

permit
SONOMA

County of Sonoma
Permit & Resource Management Department

Subsequent Mitigated Negative Declaration

Sonoma County Permit and Resource Management Department
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Publication Date:	January 13, 2020
Public Review Period Closes:	February 13, 2020
State Clearinghouse:	
Permit Sonoma File Number:	PLP05-0009
Prepared by:	Blake Hillegas
Phone:	(707) 565-1392
Adoption Date:	

Project Name: VJB Vineyard and Cellars

Project Applicant: Henry Belmonte, VJB Vineyard and Cellars

Project Address: 60 and 75 Shaw Avenue (formerly 9125 Highway 12), Kenwood

File No.: PLP05-0009

APN: 050-275-028 (primary) and -052 (proposed off-site parking)

General Plan: Limited Commercial

Zoning Designation: C1 (Neighborhood Commercial), SR (Scenic Resource)

Project Planner: Blake Hillegas, Project Planner

Decision Body: Board of Zoning Adjustments

Lead Agency: County of Sonoma, Permit and Resource Management Department

Prior MND: SCH No. 2007022038, adopted October 9, 2007

Introduction:

The Sonoma County Permit and Resource Management Department ("Permit Sonoma") prepared this Subsequent Mitigated Negative Declaration ("SMND") and Subsequent Initial Study in accordance with the California Environmental Quality Act (CEQA, Public Resources Code §§ 21000 et seq.) and the CEQA Guidelines (Cal. Code Regs., title 14, §§ 15000 et seq.). This document analyzes to the previously-adopted Mitigated Negative Declaration, adopted by the Sonoma County Board of Supervisors on October 9, 2007.

Project History:

In 2007, the Board of Supervisors adopted a Mitigated Negative Declaration (the "2007 MND") and approved use permit PLP05-0009 (the "2007 use permit") for 9125 Highway 12 (APN 050-275-028), now

60 Shaw Avenue) in Kenwood. The 2007 MND studied and the 2007 use permit approved construction and operation of an approximately 5,542 square foot commercial facility with the following major components:

- 750 square foot wine tasting room;
- 750 square foot "to-go" deli and retail food market serving prepared foods for off-site or on-site consumption;
- 1,500 square foot upstairs office space;
- 400 square foot storage area;
- 342 square foot utility space/restroom area;
- 1,800 square foot case good storage building
- Conversion of an existing residence on the site to a 1,087 square foot bed and breakfast inn

In addition, a patio/picnic area was approved for on-site food and wine consumption and the approved site plans showed four picnic tables in the picnic area. No commercial kitchen was permitted and food service was limited to prepackaged food and deli type food for consumption in the patio picnic area. Up to 15 100-person special events were permitted per year with catered food, but only after construction of a required left-turn lane on Highway 12. No wine production was permitted to occur on site.

Several mitigation measures were identified in the 2007 MND to mitigate the traffic impacts of the project. These mitigation measures were agreed to by the applicant and adopted as conditions of approval of the 2007 use permit, including a requirement that the applicant construct a left turn lane pocket on Highway 12 to allow northbound vehicles to safely turn onto Shaw Avenue, and a requirement that the applicant dedicate right of way to accommodate widening of Shaw Avenue.

As noted, the 2007 use permit approved up to 15 special events per year with up to 100 guests per event, but only after the required left-turn lane was constructed on Highway 12.

Built Facilities: The constructed facilities vary slightly from the approved square footages in the 2007 use permit for several reasons: minor deviation in square footage occurred through the routine issuance of building/construction permits and were authorized under administrative discretion afforded to the Permit Sonoma director, a 400-foot storage area was converted to a caterer's kitchen under Building Permit BLD09-2123 the bed and breakfast inn was converted to additional retail space under Building Permit BLD12-4669, and a 275 foot commercial kitchen on the patio was installed (with Building Permit BLD11-4212 issued in error as the kitchen was expressly denied in the 2007 use permit). Existing facilities and activities on the site include the following:

- 833 square foot wine tasting room;
- 781 square foot retail market;
- 400 square foot indoor commercial kitchen;
- 342 square foot storage and restrooms area;
- 275 square foot commercial kitchen and patio bar;
- 1,615 square foot 2nd story administrative office;
- 1,087 square foot shop and clothing store (former bed and breakfast inn);
- 1,800 square foot case goods storage building; and
- 3,705 square foot outdoor patio picnic area.

The total square footage of existing commercial building space is 7,133 sq. ft.

The outdoor patio currently includes a dining area restaurant service and 144 table seats. The site contains 34 parking spaces (21 paved and 13 unpaved) where the approved site plans identified 54 spaces. Two-way vehicular access to the parking lot is provided from Shaw Avenue. Additional vehicle egress has been allowed via the existing driveway on Maple Avenue through an administrative approval. The site also contains an approximately 0.6-acre demonstration vineyard and two in-ground septic systems with a total 900-gallon capacity. As is discussed in this SMND, the commercial project approved by the 2007 use permit was constructed and is in operation. However, the left-turn lane was never

constructed and the scale of the commercial activity has exceeded the scope of the previously studied and approved project. The project site is not contained on the lists compiled pursuant to Section 65962.5 of the Government Code.

Project Description:

The applicant is seeking to modify the 2007 use permit and associated conditions and mitigation measures as follows:

1. Authorize a restaurant with 144 seats within a 3,125 square foot portion of an existing patio, including the following associated modifications:
 - a. authorize daily use of the existing commercial kitchen, pizza oven and barbeque;
 - b. install a new 1,500 gallon septic system; and
 - c. construct a 53 space off-site parking lot at 75 Shaw Avenue.
2. Remove the existing mitigation measure and use permit conditions that require installing a northbound left-turn lane on Highway 12 in exchange for the following project modifications:
 - a. eliminate the option to expand hours of operation from 10AM–4PM to 8AM–5PM; and
 - b. eliminate the approved option to host 15 special events annually.
3. Remove the mitigation measure and use permit condition requiring a dedicated right turn lane on Shaw Avenue in favor of restriping Shaw Avenue to include a right turn lane within the existing right-of-way;
4. Widen the westbound Highway 12 shoulder for 200 feet at the property frontage;
5. Prohibit on-street parking on both sides of Shaw Avenue from Highway 12 to Clyde Avenue; and
6. Authorize the Maple Avenue driveway for commercial egress.

Baseline for CEQA Analysis

Pursuant to CEQA Guidelines section 15125, the baseline for the evaluation of environmental impacts is the existing condition when the environmental analysis begins. The baseline for analysis in this Subsequent IS/MND is the existing activities described above, and not the activities approved under the 2007 use permit. Judicial opinions have consistently interpreted Guideline 15125(a) to mean that the baseline for CEQA analysis is the existing conditions, "even if the current condition includes unauthorized and even environmentally harmful conditions that never received, and, as a result of being incorporated into the baseline, may never receive environmental review." (*Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 249.)

Therefore, this document addresses the potential impacts generated by proposed changes to existing conditions, which include:

- 1) constructing an outdoor parking lot at 75 Shaw Avenue;
- 2) installing a new 1,500 gallon septic system;
- 3) eliminating the existing left-turn lane mitigation measure based on project reductions associated with eliminating expanded hours and 15 annual events;
- 4) removing on-street parking on a portion of Shaw Avenue; and
- 5) eliminating the existing dedicated right turn lane mitigation measure and restriping Shaw Avenue to accommodate a right turn lane.

Because the commercial kitchen and restaurant activities are already in operation, the associated impacts from these uses cannot be analyzed as generating potential significant impacts under CEQA (as described below). However, they are analyzed from a health and safety standpoint under the County's zoning and police power. The 2007 MND included a mitigation measure requiring construction of a left turn lane on Highway 12. This mitigation measure was incorporated into the conditions of approval for the project. This mitigation measure may not be modified or deleted unless there is substantial evidence to that the mitigation is no longer needed or another mitigation measure would be equally or more effective. Similarly, the mitigation requirement for a dedicated right turn lane cannot be modified or deleted unless there is substantial evidence that the mitigation measure is no longer necessary or another mitigation measure would be equally or more effective.

CEQA Standard for Subsequent MND

CEQA Guidelines Sections 15162 through 15164 set forth the criteria for determining the required environmental documentation when there is a previously adopted negative declaration covering a project for which subsequent discretionary review is required. Permit Sonoma prepared this SMND to the previously adopted 2007 MND for the 2007 use permit. This SMND is governed by CEQA Guidelines §15162(a), which provides that where a negative declaration has been adopted for a project, no subsequent EIR or negative declaration "shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in light of the whole record, one or more of the following:

- (1) Substantial changes are proposed in the project which will require major revision of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- (2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:
 - a) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
 - b) Significant effects previously examined will be substantially more severe than shown in the previous EIR;
 - c) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
 - d) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Section 15162(b) provides that if a subsequent EIR is not required under section 15162(a), then "the lead agency shall determine whether to prepare a subsequent negative declaration, an addendum, or no further documentation."

This SMND does not "re-open" the previously adopted 2007 MND. Instead, as required by CEQA, this SMND examines the difference in impacts that would result from the current request for modification of the 2007 use permit, compared to those of the project analyzed under the 2007 MND and taking into account the existing conditions on the project site. The SMND evaluates whether the County's approval of the proposed modifications to the 2007 use permit trigger the need for a subsequent EIR under CEQA Guideline Section 15162(a), as described above. The SMND examines whether approval would result in a new significant environmental effect or a substantial increase in the severity of a previously identified significant effect due to:

- (1) Substantial changes proposed in the project;
- (2) Substantial changes that would occur with respect to the circumstances under which the project is undertaken; or
- (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the 2007 MND was adopted.

As is more fully explained below, Permit Sonoma has reviewed the information regarding the current proposal to modify the 2007 use permit, and determined that this SMND to the previously-adopted MND is appropriate. The current project proposal, as described in the subsequent initial study, does not amount

to substantial change to the previously studied project; there is no substantial change in the circumstances of the project; and there is no new information that could not have been known with the exercise of reasonable diligence that will result in a new significant environmental effect or a substantial increase in the severity of a previously identified significant effect. While the existing conditions that form the baseline for CEQA analysis are not identical to the project analyzed in the 2007 MND, Permit Sonoma has determined that the 2007 MND remains relevant to analysis of the current proposed project and retains informational value.

Environmental Factors Potentially Affected: The modified project includes new mitigation measures in topic areas of Cultural Resources, Hydrology and Water Quality Septic constraints, and Noise that would reduce potential impacts to less than significant as identified in the attached Initial Study.

Other Public Agencies whose approval is required for the project:

- ☒ Army Corps of Engineers/404 Permit
- ☒ Regional Water Quality Control Board
- ☐ California Department of Fish and Game 1600 Permit
- ☐ California Coastal Commission
- ☐ Department of Emergency Services Hazardous Materials Plan
- ☒ Caltrans Encroachment Permit
- ☐ State Lands Commission
- ☐ US Fish and Wildlife Consultation
- ☐ NOAA Fisheries Consultation
- ☐ State Water Resources Control Board

Environmental Finding:

Based upon the information contained in the Subsequent Initial Study, there will be no significant environmental effect resulting from this project provided that the identified mitigation measures are implemented as conditions of approval and incorporated into the project. The environmental impacts reviewed are limited to only new impacts resulting from changes to the project or changes in circumstances. This SMND has been completed in compliance with the California Environmental Quality Act (CEQA) and state and local CEQA guidelines. The applicant must agree in writing to incorporate the identified mitigation measures before the MND may be adopted.

Location of Prior MND: Available for review at Permit Sonoma, 2550 Ventura Avenue, Santa Rosa

Subsequent Initial Study: Attached

Other Attachments: Updated Traffic Study by W-Trans, July 2019; Consultant Peer Review Letter, January 2019; Caltrans Comment Letter, December 2018; Noise Study by Illingworth and Rodkin Inc., May 2019; and Cultural Resources Study by Tom Origer and Associates, Inc., dated May 12, 2005

Blake Hillegas
Preparer

January, 2019
Date

INITIAL STUDY CHECKLIST

PLP05-0009

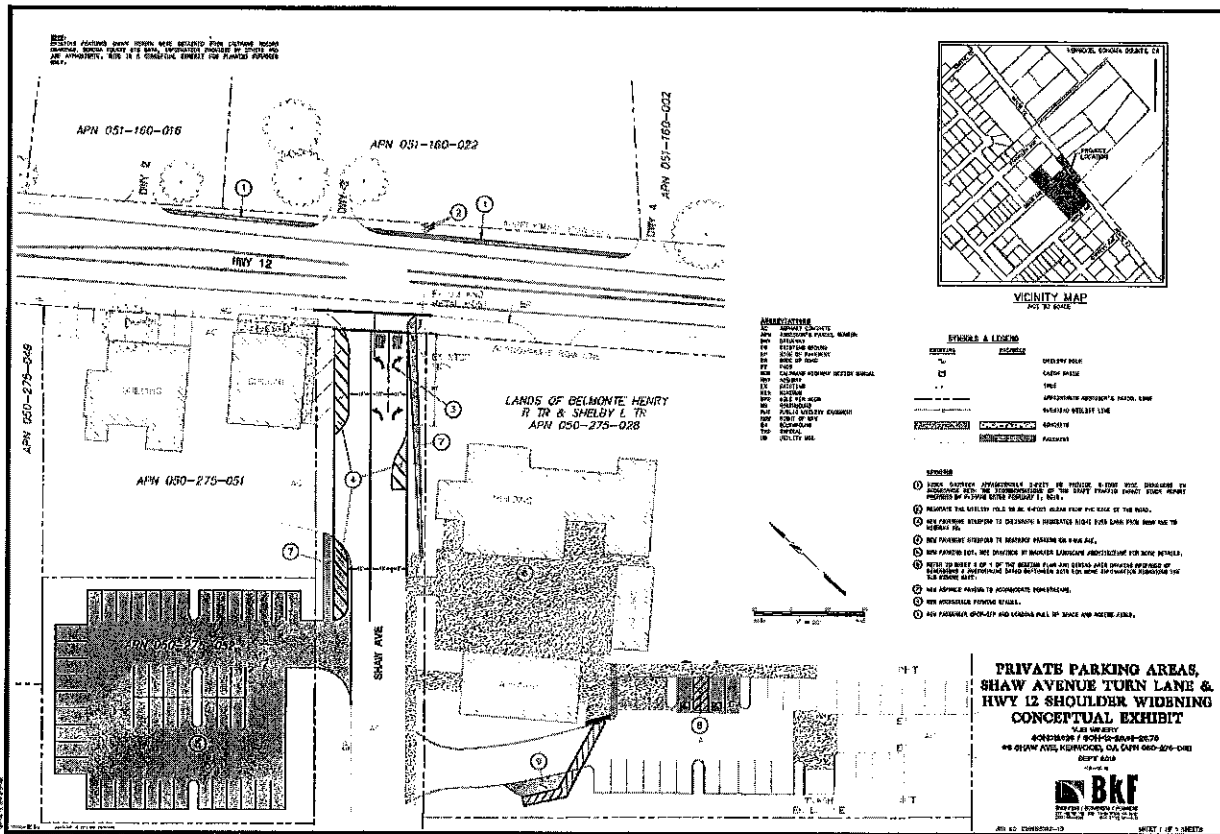
PLANNER: Blake Hillegas

DESCRIPTION OF PROJECT:

The project description is detailed in the introduction to this subsequent initial study and SMND.

Site Characteristics:

The site contains 7,133 square feet of commercial building space and wine storage facilities as noted in the project description in the introduction to this subsequent initial study and SMND.



SURROUNDING LAND USES AND SETTING: The surrounding area is characterized by retail commercial uses fronting Highway 12 with single-family residential neighborhoods off the highway. Land uses in the vicinity of the project include:

North: Commercial
South: Residential and commercial
West: Shaw Park
East: Commercial

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, which is a subsequent activity under the Mitigated Negative Declaration adopted by the Board of Supervisors in 2007 (the "2007 MND"). The purpose of the following checklist is to make an initial determination of whether these are new or substantially more severe impacts relative to those disclosed in the 2007 MND.

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

DETERMINATION

The project (modifying use permit PLP05-0009) has been evaluated pursuant to the provisions of CEQA Guidelines sections 15162-15164 to determine whether a subsequent EIR or mitigated negative declaration, a supplemental EIR, or an addendum to the prior mitigated negative declaration is required. The analysis compares the impacts identified in the 2007 MND with those expected to result from the subsequent activity to determine whether the activity would result in any new or substantially more severe significant effect. No subsequent or supplemental document is necessary if the impacts of the subsequent activity do not exceed those identified in the prior document.

On the basis of this Initial Study, although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A SUBSEQUENT MITIGATED NEGATIVE DECLARATION will be prepared.

EVALUATION OF IMPACTS

The checklist below is taken from Appendix G of the State CEQA Guidelines. For each item, one of four responses is given:

- No Impact: The project would not have the impact described. The project may have a beneficial effect, but there is no potential for the project to create or add increment to the impact described.
- Less Than Significant Impact: The project would have the impact described, but the impact would not be significant. Mitigation is not required, although the project applicant may choose to modify the project to avoid the impacts.
- Potentially Significant Unless Mitigated: The project would have the impact described, and the impact could be significant. One or more mitigation measures have been identified that will reduce the impact to a less than significant level.
- Potentially Significant Impact: The project would have the impact described, and the impact could be significant. The impact cannot be reduced to less than significant by incorporating mitigation measures. An environmental impact report must be prepared for this project.

Each question was answered by evaluating the project as proposed, that is, without considering the effect of any added mitigation measures. The Initial Study includes a discussion of the potential impacts and identifies mitigation measures to substantially reduce those impacts to a level of insignificance where feasible. All references and sources used in this Initial Study are listed in the Reference section at the end of this report and are incorporated herein by reference.

Before this MND may be adopted and the project approved, the Project Applicant must agree to accept all mitigation measures listed in this Initial Study as conditions of approval for the proposed project, and to obtain all necessary permits, notify all contractors, agents and employees involved in project implementation and any new owners should the property be transferred to ensure compliance with the mitigation measures.

1. AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation	Less than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	_____	_____	<u> X </u>	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	_____	_____	_____	<u> X </u>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	_____	_____	<u> X </u>	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	_____	_____	<u> X </u>	

1.a. Less Than Significant. The project is in a non-urbanized area. The existing tasting room, market and food service buildings are set back 55 feet from Highway 12, which is designated as a County scenic corridor. This complies with Ordinance 1810, which prescribes a setback equal to 20% of the lot depth or 55 feet. Highway 12 is also designated as a state scenic highway at this location, which requires that new development be compatible with the scenic character of the roadway. The existing buildings and proposed site improvements are compatible with the character of the Highway 12 corridor in Kenwood. The new septic system would result in the removal and replanting of some of the existing grape vines, however vines next to the building and highway would remain. The new parking lot at 75 Shaw Avenue is located behind existing commercial buildings and will include landscaping along the Shaw Avenue frontage. As such the project modifications would not substantially degrade the visual character or public views of the site and its surroundings. Public views to Hood Mountain would not be adversely impacted by the project as no new buildings are proposed.

1.b. No Impact. The project will not substantially damage scenic resources or historic buildings.

1.c Less Than Significant. The design and scale of the existing buildings will not change with the use permit modifications and are compatible with other commercial buildings in the area. As previously noted, replacement of the septic system and the addition of a new parking lot at 75 Shaw Avenue will not substantially change the character of the neighborhood or views from the scenic corridor. No lighting of the new parking lot is proposed. Required improvements to Highway 12 consisting of a new turn lane and possible shoulder widening will not result in substantial changes in the visual character of the area. Therefore, Mitigation Measures requiring design review for the new building are no longer relevant to the project. Design review approval of the project modifications is required in conjunction with the review of the modified use permit. A pedestrian way linking the patio area to Shaw Avenue has been in operation since 2012. The prohibition of this connection in the former mitigation measure is no longer required as a design issue.

1.d Less Than Significant. No new lighting is proposed as the new parking lot would only be used during day time hours. The Mitigated Negative Declaration required Mitigation measure for potential lighting impacts, which have been implemented and are no longer necessary. The project modifications does not involve new lighting.

2. AGRICULTURE RESOURCES

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	_____	_____	_____	<u> X </u>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	_____	_____	_____	<u> X </u>
c) Conflict with existing zoning for or cause rezoning of, forest land, timber land, or timberland zoned Timberland Production?	_____	_____	_____	<u> X </u>
d) Result in the loss of forest land or the conversion of forest land to non-forest use?	_____	_____	_____	<u> X </u>
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?	_____	_____	_____	<u> X </u>

2.a. through 2.e. No Impact. According to the Sonoma County Important Farmlands Map-2000, the project sites are designated as urban land, so there will be no impact to farmlands. Furthermore the property is not zoned for agricultural use, and is not in a Williamson Act contract. The project would not impact forest or timberland or result in the conversion or loss of forest land because disturbance is on previously developed areas. The project does not involve other changes in the environment that could result in conversion of farmland to non-agricultural use. Therefore no impacts will occur to agricultural resources.

3. AIR QUALITY

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	_____	_____	_____	<u> X </u>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air				

quality standard?	_____	_____	<u> X </u>
c) Expose sensitive receptors to substantial pollutant concentrations?	_____	_____	<u> X </u>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	_____	_____	<u> X </u>

3.a. No Impact. The project is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The Bay Area District does not meet federal or state standards for ozone precursors, and has adopted an Ozone Attainment Plan and a Clean Air Plan describing steps that will be taken to bring air quality in the district into compliance with federal and state Clean Air Acts' ozone standards. The plans deal primarily with emissions of ozone precursors (nitrogen oxides and volatile organic compounds (hydrocarbons)). Due to existing baseline conditions, the only potential air quality impacts would be from construction and operation of a new septic system, parking lot and road improvements. Construction and operation of these facilities will not conflict with the District's air quality plans to reduce emissions because use of the parking lot would not generate substantial new traffic over baseline conditions and dust control mitigation would continue to apply as noted below. The provision of bike parking and dedication of land along Highway 12 to accommodate a future segment of the Sonoma Valley Trail would facilitate a multi modal transportation system in the area and help reduce vehicle miles traveled and associated air emissions from automobiles.

3.b. Less Than Significant Impact. The BAAQMD is a non-attainment area for ozone precursors and PM₁₀ (fine particulate matter). As noted above air quality impacts associated with the modified project would be primarily related to any new construction since the restaurant activity and associated traffic emissions are already occurring. The Mitigated Negative Declaration adopted for the currently approved project incorporated dust control mitigation which would apply and be adequate to mitigate impacts associated with project modifications.

3.c. Less Than Significant Impact. Sensitive receptors are facilities or locations where people may be particularly sensitive to air pollutants such as children, the elderly or people with illnesses. These uses include schools, playgrounds, hospitals, convalescent facilities and residential areas. Shaw Park is located directly to the south of the project sites. The proposed use permit modifications would not result in a substantial increase in emissions. There will be no significant, long term adverse impacts from the project. Short term dust emissions will be controlled by the implementation of best management dust control measures as noted above.

3.d. Less Than Significant. The existing food service operation results in food smells but does not result in substantial adverse odors. Food waste and trash are required to be disposed of in a timely manner in accordance with health regulations.

4. BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				

	<u> </u>	<u> </u>	<u> </u>	<u> X </u>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<u> </u>	<u> </u>	<u> X </u>	
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<u> </u>	<u> </u>	<u> X </u>	
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?	<u> </u>	<u> </u>	<u> </u>	<u> X </u>
e) Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance?	<u> </u>	<u> </u>	<u> </u>	<u> X </u>
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?	<u> </u>	<u> </u>	<u> </u>	<u> X </u>

4.a. No Impact. The California Department of Fish and Game Natural Diversity Database (CNDDB) indicates certain special status plant species that may be present in the Kenwood area. However, the location of such species is either adjacent to the Kenwood Marsh or in hillside areas. The VJB retail property is fully developed with buildings, parking, and landscaping including vineyard. Installation of the new parking lot and a new septic system would not disrupt any native vegetation. The newly proposed parking lot site was previously developed with a single family residential dwelling, which has been demolished. The parking lot site has been cleared of all vegetation, except landscaping along Shaw Avenue and new perimeter fencing has been installed. A minor drainage swale extends along the front of the parking lot site and would be modified to accommodate new parking lot access and drainage. The drainage swale does not contain any sensitive habitat. The parking lot improvements are required to comply with County Low Impact Development standards of the County Grading and Drainage ordinance.

The potential widening of Highway 12 to accommodate a left turn lane could result in the undergrounding of existing drainage ditches. While visual inspection of the ditches was negative for potential sensitive species, the ditches may qualify as wetlands, subject to state or federal jurisdiction. Therefore, the project is conditioned to comply with State and Federal 401 and 404 permitting requirements, which require the mitigation of potential wetland impacts as applicable.

4.b. Less Than Significant. The areas of septic installation, parking lot site, and areas of proposed road improvements are not with any designated riparian habitat or other sensitive natural community as designated by the General Plan or the CNDDB. Depending on the extent of land area needed to accommodate the required left turn lane on Highway 12, potential low quality wetlands, consisting of existing linear drainage features, located along the north side of Highway 12 could be impacted. These features may be subject to State and Federal regulatory requirements potentially necessitating Section

401 and 404 permitting from the Regional Water Quality Control Board and/or US Army Corps of Engineers. Therefore, the project includes a condition of approval that requires the applicant to obtain state and federal resource agency 401 and 404 permit approvals, as applicable, prior to the disturbance of any potential wetlands. Resource agency approval would ensure that impacts to potential wetlands would be mitigated to required compensatory requirements.

4.c. Less than Significant. See 4.b. above for a discussion regarding potential wetland impacts.

4.d. No Impact. Migratory wildlife corridors generally include riparian areas and connected open space areas adjacent to urban centers. The project would not remove vegetation or place barriers in fish or wildlife migration corridors. Inspection of the drainage ditches along Highway 12 by Permit Sonoma staff were negative for sensitive fish and wildlife species.

4.e. No impact. No sensitive biological resources would be impacted by the project.

4.f. No Impact. Habitat conservation plans and natural community conservation plans are site-specific plans to address take of listed species of plants and animals. The proposed septic area, parking lot site, and areas of proposed road improvements are not located in an area subject to a habitat conservation plan or natural community conservation plan.

5. CULTURAL RESOURCES

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	_____	_____	<u> X </u>	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	_____	<u> X </u>	_____	
c) Disturb any human remains, including those interred outside of formal cemeteries?	_____	_____	<u> X </u>	

5.a. Less than Significant. A cultural resources study was prepared for the 2007 MND by Thompson and Origer (2005). The study determined that there are no documented resources on the existing site. The vacant site proposed for parking at 75 Shaw Avenue and road improvements could disturb soil and result in potential discovery of historical cultural resources as noted by the Graton Tribe Mitigation Measures for potential discovery were included in the Mitigated Negative Declaration adopted for the currently approved project and would continue to apply and adequately mitigate potential impacts associated with the proposed project modifications.

5.b. Less Than Significant With Mitigation. As noted above, the Thompson and Origer 2005 study, no archaeological resources were discovered on the existing project site (60 Shaw Avenue). The modified project was referred to the Northwest Information Center, which did not recommend further study due to limited land disturbance, but recommended standard conditions of approval as noted above to address the potential discovery of cultural resources.

The modified project was also referred to local Native American Indian tribes. While the existing site is developed and the proposed parking lot site was previously developed, some excavation or ground

disturbance would be necessary during construction of the new parking lot. The Graton Rancheria requests that a tribal monitor be present during excavation, due to the potential discovery of cultural resources in the area. Therefore, the following mitigation measure is required to address their request.

Mitigation Measure CULT-1:

Prior to any earth moving activity, the Project Applicant shall retain a tribal monitor and/or qualified principal archaeological investigator to oversee the cultural resources-related mitigation efforts. The principal investigator shall meet professional qualifications in the discipline of archaeology as defined in the Secretary of Interior's Standards and have demonstrated the ability to work cooperatively with the Tribe by honoring the Tribe's values and protection measures. The principal investigator may monitor the tribal cultural resources-related mitigation efforts or may employ an archaeological monitor who will work under the supervision of the principal investigator. The archaeological monitor shall address the following:

- 1) An initial pre-construction meeting with the grading contractor to review the definition of tribal cultural resources;***
- 2) Review of all land disturbance and earth removal; and***
- 3) Review and signoff of completed areas.***

Mitigation Monitoring:

Prior to issuance of a grading or encroachment permit, the applicant shall provide evidence of a signed contract with a qualified tribal monitor.

5c. Less Than Significant. No burial sites are known in the vicinity of the project. In the event that human remains are unearthed during construction, state law requires that the County Coroner be contacted in accordance with Section 7050.5 of the State Health and Safety Code to investigate the nature and circumstances of the discovery. At the time of discovery, work in the immediate vicinity would cease until the Coroner permitted work to proceed. If the remains were determined to be native American interment, the Coroner will follow the procedure outlined in CEQA Guidelines Section 15065.5(e).

See Mitigation Measure CUL-1 above.

6. ENERGY

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			<input checked="" type="checkbox"/>	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			<input checked="" type="checkbox"/>	

6.a and 6.b. Less Than Significant. Because of the limited scope of work involved and minimal site disturbance within existing disturbed areas, the modified project will not result in wasteful, inefficient, or unnecessary consumption of energy resources, nor would they obstruct state or local plans to encourage energy efficiency.

7. GEOLOGY AND SOILS

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

7.a.i. No Impact. The site is not located within an Alquist Priolo Earthquake Fault zone, and there are no other known active or potentially active faults on the property.

7.a.ii Less Than Significant. This item was reviewed within the existing adopted Mitigated Negative Declaration for use permit PLP05-0009 and Mitigation Measures were adopted to implement adopted construction standards. . The project does not include new habitable structures and the design of the septic system, parking lot, and road improvements would be subject to structural design and compaction requirements to ensure that the improvements do not pose a safety risk associated with seismic activity.

7.a.iii. Less Than Significant. Liquefaction was analyzed in the adopted Mitigated Negative Declaration. The property has the potential to experience liquefaction and settlement during a seismic event. However, the proposed septic system, parking lot, and road improvements must comply with county and state building and construction design standards, that ensure that the improvements do not create undue risk associated with potential ground failure.

7.a.iv. No Impact. The project site is not located in a landslide prone area as shown on Geology for Planning in Sonoma County Special Report 120 Slope Stability.

7.b. Less Than Significant. The project would include minor grading, cuts and fills associated with septic, parking and roadway improvements. Compliance with standard septic, grading, and encroachment permit requirements will ensure potential grading and erosion impacts are minimized to less than significant.

7.c. Less than Significant. As described in item 6.a.ii. above, no mitigation is required.

7.d. Less than Significant Impact. The area is known to contain potential expansive soils. No new habitable structures are proposed. Compliance with standard design and compaction requirements will minimize risk of property loss, therefore the impacts are less than significant as conditioned.

7.e. No Impact. The project site is not in an area served by public sewer. Preliminary documentation provided by the applicant and reviewed by the Permit Sonoma Project Review Health Specialist indicates that the soils on site would support a new septic system and the required expansion area.

7.f. No Impact. The site does not contain unique geological features. The project modifications involve minor excavation, therefore, would not result in impacts to paleontological resources.

8. GREENHOUSE GAS EMISSIONS:

Would the project:

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

_____ X

- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

_____ X

8.a. Less than Significant. The proposed project modifications would not generate substantial new emissions beyond baseline conditions. The BAAQMD screening criteria for a high turnover restaurant is 33 ksf for criteria pollutants and 7 ksf for GHG emissions. The tasting and food service aspects of the proposed use (6,309 sq. ft.) are below the BAAQMD screening level of 7ksf for GHG emissions. The GHG screening criteria for office space is 53 ksf, so when the 1,615 square feet of existing office space is taken together with the proposed restaurant activities, the use would not result in significant GHG emission impacts.

Furthermore, the project conditions minimize air pollution and encourage sustainability by addressing dust control and exhaust during construction, providing bicycle parking, incorporating shade trees within the new parking lot, and enforcing water efficient landscape regulations. In addition, conditions of approval require the applicant to dedicate right-of-way for a future Class 1 regional trail that will support alternative modes of transit to the site and beyond.

8.b. Less than Significant. The County does not have an adopted Climate Action Plan but has established General Plan GHG reduction goals. The project, by implementing current county codes and incorporating bicycle parking, shading in the new parking lot, and implementing water efficient landscape requirements would be consistent with plans, policies, and regulations adopted for the purpose of reducing greenhouse gas emissions.

9. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	_____	_____	<u> X </u>	
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?	_____	_____	<u> X </u>	<u> X </u>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	_____	_____	_____	<u> X </u>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				

	_____	_____	_____	<u> X </u>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	_____	_____	_____	<u> X </u>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	_____	_____	_____	<u> X </u>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	_____	_____	<u> X </u>	

9a. t. No impact. As analyzed in the adopted Mitigated Negative Declaration for the approved use permit PLP05-0009, Mitigation was adopted for the handling of hazardous materials during building construction. The project modifications do not include building construction and would not introduce new activity involving the use or handling of hazard materials. Therefore, the modified project would have no impact.

9b. through 9f. No Impact. . Similar to the originally approved project, the modified project would not release or emit hazardous materials, involve a listed hazardous materials site, or impair implementation of evacuation plans.

9g. No Impact. As analyzed in the Mitigated Negative Declaration for the currently approved use permit PLP05-0009, exposure to risks associated with the project and wildland fires are less than significant because the Kenwood Fire Department is located on the adjacent block to the project, public water is available at the site, and the site has immediate access to Highway 12 for emergency evacuation. The modified project would not increase exposure risk from wildland fires.

10. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	_____	<u> X </u>	_____	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede				

sustainable groundwater management of the basin?	_____	_____	<u> X </u>	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	_____	<u> X </u>		
ii) substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;	_____	<u> X </u>		
iii) create or contribute runoff water which would exceed the capacity of existing or planned storm drainage systems or provide substantial additional sources of polluted runoff; or	_____	<u> X </u>	_____	
iv) impede or redirect flood flows?	_____	<u> X </u>	_____	<u> X </u>
d) In flood hazards, tsunamis, or seiche zones, risk release of pollutants?	_____	_____	_____	<u> X </u>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	_____	_____	<u> X </u>	

10a. Less than Significant with Mitigation. The new septic system, parking lot and roadway work could disturb over an acre of land. Accordingly, it would be subject to the National Pollution Discharge Elimination System (NPDES) requirements. The 2007 Mitigated Negative Declaration includes a Mitigation Measure requiring compliance with the NPDES requirements. This Mitigation Measure is a condition of approval of the 2007 project that continues to apply to the currently proposed project modifications and is adequate to mitigate impacts.

In addition, the project must comply with state and local water quality requirements related to septic design capacity. The existing project is served by two existing septic systems with a total capacity of 900 gallons. The applicant is proposing to install a new 1,500 gallon system with pre-treatment and a grease interceptor to replace the existing systems and accommodate food service operation. However, the design capacity of the proposed new system does not comply with County septic design regulations to handle the peak projected customer loads of approximately 313 persons on a peak day. The following mitigation measure is required to ensure compliance with septic regulations and protect water quality.

The project is also subject to state and local water quality requirements implemented through the County's Grading and Storm water ordinance (Municipal Code Chapter 11, Ord. 6219). See 10c. below for further discussion of potential storm water impacts

Mitigation Measure Hydro-1:

Based on the proposed septic design, the applicant shall reduce the patio table seating area to 450 square feet with 30 seats and eliminate all wine tasting facilities and seating in all other locations within the project that are not expressly permitted for such use, within 30 days of issuance of this modification to Use Permit PLP05-0009.

Mitigation Monitoring:

Permit Sonoma will inspect the premise 30 days after issuance of the permit modification and periodically thereafter to verify that the seating and tasting bars have been removed. Lack of compliance with result in code enforcement action.

Mitigation Measure Hydro-2

The maximum daily number of combined wine tasters and meals served shall be limited to 96 per day, to comply with the design capacity of the proposed 1,500 gallon septic system. The applicant shall submit regular septic flow monitoring data and other information requested by the Well and Septic Division to verify that the use is operating within the design capacity of the system.

Mitigation Monitoring: *The Well and Septic Division shall review pertinent septic flow and water use data and any other information required to verify compliance with the septic design capacity. Should water use and septic flow data show that use is exceeding the design capacity of the system, the intensity of use shall be curtailed accordingly or the use permit will be subject to revocation.*

10b and e. Less than Significant Impact. Similar to the currently approved project, which relies on municipal water, the modified project would not adversely impact local ground water supplies or interfere with the sustainability of the ground water basin. The proposed new parking lot would be paved, but would include landscape features to capture runoff and partially retain storm water. Septic areas would continue to allow groundwater infiltration. Similarly, Highway 12 improvements are limited in scope and would not substantially impact ground water infiltration.

10c i-iv. Less than Significant Impact with Mitigation. While not in a flood plain, the Kenwood Community has experienced localized flooding during large magnitude storm periods. The adopted Mitigated Negative Declaration for use permit PLP05-0009 fully analyzed impacts to water quality and drainage capacity within these CEQA checklist items and identified mitigation for addressing alteration of drainage patterns and potential flooding and erosion. These mitigation measures along with compliance with standard grading and engineering conditions will ensure that the impacts associated with project modifications will be less than significant. The project does not involve other changes in the environment that could result in substantially degrading water quality. The County's Grading and Storm water ordinance requires that a drainage report and plans be prepared by a civil engineer to address drainage capacity and potential erosion. Standard conditions also require that that best management storm water control practices be implemented to minimize post construction storm water quality.

10d. No Impact. The project site is not located within a designated flood hazard area, and is not in an area subject to seiche or tsunami.

10e. Less than Significant The project modifications would not conflict with or obstruct implementation

of a water quality control plan or sustainable groundwater management plan in that water use would not increase substantially and compliance with the Grading and Stormwater Ordinance will mitigate impacts.

11. LAND USE AND PLANNING

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	_____	_____	_____	<u> X </u>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	_____	_____	<u> X </u>	

11a. No Impact The project would not divide a community because it is located within an established community.

11b. Less Than Significant . The project site is designated LC (Limited Commercial) on the Sonoma County General Plan Land Use map and zoned C1 (Neighborhood Commercial). The purpose of the General Plan Limited Commercial land use category is to accommodate retail sales and services for the daily self-sufficiency of local communities in keeping with their character. The various existing uses serve the town of Kenwood and the greater community. The proposed changes in use require a modification to the use permit.

Over the past several years, the use has created parking and circulation issues in the area at peak periods due to inadequate on-site parking and use of an overflow, unimproved parking area on Shaw Avenue (APN 050-275-052), near the intersection of Highway 12. The project seeks to address parking and circulation issues by eliminating parking on both sides of Shaw Avenue near Highway 12, providing a new 53-space parking lot at 75 Shaw Avenue, and eliminating 15 events that were previously approved and granted within use permit PLP05-0009. The new parking lot at 75 Shaw Avenue (APN 050-275-052), shall provide the required number of spaces, consistent with the County Zoning Code, for the existing and proposed use of the property. Restaurants serving alcohol are permissible in the C1 District, therefore an ancillary parking lot serving such uses are also permissible under existing Zoning.

The range and scale of the permitted uses is expressed by the Sonoma Valley Planning Area policy LU-18j:

LU-18j: Use the "Limited Commercial" and "Limited Commercial - Traffic Sensitive" categories for commercial lands in communities with urban services, including Boyes Hot Springs/El Verano/Agua Caliente, Glen Ellen and Kenwood. Require that new uses meet the following criteria:

- 1. The size, scale, and intensity of the use is consistent and compatible with the character of the local community.**

Staff response: The existing commercial and winery facilities, and off-site parking lot are similar in size to other non-residential buildings and parking lots in the commercial area of Kenwood.

The nearby Kenwood retail plaza, includes a variety of neighborhood serving retail uses, including a restaurant and several tasting rooms, with similar scale to the facilities on the site. The current intensity of the unpermitted restaurant use does not comply with the design capacity of the proposed 1,500 gallon septic system; mitigation measure Hydro-1 and Hydro-2 require that the project is scaled down to the capacity of the proposed 1,500 gallon septic system. Furthermore, the intensity of the food service activity has been a compounded issue because the approved parking facilities on-site (providing 30 designated and 24 overflow valet spaces on-site) were not fully constructed (the site currently provides 34 parking spaces: the valet overflow parking was not developed and 2 parking spaces adjacent to Maple Avenue are behind gate doors that render them inaccessible during daily operation of the facility). This has resulted in overflow on-street parking on Shaw Avenue, a narrow neighborhood street. Currently, the width of the travel lanes on Shaw Avenue are compromised when parking occurs on both sides of the street. A new commercial parking lot at 75 Shaw Avenue and removing on-street parking on both sides of Shaw Avenue near Highway 12, as proposed, will address this issue. However, due to the limited capacity of the septic system, and the resultant mitigations Hydro-1 and Hydro-2 limiting the scope of restaurant operations on the property, the parking demand is within the parking capacity as originally approved by the 2007 use permit. Off-street parking is not necessary to support the project.

2. Capacities of public services are adequate to accommodate the use and maintain an acceptable level of service.

Staff response: Kenwood is served by Kenwood Village Water Company, an independent regulated water system, and individual properties are served by on-site septic systems. The Kenwood Water Company would continue to serve the existing operation. The existing 900 gallon on-site septic systems capacity is not designed to accommodate the extent of the proposed food service at 144 seats. The existing system was designed to serve seven employees and 25 daily customers plus occasional catered events with up to 100 people. The existing system design assumed 15 gpd for seven employee (105 gallons) and five gpd per person attending a catered event (500 gallons). While there have been no reports of septic failure, the design capacity of the existing septic system is substantially undersized for the proposed use. The project includes expanding the septic capacity to 1,500 gallons to accommodate the food service operation. The number of wine tasters and meals served is necessarily limited by the capacity of the septic design based on the County's On-site Waste Treatment System regulations (OWTS Manual). The OWTS Manual requires that septic design covers peak use, therefore wine-tasting customers who may not eat food must be counted as consuming food. Under the OWTS Manual, the 1,500-gallon system could accommodate up to 96 customers and 16 employees at peak use. These limited are derived from the following standards: each employee generates a septic demand of 15 gpd (totaling 240 gpd), and 96 guests ordering meals demands 13 gpd per person (totaling 1,248 gpd), for a total demand of 1,488 gpd.

Current and projected future levels of service are consistent with County Traffic Study Guidelines. The adopted 2007 MND included traffic mitigation measures, including the westbound left-turn improvement on Highway 12. This supplemental maintains the 2007 MND mitigations. See the Traffic and Circulation section below for further analysis of this issue.

3. Design and siting are compatible with the scenic qualities and local area development guidelines of the local area.

Staff response: The project will not create new structures that add new impacts not previously analyzed in the adopted 2007 Mitigated Negative Declaration for use permit PLP05-0009. The proposed highway and septic improvements will not adversely affect the scenic qualities of the area and the new parking lot at 75 Shaw Avenue is behind existing commercial buildings, therefore the project design and siting are compatible with the scenic qualities of the area.

4. Siting of structures is compatible with planned infrastructure improvements such as roadway widening and under grounding of public utilities.

Staff response: The existing buildings are approximately 55 feet from the property line on Highway 12 and approximately 8 feet from the planned improvements on Shaw Avenue, therefore public utilities and the future installation or maintenance thereof will not be affected by the project.

12. MINERAL RESOURCES

Would the Project:	Potentially Significant	Less than Significant Impact	Less than Significant with Mitigation	No Impact Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	_____	_____	_____	<u> X </u>
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?	_____	_____	_____	<u> X </u>

12a. and 12b. No Impact There are no known mineral resources on the project site and the County has not designated the site as a mineral resource.

13. NOISE

Would the project result in:	Potentially Significant	Less than Significant Impact	Less than Significant with Mitigation	No Impact Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	_____	<u> X </u>	_____	
b) generation of excessive groundborne vibration or groundborne noise levels?	_____	_____	<u> X </u>	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such 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? _____

 X

13a. Less Than Significant. use permit PLP05-0009 included noise mitigations that included building a solid wall adjacent to the approved outdoor picnic area and installing HVAC equipment meeting noise standards. These noise mitigations were implemented with the currently approved project. The outdoor restaurant activity is an existing condition and cannot be further analyzed due to baseline conditions. However, the noise associated with the restaurant activity is similar to an outdoor event.

The current use permit also includes noise mitigation for construction noise. This mitigation is applicable to this project and will be implemented in the modified conditions of approval.

The project includes removing the option to operate extended hours from 8AM to 5PM, therefore the facility will continue to operate from 10AM to 4PM. The construction and use of the new parking lot at 75 Shaw Avenue during these operating hours could result in potential daytime noise impacts to two existing residences on adjoining properties to the north and west. The closest residence is 15 feet from the west side of the parking lot and is owned by the applicant. The other residence is 100 feet from the parking lot. An existing 6-foot tall corrugated metal fence with wood lattice top separates the proposed commercial parking lot from the adjacent residential uses.

A Noise and Vibration Assessment has been conducted for the proposed commercial parking lot by Illingworth & Rodkin, Inc., (May 31, 2019). The noise study concluded that the existing fence provides an acoustical barrier that reduces noise impacts to 57 dBA at residential receivers, which is less than significant and in compliance with the General Plan Noise standard of 60 decibels. This conclusion is based on a fenced design that includes, a ½" wood panel covered by two corrugated metal panels. Inspection of the constructed fence revealed that the ½" wood panel is not provided. Therefore, Mitigation Measure Noise 1 has been included to require an upgrade to the existing fence to meet the design standard used in the noise study.

Mitigation Measure Noise 1:

Prior to issuance of a grading or encroachment permit for installation of the parking lot at 75 Shaw Avenue the existing fence shall be modified to address the structural specifications of the project noise analysis, including ½ thick plywood covered by two sheets of metal siding without crack or gaps in the face. The project noise consultant shall submit a letter confirming compliance with this requirement.

Mitigation Monitoring: *Permit Sonoma will inspect the fence prior to permit issuance to verify it meets the above specifications.*

13b. Less Than Significant Impact The project includes minor excavation but does not include construction activities that may generate substantial ground borne vibration and noise. With installation of the acoustical fence as required as mitigation under 13a, increases in noise would be less than significant.

13c. No Impact. The site is not within a designated airport land use plan and there are no private airstrips within the vicinity of the project.

14. POPULATION AND HOUSING

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	_____	_____	_____	<u> X </u>
b) Displace substantial numbers of existing people or housing necessitating the construction of replacement housing elsewhere?	_____	_____	_____	<u> X </u>

14a. No Impact The project would not include construction of a substantial amount of homes, businesses or infrastructure and therefore would not induce substantial population growth. Workforce in lieu housing fees will be collected for the proposed project per County ordinances.

14b. No Impact The project would not displace any existing housing.

15. PUBLIC SERVICES

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

15a. Less than Significant. The project would not involve substantial adverse impacts associated with provision of government facilities. The VJB facility was constructed to comply with Fire Safe Standards, including fire access, and protection methods such as water supply, sprinklers in buildings, alarm systems, extinguishers, vegetation management, hazardous materials management and management of flammable

or combustible liquids and gases. A hydrant has been installed at the southwest corner of the VJB commercial site. The new parking lot has been designed to meet fire access requirements. The Sonoma County Sheriff and the California Highway Patrol will continue to provide law enforcement in the area. Development fees to offset potential impacts to schools were paid with building construction and are not required for installation of the parking lot, septic system, and road improvements. Park development impact fees are not required on commercial projects.

16. RECREATION

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	_____	_____	<u> X </u>	_____
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?	_____	_____	_____	<u> X </u>

16a. No Impact The proposed project would not involve activities that would cause or accelerate substantial physical deterioration of parks or recreational facilities.

16b. No Impact The proposed project does not involve construction of recreational facilities, though an offer of dedication of a trail easement for future construction of a regional trail is required.

17. TRANSPORTATION

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	_____	_____	<u> X </u>	_____
b) Conflict with or be inconsistent with CEQA Guidelines 15064.3 subdivision (b)?	_____	_____	_____	<u> X </u>

- | | | | | |
|----|---|---------------|---------------|---------------|
| | | | | <u>X</u> |
| c) | Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <u> </u> | <u> </u> | <u> </u> |
| d) | Result in inadequate emergency access? | <u> </u> | <u> </u> | <u> </u> |

17a. Less than Significant: This SMND addresses the applicant's proposal to eliminate the options for 15 annual special events at 100 guests and expanded operating hours, to support removing mitigation measure Traffic – 1 from the 2007 MND and associated conditions of approval in the 2007 use permit. The 2007 mitigation and associated conditions of approval required the applicant to install a westbound left-turn lane on Highway 12 as well as Shaw Avenue turn lane improvements.

The adopted 2007 MND included a mitigation measure that required construction of turn lane improvements prior to facility operations. The required turn lane improvements have not been installed on Highway 12 or Shaw Avenue. Elimination of the option to hold up to 15 special events per year does not justify deletion of the existing mitigation measure requiring construction of a left turn lane.

Regarding required improvements on Shaw Avenue, the applicant contends that the mitigation achieved through dedicating a right turn lane can be achieved by creating a right turn lane within the existing right of way with restriping and removing parking on both sides of Shaw Avenue.

The original traffic analysis prepared by WTrans (2006) estimated trip generation at an average of 74 new daily weekday trips and 80 new daily weekend trips, including nine trips during the weekday AM peak hour and 14 during the PM peak hour. Special events for 100 attendees generated an average of 170 new daily weekend trips and 164 new daily weekday trips, including up to 54 trips during the PM peak hour. The study noted that a northbound left turn-lane from Highway 12 onto Shaw Avenue was warranted due to traffic counts on Highway 12. The traffic study anticipated special events would add up to 27 additional left turn movements where there were seven without the project. In the adopted 2007 MND, the applicant agreed to mitigation measure Traffic-1 to construct a left turn lane on Highway 12. Payment of a fair share mitigation fee was not acceptable because no other funding or plans existed to complete the turn lane.

Updated focused traffic studies were provided for the project, with updates from 2014 through 2019. The studies were peer reviewed and took into account the proposal to eliminate 15 approved annual events and expanded operating hours. The initial peer review requested a more accurate characterization of the use and requested AM peak and Saturday peak hour analysis. The July 2019 traffic study responded to these data needs and was reviewed by the Department of Transportation and Public Works and Caltrans.

The July 2019 traffic study draws the following conclusions:

- Current counts indicate 25 trips during the morning peak hour, 36 trips during the evening peak hour, and 64 trips during the weekend peak hour. The study indicates the use resulted in 25 westbound left turn movements at Shaw Avenue during the weekend midday peak.
- Intersection LOS at Shaw and Highway 12 is expected to operate acceptably with future volumes except for the northbound Shaw Avenue approach (LOS E). However, because the project increased delay less than 5 seconds, the impact is considered less than significant.
- With operating hours limited to no later than 4:00PM, the study recommends that the Highway 12 left turn lane is unnecessary and that the highway shoulder should be widened instead to provide space for a vehicle to pass a westbound vehicle turning left at Shaw Avenue.
- Warrants are currently met for a left turn lane on SR 12 at Shaw Avenue due to existing highway volumes. However, the collision history at the intersection does not indicate a safety issue that needs to be addressed by installing a left-turn lane. The traffic study recommends eliminating the

requirement for a left turn lane at Shaw Avenue and shoulder widening instead. The study notes physical construction constraints such as right-of-way, utility poles, and drainage facilities in the area.

- Parking should be eliminated on both sides of Shaw Avenue at Highway 12 to provide adequate width to accommodate a right turn lane through restriping, rather than creating a dedicated right turn lane.
- While the project will result in pedestrians crossing Shaw Avenue to access the off-site parking lot, a mid-block crosswalk is unnecessary due to the low traffic volume and speed on Shaw Avenue.
- Site lines at all three parking lot driveways are adequate.
- Providing 18 bicycle parking spaces is recommended.
- The overall LOS at the local intersections of Highway 12/Shaw Avenue and Highway 12/Maple Avenue will not fall below acceptable LOS D standard under existing plus project and future plus project scenarios.

For the purposes of this CEQA analysis, existing traffic conditions include the site as it is currently operated for baseline conditions. Therefore, while the traffic study notes additional traffic generation for the restaurant use, an actual increase in traffic would not occur as the expanded (restaurant) use is an existing condition. The assessment of environmental impacts in this Subsequent Initial Study are limited to the physical changes moving forward. Therefore, project traffic impacts would not result in new significant impacts from CEQA standpoint. However, the left turn-lane is a mitigation requirement in the 2007 MND and no substantial evidence has been presented to substantiate removing the requirement considering the traffic conditions continue to warrant the turn-lane. The applicant agreed in writing to this mitigation measure in 2007. Caltrans and the DTPW have reviewed the traffic consultant's traffic collision history and conclusion that a left turn lane should not be required, and determined that the turn lane is warranted and should be installed as feasible. The applicant claims that the Highway 12 left-turn lane is not feasible due to right-of way constraints, however no clear evidence of infeasibility has been provided to substantiate the claim.

Furthermore, the County has the authority through its zoning police powers to require traffic and circulation improvements, which are directly and proportionally tied to the proposed intensification of use even if the intensification has already occurred. DTPW finds that operating the proposed restaurant use on a daily basis is similar to or more intense than traffic generation from occasional event activities. As such, DTPW requires the Highway 12 left turn-lane at Shaw Avenue and continues to support the 2007 MND mitigation measure to that effect, as determined feasible through the Caltrans encroachment process. DTPW agrees with the applicant's proposal to install a right turn lane on Shaw Avenue through restriping and is requiring that the applicant submit a formal request to remove parking from Shaw Avenue. With the required improvements of the left-turn lane on Highway 12, right-turn lane on Shaw Avenue, and the removal of parking on a portion of Shaw Avenue, and restriping, the project modifications will not substantially increase hazards due to geometric design, but will improve turning movements and circulation in the neighborhood.

To address General Plan policies encouraging alternative modes of transportation and the project's demand for pedestrian and bicycle facilities, 18 bicycle parking spaces are required and Regional Parks is requiring the applicant to dedicate an easement along the Highway 12 frontage to accommodate a future regional pedestrian/bicycle trail.

Parking Analysis

A total of 54 parking spaces were initially required to accommodate the various approved uses, including special events. Approved parking included 20 paved parking spaces, 17 unpaved parking spaces, and 17 unpaved tandem/valet parking spaces. The seventeen valet parking spaces were not provided and the

site is developed with 21 paved parking spaces and 13 unpaved parking spaces. Existing parking does not meet the Zoning Code parking requirements for the existing outdoor restaurant with approximately 144 seats occupying 3,125 square feet of patio area.

The applicant proposes to construct a new 53 space parking lot on an adjacent ½ acre site located across the street at 75 Shaw Avenue to accommodate up to 3,125 square feet of patio dining food service. A total of 87 parking spaces would be provided, including the proposed site plan for the VJB property that shows 34 on-site parking spaces. The parking demand for the existing/proposed patio dining area of up to 3,125 square feet, in combination with other existing permitted uses, requires 78 parking spaces.

The table below summarizes the parking demand and supply with the proposal:

Proposed Use	Area	Parking Ratio	Spaces Required
Office	1,615 sq. ft.	1 per 250 sq. ft.	6
Retail and Tasting Room	3,718 sq. ft.	1 per 200 sq. ft.	19
Case goods	1,800 sq. ft.	1 per 2000 sq. ft.	1
Restaurant, 144 seats	3,125 sq. ft. (144 seats)	1 per 60 sq. ft. dining	52
Total Required, Proposal	N/A	N/A	78
Total Spaces Provided	N/A	N/A	Onsite: 34 Off-site: 53 Total: 87
Restaurant, 30 seats	450 sq. ft. (30 seats)	1 per 60 sq. ft. dining	8
Total Required, Reduced scale with Hydro-1 and Hydro-2 mitigations	N/A	N/A	34

With the construction of a new 53 space parking lot at 75 Shaw Avenue and a total parking count of 87 parking spaces, 3,125 square feet of restaurant dining area with 144 seats could be permitted if septic capacity could be resolved. As noted under the Hydrology section, the proposed patio table food service must be limited to 450 square feet to accommodate a maximum of 30 seats based on the septic design constraints. As is shown in the table above, with a 30-seat restaurant, the VJB operation will require 34 parking spaces, which can be fully accommodated on-site, with no need for off-site parking.

It is worth noting that during project review staff determined that table seating has been provided in the second level of the tasting room market building and a tasting bar has been provided in the case good storage building. Both activities are outside of the scope of permitted activities in the 2007 use permit. The 30-seat restaurant limit is global; therefore, these operations would need to be eliminated in order to maintain operations within the scope of the proposed 1,500 gallon septic capacity.

17b. No Impact. Current conditions, which include the restaurant operations, are the baseline for CEQA purposes, therefore, consistent with CEQA Guidelines 15064.3 subdivision (b), the project would not increase Vehicles Miles Traveled over existing conditions. The project is located along a transit corridor with bus stops less than ½ mile away. Generally, projects located within a half mile of a transit stop or along a high quality transit corridor should be presumed to have a less than significant impact.

17c. Less than significant. As discussed in section 17a, the proposal to widen the shoulder on northbound highway 12 at Shaw Avenue instead of a left turn-lane is not supported by Caltrans or DTPW. Furthermore, the data presented does not indicate that in the absence of events and expanded hours, the 2007 mitigation measure requiring the left-turn lane is no longer necessary. The 2007 mitigation measure and associated conditions of approval that require a left turn-lane at Highway 12/Shaw Avenue, is maintained, as determined feasible under an encroachment permit from Caltrans. As noted above, DTPW finds that daily operation of the proposed restaurant use is similar in intensity and traffic generation to the approved event activities and finds the turn lane requirement proportional to traffic generation. Despite the traffic studies conclusion that collision rates at the intersections of Shaw/SR12 and Maple/SR12 are below the state average, Caltrans reports that a rear end collisions have occurred at both Maple/SR12 and Shaw/SR12.

The DTPW recommended removal of on-street parking on the north side of Shaw Avenue would improve circulation in the neighborhood and not result in significant parking impacts. With the required improvements of the left-turn lane on Highway 12, right-turn lane on Shaw Avenue, and the removal of parking on a portion of Shaw Avenue, and restriping, the project modifications will not substantially increase hazards due to geometric design, but will improve turning movements and circulation in the neighborhood.

17d. No impact. The existing EVA on Maple Avenue would not be jeopardized by allowing customers to continue to use it for egress. The new parking lot has been reviewed by County Fire and DTPW and no concerns have been expressed.

18. TRIBAL CULTURAL RESOURCES:

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5030.1(k), or				
ii) A resource determined by the lead agency. In its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.				
		X		
				X

18.a.i and a.ii. Less Than Significant With Mitigation. A cultural resources study was prepared for the existing VJB Market Place and Tasting Room by Thompson and Origer (2005). No archaeological resources were discovered on the site. The modified project, includes construction of a parking lot on a commercial site that was formerly developed with a single family residence and Highway 12 roadway improvements.

The modified project was referred to the Northwest Information Center, which did not recommend further study due to limited land disturbance, but recommended conditions of approval to address the potential

discovery of cultural resources. The Mitigated Negative Declaration adopted for the currently approved project included a Mitigation measure to address potential discovery during project construction. This mitigation measure still applies and is adequate to cover the proposed project modifications. The Graton Rancheria has requested that tribal monitor be present during excavation due to the potential discovery of cultural resources in the area. Therefore, the following mitigation measure is also required:

Mitigation Measure CULT-1:

Prior to any earth moving activity at 75 Shaw Avenue or associated with excavation for road improvements the Project Applicant shall retain a tribal monitor and/or qualified principal archaeological investigator to oversee the cultural resources-related mitigation efforts. The principal investigator shall meet professional qualifications in the discipline of archaeology as defined in the Secretary of Interior's Standards and have demonstrated the ability to work cooperatively with the Tribe by honoring the Tribe's values and protection measures. The principal investigator may monitor the tribal cultural resources-related mitigation efforts or he may employ an archaeological monitor who will work under the supervision of the principal investigator. The archaeological monitor shall monitor the following:

- 1) An initial pre-construction meeting with the grading contractor to review the definition of tribal cultural resources;***
- 2) Review of all land disturbance and earth removal; and***
- 3) Review and signoff of completed areas.***

Mitigation Monitoring:

Prior to issuance of a grading permit for 75 Shaw Avenue and road excavation, the applicant shall provide evidence of a signed contract with a qualified tribal monitor.

19. UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could causes significant environmental effects?	_____	_____	<u> X </u>	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	_____	_____	<u> X </u>	
c) Result in a determination by the waste water 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?	_____	<u> X </u>	_____	
d) Generate solid waste in excess of state				

or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

_____ X _____

- e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

_____ X _____

19a. Less Than Significant Project modifications would not result in significant construction impacts related to the installation of water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities.

19b. Less Than Significant The Kenwood Water Company will continue to serve the use and has not identify any capacity issues.

19c. No Impact The existing project is not served by a municipal waste water provider, but relies on an on-site septic system. A new septic system is proposed to serve the modified project as discussed under Hydrology and Water Quality.

19d. and e. Less than Significant Sonoma County has adequate permitted landfill capacity to serve the proposed project and the modified project is required to comply with all federal, state, and local regulations, including solid waste reduction statutes.

20. WILDFIRE

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	_____	_____	<u> X </u>	_____
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	_____	_____	<u> X </u>	_____
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk of that may result in temporary or ongoing impacts to the environment?	_____	_____	<u> X </u>	_____

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? _____ X _____

20. a. b. and c and d. Less than Significant Impact. The new parking lot and septic system and continued operation of the use will not substantially impair existing evacuation routes. Required road improvements would incrementally improve evacuation. Otherwise, the project will not exacerbate wildfire risks and will not result in flooding, landslides, slope instability or substantial changes in drainage patterns when considering the 2017 Sonoma Complex fires and potential for future fire events.

21. MANDATORY FINDINGS OF SIGNIFICANCE

	Yes	No
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	_____	<u> X </u>
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)?	_____	<u> X </u>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	_____	<u> X </u>

21a. No. Mitigation and conditions are incorporated to address potential impacts to wetlands and tribal cultural resources.

21b. No. No project impacts have been found to be cumulatively considerable when considering past projects, existing baseline conditions, and the proposed physical changes in the project.

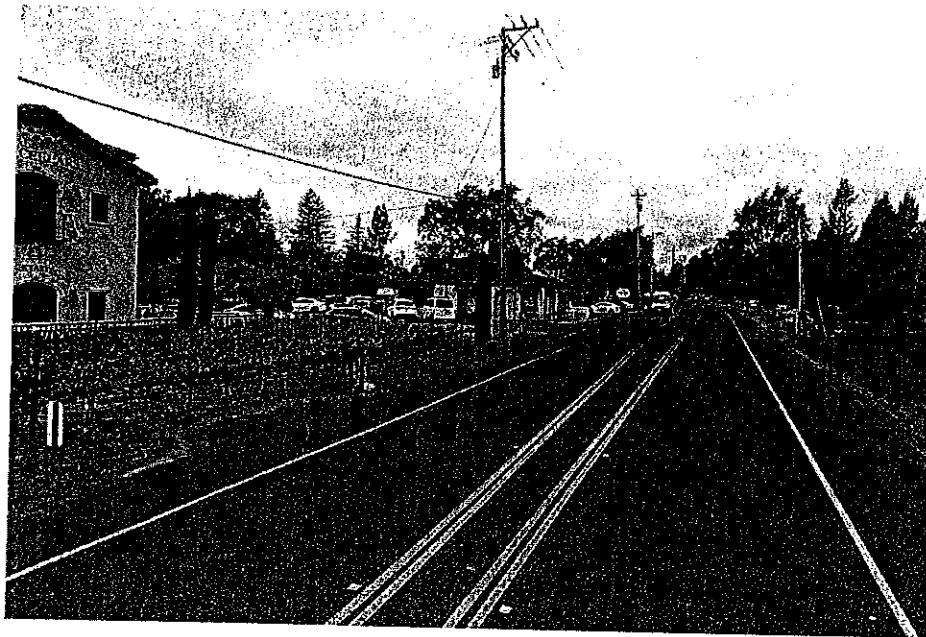
21c. No. The project would not result in adverse impacts to human beings due to required mitigation for potential impacts to cultural resources. New impacts and mitigations are also required for parking lot noise, and hydrology and water quality impacts related to septic capacity. While all impacts would be mitigated, the mitigation of due to septic design septic capacity (Hydro-1 and Hydro-2), substantially reduces the overall scope of the permissible restaurant activity. The project will not have a significant impact provided mitigation in this document is implemented.

References

1. California Natural Diversity Data Base.
2. Project Referrals from Responsible Agencies.
3. California Environmental Quality Act (CEQA).
4. Full record of previous hearings on project in file.
5. Correspondence received on project.
6. Sonoma County CEQA Implementing Ordinance.
7. PRMD staff evaluation based on review of the project site, project application and project.
8. PRMD staff evaluation of impact based on past experience with construction projects.
9. Sonoma County General Plan and Environmental Impact Report, Sonoma County. Board of Supervisors; 2008 and as amended.
10. California Department of Transportation.
11. Assessor's Parcel Maps.
12. BAAQMD (Bay Area Air Quality Management District) *CEQA Guidelines* and thresholds of Significance;.
13. Sonoma County Zoning Ordinance (as amended); 2019.
14. *Alquist-Priolo Special Studies Zones*; State of California Division of Mines and Geology; 1983.
15. *Seismic Shaking and Tsunami Plates 1A and 1B, Geology for Planning in Sonoma County Special Report 120*, California Division of Mines and Geology; 1980.
16. *Slope Stability Plates 2A and 2B, Geology for Planning in Sonoma County Special Report 120*, California Division of Mines and Geology; 1980.
17. *Sonoma County Grading Ordinance*; 2018.
18. California Regional Water Quality Control Board <http://geotracker.swrcb.ca.gov/>.
19. *Flood Insurance Rate Maps*, Federal Emergency Management Agency.
20. County of Sonoma Guidelines for Traffic Studies; 2017.
21. Project Traffic Study by W-Trans dated July 2019.
22. Sonoma County Transportation Authority.
23. *Sonoma County Bikeways Plan*, Sonoma County Department of Transportation and Public Works; 2010.
24. Noise Study by Ilingworth and Rodkin dated May 2019.
26. Cultural Resources Study by Tom Origer and Associates, Inc., dated May 12, 2005.
27. Drainage Report by Dimensions 4 Engineering dated June 6, 2007.
28. August 8, 2019 Dimensions 4 Engineering Inc. letter on water usage/septic design.
29. October 14, 2019 Dimensions 4 Engineering Inc. letter septic and wastewater analysis.
30. Table 11.1 Flow Rates from Sonoma County OWTS Manual



Updated Traffic Impact Study for the VJB Vineyard and Cellars



Prepared for the County of Sonoma

Submitted by
W-Trans

July 17, 2019



**TRAFFIC ENGINEERING
TRANSPORTATION PLANNING**
Balancing Functionality and Livability since 1995

Project Information

File Number: UPE05-0009

Address: 60 Shaw Avenue, Kenwood

APN: 050-275-028 and 050-275-052

Project Name: VJB Vineyard and Cellars

Applicant Name: Vittorio and Henry Belmonte

Property Owner Name: Vittorio and Henry Belmonte

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- C. Intersection Level of Service Calculations
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Executive Summary

The VJB Vineyard and Cellar opened in 2012 under a Conditional Use Permit (CUP) approved in 2009. The current proposal would modify some aspects of this 2009 CUP to better fit with operation as it has evolved over time. While the continued operation is essentially unchanged, the application would limit operating hours to 10:00 a.m. to 4:00 p.m., would limit the number of employees, would modify access by limiting the Maple Avenue driveway to egress only, would adjust the parking supply to include a lot on the opposite side of Shaw Avenue, and would eliminate some requirements for off-site improvements to the adjacent street system.

Based on counts performed at the site, the project currently generates 25 trips during the morning peak hour, 36 trips during the evening peak hour, and 64 trips during the weekend peak hour. Although the weekday peak hour trips would be reduced to only those associated with employees with the proposed operating hours, upon conservatively adding these existing trips to existing and future volumes without the project, the study intersections are expected to operate acceptably except for the northbound Shaw Avenue approach to SR 12, which is expected to operate at LOS E under future p.m. peak hour volumes with the project. Because the increase in delay associated with adding project trips is less than five seconds, the project has a less-than-significant impact in terms of traffic operation. It is further noted that the analysis was based on the current trip generation, while the trip generation with the proposed changes to the CUP would be less, making this a conservative analysis that overstates the project's impact.

Under the current Conditions of Approval (COA), the project was required to install a left-turn lane on SR 12 at Shaw Avenue and a right-turn lane on Shaw Avenue at SR 12. While the project as proposed would provide the northbound right-turn lane, based on the analysis performed, and given the proposed limits to operating hours, it is recommended that the left-turn lane requirement be rescinded. It is recommended that in lieu of the left-turn pocket the applicant install improvements along the northerly side of SR 12 by widening the shoulder to provide space that could be used to pass a vehicle waiting to turn into Shaw Avenue.

The project is expected to generate a nominal number of pedestrian trips, though visitors will need to walk across Shaw Avenue to get to the site from the off-site parking lot. Given the low volumes and low speed on Shaw Avenue, installation of a mid-block crosswalk, as has been suggested by staff, is not recommended. The project should, however, include provision of pedestrian facilities connecting the site's entrance to the off-site parking lot. It is recommended that the site provide at least 18 bicycle parking spaces to accommodate visitors on bicycles.

Introduction

This report presents an analysis of the potential traffic impacts associated with the proposed modifications to the existing Use Permit for VJB Vineyards and Cellars located at 60 Shaw Avenue in the community of Kenwood in the County of Sonoma. The traffic study was completed in accordance with the criteria established by the County of Sonoma and is consistent with standard traffic engineering techniques.

Prelude

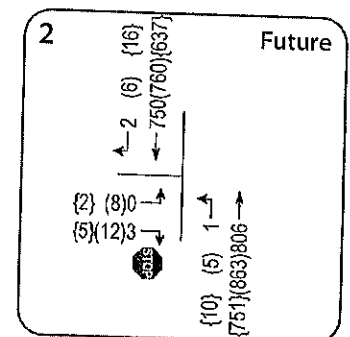
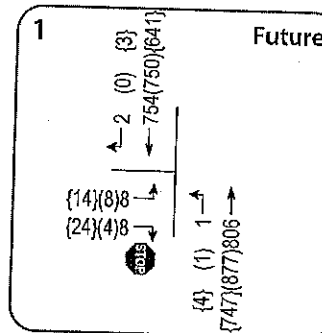
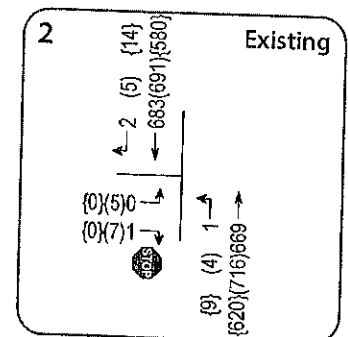
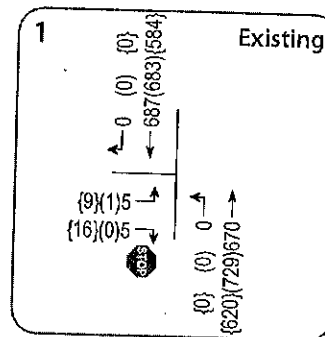
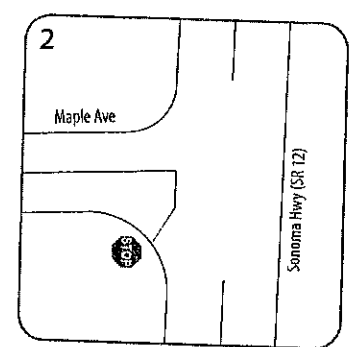
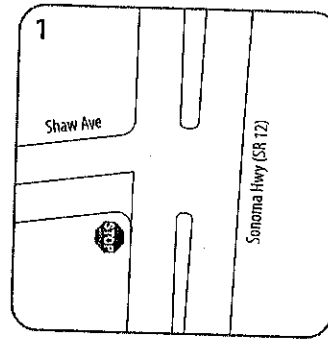
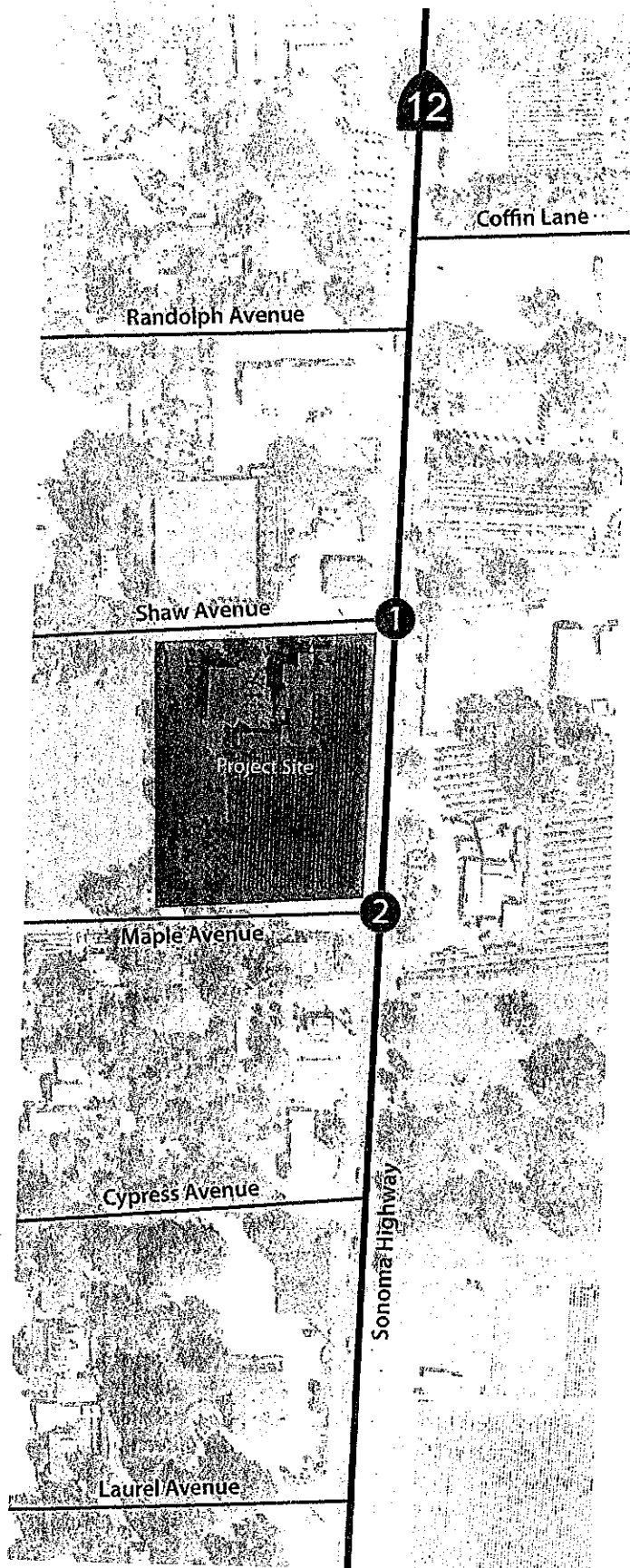
The purpose of a traffic impact study is to provide County staff and policy makers with data that they can use to make an informed decision regarding the potential traffic impacts of a proposed project, and any associated improvements that would be required to mitigate these impacts to a level of insignificance as defined by the County's General Plan or other policies. Vehicular traffic impacts are typically evaluated by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on existing travel patterns or anticipated travel patterns specific to the proposed project, then analyzing the impact the new traffic would be expected to have on critical intersections or roadway segments. Impacts relative to access for pedestrians, bicyclists, and to transit are also addressed.

Project Profile

The project site is developed with the uses as approved in 2009 and as interpreted by the Permits and Resource Management Department (PRMD) since that date, including an outdoor pizza oven and barbeque; outdoor picnic/dining area; food and wine pairing; and retail store, gelato shop and office. Various modifications to the Use Permit as approved are requested, as follows.

- Elimination of the requirement for a left-turn lane on the westbound SR 12 approach to Shaw Avenue and widening of the north shoulder across from the intersection as an alternative.
- The opening of Maple Avenue for egress, only, per Sonoma County Fire Marshall.
- The reduction of off-site parking along Shaw Avenue through paving of the east side of Shaw Avenue back 50 feet from the stop sign to the entrance and signage as outlined in the conditions of approval.
- The development of an off-site parking lot, providing 53 spaces, at 75 Shaw Avenue for the exclusive use of VJB Vineyards & Cellars.
- A maximum of 6 employees (full time equivalent) Monday through Thursday; 9 employees on Friday and 16 employees Saturday and Sunday.
- Change the hours of operation to 10 a.m. to 4 p.m. daily.

The project site location is shown in Figure 1.



LEGEND	
	Study Intersection
xx	Weekday AM Peak Hour Volume
(xx)	Weekday PM Peak Hour Volume
{xx}	Weekend MD Peak Hour Volume

Transportation Setting

Operational Analysis

Study Area and Periods

The study area consists of the following intersections:

1. SR 12/Shaw Avenue
2. SR 12/Maple Avenue

Operating conditions during the weekday a.m. and p.m. peak periods as well as the weekend midday peak period were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. The weekend midday peak period occurs between noon and 2:00 p.m.

Study Intersections

SR 12/Shaw Avenue is a tee intersection with the Shaw Avenue approach stop-controlled.

SR 12/Maple Avenue is a stop-controlled tee intersection.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

Study Roadways

SR 12 in the vicinity of the proposed project is a two-lane road running in a north-south alignment with narrow shoulders and a posted speed limit of 45 miles per hour (mph). Traffic volumes published by Caltrans on their website indicate an average daily volume of approximately 16,900 vehicles per day. There is an existing center/left-turn lane on SR 12 for about 350 feet near Randolph Avenue, northwest of Shaw Avenue.

Shaw Avenue and Maple Avenue have posted speed limits of 25 mph and are unimproved residential two-lane roads with limited room for parking on the shoulders.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is January 1, 2012 through December 31, 2016.

As presented in Table 1, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2014 Collision Data on California State Highways*, California Department of Transportation (Caltrans). Both study intersections have actual rates that are lower than the corresponding Statewide rates, indicating that operation is generally consistent with anticipated safety conditions. The collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates at the Study Intersections

Study Intersection	Number of Collisions (2012-2016)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)	Number with Injuries	Percent with Injuries	Statewide Average Percent with Injuries
1. SR 12/Shaw Ave	3	0.11	0.14	0	0.0%	38.0%
2. SR 12/Maple Ave	2	0.08	0.14	0	0.0%	38.0%

Note: c/mve = collisions per million vehicles entering

Alternative Modes

Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. In general, there are limited pedestrian facilities near the project site. Existing gaps and obstacles along the connecting roadways impact convenient and continuous access for pedestrians and present safety concerns in those locations where appropriate pedestrian infrastructure would address potential conflict points.

- **SR 12** – Six- to eight-foot shoulders exist on both sides of SR 12 and are used by pedestrians to access bus stops near the intersections of SR 12 and Laurel Avenue and SR 12 and Greene Street.
- **Shaw Avenue** – There are no sidewalks on Shaw Avenue, so pedestrians walk along the shoulder, where such exists, or in the roadway. Given the low speed, low volume, and straight, flat alignment that provides good sight distance, the current conditions are adequate to serve the limited volume of pedestrian traffic.

Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2017, classifies bikeways into four categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

There are currently no designated bicycle facilities in the immediate vicinity of the winery, though SR 12 has shoulders of at least six feet in width delineated by an edgeline stripe that is used by cyclists. The roadway is identified as having a Class I bike path in the future per the *2014 Sonoma County Bicycle Pedestrian Master Plan*, and the existing right-of-way width appears to be adequate to accommodate this planned future widening.

Transit Facilities

Sonoma County Transit (SCT) provides fixed route bus service in the County of Sonoma. SCT Routes 30 and 34 provide regional service to destinations throughout Santa Rosa and Sonoma Valley and stop on both sides of Sonoma Highway at Greene Street, approximately 1,200 feet west of the site. Route 30 operates seven days a week with approximately one-and-a-half hour headways on weekdays between 6:00 a.m. and 9:00 p.m. and approximately 3-hour headways on weekends from 7:00 a.m. to 7:00 p.m.

Two to three bicycles can be carried on most SCT buses. Bike rack space is on a first come, first served basis. Additional bicycles are allowed on SCT buses at the discretion of the driver.

Dial-a-ride, also known as paratransit, or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. SCT Paratransit is designed to serve the needs of individuals with disabilities within Santa Rosa and the greater County of Sonoma area.

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation. The study intersections were analyzed using the unsignalized methodology for two-way stop-controlled intersections published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2010. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The "Two-Way Stop-Controlled" intersection capacity method determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection. The ranges of delay associated with the various levels of service are indicated in Table 2.

Table 2 – Two-Way Stop-Controlled Intersection Level of Service Criteria

LOS A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.
LOS B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.
LOS C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.
LOS D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.
LOS E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.
LOS F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.

Reference: *Highway Capacity Manual*, Transportation Research Board, 2010

Traffic Operation Standards

Because SR 12 and its intersections are under the jurisdiction of Caltrans, the applicable standards for both agencies were considered.

County of Sonoma

Based on the most recent criteria published by the County of Sonoma in May 2016, as updated in June 2019, the project would have a significant traffic impact if it results in any of the following conditions.

1. **On-site roads and frontage improvements** – Proposed on-site circulation and street frontage would not meet the County's minimum standards for roadway or driveway design, or potentially result in safety hazards, as determined by the County in consultation with a registered Traffic Engineer or Civil Engineer.
2. **Parking** – Proposed on-site parking supply does not meet County standards and does not adequately accommodate parking demand.

3. **Emergency Access** – The project site would have inadequate emergency access.
4. **Alternative Transportation** – The project provides inadequate facilities for alternative transportation modes (e.g., bus turnouts, bicycle racks, pedestrian pathways) and/or the project creates potential conflicts with the County's Complete Streets Policy, other adopted policies, plans, or programs supporting alternative transportation.
5. **Road Hazards** – Road design features that do not meet standards (e.g., sharp curves or skewed intersections) or any perceived incompatible uses (e.g., farm equipment, major bicycle route, rail or pedestrian crossings).
6. **Vehicle Queues** – An impact on projected 95th percentile queues shall be considered significant when any of the following occur:
 - A. The projected queue can be accommodated within the available stacking in a dedicated turn lane (defined as the length of the channelized turn pocket together plus 8 feet in length) but would exceed the available stacking upon adding project-generated traffic. Where a left-turn lane transitions into a two-way left-turn lane, the center turn lane is to be considered part of the available stacking space.
 - B. There is adequate sight distance between the end of the queue and following traffic without the project, and the addition of project traffic increases the queue to a point where sight lines are no longer adequate to meet stopping sight distance criteria.
7. **Signal Warrants** – The addition of the project's vehicle or pedestrian traffic causes an intersection to meet or exceed Caltrans or CA-MUTCD signal warrant criteria.
8. **Turn Lanes** – The addition of project traffic causes an intersection to meet or exceed criteria for provision of a right or left turn lane on an intersection approach.
9. **Sight Lines** – The project constructs an unsignalized intersection (including driveways) and/or adds traffic to an existing unsignalized intersection approach that does not have adequate sight lines based upon Caltrans criteria for State highway intersections and AASHTO criteria for County roadway intersections.
10. **County Intersection Operations** – The County level of service standard for County intersection operations is to maintain a Level of Service D or better pursuant to General Plan Policy CT-4.2. The project would have a significant traffic impact if the project's traffic would cause an intersection currently operating at an acceptable level of service (LOS D or better) to operate at an unacceptable level (LOS E or worse).

If the intersection currently operates or is projected to operate below the County standard, the project's impact is considered significant and cumulatively considerable if it causes the average delay to increase by five seconds or more. The delay will be determined by comparing intersection operations with and without the project's traffic for both the existing baseline and projected future conditions.

The above criteria applies to all controlled intersections except for driveways and minor side streets that have less than 30 vehicle trips per hour per approach or exclusive left turn movement.
11. **County Roadway Operations** – The County level of service standard for County roadway operations is to maintain a Level of Service C pursuant to General Plan Policy CT-4.1; or, for specific roadway segments, the level of service standard adopted in the General Plan Figure CT-3. The project would have a significant traffic impact if the project's traffic would cause a road currently operating at an acceptable level of service (LOS C or better) to operate at an unacceptable level (LOS D or worse).

If a road segment currently operates or is projected to operate below the County standard, the project's impact is considered significant and cumulatively considerable if it causes the average speed to decrease by 2 mph for a roadway operating at LOS D without the project, 1 mph if existing operation is LOS E, and any

reduction in travel speed is significant for a roadway operating at LOS F. The change will be determined by comparing roadway conditions with and without the project's traffic for both the existing baseline and projected future conditions.

12. **State Highways** – Caltrans' general level of service policy on State highways is to maintain the level of service at the transition between LOS C and LOS D. However, level of service goals for specific Caltrans facilities should be taken from transportation planning documents for that facility. A project would have a significant impact if the project traffic would cause the operation of a State highway to operate below LOS C. If a State highway currently operates or is projected to operate below the standard, the project's impact is considered significant and cumulatively considerable if it does not maintain the existing "measure of effectiveness." Measures of effectiveness are: (a) control delay per vehicle for signalized intersections; (b) average control delay per vehicle for unsignalized intersections; (c) average speed for two-lane highways, and (d) density for multi-lane highways.
13. **Mitigation Measures** – In order to reduce project impacts to levels of insignificance, the proposed mitigation measures must result in post-development affected intersections and roadways that have an LOS that is no worse than the County General Plan LOS standard for roadways and intersections, reduce safety impacts to insignificance by bringing the site up to Caltrans or AASHTO design standards, and provide adequate parking and alternative transportation facilities consistent with County plans and policies. The scope of the mitigation measures must reduce the project impacts below the identifiable thresholds mentioned.

The payment of County wide traffic impact fees in and of itself may not be adequate to mitigate a project's local impacts if the existing facilities are already below standard, and the required improvements are not fully funded or programmed to be operational at the time of project completion. The timing of the mitigation measure implementation may require construction of off-site improvements by the developer using a Reimbursement Agreement to pay for any oversized facilities associated with the public share of the improvement pursuant to Section 26-670 of the Sonoma County Code. Traffic impact fees do not address specific impacts related to a particular project. Payment of the traffic impact fee only mitigates or addresses cumulative countywide impacts related to projects that are programmed or listed to be funded by the fees on file with DTPW.

The project's contribution to cumulative impacts must also be addressed in proportion to the project's impact. A proportional fair share contribution to a traffic improvement related to a cumulative impact may be required based on the "Methodology for Calculating Equitable Mitigation Measures" included in Caltrans' *Guide for the Preparation of Traffic Impact Studies* as referenced above. Mitigation measures for both project impacts and cumulative impacts must be implemented prior to occurrence of the impact. An analysis of the timing, funding and responsibilities for implementation of mitigation measures should be included in the traffic study.

Caltrans

Caltrans indicates that they endeavor to maintain operation at the transition from LOS C to LOS D. Based on previous discussions with Caltrans staff, it is understood that the standard is to be applied to the overall average intersection delay and *not* that associated with any single movement or approach. Under this approach, if one movement experiences very high delay and has moderate to high traffic volumes, the overall delay and level of service should reflect the critical nature of the condition. However, if one movement is expected to experience high delay, but has very low traffic volumes, the overall intersection operation will likely still meet Caltrans standards.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the three study periods. This condition does not include project-generated traffic volumes, which were

subtracted out of volume data collected on September 16 and 21, 2017 because all the activities associated with the proposed Conditional Use Permit modification are already occurring, so their traffic is included in current traffic streams. Copies of the counts, including those of both vehicles and pedestrians used to derive the site-generated trips deducted from existing counts, are provided in Appendix B.

Intersection Levels of Service

Under existing conditions with project traffic excluded, both study intersections are operating at LOS D or better both overall and on the stop-controlled approach. The existing traffic volumes are shown in Figure 1. A summary of the intersection level of service calculations is contained in Table 3, and copies of the Level of Service calculations are provided in Appendix C. It is noted that the delay indicated for the minor street approaches reflects the average for both left and right turns as neither intersection has separate turn lanes. The output provided in Appendix C presents the delay for the highest movement, but this result is not used for purposes of the evaluation as it represents a single movement on a shared-movement approach and that movement has less than 30 vehicles an hour under any scenario evaluated, so falls below the County's minimum threshold for application of the Level of Service standard.

Table 3 – Existing Peak Hour Intersection Levels of Service

Study Intersection Approach	AM Peak		PM Peak		Weekend Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
1. SR 12/Shaw Ave	0.2	A	0.0	A	0.3	A
<i>NB (Shaw Ave) Approach</i>	<i>23.2</i>	<i>C</i>	<i>29.3</i>	<i>D</i>	<i>17.1</i>	<i>C</i>
2. SR 12/Maple Ave	0.0	A	0.2	A	0.1	A
<i>NB (Maple Ave) Approach</i>	<i>13.5</i>	<i>B</i>	<i>21.7</i>	<i>C</i>	<i>18.2</i>	<i>C</i>

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Future Conditions

Segment volumes for the horizon year of 2040 were obtained from the County's gravity demand model as maintained by the Sonoma County Transportation Authority and translated to turning movement volumes at the study intersections of SR 12/Shaw Avenue and SR 12/Maple Avenue. Because there were no volumes available for Shaw Avenue and Maple Avenue in the County's model, growth factors per approach were calculated based on 2010 and 2040 model volumes on Warm Springs Road and applied to existing volumes at the Shaw and Maple Avenue approaches to arrive at future volumes. The growth factor calculation is provided with the counts in Appendix B.

Under the anticipated Future volumes, the study intersections are expected to operate acceptably at LOS A overall, and at LOS D or better on the side-street approaches. Future volumes are shown in Figure 1 and operating conditions are summarized in Table 4.

Table 4 – Future Peak Hour Intersection Levels of Service

Study Intersection Approach	AM Peak		PM Peak		Weekend Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
1. SR 12/Shaw Ave <i>NB (Shaw Ave) Approach</i>	0.3 <i>30.5</i>	A <i>D</i>	0.2 <i>31.6</i>	A <i>D</i>	0.6 <i>21.2</i>	A <i>C</i>
2. SR 12/Maple Ave <i>NB (Maple Ave) Approach</i>	0.0 <i>14.4</i>	A <i>B</i>	0.4 <i>27.0</i>	A <i>D</i>	0.2 <i>18.1</i>	A <i>C</i>

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Project Description

The project consists of changes to the Conditional Use Permit for the VJB Vineyards and Cellars to reflect operation as it has evolved over time and to address requests to modify several Conditions of Approval placed on the project. The specific components of the project addressed in the analysis include the actual current trip generation, the opening of Maple Avenue for egress only, the request not to provide a left-turn lane on SR 12 at Shaw Avenue, and the development of an off-site parking lot, providing 53 spaces, at 75 Shaw Avenue for the exclusive use of VJB Vineyards & Cellars. It is noted that a separate right-turn lane would be provided on Shaw Avenue at SR 12 through elimination of four parking spaces on the east side of Shaw Avenue north of the project entrance. This change to the configuration has not been included as part of the project for analysis purposes to provide a more direct comparison between conditions without and with the project. Operational changes include limiting staff to a maximum of six full-time equivalent employees Monday through Thursday; nine on Friday and 16 Saturday and Sunday, and revision of the hours of operation to 10 a.m. to 4 p.m. daily. Because the changes to the Use Permit would bring the current operation into compliance with existing conditions, the project trips are already on the street network. The actual counts obtained on Thursday, September 21, 2017 and Saturday, September 16, 2017 were therefore used to represent "plus Project" conditions.

Trip Generation

The trip generation for the project was developed based on counts obtained at the site during each of the peak periods. All persons entering or leaving the site either by vehicle to and from the parking lot or walking to nearby parking spaces were observed, and inbound and outbound vehicle counts determined, with outbound trips via the driveway to Maple Avenue counted separately. Based on the counts obtained, the site is currently generating 25 trips during the a.m. peak hour, 36 during the p.m. peak hour, and 64 during the weekend peak hour. These results are shown in Table 5, and these are the volumes that were subtracted from the actual counts to arrive at the volumes used to evaluate "Existing" conditions.

Table 5 – Trip Generation Summary

Land Use	AM Peak Hour			PM Peak Hour			Weekend Peak Hour		
	Trips	In	Out	Trips	In	Out	Trips	In	Out
VJB	25	18	7	36	9	27	64	46	18

Notes: Trip generation based on count of actual site-generated trips.

Trip Distribution

As the actual numbers of trips were counted for each peak period while the turning movement counts were being collected, the pattern used to allocate the project trips to the street network was determined based on the turning

movement counts. Based on the site counts, 55 percent of outbound trips were assigned to Maple Avenue, with the remaining 45 percent using Shaw Avenue. All inbound trips were assigned to Shaw Avenue.

Intersection Operation

Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, the study intersections are expected to continue operating acceptably at LOS D or better both overall and on the side-street approaches. It is noted that while the project as proposed would result in the addition of a separate right-turn lane on the Shaw Avenue approach to SR 12 that would increase capacity and reduce delay, the intersections was conservatively evaluated with the existing single-lane approach. These results are summarized in Table 6. Project traffic volumes and the resulting Existing plus Project volumes are shown in Figure 2.

Table 6 – Existing plus Project Peak Hour Intersection Levels of Service

Study Intersection Approach	AM Peak		PM Peak		Weekend Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
1. SR 12/Shaw Ave	0.3	A	0.5	A	0.6	A
NB (Shaw Ave) Approach	25.1	D	25.9	D	19.0	C
3. SR 12/Maple Ave	0.1	A	0.3	A	0.3	A
NB (Maple Ave) Approach	17.0	C	22.4	C	17.0	C

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Finding – The study intersections are expected to continue operating acceptably at the same levels of service upon the addition of project-generated traffic.

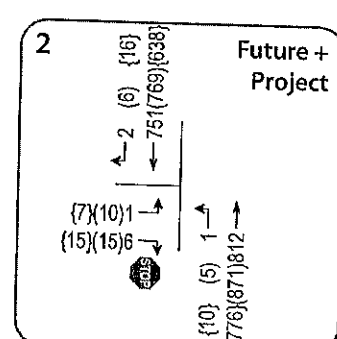
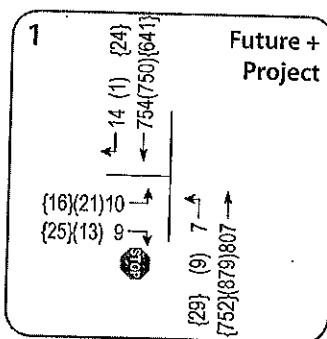
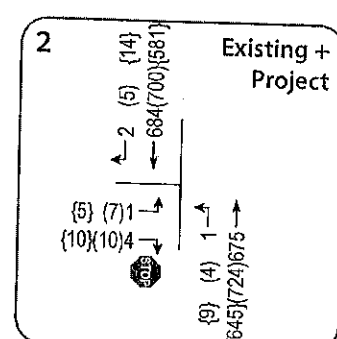
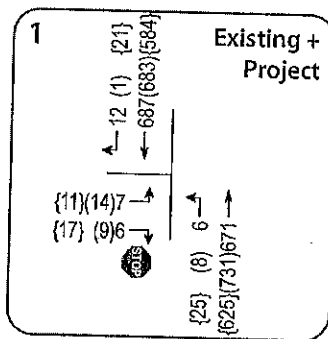
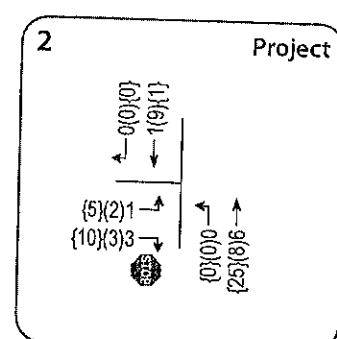
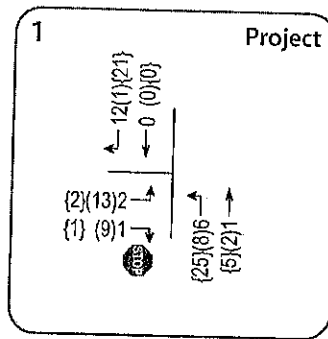
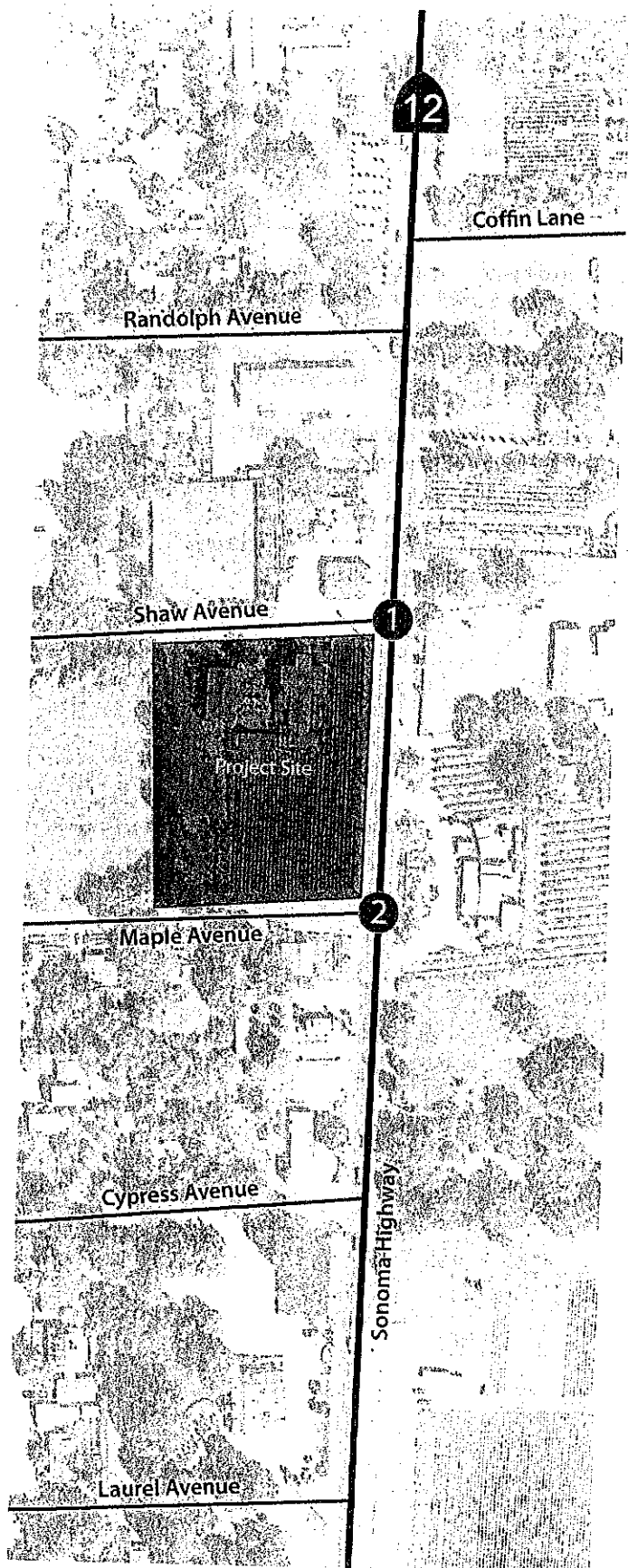
Future plus Project Conditions

Upon the addition of project-generated traffic to the anticipated Future volumes, the study intersections are expected to operate acceptably at LOS A overall and LOS D or better on the side-street approaches, again conservatively treating the Shaw Avenue approach to SR 12 as a single lane and not accounting for the added capacity associated with the separate right-turn lane to be provided by the project. The Future plus Project operating conditions are summarized in Table 7 and the volumes are shown on Figure 2.

Table 7 – Future plus Project Peak Hour Intersection Levels of Service

Study Intersection Approach	AM Peak		PM Peak		Weekend Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
1. SR 12/Shaw Ave	0.4	A	0.7	A	0.8	A
NB (Shaw Ave) Approach	33.1	D	34.2	D	24.0	C
2. SR 12/Maple Ave	0.1	A	0.5	A	0.4	A
NB (Maple Ave) Approach	18.2	C	28.4	D	19.9	C

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*



LEGEND	
	Study Intersection
xx	Weekday AM Peak Hour Volume
(xx)	Weekday PM Peak Hour Volume
{xx}	Weekend MD Peak Hour Volume

Finding – The study intersections will continue operating acceptably with project traffic added to Future volumes, at the same Levels of Service as without it, indicating a less-than-significant impact on traffic operation.

Travel Demand Analysis

Senate Bill (SB) 743 established a change in the metric to be applied to determining traffic impacts associated with development projects. Rather than the delay-based criteria associated with a Level of Service analysis, the increase in vehicle-miles-travelled (VMT) as a result of a project will be the basis for determining impacts once this new metric is fully vetted and adopted. While the specific methodologies and standards of significance are still under development, consideration was given to the extent to which this project results in increased VMT.

As proposed, many of the visitors to VJB Winery would arrive in limousines or buses, resulting in fewer trips to and from the site than might otherwise occur. The site is located along SR 12, a route that serves numerous other wineries and tasting rooms, so the project is likely to attract a substantial amount of pass-by traffic from guests visiting multiple tasting rooms in the area rather than generating new trips associated with the project itself. SR 12 also attracts a substantial number of bicyclists, and bicycle traffic reduces the VMT. The project would be expected to draw from this bicycle traffic as well, especially when the Class I trail is constructed parallel to SR 12.

Alternative Modes

Pedestrian Facilities

Given the proximity of agricultural and residential land uses, it is reasonable to assume that most winery visitors and employees will travel to and from the site by motor vehicle. Therefore, the winery is expected to generate little to no pedestrian travel except between the buildings and parking lots. The existing parking lot is located to the south of the buildings and provides the accessible parking for the project. Visitors can enter the site directly from the parking lot through a gate at the southeast corner of the outdoor patio. This route provides a virtually flat access route from the accessible parking spaces.

To achieve adequate parking for the uses at the site and avoid use of street parking, it is understood that the parcel at 75 Shaw Avenue has been purchased, and the plan is to use the vacant lot for parking. County staff has expressed concerns regarding pedestrian access between the project site and the off-site parking lot, so the need for a mid-block pedestrian crosswalk was evaluated.

Shaw Avenue has a paved width of about 25 feet south of the project site and narrow shoulders on one or both sides that are used for parking and pedestrian travel. Near SR 12 the road widens to approximately 35 feet. Counts performed in 2017 at the intersection of SR 12/Shaw Avenue indicate that the daily volume on Shaw Avenue is about 340 trips per day, including project-generated traffic. Even with project trips added, the average daily traffic volume on Shaw Avenue remains well below 400 vehicles per day, a volume that is considered "very low" by the American Association of State Highway and Transportation Officials (AASHTO). The speed limit on this short road segment is 25 mph, and field observations indicate that drivers are traveling at or below this speed. Given that sight distance is adequate to allow sufficient visibility between motorists and pedestrians, at this low volume pedestrians should be able to find an adequate gap in traffic to safely cross from the parking lot directly to the VJB site.

Consideration was given to the need for a mid-block crosswalk as a channelizing device and not a safety device. Given that most pedestrians will want to cross in a relatively straight line between the parking lot and the site entrance, there is little need for these walking trips to be channelized. Further, the presence of a mid-block crosswalk may provide pedestrians with a false sense of security and discourage them from waiting for traffic to clear prior to entering the street. It is recommended that a crosswalk be installed at the intersection with SR 12, including provision of space along both sides of Shaw Avenue for pedestrian travel. A copy of the plan showing the proposed improvements is provided in Appendix D. It is noted that this would result in out-of-the way travel, and some pedestrians would be unwilling to increase their trip length by 200 feet so would continue walking directly across Shaw Avenue. However, because this is a local street, pedestrians crossing between the project site and the parking lot would be similar to neighbors walking across to visit one another, an activity that would be normal and well within driver expectation. As a result, while the volume of pedestrian traffic would be greater than normally encountered on a local street, given the geometric and operational characteristics of the street, with adequate facilities provided for those pedestrians who wish to use a specified pathway, facilities would be adequate.

Finding – The project is expected to generate limited pedestrian traffic except between the project and on-site and off-site parking lots. Facilities should be provided to connect the project to the on- and off-site parking lots; this could consist of dedicated paved shoulder areas outside the travel lanes. Given the operational characteristics of Shaw Avenue, it is expected that those pedestrians that wish to do so will be able to cross safely directly between the off-site parking lot and VJB Marketplace.

Recommendation – Installation of the mid-block crosswalk from the site to the parking lot at 75 Shaw Avenue should not be required, though it is recommended that a crosswalk be installed across Shaw Avenue at SR 12 with

space dedicated to pedestrians marked connecting the project entrance to the off-site parking lot via the crosswalk.

Bicycle Facilities

Existing and planned future bicycle facilities, including the future Sonoma Valley Trail paralleling SR 12, together with shared use of minor streets provide adequate access for bicyclists.

Bicycle Storage

The project site plan does not identify the provision of bicycle parking or storage facilities; however, the project should provide bicycle parking consistent with the requirements for the specific uses outlined in Article 86 of the County of Sonoma Code of Ordinances which states that one bicycle parking space should be provided for every five required automobile parking spaces. With a proposed supply of 89 spaces, parking for 18 bicycles is needed.

Finding – Bicycle facilities are adequate to serve the expected demand and would be improved upon installation of the planned Sonoma Valley Trail paralleling SR 12.

Recommendation – Parking to secure at least eighteen bicycles should be provided on-site.

Transit

Existing transit routes are adequate to accommodate project-generated transit trips. Existing stops are within acceptable walking distance of the site.

Finding – Transit facilities serving the project site are adequate.

Access and Circulation

Site Access

Access to the parking lot located on the project site is via a two-way driveway on Shaw Street and a one-way egress to Maple Street. Additional parking is provided in a lot on the opposite side of Shaw Street that is accessed by a two-way driveway.

Sight Distance

Sight distance along Shaw Avenue from the project driveway was evaluated based on sight distance criteria contained in *A Policy on Geometric Design on Highways and Streets* published by American Association of State Highway and Transportation Officials (AASHTO). For drivers exiting a driveway, stopping sight distance recommendations are typically applied. Given the 25-mph speed on both Shaw and Maple avenues, the applicable stopping sight distance recommendation is 155 feet. The available sight lines from all three driveways exceed this and are therefore adequate.

Access Analysis

Left-Turn Lane Warrants

The need for left-turn lanes on SR 12 at Shaw Avenue was evaluated based on criteria contained in the *Intersection Channelization Design Guide*, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985, as well as a more recent update of the methodology developed by the Washington State Department of Transportation. The NCHRP report references a methodology developed by M. D. Harmelink that includes equations that can be applied to expected or actual traffic volumes to determine the need for a left-turn pocket based on safety issues. Based on our research and discussions with Caltrans staff, this methodology is consistent with the "Guidelines for Reconstruction of Intersections," August 1985, which was referenced in Section 405.2, Left-turn Channelization, of previous editions of the *Caltrans Highway Design Manual*, though this reference has been deleted from the most recent edition of this manual.

Based on the volume warrants alone, a left-turn lane is warranted on SR 12 at Shaw Avenue based on Existing volumes during the p.m. and midday peak periods. However, a review of the collision history for the intersection of SR 12/ Shaw Avenue indicates that only one crash involving a left-turning vehicle (July 2012) was reported during the eight-year period reviewed (2009-2016), indicating that there is not a safety problem at the intersection that would need to be addressed by installing a left-turn lane. Additionally, there are significant construction constraints affecting the design of a left-turn pocket, such as the relocation of existing utility poles and shoulder and drainage facilities. The lack of sufficient right-of-way makes it infeasible for a private party to construct a left-turn pocket. A preliminary design showing the right-of-way that would need to be obtained is provided in Appendix D.

Further, Condition of Approval 41e as set forth for the project in 2007 indicated that the left-turn lane needed to be constructed to allow operation past the hour of 4:00 p.m. Until the left-turn lane was constructed, operation was limited to 10:00 a.m. to 4:00 p.m. Since operation outside of these hours is not currently proposed, there would not be an extension of operating hours that would trigger the need for the left-turn lane, so the left-turn lane should not be required at this time.

However, County staff suggested an alternative improvement that would achieve the desired result of providing space so that following vehicles could pass around a left-turning vehicle if necessary, and improving safety, especially in the case of an inattentive driver approaching a vehicle stopped and waiting to turn left having insufficient time to avoid colliding with the stopped vehicle despite the adequacy of sight distance. The County

has, on numerous occasions, placed a condition that applicants construct a wider shoulder on the opposite side of the street from their driveway, or in this case a side street, so that approaching drivers have adequate space to move around the vehicle stopped before turning left. This alternative improvement has been applied in other places along state highways, including SR 116 and 121. Under this alternative the shoulder on the northeast side of the roadway would need to be widened to a minimum of eight feet for a total distance of 200 feet: 100 feet on each side of the centerline of Shaw Avenue. The widening of the shoulder results in conditions that are an improvement over existing conditions, leading to better operation with the project than without it, regardless of any increase in left turns associated with the project, and therefore a less-than-significant impact due to the project. While not required to accommodate the project as currently proposed, the applicant has agreed to construct this improvement.

Parking

The project was analyzed to determine whether the proposed parking supply would be sufficient for the anticipated parking demand. This analysis provides an update to the previous parking study conducted in a report titled, *Revised Traffic and Parking Analysis for VJB Marketplace Modification*, July 16, 2015. The proposed project's parking supply consists of 37 spaces on site and an additional 53 spaces in an off-site parking lot at 75 Shaw Avenue for the exclusive use of VJB Vineyards & Cellars, for a total supply of 90 spaces.

Required Parking

Based on the Sonoma County Zoning Code, Section 26-86-010, one parking space is required per 60 square feet of dining area, one space per 200 square feet of general retail, and one space per 250 square feet of office space. Project plans include 3,654 square feet of dining area (including the picnic area, bar, covered area adjacent to the wine cellar, and area in front of the gelato bar), 425 square feet of retail space, which includes the market, and 306 square feet of office space. This equates to a parking requirement of 65 spaces. With plans to provide 90 spaces, the supply is adequate to meet County codes with a surplus of 25 spaces. Table 8 provides a summary of the County's parking requirements.

Table 8 – Parking Requirements per Sonoma County Municipal Code			
Land Use	Units	County Requirements	
		Rate	Spaces Required
Dining	3,654 sf	1.0 per 60 sf	61
Market (retail)	425 sf	1.0 per 200 sf	2
Office	414 sf	1.0 per 250 sf	2
Total Parking Required			65

Notes: sf = square feet

The proposed project also includes an on-site limousine and bus drop off which would also reduce the parking demand generated by the project by increasing the vehicle occupancy above the typical 2.5 persons per vehicle.

Finding – The proposed parking supply would accommodate the anticipated parking demand with a surplus of 25 spaces.

Conclusions and Recommendations

Conclusions

- Based on the counts obtained, the site currently generates 25 trips during the a.m. peak hour, 36 during the p.m. peak hour, and 64 during the weekend peak hour.
- Under existing conditions with project traffic excluded, both study intersections are operating at LOS A overall and at LOS D or better on the stop-controlled approaches.
- Under anticipated Future volumes, both study intersections are expected to operate at acceptable service levels overall and on the side-street approaches.
- Upon the addition of project-related traffic to the Existing and Future volumes, the study intersections are expected to continue operating acceptably at LOS D or better both overall and on the side-street approaches.
- Pedestrian traffic associated with the project is expected to be minimal and comprised primarily of visitors walking from and to the off-site parking lot (there is a direct connection from the patio to the on-site parking lot). There are safety concerns related to the mid-block crosswalk proposed by the County, especially the potential for pedestrians to walk out in front of oncoming traffic due to a false sense of security. Given the availability of adequate sight distance and low speeds and volumes on Shaw Avenue, pedestrians are expected to be able to cross relatively easily and safely. However, dedicated space for pedestrians should be provided between the project entrance and the off-site parking lot.
- There are no bicycle facilities serving the project site. However, striped eight-foot shoulders on SR 12 are used by bicycles and a bike trail parallel to SR 12 is planned for the future.
- Transit facilities connect the site to Santa Rosa to the west and Sonoma to the east, and the site is served by bus stops near the intersection of SR 12/Greene Street. While few transit trips to and from the site are expected, the available transit facilities are adequate to serve those that may occur.
- The available sight lines for all three project driveways exceed the recommended 155 feet for roads with 25 mph speed limits and are therefore adequate.
- A left-turn lane is not warranted on westbound SR 12 at the intersection with Shaw Avenue due to construction constraints and safe operation of the intersection indicated by the lack of collisions for the past nine years.

Recommendations

- While the volume at the intersection of SR 12/Shaw Avenue indicates that a left-turn lane for the westbound approach may be warranted, the incidence of only one reported collision in nine years indicates that there is not a safety problem that warrants attention. As a result, and in consideration of the geometric, right-of-way and utility constraints associated with adding a left-turn pocket as well as the current proposal to limit operating hours and closing at 4:00 p.m., it is recommended that the requirement for the left-turn pocket be eliminated.
- It is recommended that the applicant widen the shoulder on the north side of SR 12 for 200 feet (100 feet on either side of Shaw Avenue) to provide recovery space if a driver needs to pass around a vehicle waiting to turn left into Shaw Avenue.
- A mid-block crosswalk between the off-site parking lot and the VJB site may pose safety concerns to pedestrians and is therefore not recommended.
- The project should mark space that can be used by pedestrians connecting the entrance to the off-site parking lot, including a crosswalk on Shaw Avenue at SR 12.
- Secure parking facilities for at least 18 bicycles should be provided on site.

Study Participants and References

Study Participants

Principal in Charge	Dalene J. Whitlock, PE, PTOE
Assistant Engineer	Cameron Nye, EIT, Kevin Rangel, EIT
Graphics	Hannah Yung-Boxdell
Editing/Formatting	Alex Scrobonia

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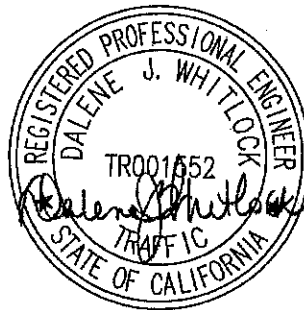
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SOX227



Appendix A

Collision Rate Calculations

Intersection Collision Rate Calculations

VJB Marketplace Modification

Intersection # 1: SR 12 & Shaw Avenue
Date of Count: Thursday, September 21, 2017

Number of Collisions: 3
Number of Injuries: 0
Number of Fatalities: 0
ADT: 14500
Start Date: January 1, 2012
End Date: December 31, 2016
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{3}{14,500} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	0.11 c/mve	0.0%	0.0%
Statewide Average*	0.14 c/mve	0.7%	38.0%

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

Intersection # 2: State Route 12 & Maple Avenue
Date of Count: Thursday, September 21, 2017

Number of Collisions: 2
Number of Injuries: 0
Number of Fatalities: 0
ADT: 14500
Start Date: January 1, 2012
End Date: December 31, 2016
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{2}{14,500} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	0.08 c/mve	0.0%	0.0%
Statewide Average*	0.14 c/mve	0.7%	38.0%

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

Appendix B

Intersection Turning Movement Counts

Location: SR 12 & Shaw Ave
City: Kenwood
Control:

Total[illegible]

National Data & Surveying Services

Project ID: 17-07753-001
Date: 2017-09-16

[illegible]

National Data & Surveying Services

Location: SR 12 & Maple Ave
City: Kenwood
Control:

Project ID: 17-07753-002
Date: 9/21/2017

[illegible]

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR 12 & Maple Ave
City: Kenwood
Control:

Project ID: 17-07753-002
Date: 2017-09-16

Total

NS/EW Streets:	SR 12					SR 12					Maple Ave					Maple Ave				
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND				
	NL	NT	NR	NU		SL	ST	SR	SU		EL	ET	ER	EU		WL	WT	WR	WU	TOTAL
12:00 PM	1	170	0	0		0	120	4	0		2	0	1	0		0	0	0	0	298
12:15 PM	2	154	0	0		0	132	1	0		2	0	1	0		0	0	0	0	292
12:30 PM	5	159	0	0		0	153	1	1		0	0	4	0		0	0	0	0	323
12:45 PM	1	169	0	0		0	134	2	0		1	0	3	0		0	0	0	0	310
1:00 PM	2	162	0	0		0	145	6	0		0	0	1	0		0	0	0	0	316
1:15 PM	1	155	0	0		0	149	5	0		4	0	2	0		0	0	0	0	316
1:30 PM	2	164	0	0		0	118	2	0		3	0	8	0		0	0	0	0	297
1:45 PM	2	150	0	0		0	162	2	0		1	0	3	0		0	0	0	0	320
TOTAL VOLUMES :	16	1283	0	0		0	1113	23	1		13	0	23	0		0	0	0	0	2472
APPROACH %'s :	1.23%	98.77%	0.00%	0.00%		0.00%	97.89%	2.02%	0.09%		36.11%	0.00%	63.89%	0.00%						
PEAK HR :	12:30 PM - 01:30 PM																			
PEAK HR VOL :	9	645	0	0		0	581	14	1		5	0	10	0		0	0	0	0	1265
PEAK HR FACTOR :	0.450	0.954	0.000	0.000		0.000	0.949	0.583	0.250		0.313	0.000	0.625	0.000		0.000	0.000	0.000	0.000	0.979
	0.962																			

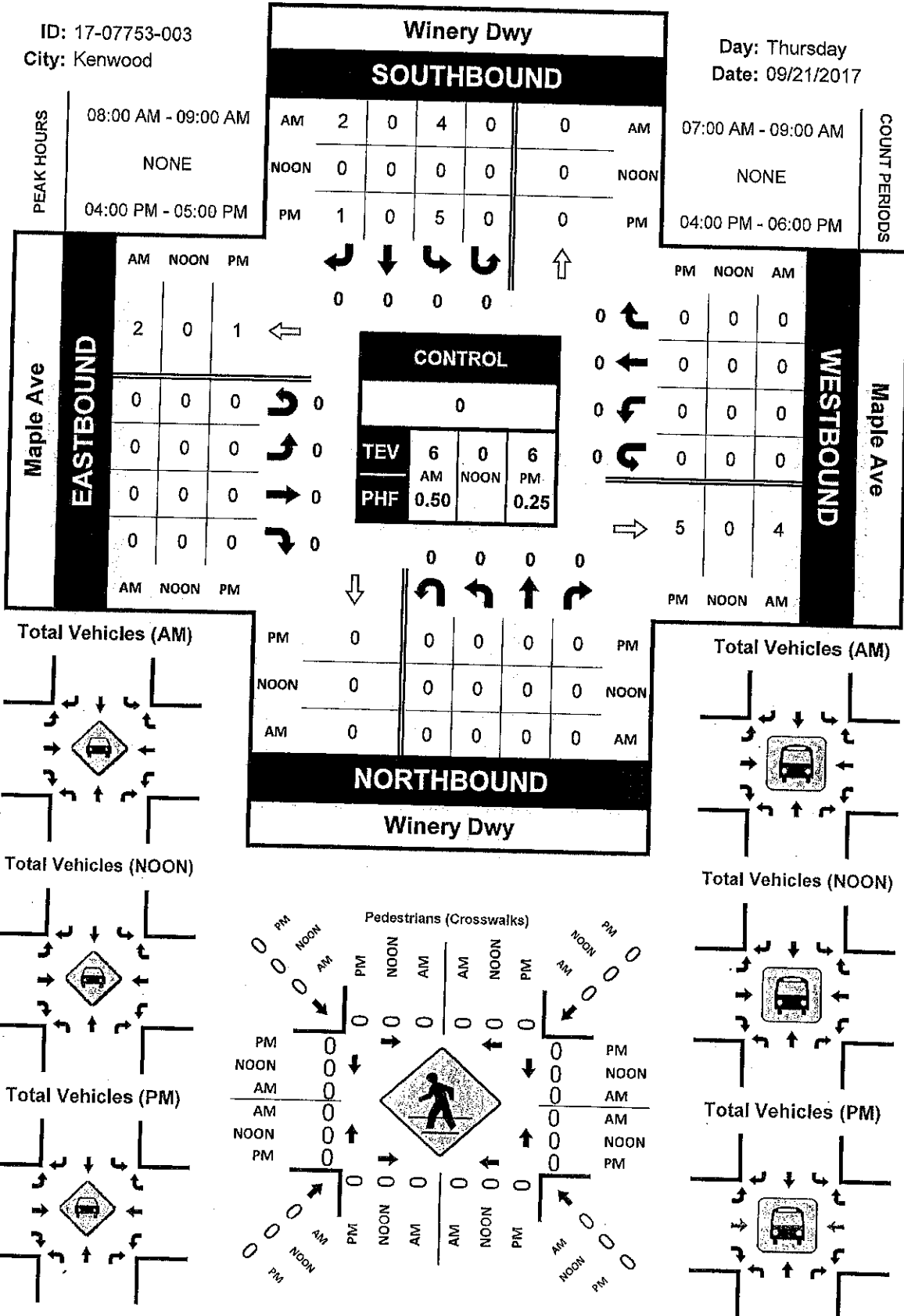
Prepared by National Data & Surveying Services

Winery Dwy & Maple Ave

Peak Hour Turning Movement Count

ID: 17-07753-003
City: Kenwood

Day: Thursday
Date: 09/21/2017



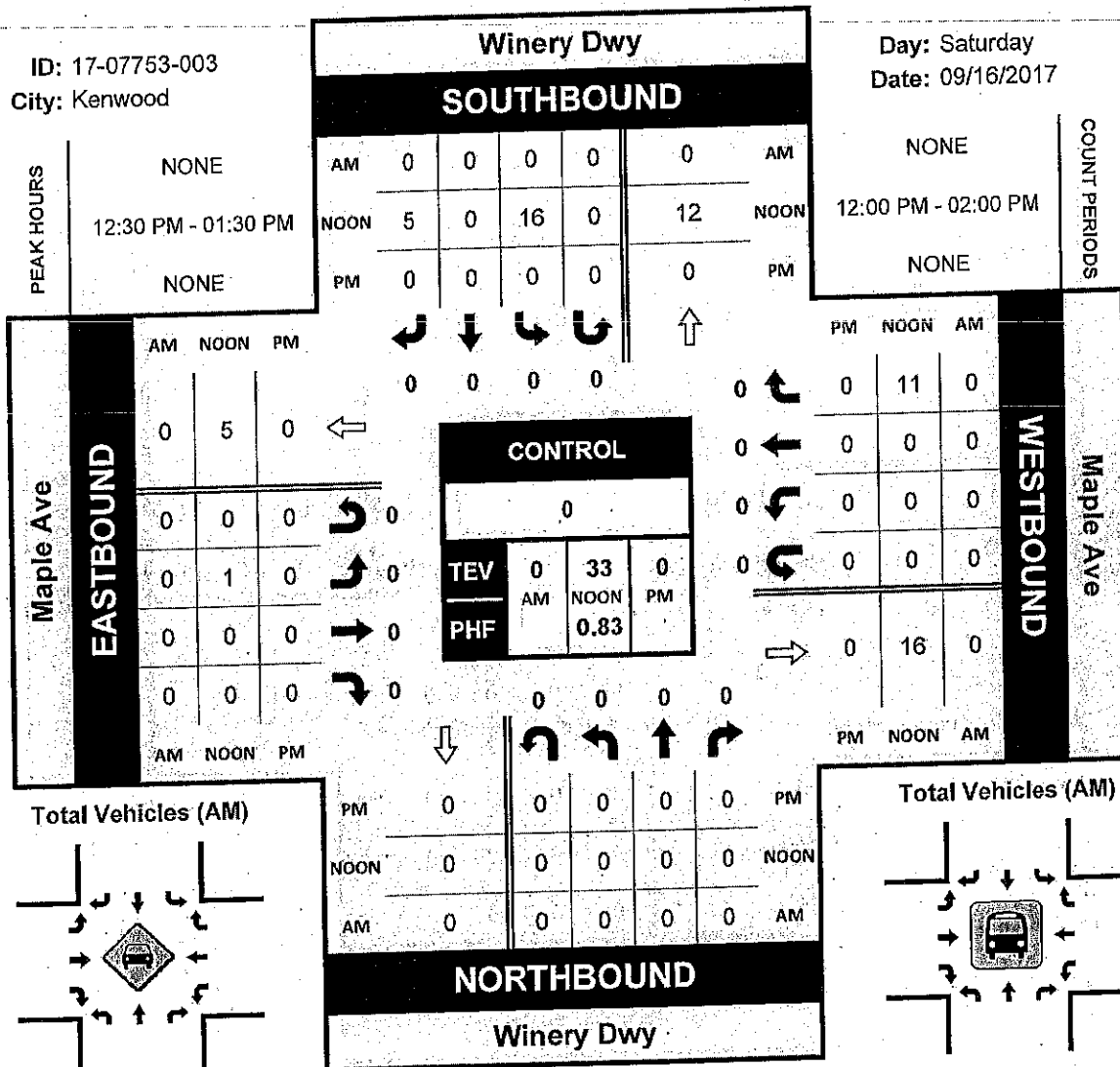
Prepared by National Data & Surveying Services

Winery Dwy & Maple Ave

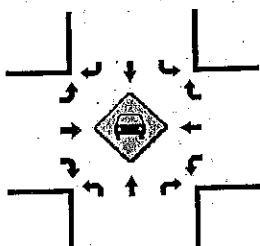
Peak Hour Turning Movement Count

ID: 17-07753-003
City: Kenwood

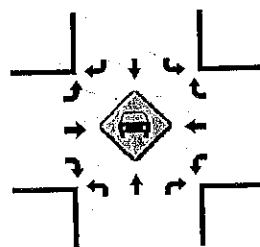
Day: Saturday
Date: 09/16/2017



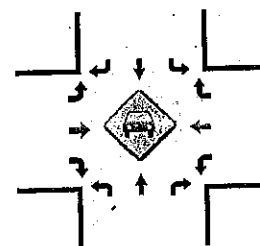
Total Vehicles (AM)



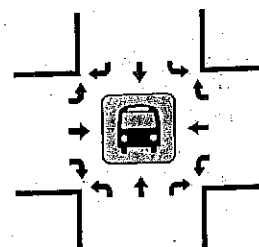
Total Vehicles (NOON)



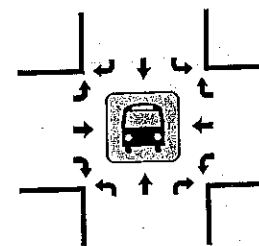
Total Vehicles (PM)



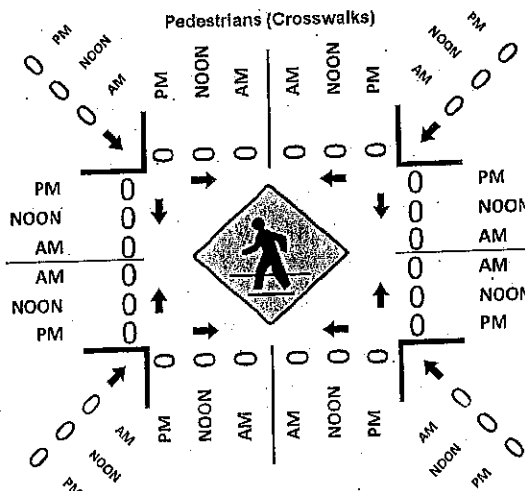
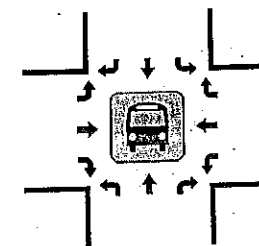
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



In Out Study

Locations: 60 Shaw Ave
City: Kenwood, CA

Day: Saturday
Date: 9/16/2017

Time	Entrance 1	
	In	Out
12:00	13	1
12:15	3	2
12:30	13	2
12:45	6	5
13:00	10	4
13:15	10	3
13:30	6	3
13:45	13	14

Time	Entrance 2A	
	In	Out
12:00	2	1
12:15	3	1
12:30	6	0
12:45	5	2
13:00	3	1
13:15	8	4
13:30	4	7
13:45	8	11

Time	Entrance 2B	
	In	Out
12:00	0	0
12:15	0	0
12:30	0	1
12:45	2	1
13:00	0	0
13:15	1	1
13:30	0	0
13:45	0	0

Ped Grouping Study

Day: Thursday
Date: 9/21/2017

Locations: 60 Shaw Ave
City: Kenwood, CA

Time	Entrance 1		Entrance 2A		Entrance 2B	
	In	Out	In	Out	In	Out
7:00	1	0	2	2	0	0
7:15	2	0	3	2	0	0
7:30	0	0	1	0	0	0
7:45	2	1	2	1	0	0
8:00	0	0	3	1	0	0
8:15	1	0	8	1	0	0
8:30	1	0	2	5	0	0
8:45	0	1	6	5	0	0

Time	Entrance 1		Entrance 2A		Entrance 2B	
	In	Out	In	Out	In	Out
4:00	3	5	1	3	0	0
4:15	1	1	1	2	1	3
4:30	0	5	0	1	1	3
4:45	2	2	0	1	0	2
5:00	-	-	-	-	-	-
5:15	-	-	-	-	-	-
5:30	-	-	-	-	-	-
5:45	-	-	-	-	-	-

Time	Entrance 1		Entrance 2A		Entrance 2B	
	In	Out	In	Out	In	Out
4:00	3	5	1	3	0	0
4:15	1	1	1	2	1	3
4:30	0	5	0	1	1	3
4:45	2	2	0	1	0	2
5:00	-	-	-	-	-	-
5:15	-	-	-	-	-	-
5:30	-	-	-	-	-	-
5:45	-	-	-	-	-	-

Time	Entrance 1		Entrance 2A		Entrance 2B	
	In	Out	In	Out	In	Out
4:00	3	5	1	3	0	0
4:15	1	1	1	2	1	3
4:30	0	5	0	1	1	3
4:45	2	2	0	1	0	2
5:00	-	-	-	-	-	-
5:15	-	-	-	-	-	-
5:30	-	-	-	-	-	-
5:45	-	-	-	-	-	-

Note: Entrance 1: Gate closed at 5PM
Entrance 2A: Gate closed at 5PM
Entrance 2B: Gate closed at 5PM

SR 12		NB
	Model Years	2010 2040
	Model Segment Volumes	448 567
	Current Year	2017
	Growth Factor	1.203

SR 12		NB
	Model Years	2010 2040
	Model Segment Volumes	843 951
	Current Year	2017
	Growth Factor	1.098

Shaw/Maple Ave		EB	
Model Years		2010	2040
Model Segment Volumes		82	133
Current Year		2017	
Growth Factor			1.477

Shaw Ave/Maple Ave		WB
	Model Years	2010 2040
	Model Segment Volumes	177 210
	Current Year	2017
	Growth Factor	1.143

Peak Period: Weekday PM
Intersection: SR 12/Shaw Avenue

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Volume Existing	14	9	8	731	683	1
Volume Future	21	13	9	879	750	1

Appendix C

Intersection Level of Service Calculations



Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes
Intersection Level Of Service Report:
Intersection 1: SR 12 and Shaw Avenue
Delay (sec / veh): 31.7
Level Of Service: D
Volume to Capacity (v/c): 0.036

Intersection Setup		SR 12		SR 12		Shaw Avenue	
Name	Approach	Northbound		Southbound		Eastbound	
Lane Configuration		+1		+1		T	
Turning Movement		Left	Thru	Thru	Right	Left	Right
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket		0	0	0	0	0	0
Pocket Length [ft]		170.00	156.00	156.00	100.00	100.00	100.00
Speed [mph]		45.00	45.00	45.00	45.00	25.00	25.00
Grade [%]		0.00	0.00	0.00	0.00	0.00	0.00
Crosswalk		No	No	No	No	No	No

Volumes		SR 12		SR 12		Shaw Avenue	
Name		Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]		0	687	0	0	5	5
Base Volume Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]		2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate		1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]		0	0	0	0	0	0
Site-Generated Trips [veh/h]		0	0	0	0	0	0
Diversified Trips [veh/h]		0	0	0	0	0	0
Pass-by Trips [veh/h]		0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]		0	0	0	0	0	0
Other Volume [veh/h]		0	0	0	0	0	0
Total Hourly Volume [veh/h]		0	687	0	0	5	5
Peak Hour Factor		0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]		0	182	187	0	1	1
Total Analysis Volume [veh/h]		0	726	747	0	5	5
Pedestrian Volume [ped/h]		0	0	0	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Fixed Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

Movement, Approach, & Intersection Results		SR 12		SR 12		Shaw Avenue	
V/C, Movement V/C Ratio		0.00		0.00		0.04	
d, M, Delay for Movement [s/veh]		9.18		9.18		31.73	
Movement LOS		A		A		D	
85th-Percentile Queue Length [veh]		0.00		0.00		0.15	
85th-Percentile Queue Length [ft]		0.00		0.00		0.15	
d, A, Approach Delay [s/veh]		0.00		0.00		3.76	
Approach LOS		A		A		C	
d, I, Intersection Delay [s/veh]		0.00		0.18		23.16	
Intersection LOS		D		D		D	

Intersection Level Of Service Report

Two-way stop
HCM 6th Edition
Analysis Period:
15 minutes

Delay (sec / veh):
Level Of Service:
Volume to Capacity (V/C):

28.8
D
0.000

Intersection Setup

Name	SR 12	SR 12	Maple Avenue
Approach	Northbound	Southbound	Eastbound
Lane Configuration	1	1	1
Turning Movement	Left	Thru	Right
Lane Width (ft)	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0
Pocket Length (ft)	100.00	100.00	100.00
Speed Limit	45.00	45.00	30.00
Grade (%)	0.00	0.00	0.00
Crosswalk	No	No	No

Volumes

Name	SR 12	SR 12	Maple Avenue
Base Volume Input (veh/h)	1	653	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000
Heavy Vehicles Percentage (%)	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00
In-Process Volume (veh/h)	0	0	0
Site-Generated Trips (veh/h)	0	0	0
Diverged Trips (veh/h)	0	0	0
Pass-by Trips (veh/h)	0	0	0
Existing Site Adjustment Volume (veh/h)	0	0	0
Other Volume (veh/h)	0	0	0
Total Hourly Volume (veh/h)	653	653	1
Peak Hour Factor	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume (veh/h)	0	178	0
Total Analysis Volume (veh/h)	1	727	1
Pedestrian Volume (ped/h)	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area (veh)	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C Movement V/C Ratio	0.00	0.01	0.00	0.00
d.M. Delay for Movement (s/veh)	8.12	0.00	0.00	28.75
Movement LOS	A	A	A	D
95th-Percentile Queue Length (veh)	9.11	0.00	0.00	0.01
95th-Percentile Queue Length (ft)	227.86	0.00	0.00	0.18
d.A. Approach Delay (s/veh)	0.01	0.00	0.00	13.52
Approach LOS	A	A	A	B
d.J. Intersection Delay (s/veh)	0.02	0.02	0.02	0.02
Intersection LOS	D	D	D	D

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes
Intersection Level Of Service Report
Intersection 1: SR 12 and Shaw Avenue
Delay (sec / veh): 29.3
Level Of Service: D
Volume to Capacity (v/c): 0.007

Intersection Setup							
Name		SR 12		SR 12		Shaw Avenue	
Approach		Northbound		Southbound		Eastbound	
Lane Configuration		T		F		T	
Turning Movement		Left	Thru	Thru	Right	Left	Right
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket		0	0	0	0	0	0
Pocket Length [ft]		120.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00	45.00	45.00	45.00	25.00	25.00
Grade [%]		0.00	0.00	0.00	0.00	0.00	0.00
Crosswalk		No	No	No	No	No	No
Volumes							

Volumes		SR 12		SR 12		Shaw Avenue	
Base Volume Input [veh/h]		0	729	0	0	1	0
Base Volume Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicle Percentage [%]		2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate		1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]		0	0	0	0	0	0
Site-Generated Trips [veh/h]		0	0	0	0	0	0
Diverted Trips [veh/h]		0	0	0	0	0	0
Pass-by Trips [veh/h]		0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]		0	0	0	0	0	0
Other Volume [veh/h]		0	0	0	0	0	0
Total Hourly Volume [veh/h]		0	729	0	0	1	0
Peak Hour Factor		0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]		0	184	0	0	0	0
Total Analysis Volume [veh/h]		0	735	0	0	1	0
Pedestrian Volume [ped/h]		0	0	0	0	0	0



Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]			
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median			No

Movement, Approach, & Intersection Results			
VIC Movement V/C Ratio			
d.M. Delay for Movement [s/veh]	0.00	0.00	0.01
Movement LOS	A	A	D
95th-Percentile Queue Length [veh]	0.00	0.00	0.02
95th-Percentile Queue Length [ft]	0.00	0.00	0.51
d.A. Approach Delay [s/veh]	0.00	0.00	0.51
Approach LOS	A	A	D
d.I. Intersection Delay [s/veh]		0.02	
Intersection LOS		D	



Intersection Level Of Service Report

Intersection 2: SR 12 and Maple Avenue

Control Type: Two-way stop

Analysis Method: HCM 6th Edition

Analysis Period: 15 minutes

Delay (sec / veh): 32.0

Level Of Service: D

Volume to Capacity (v/c): 0.936

Intersection Setup

Name	SR 12	SR 12	Maple Avenue
Approach	Northbound	Southbound	Eastbound
Lane Configuration	T		
Turning Movement	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0
Pocket Length [ft]	100.00	100.00	100.00
Speed Limit [mph]	45.00	45.00	30.00
Grade [%]	0.00	0.00	0.00
Crosswalk	No	No	No

Volumes

Name	SR 12	SR 12	Maple Avenue
Base Volume Input [veh/h]	4	5	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	0	0	0
Diverted Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	4	5	7
Peak Hour Factor	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	2
Total Analysis Volume [veh/h]	4	5	7
Pedestrian Volume [ped/h]	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Placed Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.04	0.02
d, M, Delay for Movement [s/veh]	9.12	0.00	32.00	14.32
Movement LOS	A	A	D	B
95th-Percentile Queue Length [veh]	10.59	10.59	0.00	0.17
95th-Percentile Queue Length [ft]	284.71	284.71	0.00	4.15
d, A, Approach Delay [s/veh]	0.05			21.88
Approach LOS	A	A		C
d, I, Intersection Delay [s/veh]			0.20	
Intersection LOS			D	

Control Type: Two-way stop
Analysis Method: HCM 5th Edition
Analysis Period: 15 minutes
Intersection Level Of Service Report
Intersection 1: SR 12 and Shaw Avenue
Delay (sec/veh): 24.3
Level Of Service: C
Volume to Capacity (V/C): 0.046

Intersection Setup		SR 12		Southbound		Shaw Avenue	
Name	Approach	Northbound		Southbound		Eastbound	
Lane Configuration		T		T		T	
Turning Movement		Left	Thru	Right	Left	Right	
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00	
No. of Lanes in Pocket		0	0	0	0	0	
Pocket Length [ft]		100.00	100.00	100.00	100.00	100.00	
Speed [mph]		45.00	45.00	45.00	25.00	25.00	
Grade %		0.00	0.00	0.00	0.00	0.00	
Crosswalk		No	No	No	No	No	

Volumes		SR 12		SR 12		Shaw Avenue	
Name		Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]		0		584		16	
Base Volume Adjustment Factor		1.0000		1.0000		1.0000	
Heavy Vehicle Percentage [%]		2.00		2.00		2.00	
Growth Rate		1.00		1.00		1.00	
In-Process Volume [veh/h]		0		0		0	
Site-Generated Trips [veh/h]		0		0		0	
Diverted Trips [veh/h]		0		0		0	
Pass-by Trips [veh/h]		0		0		0	
Existing Site Adjustment Volume [veh/h]		0		0		0	
Other Volume [veh/h]		0		0		0	
Total Hourly Volume [veh/h]		0		584		16	
Peak Hour Factor		0.9800		0.9800		0.9800	
Other Adjustment Factor		1.0000		1.0000		1.0000	
Total 15-Minute Volume [veh/h]		0		149		4	
Total Analysis Volume [veh/h]		0		584		16	
Pedestrian Volume [ped/h]		0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]			
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median			No

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio		0.00		0.00		0.05		0.03	
d.M. Delay for Movement [s/veh]		0.00		0.00		0.00		0.00	
Movement LOS		A		A		A		C	
85th-Percentile Queue Length [veh]		0.00		0.00		0.00		0.25	
90th-Percentile Queue Length [ft]		0.00		0.00		0.00		0.27	
d.A. Approach Delay [s/veh]		0.00		0.00		0.00		17.11	
Approach LOS		A		A		A		C	
d.I. Intersection Delay [s/veh]		0.00		0.00		0.00		0.34	
Intersection LOS		A		A		A		C	

Intersection Level of Service Report

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes
Intersection 2: SR 12 and Maple Avenue
Delay (sec / veh): 24.1
Level of Service: C
Volume to Capacity (v/c): 0.000

Intersection Setup		SR 12		SR 12		Maple Avenue	
Approach		Northbound		Southbound		Eastbound	
Lane Configuration		T		F		T	
Turning Movement		Left	Thru	Thru	Right	Left	Right
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket		0	0	0	0	0	0
Pocket Length [ft]		100.00	1100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00		45.00		30.00	
Grade [%]		0.00		0.00		0.00	
Crosswalk		No		No		No	

Volumes

		SR 12		SR 12		Maple Avenue	
Base Volume Input [veh/h]		9	820	960	14	0	0
Base Volume Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]		2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate		1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]		0	0	0	0	0	0
Site-Generated Trips [veh/h]		0	0	0	0	0	0
Diverged Trips [veh/h]		0	0	0	0	0	0
Pass-by Trips [veh/h]		0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]		0	0	0	0	0	0
Other Volume [veh/h]		0	0	0	0	0	0
Total Hourly Volume [veh/h]		9	820	960	14	0	0
Peak Hour Factor		0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]		2	158	148	4	0	0
Total Analysis Volume [veh/h]		9	833	962	14	0	0
Pedestrian Volume [ped/h]							

Intersection Settings

Priority Scheme	Free	Free	Stop
Planned Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C Movement V/C Ratio	0.01	0.01	0.00	0.00	0.00
d, M, Delay for Movement [s/veh]	5.74	0.60	0.00	24.15	12.18
Movement LOS	A	A	A	C	B
95th-Percentile Queue Length [veh]	5.18	5.18	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	128.59	128.59	0.00	0.00	0.00
d, A, Approach Delay [s/veh]		0.12	0.00		18.19
Approach LOS		A	A		C
d, J, Intersection Delay [s/veh]			0.08		
Intersection LOS			C		

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes
Interaction Level Of Service Report
Interaction 1: SR 12 and Shaw Avenue
Delay (sec / veh): 43.5
Level Of Service: E
Volume to Capacity (V/C): 0.089

Intersection Setup		SR 12		SR 12		Shaw Avenue	
Approach		Northbound		Southbound		Eastbound	
Lane Configuration		T		T		T	
Turning Movement		Left	Thru	Thru	Right	Left	Right
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket		0	0	0	0	0	0
Pocket Length [ft]		100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00	45.00	45.00	45.00	25.00	25.00
Grade [%]		0.00	0.00	0.00	0.00	0.00	0.00
Crosswalk		No	No	No	No	No	No

Volumes		SR 12		SR 12		Shaw Avenue	
Name		Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]		1	808	754	2	8	8
Base Volume Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]		2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate		1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]		0	0	0	0	0	0
Site-Generated Trips [veh/h]		0	0	0	0	0	0
Diverted Trips [veh/h]		0	0	0	0	0	0
Pass-by Trips [veh/h]		0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]		0	0	0	0	0	0
Other Volume [veh/h]		0	0	0	0	0	0
Total Hourly Volume [veh/h]		1	808	754	2	8	8
Peak Hour Factor		0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]		0	219	205	1	2	2
Total Analysis Volume [veh/h]		1	879	820	2	9	9
Pedestrian Volume [ped/h]		0	0	0	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	3	3	7
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio		0.00	0.31	0.31	0.09	0.02
d, I.M. Delay for Movement [s/veh]		9.48	0.66	0.66	43.48	17.48
Movement LOS		A	A	A	E	C
95th-Percentile Queue Length [veh]		22.89	0.00	0.00	0.37	0.37
95th-Percentile Queue Length [ft]		574.85	0.00	0.00	9.36	9.36
d, A, Approach Delay [s/veh]		0.01	0.01	0.01	30.47	0
Approach LOS		F	F	F	D	D
d, I, Intersection Delay [s/veh]		0.32				
Intersection LOS		E				

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Intersection Level of Service Report
Intersection 2: SR 12 and Maple Avenue

Delay (sec / veh): 38.7
Level of Service: E
Volume to Capacity (V/C): 0.00

Intersection Setup		SR 12		SR 12		Maple Avenue	
Name	Approach	Northbound		Southbound		Eastbound	
Lane Configuration		+		+		T	
Turning Movement		Left	Thru	Thru	Right	Left	Right
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket		0	0	0	0	0	0
Pocket Length [ft]		100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00		45.00		30.00	
Grade [%]		0.00		0.00		0.00	
Crosswalk		No		No		No	

Volumes		SR 12		SR 12		Maple Avenue	
Name		1		2		3	
Base Volume Input [veh/h]		1,000		1,000		1,000	
Base Volume Adjustment Factor		1.000		1.000		1.000	
Heavy Vehicles Percentage [%]		2.00		2.00		2.00	
Growth Rate		1.00		1.00		1.00	
In-Process Volume [veh/h]		0		0		0	
Site-Generated Time [veh/h]		0		0		0	
Delayed Time [veh/h]		0		0		0	
Pass-by Time [veh/h]		0		0		0	
Existing Site Adjustment Volume [veh/h]		0		0		0	
Other Volume [veh/h]		0		0		0	
Total Hourly Volume [veh/h]		806		750		750	
Peak Hour Factor		0.9400		0.9400		0.9400	
Other Adjustment Factor		1.0000		1.0000		1.0000	
Total 15-Minute Volume [veh/h]		214		189		189	
Total Analysis Volume [veh/h]		1		2		3	
Pedestrian Volume [ped/h]		0		0		0	

Intersection Settings		Free		Free		Stop	
Priority Scheme		0		0		0	
Fixed Lane		0		0		0	
Storage Area [veh]		0		0		0	
Two-Stage Gap Acceptance		0		0		0	
Number of Storage Spaces in Median		0		0		0	

Movement, Approach, & Intersection Results		0.00		0.01		0.00		0.01	
V/C Movement V/C Ratio		0.00		0.01		0.00		0.01	
d.M. Delay for Movement [s/veh]		9.38		0.00		0.00		0.00	
Movement LOS		A		A		A		A	
95th-Percentile Queue Length [ft]		20.26		0.00		0.00		0.02	
95th-Percentile Queue Length [ft]		506.57		506.57		0.00		0.00	
d.A. Approach Delay [s/veh]		0.01		0.00		0.00		0.00	
Approach LOS		F		A		A		B	
d.I. Intersection Delay [s/veh]		0.00		0.03		0.03		0.03	
Intersection LOS		E		E		E		E	

Control Type: Two-way stop
Analysis Method: HCM 5th Edition
Analysis Period: 15 minutes
Intersection Level Of Service Report
Intersection 1: SR 12 and Shaw Avenue

Delay (sec / veh): 39.4
Level Of Service: E
Volume to Capacity (v/c): 0.072

Intersection Setup

Name	SR 12	SR 12	Shaw Avenue
Approach	Northbound	Southbound	Eastbound
Lane Configuration	<div> <div>SR 12</div> <div>SR 12</div> <div>Shaw Avenue</div> </div>		
Turning Movement	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0
Pocket Length [ft]	101.00	102.00	100.00
Speed [mph]	45.00	45.00	25.00
Grade [%]	0.00	0.00	0.00
Crosswalk	No	No	No

Volumes

Name	SR 12	SR 12	Shaw Avenue
Base Volume Input [veh/h]	1	877	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	0	0	0
Diverted Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	1	877	0
Peak Hour Factor	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minutes Volume [veh/h]	0	218	188
Total Analysis Volume [veh/h]	1	877	750
Pedestrian Volume [ped/h]	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]			
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	No

Movement, Approach, & Intersection Results

V/C Movement V/C Ratio	0.00	0.01	0.00	0.07	0.01
d, M, Delay for Movement [s/veh]	9.20	0.00	0.00	38.37	15.80
Movement LOS	A	A	A	E	C
95th-Percentile Queue Length [veh/h]	0.00	0.00	0.00	0.28	0.28
95th-Percentile Queue Length [ft/h]	0.00	0.00	0.00	0.94	0.94
d, A, Approach Delay [s/veh]	0.01	0.01	0.00	31.95	6.54
Approach LOS	A	A	A	D	D
d, I, Intersection Delay [s/veh]			0.24		
Intersection LOS			E		

Intersection Level Of Service Report

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes
Delay (sec / veh): 43.7
Level Of Service: E
Volume to Capacity (V/C): 0.980

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Grasswalk	No		No		No	

Volumes

Name	SR 12		SR 12		Maple Avenue	
Base Volume Input [veh/h]	5	963	760	6	8	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	963	760	6	8	12
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	225	198	2	2	3
Total Analysis Volume [veh/h]	5	889	792	6	8	13
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	No
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.03	0.03
d.M. Delay for Movement [s/veh]	9.39	0.00	0.00	43.71	16.79
Movement LOS	A	A	A	E	C
95th-Percentile Queue Length [veh/h]	0.02	0.02	0.00	0.38	0.38
95th-Percentile Queue Length [ft]	0.46	0.46	0.00	9.47	9.47
d.A. Approach Delay [s/veh]	0.05	0.00	0.00	27.04	
Approach LOS	A	A	A	E	
d.I. Intersection Delay [s/veh]	0.38		E		
Intersection LOS					

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes
Intersection Level Of Service Report
Intersection 1: SR 12 and Shaw Avenue
Delay (sec / veh): 31.7
Level Of Service: D
Volume to Capacity (V/C): 0.095

Intersection Setup

Name	SR 12	SR 12	Shaw Avenue
Approach	Northbound	Southbound	Eastbound
Lane Configuration	<div> <div>SR 12</div> <div>SR 12</div> <div>Shaw Avenue</div> </div>		
Turning Movement	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0
Pocket Length [ft]	100.00	100.00	100.00
Speed [mph]	45.00	45.00	25.00
Grade [%]	0.00	0.00	0.00
Crosswalk	No	No	No

Volumes

Name	SR 12	SR 12	Shaw Avenue
Base Volume Input [veh/h]	4	641	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site Generated Trips [veh/h]	0	0	0
Diverted Trips [veh/h]	0	0	0
Passby Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	4	641	14
Peak Hour Factor	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	164	4
Total Analysis Volume [veh/h]	4	641	14
Pedestrian Volume [ped/h]	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00
d, M, Delay for Movement [s/veh]	8.89	0.00	0.00
Movement LOS	A	A	A
95th-Percentile Queue Length [veh]	9.54	0.00	0.00
95th-Percentile Queue Length [ft]	238.52	0.00	0.00
d, A, Approach Delay [s/veh]	0.00	0.00	0.00
Approach LOS	A	A	A
d, I, Intersection Delay [s/veh]	0.00	0.00	0.00
Intersection LOS	D	D	D

Intersection Level Of Service Report
Intersection 2: SR 12 and Maple Avenue

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes
Delay (sec / veh): 30.6
Level Of Service: D
Volume to Capacity (V/C): 0.014

Intersection Setup		SR 12		SR 12		Maple Avenue	
Name	Approach	Northbound		Southbound		Eastbound	
Lane Configuration		T		F		T	
Turning Movement		Left	Thru	Right	Left	Right	
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	
No. of Lanes in Pocket	0	0	0	0	0	0	
Pocket Length [ft]	130.00	100.00	100.00	100.00	100.00	100.00	
Speed [mph]	45.00	45.00	45.00	45.00	45.00	30.00	
Grade [%]	0.00	0.00	0.00	0.00	0.00	0.00	
Crosswalk		No		No		No	

Volumes		SR 12		SR 12		Maple Avenue	
Base Volume Input [veh/h]	10	751	637	18	2	5	
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	
In-Process Volume [veh/h]	0	0	0	0	0	0	
Site-Generated Trips [veh/h]	0	0	0	0	0	0	
Diverted Trips [veh/h]	0	0	0	0	0	0	
Pass-by Trips [veh/h]	0	0	0	0	0	0	
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	
Other Volume [veh/h]	0	0	0	0	0	0	
Total Hourly Volume [veh/h]	10	751	637	18	2	5	
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
Total 15-Minute Volume [veh/h]	3	152	163	4	1	1	
Total Analysis Volume [veh/h]	10	766	650	16	2	5	
Pedestrian Volume [ped/h]							



Intersection Settings

Priority Scheme	Free	Free	Stop
Planned Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	3	3	0

Movement, Approach, & Intersection Results

Movement		V/C		d, M, Delay for Movement [s/veh]		Movement LOS		95th-Percentile Queue Length [veh]		95th-Percentile Queue Length [ft]		d, A, Approach Delay [s/veh]		d, J, Intersection Delay [s/veh]		Intersection LOS									
Left	A	0.01	0.01	8.94	0.00	A	A	10.18	254.39	0.00	0.00	0.12	A	0.15	D	D	13.03								
Thru	A	0.01	0.01	8.94	0.00	A	A	10.18	254.39	0.00	0.00	0.12	A	0.15	D	D	13.03								
Right	A	0.01	0.01	8.94	0.00	A	A	10.18	254.39	0.00	0.00	0.12	A	0.15	D	D	13.03								
		Approach LOS		A		A		A		A		A		A		A									
		Intersection LOS		D		D		D		D		D		D		D									



Control Type: Two-way stop
Analysis Method: HCM 5th Edition
Analysis Period: 15 minutes

Intersection Level of Service Report
Intersection 1: SR 12 and Shaw Avenue

Delay (sec/veh): 33.6
Level of Service: D
Volume to Capacity (v/c): 0.060

Intersection Setup		SR 12		SR 12		Shaw Avenue	
Name	Approach	Northbound		Southbound		Eastbound	
Approach		Left		Right		Left	
Turning Movement		12.00		12.00		12.00	
Lane Width [ft]		0		0		0	
No. of Lanes in Pocket		100 (0)		100 (0)		100 (0)	
Pocket Length [ft]		100 (0)		100 (0)		100 (0)	
Speed [mph]		45.00		45.00		25.00	
Grade [%]		0.00		0.00		0.00	
Crosswalk		No		No		No	

Volumes		SR 12		SR 12		Shaw Avenue	
Name		Left		Right		Left	
Base Volume Input [veh/h]		5		887		7	
Base Volume Adjustment Factor		1.0000		1.0000		1.0000	
Heavy Vehicle Percentage [%]		2.00		2.00		2.00	
Growth Rate		1.00		1.00		1.00	
In-Process Volume [veh/h]		0		0		0	
Site-Generated Trips [veh/h]		0		0		0	
Diversed Trips [veh/h]		0		0		0	
Pass-by Trips [veh/h]		0		0		0	
Existing Site Adjustment Volume [veh/h]		0		0		0	
Other Volume [veh/h]		0		0		0	
Total Hourly Volume [veh/h]		6		887		7	
Peak Hour Factor		0.9200		0.9200		0.9200	
Other Adjustment Factor		1.0000		1.0000		1.0000	
Total 15-Minute Volume [veh/h]		2		187		2	
Total Analysis Volume [veh/h]		7		747		8	
Pedestrian Volume [ped/h]		0		0		0	

Intersection Settings		Free		Free		Stop	
Priority Scheme		Placed Lane		Placed Lane		Placed Lane	
Storage Area [veh]		0		0		0	
Two-Stage Gap Acceptance		0		0		0	
Number of Storage Spaces in Median		0		0		0	

Movement, Approach, & Intersection Results		0.01		0.01		0.01	
V/C Movement V/C Ratio		0.01		0.01		0.01	
d_M Delay for Movement [s/veh]		9.28		9.28		9.28	
Movement LOS		A		A		A	
SSD-Percentile Queue Length [veh]		10.89		10.89		10.89	
SSD-Percentile Queue Length [ft]		272.13		272.13		272.13	
d_A Approach Delay [s/veh]		0.09		0.09		0.09	
Approach LOS		A		A		A	
d_I Intersection Delay [s/veh]		0.39		0.39		0.39	
Intersection LOS		D		D		D	

Intersection Level Of Service Report

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes
Delay (sec/veh): 30.2
Level Of Service: D
Volume to Capacity (v/c): 0.007

Intersection Setup		SR 12		SR 12		Maple Avenue	
Name	Approach	Northbound		Southbound		Eastbound	
Lane Configuration		+		+		+	
Turning Movement							
Lane Width [ft]		12.00		12.00		12.00	
No. of Lanes in Pocket		0		0		0	
Pocket Length [ft]		100.00		100.00		100.00	
Speed [mph]		45.00		45.00		30.00	
Grade [%]		0.00		0.00		0.00	
Crosswalk		No		No		No	

Volumes

Name		SR 12		SR 12		Maple Avenue	
		1		2		1	
Base Volume Input [veh/h]		675		684		1,000	
Base Volume Adjustment Factor		1.0000		1.0000		1.0000	
Heavy Vehicles Percentage [%]		2.00		2.00		2.00	
Growth Rate		1.00		1.00		1.00	
In-Process Volume [veh/h]		0		0		0	
Site-Generated Trip [veh/h]		0		0		0	
Diverged Trips [veh/h]		0		0		0	
Pass-by Trips [veh/h]		0		0		0	
Existing Site Adjustment Volume [veh/h]		0		0		0	
Other Volume [veh/h]		0		0		0	
Total Hourly Volume [veh/h]		1		684		1,000	
Peak Hour Factor		0.9400		0.9400		0.9400	
Other Adjustment Factor		1.0000		1.0000		1.0000	
Total 15-Minute Volume [veh/h]		0		192		1	
Total Analysis Volume [veh/h]		1		718		1	
Pedestrian Volume [ped/h]		0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Planned Lane			No
Storage Area [veh]	0	0	No
Two-Stage Gap Acceptance	0	0	No
Number of Storage Spaces in Median			6

Movement, Approach, & Intersection Results

VIC Movement V/C Ratio		0.01		0.01		0.01	
d.M. Delay for Movement [s/veh]		9.12		9.00		30.18	
Movement LOS		A		A		D	
95th-Percentile Queue Length [veh]		9.38		9.38		0.05	
95th-Percentile Queue Length [ft]		234.42		0.00		1.25	
d.A. Approach Delay [s/veh]		0.01		0.00		17.00	
Approach LOS		A		A		C	
d.J. Intersection Delay [s/veh]		0.06		0.06		0.06	
Intersection LOS		D		D		D	

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Intersection Level of Service Report
Intersection 1: SR 12 and Shaw Avenue

Delay (sec / veh): 32.6
Level of Service: D
Volume to Capacity (v/c): 0.098

Intersection Setup		SR 12		SR 12		Shaw Avenue	
Name	Approach	Northbound		Southbound		Eastbound	
Lane Configuration		1		1		T	
Turning Movement		Left	Thru	Right	Left	Right	
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00	
No. of Lanes in Pocket		0	0	0	0	0	
Pocket Length [ft]		100.00	100.00	100.00	100.00	100.00	
Speed [mph]		45.00	45.00	45.00	45.00	25.00	
Grade [%]		0.00	0.00	0.00	0.00	0.00	
Crosswalk		No	No	No	No	No	

Volumes		SR 12		SR 12		Shaw Avenue	
Base Volume Input [veh/h]		8	731	883	1	14	8
Base Volume Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]		2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate		1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]		0	0	0	0	0	0
Site-Generated Trips [veh/h]		0	0	0	0	0	0
Diversed Trips [veh/h]		0	0	0	0	0	0
Pass-by Trips [veh/h]		0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]		0	0	0	0	0	0
Other Volume [veh/h]		0	0	0	0	0	0
Total Hourly Volume [veh/h]		8	731	883	1	14	8
Peak Hour Factor		0.9900	0.9900	0.9900	0.9900	0.9900	0.9900
Other Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]		2	185	172	0	4	2
Total Analysis Volume [veh/h]		8	738	880	1	14	8
Pedestrian Volume [ped/h]		0	0	0	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]			
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median			No

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio		0.01		0.01		0.01	
d, M, Delay for Movement [s/veh]		0.02	0.02	0.02	0.02	0.10	0.02
Movement LOS		A	A	A	A	D	C
95th-Percentile Queue Length [veh]		9.55	9.55	0.00	0.00	0.39	0.39
95th-Percentile Queue Length [ft]		238.87	238.87	0.00	0.00	9.86	9.86
d, A, Approach Delay [s/veh]		0.10	0.10	0.00	0.00	25.83	0.10
Approach LOS		A	A	A	A	D	D
d, I, Intersection Delay [s/veh]		0.46					
Intersection LOS		D					

Intersection Level of Service Report

Intersection 2: SR 12 and Maple Avenue

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 33.1
Level of Service: D
Volume to Capacity (V/C): 0.052

Intersection Setup		SR 12		SR 12		Maple Avenue	
Name	Approach	Northbound		Southbound		Eastbound	
Lane Configuration		+ -		+ -		T	
Turning Movement		Left	Thru	Thru	Right	Left	Right
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket		0	0	0	0	0	0
Pocket Length [ft]		100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00		45.00		30.00	
Grade [%]		0.00		0.00		0.00	
Crosswalk		No		No		No	

Volumes		SR 12		SR 12		Maple Avenue	
Base Volume Input [veh/h]		4	724	700	5	7	10
Base Volume Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]		2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate		1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]		0	0	0	0	0	0
Site-Generated Trips [veh/h]		0	0	0	0	0	0
Diversified Trips [veh/h]		0	0	0	0	0	0
Pass-by Trips [veh/h]		0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]		0	0	0	0	0	0
Other Volume [veh/h]		0	0	0	0	0	0
Total Hourly Volume [veh/h]		4	724	700	5	7	10
Peak Hour Factor		0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]		1	188	182	1	2	3
Total Analysis Volume [veh/h]		4	754	726	5	7	10
Pedestrian Volume [ped/h]		0		0		0	

Intersection Settings

Priority Scheme

Flared Lane

Storage Area [veh]

Two-Stage Gap Acceptance

Number of Storage Spaces in Median

Free

Free

Stop

Free

Free

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Control Type: Two-way stop
Analysis Method: HCM 8th Edition
Analysis Period: 15 minutes

Intersection Level of Service Report
Intersection 1: SR 12 and Shaw Avenue

Delay (sec / veh): 27.4
Level of Service: D
Volume to Capacity (v/c): 0.054

Intersection Setup

Name	SR 12	SR 12	Shaw Avenue
Approach	Northbound	Southbound	Eastbound
Lane Configuration	T	T	T
Turning Movement	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0
Pocket Length [ft]	100.00	100.00	100.00
Speed [mph]	45.00	45.00	25.00
Grade [%]	0.00	0.00	0.00
Crosswalk	No	No	No

Volumes

Name	SR 12	SR 12	Shaw Avenue
Base Volume Input [veh/h]	23	584	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	0	0	0
Diverted Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	23	584	17
Peak Hour Factor	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	149	4
Total Analysis Volume [veh/h]	23	596	17
Pedestrian Volume [ped/h]	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.08	0.03
d_L, Delay for Movement [s/veh]	8.84	9.30	9.30	27.39	13.63
Movement LOS	A	A	A	D	B
95th-Percentile Queue Length [veh]	5.77	5.77	5.77	0.32	0.32
95th-Percentile Queue Length [ft]	144.29	144.29	144.29	8.11	8.11
d_A, Approach Delay [s/veh]	0.35				
Approach LOS	A				
d_I, Intersection Delay [s/veh]					
Intersection LOS					

Intersection Level Of Service Report

Control Type: Two-way stop
Analysis Method: HCM 8th Edition
Analysis Period: 15 minutes
Intersection 2: SR 12 and Maple Avenue
Delay (sec / veh): 25.4
Level Of Service: D
Volume to Capacity (v/c): 0.028

Intersection Setup

Name	SR 12	SR 12	Maple Avenue
Approach	Northbound	Southbound	Eastbound
Lane Configuration	1	1	T
Turning Movement			
Lane Width [ft]	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0
Pocket Length [ft]	100.00	100.00	100.00
Speed [mph]	45.00	45.00	30.00
Grade [%]	0.00	0.00	0.00
Crosswalk	No	No	No

Volumes

Name	SR 12	SR 12	Maple Avenue
Base Volume Input [veh/h]	8	581	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	0	0	0
Diverted Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	8	581	14
Peak Hour Factor	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	165	4
Total Analysis Volume [veh/h]	8	583	14
Pedestrian Volume [ped/h]	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.03	0.02
d, d ₁ , Delay for Movement [s/veh]	5.74	5.74	0.00	25.43	12.76
Movement LOS	A	A	A	D	B
95th-Percentile Queue Length [veh]	5.72	5.72	0.00	0.15	0.15
95th-Percentile Queue Length [ft]	142.84	142.84	0.00	3.73	3.73
d, d ₁ , Approach Delay [s/veh]	0.12	0.12	0.00	16.88	
Approach LOS	A	A	A	C	
d, d ₁ , Intersection Delay [s/veh]			0.28		
Intersection LOS			D		

Control Type: Two-way stop
Analysis Method: HCM 8th Edition
Analysis Period: 15 minutes
Intersection Level of Service Report
Intersection 1: SR 12 and Shaw Avenue
Delay (sec / veh): 46.3
Level of Service: E
Volume to Capacity (v/c): 0.114

Intersection Setup		SR 12		SR 12		Shaw Avenue	
Name	Approach	Northbound		Southbound		Eastbound	
Lane Configuration		Left		Thru		Right	
Turning Movement		12.00		12.00		12.00	
Lane Width [ft]		0		0		0	
No. of Lanes in Pocket		0		0		0	
Pocket Length [ft]		100.00		100.00		100.00	
Speed [mph]		45.00		45.00		25.00	
Grade [%]		0.00		0.00		0.00	
Crosswalk		No		No		No	

Volumes		SR 12		SR 12		Shaw Avenue	
Name		6		671		12	
Base Volume Input [veh/h]		1,7430		1,2030		1,1430	
Base Volume Adjustment Factor		2.00		2.00		2.00	
Heavy Vehicle Percentage [%]		1.00		1.00		1.00	
Growth Rate		0		0		0	
In-Process Volume [veh/h]		0		0		0	
Site-Generated Trips [veh/h]		0		0		0	
Diverted Trips [veh/h]		0		0		0	
Peak-Hour Trips [veh/h]		0		0		0	
Existing Site Adjustment Volume [veh/h]		0		0		0	
Other Volume [veh/h]		0		0		0	
Total Hourly Volume [veh/h]		7		807		14	
Peak Hour Factor		0.8200		0.8200		0.8200	
Other Adjustment Factor		1.0000		1.0000		1.0000	
Total 15-Minute Volume [veh/h]		2		219		4	
Total Analysis Volume [veh/h]		8		820		11	
Pedestrian Volume [ped/h]		0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]			No
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

VIC Movement V/C Ratio		0.01		0.01		0.03	
d, M, Delay for Movement [s/veh]		9.55		0.01		0.11	
Movement LOS		A		A		E	
95th-Percentile Queue Length [veh]		24.41		0.00		0.46	
95th-Percentile Queue Length [ft]		610.29		0.00		11.96	
d, A, Approach Delay [s/veh]		0.09		0.00		33.11	
Approach LOS		F		A		D	
d, I, Intersection Delay [s/veh]				0.44			
Intersection LOS				E			

Intersection Level of Service Report
Intersection 2: SR 12 and Maple Avenue

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec./veh): 35.3
Level of Service: E
Volume to Capacity (v/c): 0.009

Intersection Setup		SR 12	SR 12	Maple Avenue
Name	Approach	Northbound	Southbound	Eastbound
Lane Configuration		Left Thru Right	Left Thru Right	Left Thru Right
Turning Movement		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
No. of Lanes in Pocket		0 0 0	0 0 0	0 0 0
Pocket Length [ft]		100.00 100.00 100.00	100.00 100.00 100.00	100.00 100.00 100.00
Speed [mph]		45.00	45.00	30.00
Grade [%]		0.00	0.00	0.00
Crosswalk		No	No	No

Volumes		SR 12	SR 12	Maple Avenue
Name		1	2	1 4
Base Volume Input [veh/h]		1,1430	1,0890	1,4770 1,4770
Base Volume Adjustment Factor		2.00	2.00	2.00 2.00
Heavy Vehicles Percentage [%]		1.00	1.00	1.00 1.00
Growth Rate		0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
In-Process Volume [veh/h]		0 0 0 0 0 0 0 0	0 0 0 0 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 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 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 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 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 0 0 0 0	0 0 0 0 0 0 0 0
Total Hourly Volume [veh/h]		1 812 751	2 0 0	1 0 0 0 0 0 0 0
Peak Hour Factor		0.9400	0.9400	0.9400 0.9400
Other Adjustment Factor		1.0000	1.0000	1.0000 1.0000
Total 15-Minute Volume [veh/h]		0 216 209	1 0 0	0 0 0 0 0 0 0 0
Total Analysis Volume [veh/h]		1 854 796	2 0 0	1 0 0 0 0 0 0 0
Pedestrian Volume [ped/h]		0	0	0 0 0 0 0 0 0 0

Intersection Settings		Free	Free	Stop
Priority Scheme				
Flared Lane				No
Storage Area [veh]		0	0	No
Two-Stage Gap Acceptance				No
Number of Storage Spaces in Median		0	0	0

Movement, Approach, & Intersection Results		0.00	0.01	0.01	0.01	0.02
V/C, Movement V/C Ratio		0.00	0.01	0.01	0.01	0.02
d, M, Delay for Movement [s/veh]		9.58	0.00	0.00	39.30	14.68
Movement LOS		A	A	A	E	B
95th-Percentile Queue Length [veh]		20.88	20.08	0.00	0.08	0.08
85th-Percentile Queue Length [ft]		522.04	522.04	0.00	1.92	1.92
d, A, Approach Delay [s/veh]		0.01	0.01	0.00	18.20	0.00
Approach LOS		F	F	A	C	C
d, I, Intersection Delay [s/veh]				0.08		
Intersection LOS				E		

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes
Intersection Level Or Service Report
Intersection 1: SR 12 and Shaw Avenue
Delay (sec / veh): 43.7
Level Of Service: E
Volume to Capacity (V/C): 0.197

Intersection Setup

Name	SR 12	SR 12	Shaw Avenue
Approach	Northbound	Southbound	Eastbound
Lane Configuration	<div> <div>SR 12</div> <div>SR 12</div> <div>Shaw Avenue</div> </div>		
Turning Movement	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0
Pocket Length [ft]	100.00	100.00	100.00
Speed [mph]	45.00	45.00	25.00
Grade [%]	0.00	0.00	0.00
Crosswalk	No	No	No

Volumes

Name	SR 12	SR 12	Shaw Avenue
Base Volume Input [veh/h]	8	683	14
Base Volume Adjustment Factor	1.1430	1.0980	1.1470
Heavy Vehicles Percentage [%]	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Shaw Generated Tolls [veh/h]	0	0	0
Diverged Tolls [veh/h]	0	0	0
Pass-by Tolls [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	8	683	14
Peak Hour Factor	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	168	5
Total Analysis Volume [veh/h]	8	683	14
Pedestrian Volume [ped/h]	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Planned Lane			Yes
Storage Area [veh]	0	0	5
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0
Movement, Approach, & Intersection Results			
VIC Movement VIC Ratio	0.01	0.01	0.01
d.M. Delay for Movement [s/veh]	9.24	9.24	43.72
Movement LOS	A	A	E
95th-Percentile Queue Length [veh]	0.03	0.03	0.71
95th-Percentile Queue Length [ft]	0.79	0.79	17.63
d.A. Approach Delay [s/veh]	0.09	0.09	94.18
Approach LOS	A	A	D
d.J. Intersection Delay [s/veh]		0.74	E
Intersection LOS			

Intersection Level Of Service Report

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes
Intersection 2: SR 12 and Maple Avenue
Delay (sec / veh): 45.5
Level Of Service: E
Volume to Capacity (v/c): 0.103

Intersection Setup		SR 12		SR 12		Maple Avenue	
Name	Approach	Northbound		Southbound		Eastbound	
Lane Configuration		T		T		T	
Turning Movement		Left	Thru	Right	Left	Right	
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00	
No. of Lanes in Pocket		0	0	0	0	0	
Pocket Length [ft]		100.00	100.00	100.00	100.00	100.00	
Speed [mph]		45.00	45.00	45.00	30.00	30.00	
Grade [%]		0.00	0.00	0.00	0.00	0.00	
Crosswalk		No	No	No	No	No	

Volumes

SR 12		SR 12		Maple Avenue	
Name		4	724	700	5
Base Volume Input [veh/h]		1,1430	1,2030	1,0680	1,1430
Base Volume Adjustment Factor		2.00	2.00	2.00	2.00
Heavy Vehicles Percentage [%]		1.00	1.00	1.00	1.00
Growth Rate		0	0	0	0
In-Process Volume [veh/h]		0	0	0	0
Site Generated Trips [veh/h]		0	0	0	0
Diverted Trips [veh/h]		0	0	0	0
Pass-by Trips [veh/h]		0	0	0	0
Existing Site Adjustment Volume [veh/h]		0	0	0	0
Other Volume [veh/h]		0	0	0	0
Total Hourly Volume [veh/h]		5	871	763	8
Peak Hour Factor		0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor		1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]		1	227	200	2
Total Analysis Volume [veh/h]		5	907	801	8
Pedestrian Volume [ped/h]					

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio		0.01	0.01	0.01	0.10	0.04
d.M. Delay for Movement [s/veh]		8.43	0.00	0.00	45.47	17.77
Movement LOS		A	A	A	E	C
95th-Percentile Queue Length [veh]		0.02	0.02	0.00	0.50	0.50
95th-Percentile Queue Length [ft]		0.46	0.46	0.00	12.38	12.38
d.A. Approach Delay [s/veh]		0.05	0.05	0.00	28.42	
Approach LOS		A	A	A	D	
d.L. Intersection Delay [s/veh]				0.45		
Intersection LOS				E		

Control Type: Two-way stop
Analysis Method: HCM 8th Edition
Analysis Period: 15 minutes

Intersection Level of Service Report
Intersection 1: SR 12 and Shaw Avenue

Delay (sec/veh): 38.6
Level of Service: E
Volume to Capacity (V/C): 0.125

Intersection Setup		SR 12		SR 12		Shaw Avenue	
Approach		Northbound		Southbound		Eastbound	
Lane Configuration		T		T		T	
Turning Movement		Left	Thru	Right	Left	Right	
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00	
No. of Lanes in Pocket		0	0	0	0	0	
Pocket Length [ft]		100.00	100.00	100.00	100.00	100.00	
Speed [mph]		45.00	45.00	45.00	25.00	25.00	
Grade [%]		0.00	0.00	0.00	0.00	0.00	
Crosswalk		No	No	No	No	No	

Volumes		SR 12		SR 12		Shaw Avenue	
Name		Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]		25	625	584	21	11	17
Base Volume Adjustment Factor		1.1430	1.2030	1.0980	1.1430	1.4770	1.4770
Heavy Vehicles Percentage [%]		2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate		1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]		0	0	0	0	0	0
Site-Generated Trips [veh/h]		0	0	0	0	0	0
Diversified Trips [veh/h]		0	0	0	0	0	0
Pass-by Trips [veh/h]		0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]		0	0	0	0	0	0
Other Volume [veh/h]		0	0	0	0	0	0
Total Hourly Volume [veh/h]		25	752	641	24	16	25
Peak Hour Factor		0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]		7	182	164	6	4	8
Total Analysis Volume [veh/h]		30	767	664	24	16	25
Pedestrian Volume [ped/h]							

Intersection Settings

Priority Scheme	Free	Free	Stop
Placed Lane			No
Storage Area [veh]			No
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0		No

Movement, Approach, & Intersection Results

V/C Movement V/C Ratio		0.03	0.04	0.04	0.13	0.06
d _M Delay for Movement [s/veh]		9.07	0.60	0.60	38.58	16.26
Movement LOS		A	A	A	E	C
95th-Percentile Queue Length [veh]		11.46	11.46	11.46	0.00	0.00
95th-Percentile Queue Length [ft]		286.53	286.53	286.53	0.00	0.00
d _A Approach Delay [s/veh]		0.34	0.34	0.34	0.00	16.20
Approach LOS		A	A	A	A	C
d _I Intersection Delay [s/veh]					0.84	
Intersection LOS					E	

Intersection 2: SR 12 and Maple Avenue

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes
Delay (sec / veh): 32.5
Level Of Service: D
Volume to Capacity (v/c): 0.051

Intersection Setup

Name	SR 12	SR 12	Maple Avenue
Approach	Northbound	Southbound	Eastbound
Lane Configuration	Left Thru Right	Thru Right Left	Right Left Right
Turning Movement	Left Thru Right	Thru Right Left	Right Left Right
Lane Width [ft]	12.00 12.00 12.00	12.00 12.00 12.00	12.00 12.00 12.00
No. of Lanes in Pocket	0 0 0	0 0 0	0 0 0
Pocket Length [ft]	100.00 100.00 100.00	100.00 100.00 100.00	100.00 100.00 100.00
Speed [mph]	45.00	45.00	30.00
Grade [%]	0.00	0.00	0.00
Crosswalk	No	No	No

Volumes

Name	SR 12	SR 12	Maple Avenue
Base Volume Input [veh/h]	8	581	14
Base Volume Adjustment Factor	1.1430	1.0980	1.1430
Heavy Vehicles Percentage [%]	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	0	0	0
Diverted Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volumes [veh/h]	0	0	0
Total Hourly Volume [veh/h]	10	659	16
Peak Hour Factor	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	183	4
Total Analysis Volume [veh/h]	10	651	16
Pedestrian Volume [veh/h]	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Fixed Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.05	0.03
d, M, Delay for Movement [s/veh]	8.84	0.00	0.00	32.48	14.00
Movement LOS	A	A	A	D	B
95th-Percentile Queue Length [veh]	11.37	11.37	0.00	0.27	0.27
95th-Percentile Queue Length [ft]	284.31	284.31	0.00	6.76	6.76
d, A, Approach Delay [s/veh]	0.11	0.11	0.00	19.87	0.00
Approach LOS	A	A	A	C	C
d, J, Intersection Delay [s/veh]				0.35	
Intersection LOS				D	

Appendix D

Pedestrian Facilities and Highway 12 Left-turn Lane Concept Drawings

***VJB VINEYARDS WINERY & TASTING ROOM
PARKING LOT ADDITION
NOISE AND VIBRATION ASSESSMENT***

Kenwood, Sonoma County, California

May 31, 2019

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INTRODUCTION

This report summarizes the evaluation of noise and vibration levels attributable to construction activities and project operations due a proposed parking lot for VJB Vineyards Winery and Tasting Room located on a currently vacant lot at 75 Shaw Avenue with respect to the regulatory criteria established by the Sonoma County General Plan and the Sonoma County Guidelines for the Preparation of Noise Analysis. The report first describes the project, study area, and existing noise levels in the project vicinity. The report then summarizes the applicable regulatory criteria used in the assessment of project-generated noise and vibration levels. Standard best management practices are recommended to reduce temporary construction noise levels to less-than-significant levels. With the incorporation of mitigation measures, construction vibration and project operational noise levels would not be expected to result in significant impacts upon nearby residential land uses. A brief discussion of the fundamentals of environmental noise and groundborne vibration is presented in Appendix A for those unfamiliar with acoustical terms or concepts.

PROJECT DESCRIPTION

The project proposes to convert a vacant lot at 75 Shaw Avenue, which is currently used as an informal parking area, to a fully improved 53 space parking lot for tasting room guests and employees.

NOISE ANALYSIS STUDY AREA

The project site is a vacant flat parcel developed. The site is bordered by a single-family residential and a commercial use to the north, a single-family residential use to the west, Shaw Avenue and the VJB Vineyards Winery and Tasting Room to the south and a commercial use to the east. A review of the site plan and surrounding uses indicates that the residential uses to the north and west are the only noise sensitive uses adjacent to the proposed site improvements. Figure 1, in Appendix B, shows the site plan of the proposed project, adjacent land uses and receptor locations, and noise monitoring locations selected during the noise survey.

EXISTING NOISE ENVIRONMENT

Ambient noise levels were measured by *Illingworth & Rodkin, Inc.* between 2pm on Friday, April 19th and Tuesday, April 23rd, 2019. Noise measurements were made with Larson Davis Model 820 Integrating Sound Level Meters (SLM) set at “slow” response. The sound level meters were equipped with G.R.A.S. Type 40AQ ½-inch random incidence microphone and fitted with windscreens. The sound level meters were calibrated prior to the noise measurements using a Larson Davis Model CAL200 acoustical calibrator. The response of the systems were checked after each measurement session and was always found to be within 0.1 dBA. No calibration adjustments were made to the measured sound levels. At the completion of the monitoring event, the measured interval noise level data were obtained from the SLM using the Larson Davis SLM utility software program. Weather conditions during the measurement period were generally good for noise monitoring.

The first long-term sound level measurement (see LT-1 in Figure 1) was made on the western property line shared with the single-family residential lot to the west and identified as Residence 1 in Figure 1. The monitoring equipment was installed on the existing property line fence at a height of approximately 8 feet above grade. Noise levels measured at this site primarily resulted from existing parking uses, adjacent residential sounds and roadway noise from Shaw Avenue and the more distant Hwy 12 traffic. The hourly trend in noise levels at this location, including the energy equivalent noise level (L_{eq}), maximum (L_{max}), minimum (L_{min}), and the noise levels

exceeded 2,8,25, and 50 percent of the time (indicated as L₂, L₈, L₂₅, and L₅₀) are shown on Chart 1 (see Appendix B).

A review of Chart 1 shows that the average weekday noise levels at LT-1 ranged from 47 to 66 dBA L_{eq} during the day, and 40 to 55 dBA L_{eq} at night, and average weekend noise levels ranged from 48 to 58 dBA L_{eq} during the day and 38 to 49 dBA L_{eq} at night. The calculated average day/night noise level (L_{dn}) at this location was 57 dBA for weekdays and 53 dBA for weekends. The average, maximum, minimum levels measured for the daytime and nighttime periods for the entire LT-1 measurement along with the corresponding Sonoma County Table NE-2 Noise Standards are shown in Table 1.

Table 1: Comparison of Noise Measurements Results and Sonoma County Noise Standards at Property line of Residence 1

Type of Level		Noise Level, dBA			
		L ₅₀	L ₂₅	L ₈	L ₂
Daytime Levels	NE-2 Noise Standard	50	55	60	65
	Measured Ambient Level ¹	48	51	53	55
	Measured Range (Max/Min)	44/54	48/56	51/59	53/63
Nighttime Levels	NE-2 Noise Standard	45	50	55	60
	Measured Ambient Level ¹	38	41	47	51
	Measured Range (Max/Min)	33/54	35/56	40/58	47/59

¹ Calculated based on an average of the four quietest L_{eq} hours in each measured 24-hour period

The second long-term sound level measurement (see LT-2 in Figure 1) was made on the northern property line of the project site shared with the single-family residential lot to the north and identified as Residence 2 in Figure 1. The monitoring equipment was installed on the existing property line fence at a height of approximately 8 feet above grade. Noise levels measured at this site primarily resulted from adjacent residential sounds and roadway noise from distant Shaw Avenue, Randolph Avenue and Hwy 12 traffic. Chart 2 in Appendix B, shows the hourly trend in noise levels at this site, including the energy equivalent noise level (L_{eq}), maximum (L_{max}), minimum (L_{min}), and the noise levels exceeded 2,8,25, and 50 percent of the time (indicated as L₂, L₈, L₂₅, and L₅₀).

A review of Chart 2 indicates that the average weekday noise levels at LT-2 ranged from 43 to 67 dBA L_{eq} during the day and 36 to 52 dBA L_{eq} at night, and average weekend noise levels ranged from 47 to 54 dBA L_{eq} during the day and 39 to 48 dBA L_{eq} at night. The calculated average day/night noise level (L_{dn}) at this location was 55 dBA for weekdays and 51 dBA for weekends. The average, maximum, minimum levels measured for the daytime and nighttime periods for the entire LT-2 measurement along with the corresponding Sonoma County Table NE-2 Noise Standards are shown in Table 2.

Table 2: Comparison of Noise Measurements Results and Sonoma County Noise Standards at Property line of Residence 2

Type of Level		Noise Level, dBA			
		L ₅₀	L ₂₅	L ₈	L ₂
Daytime Levels	NE-2 Noise Standard	50	55	60	65
	Measured Ambient Level ¹	47	49	51	54
	Measured Range (Max/Min)	43/53	47/55	50/57	51/60
Nighttime Levels	NE-2 Noise Standard	45	50	55	60
	Measured Ambient Level ¹	39	42	46	50
	Measured Range (Max/Min)	37/52	38/55	41/56	46/58

¹ Calculated based on an average of the four quietest L_{eq} hours in each measured 24-hour period

REGULATORY CRITERIA

Goals, objectives, and policies designed to protect noise-sensitive uses from exposure to excessive noise are set forth in the Noise Element of the Sonoma County General Plan 2020. The primary goal of the Noise Element is to, "Protect people from the adverse effects of exposure to excessive noise and to achieve an environment in which people and land uses function without impairment from noise." Objectives and policies of the Noise Element that are applicable in the assessment of the proposed project are as follows:

Objective NE-1.3: Protect the present noise environment and prevent intrusion of new noise sources which would substantially alter the noise environment.

Objective NE-1.4: Mitigate noise from recreational and visitor serving uses.

Policy NE-1c: Control non-transportation related noise from new projects. The total noise level resulting from new sources shall not exceed the standards in Table NE-2 (Table 3 of this report) of the recommended revised policies as measured at the exterior property line of any adjacent noise sensitive land use. Limit exceptions to the following:

- (1) If the ambient noise level exceeds the standard in Table NE-2, adjust the standard to equal the ambient level, up to a maximum of 5 dBA above the standard, provided that no measurable increase (i.e. +/- 1.5 dBA) shall be allowed.
- (2) Reduce the applicable standards in Table NE-2 by 5 dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises, such as pile drivers and dog barking at kennels.
- (3) Reduce the applicable standards in Table NE-2 by 5 decibels if the proposed use exceeds the ambient level by 10 or more decibels.
- (4) For short-term noise sources, which are permitted to operate no more than six days per year, such as concerts or race events, the allowable noise exposures shown in Table NE-2 may be increased by 5 dB. These events shall be subject to a noise management plan including provisions for maximum noise level limits, noise monitoring, complaint response and allowable hours of operation. The plan shall address potential cumulative noise impacts from all events in the area.
- (5) Noise levels may be measured at the location of the outdoor activity area of the noise sensitive land use, instead of at the exterior property line of the adjacent noise sensitive use where:
 - (a) The property on which the noise sensitive use is located has already been substantially developed pursuant to its existing zoning, and
 - (b) There is available open land on these noise sensitive lands for noise attenuation. This exception may not be used for vacant properties, which are zoned to allow noise sensitive uses.This exception may not be used on vacant properties which are zoned to allow noise sensitive uses.

TABLE NE-2: Maximum Allowable Exterior Noise Exposures for Non-Transportation Noise Sources

Hourly Noise Metric ¹ , dBA	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
L ₅₀ (30 minutes in any hour)	50	45
L ₂₅ (15 minutes in any hour)	55	50
L ₀₈ (5 minutes in any hour)	60	55
L ₀₂ (1 minute in any hour)	65	60

¹ The sound level exceeded n% of the time in any hour. For example, the L₅₀ is the value exceeded 50% of the time or 30 minutes in any hour; this is the median noise level. The L₀₂ is the sound level exceeded 1 minute in any hour.

It is clear for the footnote of Table NE-2 that the applicable noise standard is based on the “*sound level exceeded n% of the time in any hour*”, such that the L₅₀ is the value exceeded 50% of the time or 30 minutes in any hour or more, the L₂₅ is the value exceeded 25% of the time or 15 minutes in any hour or more, L₀₈ is the value exceeded 8% of the time or 5 minutes in any hour or more, and the L₀₂ is the value exceeded 2% of the time or 1 minute in any hour or more.

NOISE IMPACT ANALYSIS

Noise generated by the proposed use permit update was assessed against the Table NE-2 guidelines presented in the County’s Noise Element. The guidelines establish daytime and nighttime noise limits for noise events of varying durations. The primary daytime noise sources associated with the project are expected to be winery mechanical equipment, bottling, maintenance, and forklift operations, and crush related activities. No additional tasting room visitation or special events are requested so the project would have no impact on nighttime noise levels or the typical daily trip generation of the tasting room.

Estimating the expected noise produced by, and impacts from, the proposed changes to the existing use permit at adjacent noise sensitive uses requires three elements; the first is an assessment of what noise producing operations are likely to occur, the second is typical noise source levels for those operations, and the third is to determine the temporal nature of the operations.

I. Identification of Noise Producing operations/uses

Parking lot activities at the proposed 53 stall lot may result in off-site noise level increases. Automobile and light vehicle traffic on site would occur during the daytime hours and noise produced is expected to include the sounds of vehicles accessing parking areas, engine starts, door slams. These noises typically range from a maximum of 53 dBA to 63 dBA at 50 feet.

III. Propagation of sound

The final step in estimating the project noise levels is assessing the propagation of sound to the sensitive receptors. To do this, it is necessary to assume some rate of sound attenuation between the operations and receiver locations. The most dominant physical effect is due to the spreading out of sound waves with distance. Noise from moving vehicular noise sources in the parking typically attenuate at 3 dB per doubling of distance from the source, while noise from fixed sources such as parked cars people talking in the parking area can be considered to attenuate at a rate of 6 per doubling of distance from the source. Other effects can modify these fall-off rates such as partial shielding from buildings or topography, atmospheric attenuation of sound, and meteorological effects. These effects almost always reduce the noise in addition to that due to sound divergence. As most of these effects will vary with time due to changing environmental conditions, it is most conservative to assume only attenuation due to divergence for outdoor activities, realizing that the actual noise level will be at or, most likely, below those predicted using these assumptions at any one time.

NOISE IMPACT ASSESSMENT

The proposed Parking lot would include 53 parking spaces and may result in increased noise levels at the residential uses adjacent to the lot. The project does not request any changes in facility structures, mechanical equipment, tasting room visitation or the number, size or type of special events, therefore changes to any of these aspects of the VJB operations are not included in this impact assessment.

Impact 1: Parking Lot Activities

The proposed 53 stall parking area is a vacant flat unimproved (open dirt and field grass) lot in which some informal vehicular parking currently occurs with a 6-foot high solid fence at the

northern, western and eastern perimeters. This fence is built with galvanized sheet metal siding on both sides of a layer of 1/2" plywood, and upon inspection appears to be built without cracks or gaps in the face or large or continuous gaps at the base. Based on the used two layers of Galvanized steel siding (typical surface weight of 0.8 lb./ft²), and single layer of 1/2" plywood (typical surface weight of 1.4 lb./ft²), this wall has a surface weight of 3.0 lbs. per sq. ft. and will meet the solidity and mass requirements to act as a noise barrier.

The parking lot would only be used during daytime hours and is proposed primarily for employee parking, though some overflow visitor use may also occur. Considering the intended use of the parking area and the presence of other parking opposite Shaw Avenue and immediately adjacent to the winery and tasting room buildings, the typical cumulative duration of maximum noise from intermittent parking lot noise is anticipated to be less than five minutes in any hour, and fall in the 5 minutes per hour or L₀₂ NE-2 daytime category of 65 dBA (see Table NE-2, above). However, during events or on busy weekends, when the main lot is full and visitor parking occurs in the newly proposed lot, maximum noise from parking lot activities may occur more frequently at more than 5 minutes per hour but less than 15 minutes per hour and fall in the L₀₈ NE-2 daytime category of 60 dBA.

Based on a review of the project site plan and distance information obtained via Google Earth, 19 of the 53 proposed parking stalls, would be immediately adjacent to residential property lines, with the closet portion of the spaces approximately 6 feet and the center of the spaces approximately 14.5 feet from the property lines of Residences 1 and 2. Using the maximum source levels discussed in the Typical Noise Source Level section above, a 6-dB sound increase for each halving of the distance, and the calculated barrier loss of the currently installed 6 foot high property line fence, parking lot noise could produce L₀₈ levels of up to 57 dBA at the property line of Residence 1. Table 3, below, presents and summarizes the assessment of this intermittent parking lot noise versus County Noise Standards.

Table 3: Increased Parking Lot Activities

	L ₀₈ (Noise Level Exceeded 15 Minutes or more in any Hour), dBA	
	Residence 1 Property Line	Residence 2 Property Line
Unadjusted Table NE-2 Daytime Limit	60	60
Daytime Ambient Noise Levels	53	51
New Parking Lot Noise at Receiver	57	57
Operations Exceed Ambient by 10 dBA?	No	No
NE-2 Adjustment	0	0
Adjusted Table NE-2 Daytime Limit	60	60
New Parking Lot Noise Exceeds NE-2?	No	No

As shown in Table 3, parking lot noise is not expected to result in noise levels on the residential side of the adjacent residential property lines that would exceed the adjusted daytime L₀₈ noise limit.

Impact 2: Construction Noise

Noise impacts resulting from grading, paving and site improvements of the new parking area depends on the noise generated by various pieces of construction equipment, the timing and duration of noise-generating activities, the distance between construction noise sources and noise-sensitive receptors, the shielding provided by the existing property line noise barriers, and ambient noise levels. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), when construction

occurs in areas immediately adjoining noise-sensitive land uses, or when construction durations last over extended periods of time.

Each construction phase would include a different mix of equipment operating. The highest noise level expected during parking lot construction would be site grading and excavation activities as these phases often require the simultaneous use of multiple pieces of heavy equipment, such as dozers, excavators, scrapers, and loaders. Lower noise levels result from construction activities when less heavy equipment is required to complete the tasks.

Typical construction noise levels at a distance of 50 feet are shown in Table 4. Table 4 illustrates the average noise level range by typical construction phase type.

TABLE 4: Typical Ranges of Noise Levels at 50 Feet from Construction Sites (dBA L_{eq})

	Public Works, Roads & Highways, Sewers, and Trenches	
	I	II
Ground Clearing	84	84
Excavation	88	78
Foundations	88	88

I - All pertinent equipment present at site.

II - Minimum required equipment present at site.

Source: United States Environmental Protection Agency, 1973, Legal Compilation on Noise, Vol. 1, p. 2-104.

Parking lot and site improvements are expected to be completed during one building season¹ within the allowable hours of 8:00 am and 5:00 pm. Extreme noise generating construction methods, such as impact pile driving, are not expected or proposed. Given the small project area, multiple pieces of heavy construction equipment are also not anticipated.

The nearest residential property would be located between 20 and 175 feet from areas of the site that would undergo major construction activities. Considering these distances and the noise attenuation resulting from the existing property line noise barrier, construction noise levels would be anticipated to range from 86 to 90 dBA L_{eq} at the closest residential property (20 feet) during busy construction periods and would drop off at a rate of about 6 dBA per doubling of distance between the noise source and the receptor. Construction noise levels would range from 61 to 71 dBA L_{eq} at 175 feet opposite the property line noise barrier.

Standard best management practices would be implemented to limit construction hours to daytime periods only, reduce construction noise levels emanating from the site, and minimize disruption and annoyance at adjacent noise sensitive uses:

- Limit construction to between the hours of 8:00 am to 5:00 pm.
- Limit work to non-motorized equipment on Sundays and holidays.
- Locate construction staging areas as far as practical from nearby sensitive receptors.
- Locate stationary noise-generating equipment, such as air compressors or portable power generators, as far as practical from nearby sensitive receptors.
- Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment. Air compressors and pneumatic equipment should be equipped with mufflers, and impact tools should be equipped with shrouds or shields.
- Prohibit all unnecessary idling of internal combustion engines.

¹ One building season is typically defined as an approximately 8-month period between the cessation of the rainy season in the Spring and the start of a subsequent rainy season the next Fall.

Impact 4: Construction Vibration

The construction of the project may generate perceptible vibration at the adjacent residential land uses when heavy equipment is used near the perimeter of the project site. Vibration-producing activities would occur when heavy equipment is used to during site preparation work, grading and excavation, trenching, and paving. Foundation construction techniques involving impact or vibratory pile driving, which can cause excessive vibration, are not anticipated as part of the project.

There are no applicable Federal, state, or local quantitatively defined regulations relating to vibration resulting from construction activities. Based on the thresholds provided by Caltrans, a vibration limit of 0.3 in/sec PPV would minimize damage at buildings of normal conventional construction. A significant impact would occur if buildings adjacent to the proposed construction site were exposed to vibration levels in excess of 0.3 in/sec PPV. The closest portion of the structure of Residence 1 would be about 100 feet and the closest portion of Residence 2 would be about 40 feet from the closest proposed site improvements.

Project construction activities, such as drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.), may generate substantial vibration in the immediate vicinity of the activities, but the vibration levels would be expected to attenuate with distance from the source. Table 5 presents typical vibration levels that could be expected from construction equipment at distances of 40 feet.

A review of this table indicates that vibration levels at Residence 1 due to construction activities would reach 0.004 to 0.104 in/sec PPV with work near the property line. Considering these results, vibration levels may at times be perceptible to occupants within Residence 1, however, project construction activity would not have the potentially result in any cosmetic damage to the nearest residential building. By use of administrative controls, such as notifying neighbors of scheduled construction activities and scheduling construction activities with the highest potential to produce perceptible vibration during hours with the least potential to affect the nearby residence, perceptible vibration can be kept to a minimum.

TABLE 5: Vibration Source Levels for Construction Equipment

Equipment	PPV at 40 ft. (in/sec)
Vibratory Roller	0.104
Large bulldozer	0.044
Loaded trucks	0.038
Caisson drilling	0.044
Small bulldozer	0.004

Source: Transit Noise and Vibration Impact Assessment Manual, Federal Transit Administration, Office of Planning and Environment, U.S. Department of Transportation, September 2018, as modified by Illingworth & Rodkin, Inc., May 2019.

Impact 5: Cumulative Noise Environment

There are no other known noise-generating projects proposed in the site vicinity. Operational noise levels from other potential projects would not add to noise levels produced by operations at the project site.

MITIGATION MEASURES

None Needed with the current property line noise barrier fence in place.

CEQA INITIAL STUDY CHECKLIST QUESTIONS

The California Environmental Quality Act (CEQA) includes qualitative guidelines for determining the significance of environmental noise impacts. The CEQA Initial Study checklist questions are listed below:

- (a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

The primary noise sources associated with the project are is parking lot and on-site vehicle circulation. The currently installed six-foot noise barrier on the property lines shared with adjacent uses will reduce noise levels to a degree which would comply with the Sonoma County limits. Less-than-Significant Impact with Mitigation.

Construction would be conducted within allowable hours and would occur over a period of less than one-year. Pile driving is not anticipated as a method of construction. With implementation of standard best management practices this would be a Less-than-Significant Impact.

- (b) Generation of excessive groundborne vibration or groundborne noise levels;

Construction would not result in groundborne vibration levels which the 0.3 in/sec PPV vibration limit recommended by the California Department of Transportation at any adjacent residential structures. This is a Less-than-Significant Impact.

- (c) For a project located within the vicinity of a private airstrip or an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport, if the project would expose people residing or working in the project area to excessive noise levels.

The project is not located within 2 miles of the private airstrip or an airport. This is a Less-than-Significant Impact.

SUMMARY/CONCLUSIONS

Based on the above findings, noise associated with project operations would be reduced to levels below the Sonoma County noise standards residential properties in the site vicinity with the currently installed six-foot noise barrier on the property lines shared with adjacent uses. Temporary construction noise would be reduced by the implementation of standard best management practices.

Appendix A: Fundamentals of Noise and Vibration

Fundamentals of Environmental Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its *loudness*. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (*frequency*) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A *decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table A1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level (dBA)*. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table A2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This *energy-equivalent sound/noise descriptor* is called *Leq*. The most common averaging period is hourly, but *Leq* can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the *sound level meter*. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level (CNEL)* is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level (L_{dn})* is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

Effects of Noise

Sleep and Speech Interference

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noises of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA L_{dn} . Typically, the highest steady traffic noise level during the daytime is about equal to the L_{dn} and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12 to 17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57 to 62 dBA L_{dn} with open windows and 65 to 70 dBA L_{dn} with standard construction if the windows are closed.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 50 dBA L_{dn} . At a L_{dn} of about 60 dBA, approximately 12 percent of the population is highly annoyed. When the L_{dn} increases to 70 dBA, the percentage of the population highly annoyed increases to about 25 to 30 percent of the population. There is, therefore, an increase of about 2 percent per dBA between a L_{dn} of 60 to 70 dBA. Between a L_{dn} of 70 to 80 dBA, each decibel increase, increases by about 3 percent, the percentage of the population highly annoyed. People appear to respond more adversely to aircraft noise. When the L_{dn} is 60 dBA, approximately 30 to 35 percent of the population is believed to be highly annoyed.

TABLE A1 Definition of Acoustical Terms Used in this Report

Term	Definition
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e. g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max} , L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01} , L_{10} , L_{50} , L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

TABLE A2 Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime	30 dBA	
		Library
Quiet rural nighttime	20 dBA	Bedroom at night, concert hall (background)
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), California Department of Transportation, September 2013.

Fundamentals of Groundborne Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One method is the Peak Particle Velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. In this report, a PPV descriptor with units of mm/sec or in/sec is used to evaluate construction generated vibration for building damage and human complaints. Table A3 displays the reactions of people and the effects on buildings that continuous vibration levels produce. The guidelines in Table A3 represent syntheses of vibration criteria for human response and potential damage to buildings resulting from construction vibration.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related groundborne vibration levels. Because of the impulsive nature of such activities, the use of the PPV descriptor has been routinely used to measure and assess groundborne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as paint flaking or minimal extension of cracks in building surfaces; minor, including limited surface cracking; or major, that may threaten the structural integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher. The damage criteria presented in Table A3 include several categories for ancient, fragile, and historic structures, the types of structures most at risk to damage. Most buildings are included within the categories ranging from "Historic and some old buildings" to "Modern industrial/commercial buildings". Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

The annoyance levels shown in Table A3 should be interpreted with care since vibration may be found to be annoying at lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

TABLE A3 Reaction of People and Damage to Buildings from Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Threshold at which there is a risk of damage to fragile buildings with no risk of damage to most buildings
0.25	Strongly perceptible to severe	Threshold at which there is a risk of damage to historic and some old buildings.
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential structures
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to new residential and modern commercial/industrial structures

Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, September 2013.

Appendix B: Figures and Noise Measurement Charts

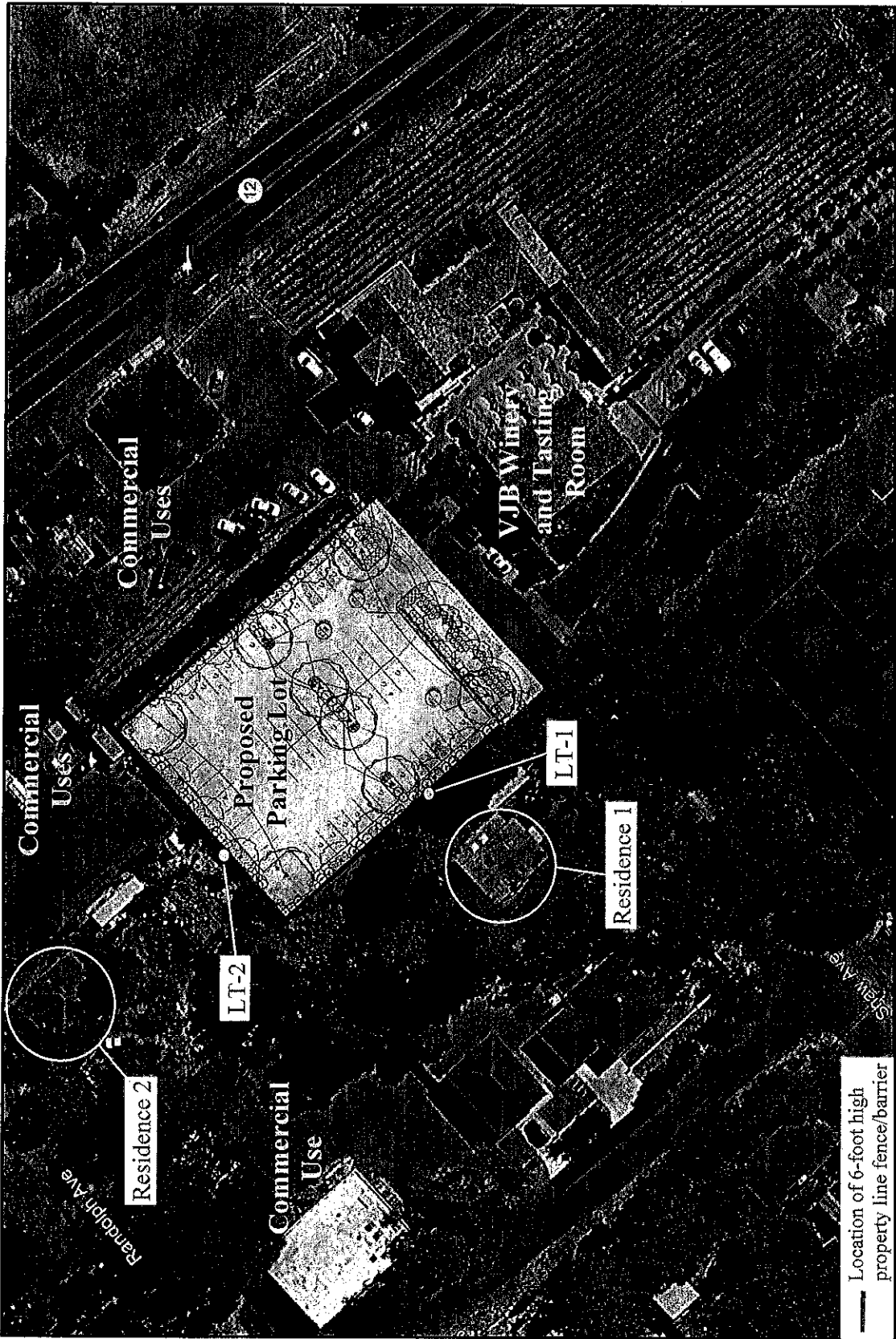


Figure 1: Site Plan Showing Noise Monitoring Locations, Nearby Land Uses, and Receptor Locations

Chart 1: Measured Noise Levels at LT-1

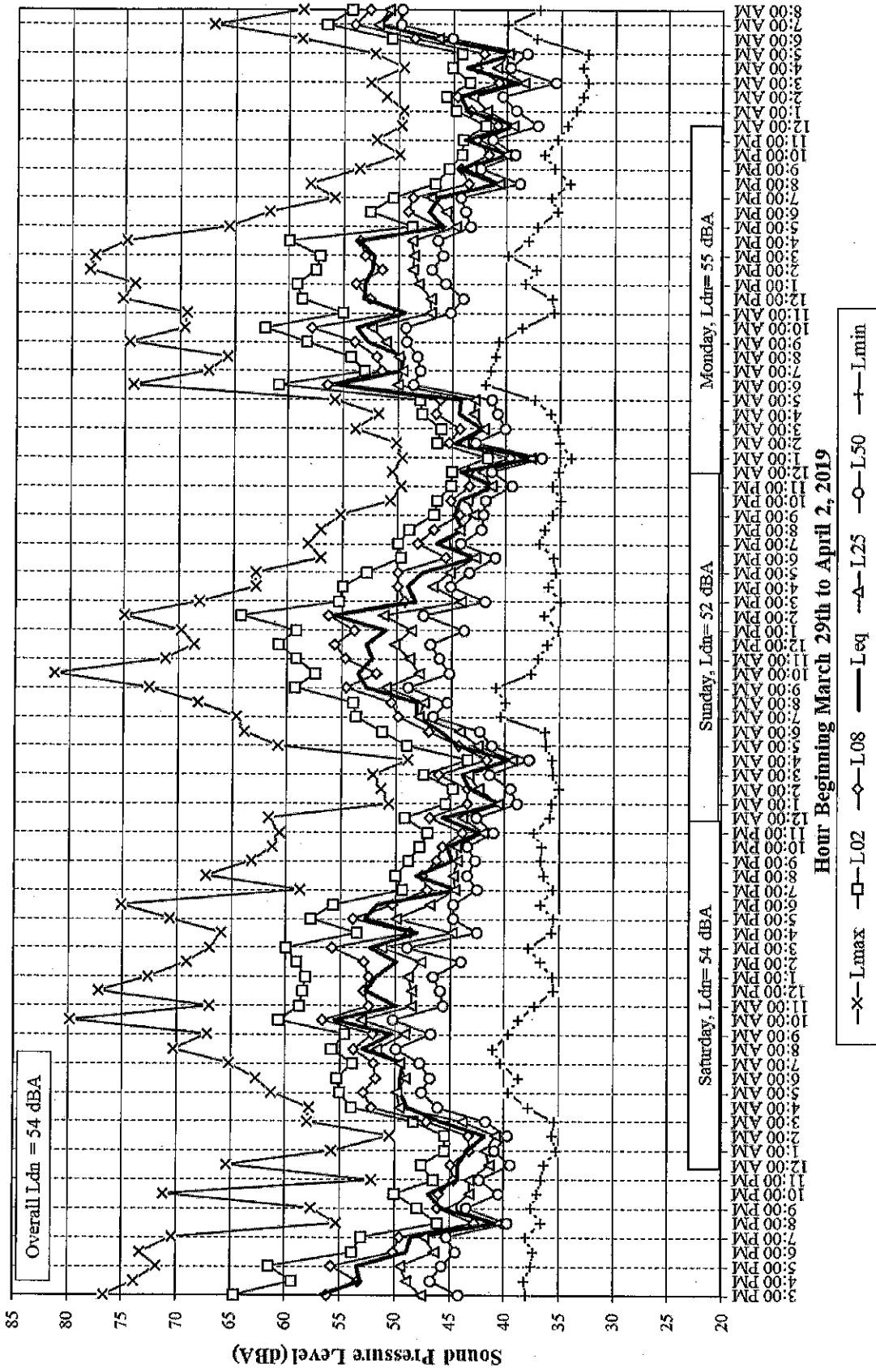
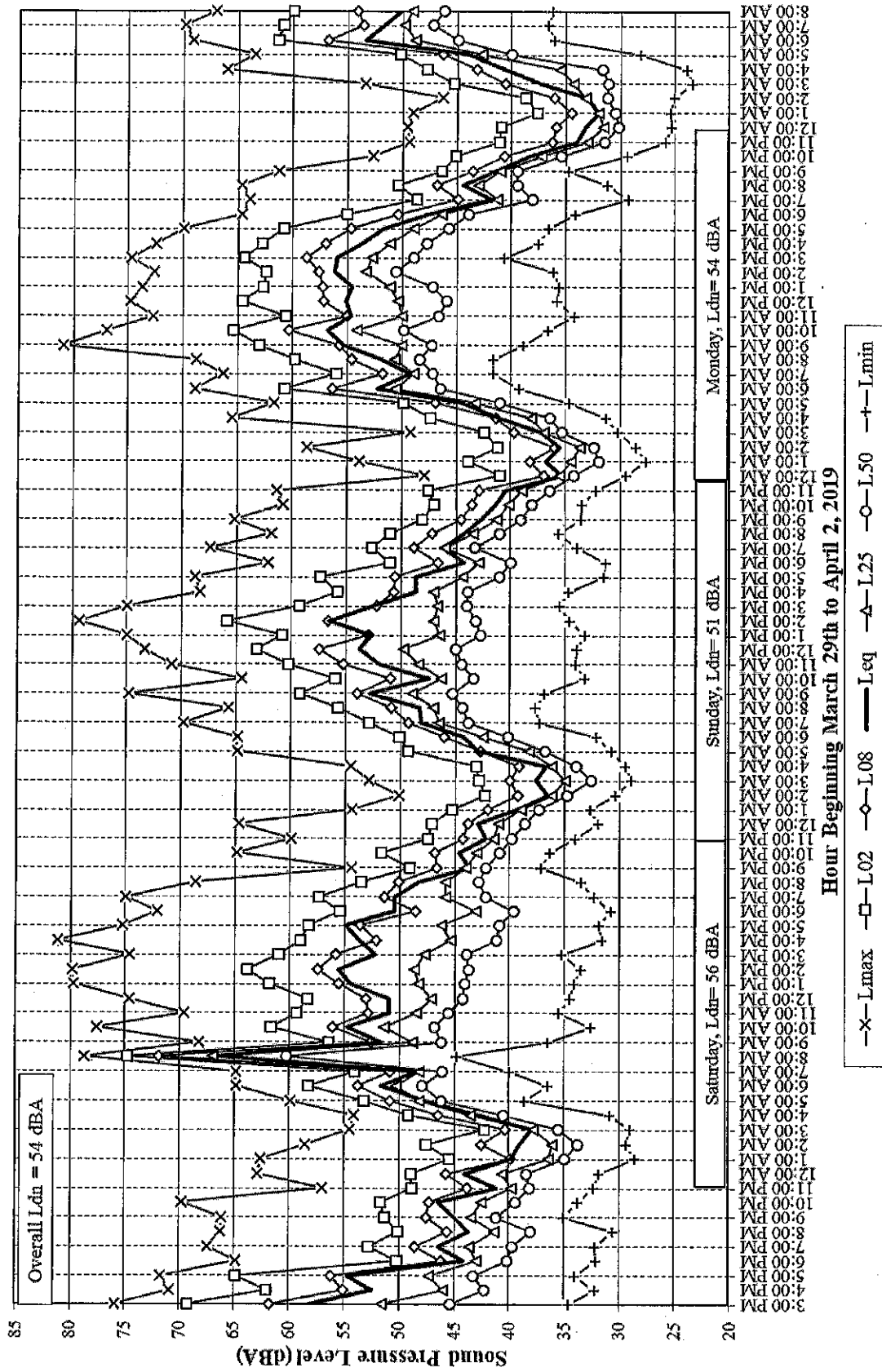


Chart 2: Measured Noise Levels at LT-2





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October 14, 2019

County of Sonoma
Department of Permit and Resource Management
2550 Ventura Avenue
Santa Rosa, CA 95403

Subject: Septic System and Wastewater Analysis

Worksite: VJB Vineyard & Cellars
60 Shaw Ave., Kenwood, CA
APN 050-275-028

Darla,

Per request, we are providing you a report regarding the proposed commercial 1500 septic system for VJB Vineyard & Cellars under SEP17-0427.

Please find attached the following documents for reference.

1. Septic System and Water Usage observations dated August 8, 2019.
2. Copy of email from Blake Hillegas and Becky Ver Meer.
3. Table 11.1 from Section 11 of the Sonoma County OWTS manual.
4. Section 11.4: Flow Equalization of the Sonoma County OWTS manual.

Our report dated 8/8/19 summarizes historical data and current usage for the facilities at 60 Shaw Ave. We concluded that the proposed 1500 gal. drip system will adequately accommodate 313 guests per day using the 3 to 5 gallons per day per guest. We are proposing to increase the existing septic capacity by 79% by utilizing all the area available for septic on site. Furthermore, the system will have an Orenco AX-MAX75 pretreatment system that will not only significantly improve quality of the outflow but be more easily monitored as well. With the proposal of removing events and confining business hours from 9AM-4PM, the proposed system should far exceed the performance of the 2 systems currently serving the facilities.

As we previously mentioned in the meeting on 9/17/19, a 5 gallon per guest amount to account for food was a number agreed to by both parties. James Johnson, REHS, originally proposed and agreed that a 5 gallons per day amount per guest would be more than enough to account for guests consuming food on the property. We have attached an email from Becky Ver Meer dated 6/8/17 showing that she also used the 5 gallons per guest calculations to determine the capacity for guests consuming food. This project has been

going on for quite some time and for PRMD to suddenly change and increase an agreed upon flow value by 160% near the permitting stage puts an unrealistic expectation on the owners and project. As you can see by our latest septic drawings on hold by planning, we are utilizing every area possible while maintaining appropriate setbacks per Sonoma County septic regulations.

Customers partake mainly in wine tasting with an option to order food items from a limited menu. Due to the pre-prepped nature of the food served from their facilities and the usage of disposable utensils, we believe a 5 gallons per day per customers ordering food is more than adequate for septic usage calculations. Looking through sales records and receipts on their busiest days of the season (early September) we concluded that less than half the guests order prepared food. The rest of the guests are there for wine tasting which is calculated at 3 gallons per day. With a peak employee count of 16 calculated at 15 gallons per day (240 gallons total), 1260 gallons remain for customer use. With assumptions of 160 guests ordering food (800 gallons) and 153 guests strictly wine tasting (460 gallons), we conservatively calculated that the facilities will be able to serve a total of 313 guests per day.

VJB is foremost a winery/wine tasting facility and not a restaurant. Table 11.1 shows Becky's calculation of 13 gallons per guest stemming from a "restaurant" with wasteflow calculations beginning with a meal served. An average patron at VJB does not come for meals but rather for wine tasting with food as a secondary option. For example, a bar can serve burgers and a burger joint serve beer, but to say those two are the same would be an error. Customers come to VJB to taste wine and might order food. Food can range from something as simple as a bag of chips to charcuterie and pizza, but to say every customer should be calculated at 13 gallons would be irresponsible. Guest receipts on a busy summer weekend showed that, on average, less than half of customers ordered any type of food. Using an extremely conservative approach as shown on our report dated 8/8/19, current water usage puts water usage at approximately 1 gallon per guest.

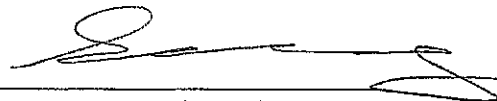
The "worst case scenario", peak usage was brought up multiple times during the meeting at PRMD on 9/17/19. We do understand that there can be heavier than usual traffic with more people ordering food than a typical day. Section 11.4: Flow Equalization of the OWTS manual touches on this topic and the operations at VJB seem very applicable to this method of calculation. VJB sees a sharp increase in traffic on Friday-Sunday, with traffic peaking on the 2 weekend days. This number drops significantly on the weekdays and is regular and predictable. The 5,000 gallon septic tank along with the 2,500 gallon grease trap has enough capacity to hold close to 5 days' worth of maximum daily flow. With the dispersal area designed for the full 1500 gallons per day, the advanced pretreatment system can dose on a time and/or demand basis to account for any surges during peak hours.

Lastly, Section 11.1 states that a "Commercial OWTS that **EXCEED** the 1500-gallons per day flow criteria of this section are subject to the requirements of section 14, or section 11.5. As we are not proposing to exceed the 1500 gallon flow, VJB should be exempt from having to file any application with the San Francisco Bay Regional Water Quality Control Board.

As shown on our 8/8/19 report, we are proposing a 313 guest capacity with 16 employees under the proposed 1500 gallon septic system. As our calculations were done in a conservative manner, we believe the proposed system will have no issues processing the septic loads required for all operations at VJB Vineyard & Cellars, 60 Shaw Ave.

Sincerely,

DIMENSIONS 4 ENGINEERING, INC.

By: 
Seung Jun Park (Ted), RCE 89409



cc: File
Henry Belmonte

Table 11.1
Multiunit and Non-Residential Design Flow Rates

TYPE OF OCCUPANCY	GALLONS PER DAY
Airports	5 per passenger
Campgrounds:	
Campground with central comfort station	35 per person
Campground with flush toilet, no showers	25 per person
Day Camps (no meals)	15 per person
Luxury Camp, private bath	100 per person
Summer and seasonal	50 per person
Churches (sanctuary)	5 per seat
With kitchen wastes	7 per seat
Country Club	125 per person
Factories	35 per person per shift
Hospitals	250 per bed space
Kitchen waste only	25 per bed
Laundry waste only	40 per bed
Hotels/Motels with private bathroom (no kitchen waste)	60 per two person room
Hotels/Motels without private bathroom (no kitchen waste)	50 per two person room
Hotel/Motel with private bath and kitchen	75 gallons per person
Institutions other than hospitals	125 per bed space
Movie Theaters	5 per seat
Offices	20 per employee
Picnic parks with toilets and showers	10 per person
Picnic parks with toilet waste only	5 per person
Resort camps with limited plumbing	50 gallons per person
Restaurants:	
Kitchen waste (multi-use utensils)	5 per meal served
Kitchen waste (disposable utensils)	3 per meal served
And add the following for type of facility present:	
Conventional sit down	10 per person
Short Order	8 per person
Bar and Cocktail	3 per person
School (non-boarding)	20 per student
With gym and showers add	5 per student
With cafeteria using disposable utensils	3 per meal served
Self service laundries	50 gallons per wash
Service station	10 gallons per vehicle served
Retail stores	20 per employee
For public restrooms add	1 per 10 square feet
Swimming pools and bathhouses	10 per person
Tourist camps or mobile home parks with individual bath units	100 per person
Tourist camps or trailer parks with central bathhouse	75 per person
Work or construction camps (semi-permanent)	50 per person
Wine tasting facility (no meals served)	3 per person
Employee	15 per employee



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August 8, 2019

County of Sonoma
Department of Permit and Resource Management
2550 Ventura Avenue
Santa Rosa, Ca 95403

Subject: Septic System and Water Usage Observations

Worksite: VJB Vineyard & Cellars
60 Shaw Ave., Kenwood, CA
APN 050-275-028

Henry and Vittorio,

Per your request, Dimensions 4 Engineering has reviewed the water usage based on water meter readings from the Kenwood Water Company. We have compared the water usage to the proposed 1500 gallons per day capacity of the new subsurface drip system. Our finding and conclusions are as follows:

The property and facilities are currently being served by two septic systems with a total capacity of 840 gallons per day. The previous water meter usage report showed a peak monthly usage of 3577 gallons between the periods of April 2012 and January 2014.

The proposed subsurface drip system will have a capacity of 1500 gallons per day, an increase in capacity of 79% over the existing systems. An updated report for the time period of January 2018 to June 2019 shows a peak usage of 4039 gallons occurring in July 2018 with an average of 3045 gallons per month. Using the peak value, flows average out to approximately 950 gallons per week or 135 gallons per day. Taking a conservative approach by assuming all the flow is concentrated over the weekend days (Fri, Sat, and Sun) still only equates to approximately 320 gallons per day.

Using this extremely conservative approach, VJB Vineyard & Cellars will only be using 22% of their total septic capacity daily. In addition, this peak value only accounts for 38% of the currently existing 840 gallons septic capacity. Interpolating the peak monthly flow of 4039 gallons over 30 days results in an average daily flow of 135 gallons, less than 10% of the new proposed septic system.

The proposed subsurface drip system will consist of three main tank components; main septic tank, grease trap, and an Orenco AX-MAX75 pretreatment unit. The proposed 5000 gallon septic tank alone will be able to hold over 3 days of the maximum calculated 1500 gallons per day flow. This provides VJB Vineyard and Cellars ample time to address any septic issues that may arise during operations without posing as an environmental hazard to its surroundings.

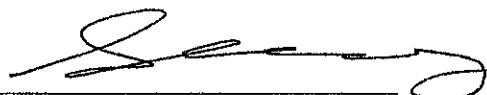
Customers partake mainly in wine tasting with an option to order food items from a limited menu. Due to the pre-prepped nature of the food served from their facilities and the usage of disposable utensils, we believe a 5 gallons per day per customers ordering food is more than adequate for septic usage calculations. Looking through sales records and receipts on their busiest days of the season (early September) we concluded that less than half the guests order prepared food. The rest of the guests are there strictly for wine tasting which is calculated at 3 gallons per day. With a peak employee count of 16 calculated at 15 gallons per day (240 gallons total), 1260 gallons remain for customer use. With assumptions of 160 guests ordering food (800 gallons) and 153 guests strictly wine tasting (460 gallons), we conservatively calculated that the facilities will be able to serve a total of 313 guests per day.

The business hours for VJB are from 10AM -4PM daily, for a total of 6 hours per day. We can interpolate the daily guest capacity of 313 guests to approximately 52 guests per hour over the 6 hour window. The 87 parking spaces in the proposed parking expansion and existing parking lot is fully capable of providing parking spaces for guests at any given time. Assuming 2 guests to a car, the 87 spaces should provide enough parking spaces for 174 guests at any given time to account for any potential surges during peak hours.

The proposed septic upgrades should be more than adequate to handle current loads and operations with enough capacity to absorb any additional loads and demands should it be necessary in the future.

Sincerely,

DIMENSIONS 4 ENGINEERING, INC.

By: 
Seung Jun Park (Ted), RCE 89409



cc: File