permit SONOMA

County of Sonoma
Permit & Resource Management Department

To: Interested Agencies July 26, 2019

The following Updated Traffic Study has been filed with the Sonoma County Permit and Resource Management Department.

File Number: PLP05-0009
Applicant Name: Henry Belmonte
Owner Name: Vittorio and Henry Belmonte
Site Address: 9125 Highway 12, Kenwood
APN: 050-272-028

Project Description: (Updated Traffic Study dated July 17, 2019) The project includes use of existing developed property (VJB Tasting Room, Market and Patio Dining) and redevelopment of a formerly developed 0.45 acre commercial Lot with a 53 space parking lot. The details of the proposal include dated August 2018 includes:

- 6 employees Monday-Thursday, 9 employees on Friday, and 16 employees on Saturday and Sunday.
- Continued Use of the outdoor patio dining, pizza oven, barbecue, and commercial kitchen on a daily basis.
- Reduction of parking on both sides of Shaw Avenue near the Highway 12 intersection. Restriping to accommodate right hand turning movements from Shaw Avenue to Highway 12.
- Remove permission of up to 15 special events a year.
- Participation in two industry wide events during approved hours.
- Use of Maple Avenue driveway for egress.
- Includes development and use of a commercially designated property at 75 Shaw Avenue as a commercial parking lot (53 spaces).

We are submitting the attached Traffic Study for your review and recommendation. Additional information is on file in this office.

Responses to referrals should include: (1) statement of any environmental concerns or uncertainties your agency may have with the project; (2) any comments you wish to make regarding the merits of the project; and (3) your proposed conditions and mitigations for this project. Responsible agencies under CEQA are requested to indicate whether permits will be required for this project.

Your comments will be appreciated by August 16, 2019 and should be sent to the attention of: Blake Hillegas (Blake.Hillegas@sonoma-county.org), File PLP05-0009. The Project Planner can also be reached at 707-565-1392.

Please send a copy of your comments to the applicant(s) or their representatives as indicated on the attached Planning Application.

[X] PRMD Management Group
[X] Health Specialist
[X] DTPW, Land Development
[X] BOS Dist 1 Director and Commissioners
[X] Valley of the Moon Alliance and Kenwood Press
[X] State Dept of Transportation (Caltrans)

Planning Application

PJR-001

File#: PLP 05-0009

Type of Application:

- ☐ Admin Cert. Compliance
- ☐ Ag./Timber Preserve/Contract
- ☐ Cert. of Compliance
- ☐ Cert. of Modification
- ☐ Coastal Permit
- ☐ Design Review Admin.
- ☐ Design Review Comm./Ind.
- ☐ Design Review Residential
- ☐ Design Review Signs
- ☐ General Plan Amendment
- ☐ Lot Line Adjustment
- ☐ Major Subdivision
- ☐ Minor Subdivision
- ☐ Mobile Home Zoning Permit
- ☐ Ordinance Interpretation
- ☐ Second Unit Permit
- ☐ Specific/Area Plan Amendment
- ☐ Use Permit
- ☐ Variance
- ☐ Zone Change
- ☑ Other: USE PERMIT MODIFICATION

Applicant (Contact Person):

Henry Belmonte
Name
Henry Belmonte
Mailing Address
60 Shaw Ave. Ca 95452
City/Town State Zip
Kenwood
Phone Fax
707-833-2300 707-975-3991
email
Signature 10/25/14 Date

Owner, if other than Applicant:

Name
Mailing Address
City/Town State Zip
Phone Fax
email
Signature Date

Other Persons to be Notified: (Specify: Other Owner(s), Agent, Lender, Architect, Engineer, Surveyor)

Name	Name	Name
Mailing Address	Mailing Address	Mailing Address
City/Town State Zip	City/Town State Zip	City/Town State Zip
Title	Title	Title
Phone Fax	Phone Fax	Phone Fax
email	email	email

Project Information:

VJB Vineyards and Cellars
Address(es) 60 Shaw Ave
Assessor's Parcel Number(s) 050-275-028
City/Town Kenwood
Project Description: VJB Cellars is a tasting room and deli and marketplace and cafe with Pizza & BBQ
(Please attach additional sheet(s) if needed)
Acreage
Site Served by Public Water? ☑ Yes ☐ No Site Served by Public Sewer? ☐ Yes ☑ No Number of new lots proposed n/a

DO NOT WRITE BELOW THIS LINE - To Be Completed by PRMD Staff

Planning Area: 1 Supervisorial District: 1 Current Zoning: C1, SR General Plan Land Use:
Specific Plan: North Sonoma Valley S.P. Land Use: Needs CEQA Review? ☐ yes ☐ no

Commercial/Industrial Uses: (Enter numbers where applicable)

Bldg. sq. ft. Existing: Proposed: Existing Employees: New Employees:
New Manufactured Homes: New Units For Sale: New Units For Rent: Density Bonus Units:
Violation? ☐ yes ☒ no; Application resolve planning violation? ☐ yes ☐ no; Penalty applicable? ☐ yes ☐ no; Civil Penalty Factor N/A
Previous Files:
Application accepted by SCOTT HUNSPERGER Date 7/1/14

Sonoma County Permit and Resource Management Department
2550 Ventura Avenue ✧ Santa Rosa, CA ✧ 95403-2829 ✧ (707) 565-1900 ✧ Fax (707) 565-1103

Supplemental Application Information

Existing use of property: Winery tasting room, deli and marketplace
Former residential property - vacant

Acreage: 1.89

Existing structures on property: Tasting Room & Cafe with outdoor dining misc. retail uses

Proximity to creeks, waterways and impoundment areas: none

Vegetation on site: vineyards

General topography: commercial, ag

Surrounding uses to (Note: An adjoining road is not a use.)
North: vineyards and businesses South: vineyards and businesses
East: residential West: vineyards and businesses

New structures proposed (size, height, type): to comply with department of health, our outdoor pizza and bbq area must be closed in "temporarily; only when prepping of food is taking place".

Number of employees: Full time: 6 Part time: 10 Seasonal:

Operating days: monday-sunday Hours of operation: 10-4 daily

Number of vehicles per day: Passenger: Trucks:

Water source: Kenwood Water Co Sewage disposal:

Provider, if applicable: Kenwood Water Co Provider, if applicable:

New noise sources (compressors, power tools, music, etc.): none

Grading proposed: Amount of cut (cu. yds.): na Amount of fill (cu. yds.): na Will more than one acre be disturbed by construction of access roads, site preparation and clearing, fill or excavation, building removal, building construction, equipment staging and maintenance, or other activities? Yes ____ No X If Yes, indicate area of disturbance(acres):

Identify method of site drainage (sheet flow, storm drain, outflow to creek or ditch, detention area, etc.):

Vegetation to be removed: none

Will proposal require annexation to a district in order to obtain public services: Yes ____ No X

Are there currently any hazardous materials (chemicals, oils, gasoline, etc.) stored, used or processed on this site? Yes ____ No X

Will the use, storage, or processing of hazardous materials occur on this site in the future if this project is authorized? Yes ____ No X

Fire safety information (existing/proposed water tanks, hydrants, emergency access and turnaround, building materials, etc): n/a

J. Kapolchok
Associates

VJB Vineyard and Cellars
Proposal Statement
Modified Use Permit

August 2018

Owner/Applicant:	Vittorio and Henry Belmonte VJB Cellars 60 Shaw Avenue Kenwood, CA
Engineer:	Dimensions 4 Engineering, Inc. 2952 Mendocino Avenue, Suite C Santa Rosa, CA BkF Engineers 200 4Th Street, Suite 300 Santa Rosa, CA. 95401
Legal Counsel	Stephen K. Butler Clement Fitzpatrick & Kenworthy 3333 Mendocino Avenue Santa Rosa, CA
Land Use Consultant	J. Kapolchok & Associates 843 Second Street Santa Rosa, CA 95404
Traffic Engineer	Dalene Whitlock PE, PTOE W-Trans Transportation Engineers 490 Mendocino Avenue Santa Rosa, CA

843 Second Street
Santa Rosa, CA 95404
Tel 707.526.8939
FAX 707.526.8985
jkapolchok@sbcglobal.net

Location:	60 Shaw Avenue and 75 Shaw Avenue Kenwood, CA 95441
APN:	050-275-028 and 050-275-052
Site Size:	± 1.52 acres (main facility) and .457-acre (off-site parking)
General Plan:	Limited Commercial
Area Plan:	North Sonoma Valley Area Plan
Zoning:	C1-SR
Proposal:	The request is for a modification to the existing Use Permit to formally acknowledge administratively approved uses; update project conditions and, provide additional parking off-site.

PROJECT DESCRIPTION

Request:
VJB Vineyards and Cellars requests a modification to an existing Use Permit to acknowledge the outdoor seating area and outdoor kitchen (BBQ), the installation of a right-hand turn lane through the restriping of a portion of Shaw Avenue, the widening of the shoulder along the northerly side of Highway 12 across from the property frontage, the opening of Maple Avenue for egress only, the reduction of off-site parking along Shaw Avenue, the addition of an off-site parking lot at 75 Shaw Avenue, the deletion of the right to 15 evening special events of 100 guests, restriction of the hours of operation to 10am to 4pm, and the modification to conditions, as appropriate, to reflect changes in the project, which have occurred over time and by this request.

Location:
The ± 1.52-acre VJB Vineyards and Cellars site (APN 050-275-028) lies southeast of the intersection of State Highway 12 and Shaw Avenue. The project address is 60 Shaw Avenue, Kenwood CA. The .457-acre off-site parking lot parcel (APN 050-275-052) lies approximately 137 ft. south of State Highway 12 and southwest of the intersection of Shaw Avenue and State Highway 12. The address is 75 Shaw Avenue.

Background:
On October 9, 2007 by Resolution No. 07-0846, the Board of Supervisors over-turned the appeal of Samuel K. McHenry and approved a Use Permit for Vittorio and Henry Belmonte on property identified as APN 050-275-028. The Use Permit

granted conditional approval for a 3,342sq. ft. market place, wine tasting room, and associated offices; construction of a 1,800sq. ft. wine case storage building, and the designation of an existing residence as a residence secondary to a commercial use. Prior to construction of a left-hand turn-lane onto Shaw Avenue, hours of operation for the market and tasting room are restricted to 10am to 4pm, seven days per week. After construction of a left turn lane onto Shaw Avenue, the permitted hours of operation are seven days per week, from 8am to 5pm for the market place and 11am to 5 pm for the wine tasting room. A maximum of 15 special events per year with a maximum attendance of 100 persons are permitted after construction of the left turn lane. The end time for events is 10pm. With the exception of barbequed food, only catered food may be offered to the guests at special events. No commercial kitchen was permitted. Participation in valley-wide wine events and small evening winemaker dinners and other promotional wine tastings for groups not to exceed 25 attendees were not considered special events and were therefore permitted. Hours of operation for these non-special events must comply with the hours of operation per the Use Permit.

Existing Uses:

The property is developed with the uses as approved under the approved Use Permit (PLP05-0009). Included in the uses are the outdoor pizza oven and barbeque, permitted under PRMD review and building permit; outdoor picnic/dining area per proposal statement; food and wine pairing, permitted as part of the "visitor serving uses" under a C-1 district (restaurant serving alcohol – see staff report, dated March 8, 2007, p. 3); retail store, gelato shop and office (conversion of existing residence – permitted uses under the C-1 district); 37 space paved parking lot; landscaping; and, the paving of 50 ft. from the Stop Sign towards the project entrance along Shaw Avenue.

Requested Project Modifications:

VJB Vineyard and Cellars requests a modification to the existing Use Permit for the:

- Recognition of the outdoor open and partially enclosed picnic/patio/dining areas and partially enclosed outdoor commercial kitchen (BBQ and Pizza oven). Square footages of the dining areas are described in a letter report regarding parking and septic calculations and site graphic prepared by Dimensions 4 Engineering, Inc. The report is dated January 5, 2016, and the graphic is dated December 2015. Both are included as attachments. An updated site plan showing the current seating arrangement and van/limousine drop-off area has also been included.
- Clarification that the preparation and/self-service (no wait staff) of cooked food from the barbeque and pizza oven in the outdoor picnic/patio/dining areas can occur on a daily basis.
- The installation of a right-hand turn lane through the restriping of a portion of Shaw Avenue and the removal of parking on both sides of Shaw Avenue as shown in the graphic prepared by BkF, dated July 2018.

- 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 ft. from the Stop Sign to the entrance and signage as outlined in the conditions of approval.
- Retain the 37 on-site parking spaces. Construct, landscape and fence an off-site parking lot at 75 Shaw Avenue. Said parking lot will yield approximately 53 spaces.
- 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 Monday through Thursday; 9 employees on Friday and 16 employees Saturday and Sunday.
- Hours of Operation:
  - 10am to 4pm daily

CEQA Baseline:
The CEQA baseline for the requested modifications is the conditions as they presently exist on the property. Please refer to the letter prepared by Stephen K. Butler, dated January 31, 2017. The only proposed change to existing conditions under this Use Permit modification is the creation of an off-site parking lot to serve VJB Vineyard & Cellars at 75 Shaw Avenue. This parcel is zoned C-1 and designated Limited Commercial.

Requested Condition Modifications:
The applicant requests modification of the following Conditions of Approval placed on PLP05-0009 by Board of Supervisors' Resolution No. 07-0846, adopted October 9, 2007. The reason for the request is to bring PLP05-0009 into conformity with actual practices at the project site which resulted from past administrative authorization from the County Fire Marshal, Sonoma County Department of Transportation and Public Works and PRMD.

Condition 41a. – This condition required the developer to construct or install improvements to create a right-hand turn pocket for eastbound traffic on Shaw Avenue, at the intersection with Highway 12. Construction of the right-hand turn lane would necessitate the relocation of power poles, both to the east and west side of Highway 12. Subsequent to the approval of the use permit, the applicant's traffic engineer submitted a report to Jason Nutt, then director of the County's Department of Transportation and Public Works. On July 10, 2014, Mr. Nutt sent to the project applicant a response to the April 3, 2014 "Focused Traffic Analysis for the VJB Marketplace Modification" prepared by W-Trans and stated that the construction of a right-hand turn lane from Shaw Avenue to Highway 12 was not required based on the minor use permit modifications described in the April 3, 2014, report. In accordance with that understanding, the right-hand turn lane was not installed, due in part to the fact that it was not warranted and the unanticipated cost of having to relocate power poles in connection with construction of the right-hand turn lane. The applicant proposes the creation of a right-turn lane through the restriping of a portion of Shaw Avenue as shown on the plans developed by BkF,

dated July 2018. This alternative negates the necessity of moving the existing power pole. The applicant requests that Condition 41a. be amended to read as follows:

> **41a.** A right-hand turn pocket will be provided as shown on plans identified as 66 Shaw Avenue, prepared by BkF Engineers and dated July 2018.

Conditions 41c., d. and e.– The applicant requests the deletion of Conditions 41c. and d. and the Mitigation Monitoring under Condition 41e.

As discussed later herein in connection with Conditions 80 and 86, PRMD is authorized to modify the Conditions of Use Permit Approval for minor adjustments to respond to unforeseen field constraints provided that the goals of these conditions can be safely achieved in some other manner. The applicant has been advised by its consulting engineer and traffic engineer that construction of the left turn lanes anticipated by Conditions 41c., d. and e. will necessitate the movement of at least six power poles. The consulting engineer advised the applicant that there is insufficient CalTrans right-of-way in order to do the scope of the improvements anticipated by Conditions 41c., d. and e. and to relocate the existing utilities out of the CalTrans right-of-way and onto adjacent real property. Accordingly, it appears to the applicant that fulfillment of the obligation to construct the left-hand turn lanes is legally impossible without obtaining additional right-of-way from adjoining property owners. The applicant has no authority or power to accomplish this requirement. Pursuant to Condition No. 86, the applicant will delete from the prior project description the right to conduct a maximum of 15 special events annually with a maximum attendance of 100 persons. Since the left-hand turn pockets were required as a safety measure to address the conduct of special events up to 100 persons and extension of the hours of operation into the evening peak hours, the applicant believes that the need for Conditions 41c., d. and e. are obviated by deleting vested rights to conduct 15 special events with a maximum attendance of 100 persons and the extended hours of operation.

In addition to the deletion of previously granted rights to events, the applicant also offers to dedicate to CalTrans an additional easement along the project's frontage on Highway 12 to accommodate a one-half section of left-hand turn lane should CalTrans, at some point in the future, choose to improve the entirety of Highway 12 through Kenwood with three lanes.

Condition 47 – Condition No. 47 required the developer to have an improvement plan for Maple Avenue emergency vehicle access prepared and submitted for approval by the County Fire Chief. In accordance with direction given by the County Fire Chief, the improvements to allow access through the project site onto Maple Avenue were made, but the Fire Chief believed that the Maple Avenue access should not only be open to EVA traffic, but also patrons egressing the property onto Maple Avenue. The applicant requests that Condition 47 be modified to read as follows:

> The developer shall improve the access onto Maple Avenue in order to allow both emergency vehicle access and an egress only exit for patrons

entering the project site from Shaw Avenue and exiting the project site onto Maple Avenue. Signs shall be posted along the Maple Avenue frontage to indicate that no passenger loading or unloading is allowed on Maple Avenue.

Condition 49c. – Condition 49c. required the developer to install signage along the developer's frontage with both Shaw Avenue and Maple Avenue indicating that no vehicle parking would be permitted. The applicant requests modification of Condition 49c to read as follows:

> The developer shall install signage indicating that no vehicle parking will be permitted along the developer's frontage with Maple Avenue. The developer shall install signage indicating that no vehicle parking will be allowed in the first two spaces along the frontage of the project site with Shaw Avenue. For remainder of the frontage with Shaw Avenue, signage will be posted indicating that no passenger loading or unloading may take place on Shaw Avenue. The applicant shall, on weekends, provide an employee to advise individuals attempting to load or unload passengers on both Shaw and Maple Avenues that no passenger loading or unloading is authorized in those areas.

Condition 57 – Condition 57 required the developer to construct public improvements or enter into an improvement agreement and post acceptable security with the County. Improvements were required to be completed prior to occupancy or commencement of the approved activity. The applicant requests modification of Condition No. 57 to read as follows:

> To the extent that required public improvements have not yet been completed, the developer shall complete construction of all the required public improvements or enter into an Improvement Agreement and post acceptable security with the County of Sonoma, agreeing to complete the required construction within 24 months. Included in this Improvement Agreement shall be a requirement that the developer enter into an Improvement Maintenance Agreement and post security with the County of Sonoma, to guarantee the improvements for a period of one (1) year after acceptance of the improvements as being complete by the County.

Condition 58 – Describes the uses permitted, required improvements and hours of operation. The applicant requests modification of Condition No. 58 to read as follows:

> This Use Permit and Design Review allows the construction of a 3,342square foot marketplace, outdoor dining/picnicking (no wait staff) with wine tasting room and associated offices, and construction of a 1,800square foot wine case storage building. Hours of operation are 10am to 4pm., seven days a week. The previously vested 15 events have been voluntarily removed. The use shall be operated in accordance with the modified proposal statement (January 2018) and August

revised site plans located in File No. PLP05-0009, as modified by these conditions.

Condition 59 – The applicant requests deletion of several sentences in Condition 59. This request is made for at least two reasons. The first is that the withdrawal of the right to conduct a maximum of 15 special events annually with a maximum attendance of 100 persons is being surrendered by the applicant. This makes much of Condition 59 superfluous. The second reason for this request is that Condition 59 specifically anticipated barbequed food. Construction of the barbeque, pizza oven and related facilities took place in accordance with Building Permit BLD11-4212 dated September 29, 2011. That building permit was subsequently finaled. PRMD approval of final occupancy occurred on August 7, 2012. Since the improvements have been constructed, to the extent that the barbeque and pizza and their related preparation area constitute a commercial kitchen, the improvements are already in place and have been finaled and cleared for occupancy. The applicant wishes to bring Condition 59 into conformance with actual improvements now located on the project site. The applicant requests that Condition No. 59 be amended to read as follows:

> With the exception of barbequed food and sandwiches, only catered food may be offered to guests purchasing food at the deli, pizza or barbeque areas.

Condition 62 – Condition 62 indicated that the Maple Avenue driveway can only be used as an emergency vehicle access. Modification of this condition is requested to conform to modified Condition No. 47, above.

Condition 63 – Condition 63 stated that no pedestrian connections to Shaw Avenue were permitted except for the one immediately adjacent to the project entry drive on Shaw Avenue. The condition called for removing the gate in the stucco wall adjacent to the patio area. Pursuant to direction of the Fire Marshal, the gate and the stucco wall remained in order to allow additional egress from the project site for fire safety purposes. The applicant requests deletion of Condition No. 63.

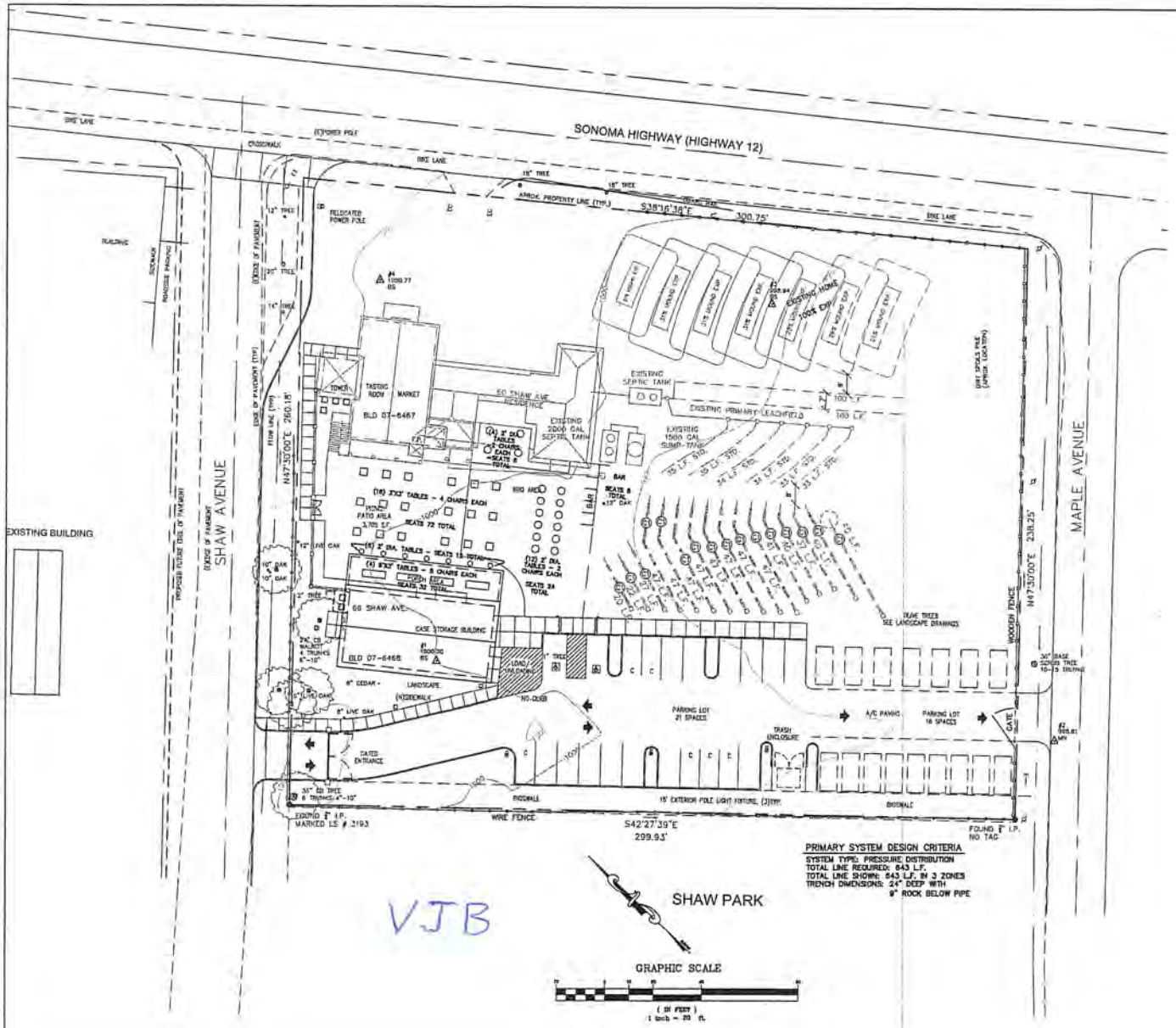
Conditions 82 and 83 – The applicant requests deletion of Conditions 82 and 83 due to its surrender of its right to conduct 15 special events per year with a maximum attendance of 100 persons.

Conditions 80 and 86 – Conditions 80 and 86 authorized PRMD to modify the Use Permit Conditions of Approval for minor adjustments to respond to unforeseen field constraints provided that the goals of the conditions can be safely achieved in some other manner. A number of the conditions were administratively modified and actual operation of the project site at this time conforms to authorization or direction received from County officials in the past in connection with the use permit.

Additional Conditions of Approval

The applicant requests that the following additional Conditions of Approval be imposed upon the use permit:

1. The applicant shall construct an off-site parking lot for the exclusive use of VJB Vineyards & Cellars on property located at 75 Shaw Avenue; further described as APN: 050-275-052. Said off-site parking lot shall contain ±53 spaces or as many as is reasonably feasible.
2. A van/limousine drop-off area will be located on-site.



VJB

PRIMARY SYSTEM DESIGN CRITERIA

SYSTEM TYPE: PRESSURE DISTRIBUTION
TOTAL LINE REQUIRED: 843 L.F.
TOTAL LINE SHOWN: 843 L.F. IN 3 ZONES
TRENCH DIMENSIONS: 24" DEEP WITH 9" ROCK BELOW PIPE

UNDERGROUND NOTE

THE LOCATIONS OF UNDERGROUND STRUCTURES & UTILITIES SHOWN HEREON HAS BEEN DETERMINED FROM SURFACE EVIDENCE AND/OR RECORD INFORMATION. THE SURVEYOR ACCEPTS NO LIABILITY FOR THE LOCATION, EXISTENCE OR NONEXISTENCE OF THOSE UNDERGROUND STRUCTURES, UTILITY LINE AND RELATED APPURTENANCES.

PROPERTY NOTES:

1) PROPERTY LINES SHOWN ARE APPROXAMATED FROM RECORD DATA AND 2 FOUND MONUMENTS AS PER MAP 525-13

2) CONTOURS SHOWN ARE APPROXAMATED FROM AN ASSUMED ELEVATION OF 1000.00 FEET FOR CONTROL POINT 1

NOTE:
ALL GRADED AREAS SHALL BE SEEDED AND FERTILIZED AND INCLUDE STRAW MULCH FOR EROSION CONTROL. SEE EROSION CONTROL NOTES PROVIDED WITHIN THIS SET OF PLANS.

SITE PLAN

FOR

VITTORIO & HENRY BELMONTE

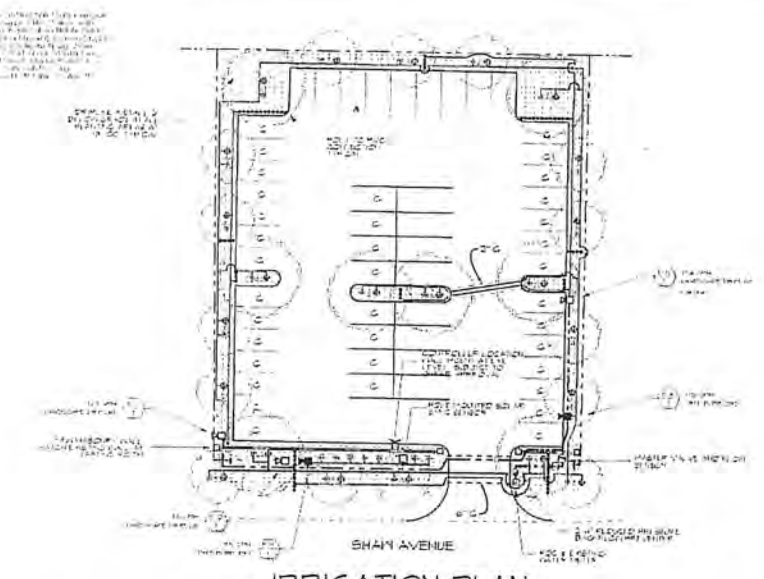
AT

60 SHAW AVENUE
KENWOOD, CALIFORNIA
A.P.NO. 050-275-028

dimensions 4 engineering inc
ANALYSIS • PLANNING • SURVEYING • ENGINEERING
3332 MENDOCINO AVENUE, SANTA ROSA CA. 95403 (707) 579-3433

MAY. 2015 7272 SHEET 1 OF 1

U.S.A NOTE



IRRIGATION PLAN

IRRIGATION LEGEND

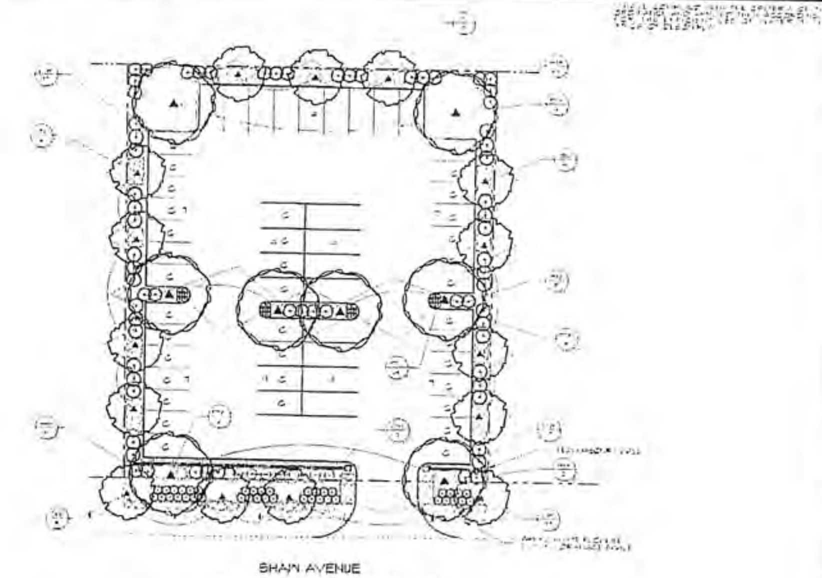
SYMBOL	EQUIPMENT	MANUFACTURER	MODEL	REMARKS
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

REFER TO SHEET L-2 FOR WATER USE CALCULATIONS

IRRIGATION NOTES

NOTES FOR TYPICAL IRRIGATION SYSTEM
IRRIGATION LATERAL PIPE SIZING TO BE DETERMINED BASED ON THE FOLLOWING INFORMATION

1. ALL LATERALS TO BE SCH 40 PVC.
2. FLOW SHALL NOT EXCEED 5' PER SECOND.
3. MAXIMUM FRICTION LOSS THROUGH ANY SECTION OF PIPE SHALL NOT EXCEED 3.00 PSI PER 100' OF PIPE.
4. NO LATERAL SHALL BE SMALLER THAN 3/4" DIAMETER.
5. MAXIMUM OPERATING PRESSURE SHALL BE 25 PSI AT THE SPRINKLER HEAD AND 50 PSI FOR ROTORS.
6. MAX FLOW THROUGH LATERALS AS FOLLOWS:
   - 3/4" SCH 40 PVC: 5.5 GPM
   - 1" SCH 40 PVC: 10.5 GPM
   - 1-1/4" SCH 40 PVC: 17.5 GPM
   - 1-1/2" SCH 40 PVC: 27 GPM
   - 2" SCH 40 PVC: 45 GPM
7. ALL MAINLINE TO BE 1-1/2" IN SIZE UNLESS OTHERWISE INDICATED.
8. INSTALL SUPPLEMENTAL CHECK VALVES IN LATERALS AT 15' VERTICAL ELEVATION CHANGE, AS REQUIRED.



PLANTING PLAN

PLANT LEGEND

SYMBOL	SIZE	BOTANICAL NAME	COMMON NAME	REMARKS	WATER USE
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

PLANTING NOTES

PARKING LOT
75 SHAW AVE

IRRIGATION AND PLANTING PLANS

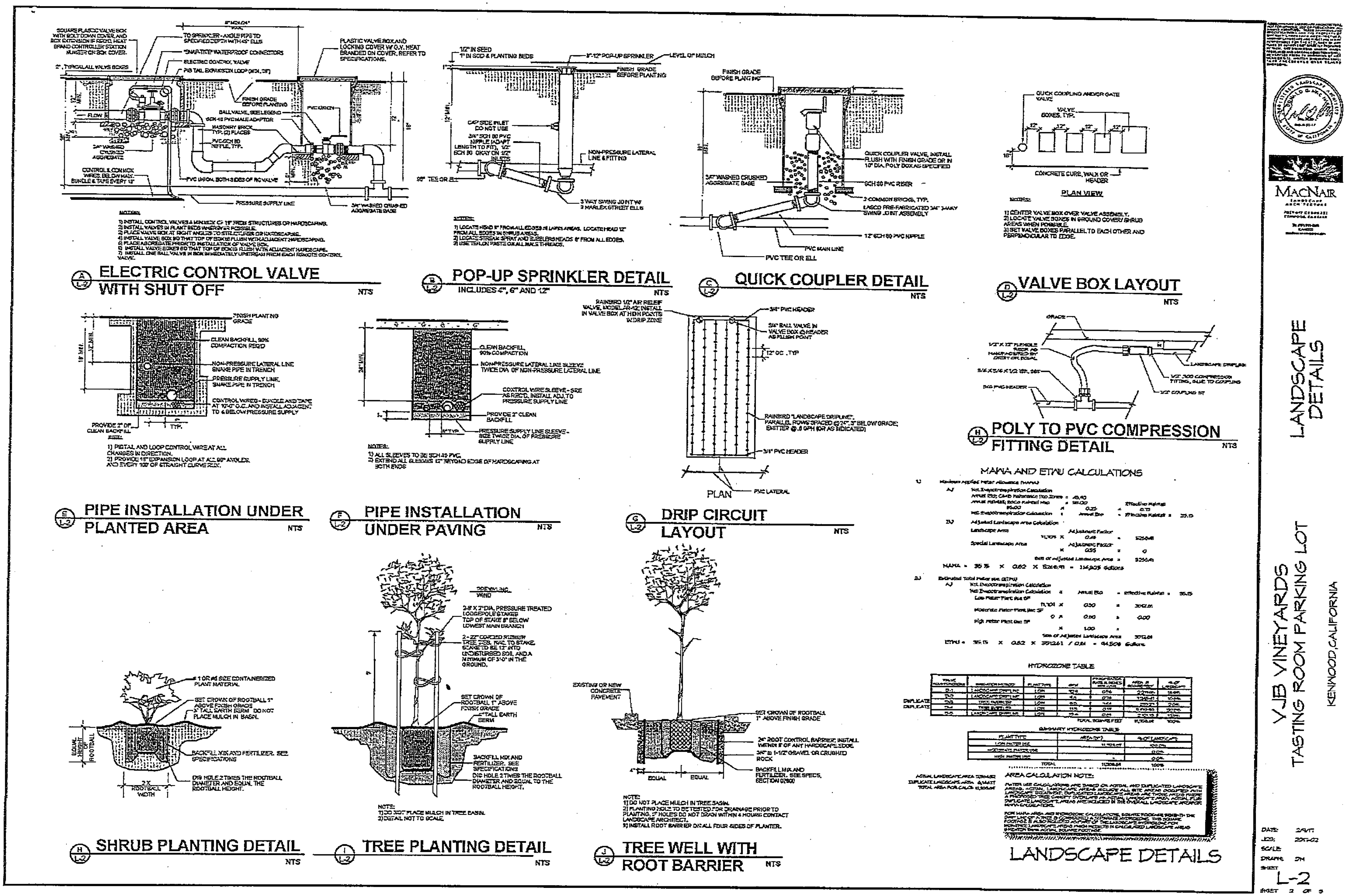
0 10 20 40

IRRIGATION AND PLANTING PLANS

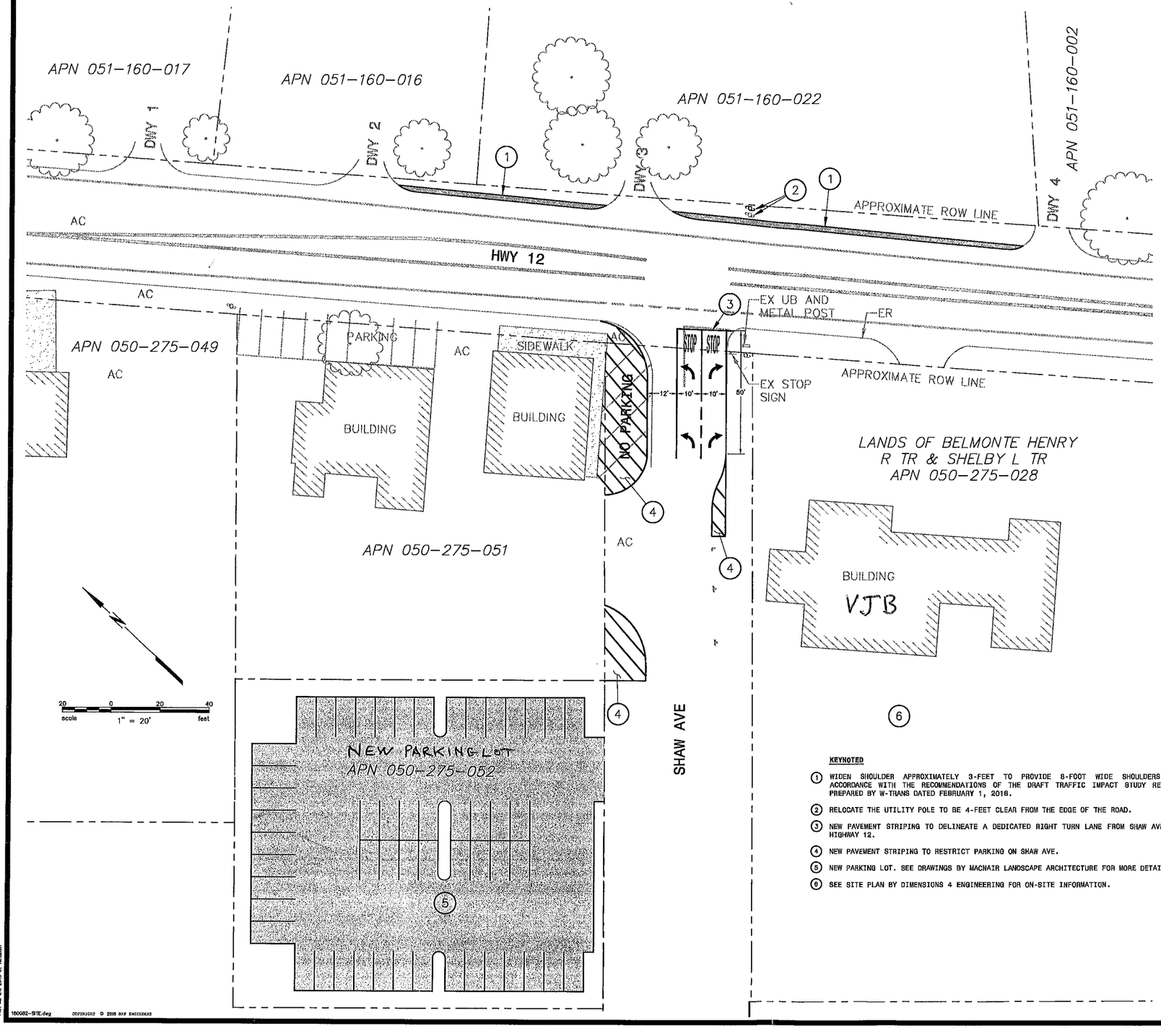
VJB VINEYARDS
TASTING ROOM PARKING LOT
KENWOOD, CALIFORNIA

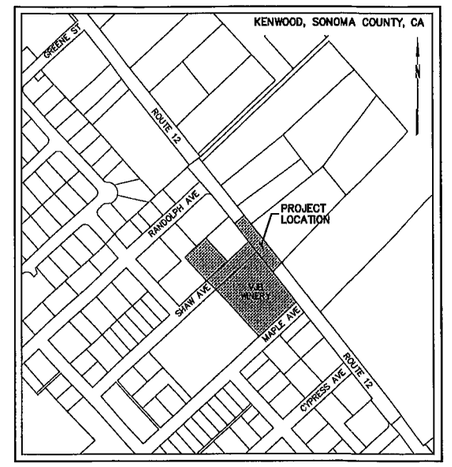
MACNAIR

L-1


ELECTRIC CONTROL VALVE WITH SHUT OFF
NTS
POP-UP SPRINKLER DETAIL
INCLUDES 4", 6" AND 12"
NTS
QUICK COUPLER DETAIL
NTS
VALVE BOX LAYOUT
NTS
PLAN VIEW
PIPE INSTALLATION UNDER PLANTED AREA
NTS
PIPE INSTALLATION UNDER PAVING
NTS
DRIP CIRCUIT LAYOUT
NTS
PLAN
POLY TO PVC COMPRESSION FITTING DETAIL
NTS
MAWA AND ETWU CALCULATIONS
HYDROZONE TABLE
AREA CALCULATION NOTES:
SHRUB PLANTING DETAIL
NTS
TREE PLANTING DETAIL
NTS
TREE WELL WITH ROOT BARRIER
NTS
LANDSCAPE DETAILS
MACNAIR
LANDSCAPE DETAILS
VJB VINEYARDS
TASTING ROOM PARKING LOT
KENWOOD, CALIFORNIA
L-2

NOTE:
EXISTING FEATURES SHOWN HEREON WERE OBTAINED FROM CALTRANS RECORD DRAWINGS AND SONOMA COUNTY GIS DATA AND ARE APPROXIMATE. THIS IS A CONCEPTUAL EXHIBIT FOR PLANNING PURPOSES ONLY.





VICINITY MAP
NOT TO SCALE

ABBREVIATIONS

AC	ASPHALT CONCRETE
APN	ASSESSOR'S PARCEL NUMBER
DWY	DRIVEWAY
EG	EXISTING GROUND
EP	EDGE OF PAVEMENT
ER	EDGE OF ROAD
FT	FOOT
HDM	CALTRANS HIGHWAY DESIGN MANUAL
HWY	HIGHWAY
IB	"I" BEAM
EX	EXISTING
MIN	MINIMUM
MPH	MILE PER HOUR
NB	NORTHBOUND
PUE	PUBLIC UTILITY EASEMENT
ROW	RIGHT OF WAY
SB	SOUTHBOUND
TYP	TYPICAL
UB	UTILITY BOX

SYMBOLS & LEGEND

EXISTING	PROPOSED	
○		UTILITY POLE
□		CATCH BASIN
⊕		TREE
		APPROXIMATE ASSESSOR'S PARCEL LINE
OH		OVERHEAD UTILITY LINE
		CONCRETE
		PAVEMENT

KEYNOTED

1. WIDEN SHOULDER APPROXIMATELY 3-FEET TO PROVIDE 8-FOOT WIDE SHOULDERS IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE DRAFT TRAFFIC IMPACT STUDY REPORT PREPARED BY W-TRANS DATED FEBRUARY 1, 2018.
2. RELOCATE THE UTILITY POLE TO BE 4-FEET CLEAR FROM THE EDGE OF THE ROAD.
3. NEW PAVEMENT STRIPING TO DELINEATE A DEDICATED RIGHT TURN LANE FROM SHAW AVE TO HIGHWAY 12.
4. NEW PAVEMENT STRIPING TO RESTRICT PARKING ON SHAW AVE.
5. NEW PARKING LOT. SEE DRAWINGS BY MACNAIR LANDSCAPE ARCHITECTURE FOR MORE DETAILS.
6. SEE SITE PLAN BY DIMENSIONS 4 ENGINEERING FOR ON-SITE INFORMATION.

PARKING LOT, SHAW AVENUE TURN LANE & HWY 12 SHOULDER WIDENING CONCEPTUAL EXHIBIT

VJB WINERY
SON012623 / SON-12-26.68-26.75
66 SHAW AVE, KENWOOD, CA (APN 050-275-051)
JULY 2018

PREPARED BY
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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
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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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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.

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Updated Traffic Impact Study for the VJB Vineyard and Cellars

Figure 1 – Study Area, Lane Configurations & Existing/Future Traffic Volumes

W-Trans

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
NB (Shaw Ave) Approach	*23.2*	*C*	*29.3*	*D*	*17.1*	*C*
2. SR 12/Maple Ave	0.0	A	0.2	A	0.1	A
NB (Maple Ave) Approach	*13.5*	*B*	*21.7*	*C*	*18.2*	*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*

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	0.3	A	0.2	A	0.6	A
NB (Shaw Ave) Approach	*30.5*	*D*	*31.6*	*D*	*21.2*	*C*
2. SR 12/Maple Ave	0.0	A	0.4	A	0.2	A
NB (Maple Ave) Approach	*14.4*	*B*	*27.0*	*D*	*18.1*	*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*

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*

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Updated Traffic Impact Study for the VJB Vineyard and Cellars

Figure 2 – Project, Existing plus Project & Future plus Project Traffic Volumes

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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 site 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

References

2014 Collision Data on California State Highways, California Department of Transportation, 2017

A Policy on Geometric Design of Highways and Streets, 6th Edition, American Association of State Highway and Transportation Officials, 2011

Caltrans 2015 Traffic Volumes, http://www.dot.ca.gov/trafficops/census/volumes2015/Route12-15.html

Guide for the Preparation of Traffic Impact Studies, California Department of Transportation, 2002

Guidelines for Traffic Impact Studies, County of Sonoma, 2016

Highway Capacity Manual, Transportation Research Board, 2010

Highway Design Manual, 6th Edition, California Department of Transportation, 2017

Intersection Channelization Design Guide, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985

Sonoma County Bicycle and Pedestrian Master Plan, County of Sonoma, 2014

Sonoma County General Plan 2020, County of Sonoma, 2013

Sonoma County Municipal Code, Municipal Code Corporation, 2017

Sonoma County Transit, http://sctransit.com/

Statewide Integrated Traffic Records System (SWITRS), California Highway Patrol, 2012-2016

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Appendix A

Collision Rate Calculations

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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

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

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

	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

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

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

	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

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Appendix B

Intersection Turning Movement Counts

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National Data & Surveying Services

Intersection Turning Movement Count

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

Project ID: 17-07753-001
Date: 9/21/2017

Total

NS/EW Streets:	SR 12				SR 12				Shaw Ave				Shaw Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	134	0	0	0	141	1	0	1	0	0	0	0	0	0	0	280
7:15 AM	1	162	0	0	0	139	3	0	2	0	0	0	0	0	0	0	307
7:30 AM	0	142	0	0	0	174	0	0	2	0	0	0	0	0	0	0	318
7:45 AM	0	169	0	0	0	182	3	0	2	0	1	0	0	0	0	0	357
8:00 AM	3	179	0	0	0	149	1	0	1	0	3	0	0	0	0	0	336
8:15 AM	2	188	0	0	0	181	3	0	2	0	0	0	0	0	0	0	376
8:30 AM	1	135	0	0	0	175	5	0	2	0	2	0	0	0	0	0	320
8:45 AM	1	121	0	0	0	168	3	0	2	0	2	0	0	0	0	0	297
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	11	1230	0	0	0	1309	19	0	14	0	8	0	0	0	0	0	2591
APPROACH %'s :	0.89%	99.11%	0.00%	0.00%	0.00%	98.57%	1.43%	0.00%	63.64%	0.00%	36.36%	0.00%					
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	6	671	0	0	0	687	12	0	7	0	6	0	0	0	0	0	1389
PEAK HR FACTOR :	0.500	0.892	0.000	0.000	0.000	0.944	0.600	0.000	0.875	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.924
	0.891				0.945				0.813								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	184	0	0	0	171	0	0	5	0	0	0	0	0	0	0	364
4:15 PM	2	193	0	0	0	153	0	0	6	0	2	0	0	0	0	0	356
4:30 PM	2	169	0	0	0	184	1	0	1	0	4	0	0	0	0	0	361
4:45 PM	0	185	0	0	0	175	0	0	2	0	3	0	0	0	0	0	365
5:00 PM	2	164	0	0	0	166	1	0	5	0	1	0	0	0	0	0	339
5:15 PM	1	210	0	0	0	150	0	0	2	0	1	0	0	0	0	0	364
5:30 PM	0	178	0	0	0	183	0	0	1	0	0	0	0	0	0	0	362
5:45 PM	1	160	0	0	0	167	3	0	1	0	0	0	0	0	0	0	332
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	12	1443	0	0	0	1349	5	0	23	0	11	0	0	0	0	0	2843
APPROACH %'s :	0.82%	99.18%	0.00%	0.00%	0.00%	99.63%	0.37%	0.00%	67.65%	0.00%	32.35%	0.00%					
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	8	731	0	0	0	683	1	0	14	0	9	0	0	0	0	0	1446
PEAK HR FACTOR :	0.500	0.947	0.000	0.000	0.000	0.928	0.250	0.000	0.583	0.000	0.563	0.000	0.000	0.000	0.000	0.000	0.990
	0.947				0.924				0.719								

National Data & Surveying Services

Intersection Turning Movement Count

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

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

Total

NS/EW Streets:	SR 12				SR 12				Shaw Ave				Shaw Ave				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
12:00 PM	10	161	0	0	0	127	3	0	0	0	0	0	0	0	0	0	301
12:15 PM	3	159	0	0	0	127	4	0	2	0	3	0	0	0	0	0	298
12:30 PM	9	144	0	0	0	154	5	0	2	0	1	0	0	0	0	0	315
12:45 PM	5	164	0	0	0	134	6	0	5	0	6	0	0	0	0	0	320
1:00 PM	5	161	0	0	0	146	6	0	2	0	6	0	0	0	0	0	326
1:15 PM	6	156	0	0	0	150	4	0	2	0	4	0	0	0	0	0	322
1:30 PM	7	163	0	0	0	116	5	1	7	0	4	0	0	0	0	0	303
1:45 PM	6	143	0	1	0	156	8	0	6	0	7	0	0	0	0	0	327
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	51	1251	0	1	0	1110	41	1	26	0	31	0	0	0	0	0	2512
APPROACH %'s :	3.91%	96.01%	0.00%	0.08%	0.00%	96.35%	3.56%	0.09%	45.61%	0.00%	54.39%	0.00%					
PEAK HR :	12:30 PM - 01:30 PM																TOTAL
PEAK HR VOL :	25	625	0	0	0	584	21	0	11	0	17	0	0	0	0	0	1283
PEAK HR FACTOR :	0.694	0.953	0.000	0.000	0.000	0.948	0.875	0.000	0.550	0.000	0.708	0.000	0.000	0.000	0.000	0.000	0.984
	0.962				0.951				0.636								

National Data & Surveying Services

Intersection Turning Movement Count

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

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

Total

NS/EW Streets:	SR 12				SR 12				Maple Ave				Maple Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	135	0	0	0	142	0	0	1	0	1	0	0	0	0	0	279
7:15 AM	0	160	0	0	0	139	1	0	0	0	0	0	0	0	0	0	300
7:30 AM	0	143	0	0	0	170	0	0	2	0	1	0	0	0	0	0	316
7:45 AM	0	170	0	0	0	189	1	0	0	0	2	0	0	0	0	0	362
8:00 AM	1	173	0	0	0	144	0	0	0	0	0	0	0	0	0	0	318
8:15 AM	0	190	0	0	0	172	0	0	1	0	1	0	0	0	0	0	364
8:30 AM	0	142	0	0	0	179	1	0	0	0	1	0	0	0	0	0	323
8:45 AM	2	117	0	0	0	178	0	0	0	0	3	0	0	0	0	0	300
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	1230	0	0	0	1313	3	0	4	0	9	0	0	0	0	0	2562
APPROACH %'s :	0.24%	99.76%	0.00%	0.00%	0.00%	99.77%	0.23%	0.00%	30.77%	0.00%	69.23%	0.00%					
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	1	675	0	0	0	684	2	0	1	0	4	0	0	0	0	0	1367
PEAK HR FACTOR :	0.250	0.888	0.000	0.000	0.000	0.905	0.500	0.000	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.939
		0.889				0.903				0.625							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	179	0	0	0	169	3	0	4	0	4	0	0	0	0	0	360
4:15 PM	1	191	0	0	0	151	0	0	2	0	3	0	0	0	0	0	348
4:30 PM	1	169	0	0	0	189	1	0	1	0	2	0	0	0	0	0	363
4:45 PM	1	185	0	0	0	191	1	0	0	0	1	0	0	0	0	0	379
5:00 PM	1	165	0	0	0	166	1	0	1	0	0	0	0	0	0	0	334
5:15 PM	2	203	0	0	0	140	1	0	1	0	1	0	0	0	0	0	348
5:30 PM	1	181	0	0	0	189	0	0	2	0	2	0	0	0	0	0	375
5:45 PM	0	154	0	0	0	162	0	0	0	0	0	0	0	0	0	0	316
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	8	1427	0	0	0	1357	7	0	11	0	13	0	0	0	0	0	2823
APPROACH %'s :	0.56%	99.44%	0.00%	0.00%	0.00%	99.49%	0.51%	0.00%	45.83%	0.00%	54.17%	0.00%					
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	4	724	0	0	0	700	5	0	7	0	10	0	0	0	0	0	1450
PEAK HR FACTOR :	1.000	0.948	0.000	0.000	0.000	0.916	0.417	0.000	0.438	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.956
		0.948				0.918				0.531							

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				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	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
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
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**																TOTAL
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				0.961				0.625							

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

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Winery Dwy — SOUTHBOUND

AM	2	0	4	0	0	AM
NOON	0	0	0	0	0	NOON
PM	1	0	5	0	0	PM

Maple Ave — EASTBOUND

AM	NOON	PM
2	0	1
0	0	0
0	0	0
0	0	0
0	0	0
AM	NOON	PM

Maple Ave — WESTBOUND

PM	NOON	AM
0	0	0
0	0	0
0	0	0
0	0	0
5	0	4
PM	NOON	AM

Winery Dwy — NORTHBOUND

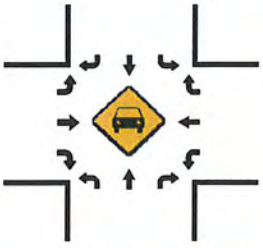
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

CONTROL

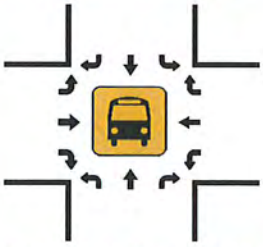
0

	AM	NOON	PM
TEV	6	0	6
PHF	0.50		0.25

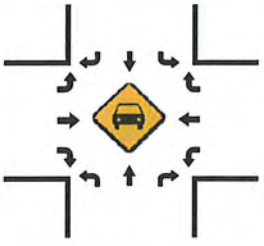
Total Vehicles (AM)



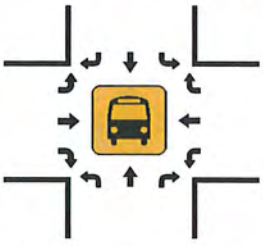
Total Vehicles (AM)



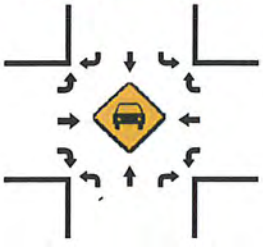
Total Vehicles (NOON)



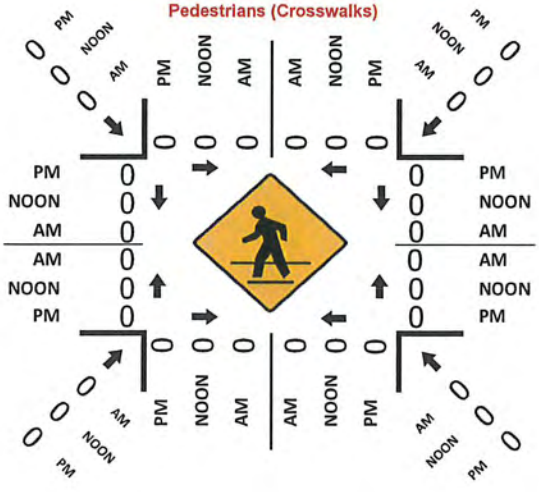
Total Vehicles (NOON)



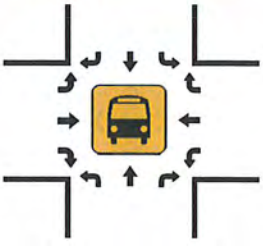
Total Vehicles (PM)



Pedestrians (Crosswalks)



Total Vehicles (PM)



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

PEAK HOURS

AM	NOON	PM
NONE	12:30 PM - 01:30 PM	NONE

COUNT PERIODS

AM	NOON	PM
NONE	12:00 PM - 02:00 PM	NONE

SOUTHBOUND — Winery Dwy

AM	0	0	0	0	0	AM
NOON	5	0	16	0	12	NOON
PM	0	0	0	0	0	PM

EASTBOUND — Maple Ave

AM	NOON	PM	
0	5	0	
0	0	0	0
0	1	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

WESTBOUND — Maple Ave

PM	NOON	AM	
0	11	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	16	0	
PM	NOON	AM	

CONTROL

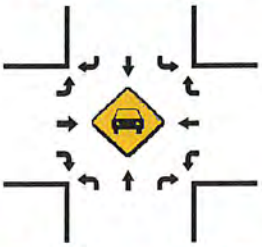
0

	AM	NOON	PM
TEV	0	33	0
PHF		0.83	

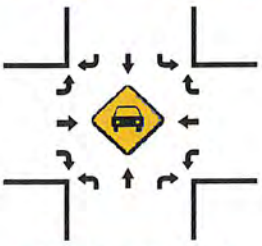
NORTHBOUND — Winery Dwy

PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

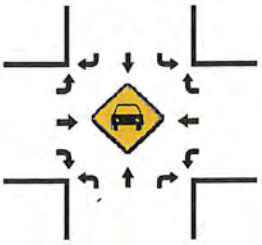
Total Vehicles (AM)



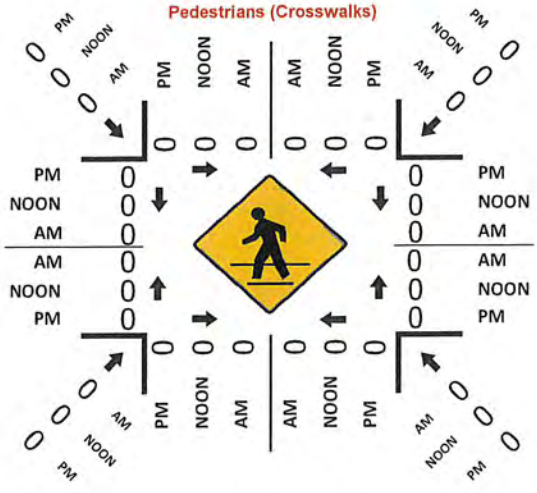
Total Vehicles (NOON)



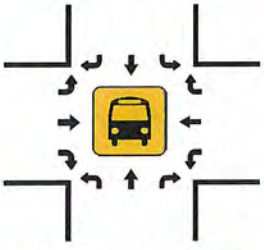
Total Vehicles (PM)



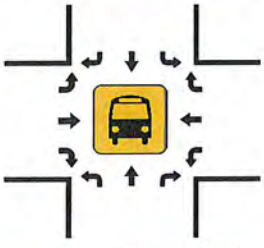
Pedestrians (Crosswalks)



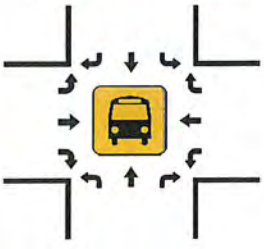
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



Prepared by National Data & Surveying Services

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

Prepared by National Data & Surveying Services

Ped Grouping Study

Locations: 60 Shaw Ave
City: Kenwood,CA

Day: Thursday
Date: 9/21/2017

Time	Entrance 1	
	In	Out
7:00	1	0
7:15	2	0
7:30	0	0
7:45	2	1
8:00	0	0
8:15	1	0
8:30	1	0
8:45	0	1

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

Time	Entrance 2B	
	In	Out
7:00	0	0
7:15	0	0
7:30	0	0
7:45	0	0
8:00	0	0
8:15	0	0
8:30	0	0
8:45	0	0

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

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

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

Future Volume Growth Factor Derivation

JVB Marketplace Traffic Analysis

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 Exisiting	14	9	8	731	683	1
Volume Future	21	13	9	879	750	1

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Appendix C

Intersection Level of Service Calculations

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Generated with PTV VISTRO

Version 5.00-00

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

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

Intersection Setup

Name	SR 12		SR 12		Shaw Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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]	0	670	667	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
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	670	667	0	5	5
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	182	187	0	1	1
Total Analysis Volume [veh/h]	0	728	747	0	5	5
Pedestrian Volume [ped/h]						

Generated with PTV VISTRO

Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	[illegible]	[illegible]	[illegible]	0.04	0.01
d_M, Delay for Movement [s/veh]	9.18	[illegible]	[illegible]	[illegible]	31.73	14.59
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.15	0.15
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	3.76	3.76
d_A, Approach Delay [s/veh]	0.00		0.00		23.16	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.16					
Intersection LOS	D					

VJB Marketplace
AM Existing without Project
W-Trans
4/3/2018

Generated with PTV VISTRO

Version 5.00-00

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

Control Type:	Two-way stop	Delay (sec / veh):	29.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	1	669	683	2	0	1
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	669	683	2	0	1
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	178	182	1	0	0
Total Analysis Volume [veh/h]	1	712	727	2	0	1
Pedestrian Volume [ped/h]						

Generated with PTV VISTRO

Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00				0.00	0.00
d_M, Delay for Movement [s/veh]	9.12				29.75	13.52
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh]	9.11	9.11	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft]	227.86	227.86	0.00	0.00	0.18	0.18
d_A, Approach Delay [s/veh]	0.01		0.00		13.52	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.02					
Intersection LOS	D					

VJB Marketplace
AM Existing without Project
W-Trans
4/3/2018

Generated with PTV VISTRO

Version 5.00-00

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

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

Intersection Setup

Name	SR 12		SR 12		Shaw Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	0	729	683	0	1	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
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	683	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	172	0	0	0
Total Analysis Volume [veh/h]	0	736	690	0	1	0
Pedestrian Volume [ped/h]						

Generated with PTV VISTRO

Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00				0.01	0.00
d_M, Delay for Movement [s/veh]	8.98				29.30	13.25
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.51	0.51
d_A, Approach Delay [s/veh]	0.00		0.00		29.30	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.02					
Intersection LOS	D					

VJB Marketplace
PM Existing without Project
W-Trans
W-Trans

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

Control Type:	Two-way stop	Delay (sec / veh):	32.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	4	716	691	5	5	7
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]	4	716	691	5	5	7
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	186	180	1	1	2
Total Analysis Volume [veh/h]	4	746	720	5	5	7
Pedestrian Volume [ped/h]						

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Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00				0.04	0.02
d_M, Delay for Movement [s/veh]	9.12				32.00	14.32
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh]	10.59	10.59	0.00	0.00	0.17	0.17
95th-Percentile Queue Length [ft]	264.71	264.71	0.00	0.00	4.15	4.15
d_A, Approach Delay [s/veh]	0.05		0.00		21.68	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.20					
Intersection LOS	D					

VJB Marketplace
PM Existing without Project
W-Trans
W-Trans

Generated with PTV VISTRO

Version 5.00-00

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

Control Type:	Two-way stop	Delay (sec / veh):	24.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.046

Intersection Setup

Name	SR 12		SR 12		Shaw Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	0	620	584	0	9	16
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]	0	620	584	0	9	16
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]	0	158	149	0	2	4
Total Analysis Volume [veh/h]	0	633	596	0	9	16
Pedestrian Volume [ped/h]						

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Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00				0.05	0.03
d_M, Delay for Movement [s/veh]	8.67				24.27	13.09
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.25	0.25
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	6.27	6.27
d_A, Approach Delay [s/veh]	0.00		0.00		17.11	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.34					
Intersection LOS	C					

VJB Marketplace
MD Existing without Project
W-Trans
4/3/2018

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

Control Type:	Two-way stop	Delay (sec / veh):	24.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	9	620	580	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
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]	9	620	580	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	633	592	14	0	0
Pedestrian Volume [ped/h]						

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Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01				0.00	0.00
d_M, Delay for Movement [s/veh]	8.74				24.15	12.18
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.18	0.18	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	129.59	129.59	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.12		0.00		18.16	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.06					
Intersection LOS	C					

VJB Marketplace
MD Existing without Project
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4/3/2018

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Version 5.00-00

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

Control Type:	Two-way stop	Delay (sec / veh):	43.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.089

Intersection Setup

Name	SR 12		SR 12		Shaw Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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	806	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	806	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	876	820	2	9	9
Pedestrian Volume [ped/h]						

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Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00				0.09	0.02
d_M, Delay for Movement [s/veh]	9.46				43.46	17.48
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh]	22.99	22.99	0.00	0.00	0.37	0.37
95th-Percentile Queue Length [ft]	574.85	574.85	0.00	0.00	9.36	9.36
d_A, Approach Delay [s/veh]	0.01		0.00		30.47	
Approach LOS	F		A		D	
d_I, Intersection Delay [s/veh]	0.32					
Intersection LOS	E					

VJB Marketplace
AM Future without Project
W-Trans
4/3/2018

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

Control Type:	Two-way stop	Delay (sec / veh):	38.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	┤		├		┬	
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]						
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]	1	806	750	2	0	3
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	806	750	2	0	3
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	214	199	1	0	1
Total Analysis Volume [veh/h]	1	857	798	2	0	3
Pedestrian Volume [ped/h]						

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Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio					0.00	0.01
d_M, Delay for Movement [s/veh]	9.38			0.00	38.65	14.41
Movement LOS	A	A	A	A	E	B
95th-Percentile Queue Length [veh]	20.26	20.26	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft]	506.57	506.57	0.00	0.00	0.59	0.59
d_A, Approach Delay [s/veh]	0.01		0.00		14.41	
Approach LOS	F		A		B	
d_I, Intersection Delay [s/veh]	0.03					
Intersection LOS	E					

VJB Marketplace
AM Future without Project
W-Trans
4/3/2018

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Version 5.00-05

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

Control Type:	Two-way stop	Delay (sec / veh):	39.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.072

Intersection Setup

Name	SR 12		SR 12		Shaw Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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	750	0	8	4
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	877	750	0	8	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	219	188	0	2	1
Total Analysis Volume [veh/h]	1	877	750	0	8	4
Pedestrian Volume [ped/h]						

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Version 5.00-05

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00				0.07	0.01
d_M, Delay for Movement [s/veh]	9.20				39.37	15.90
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.26	0.26
95th-Percentile Queue Length [ft/ln]	0.09	0.09	0.00	0.00	6.54	6.54
d_A, Approach Delay [s/veh]	0.01		0.00		31.55	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.24					
Intersection LOS	E					

VJB Marketplace W-Trans
PM Future without Project

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

Control Type:	Two-way stop	Delay (sec / veh):	43.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.080

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	5	863	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	863	760	6	8	12
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
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	899	792	6	8	13
Pedestrian Volume [ped/h]						

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Version 5.00-05

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01				0.08	0.03
d_M, Delay for Movement [s/veh]	9.39				43.71	16.79
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.38	0.38
95th-Percentile Queue Length [ft/ln]	0.46	0.46	0.00	0.00	9.47	9.47
d_A, Approach Delay [s/veh]	0.05		0.00		27.04	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.36					
Intersection LOS	E					

VJB Marketplace W-Trans
PM Future without Project

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

Control Type:	Two-way stop	Delay (sec / veh):	31.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.095

Intersection Setup

Name	SR 12		SR 12		Shaw Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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	747	641	3	14	24
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]	4	747	641	3	14	24
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]	1	191	164	1	4	6
Total Analysis Volume [veh/h]	4	762	654	3	14	24
Pedestrian Volume [ped/h]						

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Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00				0.09	0.05
d_M, Delay for Movement [s/veh]	8.89				31.65	15.08
Movement LOS	A	A	A	A	D	C
95th-Percentile Queue Length [veh]	0.54	0.54	0.00	0.00	0.50	0.50
95th-Percentile Queue Length [ft]	238.52	238.52	0.00	0.00	12.60	12.60
d_A, Approach Delay [s/veh]	0.05		0.00		21.19	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.58					
Intersection LOS	D					

VJB Marketplace
MD Future without Project
W-Trans
4/3/2018

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

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

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	10	751	637	16	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	16	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	192	163	4	1	1
Total Analysis Volume [veh/h]	10	766	650	16	2	5
Pedestrian Volume [ped/h]						

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Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01				0.01	0.01
d_M, Delay for Movement [s/veh]	8.94				30.56	13.08
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh]	10.18	10.18	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft]	254.39	254.39	0.00	0.00	1.90	1.90
d_A, Approach Delay [s/veh]	0.12		0.00		18.07	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.15					
Intersection LOS	D					

VJB Marketplace
MD Future without Project
W-Trans
4/3/2018

Generated with PTV VISTRO

Version 5.00-00

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

Control Type:	Two-way stop	Delay (sec / veh):	33.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.060

Intersection Setup

Name	SR 12		SR 12		Shaw Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	6	671	687	12	7	6
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]	6	671	687	12	7	6
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]	2	182	187	3	2	2
Total Analysis Volume [veh/h]	7	729	747	13	8	7
Pedestrian Volume [ped/h]						

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Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01				0.06	0.02
d_M, Delay for Movement [s/veh]	9.26				33.57	15.34
Movement LOS	A	A	A	A	D	C
95th-Percentile Queue Length [veh]	10.89	10.89	0.00	0.00	0.25	0.25
95th-Percentile Queue Length [ft]	272.13	272.13	0.00	0.00	6.20	6.20
d_A, Approach Delay [s/veh]	0.09		0.00		25.06	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.29					
Intersection LOS	D					

VJB Marketplace
AM Existing
W-Trans
4/3/2018

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

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

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	1	675	684	2	1	4
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	675	684	2	1	4
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	180	182	1	0	1
Total Analysis Volume [veh/h]	1	718	728	2	1	4
Pedestrian Volume [ped/h]						

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Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00				0.01	0.01
d_M, Delay for Movement [s/veh]	9.12				30.18	13.71
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh]	9.38	9.38	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft]	234.42	234.42	0.00	0.00	1.25	1.25
d_A, Approach Delay [s/veh]	0.01		0.00		17.00	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.06					
Intersection LOS	D					

VJB Marketplace
AM Existing
W-Trans
W-Trans
4/3/2018

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Version 5.00-00

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

Control Type:	Two-way stop	Delay (sec / veh):	32.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.098

Intersection Setup

Name	SR 12		SR 12		Shaw Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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	731	683	1	14	9
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]	8	731	683	1	14	9
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	690	1	14	9
Pedestrian Volume [ped/h]						

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Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01				0.10	0.02
d_M, Delay for Movement [s/veh]	9.02				32.61	15.55
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		0.00		25.93	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.46					
Intersection LOS	D					

VJB Marketplace W-Trans
PM Existing 4/3/2018

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

Control Type:	Two-way stop	Delay (sec / veh):	33.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.052

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	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
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]	4	724	700	5	7	10
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	189	182	1	2	3
Total Analysis Volume [veh/h]	4	754	729	5	7	10
Pedestrian Volume [ped/h]						

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Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00				0.05	0.02
d_M, Delay for Movement [s/veh]	9.15				33.07	14.85
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh]	11.22	11.22	0.00	0.00	0.24	0.24
95th-Percentile Queue Length [ft]	280.40	280.40	0.00	0.00	6.09	6.09
d_A, Approach Delay [s/veh]	0.05		0.00		22.35	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.28					
Intersection LOS	D					

VJB Marketplace W-Trans
PM Existing 4/3/2018

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

Control Type:	Two-way stop	Delay (sec / veh):	27.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.064

Intersection Setup

Name	SR 12		SR 12		Shaw Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	25	625	584	21	11	17
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]	25	625	584	21	11	17
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]	6	159	149	5	3	4
Total Analysis Volume [veh/h]	26	638	596	21	11	17
Pedestrian Volume [ped/h]	0		0		0	

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Version 5.00-00

Intersection Settings

Priority Scheme	Free		Free		Stop	
Flared Lane					No	
Storage Area [veh]					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	0.03	0.03	0.00	0.00	0.06	0.03
d_M, Delay for Movement [s/veh]	8.84	8.84	0.00	0.00	27.39	13.63
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh]	5.77	5.77	0.00	0.00	0.32	0.32
95th-Percentile Queue Length [ft]	144.29	144.29	0.00	0.00	8.11	8.11
d_A, Approach Delay [s/veh]	0.35		0.00		19.03	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.58					
Intersection LOS	D					

VJB Marketplace
MD Existing
W-Trans
W-Trans
4/3/2018

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

Control Type:	Two-way stop	Delay (sec / veh):	25.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.028

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	9	645	581	14	5	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
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]	9	645	581	14	5	10
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	165	148	4	1	3
Total Analysis Volume [veh/h]	9	658	593	14	5	10
Pedestrian Volume [ped/h]						

Generated with PTV VISTRO
Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01				0.03	0.02
d_M, Delay for Movement [s/veh]	8.74				25.43	12.76
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh]	5.72	5.72	0.00	0.00	0.15	0.15
95th-Percentile Queue Length [ft]	142.94	142.94	0.00	0.00	3.73	3.73
d_A, Approach Delay [s/veh]	0.12		0.00		16.99	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.26					
Intersection LOS	D					

VJB Marketplace
MD Existing
W-Trans
4/3/2018

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

Control Type:	Two-way stop	Delay (sec / veh):	46.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.114

Intersection Setup

Name	SR 12		SR 12		Shaw Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	6	671	687	12	7	6
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
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]	7	807	754	14	10	9
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]	2	219	205	4	3	2
Total Analysis Volume [veh/h]	8	877	820	15	11	10
Pedestrian Volume [ped/h]						

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Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01				0.11	0.03
d_M, Delay for Movement [s/veh]	9.55				46.28	18.63
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh]	24.41	24.41	0.00	0.00	0.48	0.48
95th-Percentile Queue Length [ft]	610.29	610.29	0.00	0.00	11.96	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					

VJB Marketplace
AM Future
W-Trans
4/3/2018

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

Control Type:	Two-way stop	Delay (sec / veh):	39.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.009

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	1	675	684	2	1	4
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
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	812	751	2	1	6
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	216	200	1	0	2
Total Analysis Volume [veh/h]	1	864	799	2	1	6
Pedestrian Volume [ped/h]						

Generated with PTV VISTRO
Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00				0.01	0.02
d_M, Delay for Movement [s/veh]	9.38				39.30	14.68
Movement LOS	A	A	A	A	E	B
95th-Percentile Queue Length [veh]	20.88	20.88	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft]	522.04	522.04	0.00	0.00	1.92	1.92
d_A, Approach Delay [s/veh]	0.01		0.00		18.20	
Approach LOS	F		A		C	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	E					

VJB Marketplace
AM Future
W-Trans
4/3/2018

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

Control Type:	Two-way stop	Delay (sec / veh):	43.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.197

Intersection Setup

Name	SR 12		SR 12		Shaw Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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	731	683	1	14	9
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
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]	9	879	750	1	21	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	220	188	0	5	3
Total Analysis Volume [veh/h]	9	879	750	1	21	13
Pedestrian Volume [ped/h]						

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Free		Free		Stop	
Flared Lane					Yes	
Storage Area [veh]					5	
Two-Stage Gap Acceptance					No	
Number of Storage Spaces in Median						

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01				0.20	0.03
d_M, Delay for Movement [s/veh]	9.24				43.72	18.78
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.00	0.00	0.71	0.71
95th-Percentile Queue Length [ft/ln]	0.79	0.79	0.00	0.00	17.63	17.63
d_A, Approach Delay [s/veh]	0.09		0.00		34.18	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.74					
Intersection LOS	E					

VJB Marketplace W-Trans
PM Future

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

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

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	4	724	700	5	7	10
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
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	871	769	6	10	15
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	227	200	2	3	4
Total Analysis Volume [veh/h]	5	907	801	6	10	16
Pedestrian Volume [ped/h]						

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Version 5.00-05

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01				0.10	0.04
d_M, Delay for Movement [s/veh]	9.43				45.47	17.77
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.50	0.50
95th-Percentile Queue Length [ft/ln]	0.46	0.46	0.00	0.00	12.38	12.38
d_A, Approach Delay [s/veh]	0.05		0.00		28.42	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.45					
Intersection LOS	E					

VJB Marketplace W-Trans
PM Future

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

Control Type:	Two-way stop	Delay (sec / veh):	36.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.125

Intersection Setup

Name	SR 12		SR 12		Shaw Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	25	625	584	21	11	17
Base Volume Adjustment Factor	1.1430	1.2030	1.0880	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
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]	29	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	192	164	6	4	6
Total Analysis Volume [veh/h]	30	767	654	24	16	26
Pedestrian Volume [ped/h]						

Generated with PTV VISTRO
Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03				0.13	0.06
d_M, Delay for Movement [s/veh]	9.07				36.56	16.26
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh]	11.46	11.46	0.00	0.00	0.65	0.65
95th-Percentile Queue Length [ft]	286.53	286.53	0.00	0.00	16.20	16.20
d_A, Approach Delay [s/veh]	0.34		0.00		23.99	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.84					
Intersection LOS	E					

VJB Marketplace
MD Future
W-Trans
4/3/2018

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

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

Intersection Setup

Name	SR 12		SR 12		Maple Avenue	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
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]						
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]	9	645	581	14	5	10
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
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	776	638	16	7	15
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	198	163	4	2	4
Total Analysis Volume [veh/h]	10	792	651	16	7	15
Pedestrian Volume [ped/h]						

Generated with PTV VISTRO
Version 5.00-00

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01				0.05	0.03
d_M, Delay for Movement [s/veh]	8.94				32.46	14.00
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh]	11.37	11.37	0.00	0.00	0.27	0.27
95th-Percentile Queue Length [ft]	284.31	284.31	0.00	0.00	6.76	6.76
d_A, Approach Delay [s/veh]	0.11		0.00		19.87	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.35					
Intersection LOS	D					

VJB Marketplace
MD Future
W-Trans
4/3/2018

Appendix D

Pedestrian Facilities and Highway 12 Left-turn Lane Concept Drawings

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ABBREVIATIONS

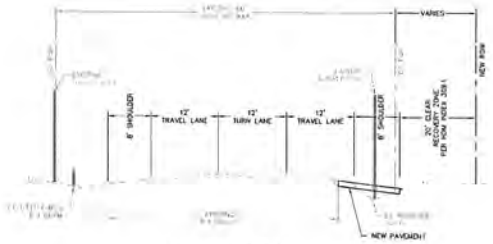
AC	ASPHALT CONCRETE
APN	ASSESSOR'S PARCEL NUMBER
DWY	DRIVEWAY
EG	EXISTING GROUND
EP	EDGE OF PAVEMENT
ER	EDGE OF ROAD
FT	FOOT
HDM	CALTRANS HIGHWAY DESIGN MANUAL
HWY	HIGHWAY
IB	"I" BEAM
EX	EXISTING
MIN	MINIMUM
MPH	MILE PER HOUR
NB	NORTHBOUND
PUE	PUBLIC UTILITY EASEMENT
ROW	RIGHT OF WAY
SB	SOUTHBOUND
TYP	TYPICAL
UB	UTILITY BOX

SYMBOLS & LEGEND

EXISTING	PROPOSED	
		UTILITY POLE
		CATCH BASIN
		TREE
		APPROXIMATE ASSESSOR'S PARCEL LINE
		OVERHEAD UTILITY LINE
		CONCRETE
		PAVEMENT
		EXTENT OF REQUIRED ROW

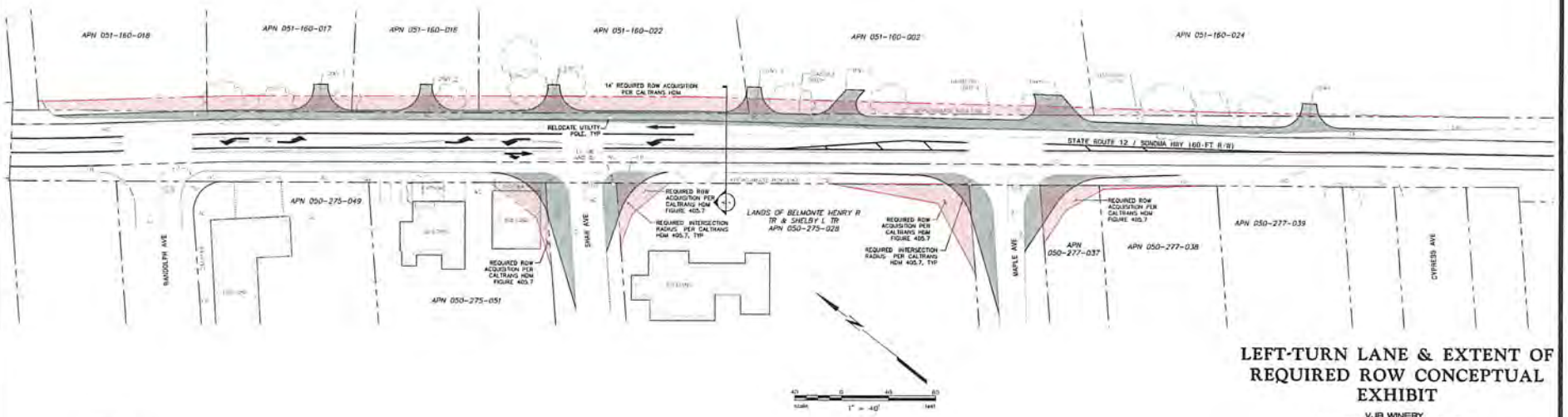
DESIGN INPUTS
HIGHWAY CATHEGORY.....CONVENTIONAL HIGHWAY-URBAN ARTERIAL-TROUGHWAY
POSTED SPEED ADVISORY.....45 MPH
AVERAGE DAILY TRAFFIC.....18,900 VEHICLES PER DAY (TRAFFIC IMPACT STUDY DRAFT REPORT BY W-TRANS, FEBRUARY 1, 2018)
STOPPING SIGHT DISTANCE.....400'
CORNER SIGHT DISTANCE.....495'
DESIGN VEHICLE.....STAA

PURPOSE STATEMENT:
BKF ENGINEERS WAS RETAINED TO EVALUATE THE FEASIBILITY OF PROVIDING A DEDICATED LEFT-TURN LANE FROM HIGHWAY 12 TO SHAW AVE. WE DETERMINED THAT THIS TURN LANE COULD NOT BE BUILT WITHIN THE EXISTING RIGHT OF WAY WHILE CONFORMING TO THE REQUIREMENTS OF THE CALTRANS HIGHWAY DESIGN MANUAL AND REFERENCED STANDARDS. THIS CONCEPTUAL EXHIBIT HAS BEEN PREPARED AT THE REQUEST OF SONOMA COUNTY TO SHOW A LEFT-TURN LANE AND THE EXTENT OF THE REQUIRED RIGHT OF WAY DEDICATION.



SECTION "A"
NO SCALE

VICINITY MAP
NOT TO SCALE



MAPPING NOTES:
EXISTING FEATURES SHOWN HEREON WERE OBTAINED FROM CALTRANS RECORD DRAWINGS AND SONOMA COUNTY GIS DATA AND ARE APPROXIMATE.

LEFT-TURN LANE & EXTENT OF REQUIRED ROW CONCEPTUAL EXHIBIT

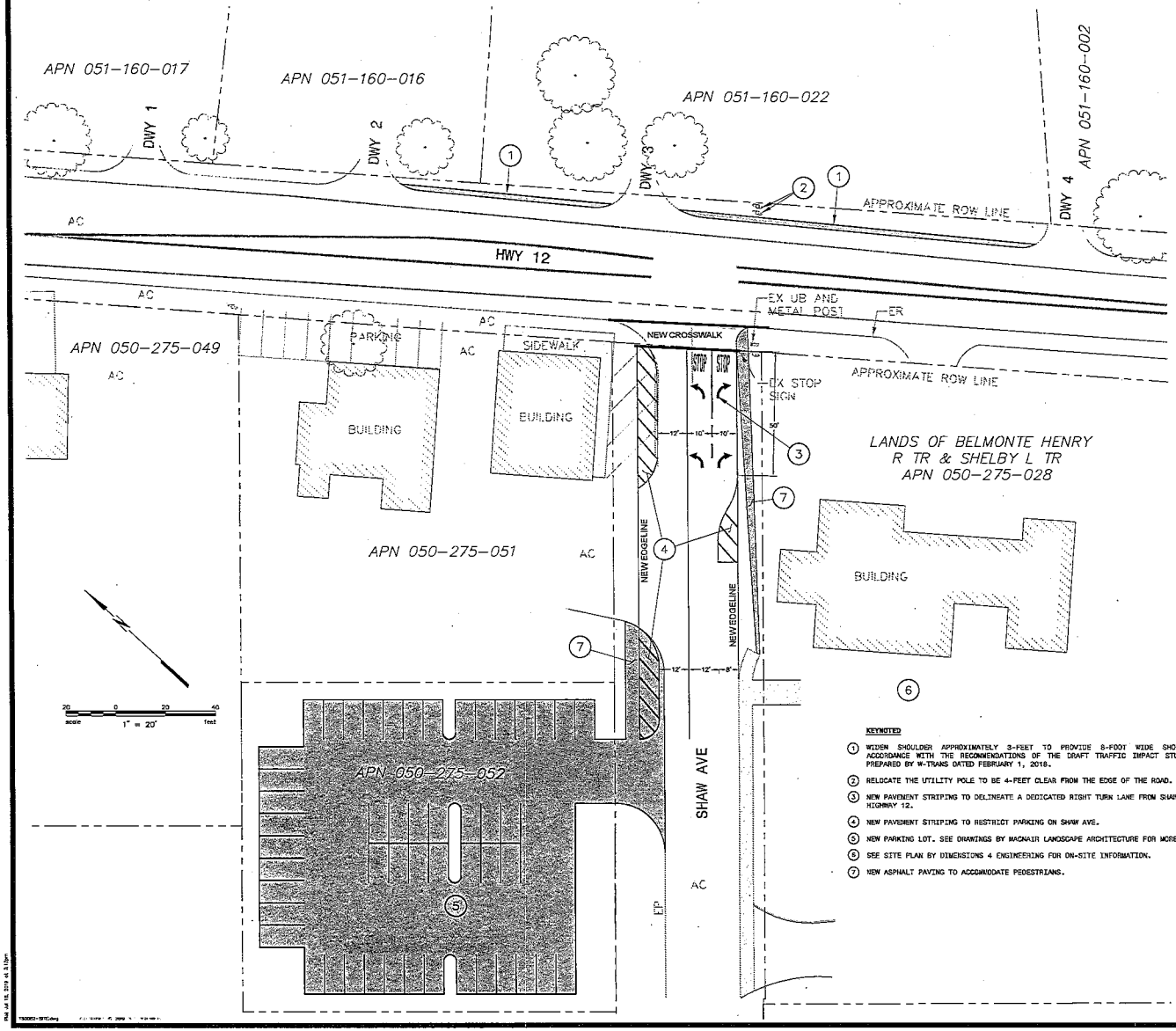
VJB WINERY
SON012623 / SON-12-26.68-26.75
66 SHAW AVE, KENWOOD, CA (APN 050-275-051)
MAY 2018

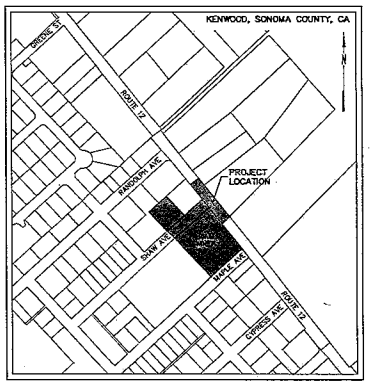
PRELIMINARY
FOR STUDY PURPOSES ONLY
DATE: 05/22/2018
ERIC D. WADE C 81862

PREPARED BY:
BKF
ENGINEERS | SURVEYORS | PLANNERS

JOB NO. 20180082 SHEET 1 OF 2 SHEETS

NOTE:
EXISTING FEATURES SHOWN HEREON WERE OBTAINED FROM CALTRANS RECORD DRAWINGS AND SONOMA COUNTY GIS DATA AND ARE APPROXIMATE. THIS IS A CONCEPTUAL EXHIBIT FOR PLANNING PURPOSES ONLY.





VICINITY MAP
NOT TO SCALE

KEYNOTED

1. WIDEN SHOULDER APPROXIMATELY 3-FEET TO PROVIDE 8-FOOT WIDE SHOULDERS IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE DRAFT TRAFFIC IMPACT STUDY REPORT PREPARED BY W-TRANS DATED FEBRUARY 1, 2018.
2. RELOCATE THE UTILITY POLE TO BE 4-FEET CLEAR FROM THE EDGE OF THE ROAD.
3. NEW PAVEMENT STRIPING TO DELINEATE A DEDICATED RIGHT TURN LANE FROM SHAW AVE TO HIGHWAY 12.
4. NEW PAVEMENT STRIPING TO RESTRICT PARKING ON SHAW AVE.
5. NEW PARKING LOT. SEE DRAWINGS BY MACNAIR LANDSCAPE ARCHITECTURE FOR MORE DETAILS.
6. SEE SITE PLAN BY DIMENSIONS 4 ENGINEERING FOR ON-SITE INFORMATION.
7. NEW ASPHALT PAVING TO ACCOMMODATE PEDESTRIANS.

ABBREVIATIONS

AC	ASPHALT CONCRETE
APN	ASSESSOR'S PARCEL NUMBER
DWY	DRIVEWAY
EG	EXISTING GROUND
EP	EDGE OF PAVEMENT
ER	EDGE OF ROAD
FT	FOOT
HDM	CALTRANS HIGHWAY DESIGN MANUAL
HWY	HIGHWAY
IB	"I" BEAM
EX	EXISTING
MIN	MINIMUM
MPH	MILE PER HOUR
NB	NORTHBOUND
PUE	PUBLIC UTILITY EASEMENT
ROW	RIGHT OF WAY
SB	SOUTHBOUND
TYP	TYPICAL
UB	UTILITY BOX

SYMBOLS & LEGEND

EXISTING	PROPOSED	
		UTILITY POLE
		CATCH BASIN
		TREE
		APPROXIMATE ASSESSOR'S PARCEL LINE
		OVERHEAD UTILITY LINE
		CONCRETE
		PAVEMENT

PARKING LOT, SHAW AVENUE TURN LANE & HWY 12 SHOULDER WIDENING CONCEPTUAL EXHIBIT

V.JB WINERY
SON012623 / SON-12-26.68-26.75
66 SHAW AVE, KENWOOD, CA (APN 050-275-051)
JULY 2018

PREPARED BY

BKF
ENGINEERS / SURVEYORS / PLANNERS
200 4TH ST, STE 300 SANTA ROSA, CA 95401
(707) 565-8000 FAX (707) 565-8536

JOB NO. C20180082-10

SHEET 1 OF 1 SHEETS

Memorandum

January 25, 2019

To:	Mr. Blake Hillegas, Supervising Planner County of Sonoma Permit & Resource Management Department	Project:	Peer Review (#2) of Traffic Impact Study for the VJB Vineyard and Cellars
From:	Peter Galloway, Senior Transportation Planner	Ref/Job No.:	County Project PLP05-009 GHD 11145104
CC:	Todd Tregenza, AICP Kamesh Vedula, T.E., P.E.	File No.:	C2046MEM006.docx

Subject: Peer Review #2

Introduction

This memorandum has been prepared by GHD to summarize the results of a second peer review of the Traffic Impact Study for the VJB Vineyard and Cellars for the County of Sonoma (County). The following documents were reviewed in order to complete this Secondary Review:

- Initial Study and Peer Review of VJB Marketplace Traffic Study *(Omni-Means, 8/18/2015)*
- Traffic Impact Study for the VJB Vineyard and Cellars *(W-Trans, 8/31/2018)*
- County of Sonoma Guidelines for Traffic Studies *(Revised May 2016)*

The following key issues will be reviewed in this memorandum, following the County's review and Scope of Work, to determine if the revised traffic study for the VJB Vineyard and Cellars contains sufficient information to complete a subsequent peer review:

- Project Description
- Study Area
- Data Collection
- Technical Methodologies & Assumptions
- Study Analysis & Scenarios
- Identification of Future Traffic Impacts
- Identification of Traffic Improvement Projects and
- Consistency with County and Caltrans TIS Guidelines

Project Description

The project site is located between Shaw Avenue and Maple Avenue immediately southwest of SR 12 with primary access off of Shaw Avenue and secondary access off of Maple Avenue in the Kenwood area of Sonoma County. The existing project buildings front Shaw Avenue and SR 12 with vineyards comprising the majority of the site. An internal two-way drive aisle with on-site parking extends east-west between Shaw

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Avenue and Maple Avenue on the southwest border of the site. The subject traffic impact study (TIS) for the proposed project describes the current and proposed project uses and changes as follows:

"The project site is developed with uses 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 shop, gelato shop, and office. Various modifications to the Use Permit as approved are requested as follows:

- Elimination of the requirement for a right-turn lane on the Shaw Avenue approach to SR 12;
- Elimination of the requirement for a left-turn lane on the westbound SR 12 approach to Shaw Avenue;
- The opening of Maple Avenue for egress only, per Sonoma County Fire Marshal;
- 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 Vineyard and Cellars;
- A maximum of 6 employees (full-time equivalent) Monday through Thursday, 9 employees on Friday and 16 employees on Saturday and Sunday;
- Change of hours of operation to 10:00 a.m. to 4 p.m. daily.

Note on Project Description

The various modifications to the Use Permit requested above as part of the proposed project do not match the submitted project statement contained as part of the overall project application *(PLP05-009 – J. Kapolchok Associates; VJB Vineyard and Cellars Proposal Statement Modified Use Permit—August 2018).* Specifically, there are two project component modifications in the project statement that do not coincide with modifications listed in the subject traffic analysis (above) as follows:

Project Statement:

VJB Vineyards and Cellars requests a modification to an existing Use Permit to acknowledge:

1. The installation of a right-hand turn lane through the re-striping of a portion of Shaw Avenue;
2. The widening of the shoulder along the northerly side of Highway 12 across from the property frontage.

The installation of a right-turn lane on Shaw Avenue through re-striping of a portion of the roadway appears to contradict the subject TIS that requests elimination of this requirement for a right-turn lane. In addition, the widening of the shoulder along the northerly side of SR 12 across from the property frontage is not listed in the requested modifications in the subject TIS. Discussion and/or clarification of these discrepancies between the modifications requested in the subject TIS for the proposed project and project statement provided in the County application is needed.

Study Area/Transportation Setting

In its description of project study roadways the subject TIS states "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."

Note on Study Area/Transportation Setting

Given the proposed project's emphasis on parking demand and additional parking supply the TIS should include a more in-depth review of the existing on-street parking activity relative to the use. For example, there appears to be portion of Shaw Avenue where diagonal on-street parking is provided (northeast side of Shaw Avenue, across from project site) but the parking is recessed from the roadway (as opposed to more conventional parallel on-street parking also found on Shaw Avenue). In addition, it also appears that on-street parking on Maple Avenue is available in the shoulders on the west side of the street so as not to block traffic. It is understood that on-street parking cannot be counted towards proposed project parking supply, however, it is currently being utilized by patrons which may be moved to the new lot.

Collision Analysis

The collision analysis conducted for the two project study intersections of SR 12/Shaw Avenue and SR 12/Maple Avenue evaluates a reasonable time period of 5 years and indicates no significant operational safety deficiencies within that time period.

Data Collection

Under the Existing Conditions discussion, the subject TIS states "This (existing) condition does not include project generated traffic volumes, which were subtracted out of the volume data collected on September 16 and 21, 2017 because all activities associated with the proposed conditional use permit modification are already occurring, so their traffic is included in current traffic streams."

Note on Data Collection

Since project-generated traffic volumes were subtracted out of existing volume counts, a discussion of how these volume reductions were generated and how they were distributed and assigned through existing volumes should be included. If this process mirrors the discussion in the Project Impact section, a reference to this discussion later in the report should be included.

Intersection Level of Service Analysis

All operational analyses were reviewed, including a review of delay and LOS in TIS tables relative to the technical appendix.

Note on Intersection Level of Service Analysis

Although GHD concurs with the reports LOS values, the technical appendices do not match the TIS tables, indicating a potential technical glitch in the PTV Vistro delay reporting. This should be addressed for the record, such that technical appendices match LOS and delay values presented in the TIS.

Future Conditions

The subject TIS indicates that "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 model estimates and 2040 model forecasts on Warm Springs Road and applied to existing volumes on Shaw and Maple Avenue approaches to arrive at future volumes. The growth factor calculation is provide with the counts in Appendix B."

Note on Future Conditions

Compared to Shaw Avenue and Maple Avenue, Warm Springs Road provides significant east-west access to Bennett Valley Road and further south to Glen Ellen. The application of these growth rates may therefore overestimate future demand on these minor collector streets. Based on listed growth factors in Appendix B, the growth factor for eastbound Shaw and Maple Avenues is 48% over a 23-year period. SR 12, by comparison, is indicated to be 10-20%. Overly conservative background growth forecasts on side streets could diminish project proportional share of impacts in cumulative situations.

Project Description (Project Impact Section)

Related to Project Description, the subject TIS indicates "It is noted that though a separate right-turn lane on Shaw Avenue is not proposed as part of the project, elimination of parking on the east side of Shaw Avenue would create a flared approach of sufficient width to accommodate side-by-side left and right-turn movements."

Note on Project Description (Project Impact Section)

Please discuss the amount of on-street parking that would be removed on Shaw Avenue to provide for this "flared approach", including the number of vehicles that would be accommodated and how the geometrics would be striped. If the flared approach can only accommodate one vehicle of storage, the projected vehicle queue length for vehicles making a left-turn from Shaw Avenue onto SR 12 should be reported, to indicate whether this right turn flare would be usable with left turning vehicles queued at the stop sign. On Page 2 of the TIS, under "Project Profile", it is indicated that 50' of pavement would be added to Shaw Avenue. Without a geometric schematic, it is unclear whether this 50' would provide a 50' turn pocket or simply additional shoulder width.

Trip Generation

The subject TIS states "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 were observed, and inbound and outbound vehicle counts determined, with outbound trips via the driveway to Maple Avenue counted separately."

Note on Trip Generation

It is acknowledged that actual project driveway counts conducted for the proposed project are superior to ITE research for similar uses (in most cases). However, it is unclear whether the counts included on-street parking activity. Based on streetview imagery, which may have been collected during a high-use time period,

the parking lot at the project site is full and spillover on-street parking is observable. Please ensure the trip generation accounts for on-street parking visitors.

Future plus Project Conditions

"Recommendation – It is recommended that the County rescind the requirement for a right-turn lane on Shaw Avenue approaching SR 12."

Note on Future plus Project Conditions

The first sentence under the TIS Future plus Project Conditions heading indicates that the Shaw Avenue approach operates at LOS E during the PM peak hour. However, Table 7 does not reflect this. Please reconcile. Based on the technical appendix worksheets, the left-turn movement from Shaw Avenue onto SR 12 is listed at LOS E (43.72 seconds of delay) with the right-turn movement at LOS C (17.63 seconds of delay). If the outbound left-turn movements from Shaw Avenue onto SR 12 experience significant vehicle delay, they would likely block access to the right turn "flared approach" that is being proposed. Removal of 2-3 parking space on the east side of Shaw Avenue would allow for some vehicle storage relief and/or paving and striping for a short right-turn lane (10-11 feet width).

County Intersection/Roadway Operations

The subject TIS provides a technical analysis of intersection LOS for the Shaw Avenue and Maple Avenue intersections at SR 12 under Existing, Existing plus Project, Future, and Future plus Project conditions.

Note on County Intersection/Roadway Operations

Based on Sonoma County Guidelines for Traffic Impact Studies, a roadway operations analysis may be required for SR 12. County guidelines indicate the likelihood of project impacts based on degradation of vehicle speeds based on 2-Lane County Highways and Rural Class 1 Roadway facilities (Table 1—Traffic Impact Thresholds—pages 111 & 12, County of Sonoma, Guidelines for TIS, May 2016).

Pedestrian Facilities

Related to pedestrian findings the subject TIS indicates "The project is expected to generate limited pedestrian traffic except between the project and on-site and off-site parking lots. Given the operational characteristics of Shaw Avenue, it is expected that pedestrians will be able to cross safely between the off-site parking lot and VJB Marketplace. A mid-block crosswalk is therefore not recommended."

Note on Pedestrian Facilities

Related to County concerns about pedestrian crossings between the proposed project site and adjacent parking lot on Shaw Avenue, the TIS does not offer an acceptable solution to safe pedestrian path of travel. At minimum, a safe path of pedestrian travel between the proposed parking lot and the main project entrance needs to be identified. The current path of travel includes sections lacking shoulders on the northeast side of Shaw Avenue, where parked cars often block pedestrian travel outside of the travel lane. Similarly, while a paved shoulder is present on the southwest side of Shaw Avenue (project frontage), it is currently striped for on-street parallel parking and highly utilized for parking, forcing pedestrians into the travel lane. A clear and safe path of travel should be provided between the parking lot and project site, including a safe crossing of Shaw Avenue, consistent with MUTCD and accessibility requirements appropriate to the context.

Site Access (Left-Turn Lane Warrants)

The subject TIS discusses an alternative approach to installing a recommended left-turn for SR 12 at Shaw Avenue. As indicated "The County has, on numerous occasions, placed a condition that applicants construct a wider shoulder on the opposite site 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 SR 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 TIS provides, in the appendix, a preliminary layout for SR 12 widening, indicating significant right of way impacts north and south of the site, and along side street approaches.

Note on Site Access (Left-Turn Lane Warrants)

It is unclear how the 8' shoulder widening that is being proposed would differ from the widening required to provide a left turn pocket without an accompanying visual. It appears that 8' shoulders are already present along this section of SR 12. Currently, vehicles pre-position for left turns from SR 12 onto Shaw Avenue by crossing double yellow lines and staging in the 6'-wide "transition" striping between Shaw Avenue and the turn pocket on SR 12 at Randolph Avenue.

This prepositioning movement in the 6'-wide double-yellow striping (shown on the cover image of the TIS) is not advisable and promotes vehicle positioning that is illegal according to the California Vehicle Code. An alternative improvement premised on drivers avoiding left turning vehicles by using the shoulders would similarly promote an illegal vehicle movement, leaving the travel way to circumnavigate left turning cars. A left turn pocket remains the recommended improvement for this location, similar to the left turn pocket at Randolph Avenue. If this is not a project-specific impact and mitigation, the County should consider fair-share contribution towards this improvement be provided by the applicant in lieu of construction. Whether or not this is a project specific impact is not immediately clear from the TIS, and should be clarified.

Parking

The parking calculations shown in Table 8 of the subject TIS are consistent with Sonoma County parking code requirements for dining, retail (market), and office uses. The calculated parking demand would be 65 spaces for all project-related uses. Based on a proposed parking supply of 37 on-site spaces and 53 off-site parking spaces (satellite parking lot), there would be a surplus of 25 spaces.

Note on Parking

The proposed project would meet the County parking code requirements of 65 spaces based on a parking supply of 90 spaces. The placement of ADA parking stalls should be considered, since additional ADA stalls will be required. If these are located off site at the proposed new lot, an ADA-compliant path of travel between the proposed lot and project site will be required.

Conclusion/Recommendations

The recommendations for the subject TIS request that the requirement for a left-turn lane on SR 12 and a right-turn lane for the Shaw Avenue approach at SR-12 be eliminated due to subsequent traffic analysis (due to project intersection LOS and physical constraints. Similarly, the TIS recommends that no mid-block crossing be required. The TIS recommends that bicycle parking be provided on site (for 18 bicycles).

Note on Conclusions/Recommendations

The TIS cites the low volume and high sight distance on Shaw Avenue as reason to preclude any pedestrian crossing of Shaw Avenue. However, the TIS also recommends against installing a mid-block crossing due to concerns it would provide a false sense of pedestrian safety. These statements should be reconciled. Furthermore, a safe pedestrian path of travel should be provided, particularly if the proposed lot is to accommodate ADA stalls, between the proposed lot and the project site.

Construction constraints and a lack of collision history are not sufficient to dismiss the left turn lane requirement. Given the speed differential between stopped vehicles and through movement on SR 12, a vehicle stopped in the center of a two-lane road could pose a significant safety hazard, and the proposed improvement to widen the roadway shoulder to allow passing of stopped vehicles at this movement would introduce new roadway departure hazards.