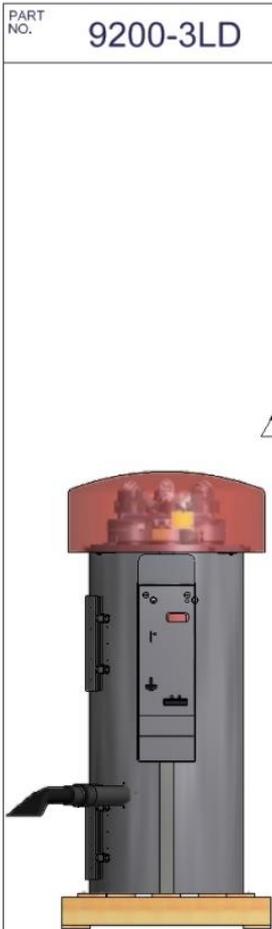
MATERIAL
 SCALE
 DRAWN BY CHAD K.
 DATE 6/13/2011

CEDAR RAPIDS, IOWA

PART NO. 9200-1LD

REV. B

REV	NO.	DESCRIPTION	DATE	BY
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PART NO. 9200-3LD

BILL OF MATERIALS			
ITEM	PART NUMBER	DESCRIPTION	QTY
41	8437D001	DECAL, ETL LISTED	1
42	8543K-3	3 MOTOR LIGHT KIT	1
43	8605	PALLET, VAC, 26" X 30.5"	1
44	8615-5W	CLEANOUT DOOR WELDMENT	2
45	8630	TUBE, 30.5 X 26 X 60	1
46	8638	PIN LOCK	1
47	8673-11	GROUND WIRE 28"	1
48	8732	NAMEPLATE, PRODUCT SPEC'S	1
49	8754	WARNING DECAL	1
50	8761	RELAY, 3PDT-24VAC-20A@1HP	1
51	8900-7VW	FACEPLATE WELDMENT, W/VALI	1
52	8900-82	TERMINAL BRACKET, VAC-SCENT	1
53	8925	FLOURESCENT BULB	3
54	8953	MEDECO CAM LOCK W/2 KEYS	2
55	9200-10	BRACKET, 9200 W/VALIDATOR	1
56	9200-1D-1-10	DECAL, FACEPLATE	1
57	9200-1D-1-10-BA	DECAL, INSERT BILL	1
58	9200-1D-1-10-LC	DECAL, LAST COIN	1
59	9200-1WKIT	WIRING KIT	1
60	9200FPD	DECAL, FACEPLATE	1
61	9201W6	CANISTER WELDMENT, BILL ACCEPTOR, 3M	1
62	B5722-002	NUT, 3/8-16 UNC HEX LOCK NUT	4
63	B5996-010	10AMP INLINE FUSE	1
64	B5997-001	INLINE FUSE HOLDER	1

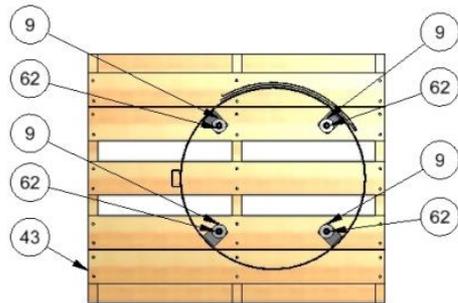
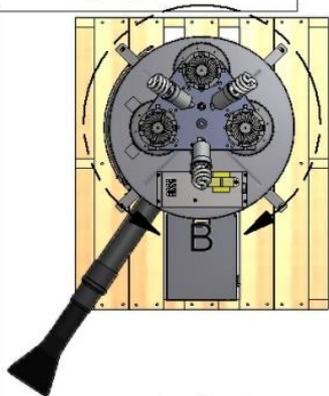
BILL OF MATERIALS			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	2036	HOSE, 2" X 15' BLACK VACUUM	1
2	2058	CLAW/CUFF ASSEMBLY, 2"	1
3	5000D5	STAND-OFF, 6-32	4
4	5600D4	3/8-16 X 1.5 HHCS	4
5	5601D13	SCR, 1/4-20x1/2 PPHSqConeStepZP	4
6	5603D1	10 Std NC Nylock Nut	1
7	5603D10	6 Std NC Nylock Nut	16
8	5603D11	1/2 Std NC Nylock Nut	1
9	5606D22	WASHER, 3/8 FENDER	8
10	5606D7	FLAT WASHER, .160 ID X .500 OD	1
11	5627D1	6-32 x 1.0 PHIL. PAN -MACHINE SCREW	6
12	5627D2	6-32 x .625 PHIL. PAN -MACHINE SCREW	1
13	5647D2	1/8" SS POP RIVET	16
14	5647D8	3/16" SS POP RIVET	14
15	5662D2	6-32 x 1/2 PHIL. PAN -MACHINE SCREW	8
16	5871b8	PLUG, VAC BOTTOM 2-1/2"	8
17	5913D8	LAMP, PANEL MT-3/8, 12V,LED, GRN	1
18	5944D001	TERMINAL STRIP, 12 POLES, 8AMP MAX	1
19	5944D004	TERMINAL STRIP, C-60 SERIES, 4 POLE	1
20	6082	BAG, 9 X 12	1
21	8000-10	DIXMOR DISPLAY TIMER	1
22	8000-11	ALARM, LAST COIN ALERT	1
23	8047	BAG, 60 X 72	1
24	8055EM	MOTOR, ELECTRO 120V	3
25	8057	MOTOR GASKET	3
26	8076	FILTER BAG	4
27	8081	CABLE TIE MOUNT	2
28	8084	CABLE TIE	4
29	8108	#10 x 1/2 TAP SCREW	6
30	8130-6	MEI MARS, 110V BILL VALIDATOR	1
31	8131-2	TRANSFORMER, 110/220-24 1.66A	1
32	8149	IMONEX COIN ACCEPTOR	1
33	8153-1	LATCH, CLEANOUT DOOR	4
34	8157	NUT, #6-32 KEPP NUT STAINLESS	5
35	8159	DOOR GASKET	2
36	8183	DECAL, WARNING	2
37	8204RW	WELDMENT, COIN BOX	1
38	8306	24" PLASTIC DOME	1
39	8423-2	DECAL, VACUUM DOME	1
40	8424-1	DECAL, CANISTER	1

TITLE ZDR VAC, 3MTR, DISPALY, BILL ACCEPTOR VAC, LD			
UNSPECIFIED TOLERANCES	MATERIAL	CEDAR RAPIDS, IOWA	
	SCALE	J.E. ADAMS INDUSTRIES, LTD	
	DRAWN BY	CHAD K.	
	DATE	5/26/2011	
PART NO. 9200-3LD		REV. B	

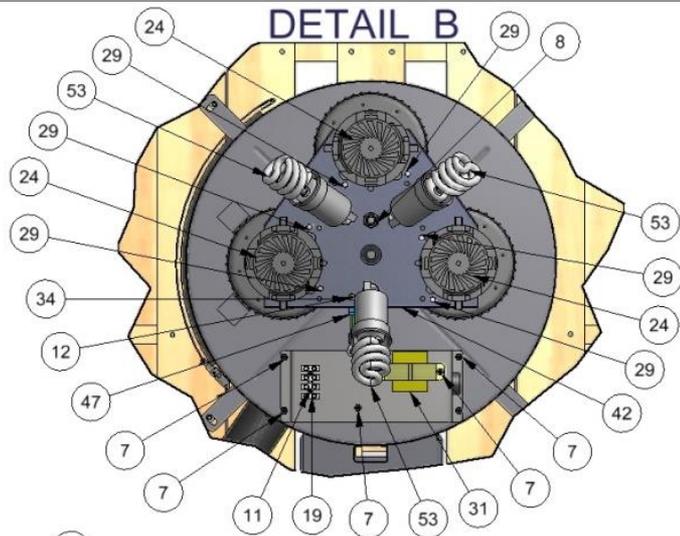
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A	6538	REVISED AND DRAWN TO INVENTOR; NO PREVIOUS DRAWING	5-26-11	CK
REV	NO.	DESCRIPTION	DATE	BY
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PART NO.

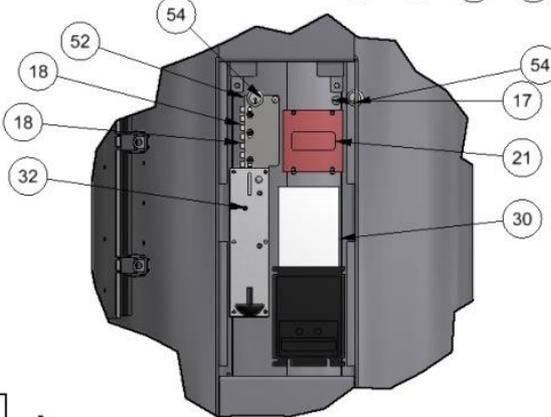
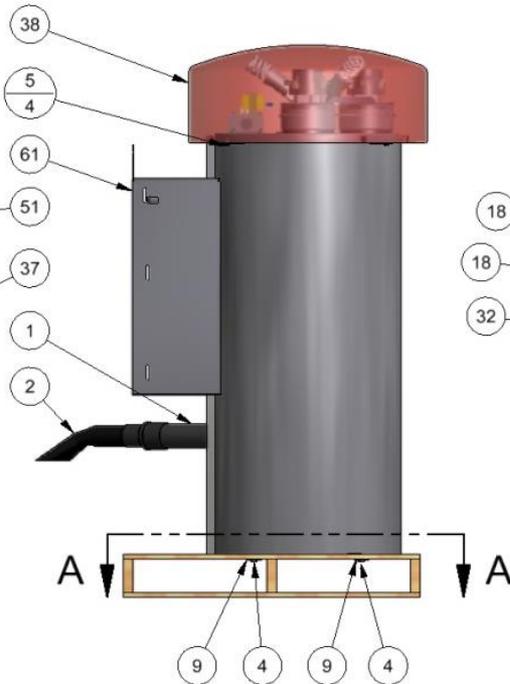
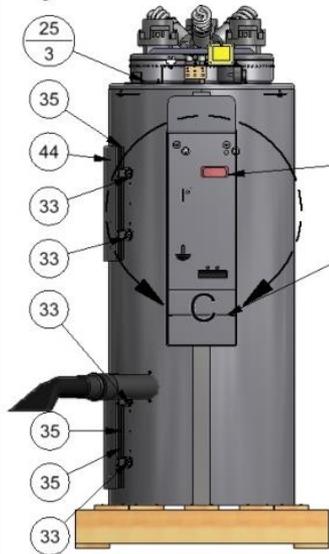
9200-3LD



SECTION A-A



DETAIL C



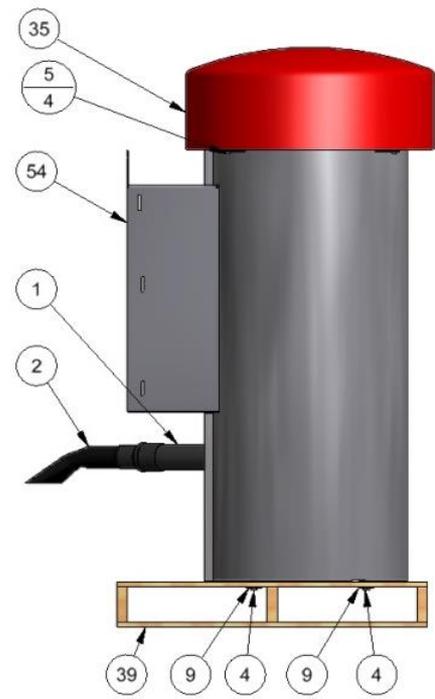
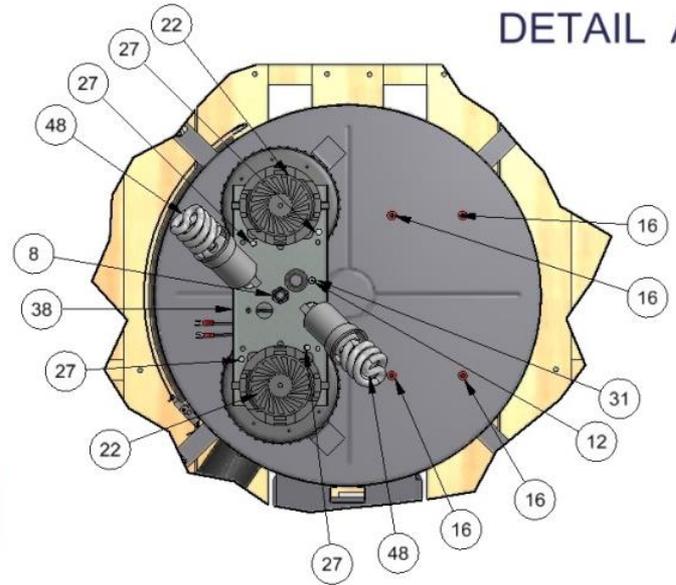
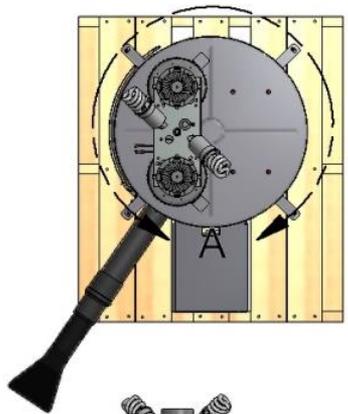
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2DR VAC, 3MTR, DISPALY, BILL ACCEPTOR VAC, LD		J.E. ADAMS INDUSTRIES, LTD	
UNSPECIFIED TOLERANCES	MATERIAL		
1 PL ±.030	SCALE		
2 PL ±.010	DRAWN BY CHAD K.		
3 PL ±.003	DATE 5/26/2011	PART NO. 9200-3LD	REV. B
ANGLE ±1.0°			

REV	NO.	DESCRIPTION	DATE	BY
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BILL OF MATERIALS				BILL OF MATERIALS			
ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
41	8630	BOX	1	1	2036	HOSE, 2" X 15' BLACK VACUUM	1
42	8638	PIN LOCK	1	2	2058	CLAW/CUFF ASSEMBLY, 2"	1
44	8712SS4	SSAC TIMER, 24-240VAC, ACCUMULATING	1	3	5000D5	STAND-OFF, 6-32	4
45	8732	NAMEPLATE, PRODUCT SPEC'S	1	4	5600D4	3/8-16 X 1.5 HHCS	4
46	8754	WARNING DECAL	1	5	5601D13	SCR, 1/4-20x1/2 PPHSqConeStepZP	4
47	8900-82	TERMINAL BRACKET, VAC-SCENT	1	6	5603D1	10-24 Std NC Nylock Nut	2
48	8925	FLOURESCENT BULB	2	7	5603D10	NUT NYLOCK, #6-32, SS	6
49	8953	MEDECO CAM LOCK W/2 KEYS	2	8	5603D11	1/2 Std NF Nylock Nut	1
50	9200-1D-1-10	FACEPLATE DECAL	1	9	5606D22	WASHER, 3/8 FENDER	8
51	9200-1D-1-10-BA	DECAL, INSERT BILL	1	10	5606D7	FLAT WASHER, .160 ID X .500 OD	1
52	9200FPD	DECAL KIT	1	11	5627D1	6-32 x 1.0 PHIL. PAN -MACHINE SCREW	4
53	9209-2W	FACEPLATE WELDMENT, SHAMPOO	1	12	5627D2	6-32 x .63 PD, PH, MS	1
54	9209-4W	WELDMENT, VAC CANISTER	1	13	5647D2	1/8" SS POP RIVET	16
55	B5722-002	NUT, 3/8-16 UNC HEX LOCK NUT	4	14	5647D8	3/16" SS POP RIVET	14
56	9209WH1	WIRE HARNESS, 9209 VAC	1	15	5662D2	6-32 x 1/2 PHIL. PAN -MACHINE SCREW	4
57	8221WH2	2 MTR HARN, 110VAC W 10A FUSE	1	16	5871B9	PLASTIC VAC LID PLUG	4
				17	5871b8	PLUG, VAC BOTTOM 2-1/2"	8
				18	5901D1	YELLOW WIRE NUT	2
				19	5944D001	TERMINAL STRIP, 12 POLES, 8AWG MAX	1
				20	6082	BAG, 9 X 12	1
				21	8047	BAG, 60 X 72	1
				22	8055EM	MOTOR, ELECTRO 120V	2
				23	8057	MOTOR GASKET	2
				24	8076	FILTER BAG	4
				25	8081	CABLE TIE MOUNT	2
				26	8084	CABLE TIE	4
				27	8108	#10 x 1/2 TAP SCREW	4
				28	8130-6	MEI MARS, 110V BILL VALIDATOR	1
				29	8149	IMONEX COIN ACCEPTOR	1
				30	8153-1	LATCH, CLEANOUT DOOR	4
				31	8157	NUT, #6-32 KEPP NUT STAINLESS	1
				32	8159	DOOR GASKET	2
				33	8183	DECAL, WARNING	2
				34	8204RW	WELDMENT, COIN BOX	1
				35	8306	24" PLASTIC DOME	1
				36	8424-1	DECAL, CANISTER	1
				37	8437D001	ETL LISTED DECAL	1
				38	8543K	2 MOTOR LIGHT KIT	1
				39	8605	PALLET, VAC, 26" X 30.5"	1
				40	8615-5W	CLEANOUT DOOR WELDMENT	2

C 7712 REMOVED B5996-010, B5997-001, 8673-11, ADD 9209WH1, 8221WH2				3/15/16	MWS	TITLE 2DR VAC, 2MTR, SSAC, BILL ACCEPTOR VAC, LD		UNSPECIFIED TOLERANCES		MATERIAL	
B 7431 REMOVE 9209-D-1-10, ADD NEW DECALS				032415	JF	DRAWN BY CHAD K.		1 PL ± .030		J.E. ADAMS INDUSTRIES LTD	
A 6806 REVISED AND DRAWN TO INVENTOR; NO PREVIOUS DRAWING				2-8-12	CK	DATE 2/8/2012		2 PL ± .020		SCALE	
REV NO. DESCRIPTION				DATE	BY	SCALE		3 PL ± .003		SHEET 1 / 2	
THIS DOCUMENT SHALL NOT BE REPRODUCED NOR SHALL THE INFORMATION THEREIN BE USED BY OR DISCLOSED TO OTHERS EXCEPT AS AUTHORIZED BY J.E. ADAMS INDUSTRIES						ANGLE ± 1°				PART NO. 9209LD REV. C	



TITLE		2DR VAC, 2MTR, SSAC, BILL ACCEPTOR VAC, LD	
UNSPECIFIED TOLERANCES		MATERIAL	
1 PL ±.030	DRAWN BY	CHAD K.	
2 PL ±.020	DATE	2/8/2012	
3 PL ±.003	SCALE	SHEET	2 / 2
ANGLE ±1°	PART NO		9209LD
			REV. C

REV	NO.	DESCRIPTION	DATE	BY
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PART NO. 9230

BILL OF MATERIALS			
ITEM	PART NUMBER	DESCRIPTION	QTY
35	8424-1	DECAL, CANISTER	1
36	8429-1	DECAL, HANG HOSE	1
37	8437D001	DECAL, ETL LISTED	1
38	8605	PALLET, VAC, 26" X 30.5"	1
39	8615-5W	CLEANOUT DOOR WELDMENT	2
40	8631	11 X 55 PAD FOR VAC'S	1
41	8673-11	GROUND WIRE 28"	1
42	8732	NAMEPLATE PRODUCT SPEC'S	1
43	8754	DECAL, WARNING	1
44	8952W	FACEPLATE WELDMENT, CAM LOCK	1
45	8953	MEDECO CAM LOCK W/2 KEYS	1
46	8954W	COIN BOX WELDMENT, SCREW LOCK	1
47	8955	MEDECO SCREW LOCK	1
48	9200FPD	DECAL, FACEPLATE	1
49	9231W	VAC CANISTER W/C	1
50	B5722-002	NUT, 3/8-16 UNC HEX LOCK NUT	4



BILL OF MATERIALS			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	2036	HOSE, 2" X 15' BLACK VACUUM	1
2	2058	CLAW/CUFF ASSEMBLY, 2"	1
3	5600D4	3/8-16 X 1.5 HHCS	4
4	5603D1	10 Std NC Nylock Nut	1
5	5603D11	1/2 Std NC Nylock Nut	1
6	5606D22	WASHER, 3/8 FENDER	8
7	5606D7	FLAT WASHER, .160 ID X .500 OD	1
8	5627D2	6-32 x .625 PHIL. PAN -MACHINE SCREW	1
9	5629D1	#8 x 1 SELF TAPPING SCREW	1
10	5639D4	RUBBER GROMMET	1
11	5644D1	CAGE NUT 5/16-18	1
12	5647D2	1/8" SS POP RIVET	16
13	5871B9	PLASTIC VAC LID PLUG	4
14	5871b8	PLUG, VAC BOTTOM 2-1/2"	8
15	5947D8	3/16" SS POP RIVET	14
16	6082	BAG, 9 X 12	1
17	8047	BAG, 60 X 72	1
18	8051G	BRACKET, MOTOR MOUNT	1
19	8055EM	MOTOR, ELECTRO 120V	2
20	8055LEAD-EM	WIRE LEAD, EM VAC MOTOR	4
21	8057	MOTOR GASKET	2
22	8076	FILTER BAG	4
23	8081	CABLE TIE MOUNT	1
24	8084	CABLE TIE	3
25	8108	#10 x 1/2 TAP SCREW	4
26	8149	IMONEX COIN ACCEPTOR	1
27	8153-1	LATCH, CLEANOUT DOOR	4
28	8157	NUT, #6-32 KEPP NUT STAINLESS	5
29	8159	DOOR GASKET	2
30	8183	DECAL, WARNING	2
31	8221SS4	TIMER ASSY, 120 VAC ACCUMULATING TIMER	1
32	8221WH2	WIRE HARNESS	1
33	8305	ASSEMBLED SS DOME	1
34	8423-2	DECAL, DOME	1

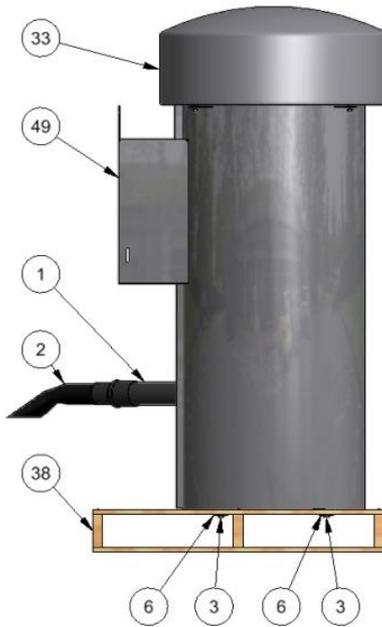
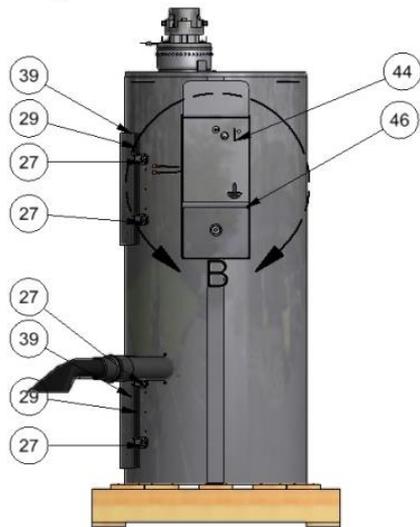
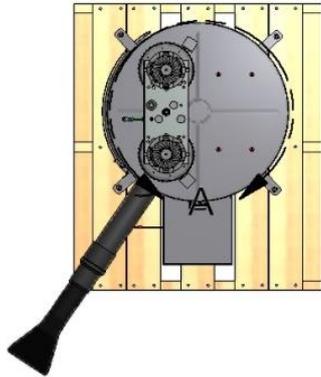
A	6874	REVISED AND DRAWN TO INVENTOR; NO PREVIOUS DRAWING	2-23-12	CK
REV	NO.	DESCRIPTION	DATE	BY

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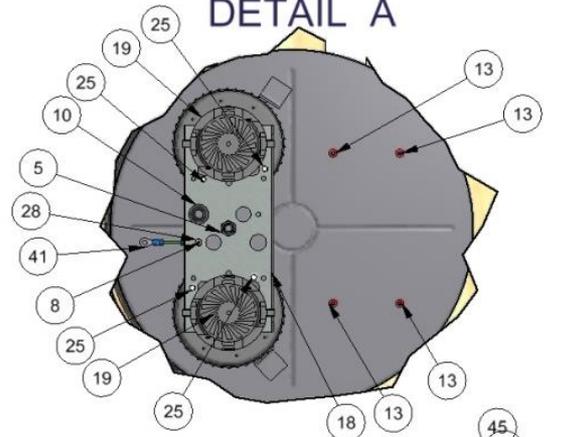
TITLE 2DR VAC, CAM LOCK, SCREW LOCK, LARGE DOME			
UNSPECIFIED TOLERANCES 1 PL ±.030 2 PL ±.010 3 PL ±.003 ANGLE ±1.0°	MATERIAL		CEDAR RAPIDS, IOWA
	SCALE		
		DRAWN BY CHAD K.	PART NO. 9230
	DATE 2/23/2012		

PART NO.

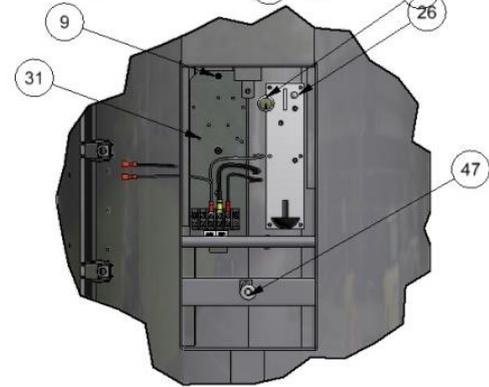
9230



DETAIL A



DETAIL B



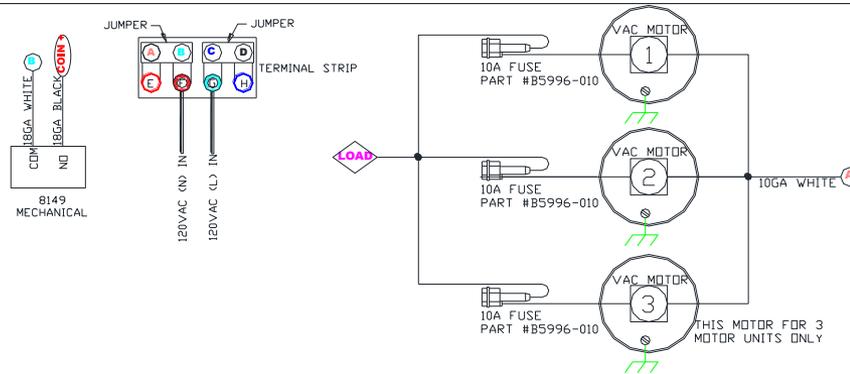
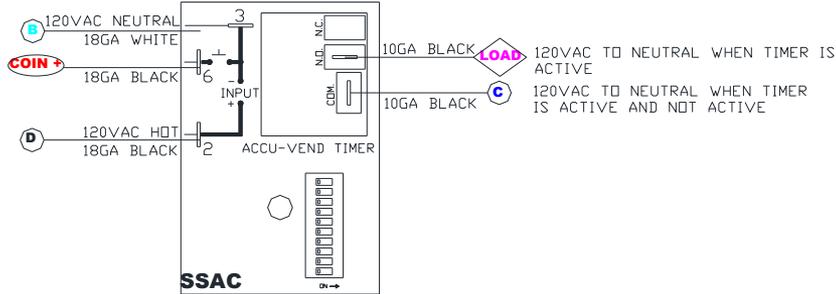
TITLE		CEDAR RAPIDS, IOWA	
2DR VAC, CAM LOCK, SCREW LOCK, LARGE DOME			
UNSPECIFIED TOLERANCES	MATERIAL		
SCALE			
1 PL ±.030	DRAWN BY CHAD K.		
2 PL ±.010	DATE 2/23/2012		
3 PL ±.003	PART NO. 9230	REV. A	
ANGLE ±1.0°			

REV	NO.	DESCRIPTION	DATE	BY
THIS DOCUMENT SHALL NOT BE REPRODUCED NOR SHALL THE INFORMATION THEREIN BE USED BY OR DISCLOSED TO OTHERS EXCEPT AS AUTHORIZED BY J.E. ADAMS INDUSTRIES				

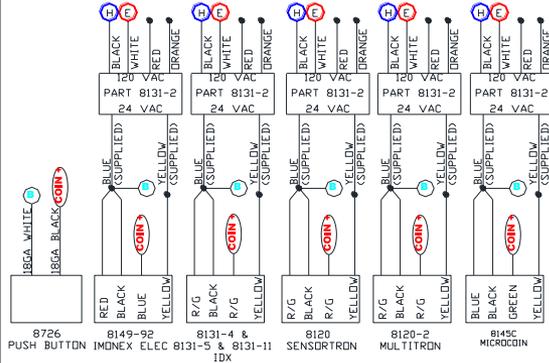
Basic vacuum models

PART NO. **VACUUM 120V** **8221SS4**

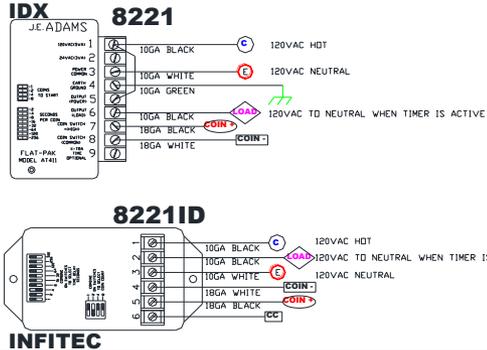
VACUUM STANDARD



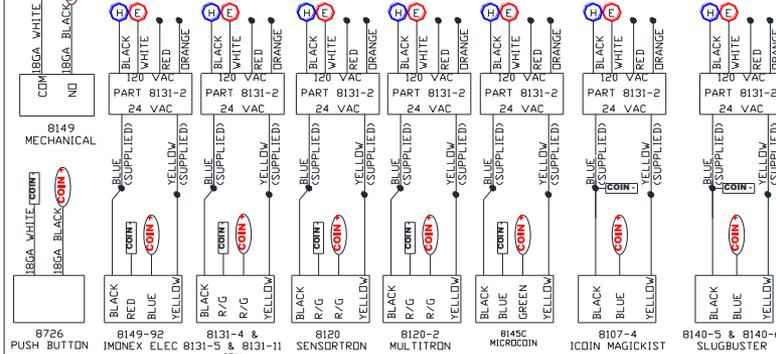
COIN ACCEPTORS SSAC



OPTIONAL TIMERS



COIN ACCEPTORS IDX & INFITEC

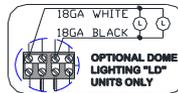


IMPORTANT INFORMATION

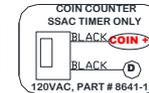
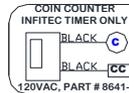
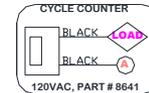
!! IMPORTANT !!
TERMINAL STRIP IS ON BACK SIDE OF TIMER PLATE IN LOCK BOX. FIELD WIRING MUST COMPLY WITH LOCAL AND NATIONAL ELECTRICAL CODES
20AMP SERVICE IS REQUIRED FOR 2 MOTOR UNIT

!! IMPORTANT !!
TERMINAL STRIP IS ON BACK SIDE OF TIMER PLATE IN LOCK BOX. FIELD WIRING MUST COMPLY WITH LOCAL AND NATIONAL ELECTRICAL CODES
30AMP SERVICE IS REQUIRED FOR 3 MOTOR UNIT

LIGHTED DOME



OPTIONAL COUNTERS



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PART NO. **VACUUM 120V**



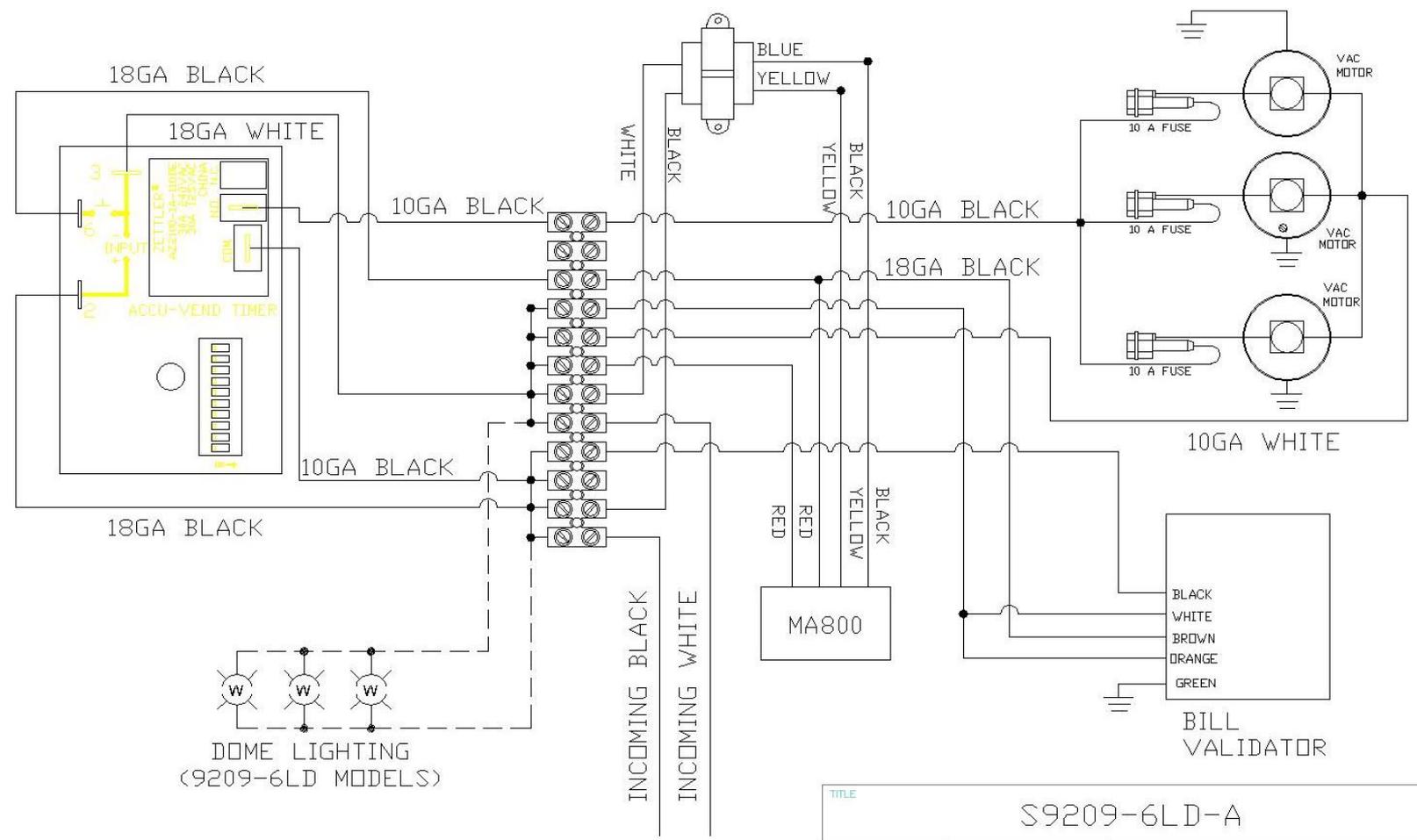
UNSPECIFIED TOLERANCES

- 1 PL ±.030
- 2 PL ±.010
- 3 PL ±.003
- ANGLE ±1.0

TITLE		VACUUM 120V		
DRAWN BY	DATE	SCALE	REL. FOR PROD.	
CHAD K.	12/16/15	NONE		
MATERIAL	PART NO.	REV. LEVEL		
-	VACUUM 120V	A		

ITEM NO.	PART NO.	DESCRIPTION	QTY.
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NOTE: FIELD WIRING MUST COMPLY WITH LOCAL AND NATIONAL ELECTRICAL CODES.



Electronic coin mech model

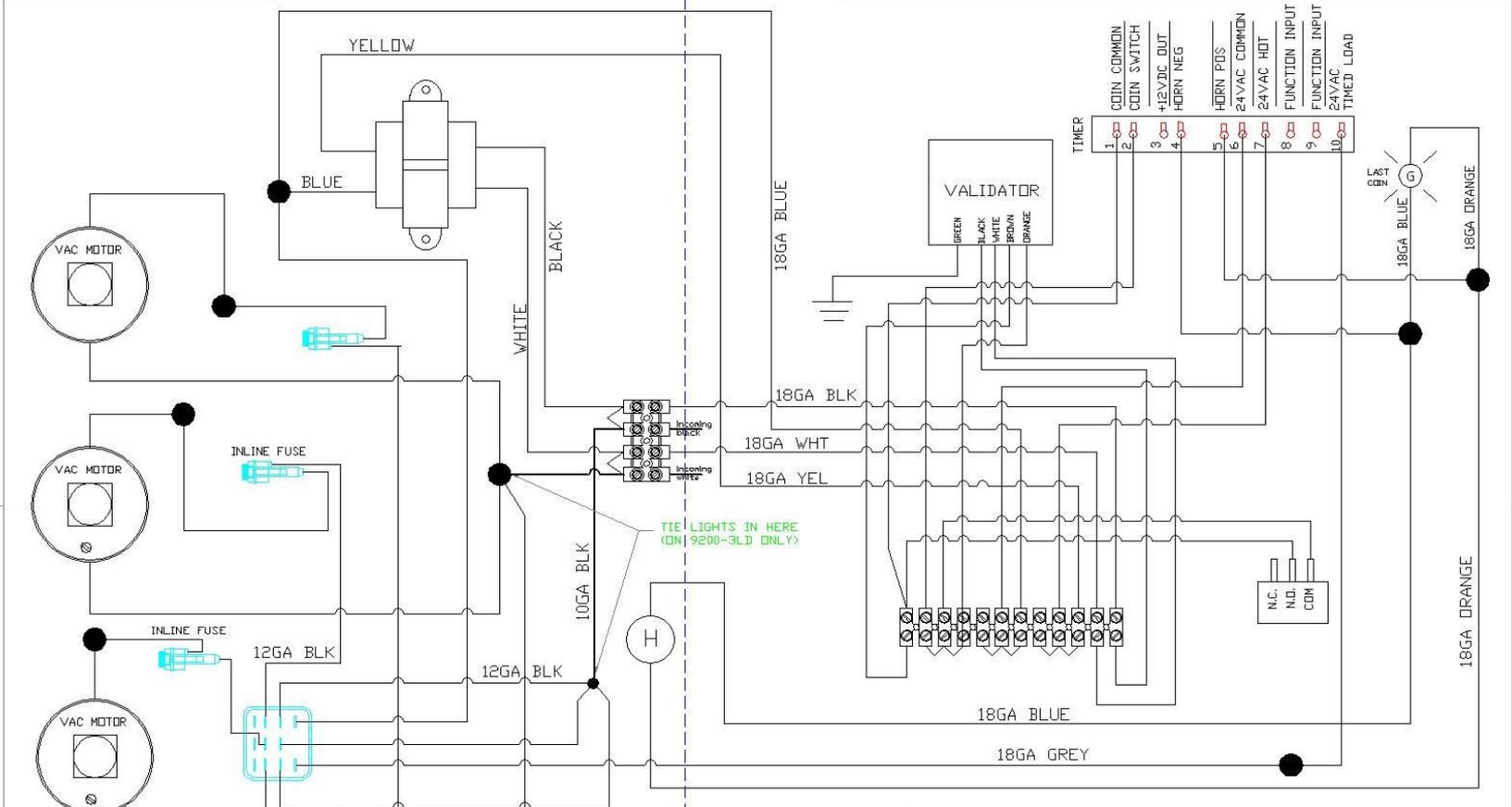
TITLE		S9209-6LD-A	
UNSPECIFIED TOLERANCES	SCALE	DRAWN BY: CAI	 CEDAR RAPIDS, IOWA
FRACT. ±1/32	DATE		
2 PL ±.020	REL. FOR PROD.		PART NO. S9209-6LD-A
3 PL ±.010			REV.
ANGLE ±1.0°			

REV	NO.	DESCRIPTION	DATE	BY
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DIGITAL DISPLAY MODEL

PART NO. 9200-3WIRE

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● REPRESENTS WIRE NUT

TITLE		SUPPORT DOCUMENT	
MATERIAL	-	SCALE	-
UNSPECIFIED TOLERANCES		DRAWN BY	-
1 PL ±.030		DATE	3-02
2 PL ±.010		REL. FOR PROD.	-
3 PL ±.003			
ANGLE ±1.0°			
PART NO. 9200-3WIRE		REV. A	

REV	NO.	DESCRIPTION	DATE	BY
A	1416	CHANGED VALIDATOR LABELS & ADDED WIRE CALLOUTS	9-02	CK

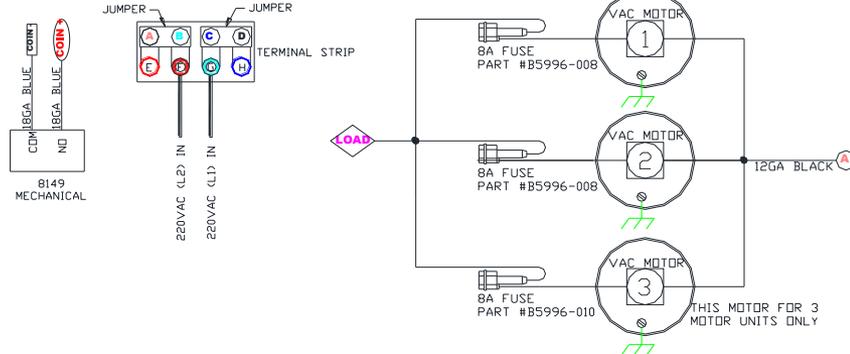
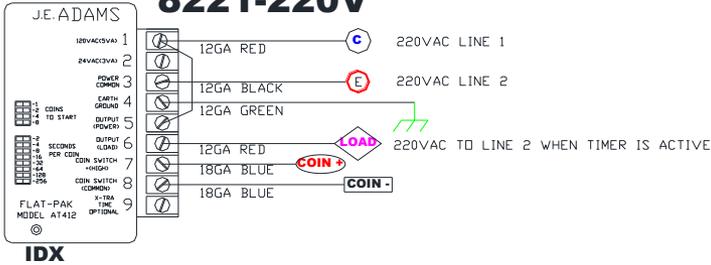


220 VOLT MODEL

VACUUM STANDARD

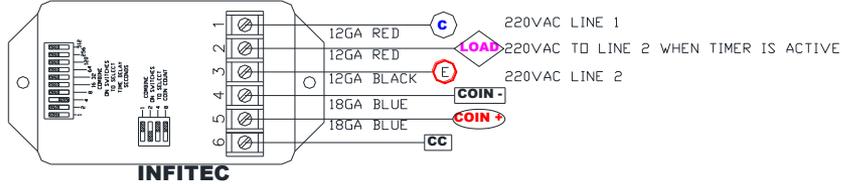
PART NO. **VACUUM 220V**

8221-220V

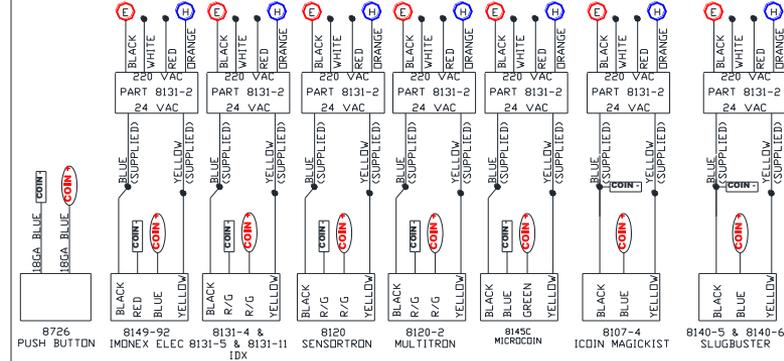


OPTIONAL TIMERS

8221I-220



COIN ACCEPTORS IDX & INFITEC

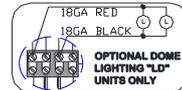


IMPORTANT INFORMATION

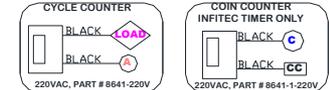
!! IMPORTANT !!
TERMINAL STRIP IS ON BACK SIDE OF TIMER PLATE IN LOCK BOX. FIELD WIRING MUST COMPLY WITH LOCAL AND NATIONAL ELECTRICAL CODES
15AMP SERVICE IS REQUIRED FOR 2 MOTOR UNIT

!! IMPORTANT !!
TERMINAL STRIP IS ON BACK SIDE OF TIMER PLATE IN LOCK BOX. FIELD WIRING MUST COMPLY WITH LOCAL AND NATIONAL ELECTRICAL CODES
20AMP SERVICE IS REQUIRED FOR 3 MOTOR UNIT

LIGHTED DOME



OPTIONAL COUNTERS



THIS DOCUMENT SHALL NOT BE REPRODUCED NOR SHALL THE INFORMATION THEREIN BE USED BY OR DISCLOSED TO OTHERS EXCEPT AS AUTHORIZED BY J.E. ADAMS INDUSTRIES		PART NO. VACUUM 220V		CEDAR RAPIDS, IOWA		UNSPECIFIED TOLERANCES	TITLE VACUUM 220V	
1 PL :.030	2 PL :.010			3 PL :.003	ANGLE 1:0'	DRAWN BY CHAD K.	DATE 3-7-16	SCALE NONE

REV	NO.	DESCRIPTION	DATE	BY

Receiver List

No.	Receiver name	Building side	Floor	Limit		Level		Conflict	
				Day dB(A)	Night	Day dB(A)	Night	Day dB(A)	Night
1	Residential Property Line East		GF	50	45	49.8	49.8	-	4.8
2	Residential Property Line southwest		GF	50	45	49.1	49.1	-	4.1
3	Residential Property South East		GF	50	45	50.8	50.8	0.8	5.8
4	School Reciever far north		GF	55	-	37.9	37.9	-	-
5	School Reciever North		GF	55	-	39.6	39.6	-	-
6	School Reciever South		GF	55	-	44.9	44.9	-	-

Receiver List

No.	Receiver name	Building side	Floor	Limit		Level		Conflict	
				Day dB(A)	Night	Day dB(A)	Night	Day dB(A)	Night
1	Residential Property Line East		GF	50	45	48.4	48.4	-	3.4
2	Residential Property Line southwest		GF	50	45	49.0	49.0	-	4.0
3	Residential Property South East		GF	50	45	49.8	49.8	-	4.8
4	School Reciever far north		GF	55	-	37.9	37.9	-	-
5	School Reciever North		GF	55	-	39.6	39.6	-	-
6	School Reciever South		GF	55	-	44.9	44.9	-	-

Contribution Levels of the Receivers

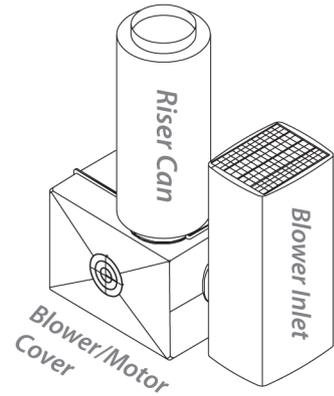
Source name	Lane	Level	
		Day	Night
		dB(A)	
Residential Property Line East	GF	49.8	49.8
Carwash Entrance Noise (dryer)		46.0	46.0
Carwash Exit Noise (dryer)		47.3	47.3
Proposed Vacuum Station		34.0	34.0
Residential Property Line southwest	GF	49.1	49.1
Carwash Entrance Noise (dryer)		43.7	43.7
Carwash Exit Noise (dryer)		47.0	47.0
Proposed Vacuum Station		39.0	39.0
Residential Property South East	GF	50.8	50.8
Carwash Entrance Noise (dryer)		47.7	47.7
Carwash Exit Noise (dryer)		47.6	47.6
Proposed Vacuum Station		34.6	34.6
School Reciever far north	GF	37.9	37.9
Carwash Entrance Noise (dryer)		29.0	29.0
Carwash Exit Noise (dryer)		37.0	37.0
Proposed Vacuum Station		25.1	25.1
School Reciever North	GF	39.6	39.6
Carwash Entrance Noise (dryer)		30.6	30.6
Carwash Exit Noise (dryer)		38.6	38.6
Proposed Vacuum Station		27.7	27.7
School Reciever South	GF	44.9	44.9
Carwash Entrance Noise (dryer)		40.8	40.8
Carwash Exit Noise (dryer)		42.5	42.5
Proposed Vacuum Station		30.0	30.0

The Proto-Vest Silencer Package

“How Much Quieter Is It?”



The Silencer Package was developed by Proto-Vest, Inc. to enable its dryers to meet OSHA, federal, state and local noise reduction standards. All Proto-Vest drying systems can be equipped with the Silencer Package as an option.



Using state of the art materials which require virtually no maintenance, Proto-Vest has designed three components to comprise the Silencer Package.

- **Blower Inlet:** Reduces the noise generated by rapidly moving air being drawn into the blower assembly.
- **Blower/Motor Cover:** Houses the blower and motor completely, absorbing noise from the motor and impeller as well as protecting them.
- **Riser Can:** Muffles the noise created by the blower and impeller and the movement of the air as it leaves the blower and advances through the dryer’s plenum.

But how much quieter is it?

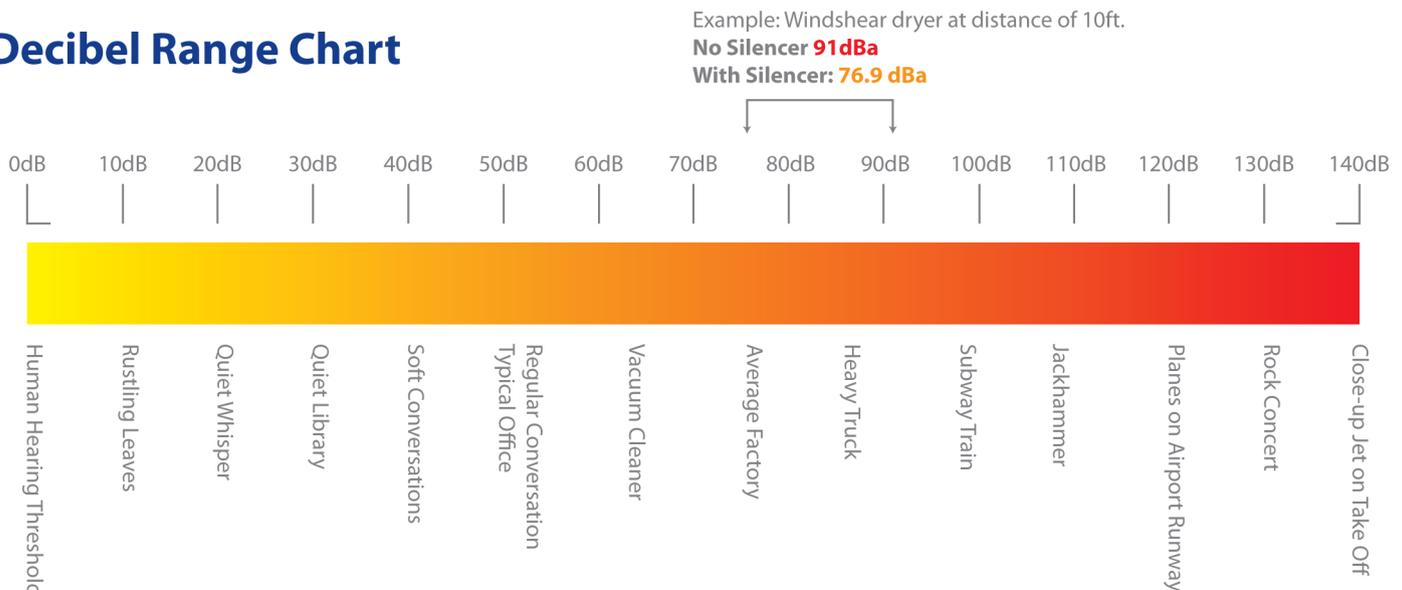
First, you should understand a few things about sound levels. A decibel is the smallest single unit of loudness difference in sound pressure that the human ear can detect. It was conceived by a scientist who noticed that two church bells were louder than one and three were louder than two. He called the difference in loudness one “Bell”. As more accurate measurements were needed, the bell unit was further divided into decibels or one tenth of a bel. It’s important to understand that ten decibels are ten times more intense than one decibel, 20 decibels are 100 times more intense (10x10) and 30 decibels are 1,000 times more intense (10x10x10).

The Silencer Package reduces the noise decibel levels on Proto-Vest dryers an average of 10 decibels.

What this means to you is the Silenced Proto-Vest dryer is approximately 10 times quieter than an unsilenced model!

The OSHA permissible noise exposure is 85dB for an 8 hour shift. By reducing noise levels into the 70 and 80dB range, you can be assured of a pleasant environment for both your employees and customers.

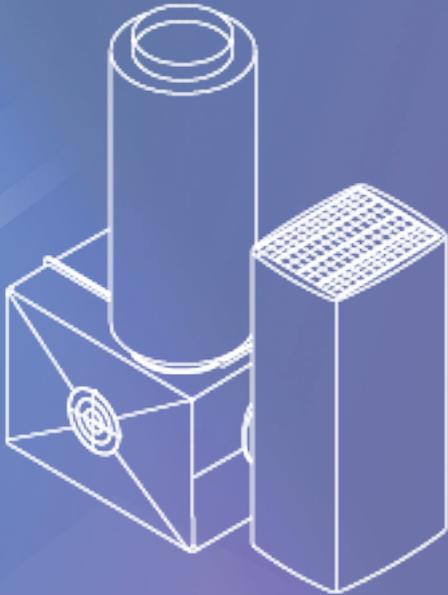
Decibel Range Chart



Proto-Vest Inc.®

SILENCER PACKAGE

Reduce Blower
Motor Noise



Features & Benefits

- Reduces noise to meet OSHA regulations
- Decreases noise generated by the impeller, rapidly moving air drawn into the blower and discharged air from the blower assembly
- Easy Installation
- Requires very low maintenance
- Available option for any Proto-Vest dryer

10x Quieter!

**Lowers Noise Levels by
about 10 Decibels**

Why the Proto-Vest Silencer Package?

The Proto-Vest Silencer Package is compatible with all of Proto-Vest dryers, enabling our systems to meet and exceed OSHA noise regulations. Using state-of-the-art materials, which require virtually no maintenance, Proto-Vest has designed three components to comprise the Silencer Package.

Blower Inlet:

Captures the noise escaping the inlet area of the blower assembly.

Blower-motor Cover:

Houses the blower and motor completely to absorb noise emitted from the motor and impeller while providing the assembly additional protection.

Riser Can:

Absorbs the noise created by the blower assembly and the movement of the air as it leaves the blower advancing through the dryer's plenum.

The Ultimate in Drying Technology!

SILENCER PACKAGE

Reduce Blower Motor Noise

General Description

The Proto-Vest "Silencer Package" was developed to enable our dryers to meet OSHA, federal, state and local noise reduction standards. The OSHA permissible noise exposure is 85 dB for an 8-hour shift. By reducing noise levels into the 70 dB to 80 dB range, you can be assured of a pleasant environment for both your employees and customers. The Silencer Package reduces decibel levels on Proto-Vest dryers on an average of 10 decibels making them approximately 10 times quieter than the un-silenced models! The Silencing Package is an optional product for any Proto-Vest dryer.

Decibel Level Readings

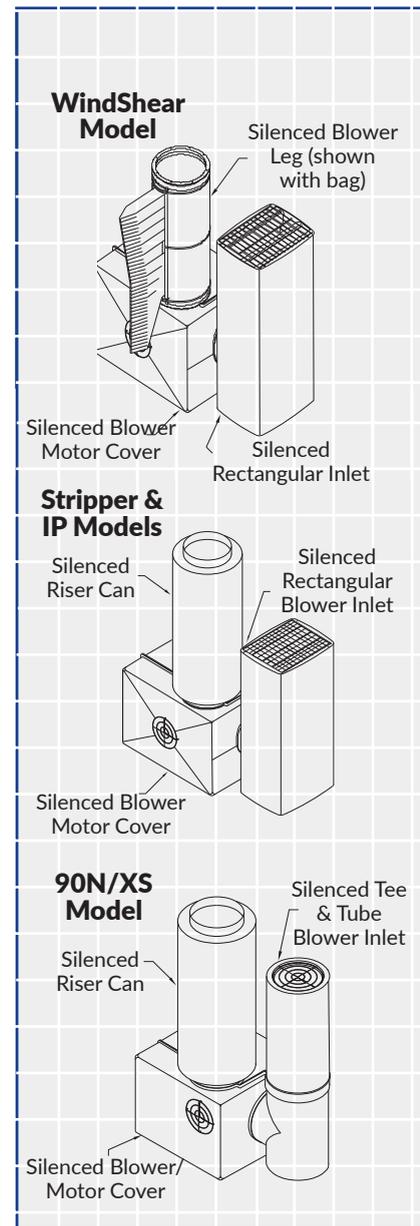
With Silencer (WS)	Without Silencer (WOS)		
Windshear InBay - (2) 30hp Dryer:		IP Stripper - 30hp Dryer:	
WS: 10 ft=88 dBa;	WOS: 10 ft=94 dBa	WS: 10 ft=85 dBa;	WOS: 10 ft=91 dBa
WS: 20 ft=82 dBa;	WOS: 20 ft=88 dBa	WS: 20 ft=79 dBa;	WOS: 20 ft=85 dBa
WS: 30 ft=78.4 dBa;	WOS: 30 ft=84.5 dBa	WS: 30 ft=75.5 dBa;	WOS: 30 ft=81.5 dBa
		WS: 40 ft=73 dBa;	WOS: 40 ft=79 dBa
		WS: 50 ft=71 dBa;	WOS: 50 ft=77 dBa
WS: 40 ft=76 dBa;	WOS: 40 ft=82 dBa	IP330 - 30hp Dryer:	
WS: 50 ft=74 dBa;	WOS: 50 ft=80 dBa	WS: 10 ft=76.9 dBa;	WOS: 10 ft=91 dBa
WS: 60 ft=72.4 dBa;	WOS: 60 ft=78.4 dBa	WS: 20 ft=70.9 dBa;	WOS: 20 ft=84.9 dBa
		WS: 30 ft=67.4 dBa;	WOS: 30 ft=81.4 dBa
		WS: 40 ft=64.9 dBa;	WOS: 40 ft=78.9 dBa
		WS: 50 ft=63 dBa;	WOS: 50 ft=77 dBa
Windshear - 30hp Dryer:		IP345 - 45hp Dryer:	
WS: 10 ft=76.9 dBa;	WOS: 10 ft=91 dBa	WS: 10 ft=78.9 dBa;	WOS: 10 ft=95.5 dBa
WS: 20 ft=70.9 dBa;	WOS: 20 ft=84.9 dBa	WS: 20 ft=83 dBa;	WOS: 20 ft=89.5 dBa
WS: 30 ft=67.4 dBa;	WOS: 30 ft=81.4 dBa	WS: 30 ft=79.5 dBa;	WOS: 30 ft=85.9 dBa
WS: 40 ft=64.9 dBa;	WOS: 40 ft=78.9 dBa	WS: 40 ft=77 dBa;	WOS: 40 ft=83.5 dBa
WS: 50 ft=63 dBa;	WOS: 50 ft=77 dBa	WS: 50 ft=75 dBa;	WOS: 50 ft=81.5 dBa
Windshear II - (2) 30hp Dryer:		TailWind - 30hp Dryer:	
WS: 10 ft=88 dBa;	WOS: 10 ft=99 dBa	WS: 10 ft=85 dBa;	WOS: 10 ft=91 dBa
WS: 20 ft=81.9 dBa;	WOS: 20 ft=92.9 dBa	WS: 20 ft=79 dBa;	WOS: 20 ft=85 dBa
WS: 30 ft=78.4 dBa;	WOS: 30 ft=89.4 dBa	WS: 30 ft=75.5 dBa;	WOS: 30 ft=83.5 dBa
WS: 40 ft=75.4 dBa;	WOS: 40 ft=86.9 dBa	WS: 40 ft=73 dBa;	WOS: 40 ft=79 dBa
WS: 50 ft=74 dBa;	WOS: 50 ft=85 dBa	WS: 50 ft=71 dBa;	WOS: 50 ft=77 dBa
S130 - 30hp Dryer:		90N/90XS - 15hp Dryers:	
WS: 10 ft=76.9 dBa;	WOS: 10 ft=91 dBa	WS: 10 ft=74.5 dBa;	WOS: 10 ft=82.9 dBa
WS: 20 ft=70.9 dBa;	WOS: 20 ft=84.9 dBa	WS: 20 ft=68.5 dBa;	WOS: 20 ft=76.9 dBa
WS: 30 ft=67.4 dBa;	WOS: 30 ft=81.4 dBa	WS: 30 ft=64.9 dBa;	WOS: 30 ft=73.4 dBa
WS: 40 ft=64.9 dBa;	WOS: 40 ft=78.9 dBa	WS: 40 ft=62.4 dBa;	WOS: 40 ft=70.9 dBa
WS: 50 ft=63 dBa;	WOS: 50 ft=77 dBa	WS: 50 ft=60.5 dBa;	WOS: 50 ft=69 dBa
SideShot - 15hp Dryer:			
WS: 10 ft=74.5 dBa;	WOS: 10 ft=82.9 dBa		
WS: 20 ft=68.5 dBa;	WOS: 20 ft=76.9 dBa		
WS: 30 ft=64.9 dBa;	WOS: 30 ft=73.4 dBa		
WS: 40 ft=62.4 dBa;	WOS: 40 ft=70.9 dBa		
WS: 50 ft=60.5 dBa;	WOS: 50 ft=69 dBa		
SideShot II - 30hp Dryer:			
WS: 10 ft=76.9 dBa;	WOS: 10 ft=91 dBa		
WS: 20 ft=70.9 dBa;	WOS: 20 ft=84.9 dBa		
WS: 30 ft=67.4 dBa;	WOS: 30 ft=81.4 dBa		
WS: 40 ft=64.9 dBa;	WOS: 40 ft=78.9 dBa		
WS: 50 ft=63 dBa;	WOS: 50 ft=77 dBa		

(Proto-Vest's Silencing Package is standard on all of the Untouchable series.)

Proto-Vest Patents:

U.S.: 3,942,430; 4,161,801; 4,409,035; 4,418,442; 4,433,450; 4,445,251; 4,446,592; 4,589,160; 4,700,426; 5,027,714; 5,184,369; 5,187,881; 5,195,207; 5,280,665; 5,421,102; 5,553,346; 5,886,648; 5,901,461; 5,950,324; 5,960,564; 6,038,781; 6,176,024; 6,519,872; others pending.

Canada: 1,021,996; 1,111,328; 1,190,453; 1,201,040; 1,197,439; 1,219,195; 1,219,192; 1,219,194; 1,258,026; 1,219,193; 2,013,749; 2,071,568; 2,071,239; 2,071,388; others pending.



*Specifications subject to change without notice.
NOTE: Proto-Vest dryer's dimensions will vary with the Silencer Package.

7400 N. Glen Harbor Blvd., Glendale, AZ 85307
800-521-8218 • 623-872-8300 • Fax 623-872-6150
www.protovest.com

APPENDIX B

Vendor Document Showing Tunnel Door Noise Reduction Options



AUTECH
Car Wash Systems

WE MAKE MORE THAN CAR WASHES...
WE MAKE SUCCESS STORIES!

DECIBEL READINGS / LEVELS: ALL READINGS MAY VARY WITH BAY TYPES, SURROUNDINGS AND VARIABLE TYPES OF CONSTRUCTIONS

DISTANCE FROM BAY:	30HP EXIT DOOR CLOSED	30HP EXIT DOOR OPEN	60 HP (4-15HP, 2- TRUNKS)
10FT.	76	89	95
20FT.	72	87	89
30FT.	70	82	84
40FT.	66	78	79
50FT.	66	78	78
60FT.	64	75	76

* DECIBEL LEVELS MAY DROP 4 TO 5 DBA'S OR MORE WITH FULL COVER SURROUNDS OR SILENCER CONES. READINGS MAY VARY

† THESE READINGS WERE CONDUCTED WITH PREMIUM PLASTIC HOUSINGS - ALUMINUM HOUSINGS ARE ON THE AVERAGE OF 5 TO 8 DECIBELS LOUDER

70

Appendix D

Traffic Reports

MEMORANDUM

Date: June 15, 2018

Project #: 22399

To: Karly Kaufman
Rincon Consultants, Inc.

From: Aaron Elias, P.E. and Damian Stefanakis

Project: 3255 Stanley Boulevard Shell Gas Station, Car Wash and Retail Shop

Subject: Detailed Traffic Analysis

BACKGROUND

The City of Lafayette received an application requesting a Land Use permit for the operation of a car wash at the existing Shell gas station on parcel 177-061-027 located at 3255 Stanley Boulevard in Lafayette, CA. The construction of the car wash would require the relocation of the existing snack shop building but the number of fueling positions would remain unchanged at eight (8). In a previous memorandum dated April 20, 2018, Kittelson and Associates, Inc. (Kittelson) documented the site access and on-site circulation for the proposed project. This memorandum documents a more detailed traffic analysis for the project including:

- Trip generation
- Car wash queue length
- Intersection operations

TRIP GENERATION

Trip generation for new projects is typically estimated using the Institute of Transportation Engineer's Trip Generation Manual currently in its 10th Edition (ITE Manual). However, the ITE Manual does not provide a distinction between gas stations with and without a car wash. The gasoline station (ITE Code 944) in the ITE Manual states that the sites used to develop the trip generation estimates "may also have ancillary facilities for servicing and repairing motor vehicles and may have a car wash."

While the ITE Manual does not consider that gas stations with a car wash would generate a different amount of traffic than one without a gas station, Kittelson proposed to verify this by collecting field data for the existing Shell station without a car wash and compare it to a gas station with a car wash

on a similar roadway (approximately 30,000 ADT). The site selected for this comparison was the ANDOIL gas station located at 605 Ygnacio Valley Road in Walnut Creek.

Driveway counts at both the Shell and ANDOIL gas stations were collected for the AM (7 AM – 9 AM) and PM (4 PM – 6 PM) peak periods on a typical midweek day. The total trip generation for the peak hour was then calculated for each location. Table 1 shows the resulting trip generation for the two sites for the AM and PM peak hours. As shown, the Shell station generates more traffic in the AM but less traffic in the PM. However, the difference is small.

Table 1: Field Collected Trip Generation

AM Peak Hour				
	In	Out	Total	Time
Shell	68	69	137	7:55-8:55 AM
ANDOIL	66	59	125	8:00-9:00 AM
PM Peak Hour				
	In	Out	Total	Time
Shell	73	71	144	4:40-5:40 PM
ANDOIL	82	82	164	4:10-5:10 PM

Source: Kittelson and Associates, Inc., 2018

Prior to the data collection effort, it was assumed that the ANDOIL station would have a higher trip generation because it has a car wash and is located on a busier street. The data collection has shown that the total trip generation between these two stations is relatively similar. With a similar total trip generation to a gas station that already has a car wash and the ITE Manual not providing a distinction between gas stations with and without them, it is unlikely a new car wash at the Shell station would result in a noticeable change in trip generation.

In an effort to present a conservative analysis, Kittelson used ITE land use code 948 for standalone automated car washes to estimate the net new trips to the Shell station. The automated car wash land use shows a trip generation of about 77.5 trips during the PM peak hour (no data were available for the AM peak hour) for a one tunnel automated car wash not at a gas station. Assuming these 77.5 trips would have the same pass-by and diverted trip percentages as a gas station, the primary trip generation for the car wash tunnel at the Shell station would be about 14% according to the ITE Manual.

With 14% of trips to the car wash assumed to be new trips and the other 86% assumed to be existing customers from the fueling positions, the car wash would generate an estimated 11 net new trips to the Shell station during the PM peak hour. Kittelson also assumed these 11 trips would be added to the AM peak hour since no data for this time period were available. Finally, the increase in average daily traffic was estimated by assuming the AM and PM peak hours represent about 13% of the daily traffic volumes consistent with the time of day distribution patterns of gas stations from the ITE Manual. Table 2 shows the resulting net new trips for the addition of a car wash to the existing Shell gas station.

Table 2: Estimated Net New Trips Due to Car Wash

	AM Peak Hour	PM Peak Hour	ADT
Shell Station with Car Wash	11	11	169

Source: Kittelson and Associates, Inc., 2018

QUEUE LENGTH

While collecting driveway counts at the ANDOIL station on Ygnacio Valley Road, Kittelson also collected the queue information for the car wash during the AM (7 AM – 9 AM) and PM (4 PM – 6 PM) peak periods. Table 3 shows the maximum queue length for each 15-minute period. Queues at this car wash during the PM peak period did not exceed two vehicles. The site plan for the proposed Shell car wash shows available queue storage for up to eight vehicles. Therefore, the queue storage provided by the Shell station car wash should be sufficient to accommodate the demand without blocking on-site circulation.

Table 3: Car Wash Queue Length for the ANDOIL Station

Time	Queue Length (vehicles)	Time	Queue Length (vehicles)
7:00 AM	0	4:00 PM	1
7:15 AM	0	4:15 PM	1
7:30 AM	0	4:30 PM	0
7:45 AM	0	4:45 PM	0
8:00 AM	0	5:00 PM	2
8:15 AM	0	5:15 PM	2
8:30 AM	0	5:30 PM	1
8:45 AM	0	5:45 PM	1

Source: Kittelson and Associates, Inc., 2018

INTERSECTION OPERATIONS

The final analysis performed was to document how the car wash may affect existing intersection operations at the intersection of Pleasant Hill Road and Stanley Boulevard/Deer Hill Road. Traffic volumes for this intersection were collected during the AM and PM peak periods. This intersection is heavily congested in the PM peak hour often requiring several cycles for drivers heading northbound on Pleasant Hill Road and eastbound on Deer Hill Road. To account for this unmet demand in the operations analysis, Kittelson performed a field visit to observe PM peak period observations.

Kittelson’s field observations showed that the northbound approach on Pleasant Hill Road was queued from Stanley Boulevard/Deer Hill Road to the off-ramp merge for SR 24 westbound which is a distance of about 1,000 feet. The eastbound approach on Deer Hill Road was queued to the top of the hill or about 1,300 feet. Assuming these distances, a vehicle spacing of about 25 feet per vehicle, and the

number of lanes, the northbound approach was assumed to have an unmet demand of 107 vehicles at the end of the peak hour and the eastbound approach had an unmet demand of about 53 vehicles. This unmet demand was added to the traffic counts for these directions in the PM peak hour to better estimate the delay and level of service (LOS) for the intersection. The AM peak hour, while congested, does not appear to have unmet demand based on field observations.

Traffic operations for the AM and PM peak hours with and without the project were then estimated in the Vistro traffic analysis software using the operations methodology of the Highway Capacity Manual (HCM) 6th Edition. The delay and LOS findings are shown in Table 4. As shown, the increased project traffic volume has little effect on the intersection during the AM peak hour. During the PM peak hour, the intersection is already operating at LOS F and would continue to do so after the project increases the average vehicle delay by less than one second and the volume to capacity ratio by less than one percent.

The City of Lafayette’s general plan has identified LOS D as the standard for intersections in the City. However, the City does not identify the significance threshold for intersections operating below LOS D without the project. Therefore, Kittelson has assumed the following criterion for locations operating below LOS D without the project:

- At a study, signalized intersection where the motor vehicle level of service is LOS E, the project would cause the total intersection average vehicle delay to increase by four (4) or more seconds.
- At a study, signalized intersection for all areas where the level of service is LOS F, the project would cause the overall volume-to-capacity (“V/C”) ratio to increase 0.03 or more.

Based on the City of Lafayette’s LOS D standard and the supplemental criteria for intersections already below this standard, the project does not result in a significant impact during the AM or PM peak hours.

Table 4: Traffic Operations at Pleasant Hill Road and Stanley Boulevard/Deer Hill Road

	Existing			Existing + Project		
	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS
AM Peak Hour	0.795	40.9	D	0.795	40.9	D
PM Peak Hour	1.094	122.0	F	1.096	122.8	F

Source: Kittelson and Associates, Inc., 2018

CONCLUSIONS

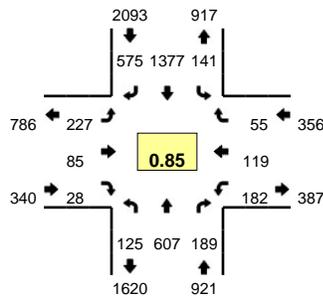
This memorandum documented the findings of a more detailed traffic operations analysis for the effects of adding a car wash to the existing Shell gas station on Stanley Boulevard in Lafayette, CA. The primary conclusions of this analysis include:

- The industry standard trip generation manual (Institute of Transportation Engineers Trip Generation Manual 10th Edition), does not differentiate between gas stations with and without car washes. They are assumed to generate similar levels of trip generation.
- An analysis of existing trip generation shows that the existing Shell gas station without a car wash has a similar trip generation to the ANDOIL station on Ygnacio Valley Road in Walnut Creek that has a car wash and more fueling positions.
- While the ITE Manual and data collection were unable to identify a significant difference in the trip generation of a gas station with and without a car wash, Kittelson performed a conservative estimate of the net new trip generation for a car wash by using the ITE Manual standalone automated car wash as a proxy. This lane use in conjunction with the assumed pass-by and diverted trip reduction for a gas station resulted in approximately 11 net new trips during both the AM and PM peak hours.
- Applying the conservative trip generation to the intersection at Pleasant Hill Road and Stanley Boulevard/Deer Hill Road resulted in no significant impacts with little change to the existing traffic operations.
- The maximum observed queue during the AM and PM peak periods at the ANDOIL gas station was four vehicles. The queue storage for the proposed car wash is eight vehicles. Therefore, the car wash queues are unlikely to interfere with site circulation.

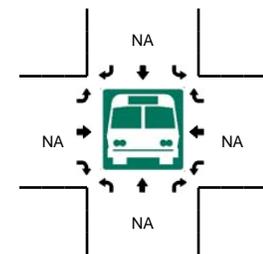
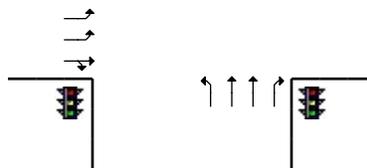
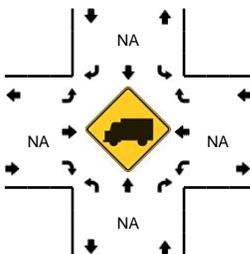
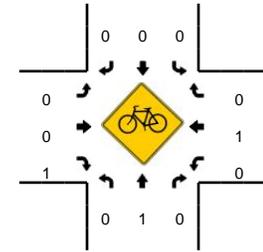
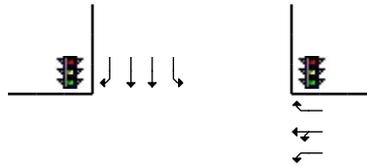
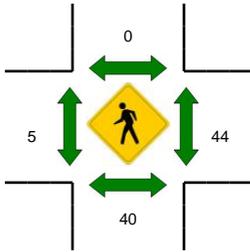
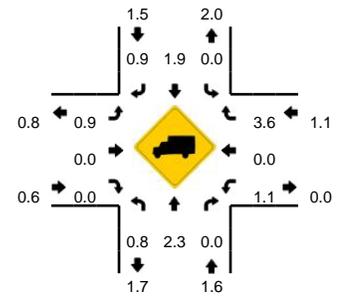
Appendix A: Data Collection

LOCATION: Pleasant Hill Rd -- Deer Hill Rd/Stanley Blvd
CITY/STATE: Lafayette, CA

QC JOB #: 14605301
DATE: Thu, May 24 2018



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

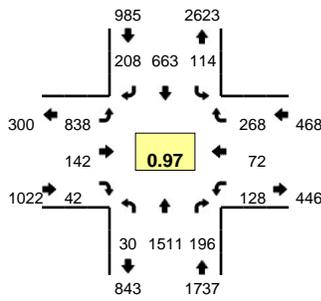


5-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Deer Hill Rd/Stanley Blvd (Eastbound)				Deer Hill Rd/Stanley Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	26	5	0	5	131	43	0	0	2	0	0	11	12	2	0	239	
7:05 AM	9	26	4	1	5	128	42	0	4	1	0	0	8	2	2	0	232	
7:10 AM	6	34	3	0	3	120	65	0	9	0	0	0	7	7	0	0	254	
7:15 AM	7	32	4	0	3	138	53	1	5	1	1	0	7	9	5	0	266	
7:20 AM	2	29	7	0	3	129	55	1	5	2	1	0	4	10	3	0	251	
7:25 AM	4	42	4	2	6	121	64	1	12	2	0	0	7	7	1	0	273	
7:30 AM	2	37	11	2	9	132	64	1	12	2	0	0	10	5	4	0	291	
7:35 AM	4	53	17	1	15	120	53	3	11	7	1	0	11	14	1	0	311	
7:40 AM	3	64	30	5	11	102	31	8	30	14	8	0	17	12	4	0	339	
7:45 AM	7	73	33	3	8	92	44	9	29	15	8	0	20	13	2	0	356	
7:50 AM	9	86	37	6	10	106	44	4	25	9	1	0	24	14	2	0	377	
7:55 AM	12	67	23	3	3	111	49	1	36	15	0	0	23	19	2	0	364	3553
8:00 AM	8	46	13	2	10	117	56	1	11	5	0	0	23	11	1	0	304	3618
8:05 AM	11	32	6	3	2	124	45	0	16	3	2	0	11	11	7	0	273	3659
8:10 AM	7	34	4	1	6	126	48	0	17	3	2	0	10	7	9	0	274	3679
8:15 AM	7	45	4	1	12	109	52	1	22	8	1	0	12	3	12	0	289	3702
8:20 AM	9	28	6	3	8	109	48	0	7	1	2	0	10	3	7	0	241	3692
8:25 AM	13	42	5	3	19	129	41	0	11	3	3	0	11	7	4	0	291	3710
8:30 AM	14	37	3	2	8	127	47	2	10	1	2	0	8	3	7	0	271	3690
8:35 AM	8	30	2	1	7	76	42	0	10	2	1	0	8	7	2	0	196	3575
8:40 AM	8	25	5	4	8	93	25	0	18	1	3	0	11	2	5	0	208	3444
8:45 AM	5	40	6	3	5	99	28	0	9	3	8	0	11	4	6	0	227	3315
8:50 AM	11	37	11	5	8	88	32	0	10	0	8	0	9	7	5	0	231	3169
8:55 AM	1	46	3	2	3	83	22	0	12	4	6	0	6	7	0	0	195	3000
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	112	904	372	48	84	1236	548	56	360	156	36	0	268	184	24	0	4388	
Heavy Trucks	0	20	0		0	28	8		0	0	0		4	0	0		60	
Pedestrians		124				0				8				124			256	
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

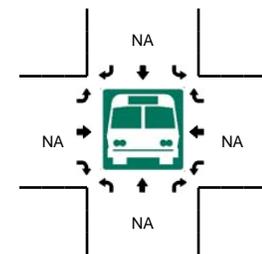
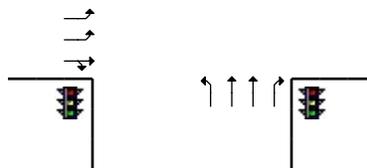
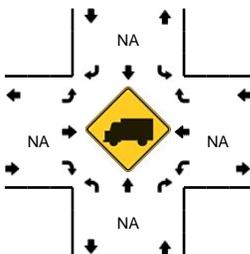
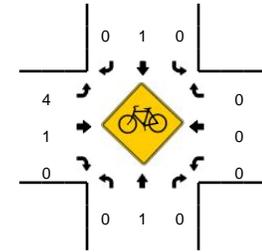
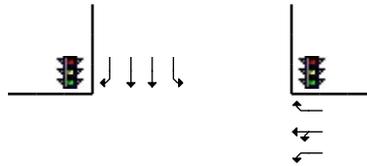
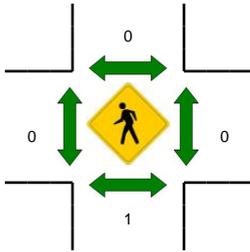
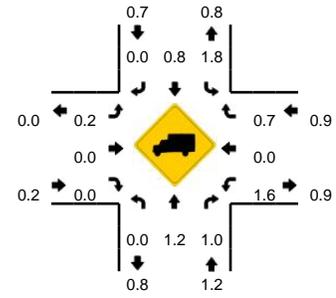
Comments:

LOCATION: Pleasant Hill Rd -- Deer Hill Rd/Stanley Blvd
CITY/STATE: Lafayette, CA

QC JOB #: 14605302
DATE: Wed, May 30 2018



Peak-Hour: 4:50 PM -- 5:50 PM
Peak 15-Min: 4:50 PM -- 5:05 PM

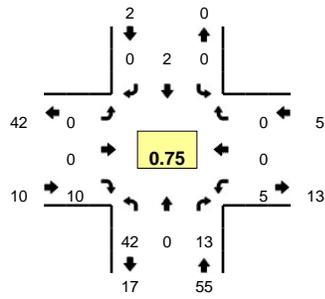


5-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Deer Hill Rd/Stanley Blvd (Eastbound)				Deer Hill Rd/Stanley Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	108	13	2	12	48	9	0	25	7	3	0	13	6	12	0	259	
4:05 PM	1	103	11	1	5	61	12	0	64	14	2	0	14	7	9	0	304	
4:10 PM	3	119	11	0	6	56	14	1	56	10	1	0	29	5	21	0	332	
4:15 PM	3	140	21	2	9	58	17	0	43	10	3	0	18	5	10	0	339	
4:20 PM	3	137	22	0	9	52	14	1	34	15	3	0	9	6	19	0	324	
4:25 PM	1	125	22	2	12	48	17	0	65	11	2	0	12	3	20	0	340	
4:30 PM	1	120	19	0	10	42	13	0	66	10	3	0	18	5	16	0	323	
4:35 PM	1	123	13	5	11	45	15	0	59	4	0	0	14	8	25	0	323	
4:40 PM	2	137	14	1	10	80	17	0	62	14	0	0	10	6	16	0	369	
4:45 PM	3	124	23	2	12	48	10	0	64	12	3	0	9	4	20	0	334	
4:50 PM	3	111	14	1	11	49	29	0	92	27	2	0	8	6	22	0	375	
4:55 PM	2	113	12	0	11	39	22	0	65	15	4	0	17	12	23	0	335	3957
5:00 PM	4	143	37	1	10	69	17	1	57	9	2	0	8	2	20	0	380	4078
5:05 PM	0	152	24	0	8	65	13	0	60	13	4	0	12	3	20	0	374	4148
5:10 PM	0	114	11	1	14	47	17	0	78	15	3	0	10	3	16	0	329	4145
5:15 PM	1	116	22	1	7	47	10	1	81	4	4	0	10	7	20	0	331	4137
5:20 PM	3	122	20	1	11	53	18	0	57	9	3	0	10	8	25	0	340	4153
5:25 PM	2	128	5	0	8	59	16	0	65	6	2	0	10	5	18	0	324	4137
5:30 PM	1	134	19	0	10	59	13	2	63	11	3	0	11	5	26	0	357	4171
5:35 PM	1	123	11	2	8	48	8	2	90	13	2	0	8	5	21	0	342	4190
5:40 PM	1	116	11	0	7	67	18	0	66	11	5	0	18	7	29	0	356	4177
5:45 PM	2	139	10	3	3	61	27	0	64	9	8	0	6	9	28	0	369	4212
5:50 PM	1	153	9	1	8	51	19	0	63	10	5	0	13	8	19	0	360	4197
5:55 PM	0	107	6	1	13	48	15	0	77	11	3	0	16	8	17	0	322	4184
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	36	1468	252	8	128	628	272	4	856	204	32	0	132	80	260	0	4360	
Heavy Trucks	0	20	0		0	4	0		0	0	0		0	0	0		24	
Pedestrians		0				0				0				0				0
Bicycles	0	0	0		0	0	0		1	0	0		0	0	0			1
Railroad																		
Stopped Buses																		

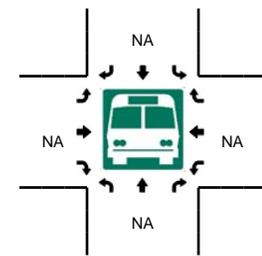
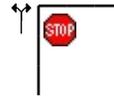
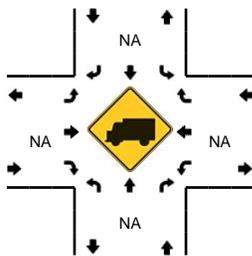
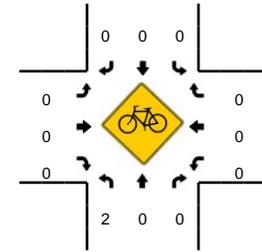
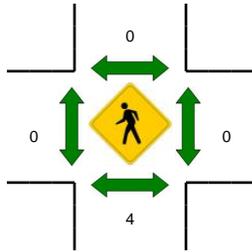
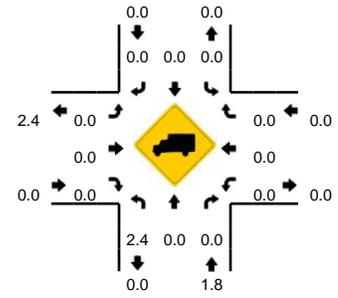
Comments:

LOCATION: Dwy 1 -- Stanley Blvd
CITY/STATE: Lafayette, CA

QC JOB #: 14605303
DATE: Thu, May 24 2018



Peak-Hour: 7:55 AM -- 8:55 AM
Peak 15-Min: 8:30 AM -- 8:45 AM

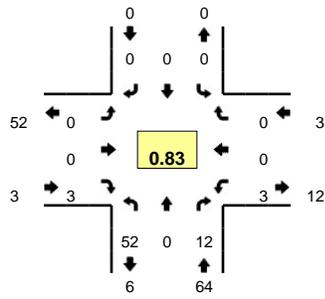


5-Min Count Period Beginning At	Dwy 1 (Northbound)				Dwy 1 (Southbound)				Stanley Blvd (Eastbound)				Stanley Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
7:05 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
7:10 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:15 AM	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
7:20 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:25 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
7:30 AM	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
7:35 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
7:40 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
7:45 AM	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	
7:50 AM	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	
7:55 AM	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	31
8:00 AM	1	0	2	0	0	0	0	0	0	0	0	0	4	0	0	0	7	35
8:05 AM	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	37
8:10 AM	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	4	40
8:15 AM	7	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	9	46
8:20 AM	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5	50
8:25 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	50
8:30 AM	6	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	12	56
8:35 AM	2	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	5	59
8:40 AM	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	7	64
8:45 AM	4	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	9	70
8:50 AM	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5	72
8:55 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	71
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	56	0	20	0	0	0	0	0	0	0	0	20	0	0	0	0	96	
Heavy Trucks	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

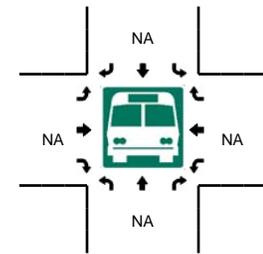
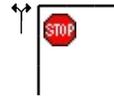
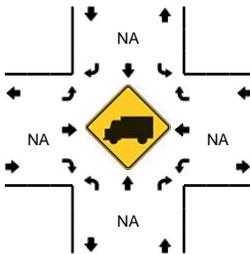
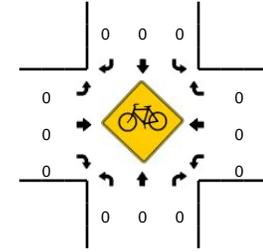
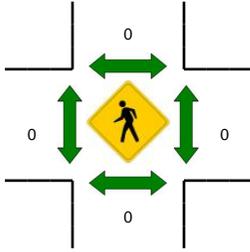
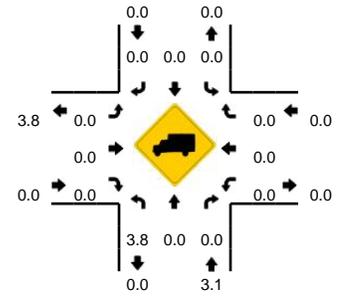
Comments:

LOCATION: Dwy 1 -- Stanley Blvd
CITY/STATE: Lafayette, CA

QC JOB #: 14605304
DATE: Thu, May 24 2018



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

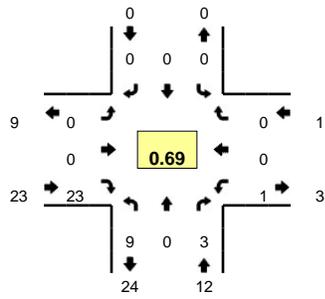


5-Min Count Period Beginning At	Dwy 1 (Northbound)				Dwy 1 (Southbound)				Stanley Blvd (Eastbound)				Stanley Blvd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
4:00 PM	1	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	4	
4:05 PM	4	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	6	
4:10 PM	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
4:15 PM	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
4:20 PM	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
4:25 PM	2	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	
4:30 PM	6	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	7	
4:35 PM	6	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	9	
4:40 PM	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	
4:45 PM	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
4:50 PM	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
4:55 PM	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	66
5:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	64
5:05 PM	3	0	5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	9	67
5:10 PM	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	69
5:15 PM	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	67
5:20 PM	4	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	6	68
5:25 PM	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	70
5:30 PM	2	0	2	0	0	1	0	0	0	0	0	0	0	1	0	0	0	6	69
5:35 PM	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	66
5:40 PM	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	65
5:45 PM	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	67
5:50 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	64
5:55 PM	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	65
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
All Vehicles	64	0	4	0	0	0	0	0	0	0	0	8	0	8	0	0	0	84	
Heavy Trucks	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																			
Stopped Buses																			

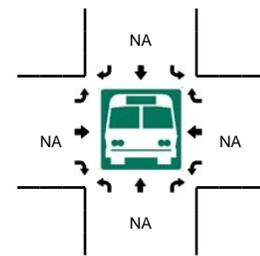
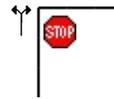
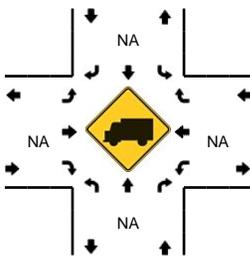
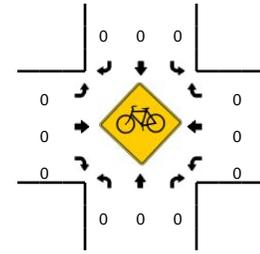
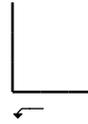
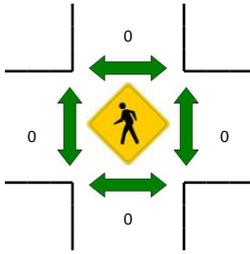
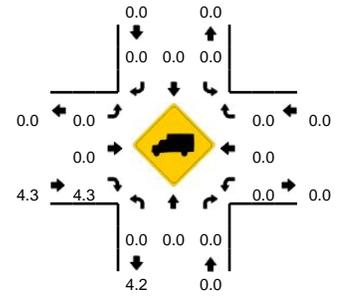
Comments:

LOCATION: Dwy 2 -- Stanley Blvd
CITY/STATE: Lafayette, CA

QC JOB #: 14605305
DATE: Thu, May 24 2018



Peak-Hour: 7:50 AM -- 8:50 AM
Peak 15-Min: 8:05 AM -- 8:20 AM

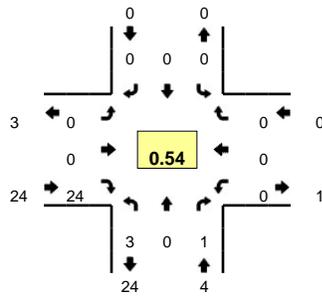


5-Min Count Period Beginning At	Dwy 2 (Northbound)				Dwy 2 (Southbound)				Stanley Blvd (Eastbound)				Stanley Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:05 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:10 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:25 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:30 AM	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	
7:35 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:40 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:50 AM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	
7:55 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	13
8:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	14
8:05 AM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	15
8:10 AM	2	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	6	20
8:15 AM	0	0	0	0	0	0	0	0	0	0	4	0	1	0	0	0	5	24
8:20 AM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	26
8:25 AM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	27
8:30 AM	1	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	5	29
8:35 AM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	30
8:40 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	33
8:45 AM	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	3	36
8:50 AM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	36
8:55 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	36
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	0	0	0	0	0	0	0	0	0	36	0	4	0	0	0	52	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

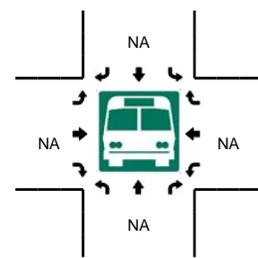
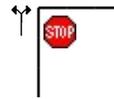
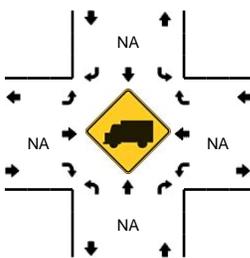
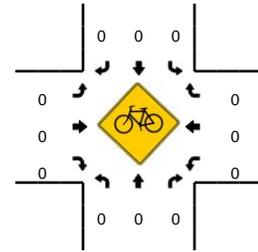
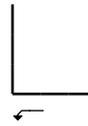
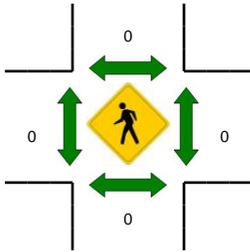
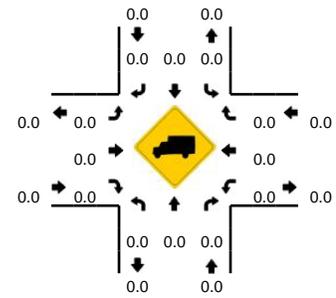
Comments:

LOCATION: Dwy 2 -- Stanley Blvd
CITY/STATE: Lafayette, CA

QC JOB #: 14605306
DATE: Thu, May 24 2018



Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 4:40 PM -- 4:55 PM

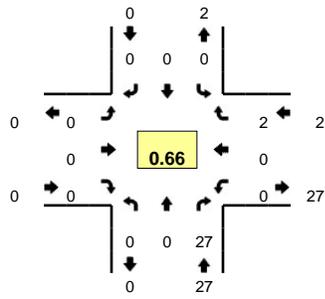


5-Min Count Period Beginning At	Dwy 2 (Northbound)				Dwy 2 (Southbound)				Stanley Blvd (Eastbound)				Stanley Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:05 PM	1	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	4	
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:25 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	
4:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:40 PM	1	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	5	
4:45 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	
4:50 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:10 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:25 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	
5:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	
5:35 PM	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	4	
5:40 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
5:50 PM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	3	
5:55 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	4	0	4	0	0	0	0	0	0	0	44	0	0	0	0	0	52	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

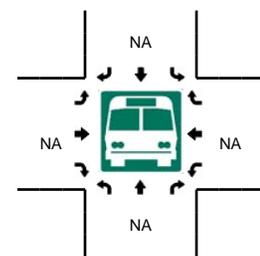
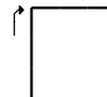
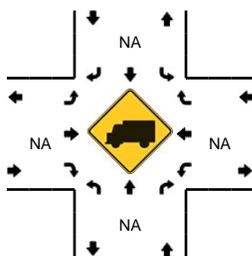
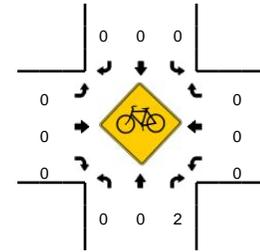
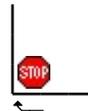
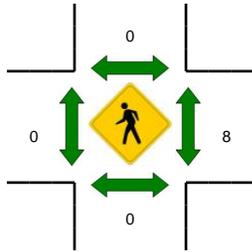
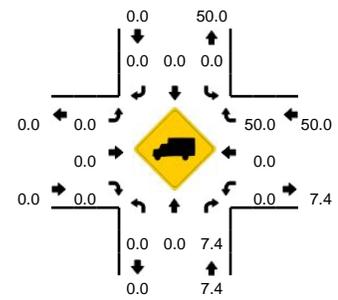
Comments:

LOCATION: Pleasant Hill Rd -- Dwy 3
CITY/STATE: Lafayette, CA

QC JOB #: 14605307
DATE: Thu, May 24 2018



Peak-Hour: 7:55 AM -- 8:55 AM
Peak 15-Min: 8:20 AM -- 8:35 AM

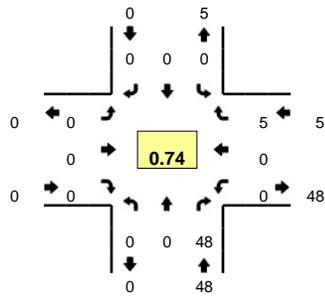


5-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Dwy 3 (Eastbound)				Dwy 3 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:05 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:10 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:20 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:25 AM	0	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0	5	
7:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:35 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:50 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:55 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	3	
8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
8:05 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
8:10 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
8:20 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
8:25 AM	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
8:30 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	4	
8:35 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
8:40 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
8:45 AM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
8:50 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	40	0	0	0	0	0	0	0	0	0	0	0	4	0	44	
Heavy Trucks	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

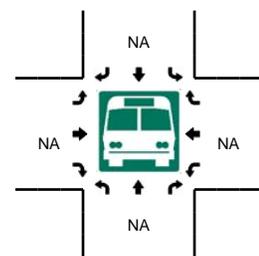
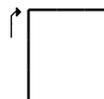
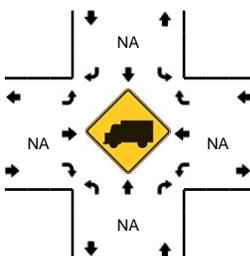
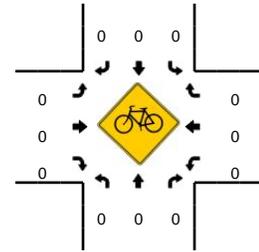
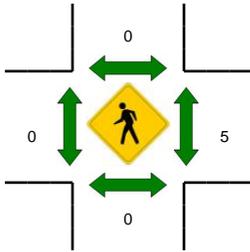
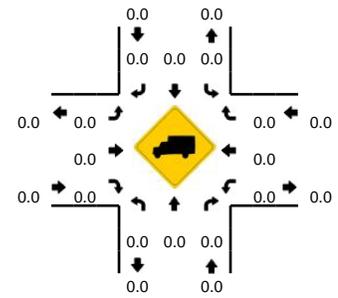
Comments:

LOCATION: Pleasant Hill Rd -- Dwy 3
CITY/STATE: Lafayette, CA

QC JOB #: 14605308
DATE: Thu, May 24 2018



Peak-Hour: 4:55 PM -- 5:55 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

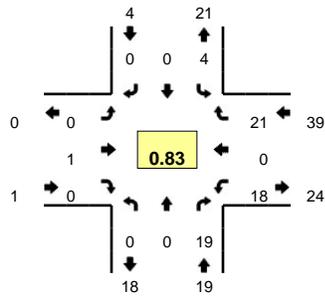


5-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Dwy 3 (Eastbound)				Dwy 3 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
4:10 PM	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
4:15 PM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
4:20 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	3	
4:25 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
4:30 PM	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
4:35 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
4:40 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	4	
4:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
4:50 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
4:55 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	40
5:00 PM	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	41
5:05 PM	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	45
5:10 PM	0	0	4	0	0	0	0	0	0	0	0	0	0	2	0	0	6	45
5:15 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	4	45
5:20 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	45
5:25 PM	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	48
5:30 PM	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	48
5:35 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	4	50
5:40 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	49
5:45 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	4	51
5:50 PM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	53
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	51
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	64	0	0	0	0	0	0	0	0	0	0	0	8	0	72	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

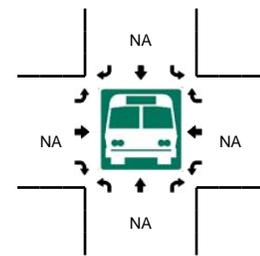
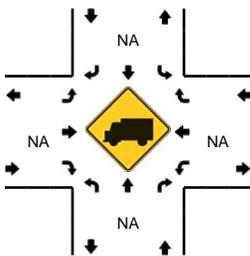
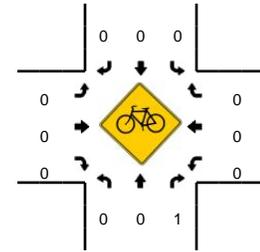
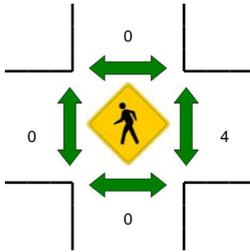
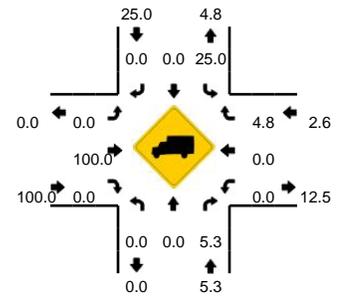
Comments:

LOCATION: N Broadway -- SW Dwy
CITY/STATE: Walnut Creek, CA

QC JOB #: 14605401
DATE: Thu, May 24 2018



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

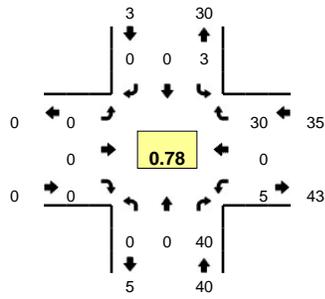


5-Min Count Period Beginning At	N Broadway (Northbound)				N Broadway (Southbound)				SW Dwy (Eastbound)				SW Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	0	0	0	0	0	0	0	0	3	0	1	0	6	
7:05 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	
7:10 AM	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	3	
7:15 AM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	3	0	6	
7:20 AM	0	0	1	0	0	0	0	0	0	0	0	0	2	0	2	0	5	
7:25 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	5	
7:30 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	5	
7:35 AM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	4	
7:40 AM	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2	0	6	
7:45 AM	0	0	3	0	0	0	0	0	0	0	0	0	2	0	2	0	7	
7:50 AM	0	0	2	0	1	0	0	0	0	0	0	0	2	0	1	0	6	
7:55 AM	0	0	1	0	0	0	0	0	0	0	0	0	3	0	2	0	6	61
8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	4	59
8:05 AM	0	0	1	0	1	0	0	0	0	1	0	0	1	0	1	0	5	62
8:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	4	63
8:15 AM	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	3	60
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	59
8:25 AM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	3	57
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	2	0	2	0	5	57
8:35 AM	0	0	3	0	1	0	0	0	0	0	0	0	0	0	2	0	6	59
8:40 AM	0	0	3	0	1	0	0	0	0	0	0	0	0	0	3	0	7	60
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	4	57
8:50 AM	0	0	1	0	3	0	0	0	0	0	0	0	2	0	1	0	7	58
8:55 AM	0	0	3	0	2	0	0	0	0	0	0	0	0	0	5	0	10	62
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	28	0	4	0	0	0	0	0	0	0	24	0	20	0	76	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

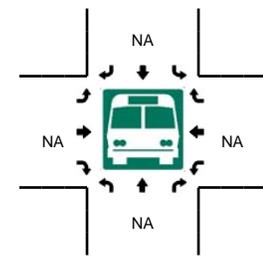
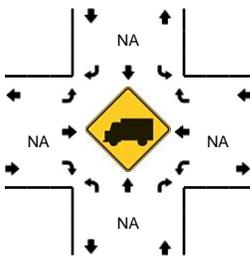
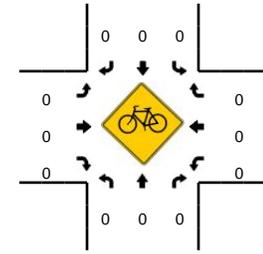
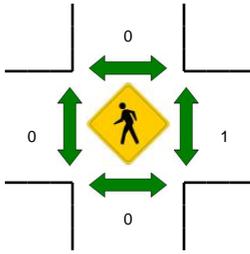
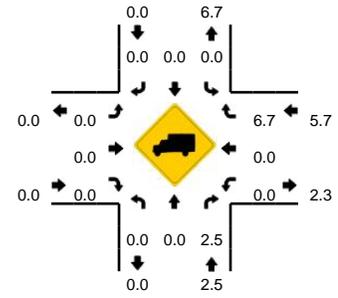
Comments:

LOCATION: N Broadway -- SW Dwy
CITY/STATE: Walnut Creek, CA

QC JOB #: 14605402
DATE: Thu, May 24 2018



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

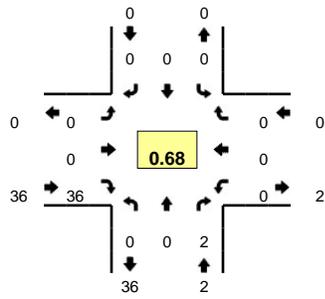


5-Min Count Period Beginning At	N Broadway (Northbound)				N Broadway (Southbound)				SW Dwy (Eastbound)				SW Dwy (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
4:00 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	
4:05 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0	5	
4:10 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	0	7		
4:15 PM	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	4		
4:20 PM	0	0	6	0	0	0	0	0	0	0	0	0	0	0	5	0	11		
4:25 PM	0	0	2	0	2	0	0	0	0	0	0	0	1	0	4	0	9		
4:30 PM	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5		
4:35 PM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	2	0	6		
4:40 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	6	0	9		
4:45 PM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0	8		
4:50 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	4		
4:55 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	4		76
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2		74
5:05 PM	0	0	4	0	0	0	0	0	0	0	0	0	2	0	2	0	8		77
5:10 PM	0	0	4	0	0	0	0	0	0	0	0	0	1	0	3	0	8		78
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2		76
5:20 PM	0	0	2	0	0	0	0	0	0	0	0	0	1	0	2	0	5		70
5:25 PM	0	0	5	0	1	0	0	0	0	0	0	0	0	0	3	0	9		70
5:30 PM	0	0	3	0	0	0	0	0	0	0	0	0	1	0	6	0	10		75
5:35 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2		71
5:40 PM	0	0	5	0	1	0	0	0	0	0	0	0	2	0	3	0	11		73
5:45 PM	0	0	5	0	0	0	0	0	0	0	0	0	1	0	5	0	11		76
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		72
5:55 PM	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	5		73
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	0	0	52	0	8	0	0	0	0	0	0	0	4	0	36	0	100		
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Railroad																			
Stopped Buses																			

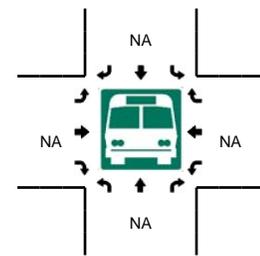
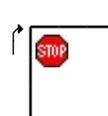
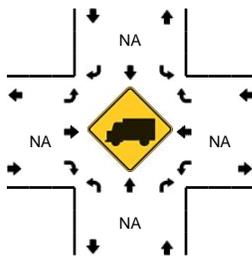
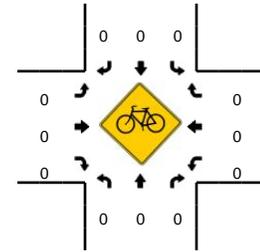
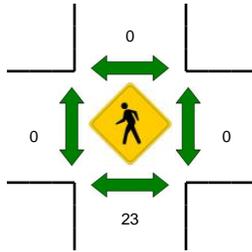
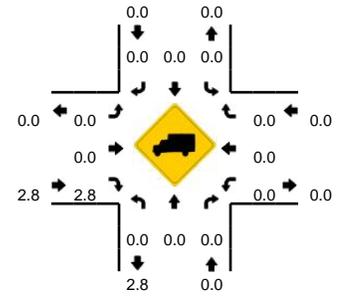
Comments:

LOCATION: N Dwy -- Ygnacio Valley Rd
CITY/STATE: Walnut Creek, CA

QC JOB #: 14605403
DATE: Thu, May 24 2018



Peak-Hour: 7:55 AM -- 8:55 AM
Peak 15-Min: 8:40 AM -- 8:55 AM

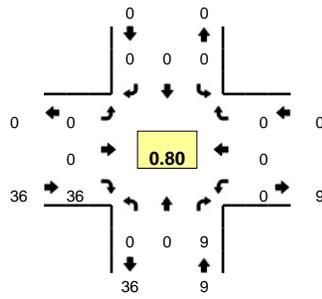


5-Min Count Period Beginning At	N Dwy (Northbound)				N Dwy (Southbound)				Ygnacio Valley Rd (Eastbound)				Ygnacio Valley Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	
7:05 AM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	
7:10 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	
7:15 AM	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	5	
7:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:25 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:35 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	
7:40 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	
7:45 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	
7:50 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:55 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	34
8:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	34
8:05 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	35
8:10 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	31
8:15 AM	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	5	31
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
8:25 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	31
8:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	33
8:35 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	34
8:40 AM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	3	33
8:45 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	34
8:50 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	38
8:55 AM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	3	38
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	4	0	0	0	0	0	0	0	52	0	0	0	0	0	56	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians		20				0					0			0			20	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

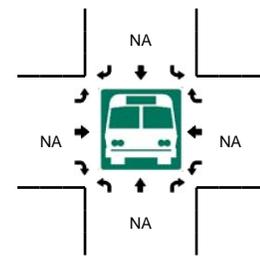
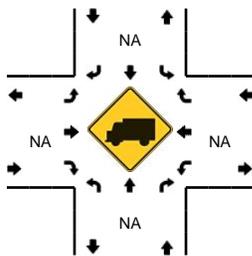
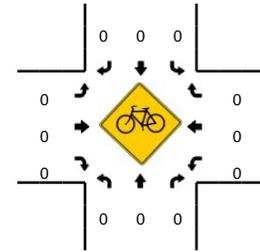
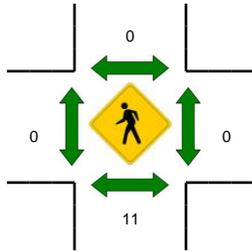
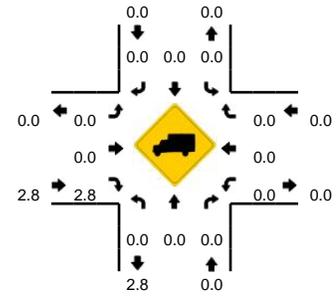
Comments:

LOCATION: N Dwy -- Ygnacio Valley Rd
CITY/STATE: Walnut Creek, CA

QC JOB #: 14605404
DATE: Thu, May 24 2018



Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

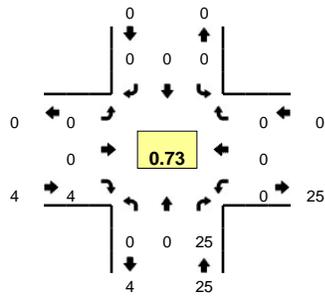


5-Min Count Period Beginning At	N Dwy (Northbound)				N Dwy (Southbound)				Ygnacio Valley Rd (Eastbound)				Ygnacio Valley Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
4:05 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	
4:10 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	
4:15 PM	0	0	1	0	0	0	0	0	0	0	6	0	0	0	0	0	7	
4:20 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
4:25 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
4:30 PM	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	4	
4:35 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	
4:40 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	
4:45 PM	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	5	
4:50 PM	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	5	
4:55 PM	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	4	42
5:00 PM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	43
5:05 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	45
5:10 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	41
5:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	37
5:20 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	37
5:25 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	38
5:30 PM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	36
5:35 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	33
5:40 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	34
5:45 PM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	3	32
5:50 PM	0	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	6	33
5:55 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	33
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	16	0	0	0	0	0	0	0	40	0	0	0	0	0	56	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	
Pedestrians		12				0					0			0			12	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

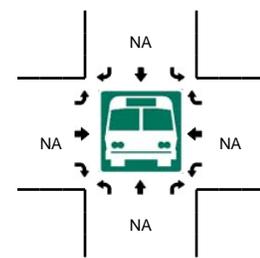
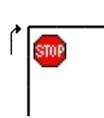
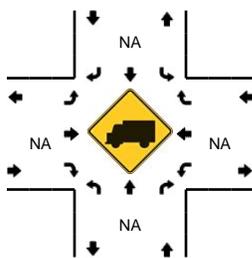
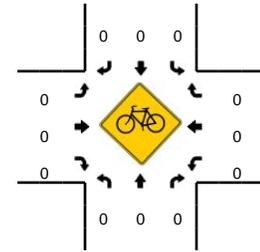
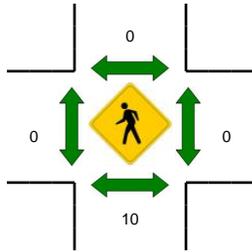
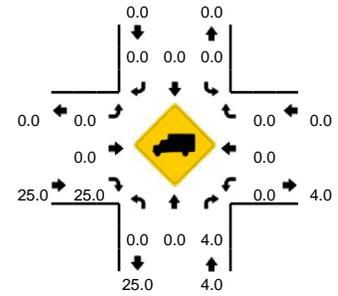
Comments:

LOCATION: NE Dwy -- Ygnacio Valley Rd
CITY/STATE: Walnut Creek, CA

QC JOB #: 14605405
DATE: Thu, May 24 2018



Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:05 AM -- 7:20 AM

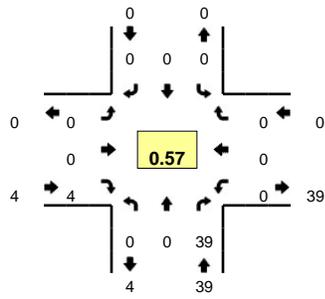


5-Min Count Period Beginning At	NE Dwy (Northbound)				NE Dwy (Southbound)				Ygnacio Valley Rd (Eastbound)				Ygnacio Valley Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
7:05 AM	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	3	
7:10 AM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
7:15 AM	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	3	
7:20 AM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	
7:25 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
7:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
7:35 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
7:40 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:45 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
7:50 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
7:55 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	28
8:00 AM	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	3	29
8:05 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	27
8:10 AM	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	3	26
8:15 AM	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	3	26
8:20 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	25
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	21
8:35 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	20
8:40 AM	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	24
8:45 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	24
8:50 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	24
8:55 AM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	25
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	32	0	0	0	0	0	0	0	8	0	0	0	0	0	40	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	
Pedestrians		8			0				0				0				8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																		

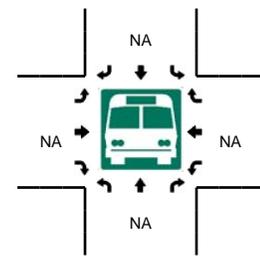
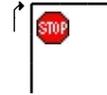
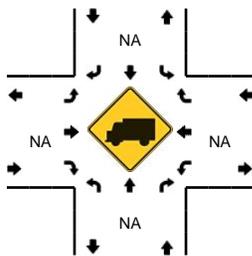
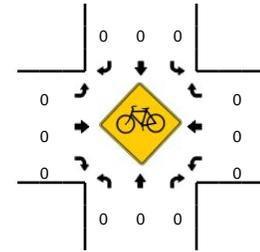
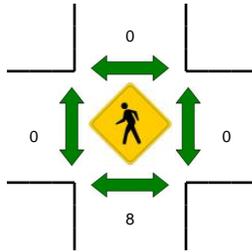
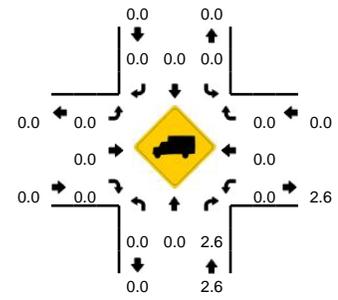
Comments:

LOCATION: NE Dwy -- Ygnacio Valley Rd
CITY/STATE: Walnut Creek, CA

QC JOB #: 14605406
DATE: Thu, May 24 2018



Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:20 PM -- 4:35 PM



5-Min Count Period Beginning At	NE Dwy (Northbound)				NE Dwy (Southbound)				Ygnacio Valley Rd (Eastbound)				Ygnacio Valley Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
4:05 PM	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2	
4:10 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
4:15 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
4:20 PM	0	0	6	0	0	0	0	0	0	0	0	1	0	0	0	0	7	
4:25 PM	0	0	6	0	0	0	0	0	0	0	0	1	0	0	0	0	7	
4:30 PM	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	
4:40 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
4:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
4:50 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
4:55 PM	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	42
5:05 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	42
5:10 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	42
5:15 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	42
5:20 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	38
5:25 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	32
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	28
5:35 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	28
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
5:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	25
5:50 PM	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	27
5:55 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	23
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	68	0	0	0	0	0	0	0	8	0	0	0	0	0	76	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians			12				0				0				0		12	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

Intersection Level Of Service Report

Intersection 1: Pleasant Hill Road & Stanley Boulevard/Deer Hill Road

Control Type:	Signalized	Delay (sec / veh):	40.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.795

Intersection Setup

Name	Deer Hill Road			Stanley Boulevard			Pleasant Hill Road			Pleasant Hill Road		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration	TTT			TTT			TTT			TTT		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	150.00	100.00	100.00	185.00	100.00	100.00	257.00	100.00	260.00	175.00	100.00	186.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Deer Hill Road			Stanley Boulevard			Pleasant Hill Road			Pleasant Hill Road		
Base Volume Input [veh/h]	227	85	28	182	119	55	125	607	189	141	1377	575
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	0.00	0.00	1.00	0.00	4.00	1.00	2.00	0.00	0.00	2.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	227	85	28	182	119	55	125	607	189	141	1377	575
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	25	8	54	35	16	37	179	56	41	405	169
Total Analysis Volume [veh/h]	267	100	33	214	140	65	147	714	222	166	1620	676
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	20			0			20			0		
v_di, Inbound Pedestrian Volume crossing	20			0			20			0		
v_co, Outbound Pedestrian Volume crossing	3			22			22			2		
v_ci, Inbound Pedestrian Volume crossing	2			22			22			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	75.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	9	0	7	10	0	8	10	0
Maximum Green [s]	0	30	0	0	30	0	25	60	0	25	60	0
Amber [s]	0.0	4.1	0.0	0.0	3.6	0.0	3.0	4.1	0.0	3.0	4.1	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	27	0	21	59	0	31	69	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	1.5	5.0	0.0	1.5	4.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	0	0	0	15	0	0	15	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.1	0.0	0.0	2.6	0.0	2.0	3.1	0.0	2.0	3.1	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	5.10	5.10	4.60	4.60	4.60	4.00	5.10	5.10	4.00	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.10	3.10	2.60	2.60	2.60	2.00	3.10	3.10	2.00	3.10	3.10
g_i, Effective Green Time [s]	21	21	17	17	17	14	78	78	16	80	80
g / C, Green / Cycle	0.14	0.14	0.11	0.11	0.11	0.09	0.52	0.52	0.10	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.08	0.08	0.10	0.10	0.04	0.08	0.20	0.15	0.09	0.45	0.42
s, saturation flow rate [veh/h]	3486	1766	1795	1879	1542	1795	3560	1515	1810	3560	1595
c, Capacity [veh/h]	481	244	200	209	172	170	1853	788	190	1889	846
d1, Uniform Delay [s]	60.39	60.30	65.59	65.58	61.84	67.00	21.59	20.01	66.20	30.34	28.60
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.50	0.50	0.04	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.37	0.71	4.33	4.13	0.51	5.00	0.61	0.89	4.85	5.29	7.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.55	0.87	0.86	0.38	0.86	0.39	0.28	0.87	0.86	0.80
d, Delay for Lane Group [s/veh]	60.76	61.01	69.92	69.72	62.35	72.00	22.20	20.91	71.06	35.63	36.38
Lane Group LOS	E	E	E	E	E	E	C	C	E	D	D
Critical Lane Group	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.80	4.80	6.78	7.08	2.34	5.82	7.78	4.59	6.55	26.13	21.29
50th-Percentile Queue Length [ft/ln]	120.09	120.06	169.59	177.06	58.54	145.45	194.51	114.74	163.74	653.25	532.37
95th-Percentile Queue Length [veh/ln]	8.40	8.40	11.06	11.45	4.21	9.77	12.35	8.10	10.75	34.51	28.86
95th-Percentile Queue Length [ft/ln]	209.95	209.90	276.38	286.17	105.37	244.34	308.87	202.58	268.67	862.83	721.56

Movement, Approach, & Intersection Results

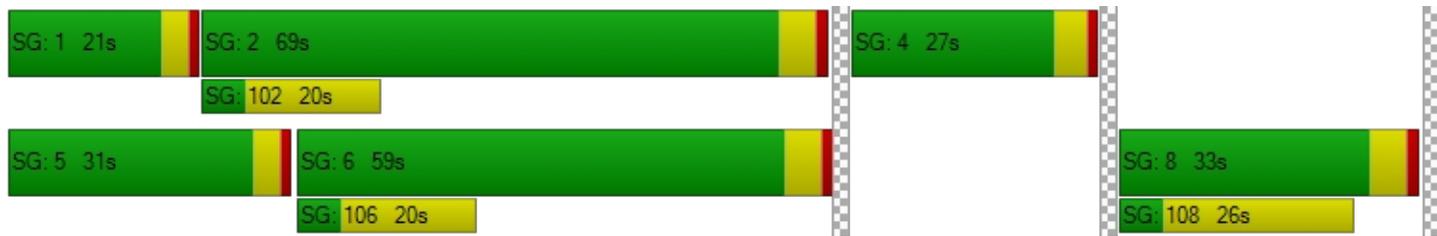
d_M, Delay for Movement [s/veh]	60.76	61.01	61.01	69.89	69.72	62.35	72.00	22.20	20.91	71.06	35.63	36.38
Movement LOS	E	E	E	E	E	E	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	60.84			68.66			28.70			38.23		
Approach LOS	E			E			C			D		
d_I, Intersection Delay [s/veh]	40.86											
Intersection LOS	D											
Intersection V/C	0.795											

Other Modes

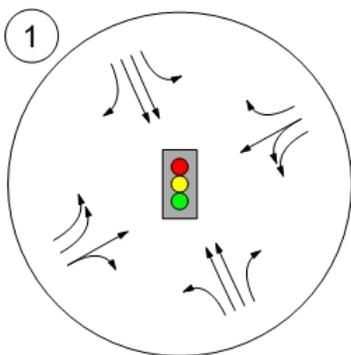
g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	22.4
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	26.36	199.74	0.00
d_p, Pedestrian Delay [s]	66.27	66.27	66.27	54.27
I_p,int, Pedestrian LOS Score for Intersection	2.489	2.378	2.958	3.040
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	372	299	719	852
d_b, Bicycle Delay [s]	49.72	54.30	30.80	24.71
I_b,int, Bicycle LOS Score for Intersection	2.220	2.251	2.453	3.591
Bicycle LOS	B	B	B	D

Sequence

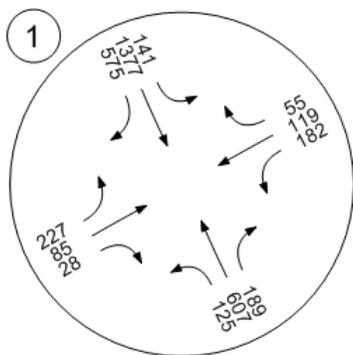
Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Intersection Level Of Service Report

Intersection 1: Pleasant Hill Road & Stanley Boulevard/Deer Hill Road

Control Type:	Signalized	Delay (sec / veh):	122.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.094

Intersection Setup

Name	Deer Hill Road			Stanley Boulevard			Pleasant Hill Road			Pleasant Hill Road		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration	TTT			TTT			TTT			TTT		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	150.00	100.00	100.00	185.00	100.00	100.00	257.00	100.00	260.00	175.00	100.00	186.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Deer Hill Road			Stanley Boulevard			Pleasant Hill Road			Pleasant Hill Road		
Base Volume Input [veh/h]	838	142	42	128	72	268	30	1511	196	114	663	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	0.00	0.00	2.00	0.00	1.00	0.00	1.00	1.00	2.00	1.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	44	7	2	0	0	0	0	107	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	882	149	44	128	72	268	30	1618	196	114	663	208
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	227	38	11	33	19	69	8	417	51	29	171	54
Total Analysis Volume [veh/h]	909	154	45	132	74	276	31	1668	202	118	684	214
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			1			0		
v_di, Inbound Pedestrian Volume crossing m	1			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	5			0			1			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	135
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	0	10	0	0	9	0	7	10	0	8	10	0
Maximum Green [s]	0	30	0	0	30	0	25	60	0	25	60	0
Amber [s]	0.0	4.1	0.0	0.0	3.6	0.0	3.0	4.1	0.0	3.0	4.1	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	40	0	0	20	0	23	62	0	13	39	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	1.5	5.0	0.0	1.5	4.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	0	0	0	15	0	0	15	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.1	0.0	0.0	2.6	0.0	2.0	3.1	0.0	2.0	3.1	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	135	135	135	135	135	135	135	135	135	135	135
L, Total Lost Time per Cycle [s]	5.10	5.10	4.60	4.60	4.60	4.00	5.10	5.10	4.00	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.10	3.10	2.60	2.60	2.60	2.00	3.10	3.10	2.00	3.10	3.10
g_i, Effective Green Time [s]	38	38	25	25	25	5	44	44	9	48	48
g / C, Green / Cycle	0.28	0.28	0.19	0.19	0.19	0.04	0.32	0.32	0.07	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.26	0.11	0.06	0.06	0.17	0.02	0.46	0.13	0.07	0.19	0.14
s, saturation flow rate [veh/h]	3486	1819	1781	1872	1602	1810	3589	1568	1781	3589	1581
c, Capacity [veh/h]	991	517	333	350	300	66	1158	506	119	1268	559
d1, Uniform Delay [s]	46.83	38.87	47.31	47.31	53.93	63.83	45.77	35.48	62.97	34.91	32.57
k, delay calibration	0.04	0.04	0.04	0.04	0.24	0.04	0.50	0.50	0.04	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.56	0.17	0.19	0.18	20.82	1.94	203.39	2.35	20.57	1.65	1.99
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.39	0.30	0.30	0.92	0.47	1.44	0.40	0.99	0.54	0.38
d, Delay for Lane Group [s/veh]	48.39	39.05	47.49	47.48	74.74	65.78	249.16	37.82	83.54	36.56	34.56
Lane Group LOS	D	D	D	D	E	E	F	D	F	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	14.96	5.38	2.96	3.11	10.94	1.09	51.93	5.53	4.74	9.31	5.58
50th-Percentile Queue Length [ft/ln]	373.95	134.59	73.92	77.68	273.57	27.13	1298.27	138.32	118.55	232.80	139.39
95th-Percentile Queue Length [veh/ln]	21.30	9.19	5.32	5.59	16.37	1.95	77.91	9.39	8.31	14.32	9.45
95th-Percentile Queue Length [ft/ln]	532.52	229.72	133.06	139.82	409.20	48.83	1947.78	234.76	207.83	357.92	236.20

Movement, Approach, & Intersection Results

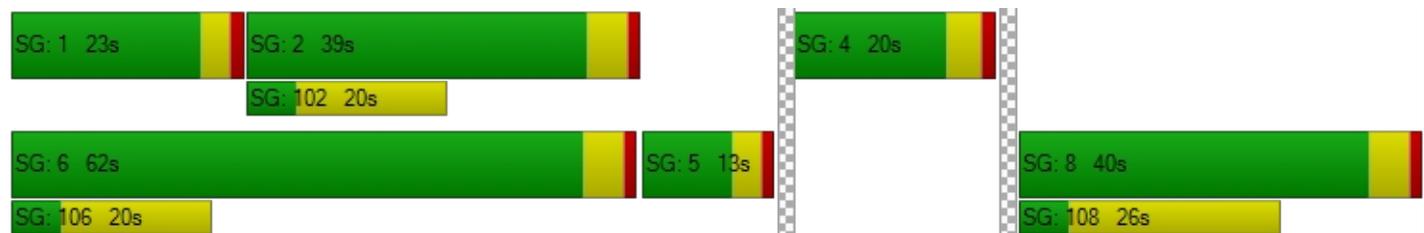
d_M, Delay for Movement [s/veh]	48.39	39.05	39.05	47.49	47.48	74.74	65.78	249.16	37.82	83.54	36.56	34.56
Movement LOS	D	D	D	D	D	E	E	F	D	F	D	C
d_A, Approach Delay [s/veh]	46.71			63.09			223.71			41.59		
Approach LOS	D			E			F			D		
d_I, Intersection Delay [s/veh]	121.97											
Intersection LOS	F											
Intersection V/C	1.094											

Other Modes

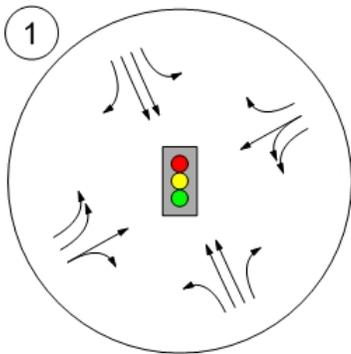
g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	15.4
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	8759.01	0.00
d_p, Pedestrian Delay [s]	58.80	58.80	58.80	52.98
I_p,int, Pedestrian LOS Score for Intersection	2.500	2.385	2.922	3.098
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	228	843	502
d_b, Bicycle Delay [s]	37.20	52.98	22.60	37.88
I_b,int, Bicycle LOS Score for Intersection	3.388	2.355	3.128	2.398
Bicycle LOS	C	B	C	B

Sequence

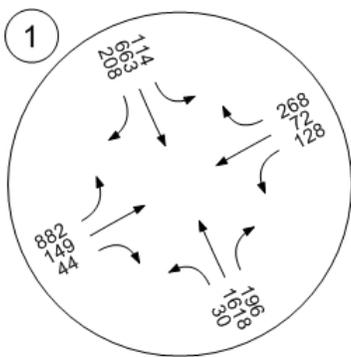
Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Intersection Level Of Service Report

Intersection 1: Pleasant Hill Road & Stanley Boulevard/Deer Hill Road

Control Type:	Signalized	Delay (sec / veh):	40.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.795

Intersection Setup

Name	Deer Hill Road			Stanley Boulevard			Pleasant Hill Road			Pleasant Hill Road		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration	TTT			TTT			TTT			TTT		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	150.00	100.00	100.00	185.00	100.00	100.00	257.00	100.00	260.00	175.00	100.00	186.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Deer Hill Road			Stanley Boulevard			Pleasant Hill Road			Pleasant Hill Road		
Base Volume Input [veh/h]	227	85	28	182	119	55	125	607	189	141	1377	575
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	0.00	0.00	1.00	0.00	4.00	1.00	2.00	0.00	0.00	2.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	1	0	1	0	2	0	2	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	227	87	28	183	119	56	125	609	189	143	1377	575
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	26	8	54	35	16	37	179	56	42	405	169
Total Analysis Volume [veh/h]	267	102	33	215	140	66	147	716	222	168	1620	676
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	20			0			20			0		
v_di, Inbound Pedestrian Volume crossing m	20			0			20			0		
v_co, Outbound Pedestrian Volume crossing	3			22			22			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			22			22			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	75.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	9	0	7	10	0	8	10	0
Maximum Green [s]	0	30	0	0	30	0	25	60	0	25	60	0
Amber [s]	0.0	4.1	0.0	0.0	3.6	0.0	3.0	4.1	0.0	3.0	4.1	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	27	0	21	59	0	31	69	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	1.5	5.0	0.0	1.5	4.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	0	0	0	15	0	0	15	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.1	0.0	0.0	2.6	0.0	2.0	3.1	0.0	2.0	3.1	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	5.10	5.10	4.60	4.60	4.60	4.00	5.10	5.10	4.00	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.10	3.10	2.60	2.60	2.60	2.00	3.10	3.10	2.00	3.10	3.10
g_i, Effective Green Time [s]	21	21	17	17	17	14	78	78	16	80	80
g / C, Green / Cycle	0.14	0.14	0.11	0.11	0.11	0.09	0.52	0.52	0.11	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.08	0.08	0.10	0.10	0.04	0.08	0.20	0.15	0.09	0.45	0.42
s, saturation flow rate [veh/h]	3486	1768	1795	1879	1542	1795	3560	1515	1810	3560	1595
c, Capacity [veh/h]	481	244	200	210	172	170	1848	786	192	1888	846
d1, Uniform Delay [s]	60.39	60.37	65.57	65.56	61.84	67.00	21.73	20.13	66.12	30.38	28.64
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.50	0.50	0.04	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.37	0.73	4.34	4.14	0.52	5.00	0.61	0.90	4.86	5.31	7.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.55	0.87	0.87	0.38	0.86	0.39	0.28	0.88	0.86	0.80
d, Delay for Lane Group [s/veh]	60.76	61.10	69.90	69.70	62.36	72.00	22.35	21.03	70.98	35.69	36.44
Lane Group LOS	E	E	E	E	E	E	C	C	E	D	D
Critical Lane Group	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.80	4.88	6.80	7.10	2.38	5.82	7.83	4.61	6.63	26.15	21.31
50th-Percentile Queue Length [ft/ln]	120.09	122.02	170.07	177.55	59.46	145.45	195.86	115.13	165.69	653.80	532.82
95th-Percentile Queue Length [veh/ln]	8.40	8.50	11.08	11.47	4.28	9.77	12.42	8.12	10.85	34.54	28.88
95th-Percentile Queue Length [ft/ln]	209.95	212.59	277.01	286.81	107.03	244.34	310.62	203.12	271.24	863.47	722.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.76	61.10	61.10	69.87	69.70	62.36	72.00	22.35	21.03	70.98	35.69	36.44
Movement LOS	E	E	E	E	E	E	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	60.87			68.63			28.80			38.30		
Approach LOS	E			E			C			D		
d_I, Intersection Delay [s/veh]	40.94											
Intersection LOS	D											
Intersection V/C	0.795											

Other Modes

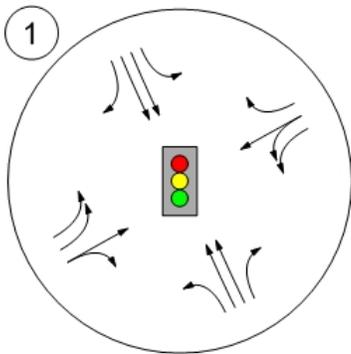
g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	22.4
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	26.36	199.74	0.00
d_p, Pedestrian Delay [s]	66.27	66.27	66.27	54.27
I_p,int, Pedestrian LOS Score for Intersection	2.489	2.379	2.958	3.041
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	372	299	719	852
d_b, Bicycle Delay [s]	49.72	54.30	30.80	24.71
I_b,int, Bicycle LOS Score for Intersection	2.223	2.254	2.455	3.592
Bicycle LOS	B	B	B	D

Sequence

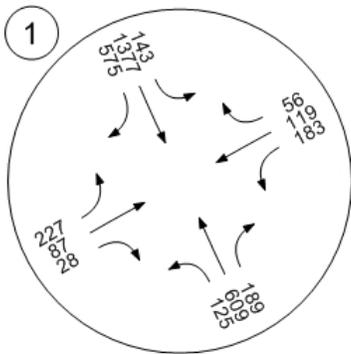
Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Intersection Level Of Service Report

Intersection 1: Pleasant Hill Road & Stanley Boulevard/Deer Hill Road

Control Type:	Signalized	Delay (sec / veh):	122.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.096

Intersection Setup

Name	Deer Hill Road			Stanley Boulevard			Pleasant Hill Road			Pleasant Hill Road		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration	TTT			TTT			TTT			TTT		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	1	1	0	1	1	0	1
Pocket Length [ft]	150.00	100.00	100.00	185.00	100.00	100.00	257.00	100.00	260.00	175.00	100.00	186.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Deer Hill Road			Stanley Boulevard			Pleasant Hill Road			Pleasant Hill Road		
Base Volume Input [veh/h]	838	142	42	128	72	268	30	1511	196	114	663	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	0.00	0.00	2.00	0.00	1.00	0.00	1.00	1.00	2.00	1.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	1	0	1	0	2	0	2	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	44	7	2	0	0	0	0	107	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	882	151	44	129	72	269	30	1620	196	116	663	208
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	227	39	11	33	19	69	8	418	51	30	171	54
Total Analysis Volume [veh/h]	909	156	45	133	74	277	31	1670	202	120	684	214
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			1			0		
v_di, Inbound Pedestrian Volume crossing m	1			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	5			0			1			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	135
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	1	6	0	5	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	0	10	0	0	9	0	7	10	0	8	10	0
Maximum Green [s]	0	30	0	0	30	0	25	60	0	25	60	0
Amber [s]	0.0	4.1	0.0	0.0	3.6	0.0	3.0	4.1	0.0	3.0	4.1	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	40	0	0	20	0	23	62	0	13	39	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	1.5	5.0	0.0	1.5	4.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	0	0	0	15	0	0	15	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.1	0.0	0.0	2.6	0.0	2.0	3.1	0.0	2.0	3.1	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	135	135	135	135	135	135	135	135	135	135	135
L, Total Lost Time per Cycle [s]	5.10	5.10	4.60	4.60	4.60	4.00	5.10	5.10	4.00	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.10	3.10	2.60	2.60	2.60	2.00	3.10	3.10	2.00	3.10	3.10
g_i, Effective Green Time [s]	38	38	25	25	25	5	44	44	9	48	48
g / C, Green / Cycle	0.28	0.28	0.19	0.19	0.19	0.04	0.32	0.32	0.07	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.26	0.11	0.06	0.06	0.17	0.02	0.47	0.13	0.07	0.19	0.14
s, saturation flow rate [veh/h]	3486	1820	1781	1872	1602	1810	3589	1568	1781	3589	1581
c, Capacity [veh/h]	991	517	334	351	301	66	1155	505	119	1266	558
d1, Uniform Delay [s]	46.83	38.92	47.25	47.25	53.89	63.83	45.81	35.54	63.03	34.97	32.63
k, delay calibration	0.04	0.04	0.04	0.04	0.24	0.04	0.50	0.50	0.04	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.56	0.18	0.19	0.18	20.98	1.94	205.36	2.36	24.40	1.66	2.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.39	0.30	0.30	0.92	0.47	1.45	0.40	1.00	0.54	0.38
d, Delay for Lane Group [s/veh]	48.39	39.10	47.44	47.43	74.87	65.78	251.17	37.90	87.42	36.63	34.63
Lane Group LOS	D	D	D	D	E	E	F	D	F	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	14.96	5.44	2.97	3.12	11.00	1.09	52.15	5.54	4.92	9.32	5.58
50th-Percentile Queue Length [ft/ln]	373.93	136.10	74.25	78.01	274.88	27.13	1303.80	138.47	123.06	233.07	139.55
95th-Percentile Queue Length [veh/ln]	21.30	9.27	5.35	5.62	16.43	1.95	78.30	9.40	8.57	14.33	9.46
95th-Percentile Queue Length [ft/ln]	532.50	231.76	133.65	140.42	410.83	48.83	1957.44	234.97	214.34	358.25	236.42

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.39	39.10	39.10	47.44	47.43	74.87	65.78	251.17	37.90	87.42	36.63	34.63
Movement LOS	D	D	D	D	D	E	E	F	D	F	D	C
d_A, Approach Delay [s/veh]	46.71			63.14			225.51			42.19		
Approach LOS	D			E			F			D		
d_I, Intersection Delay [s/veh]	122.81											
Intersection LOS	F											
Intersection V/C	1.096											

Other Modes

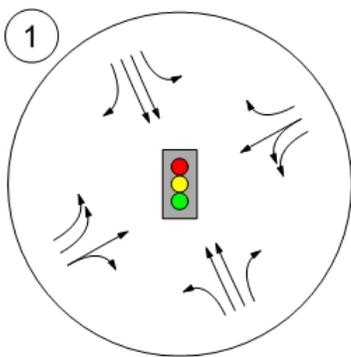
g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	15.4
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	8759.01	0.00
d_p, Pedestrian Delay [s]	58.80	58.80	58.80	52.98
I_p,int, Pedestrian LOS Score for Intersection	2.500	2.386	2.923	3.099
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	228	843	502
d_b, Bicycle Delay [s]	37.20	52.98	22.60	37.88
I_b,int, Bicycle LOS Score for Intersection	3.391	2.358	3.130	2.399
Bicycle LOS	C	B	C	B

Sequence

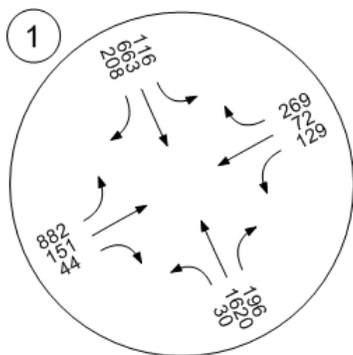
Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Appendix B: Intersection Analysis

MEMORANDUM

Date: April 10, 2018

Project #: 22399

To: Karly Kaufman
Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, CA 94612

From: Aaron Elias, P.E. and Damian Stefanakis
Project: Lafayette Carwash and Snack Station Project
Subject: Transportation Site Plan Review

The City of Lafayette has received an application requesting a Land Use permit for the operation of a carwash and snack station at the existing Shell gas station located on the southeast corner of the intersection of Stanley Boulevard and Pleasant Hill Road (parcel 177-061-027). The project site is zoned PHC with a General Plan of Administrative Professional Office.

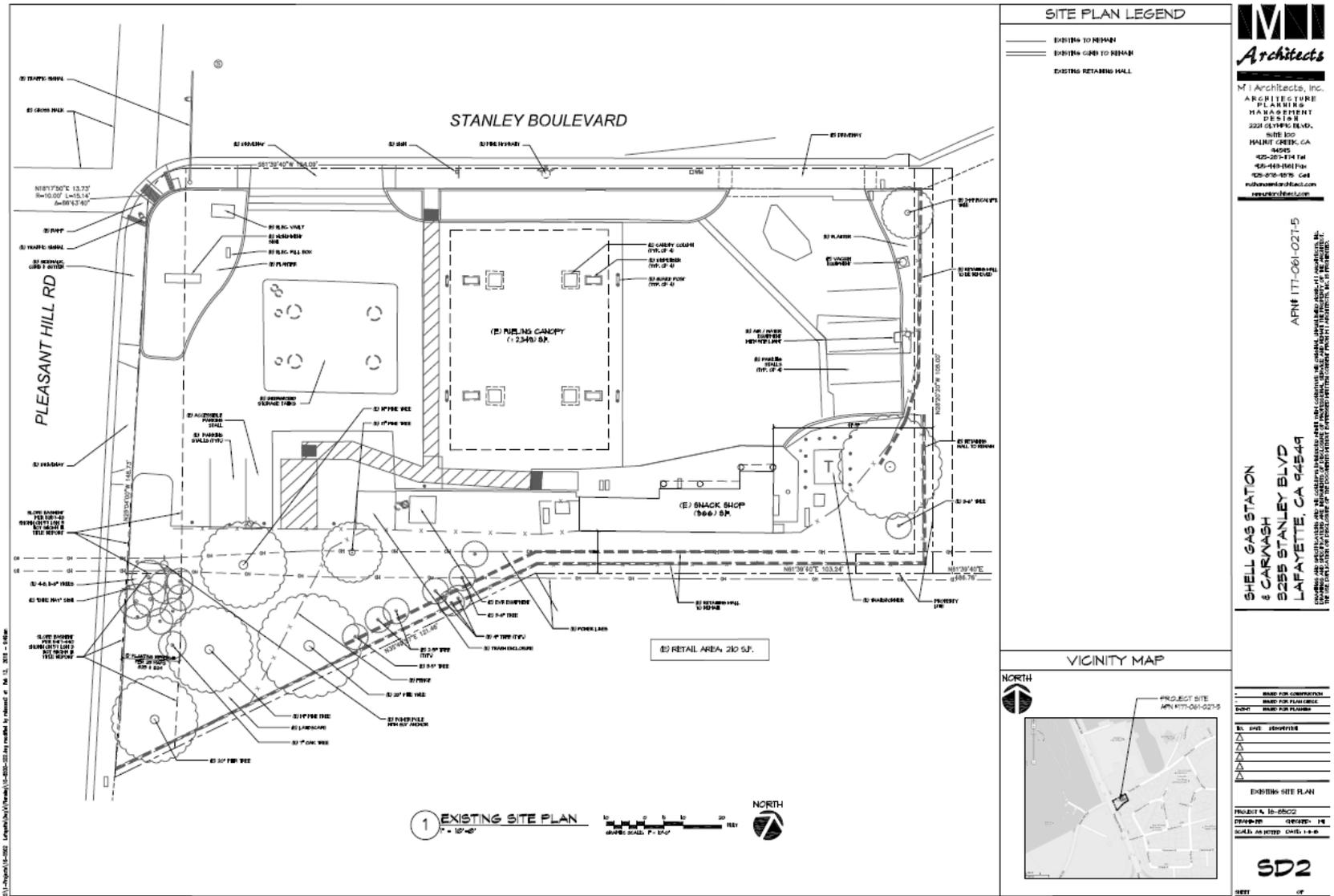
The project is expanding a non-conforming use, but otherwise complies with the development requirements. Staff has some significant concerns about the project related to transportation. This memorandum provides a qualitative analysis of the effects the proposed expansion has on site circulation and access. This report did not evaluate detailed quantitative analysis of carwash trip generation and intersection level of service operations at the Pleasant Hill Road and Stanley Boulevard intersection. This may not be necessary given that most new trips would likely be pass by trips, but further studies could be done if required.

The primary focus areas include:

- Adequacy of the driveway widths for the three access points
- Queue storage length of the carwash
- City of Lafayette parking code requirements
- Onsite vehicle traffic flow conflict points
- Conflict points between pedestrians, bicycles and vehicles

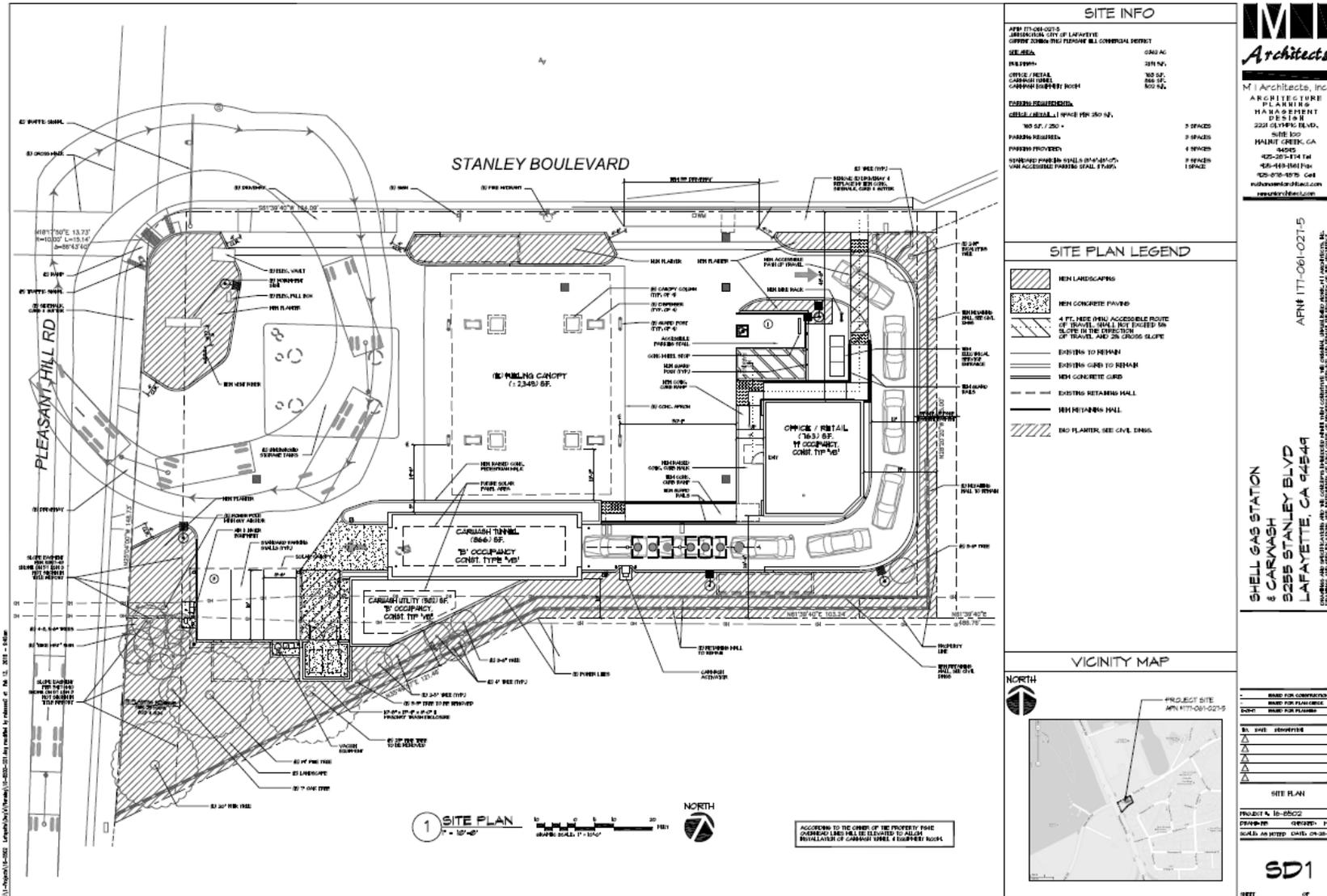
The qualitative analysis described below is based on site plans last modified on February 13, 2018. For reference, the existing site plan is shown in Figure 1 and the proposed site plan showing the carwash, snack shop and relocation of the Stanley driveway is shown in Figure 2.

Figure 1: Existing Site Plan



Source: MI Architects, 2018

Figure 2: Proposed Site Plan



Source: MI Architects, 2018

ADEQUACY OF DRIVEWAY WIDTHS

The site is currently accessed via three driveways, one on Pleasant Hill Road and two on Stanley Boulevard. The driveway on Pleasant Hill Road and the western Stanley Boulevard Driveway will remain with the proposed carwash expansion. The eastern driveway on Stanley Boulevard will be relocated approximately 30 feet west to allow for access to the carwash.

The driveway on Pleasant Hill Road operates as a right-in and right-out only access. While left turns are not prohibited at the western Stanley Boulevard Driveway, it primarily operates as a right-in and right-out only access due to proximity with the intersection. The eastern Stanley Boulevard Driveway provides full access.

Widths for the Pleasant Hill Road driveway, western and eastern Stanley Boulevard driveways are 29 feet, 34 feet, and 35 feet, respectively. These widths are all below the maximum commercial driveway widths stated in the California Highway Design Manual (Page 200-26) and the total driveway widths do not exceed 60 percent of the project frontage. Therefore, the driveways comply the Caltrans Highway Design Manual.

QUEUE STORAGE

Site plan measurements for the proposed carwash shows the site can accommodate about 175 feet of queued vehicles (about 8 total) without blocking driveways or conflicting with the normal gas station operations. Assuming every carwash takes about 4 minutes to complete, the wait time for the 8th vehicle in the queue would be about 32 minutes. It is reasonable to assume that most drivers would not be willing to wait for more than 32 minutes to get a carwash at a gas station. Therefore, it is anticipated that the eight-vehicle queue provided by the proposed design is sufficient and queueing would not extend onto Stanley Boulevard or impede normal onsite gas station operations.

PARKING CODE REQUIREMENTS

The proposed site plan will provide a total of four parking spaces in addition to the eight fueling locations. One of the parking spaces would be accessible. Chapter 6-6 Article 3 of the Lafayette Municipal Code requires automotive servicing businesses to provide one parking space per 250 square feet of net floor area. The proposed project would incorporate a 763 square foot office/retail area requiring four parking spaces. Since the site plan provides four spaces, the proposed project meets City parking code requirements.

VEHICLE CONFLICT POINTS

There are three primary vehicle-to-vehicle potential conflict points. These include:

1. Vehicles exiting the carwash and those leaving the vacuum parking space;
2. Vehicles accessing the carwash when all fueling bays are occupied; and
3. Vehicles exiting onto Stanley Boulevard, especially accessing the westbound right turn lane.

Vehicles Exiting Carwash

Three of the four parking spaces for the project are located approximately 25 feet from the carwash exit. One space allows access to the air & water equipment, one space is standard parking, and the third is the vacuum area. Vehicles exiting the carwash would be anticipated to drive at a slow rate of speed, especially if the drying feature is a fixed point at the end of the carwash. In addition to the slow speeds, there is almost 25 feet of separation between the carwash and nearest parking space and the site lines are good. Based on these three factors the parking stall locations in relation to the carwash exit are not anticipated to present a significant conflict point. One recommendation related to this area is to put no parking anytime on the doors of the trash enclosure to help prohibit parking in the hashed-out area between the vacuum parking space and the carwash exit. If a vehicle parks in this area, it may be more difficult to see by vehicles exiting the carwash.

Vehicles Accessing Carwash

Potential conflicts may exist for vehicles already onsite at the fueling stations attempting to reach the carwash entry. While the northern and southern drive aisles between the fueling stations are insufficient to allow another vehicle to pass at around 13 feet, the middle fueling stations are about 25 feet apart. Since a typical parking space is about 8 feet wide, two vehicles fueling on either side should still leave about 9 feet of room between them for another vehicle to access the carwash. If vehicles are unable to pass due to size of the fueling vehicles or inefficient parking at the pump, a vehicle trying to access the carwash could either wait for the vehicle fueling to depart or use the two driveways on Stanley Boulevard to go around the blockage and access the carwash entrance.

Vehicles Exiting onto Stanley Boulevard

The final potential conflict point may arise when vehicles exiting left out of the driveways on Stanley Boulevard, especially accessing the westbound right turn lane desiring to travel north of Pleasant Hill Road. The western driveway on Stanley Boulevard has not changed, so vehicles desiring to turn left out of the western driveway will still be challenged due to proximity to the intersection and any westbound queued vehicles blocking this movement. The eastern driveway is proposed to move to the west by about 30 feet putting it closer to the intersection at Pleasant Hill Road. While this would provide less space for a vehicle exiting left to get into the correct westbound lane (especially if westbound left-turn traffic is queued up at the intersection), it is not going to be substantially more difficult because the number of lanes a vehicle must cross is the same at either driveway location. Vehicles desiring to travel north of Pleasant Hill Road also still have the option to turn right out of the Pleasant Hill Road Driveway. Outside of the AM, School, and PM peak hours, Stanley Boulevard has only minimal traffic and the relocation of the east driveway 30 feet to the west should have little effect.

PEDESTRIAN AND BICYCLE CONFLICT POINTS

Pedestrian circulation in the site is generally well laid out. The site plan provides an access point from the sidewalk along Stanley Boulevard to the retail snack shop. This connection is important to better serve pedestrians accessing the retail portion of the site from Acalanes High School. This pedestrian connection does cross the drive-through for the carwash, but the sight distances are good and the crossing is well marked. Appropriate scale signage should be added to the crosswalk to notify motorist of the crosswalk.

Bicycle circulation within the site would be about the same as the motor vehicle circulation. The site plan does provide a bicycle storage rack to the east of the accessible parking space. It is unclear the type of bicycle rack that is proposed, but it should be a rack that allows bicycles to be parked in a north/south orientation. There is insufficient space in the bicycle rack area to allow for east/west parking orientation without hanging over the curb for the pedestrian crosswalk across the carwash drive through.

SUMMARY

This memorandum provided a qualitative analysis of the proposed carwash expansion for the existing Shell gas station located in the southeast corner of the intersection of Pleasant Hill Road and Stanley Boulevard. The primary findings and recommendations include:

- The driveway widths comply with the Caltrans Highway Design Manual
- The site plan provides sufficient queue storage for the carwash
- While there are potential vehicle conflict points, they are not anticipated to be problematic for the gas station patrons practicing due care.
- Pedestrian and bicycle access with the site is adequate
- Recommendations include:
 - Place “No Parking” signs in front of the trash enclosure to prevent vehicles from parking closer to the carwash exit than the parking stall for the vacuum.
 - Ensure the bicycle rack is placed so that bicycles can be parked in a north/south orientation.
 - Add signage for the pedestrian crosswalk across the carwash drive through.

This report did not evaluate detailed quantitative analysis of carwash trip generation and intersection level of service operations at the Pleasant Hill Road and Stanley Boulevard intersection. This may not be necessary given that most new trips would likely be pass by trips (i.e.: already in the system), but further studies could be done if required.