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March 14, 2017

Via Electronic Mail

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Re: Raymond-Ticen Ranch Winery, Major Modification to Use Permit, Application # P15-00307-MOD

Dear Commissioners:

On behalf of Beckstoffer Vineyards, we submit these comments on the County's March 10, 2017, Board Agenda Letter for the above-referenced application. We have followed the County's processing of the proposed Raymond-Ticen Ranch Winery Project ("Project") closely, submitting extensive comments on the County's Initial Study/Mitigated Negative Declaration ("IS/MND") for the Project. Since then, we have reviewed the Board Agenda Letter to the Commissioners dated March 10, 2017 ("Staff Report"). Because the Staff Report does not adequately address the issues raised by this firm, we submit these additional comments.

As detailed in our previous comment letters and herein, the Initial Study remains inadequate and cannot support approval of the Project under CEQA. In addition, as we explained previously, the Project conflicts with the Napa County General Plan and the Napa County Code, in violation of State Planning and Zoning Law, Govt. Code § 65000 et seq. Moreover, the County has introduced, in the Staff Report, substantial changes to the Project, which increase the severity of environmental impacts related to loss of prime agricultural land. *See, e.g.,* Staff Report at 7. CEQA mandates that a revised analysis be recirculated for public review and comment prior to Project approval. Finally, the County lacks the substantial evidence to support the findings necessary to proceed with a use permit. The Project would result in significant environmental impacts

including, but not limited to, impacts related to consistency with the County's policies, traffic, drainage, and noise. Below, we highlight a few of the key issues.

I. The Project is Inconsistent with Applicable Plans and Ordinances and Therefore Cannot Be Approved.

The question of consistency between the Project and the applicable plans and ordinances plays two distinct roles in the environmental review and project approval process. First, under CEQA, a conflict between a plan or ordinance and the Project is a significant impact that must be disclosed and analyzed in the EIR. *See Pocket Protectors v. City of Sacramento* (2005) 124 Cal. App. 4th 903, 929-36; *see also* IS/MND at 25. (acknowledging that the Project would have a significant impact if it would "[c]onflict with any applicable land use plan, policy or regulation"). The environmental document's conclusions regarding these impacts, like those for any other impact, must be supported by substantial evidence.

Second, under the State Planning and Zoning Law, the Project may not be approved in the face of such inconsistencies. The Project requires approval of a use permit. State law clearly requires these approvals to be consistent with the County's General Plan. "The propriety of virtually any local decision affecting land use and development depends upon consistency with the applicable general plan and its elements." *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 570. Specifically, State law bars the grant of a use permit for an activity that would be inconsistent with a general plan. *See Neighborhood Action Group v. County of Calaveras* (1984) 156 Cal. App. 3d 1176, 1184. As discussed in the following sections of this letter, the proposed Project is clearly inconsistent with the County's General Plan and Development Code. Thus, the County cannot legally grant the CUP for this Project or any iteration of the Project unless it is revised to comply with the General Plan and Development Code.

Furthermore, the County's own code expressly bars the County from granting any of the required approvals for this Project unless they are consistent with the General Plan and the Development Code. Here, the use permit needed for the Project may not be granted because the Project violates both the County Code and the General Plan, so the County cannot make the required consistency finding. NCC § 18.124.070(D). Accordingly, the County may not lawfully issue a use permit. NCC § 18.124.070.

A. The Project Conflicts with the County's General Plan.

It is an abuse of discretion to approve a project that "frustrate[s] the General Plan's goals and policies." *Napa Citizens for Honest Gov't v. Napa County* (2001) 91 Cal.App.4th 342, 379. The project need not present an "outright conflict" with a general plan provision to be considered inconsistent; the determining question is instead whether the project "is compatible with and will not frustrate the General Plan's goals and policies." *Napa Citizens*, 91 Cal.App.4th at 379. Here, the proposed Project does more than just frustrate the General Plan's goals. It is directly inconsistent with numerous provisions in the General Plan.

For example, as explained in our January 23, 2017 comment letter, the Project is inconsistent with General Plan policies regarding preservation of agricultural land. *See, e.g.*, Napa County General Plan Goal AG/LU-1 ("[p]reserve existing agricultural land uses and plan for agriculture"), Policy AG/LU-4 ("County will reserve agricultural lands for agricultural use"), Policy AG/LU-9 (County shall evaluate projects, "to determine their potential for impacts on farmlands mapped by the State Farmland and . . . shall avoid converting farmland where feasible." Where conversion "cannot be avoided," County shall require "long-term preservation" of equivalent or better farmland); *see also* 1990 WDO, § 6. The Staff Report fails to address these inconsistencies.

In fact, the revised Project Description discloses that, with the relocation of the proposed driveway access point on State Route 29, the Project will result in 2.15 acres of vineyard conversion. See Staff Report at 7. (We note that the Revised Initial Study erroneously states that the Project would result in the conversion of less than half an acre. Staff Report Appendix D, Revised Initial Study, at 9.) The Initial Study and the Staff Report fail to analyze this additional loss of prime agricultural land and fail to identify feasible measures to mitigate for this loss. *See*, Napa County General Plan Policy AG/LU-9. This loss of prime agricultural land is not necessary for the continued operation of the vineyard, but is instead proposed to expand the commercial, visitor-serving uses at the Raymond winery. At any rate, a revised document must analyze this inconsistency.

In another example, the Project is inconsistent with General Plan policies related to noise. Specifically, Napa County General Plan Policy CC-38 provides exterior noise level standards for maximum noise levels not to be exceeded more than 30 minutes in each hour. The Project proposes to allow events outdoors. Staff Report, Appendix F, Revised Project Statement at 3. As explained in more detail in the attached report by

Papadimos Group and in section I.D of this letter below, a recent outdoor winery event undertaken at the site clearly exceeded these noise standards. Accordingly, the additional outdoor events envisioned under and facilitated by the proposed Project necessarily have the *potential* to exceed maximum allowable noise levels and would thus also be inconsistent with General Plan noise standards. *See* Papadimos Group Report, attached as Exhibit A to this letter. The Staff Report and the Revised Initial Study failed to analyze this inconsistency.

B. The Project Conflicts with the County's Winery Definition Ordinance.

Raymond proposes to remove agricultural land and expand wine marketing areas, without a commensurate increase in wine production, in direct conflict with the Winery Definition Ordinance ("WDO"). As a Raymond consultant noted at a County Planning Commission meeting in 2011, unauthorized improvements made by the new owners unlawfully transformed the winery into a "hospitality facility." *See* Enforcement Request at 2 (attached to our January 23, 2017, letter as Exhibit 3). Raymond's proposed expansion of marketing activities seeks to legitimize and extend that transformation. However, this is precisely the type of change in basic character that the WDO prohibits.

Raymond's proposed expansion will not increase the market for Napa grapes, even though supporting Napa viticulture is a central requirement of the WDO. NCC § 18.104.250(B), (C). The WDO's 75% Napa grapes rule aims to ensure that any expansion beyond an existing winery development area is accompanied by an increase in use of Napa grapes. NCC § 18.104.250(C). If the County allows Raymond to increase wine marketing activities, without also increasing wine production, it will undermine this purpose of the WDO.

The definition of "accessory use" and limitations on "marketing of wine" in the County Code make this clear. The Raymond and Ticen parcels, which are zoned Agricultural Preserve ("AP"), may only offer wine tours, tasting, and wine-related products if those activities are "accessory" to a winery. NCC §§ 18.16.030(H). To be "accessory," these uses must be "clearly incidental, related and subordinate to" the primary "agricultural" winery use. NCC § 18.08.020. Further, the "accessory" use must not change the character of that primary use. NCC § 18.08.020. Likewise, the wine marketing plan, which may include events related to wine education and customer development, "in [its] totality must remain 'clearly incidental, related and subordinate to the primary operation of the winery as a production facility.'" NCC § 18.08.370.

The Staff Report improperly excludes the proposed outdoor picnic areas and Biodynamic Garden from the accessory use calculation. Staff Report at 4. The claim in this Staff Report that NCC section 18.104.200 excludes outdoor accessory spaces is inconsistent with the manner in which the Planning Commission calculated accessory use square footage in two recent actions concerning the B Cellars and Titus Vineyards projects. For both projects, the outdoor terraced spaces were counted as part of the percentage of the project used for accessory uses. The County should treat the present Project in the same manner.

The proposed marketing expansion, without a related increase in production, will exceed these limits on accessory uses and marketing. The 25-acre Ticen Ranch portion of the property would be converted from residential and grape growing uses to a new visitor-serving hospitality facility. Likewise, the new road across the Ticen parcel would primarily attract visitors for hospitality purposes. In contrast, the area of the Project site used for wine production will actually be *reduced* by fifty percent, from the existing 243,800 sq. feet of production facilities to 121,133 sq. ft. *See* Use Permit Application at 12 of 29. As the WDO predicts, this "interspersing of non-agricultural structures and activities . . .will result in a significant increase in the problems and costs of maintaining vineyards and discourage continued use of the land for agricultural purposes." 1990 WDO § 1(f).

In addition, Raymond's plan to convert prime agricultural land into a paved road violates the WDO's restrictions on removing land from agriculture. The proposed access roadway from SR 29 through the Ticen Ranch portion of the site to the proposed new parking lots and ultimately onto Zinfadel Lane would traverse prime agricultural land and active vineyards for a full mile. *See* Project Statement at 1-2, Proposed Area Site Plan B, G. When the County adopted the WDO, it recognized that County areas suitable for vineyards – such as those at Ticen Ranch – are "limited and irreplaceable." 1990 WDO § 1(e). To protect this valuable resource, the WDO prohibits conversion of agricultural land. 1990 WDO § 6(b). Thus, the WDO does not allow Raymond's proposal to eliminate agricultural land available to grow Napa grapes.

C. The Raymond Winery's Temporary Events Violate the WDO.

The WDO limits *all* winery events, including those held pursuant to a temporary event license. NCC § 18.08.370 ("Marketing of wine" includes "*any* activity of a winery which is conducted at the winery on a prearranged basis for the education and development of customers.") (emphasis added). Winery marketing plans "in their totality," including temporary events, must remain "clearly incidental, related and

subordinate" to the winery's primary winemaking use. NCC §§ 18.08.370, 18.16.030(G)(5).

Raymond's temporary events cause the winery's marketing plan to cross that line. In addition to the winery's aggressive regular marketing plan described in the Staff Report, Raymond hosted a 600-person event on February 24, 2017 and has proposed another large event for April 29. The license applications for both of these events note that these are annual events. Accordingly, they are a foreseeable, ongoing component of the winery's marketing plan. These events generate significant traffic and noise and contribute to the facility's shift toward hospitality, and away from winemaking.

D. The County Cannot Make the Findings Required for Issuance of the Use Permit.

The County cannot make several findings required by the NCC for approval of a use permit. NCC § 18.124.070. Before issuing a use permit, the County must find that the grant of the permit "will not adversely affect the public health, safety or welfare of the county" and that the proposed use complies with the General Plan and the Zoning Code. NCC § 18.124.070(C), (D).

The NCC defines certain noise levels as detrimental to the public health, welfare, and safety. NCC § 8.16.010. Noise measurements taken at a recent Raymond Winery event establish that the proposed Project will violate these standards. Specifically, the Raymond Winery held an event for 600 people on the evening of February 24, 2017. The Papadimos Group collected noise measurements before and during the event. *See* Papadimos Group Report attached as Exhibit A. The noise measurements were taken from the closest sensitive receptor, a single family residence on Wheeler Lane. The noise measurements indicate that noise associated with the event exceeded allowable levels of maximum noise multiple times throughout the evening. Papadimos Group Report at 2 & 3. The noise exceedances were attributable to vehicular traffic and music at the event. *Id.* Moreover, noise from the event extended until 11:20 pm despite the fact that the Temporary Event License specified that the event was to end at 10:00 pm with only quiet clean up activity allowed from 10:00 pm to 11:00 pm. *See* Temporary Event License, attached as Exhibit B.

The proposed Project envisions authorizing similar events and the modifications proposed as part of the Project will clearly facilitate such events via the expanded marketing program proposed by the applicant. This precludes the County from

finding that the Project will not adversely affect public health, safety, and welfare. NCC § 18.124.070(C).

In addition, as discussed above, the Project violates both the Zoning Code and the General Plan, so the County cannot make the required consistency finding. NCC § 18.124.070(D). Accordingly, the County may not lawfully issue a use permit for the Project. NCC § 18.124.070.

II. The IS/MND's Analysis and Mitigation of the Project's Significant Environmental Impacts Remains Inadequate.

In many instances, the Staff Report and Revised Initial Study fail to respond to pertinent comments on significant environmental issues, including noise, hydrology and water quality, and traffic. Instead, the Staff Report and Initial Study dismiss comments by reiterating claims made in the Initial Study without supporting facts or substantive analysis and offer conclusory statements without a factual or legal foundation. Therefore, the Initial Study remains inadequate under CEQA.

A. The IS/MND Fails to Adequately Analyze the Project's Significant Noise Impacts.

As we submitted in our January 23, 2017 comments, the Initial Study failed to adequately evaluate the Project-related noise impacts. The Staff Report and revised Initial Study do nothing to remedy this failure. The Initial Study ignores the comments and provides only skeletal information about the existing setting and fails to provide an analysis of noise impacts.

As discussed above, the Raymond Winery held an event for 600 people on the evening of February 24, 2017. The Papadimos Group collected noise measurements before and during the event that showed clear violations of the County's noise standards. Outdoor events as proposed by the Project have the potential to result in impacts similar those described above. In addition, as discussed above, the Raymond Winery routinely holds events under Temporary Event permits such that the events and related impacts are foreseeable. Therefore, the noise impacts of all proposed events should be analyzed as part of this Project application. Unless an until the County prepares such an analysis, discloses all potentially significant noise impacts, and evaluate and adopts all feasible mitigation measures, approval of the Project would violate CEQA.

B. The IS/MND Fails to Adequately Analyze the Project's Significant Hydrology and Water Quality Impacts.

The Staff Report includes two letters prepared by Summit Engineering in response to public comments on drainage and water quality impacts. Staff Report, Appendix F. However, these letters present only incomplete responses that fail to address the concerns submitted in our previous comments. The Summit letter regarding drainage impacts only addresses the proposed access drive between the Ticen and Raymond properties. Specifically, the letter states that runoff from the driveway "will sheet flow onto the adjacent vineyard", but the letter ignores the larger problem of runoff from upstream of the access drive, which will be captured in a swale and concentrated into culverts. Flow from those storm drains could be sufficient to erode a channel downstream from the road. The letter from Summit Engineering fails to address this issue.

A second letter from Summit Engineering addresses comments regarding potential impacts and contamination to groundwater quality. This letter too fails to address the concerns raised in our previous comments and instead repeats information in the original application regarding soil types on the project site. In our previous comments, we raised concerns about the low infiltration rate of soils on-site. As explained by Dr. Tom Myers in his report dated January 23, 2017, expansion of the leach fields may cause significant seepage of wastewater to downgradient or downstream locations. *Id.* at 2-5. Wastewater seepage could thus follow the path of least resistance and flow laterally to the nearest wells or potentially form downgradient seeps. *Id.* The Staff Report and the Revised Initial Study fail to include any information on existing wells and fail to analyze the environmental impact the Project's expanded leach fields might cause.

C. The IS/MND Fails to Adequately Analyze the Project's Significant Traffic Impacts.

The Staff Report's response to comments perpetuates the Initial Study's failure to provide substantial evidence that Project-related traffic impacts would be less-than-significant. First, the Staff Report and Revised Initial Study fail to respond to comments that the Initial Study ignores the daily increase in winery visitors. As pointed in our previous comments, the Use Permit Application for the Project states that the number of visitors on an average day will double from 200 to 400. Use Permit Application at 9. Yet, the Revised Initial Study and the responses to comments provided by Crane Transportation Group ("CTG") ignore this comment. Consequently, the project

trip generation used in the traffic analysis remains inadequate and understates both project-related peak hour traffic and impacts to the area roadways.

Second, the Staff Report and Revised Initial Study fail to adequately respond to comments related to analysis of the safety effects of trucks on SR 29. The responses to comments included in the Staff Report state that "[T]he traffic study took into account project and ambient truck traffic". Staff Report, Appendix F, CTG Report at 3. However, this statement fails to address the safety concerns raised. Specifically, as MRO Engineers pointed out in the report dated January 23, 2017, according to the level of service calculation sheets presented in the CTG traffic study appendix, trucks constitute 10 percent of the northbound through traffic on SR 29 at Zinfandel Lane in the AM peak hour and 13 percent of the southbound through vehicles in that time period. In the PM peak hour, the percentages are lower, but still substantial (4 – 5 percent). During the crush period, this percentage is certain to be higher. Despite this, the traffic study includes no discussion or analysis of auto-truck conflicts and the potential safety issues associated with mixing automobile traffic (including wine-tasting tourists) with a considerable amount of heavy-vehicle traffic.

Finally, the response to comments prepared by CTG dismisses comments regarding the Project's contribution to cumulative impacts. The Initial Study and the supporting traffic study relied on traffic projections from the County's General Plan traffic model. Staff Report, Appendix F, CTG Report at 3. The CTG Report provides no information on the parameters included in that model. The response to comments suggests that taking cumulative projects into account when evaluating project impacts is beyond the scope of a project-level traffic analysis. This is incorrect. While a project-level cumulative impact analysis need not consider every project under consideration in the County, it should include any projects in the vicinity of the proposed Project that could contribute to and result in significant cumulative traffic impacts.

Moreover, the Staff Report fails to respond to comments made at the February 1, 2017 public hearing regarding the applicant's failure to comply with and implement measures required to mitigate traffic impacts. Instead, the County continues to downplay the applicant's history of noncompliance with County requirements. In a particularly glaring example, the applicant failed to implement specified project elements proposed as part of a previous use permit intended to reduce significant traffic impacts resulting from the proposed project operations at the Raymond Winery. Specifically, the Raymond Winery 1991 Use Permit (Use Permit # U-89-46) included a "Project Revision Statement", which enumerated proposal modifications agreed to by the applicant. *See*,

Use Permit #U-89-46, Project Revision Statement, attached hereto as Exhibit C. Item number "5" of that Project Revision Statement reads as follows:

> "A westbound left-turn lane along with acceleration and deceleration tapers shall be installed on Zinfandel Lane at its intersection with Wheeler Lane when traffic (i.e., the ADT[1]) on Zinfandel Lane exceeds 2,000 trips per day. The design of the required turn lane and tapers shall be approved by the Napa County Public Works Department."

The attached 2014 traffic study prepared by Omni for the Raymond Winery shows an ADT of 3,512 in 2013. Omni Report at 3, first paragraph (attached as Exhibit D). Therefore, the applicant's own prior reports demonstrate that ADT on Zinfandel exceeded the trigger threshold for the Raymond Winery to implement the required traffic improvements at least three years ago, and likely long before then. While the applicant's 2016 traffic study was silent on the current ADT, increased traffic volumes on Zinfandel Lane suggest that the current ADT is also likely to exceed the 2,000 ADT trigger for implementing the improvements. These traffic improvements were never implemented as part of the winery expansion associated with the 1991 Use Permit.

Now, the applicant is once again proposing the same westbound left-turn lane with acceleration and deceleration lanes at Wheeler Lane as a project element for the current Project. IS/MND at 4. The County should require the Raymond Winery to come into full compliance will all applicable requirements before it considers approval for expanded uses.

III. The Revised Project Results in New Significant Impacts Not Analyzed in the IS/MND.

The Staff Report describes substantial revisions to the Project, which includes a revised driveway access point from State Route 29. Staff Report at 7. The Staff Report discloses that this change "will require removal of existing vineyards" that would increase the vineyard conversion acreage to more than two acres. *Id.* This change should have been made a part of the Initial Study itself. The project description in the body of the Initial Study is inaccurate. In fact, the Revised Initial Study erroneously states that the Project would result in the conversion of less than half an acre of vineyard. Staff Report Appendix D, Revised Initial Study, at 9.

[1] Average Daily Traffic.

Only the Staff Report contains the complete, accurate description of the Project and its impacts. This is an unacceptable way of presenting decision makers and the public with essential information, and it renders the analysis legally inadequate. Whatever is required to be in the text of the environmental document must be in the document itself, not buried in a Staff Report or appendix. *See Santa Clarita Organization for Planning the Environment v. County of Los Angeles* (2003) 106 Cal.App.4th 715, 722-23; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 727.

The Revised Initial Study and the Staff Report fail to analyze the additional loss of prime agricultural land and fail to identify feasible measures to mitigate for this loss. *See*, Napa County General Plan Policy AG/LU-9. Moreover, even if the revised Initial Study had included the new project description and analyses, it could not be certified as adequate, because the public has not had the required opportunity to review the new information. Under CEQA, a negative declaration must be recirculated when such a "substantial revision" has been made. This increase in loss of agricultural land over that shown in the IS/MND constitutes just such a substantial revision. CEQA Guidelines § 15073.5.

IV. The Project's Potentially Significant Impacts Require Preparation of an EIR.

An agency must prepare an EIR whenever it is presented with a "fair argument" that a project may have a significant effect on the environment, even if there is also substantial evidence to indicate that the impact is not significant. *See No Oil, Inc. v. City of Los Angeles (1974) 13 Cal.3d 68*; *see also Friends of B Street v. City of Hayward (1980) 106 Cal.App.3d 988*; Guidelines § 15064(f)(1). Where there are conflicting opinions regarding the significance of an impact, the agency must treat the impact as significant and prepare an EIR. *Stanislaus Audubon Society v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-51; Guidelines § 15064(f)(1).

Here, the County must prepare an EIR because there is a fair argument that the Project will cause significant environmental impacts related to noise, hydrology and traffic, in addition to the flaws discussed above related to inconsistency with the County's General Plan and Zoning Code.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

Robert "Perl" Perlmutter

cc: David Morrison, County Planning Director (David.Morrison@countyofnapa.org)

List of Exhibits

Exhibit A	Papadimos Group, Nathan Sibon. Raymond-Ticen Winery – St. Helena, CA Attended Noise Monitor. March 13, 2017.
Exhibit B	County of Napa. Temporary Event License #P17-00006-E. February 1, 2017
Exhibit C	County of Napa, Jeffrey Redding. Letter Re Use Permit Application Number #U-89-46. February 25, 1991.
Exhibit D	Omni-Means, Ltd. Zinfandel Lane/Silverado Trail Intersection Traffic Analysis Updated Traffic Study for the Proposed Raymond Vineyards Winery Use Permit Modification #P11-00156. August 5, 2014.

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EXHIBIT A

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13 March 2017

Carmen Borg
Urban Planner
Shute, Mihaly & Weinberger
396 Hayes Street
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SUBJECT: Raymont-Ticen Winery – St. Helena, CA
Attended Noise Monitoring

Dear Carmen:

As requested, this letter summarizes our attended noise measurements at the two requested locations near the Raymond Vineyards Winery (RVW) at 849 Zinfandel Lane in St. Helena.

Noise measurements were performed on Friday, 24 February 2017 between 2pm and 11:30pm, encompassing the indoor event at the Raymond Vineyards Winery. We understand the event as described below from your email on 16 February 2017:

"The event for 600 people will be held at the Raymond Winery, 849 Zinfandel Lane in St. Helena, from 6:00 pm to 10:00 pm with quiet clean up until 11:00 pm."

In summary, we observed an increase in traffic on Wheeler Lane during the event that exceeded the noise limit of 45 dBA by up to 3 dB at the Barker Residence (1500 Wheeler Lane). Event music was audible above the ambient noise at this location throughout the event until approximately 11:00 PM.

REGULATORY SETTING

Chapter 8.16 - Noise Control Regulations for Napa County specifies permissible noise levels at the receiving property line depending on land use and time of day with adjustments to account for ambient, duration and quality of the noise. The code defines "Daytime" as 7:00 AM to 10:00 PM and "Nighttime" as 10:00 PM to 7:00 AM.

Noise limits for this assessment are taken from Table 8.16.070 in the code for country residential receivers in a "Rural" noise zone. The code also allows the noise limits to be reduced by 5 dB for noise characterized as "offensive", so long as the resulting noise limit is not below 45 dBA.

For this initial assessment, we have used the level not to be exceeded for more than 30 minutes in each hour, (referred to as the L_{50} or the level exceeded during 50% of the measurement). The L_{50} code limits are 50 dBA during daytime and 45 dBA during nighttime.

We have also applied the 5 dB reduction to these code limits for "offensive" noise as the activities of this event would be considered uncharacteristic and intrusive. Regardless the code lowest limit is an L_{50} of 45 dBA and in summary *this noise limit is used in this assessment for both daytime and nighttime hours.*

NOISE MONITORING RESULTS

As agreed ahead of time, we performed attended noise measurements at The Barker Residence located at 1500 Wheeler Lane. Measurements were performed before, during and after the event, in accordance with the county code using a Type 1 sound level meter (Bruel and Kjaer, Model 2250).

The Barker Residence is located on the main entrance road for the Raymond Vineyards Winery as shown in the map in Attachment B. Noise measurements were performed in the front yard with a clear view of traffic in and out of the Raymond Vineyards Winery, and of the building where the event was held, approximately 1000 feet away. The results are provided in Table 2 below.

Ambient noise at this location is primarily due to traffic on Zinfandel Road and Highway 29 with some of this traffic associated with the Raymond Vineyards Winery event.

Before the event, the primary source of noise was traffic in and out of the Raymond Vineyards Winery along Wheeler Lane which included cars and occasional small trucks. Noise levels from individual cars on Wheeler Lane was typically between 50 to 60 dBA at this location. There was also occasional construction/industrial noise that appeared to be coming from the Raymond Vineyards property and included banging noises and use of heavy machinery.

During the event, traffic flow in and out of the Raymond Winery increased and the measured noise levels were up to 3 dB higher than before the event. These higher noise levels (L_{50} between 47.1 to 48.5 dBA) exceeded the 45 dBA code limit.

Music from the event was audible throughout event and went on until approximately 11:00 PM. However, it did not seem to affect the noise level registered by the sound level meter that was dominated by traffic. The low frequency (bass) music content stood out above the ambient, and qualitatively was a quick and persistent thumping noise typically associated with modern dance music.

Event traffic continued until close to 11:20 PM and accounted for most the noise after 10:00 PM. Traffic leaving the event was easily identifiable even long after passing the Barker Residence due to the lack of other noise sources.

TABLE 2 – Measured Noise Levels

Description	Time	Noise Level (dBA)			
		Leq	Min	Max	L50
Before Event	2:00 PM - 3:00 PM	48.9	35.7	69.0	44.8
Before and During Event	5:20 PM - 6:20 PM	50.7	38.1	66.5	48.5
Event	8:05 PM - 9:05 PM	50.6	37.8	63.7	47.1
	9:30 PM - 10:30 PM	51.0	38.2	66.5	47.6
	10:45 PM - 11:00 PM	51.0	38.1	61.3	46.8
After Event	11:00 PM - 11:20 PM	51.2	36.6	67.5	45.6

NOTES:

- 2:00 to 3:00 PM:
  - Steady cars on Wheeler Rd in and out of RVW.
  - Some industrial/construction noise, most likely from RVW
  - Local traffic on Zinfandel Road and Highway 29.
- 5:20 to 6:20 PM:
  - Increase in traffic in and out of RVW
  - No audible event noise outside of incoming traffic.
  - Local traffic on Zinfandel Road and Highway 29.
- 8:05 to 9:05 PM:
  - Event music audible above ambient. Thumping bass.
  - Similar traffic in and out of RVW as 5:20 to 6:20 PM reading
  - Local traffic on Zinfandel Road and Highway 29.
- 9:30 to 10:30 PM:
  - Even music still audible (same as before) until sometime between 10:05 PM and 10:10 PM.
  - Person yells at event, slightly audible over ambient.
  - Increase in traffic in and out of RVW starting around 9:55 PM.
  - Local traffic on Zinfandel Road and Highway 29.
- 10:45 to 11:00 PM:
  - Event music audible again until shortly before 11:00 PM.
  - Decrease in traffic in and out of RVW, but still steady.
  - Occasional local traffic on Zinfandel Road but mostly cars entering/leaving RVW.
  - Occasional other traffic on Highway 29.

- 11:00 to 11:20 PM:
  - No event music.
  - Some cars still entering and leaving RVW.
  - Occasional local traffic on Zinfandel Road but mostly cars entering/leaving Raymond Winery.
  - Occasional other traffic on Highway 29.

* * *

I trust that you will find this information useful, but please do not hesitate to contact our office if you require further assistance.

Sincerely,

Nathan Sibon
Acoustics Consultant

ATTACHMENT A – Definitions of Common Acoustical Terminology

Decibel, dB – A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure (20 µPa).

Ambient Noise – The sound level in a given environment usually comprised of many sources in many directions near and far with no particular sound dominant.

A-weighted Sound Level, dBA – The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.

Background Noise - The total noise from all sources other than a particular sound that is of interest. It is often defined as L_{90} or the noise level exceeded 90% of the time.

Community Noise Equivalent Level, CNEL – The average A-weighted noise level during a 24-hour day, obtained after addition of 5 dB in the evening (7:00 pm to 10:00 pm) and after addition of 10 dB to sound levels measured in the night (between 10:00 pm and 7:00 am).

Day/Night Noise Level, Ldn (or DNL) – The average A-weighted noise level for a 24-hour period, obtained after addition of 10 dB to levels measured in the night (10:00 pm to 7:00 am).

Integrated or Equivalent Noise Level, L_{eq} – The energy average A-weighted noise level during the measurement period.

Sound level meter - An instrument that measures sound in dB. Various features are incorporated into such instrument including frequency bands, integration of sound over time and display of average, minimum, and maximum levels.

Sound pressure level - the ratio, expressed in decibels, of the mean-square sound pressure level to a reference mean-square sound pressure level that by convention has been selected to approximate the threshold of hearing (0.0002 µbar)

Frequency – The number of times per second that the oscillation of a wave of sound or that of a vibrating body repeats itself, expressed in Hertz (Hz).

Octave band - The frequency range of one octave of sound frequencies. The upper limit is always twice the frequency of the lower limit. Octave bands are identified by the geometric mean frequency or center between the lower limit and the upper limit.

Sound Transmission Class (STC) – A laboratory measured single-number rating system used to compare the sound isolating characteristics of partitions used to separate occupied spaces.

Noise Isolation Class (NIC) - A field measured single number rating used to compare the sound isolating characteristics of the total construction between two enclosed spaces that are acoustically connected by one or more paths.

ATTACHMENT B – Noise Measurement Locations

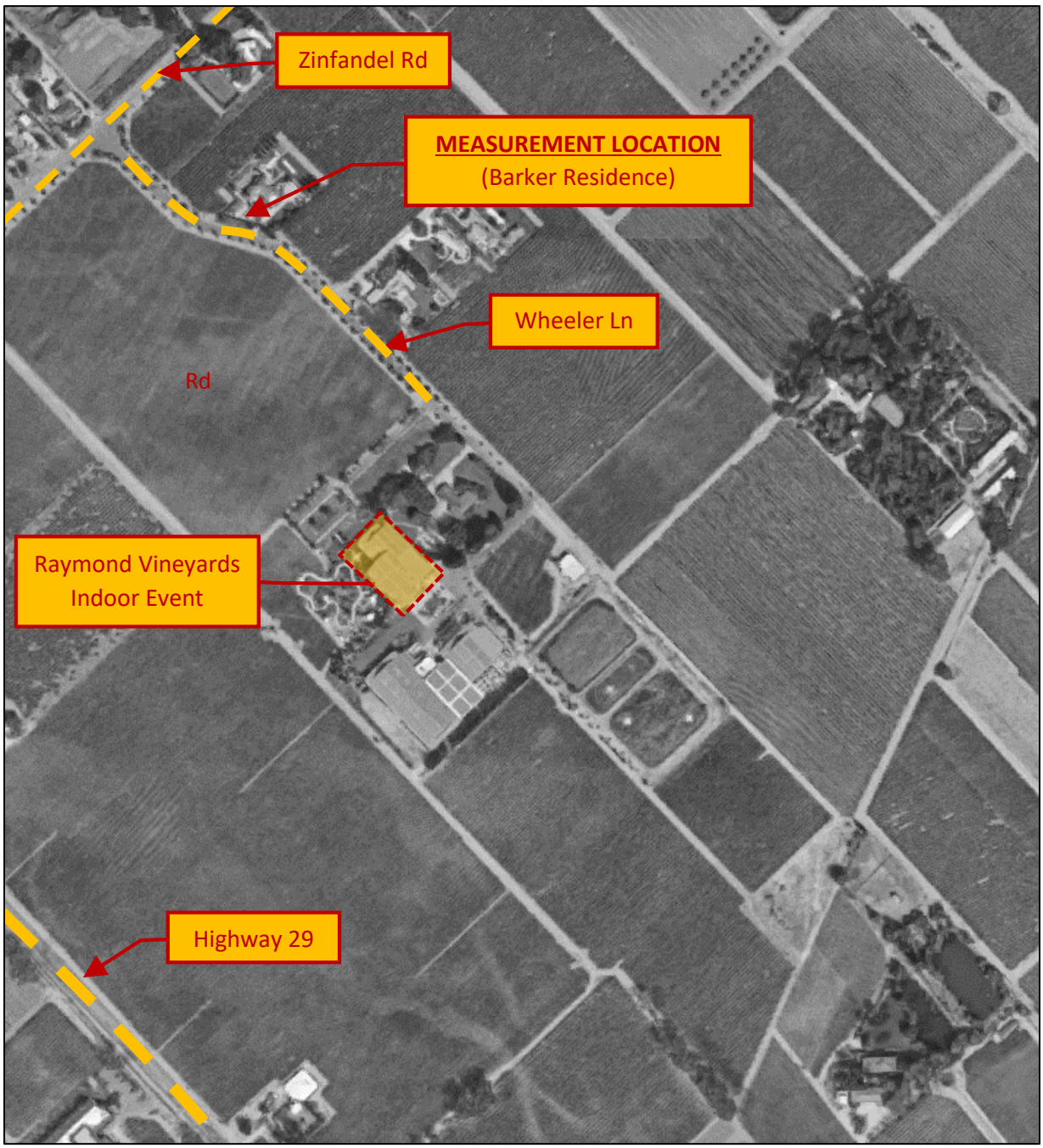


EXHIBIT B

Planning, Building, and Environmental Services

1195 Third Street, Suite 210
Napa, CA 94559
www.co.napa.ca.us

Main: (707) 253-4417
Fax: (707) 253-4336

David Morrison
Director

A Tradition of Stewardship
A Commitment to Service

February 1, 2017

TEMPORARY EVENT LICENSE #P17-00006-E
APN: 030-270-013-000

Raymond Vineyards
Tom Blackwood
849 Zinfandel Lane
St. Helena, CA 94574

Dear Tom:

Please be advised that on February 1, 2017, the Director of Planning, Building, and Environmental Services issued a temporary event license for a Subsequent Category 4 event known as Napa Gras to be held at Raymond Vineyards on February 24, 2017. The event shall be limited to a maximum of 600 people, and may be held from 6:00 pm to 10:00 pm; quiet clean-up may occur until 11:00 pm. Outdoor amplified music shall be prohibited. Tom Blackwood, Director of Retail Operations, shall be available by phone at (707) 287-7458 during the event to respond to complaints regarding the event. The temporary event license is attached below.

The applicant is responsible for supervising all activities conducted under the authority of the temporary event license and ensuring compliance with all required conditions. **The temporary event license shall be displayed in close proximity to the primary entrance to the event site and be available for public inspection during all phases of the event, including clean-up.**

Pursuant to County Code Section 5.36.050 (E) written notice of the issuance of this license, including a copy of the license below, is being sent to all interested parties.

Sincerely,

Terri Alsobrook (for D.M.)

David Morrison
Director

TEMPORARY EVENT LICENSE #P17-00006-E

LIMITED TO DATES OF EVENTS INDICATED

NAME/DESCRIPTION OF EVENT: Raymond Vineyards Napa Gras	APPROVED BY: LA (for D.M.) DATE: February 1, 2017 CATEGORY: Subsequent 4 FEE WAIVED: No
LOCATION OF EVENT: 849 Zinfandel Lane, St. Helena (030-270-013-000)	
DATE(S) OF EVENT: February 24, 2017 No outdoor amplified music	HOURS OF EVENT: 6:00 pm to 10:00 pm with quiet clean up until 11:00 pm EXPECTED ATTENDANCE: 600 Maximum
EVENT SUPERVISOR: Tom Blackwood	
ISSUED TO: Raymond Vineyards	
MAILING ADDRESS: 849 Zinfandel Lane, St. Helena CA. 94574	

THIS LICENSE IS NON-TRANSFERABLE

THIS LICENSE SHALL BE DISPLAYED IN CLOSE PROXIMITY TO THE PRIMARY ENTRANCE OF THE EVENT AND SHALL BE AVAILABLE FOR PUBLIC INSPECTION DURING ALL PHASES OF THE EVENT, INCLUDING CLEAN-UP

EXHIBIT C

89-46 - APPROVAL LETTER W/CONDITIONS - 2/25/1991 - 030-270-013-000 - RAYMOND VYDS

P-UP-APVL
U-89-46
030-270-013

NAPA COUNTY

JEFFREY R. REDDING
Director

CONSERVATION — DEVELOPMENT
AND PLANNING DEPARTMENT

1195 THIRD STREET, ROOM 210 • NAPA, CALIFORNIA 94559-3092
AREA CODE 707/253-4416

February 25, 1991

Assessor's Parcel # 30-270-013 &
030-050-27

Walter Raymond
Raymond Vineyard & Cellar Inc.
849 Zinfandel Lane
St. Helena, California 94574

Dear Mr. Raymond:

Please be advised that Use Permit Application Number #U-89-46 has been approved by the Napa County Conservation, Development and Planning Commission based upon the following conditions.

(SEE ATTACHED LIST OF CONDITIONS OF APPROVAL)
APPROVAL DATE: February 20, 1991 **EXPIRATION DATE:** March 6, 1992

The use permit becomes effective ten (10) working days from the approval date unless an appeal is filed with the Napa County Board of Supervisors pursuant to Title XIII of the Napa County Code. You may appeal the conditions of approval. In the event an appeal is made to the Board by another, you will be notified.

Pursuant to Section 12806 of the Napa County Code, the use permit must be activated within one (1) year and ten (10) calendar days from the approval date or the use permit shall automatically expire and become void. A one-year extension of time in which to activate the use permit may be granted by the County provided that such extension request is made thirty (30) days prior to the expiration date. A request for an extension of time is subject to payment of a $300.00 filing fee.

This letter serves as the only notice you will receive regarding the expiration date of your permit or procedures for extensions.

Very truly yours,

JEFFREY R. REDDING
Director

cc: John Tuteur, County Assessor
Deanna Silvestri, Acting Supervising Building Inspector

Page 1 / 7

0 Note(s)

CONDITIONS OF APPROVAL

(Raymond Vineyard & Cellar, Inc.)
Use Permit #U-89-46

1. The permit is limited to:

   a) an increase in the production capacity to 750,000 gallons per year; and

   b) construction of a 67,800 square foot winery production facility in conformance with the attached site and floor plans and listed building area uses and dimensions; and

   c) marketing activities outlined in Exhibit A and as amended by the conditions of this permit; and

   d) revision to the floor plan of "Building C" shown on the site plan to include the private visitor facilities shown on the attached floor plan including: private banquet room, kitchen, tour gallery, conference room, etc.

2. The exterior elevations of the proposed addition shall substantially conform with the submitted architectural renderings.

3. Any expansion or changes in use shall be by separate Use Permit submitted for Commission consideration.

4. Submit a detailed landscaping, fencing, and parking plan to the Department for review and approval indicating names and locations of plant materials, method of maintenance and location of off-street parking spaces. Landscaping plan shall include screening along the north edge of the visitor parking area (adjacent to the vineyard) to minimize dust. Said plan is to be submitted prior to issuance of any building permit. To the greatest extent possible, drought-resistent, native plants should be utilized in the landscaping. Landscaping, fencing, and the additional parking space are to be completed prior to final occupancy. Landscaping shall be permanently maintained in accordance with the approved landscape plan.

5. Provide a site total maximum of 75 off-street parking spaces on a dust-free all-weather surface approved by the Public Works Department. Visitor parking shall be limited to the existing paved visitor parking lot.

0 Note(s)

6. Visitor parking areas shall be clearly delineated. Access to the service roads west of the visitor parking area and south of the visitor parking lot driveway shall be restricted to winery and emergency personnel (including the owner/resident and visitors to the residence). Parking control signs acceptable to the Director shall be installed to indicate "No parking" areas and "Winery Personnel Only" areas. Location and sign specifications shall be included on the required landscape plan.

7. All outdoor storage of tanks shall be screened from view of and adjacent properties by a visual barrier consisting of fencing and/or dense landscaping. No open storage is to exceed the height of the screening.

8. Comply with all applicable building codes, zoning standards, and requirements of County Departments and agencies.

9. Comply with 21 Mitigation Measures described in the Project Revision Statement signed by the applicant dated February 8, 1991.

10. The applicant shall report to the Department on an annual basis the source of his grapes, verifying that 75% of the annual production over 250,000 gallons is from Napa County grapes. The report shall include the grape tonnage and the Assessor's Parcel Number(s) where grown. Such report shall be proprietary and not available to the public.

11. For the public record, the applicant shall annually submit to the Department a statement certifying compliance with the sourcing requirement and indicating the percentage of Napa County grapes utilized.

12. Retail sales shall be limited to wine fermented or re-fermented and bottled at the winery, and wine produced by or for the winery from grapes grown in Napa County and wine glasses sold only in conjunction with tasting and those pre-existing uses specifically authorized by any approved Certificate of Legal Non-Conformity issued pursuant to Setion 12856 of the Napa County Code. No picnicking or outdoor wine tasting shall be permitted.

13. All uses of the site henceforth undertaken by the winery in conjunction with marketing shall be in compliance with the Marketing Plan approved herein and incorporated by reference. All facilities of the winery, including offices and kitchen facilities, shall be for the exclusive use of the on-site winery. No portion of the structure shall be rented, leased and the winery facility shall not be used for events

0 Note(s)

PROJECT REVISION STATEMENT

Raymond Vineyard & Cellars Winery Expansion
Use Permit #U-89-46

I hereby revise my proposal to expand the existing winery to increase the production capacity of the winery from a 250,000 gallons/year to 750,000 gallons/year operation, including construction of and modification of other facilities on Assessor's Parcels 30-270-04; 30-050-27 (Use Permit Request #U-89-46) to include the measures specified below:

Noise(Construction)

1. Outdoor noise-producing construction activities shall be limited to weekdays between 8:00 AM and 5:00 PM. An on-site noise compliance officer who is responsible for noise control and mitigation measure implementation shall be designated prior to the initiation of any work on-site.

2. All construction equipment shall be properly and adequately mufflered or acoustically shielded at all times. All noisy stationary construction equipment shall be placed as distant as possible from nearby residences.

Aesthetic (Nighttime Lighting)

3. All exterior lighting shall be designed to shield and direct the illumination produced downward and away from all adjoining public roadways and all nearby residences.

Air Quality (Dust)

4. Water and/or dust pallatives shall be applied in sufficient quantities during grading and construction operations to limit the amount of dust produced to the minimum possible.

Traffic (Hazard Exposure)

5. A westbound left-turn lane along with acceleration and deceleration tapers shall be installed on Zinfandel Lane at its intersection with Wheeler Lane when traffic(ie, the ADT) on Zinfandel Lane exceeds 2,000 trips per day. The design of the required turn lane and tapers shall be approved by the Napa County Public Works Department.

0 Note(s)

6. The existing southbound left-turn lane on Highway 29 at its intersection with Zinfandel Lane shall be lengthened as necessary to provide stacking space for at least two (2) standard vehicles.

7. The gated entrance to be installed on Wheeler Lane shall be set far enough back to provide adequate stacking distance outside the public right-of-way for at least three(3) cars. The entryway design selected shall permit a Mobile Home Design Vehicle upon coming to the gate when it is closed to turn around without backing up.

8. All driveways at the expanded winery shall be at least 10 feet wide. All portions of any driveway used by visitors shall be at least 20 feet wide. Any widening needed shall be completed prior to commencement of the use of any new facilities approved under this permit.

Traffic (Congestion Increases)

9. Seventy-five(75) improved, marked parking spaces shall be installed at the subject winery prior to commencement of any use authorized by this permit. Twenty-eight(28) of these spaces shall be reserved exclusively for employee use. Said spaces shall be physically separated from the remaining forty-seven(47) visitor spaces and shall be clearly labeled for employee use only. One of the visitor spaces provided shall be designed for bus use. All improved parking spaces provided shall meet Napa County Public Works Department standards as to size, surfacing, etc. No spaces installed shall directly access on, or require vehicles to back out onto Wheeler or Zinfandel Lanes.

10. No additional parking spaces beyond the 75 specified above shall be installed.

11. Parking of vehicles along Wheeler Lane or outside the 75 improved parking spaces present shall be prohibited except during the crush when seasonal employees may park outside improved parking areas. Readily perceivable "No Parking" signs shall be installed and maintained as necessary in other areas where people might park including but not limited to along the edges of the driveways to the expanded winery.

12. Access to the property shall be denied at the intersection of the winery driveway with Zinfandel Lane when the improved parking area(s) provided on-site are full. A sign readily and easily readable by the passing motoring public on Zinfandel Lane

13. The visitor and retail sales facilities at the expanded winery shall be closed to the general public between 4:00 PM. and 6:30 PM. A sign readily and easily readable by the passing motoring public on Zinfandel Lane indicating that the winery is closed shall be placed out at 4:00 PM. No tours, tasting, and/or retail sales shall be initiated between these hours.

14. No dinners, festivals, or other marketing events shall be held at the expanded winery that begin or end during peak travel periods (between 4:00 and 6:30 PM).

15. The fact that the subject winery has displays of art or items of historical, enological or viticultural significance, or other special attractions shall not be promoted nor advertised. This prohibition shall apply to any promotional literature or brochures the winery publishes or advertisements in trade or general circulation publications it places.

16. Work shifts for all agricultural workers, and a percentage of winery employees equivalent to the proportion of new winery employees added to the winery, shall be scheduled to avoid travel to or from the subject winery during peak traffic periods (between 4:00 and 6:30 PM on weekdays and between 4:30 and 6:00 PM on Saturdays and Sundays). This restriction shall be maintained year-round except during the crush when it shall be maintained to the greatest extent feasible.

17. Winery employees shall be encouraged to car-pool to the greatest extent practical.

18. All routine pick-up and delivery of supplies and products shall be scheduled on weekdays between 7:00 AM and 4:00 PM except during the crush.

19. Upon completion of the construction of the proposed wine production facility, there shall be no transport of filled barrels between the winery and any off-site storage or aging facilities.

Public Health

20. Smoke detector and sprinkler systems, acceptable to and approved by the County Fire Department shall be installed within the new structure designated "Building B" on the project site plan and within the modified area of the structure designated "Building C" on said plan prior to occupancy of said structures. In processing areas, monitored heat detectors may be substituted for the required smoke detectors.

21. Access to the facility for fire department equipment and personnel shall be provided at all times.

EXHIBIT D

ZINFANDEL LANE / SILVERADO TRAIL INTERSECTION TRAFFIC ANALYSIS

UPDATED TRAFFIC STUDY FOR THE PROPOSED RAYMOND VINEYARDS WINERY USE PERMIT MODIFICATION #P11-00156

AUGUST 5, 2014

PREPARED BY:

OMNI-MEANS, LTD.
ENGINEERS & PLANNERS
1901 OLYMPIC BOULEVARD, SUITE 120
WALNUT CREEK, CALIFORNIA 94596
(925) 935-2230

35-5629-01
(R1557TIA003.DOC)

ZINFANDEL LANE / SILVERADO TRAIL INTERSECTION TRAFFIC ANALYSIS

RAYMOND VINEYARDS WINERY USE PERMIT MODIFICATION #P11-00156

INTRODUCTION / SUMMARY

Traffic conditions were evaluated at the Zinfandel Lane/Silverado Trail intersection for the proposed Raymond Winery use permit modification (P11-00156). This analysis supplements the traffic study which was conducted for the proposed use permit modification (Updated Traffic Study for the Proposed Raymond Vineyards Winery Use Permit Modification P11-00156, April 5, 2013) which evaluated two other intersections. The originally proposed use permit modification evaluated in the report (and subsequently the current smaller request) would not result in a significant impact based on the County standards of significance (with the provision that a left turn lane would be installed on Zinfandel Lane at the project access intersection.)

This analysis of the Zinfandel Lane/Silverado Trail intersection found that the original proposed use permit would add vehicular traffic above "without project" conditions, but within the standards of significance based on the County standards. The eastbound Zinfandel Lane approach operates at LOS 'F' for existing, near term, and long term scenarios without the project and would continue to do so with the project with eastbound vehicle queues increasing by one to two vehicle during the peak hours. The northbound Silverado Trail left turn movement would operate at LOS 'A'-'B' conditions, with slight increases in delays. The original permit request was calculated to add 14-26 peak hour trips above existing volumes to the intersection. The current proposal is calculated to add 10-18 peak hour trips to the Zinfandel Lane/Silverado Trail intersection.

SETTING

A traffic study prepared for the Castellucci Winery located at the east end of Zinfandel Lane evaluated the Zinfandel Lane/Silverado Trail intersection.[1] The traffic volumes from that study were utilized for the "without project" conditions of this analysis. The Raymond Winery proposed use permit volumes were added to the Castellucci report volumes to evaluate "with project" conditions. In order to remain consistent with the traffic report conducted for the Raymond Winery, this analysis has evaluated the original proposed use permit modification (consisting of 500 daily visitors, 90 employees, and average annual wine production of 1,500,000 gallons). The use permit modification has been reduced and no longer includes changes to the current use permit visitation level (400 daily visitors) and no change in production levels (900,000 peak annual gallons). Therefore, the current use modification request would generate fewer vehicle trips and all of the findings of this analysis address conditions associated with the current proposal's reduced size.

Silverado Trail is a two lane through route oriented in a north-south direction along the eastern side of the Napa Valley. In the project vicinity it consists of 12-foot travel lanes with striped shoulder areas marked as Class 2 bicycle lanes. The posted speed limit is 55 mph near Zinfandel Lane.

Zinfandel Lane east of the Raymond Winery to Silverado Trail consists of two twelve foot wide lanes with 1-4 foot wide striped shoulder areas. It is flat and straight until curving at the Napa River 700 west of Silverado Trail where there is a bridge (approximately 100 feet long) with narrower 9-foot travel lanes then continues straight to Zinfandel Lane. The posted speed limit is 45 mph with yellow warning 35 mph speed limit signs through the curved segment.

[1] Crane Transportation Group, Traffic Impact Report for Proposed Castellucci Family Winery, November 2013.

The Zinfandel Lane/Silverado Trail intersection has a single lane approach on Zinfandel Lane which is stop sign controlled. Northbound Silverado Trail has a separate left turn lane pocket on the approach to the intersection. A private driveway is located on the east side of the intersection.

Napa County Significance Criteria

The County of Napa's significance criteria has been based on a review of the Napa County Transportation & Planning Agency and Napa County General Plan documentation on roadway and intersection operations. Specifically, the Circulation Element of the County's General Plan outlines the following significance criteria specific to operations:

- The County shall seek to maintain an arterial Level of Service D or better on all county roadways, except where maintaining this desired level of service would require the installation of more travel lanes than shown on the Circulation Map.

- The County shall seek to maintain a Level of Service D or better at all signalized intersections, except where the level of service already exceeds this standard (i.e. Level of Service E or F) and where increased intersection capacity is not feasible without substantial additional right-of-way.

- No single level of service standard is appropriate for un-signalized intersections, which shall be evaluated on a case-by-case basis to determine if signal warrants are met.

Further significance criteria are based on County and CEQA guidelines and apply mainly to intersection operation and access. A significant impact occurs if project traffic would result in the following:

- Cause an increase in traffic which is substantial in relation to existing traffic load and capacity of the street system (i.e. result in a substantial increase in either the number of vehicle trips, the volume capacity ratio on roads, or congestion at intersections);
- Exceed either individually or cumulatively, an LOS standard established by the county congestion management agency for designated roads or highways;
- Result in a change of traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);
- Result in inadequate emergency vehicle access;
- Project site or internal circulation on the site is not adequate to accommodate pedestrians and bicycles.

EXISTING TRAFFIC CONDITIONS

The Castellucci report conducted peak hour counts at the Zinfandel Lane/Silverado Trail intersection in June 2013 and daily volume counts on Zinfandel Lane in August, 2013. The Castellucci Winery report found daily volumes on Zinfandel Lane near Silverado Trail averaged 3,512 vehicles. Volume data for Silverado Trail available from Napa County identifies volumes north and south of Zinfandel Lane are equal to ten times the peak hour volumes. Applied to the 2013 intersection counts results in 15,150 two-way weekday average daily trips north of Zinfandel Lane and 15,650 daily trips to the south. Weekend volumes equate to 13,710 daily trips to the north and 14,020 trips to the south of Zinfandel Lane. The average daily volumes on Silverado Trail are equivalent to LOS 'D' conditions (13,800-22,300 ADT) based on Napa County LOS volume thresholds.

The calculated peak hour intersection levels of service are provided in Table 1. The Zinfandel Lane/Silverado Trail intersection has calculated existing peak hour operating conditions of LOS 'F' (delays in excess of 50 seconds) for the eastbound Zinfandel Lane approach during the weekday and Saturday peak hours. The Silverado Trail northbound left turn movement operates at LOS 'A'-'B' (9.4-10.7 seconds delay) during peak hours.

NEAR TERM TRAFFIC CONDITIONS

For the Near Term conditions, the "Year 2018 With Castellucci Project" volumes from the Castellucci report were used. The volumes are based on traffic model projections from the Napa County General Plan and reflect an eight percent increase from existing volumes. Future lane geometries and controls at the Zinfandel Lane/Silverado Trail intersection were unchanged from existing conditions. (However, a left turn lane on eastbound Zinfandel Lane is proposed at the Castellucci Winery access.)

Silverado Trail would be expected to have daily volumes of 16,360-16,900 weekday trips and 13,250-13,260 Saturday daily trips. The volumes would continue to reflect LOS 'D' conditions based on the volume thresholds.

The Zinfandel Lane/Silverado Trail intersection would continue to operate at LOS 'F' for the eastbound Zinfandel Lane approach and the northbound left turn movement would continue to operate at LOS 'A'-'B' (9.6-11.3 seconds of delay) during the weekday and Saturday peak hours.

Signalization Warrants

The volumes were compared with the California Manual on Uniform Traffic Control Devices "peak hour" signal warrants. The peak hour volume warrant is one of several warrants available to determine if installation of a traffic signal may be appropriate. The Zinfandel Lane/Silverado Trail intersection would qualify for signalization under existing, near term, and long term Year 2030 cumulative "without project" conditions. With signalization, the intersection would operate at LOS 'B' or better during all evaluated timeframes.

TRAFFIC CONDITIONS WITH PROPOSED USE PERMIT

The total winery trips with the original proposed use permit as calculated in the Raymond Winery traffic report were distributed with 30% to/from the east on Zinfandel Lane to Silverado Trail. The project trips at the Zinfandel Lane/Silverado Trail intersection were distributed in proportion to the background turning volumes. For weekdays, this resulted in 40% of the trips to/from the north and 60% to/from the south on Silverado Trail, while the Saturday distribution resulted in 50% of the trips equally to the north and to the south.

With the originally proposed use permit, the project trips would add 33 weekday daily and 74 Saturday daily trips above existing volumes to Zinfandel Lane east of the winery. On Silverado Trail, approximately 13 daily weekday and 37 Saturday daily trips would be added north of Zinfandel Lane and 20 weekday daily and 37 Saturday daily trips would be added south of the intersection. The reduced permit application, which excludes the visitation and production increase components, now represents an increase of 23 weekday daily and 51 Saturday daily volumes on Zinfandel Lane east of the Winery. The revised permit would add approximately 9 weekday and 25 Saturday daily trips on Silverado Trail north of Zinfandel Lane and 14 weekday and 26 Saturday daily trips on Silverado Trail south of the intersection.

The originally proposed permit would add 14 weekday peak hour trips and 26 Saturday peak hour trips to the Zinfandel Lane/Silverado Trail intersection above existing volumes. The revised permit would add 10 weekday and 18 Saturday peak hour trips above existing volumes. The roadway LOS on Silverado Trail would remain unchanged for existing, near term and long term with project conditions, continuing to operate at LOS 'D' conditions. Zinfandel Lane would continue to operate at LOS 'C' conditions.

The peak hour conditions with the original proposed use permit were evaluated for the Zinfandel Lane/Silverado Trail intersection (level of service conditions are shown in Table 1). The levels of service for "with project" conditions would remain unchanged from "without project" conditions. The eastbound Zinfandel Lane approach would continue to operate at LOS 'F' with longer delays compared to "without project" conditions and the northbound left turn would operate at LOS 'A'-'B' with delay increases, if any, of approximately one second compared to "without project" conditions.

The calculated vehicle queues indicate vehicle queues would increase by one to two vehicles at the eastbound Zinfandel Lane approach during Friday and Saturday peak hours. There are no calculated increases in queues for the northbound left turn lane approach on Silverado Trail.

It is noted that the calculated increases are based on the visitation numbers used in the original permit application, but the ratio of surveyed visitation to the current permit level is lower than the levels used for the trip rate calculations, indicating actual volume increases may be less than calculated during typical conditions.

Signalization Warrants

The volumes were compared with the California Manual on Uniform Traffic Control Devices "peak hour" signal warrants. The peak hour volume warrant is one of several warrants available to determine if installation of a traffic signal may be appropriate. The Zinfandel Lane/Silverado Trail intersection qualifies for signalization for all "without project" conditions and would qualify for signalization under existing, near term, and long term cumulative "with project" conditions. With signalization, the intersection would operate at LOS 'B' or better during all evaluated periods.

CUMULATIVE CONDITIONS

The long term cumulative volumes were based on the County's General Plan transportation model forecasts as provided in the Circulation Element for future Year 2030 conditions. The growth projections translated into a 25 percent growth in traffic on Zinfandel Lane and 28 percent growth in traffic on Silverado Trail from the Year 2013 volumes.

The volume projections equate to daily volumes on Silverado Trail of 19,390-20,030 two-way trips to the north and to the south of Zinfandel Lane, respectively. The volumes would continue to equate to LOS 'D' conditions based on the volume thresholds. Conditions would operate at LOS 'C' on Zinfandel Lane.

The cumulative volumes indicate the eastbound approach to the Zinfandel Lane/Silverado Trail intersection would continue to operate at LOS 'F' with increased delays at peak times of the day and with longer peak periods during the day.

As noted in the Raymond Winery traffic study, the County has identified mitigation policies for potential long term traffic volume increases outlined in the Napa County General Plan. The policies include street network improvements, potential development of a traffic impact fee, and reduction of vehicle trips through alternative transportation and trip reducing policies. As stated in the report, the winery would provide bicycle racks and an electric vehicle charging station. It is our understanding a travel demand management program with trip reduction strategies would be provided to winery employees. If, for example, the measures result in 25% of employees ridesharing, daily and peak hour trips would be reduced by 20%-26%.

Although no significant impacts were found based on the County standards at this intersection, the findings/recommendations in the Raymond Winery traffic analysis would remain applicable; notably the construction of a left turn lane on Zinfandel Lane at the Wheeler Lane project access (proposed for installation as part of the use permit modification) which would mitigate the left turn lane operating conditions at the winery access intersection.

TABLE 1
ZINFANDEL LANE / SILVERADO TRAIL

EXISTING AND EXISTING + PROJECT PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
Zinfandel Lane / Silverado Trail *Unsignalized (minor street stop)*	**Existing** **LOS Delay**	**Existing + Project** **LOS Delay**	**Existing** **LOS Delay**	**Existing + Project** **LOS Delay**
Zinfandel Lane eastbound approach	F > 50"	F > 50"	F > 50"	F > 50"
Silverado Trail northbound approach	B 10.7"	B 10.7"	A 9.4"	A 9.5"
Silverado Trail southbound approach	A < 1"	A < 1'	A < 1"	A < 1"

EXISTING AND EXISTING + CURRENT USE PERMIT PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
Zinfandel Lane / Silverado Trail *Unsignalized (minor street stop)*	**Existing** **LOS Delay**	**Existing + Current Use Permit** **LOS Delay**	**Existing** **LOS Delay**	**Existing + Current Use Permit** **LOS Delay**
Zinfandel Lane eastbound approach	F > 50"	F > 50"	F > 50"	F > 50"
Silverado Trail northbound approach	B 10.7"	B 10.7"	A 9.4"	A 9.4"
Silverado Trail southbound approach	A < 1"	A < 1'	A < 1"	A < 1"

NEAR TERM AND NEAR TERM + PROJECT PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
Zinfandel Lane / Silverado Trail *Unsignalized (minor street stop)*	**Near Term** **LOS Delay**	**Near Term + Project** **LOS Delay**	**Near Term** **LOS Delay**	**Near Term + Project** **LOS Delay**
Zinfandel Lane eastbound approach	F > 50"	F > 50"	F > 50"	F > 50"
Silverado Trail northbound approach	B 11.3"	B 11.3"	A 9.6"	A 9.7"
Silverado Trail southbound approach	A < 1"	A < 1'	A < 1"	A < 1"

Based on Highway Capacity Manual (HCM) 2000, Operations methodology for stop-sign controlled (unsignalized) intersections using Synchro-Simtraffic software. Intersection calculation yields an LOS and vehicle delay in seconds.

APPENDIX
Zinfandel Lane/Silverado Trail Traffic Analysis
Raymond Vineyards Winery Use Permit Modification # P11-00156

- Level of Service Definitions
- Level of Service Calculations
- Peak Hour Signal Warrants

TABLE A-1
LEVEL-OF-SERVICE CRITERIA FOR INTERSECTIONS

LEVEL OF SERVICE	TYPE OF FLOW	DELAY	MANEUVERABILITY	CONTROL DELAY (SECONDS/VEHICLE)		
				SIGNALIZED	UNSIGNALIZED	ALL-WAY STOP
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10.0 secs. ≤ 0.60 v/c	≤ 10.0	≤ 10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10 and ≤ 20.0 secs. 0.61 – 0.70 v/c	>10 and ≤ 15.0	>10 and ≤ 15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20 and ≤ 35.0 secs. 0.71 – 0.80 v/c	>15 and ≤ 25.0	>15 and ≤ 25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles of stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35 and ≤ 55.0 secs. 0.81 – 0.90 v/c	>25 and ≤ 35.0	>25 and ≤ 35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55 and ≤ 80.0 secs. 0.91 – 1.00 v/c	>35 and ≤ 50.0	>35 and ≤ 50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	> 80.0 secs. > 1.00 v/c	> 50.0	> 50.0

References: 1. Highway Capacity Manual, Fourth Edition, Transportation Research Board, 2000, Contra Costa Transportation Authority (CCTA), Technical Procedures Update, Final, July 9, 2006. For the purposes of this study, CCTA intersection methodology has been used for signalized intersections yielding an LOS and v/c ratio.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	84	1	130	0	0	1	50	578	0	1	916	42
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95
Hourly flow rate (vph)	88	1	137	0	0	1	53	608	0	1	964	44
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1703	1702	986	1839	1724	608	1008			608		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1703	1702	986	1839	1724	608	1008			608		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	54	100	100	100	92			100		
cM capacity (veh/h)	67	85	301	29	82	495	687			970		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	226	1	53	608	1009
Volume Left	88	0	53	0	1
Volume Right	137	1	0	0	44
cSH	127	495	687	1700	970
Volume to Capacity	1.78	0.00	0.08	0.36	0.00
Queue Length 95th (ft)	433	0	6	0	0
Control Delay (s)	442.1	12.3	10.7	0.0	0.0
Lane LOS	F	B	B		A
Approach Delay (s)	442.1	12.3	0.8		0.0
Approach LOS	F	B			

Intersection Summary			
Average Delay	53.0		
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	97	1	83	2	0	0	76	559	1	0	605	54
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	103	1	88	2	0	0	81	595	1	0	644	57
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1429	1430	672	1518	1458	595	701			596		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1429	1430	672	1518	1458	595	701			596		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	1	99	81	97	100	100	91			100		
cM capacity (veh/h)	105	122	456	73	118	504	896			981		

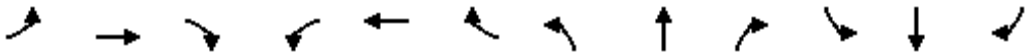
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	193	2	81	596	701
Volume Left	103	2	81	0	0
Volume Right	88	0	0	1	57
cSH	162	73	896	1700	981
Volume to Capacity	1.19	0.03	0.09	0.35	0.00
Queue Length 95th (ft)	265	2	7	0	0
Control Delay (s)	186.2	56.0	9.4	0.0	0.0
Lane LOS	F	F	A		
Approach Delay (s)	186.2	56.0	1.1		0.0
Approach LOS	F	F			

Intersection Summary			
Average Delay	23.4		
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	85	1	132	0	0	1	50	578	0	1	916	43
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95
Hourly flow rate (vph)	89	1	139	0	0	1	53	608	0	1	964	45
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1704	1703	987	1842	1725	608	1009			608		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1704	1703	987	1842	1725	608	1009			608		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	54	100	100	100	92			100		
cM capacity (veh/h)	67	85	300	29	82	495	687			970		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	229	1	53	608	1010
Volume Left	89	0	53	0	1
Volume Right	139	1	0	0	45
cSH	127	495	687	1700	970
Volume to Capacity	1.81	0.00	0.08	0.36	0.00
Queue Length 95th (ft)	442	0	6	0	0
Control Delay (s)	452.3	12.3	10.7	0.0	0.0
Lane LOS	F	B	B		A
Approach Delay (s)	452.3	12.3	0.9		0.0
Approach LOS	F	B			

Intersection Summary			
Average Delay	54.9		
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	103	1	89	2	0	0	79	559	1	0	605	57
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	110	1	95	2	0	0	84	595	1	0	644	61
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1437	1438	674	1532	1468	595	704			596		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1437	1438	674	1532	1468	595	704			596		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	79	97	100	100	91			100		
cM capacity (veh/h)	103	121	455	70	116	504	894			981		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	205	2	84	596	704
Volume Left	110	2	84	0	0
Volume Right	95	0	0	1	61
cSH	160	70	894	1700	981
Volume to Capacity	1.28	0.03	0.09	0.35	0.00
Queue Length 95th (ft)	300	2	8	0	0
Control Delay (s)	220.3	58.4	9.4	0.0	0.0
Lane LOS	F	F	A		
Approach Delay (s)	220.3	58.4	1.2		0.0
Approach LOS	F	F			

Intersection Summary				
Average Delay	29.0			
Intersection Capacity Utilization	82.3%	ICU Level of Service	E	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	88	1	136	0	0	1	52	586	0	1	1031	43
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	92	1	142	0	0	1	54	610	0	1	1074	45
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1818	1817	1096	1959	1840	610	1119			610		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1818	1817	1096	1959	1840	610	1119			610		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	45	100	100	100	91			100		
cM capacity (veh/h)	55	71	259	20	69	494	624			968		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	234	1	54	610	1120
Volume Left	92	0	54	0	1
Volume Right	142	1	0	0	45
cSH	106	494	624	1700	968
Volume to Capacity	2.22	0.00	0.09	0.36	0.00
Queue Length 95th (ft)	510	0	7	0	0
Control Delay (s)	644.8	12.3	11.3	0.0	0.0
Lane LOS	F	B	B		A
Approach Delay (s)	644.8	12.3	0.9		0.0
Approach LOS	F	B			

Intersection Summary			
Average Delay	75.2		
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	97	1	83	2	0	0	78	607	1	0	656	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	102	1	87	2	0	0	82	639	1	0	691	58
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1523	1524	719	1611	1552	639	748			640		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1523	1524	719	1611	1552	639	748			640		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	80	97	100	100	90			100		
cM capacity (veh/h)	90	107	428	61	103	476	860			944		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	191	2	82	640	748
Volume Left	102	2	82	0	0
Volume Right	87	0	0	1	58
cSH	141	61	860	1700	944
Volume to Capacity	1.35	0.03	0.10	0.38	0.00
Queue Length 95th (ft)	303	3	8	0	0
Control Delay (s)	257.3	65.6	9.6	0.0	0.0
Lane LOS	F	F	A		
Approach Delay (s)	257.3	65.6	1.1		0.0
Approach LOS	F	F			

Intersection Summary				
Average Delay	30.0			
Intersection Capacity Utilization	80.9%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	88	1	137	0	0	1	51	578	0	1	916	44
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95
Hourly flow rate (vph)	93	1	144	0	0	1	54	608	0	1	964	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1706	1705	987	1850	1728	608	1011			608		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1706	1705	987	1850	1728	608	1011			608		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	52	100	100	100	92			100		
cM capacity (veh/h)	67	84	300	28	81	495	686			970		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	238	1	54	608	1012
Volume Left	93	0	54	0	1
Volume Right	144	1	0	0	46
cSH	126	495	686	1700	970
Volume to Capacity	1.88	0.00	0.08	0.36	0.00
Queue Length 95th (ft)	468	0	6	0	0
Control Delay (s)	483.6	12.3	10.7	0.0	0.0
Lane LOS	F	B	B		A
Approach Delay (s)	483.6	12.3	0.9		0.0
Approach LOS	F	B			

Intersection Summary				
Average Delay	60.5			
Intersection Capacity Utilization	78.4%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	105	1	92	2	0	0	81	559	1	0	605	58
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	112	1	98	2	0	0	86	595	1	0	644	62
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1441	1443	674	1443	1473	595	705			596		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1441	1443	674	1443	1473	595	705			596		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	78	97	100	100	90			100		
cM capacity (veh/h)	102	119	454	79	115	504	893			981		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	211	2	86	596	705
Volume Left	112	2	86	0	0
Volume Right	98	0	0	1	62
cSH	160	79	893	1700	981
Volume to Capacity	1.32	0.03	0.10	0.35	0.00
Queue Length 95th (ft)	315	2	8	0	0
Control Delay (s)	235.1	51.6	9.5	0.0	0.0
Lane LOS	F	F	A		
Approach Delay (s)	235.1	51.6	1.2		0.0
Approach LOS	F	F			

Intersection Summary				
Average Delay	31.5			
Intersection Capacity Utilization	84.3%	ICU Level of Service		E
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	92	1	143	0	0	1	53	586	0	1	1031	45
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	96	1	149	0	0	1	55	610	0	1	1074	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1821	1820	1097	1970	1844	610	1121			610		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1821	1820	1097	1970	1844	610	1121			610		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	42	100	100	100	91			100		
cM capacity (veh/h)	55	71	259	18	68	494	623			968		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	246	1	55	610	1122
Volume Left	96	0	55	0	1
Volume Right	149	1	0	0	47
cSH	105	494	623	1700	968
Volume to Capacity	2.34	0.00	0.09	0.36	0.00
Queue Length 95th (ft)	545	0	7	0	0
Control Delay (s)	695.6	12.3	11.3	0.0	0.0
Lane LOS	F	B	B		A
Approach Delay (s)	695.6	12.3	0.9		0.0
Approach LOS	F	B			

Intersection Summary			
Average Delay	84.4		
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

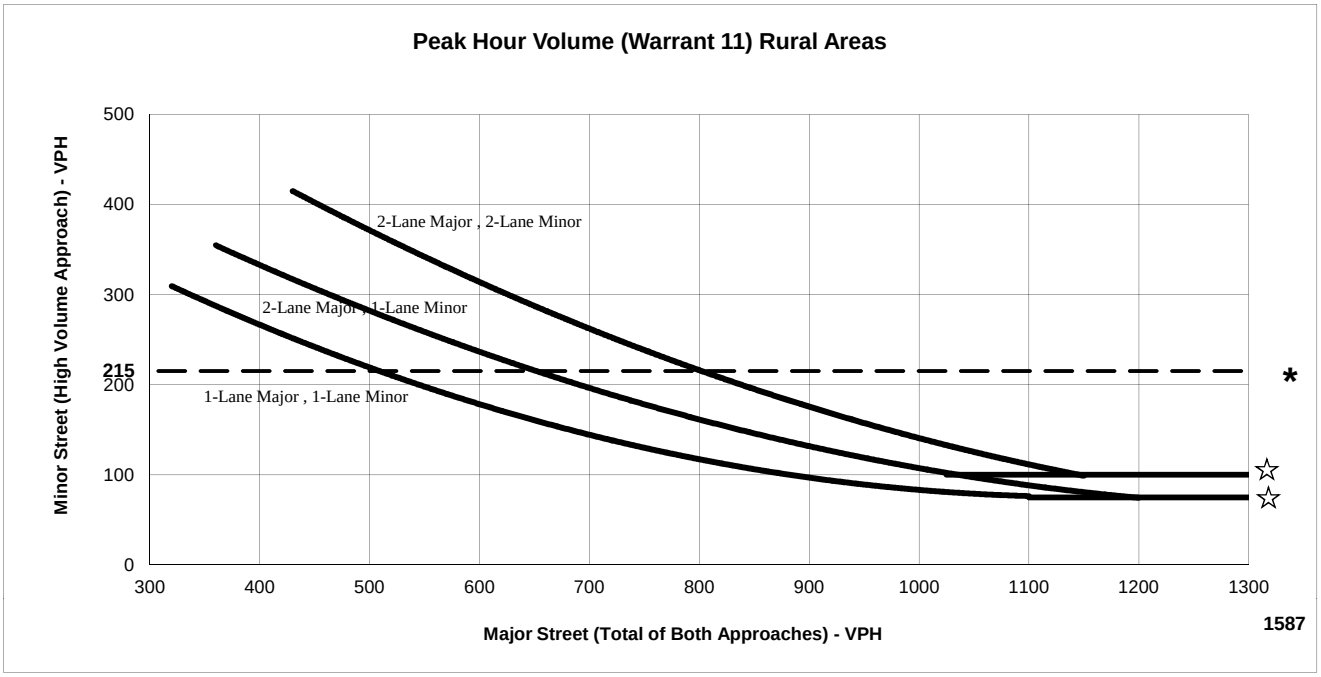
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	105	1	92	2	0	0	83	607	1	0	656	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	111	1	97	2	0	0	87	639	1	0	691	62
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1535	1536	722	1633	1567	639	753			640		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1535	1536	722	1633	1567	639	753			640		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	77	96	100	100	90			100		
cM capacity (veh/h)	87	104	427	57	100	476	857			944		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	208	2	87	640	753
Volume Left	111	2	87	0	0
Volume Right	97	0	0	1	62
cSH	139	57	857	1700	944
Volume to Capacity	1.50	0.04	0.10	0.38	0.00
Queue Length 95th (ft)	355	3	8	0	0
Control Delay (s)	317.3	70.2	9.7	0.0	0.0
Lane LOS	F	F	A		
Approach Delay (s)	317.3	70.2	1.2		0.0
Approach LOS	F	F			

Intersection Summary			
Average Delay	39.7		
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Existing Weekday Peak Hour Conditions
Minor St. Volume:	215
Major St. Volume:	1587
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

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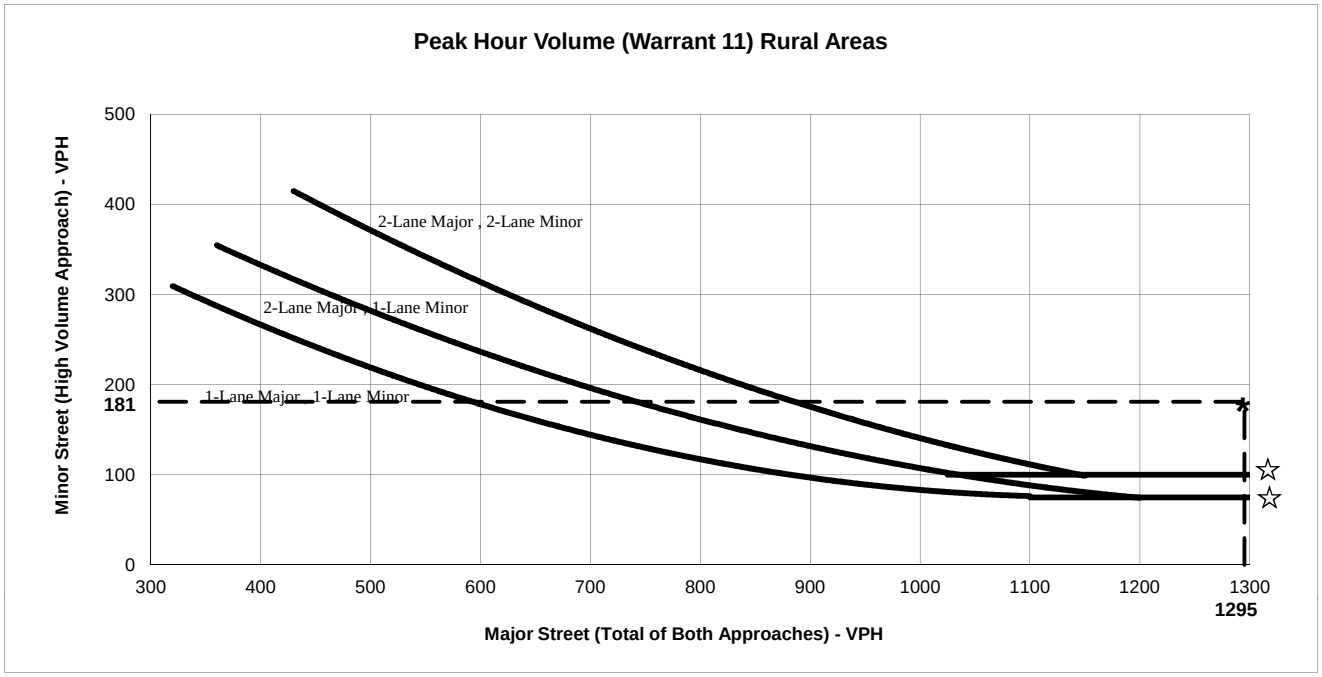

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Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Existing Saturday Peak Hour Conditions
Minor St. Volume:	181
Major St. Volume:	1295
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

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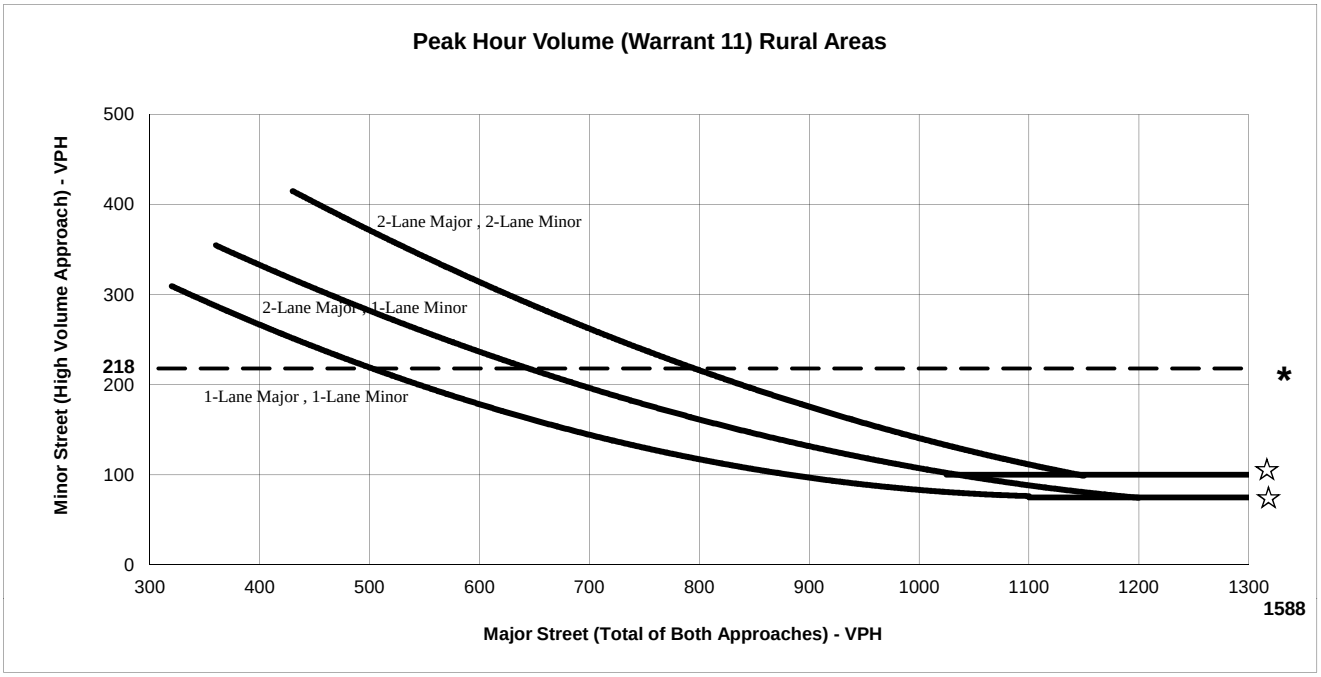

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Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Existing With Current Use Permit Weekday Peak Hour Conditions
Minor St. Volume:	218
Major St. Volume:	1588
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

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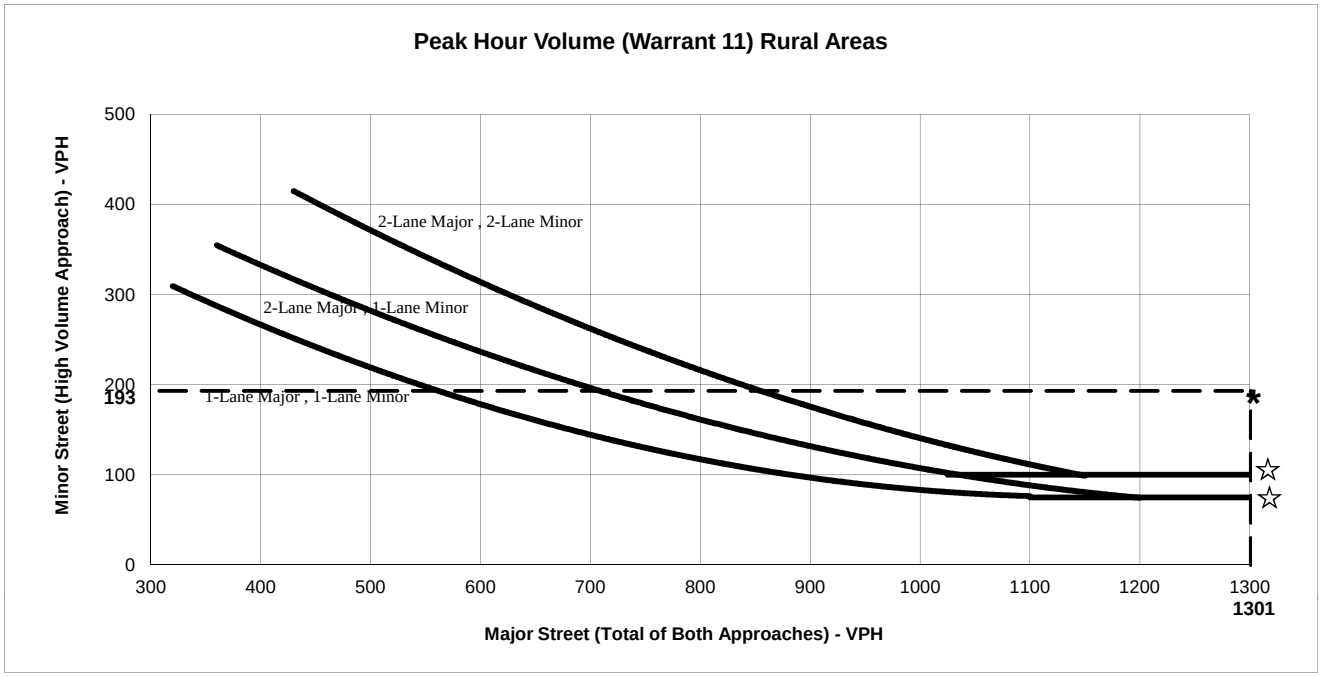

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Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Existing With Current Use Permit Saturday Peak Hour Conditions
Minor St. Volume:	193
Major St. Volume:	1301
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

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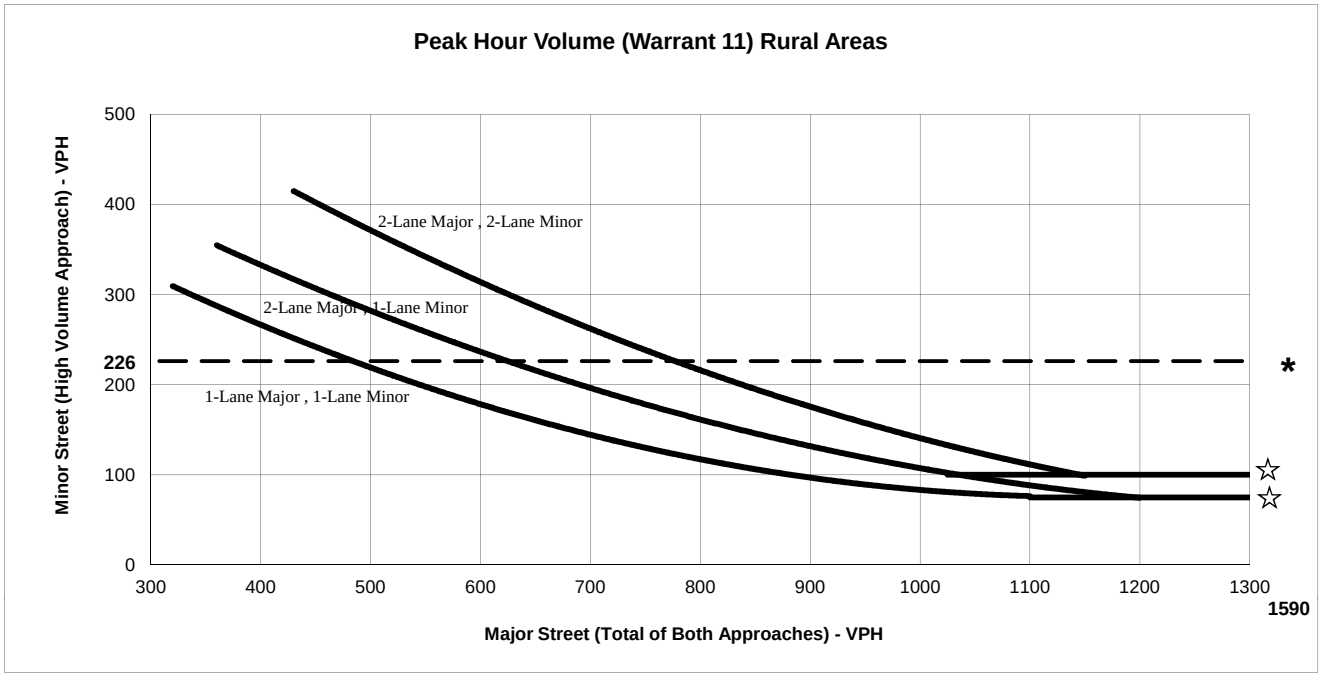

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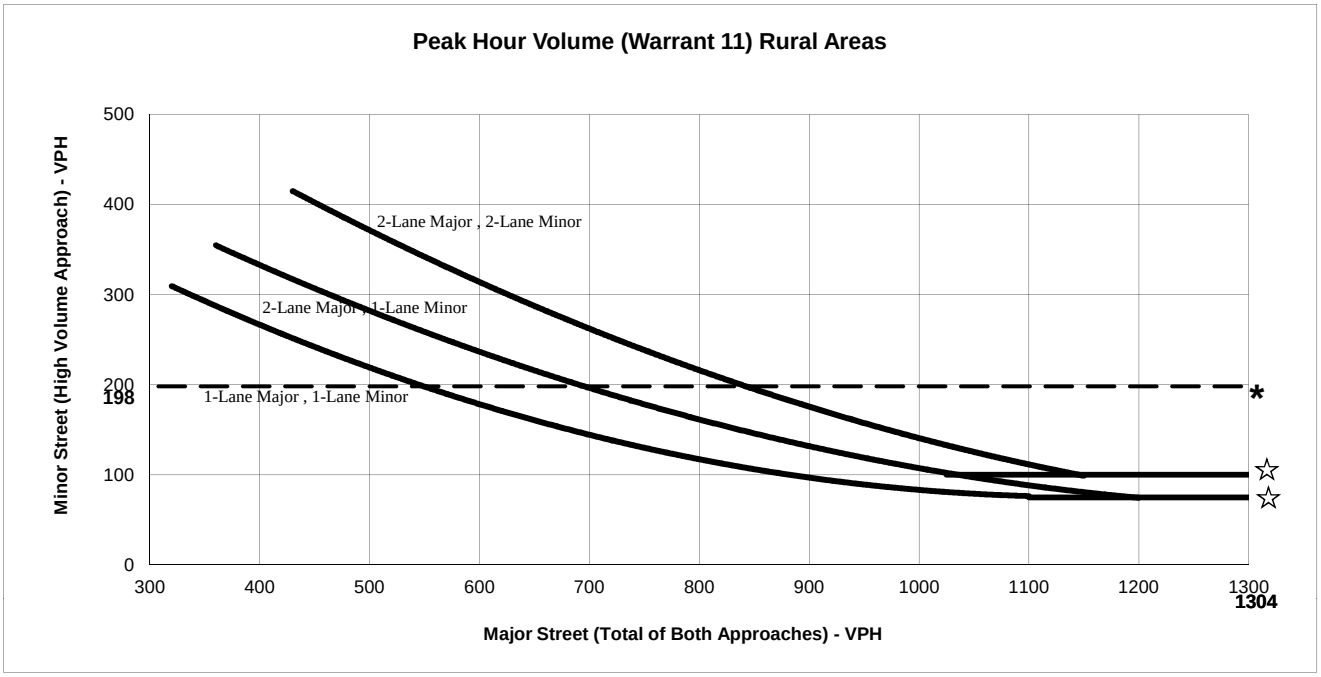
Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Existing Plus Project Weekday Peak Hour Conditions
Minor St. Volume:	226
Major St. Volume:	1590
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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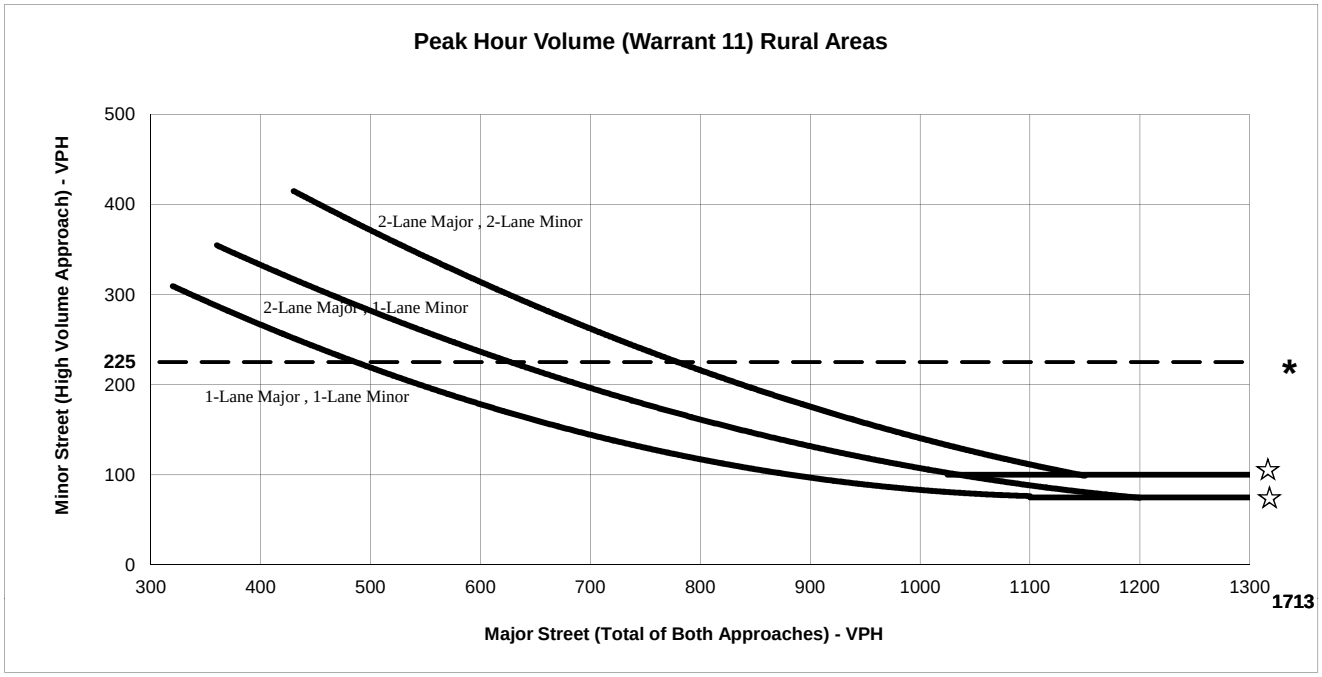
Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Existing Plus Project Saturday Peak Hour Conditions
Minor St. Volume:	198
Major St. Volume:	1304
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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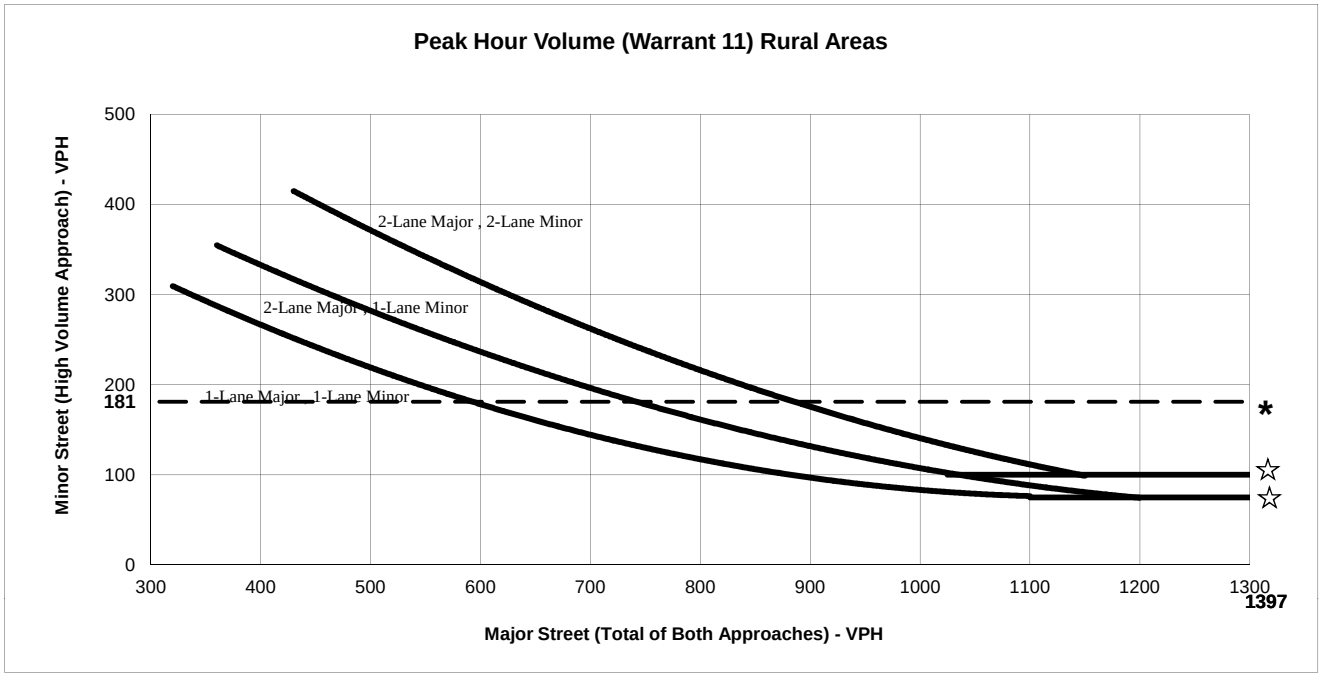
Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Near Term (Existing + Approved Developments) Weekday Peak Hour Conditions
Minor St. Volume:	225
Major St. Volume:	1713
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



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Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Near Term (Existing + Approved Developments) Saturday Peak Hour Conditions
Minor St. Volume:	181
Major St. Volume:	1397
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

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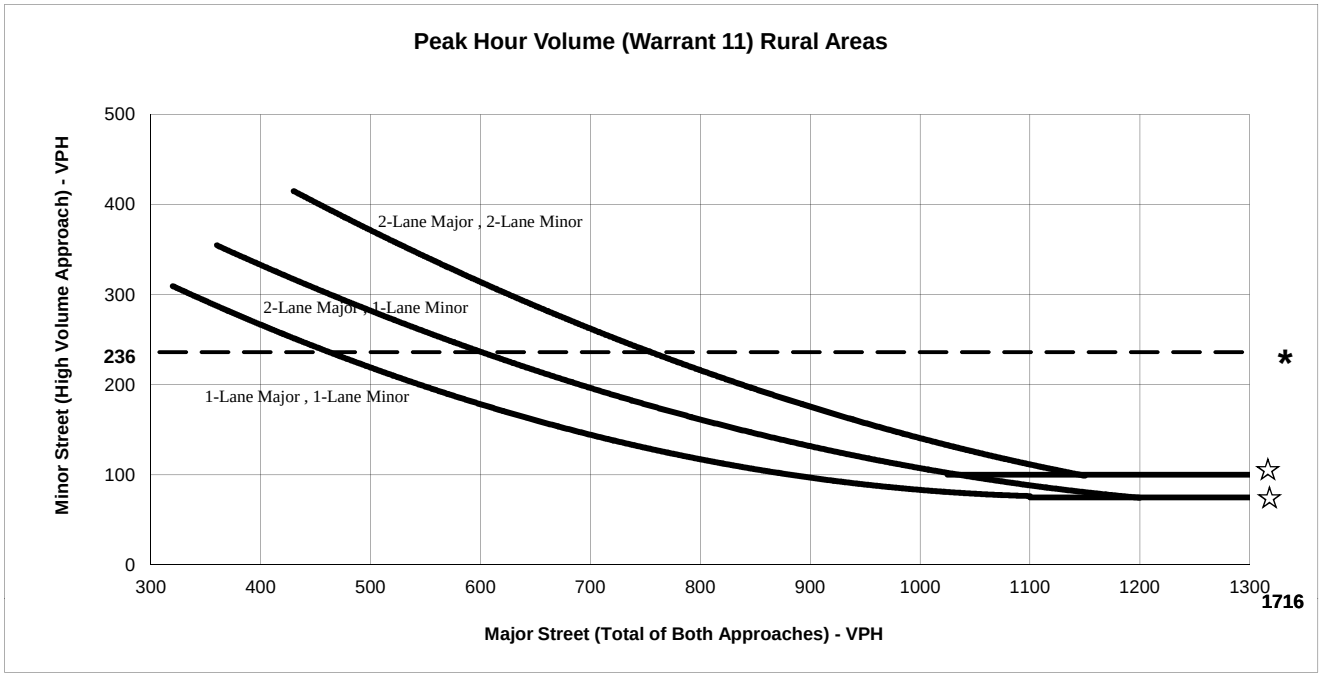

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Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Near Term (Existing + Approved Developments) Plus Project Weekday Peak Hour Conditions
Minor St. Volume:	236
Major St. Volume:	1716
Warrant Met?:	Yes

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	75	1150	100
1300	75	1300	75	1300	100

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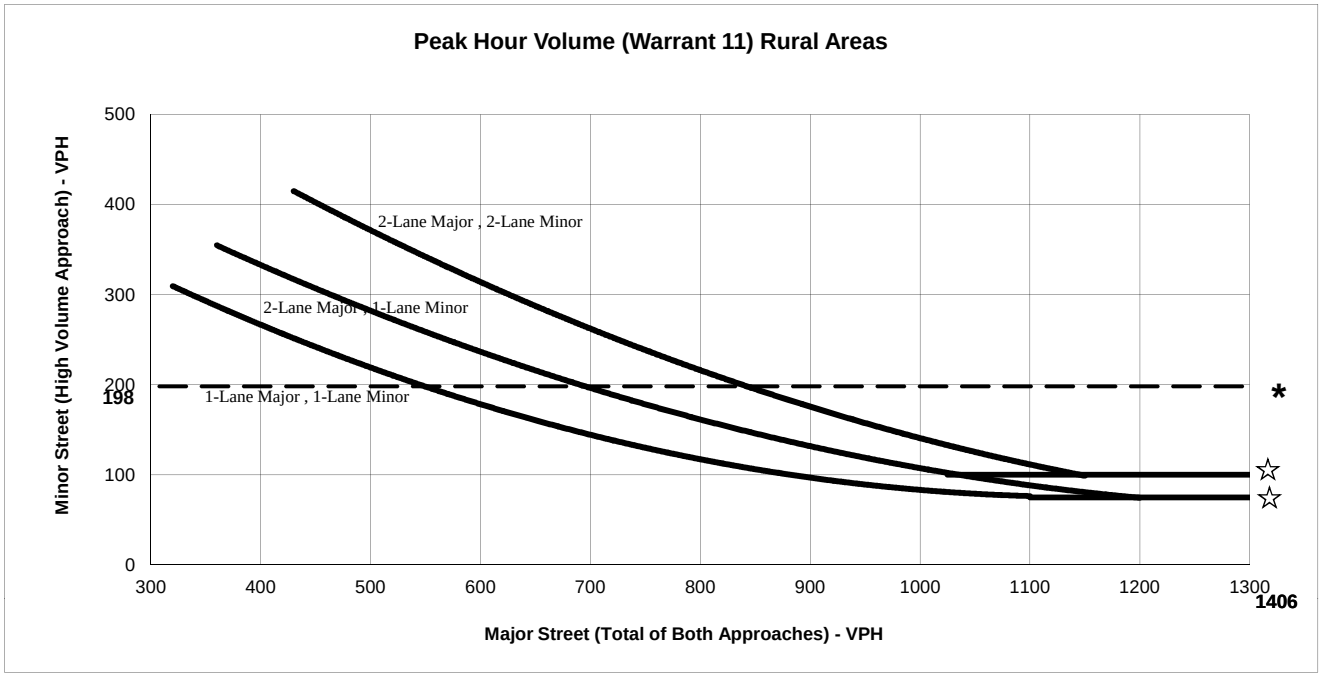

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Intersection:	Silverado Trail / Zinfandel Lane
Scenario:	Near Term (Existing + Approved Developments) Plus Project Saturday Peak Hour Conditions
Minor St. Volume:	198
Major St. Volume:	1406
Warrant Met?:	Yes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98			0.97		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.92			0.86		1.00	1.00			0.99	
Flt Protected		0.98			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1634			1562		1770	1863			1850	
Flt Permitted		0.87			1.00		0.29	1.00			1.00	
Satd. Flow (perm)		1453			1562		539	1863			1849	
Volume (vph)	84	1	130	0	0	1	50	578	0	1	916	42
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95
Adj. Flow (vph)	88	1	137	0	0	1	53	608	0	1	964	44
RTOR Reduction (vph)	0	104	0	0	1	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	122	0	0	0	0	53	608	0	0	1007	0
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.8			9.8		38.6	38.6			38.6	
Effective Green, g (s)		9.8			9.8		38.6	38.6			38.6	
Actuated g/C Ratio		0.17			0.17		0.68	0.68			0.68	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		252			271		369	1275			1265	
v/s Ratio Prot					0.00			0.33				
v/s Ratio Perm		c0.08					0.10				c0.54	
v/c Ratio		0.48			0.00		0.14	0.48			0.80	
Uniform Delay, d1		21.0			19.3		3.1	4.2			6.2	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.5			0.0		0.2	0.3			3.6	
Delay (s)		22.5			19.3		3.3	4.5			9.7	
Level of Service		C			B		A	A			A	
Approach Delay (s)		22.5			19.3			4.4			9.7	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.94			1.00		1.00	1.00			0.99	
Flt Protected		0.97			0.95		0.95	1.00			1.00	
Satd. Flow (prot)		1678			1770		1770	1862			1839	
Flt Permitted		0.83			0.65		0.31	1.00			1.00	
Satd. Flow (perm)		1433			1218		584	1862			1839	
Volume (vph)	97	1	83	2	0	0	76	559	1	0	605	54
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	103	1	88	2	0	0	81	595	1	0	644	57
RTOR Reduction (vph)	0	64	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	128	0	0	2	0	81	596	0	0	696	0
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.7			8.7		31.2	31.2			31.2	
Effective Green, g (s)		8.7			8.7		31.2	31.2			31.2	
Actuated g/C Ratio		0.18			0.18		0.65	0.65			0.65	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		260			221		380	1213			1198	
v/s Ratio Prot								0.32			c0.38	
v/s Ratio Perm		c0.09			0.00		0.14					
v/c Ratio		0.49			0.01		0.21	0.49			0.58	
Uniform Delay, d1		17.6			16.1		3.4	4.3			4.7	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.5			0.0		0.3	0.3			0.7	
Delay (s)		19.1			16.1		3.7	4.6			5.4	
Level of Service		B			B		A	A			A	
Approach Delay (s)		19.1			16.1			4.5			5.4	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	47.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98			0.97		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.92			0.86		1.00	1.00			0.99	
Flt Protected		0.98			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1634			1562		1770	1863			1850	
Flt Permitted		0.87			1.00		0.29	1.00			1.00	
Satd. Flow (perm)		1453			1562		537	1863			1849	
Volume (vph)	85	1	132	0	0	1	50	578	0	1	916	43
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95
Adj. Flow (vph)	89	1	139	0	0	1	53	608	0	1	964	45
RTOR Reduction (vph)	0	104	0	0	1	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	125	0	0	0	0	53	608	0	0	1008	0
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.9			9.9		38.4	38.4			38.4	
Effective Green, g (s)		9.9			9.9		38.4	38.4			38.4	
Actuated g/C Ratio		0.18			0.18		0.68	0.68			0.68	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		256			275		366	1271			1261	
v/s Ratio Prot					0.00			0.33				
v/s Ratio Perm		c0.09					0.10				c0.54	
v/c Ratio		0.49			0.00		0.14	0.48			0.80	
Uniform Delay, d1		20.9			19.1		3.2	4.2			6.3	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.5			0.0		0.2	0.3			3.6	
Delay (s)		22.4			19.1		3.3	4.5			9.9	
Level of Service		C			B		A	A			A	
Approach Delay (s)		22.4			19.1			4.4			9.9	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.94			1.00		1.00	1.00			0.99	
Flt Protected		0.97			0.95		0.95	1.00			1.00	
Satd. Flow (prot)		1678			1770		1770	1862			1837	
Flt Permitted		0.83			0.64		0.31	1.00			1.00	
Satd. Flow (perm)		1433			1200		570	1862			1837	
Volume (vph)	103	1	89	2	0	0	79	559	1	0	605	57
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	110	1	95	2	0	0	84	595	1	0	644	61
RTOR Reduction (vph)	0	64	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	142	0	0	2	0	84	596	0	0	700	0
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.8			8.8		29.7	29.7			29.7	
Effective Green, g (s)		8.8			8.8		29.7	29.7			29.7	
Actuated g/C Ratio		0.19			0.19		0.64	0.64			0.64	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		271			227		364	1189			1173	
v/s Ratio Prot								0.32			c0.38	
v/s Ratio Perm		c0.10			0.00		0.15					
v/c Ratio		0.52			0.01		0.23	0.50			0.60	
Uniform Delay, d1		17.0			15.3		3.6	4.5			4.9	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.8			0.0		0.3	0.3			0.8	
Delay (s)		18.8			15.3		3.9	4.8			5.7	
Level of Service		B			B		A	A			A	
Approach Delay (s)		18.8			15.3			4.7			5.7	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	46.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98			0.97		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.92			0.86		1.00	1.00			0.99	
Flt Protected		0.98			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1635			1563		1770	1863			1849	
Flt Permitted		0.87			1.00		0.29	1.00			1.00	
Satd. Flow (perm)		1453			1563		534	1863			1849	
Volume (vph)	88	1	137	0	0	1	51	578	0	1	916	44
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95
Adj. Flow (vph)	93	1	144	0	0	1	54	608	0	1	964	46
RTOR Reduction (vph)	0	102	0	0	1	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	136	0	0	0	0	54	608	0	0	1009	0
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		10.1			10.1		37.8	37.8			37.8	
Effective Green, g (s)		10.1			10.1		37.8	37.8			37.8	
Actuated g/C Ratio		0.18			0.18		0.68	0.68			0.68	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		263			282		361	1260			1250	
v/s Ratio Prot					0.00			0.33				
v/s Ratio Perm		c0.09					0.10				0.55	
v/c Ratio		0.52			0.00		0.15	0.48			0.81	
Uniform Delay, d1		20.7			18.8		3.3	4.3			6.5	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.7			0.0		0.2	0.3			3.9	
Delay (s)		22.4			18.8		3.5	4.6			10.4	
Level of Service		C			B		A	A			B	
Approach Delay (s)		22.4			18.8			4.5			10.4	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.94			1.00		1.00	1.00			0.99	
Flt Protected		0.97			0.95		0.95	1.00			1.00	
Satd. Flow (prot)		1678			1770		1770	1862			1837	
Flt Permitted		0.83			0.65		0.29	1.00			1.00	
Satd. Flow (perm)		1435			1204		540	1862			1837	
Volume (vph)	105	1	92	2	0	0	81	559	1	0	605	58
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	112	1	98	2	0	0	86	595	1	0	644	62
RTOR Reduction (vph)	0	63	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	148	0	0	2	0	86	596	0	0	701	0
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.8			9.8		27.8	27.8			27.8	
Effective Green, g (s)		9.8			9.8		27.8	27.8			27.8	
Actuated g/C Ratio		0.21			0.21		0.61	0.61			0.61	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		308			259		329	1135			1120	
v/s Ratio Prot								0.32			c0.38	
v/s Ratio Perm		c0.10			0.00		0.16					
v/c Ratio		0.48			0.01		0.26	0.53			0.63	
Uniform Delay, d1		15.7			14.1		4.1	5.1			5.6	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.2			0.0		0.4	0.4			1.1	
Delay (s)		16.9			14.1		4.6	5.6			6.7	
Level of Service		B			B		A	A			A	
Approach Delay (s)		16.9			14.1			5.4			6.7	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	45.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98			0.97		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.92			0.86		1.00	1.00			0.99	
Flt Protected		0.98			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1634			1562		1770	1863			1851	
Flt Permitted		0.87			1.00		0.26	1.00			1.00	
Satd. Flow (perm)		1452			1562		481	1863			1851	
Volume (vph)	88	1	136	0	0	1	52	586	0	1	1031	43
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	92	1	142	0	0	1	54	610	0	1	1074	45
RTOR Reduction (vph)	0	85	0	0	1	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	150	0	0	0	0	54	610	0	0	1118	0
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		11.0			11.0		45.5	45.5			45.5	
Effective Green, g (s)		11.0			11.0		45.5	45.5			45.5	
Actuated g/C Ratio		0.17			0.17		0.71	0.71			0.71	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		248			266		339	1314			1306	
v/s Ratio Prot					0.00			0.33				
v/s Ratio Perm		c0.10					0.11				0.60	
v/c Ratio		0.61			0.00		0.16	0.46			0.86	
Uniform Delay, d1		24.7			22.2		3.2	4.2			7.1	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		4.2			0.0		0.2	0.3			5.7	
Delay (s)		28.9			22.2		3.4	4.4			12.8	
Level of Service		C			C		A	A			B	
Approach Delay (s)		28.9			22.2			4.3			12.8	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.94			1.00		1.00	1.00			0.99	
Flt Protected		0.97			0.95		0.95	1.00			1.00	
Satd. Flow (prot)		1678			1770		1770	1862			1840	
Flt Permitted		0.83			0.65		0.29	1.00			1.00	
Satd. Flow (perm)		1433			1209		537	1862			1840	
Volume (vph)	97	1	83	2	0	0	78	607	1	0	656	55
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	102	1	87	2	0	0	82	639	1	0	691	58
RTOR Reduction (vph)	0	64	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	126	0	0	2	0	82	640	0	0	745	0
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.8			8.8		32.7	32.7			32.7	
Effective Green, g (s)		8.8			8.8		32.7	32.7			32.7	
Actuated g/C Ratio		0.18			0.18		0.66	0.66			0.66	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		255			215		355	1230			1216	
v/s Ratio Prot								0.34			c0.40	
v/s Ratio Perm		c0.09			0.00		0.15					
v/c Ratio		0.49			0.01		0.23	0.52			0.61	
Uniform Delay, d1		18.3			16.8		3.4	4.3			4.8	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.5			0.0		0.3	0.4			0.9	
Delay (s)		19.8			16.8		3.7	4.7			5.7	
Level of Service		B			B		A	A			A	
Approach Delay (s)		19.8			16.8			4.6			5.7	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	49.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98			0.97		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.92			0.86		1.00	1.00			0.99	
Flt Protected		0.98			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1634			1562		1770	1863			1850	
Flt Permitted		0.87			1.00		0.26	1.00			1.00	
Satd. Flow (perm)		1453			1562		477	1863			1850	
Volume (vph)	92	1	143	0	0	1	53	586	0	1	1031	45
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	96	1	149	0	0	1	55	610	0	1	1074	47
RTOR Reduction (vph)	0	78	0	0	1	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	168	0	0	0	0	55	610	0	0	1120	0
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		11.5			11.5		46.7	46.7			46.7	
Effective Green, g (s)		11.5			11.5		46.7	46.7			46.7	
Actuated g/C Ratio		0.17			0.17		0.71	0.71			0.71	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		252			271		336	1314			1305	
v/s Ratio Prot					0.00			0.33				
v/s Ratio Perm		c0.12					0.12				0.61	
v/c Ratio		0.67			0.00		0.16	0.46			0.86	
Uniform Delay, d1		25.6			22.6		3.2	4.3			7.3	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		6.6			0.0		0.2	0.3			5.8	
Delay (s)		32.1			22.6		3.5	4.5			13.1	
Level of Service		C			C		A	A			B	
Approach Delay (s)		32.1			22.6			4.4			13.1	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	66.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00			1.00	
Frt		0.94			1.00		1.00	1.00			0.99	
Flt Protected		0.97			0.95		0.95	1.00			1.00	
Satd. Flow (prot)		1677			1770		1770	1862			1839	
Flt Permitted		0.83			0.64		0.28	1.00			1.00	
Satd. Flow (perm)		1434			1185		519	1862			1839	
Volume (vph)	105	1	92	2	0	0	83	607	1	0	656	59
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	111	1	97	2	0	0	87	639	1	0	691	62
RTOR Reduction (vph)	0	65	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	144	0	0	2	0	87	640	0	0	748	0
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.9			8.9		30.6	30.6			30.6	
Effective Green, g (s)		8.9			8.9		30.6	30.6			30.6	
Actuated g/C Ratio		0.19			0.19		0.64	0.64			0.64	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		269			222		334	1200			1185	
v/s Ratio Prot								0.34			c0.41	
v/s Ratio Perm		c0.10			0.00		0.17					
v/c Ratio		0.54			0.01		0.26	0.53			0.63	
Uniform Delay, d1		17.4			15.7		3.6	4.6			5.1	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		2.0			0.0		0.4	0.5			1.1	
Delay (s)		19.5			15.7		4.0	5.0			6.2	
Level of Service		B			B		A	A			A	
Approach Delay (s)		19.5			15.7			4.9			6.2	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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Technical Memorandum

Review of RAYMOND VINEYARD AND CELLAR, INC. / RAYMOND – TICEN RANCH WINERY MAJOR MODIFICATION TO USE PERMIT, APPLICATION #P15-00307 – MOD

March 15, 2017

Prepared for:

Shute, Mihaly & Weinberger LLP
396 Hayes Street
San Francisco, CA 94102-4421

This memorandum reviews modifications made to the proposed Raymond-Ticen Ranch Winery Major Modification, Application #P15-00307 as part of a Board Agenda Letter to the Napa County Planning Commission prepared by the Director of Planning, Building and Environmental Services for the County. It also reviews response made to previous comment letters submitted by Shute, Mihaly & Weinberger LLP on behalf of Beckstoffer Winery. An Appendix "F" titled Updated and Supplemental Use Permit Application Materials included minor modifications to the design and responses to comments. Finally, I made a site visit to the Beckstoffer Winery and neighboring Sullivan Winery on March 14, 2017 to view the site in connection with my review of the Board Agenda Letter.

Letters prepared by Summit Engineering respond specifically to comments on drainage impacts and wastewater treatment. A letter regarding drainage impacts[1] only address the "proposed access drive between the Ticen and Raymond properties"[2]. Specifically, the letter states that runoff from the drive "will sheet flow onto the adjacent vineyard"[3], but that ignores the larger problem of runoff from upstream of the access drive which will be captured in a swale and concentrated into culverts. The plan on sheet UP-6 shows an arrow on the drive to show how flow will cross the drive and discharge downstream; two storm drains are labeled SD and occur at points where flow arrows in the swale upstream of the drive converge. Flow from those

[1] Letter from Monica Shah, Summit Engineering to Dana Ayers, Napa County Planning, Building and Environmental Services Department. Re: Raymond-Ticen Ranch Winder Use Permit Modification #PL15-00307, dated March 6, 2017.
[2] Id.
[3] Id.

storm drains could be sufficient to erode a channel into the land downstream from the road. Therefore, the letter from Summit Engineering has not addressed drainage issues raised by comment letters.

A second letter from Summit Engineering[4] addressed comments regarding potential impacts and contamination to groundwater quality. This letter did not address the concerns raised by Myers (2017) but rather just repeated information in the original application regarding the type of soil. Myers (2017) raised concerns about the low infiltration rate causing seepage to mound in the groundwater and caused horizontal flow because it is likely that horizontal conductivity is higher than the vertical conductivity used to design the leachfield (Myers 2017, p 3-5). A specific concern was with the mottling at three feet of depth. It is likely caused by the vertical drainage being stopped at that point. The vertical infiltration rate used to size the leachfield was based on the soil description in Summit Environmental (2016) rather than on an actual measured infiltration rate. The assumed rate probably does not account for the mottled layer which probably limits vertical flow and causes horizontal flow.

During the site visit I observed a large area near the eastern corner of the Raymond Ranch property at the point it meets with the Sullivan and Beckstoffer property. There is a large willow tree near a property marker (Photo 1). It is a slight low point in the property to a point where drainage collects before discharging into swale heading east. The low point is left of the willow in Photo 1. There was a large amount of water ponded in the low point (Photo 2). It flowed toward a large standpipe near the Willow where some enters a pipe that drains bottom of the standpipe (Photo 3). A substantial amount of water, estimated by eye to be about one cubic foot per second, flowed past the standpipe through a swale between the Beckstoffer and Sullivan properties (Photo 4).

The collected water at the low point described in the previous paragraph is a result of the poor drainage in soils throughout the area. Additional runoff from the new driveway will not simply infiltrate but will add to the amounts collected in these low points. Additionally, the runoff through the storm drains will be concentrated which will make it less likely to infiltrate. The presence of this drainage reflects the low infiltration rates and likely horizontal groundwater flow, or interflow, noted above. Finally, these conditions likely occur at the proposed leach fields and the observations made here are further evidence that percolation will be shallow and there will be horizontal flow.

[4] Letter from Gina Giacone, Summit Engineering to Dana Ayers, Napa County Planning, Building, and Environmental Services Department, Re: Raymond-Ticen Ranch Winery Use Permit Modification #PL15-00307 Project Number 2015074, dated March 8, 2017.

During the site visit, I observed several ditches ranging from 3 to 5 feet deep, as shown in Photo 5. These ditches would have water flowing in them. This water is either due to shallow drainage as described above or due to the discharge of drain tiles that underlie some of the vineyards. Drain tiles prevent deep drainage and are actually a manmade impediment to infiltration not discussed in the documents prepared for this application. The plans assume infiltration will occur in places where drain tiles could prevent it.

Photo 1: Willow tree near property marker, from the Sullivan property.

Photo 2: Sump full of drainage water northwest of the property line and willow in Photo 1.

Photo 3: Cistern near the willow i Photo 1

Photo 4: Cistern, willow and flow to the east, estimated at about 1 cfs.

Photo 5: Drainage ditch northeast of Sullivan property.

Finally, there is no response to my comments about reduced recharge (Myers 2017, p 5-8). One additional point regarding recharge, the bioretention facilities include the concept that recharge will occur through their bottom (BASMAA 2014). The facilities are to have an area that is 4% of the impervious area of the project. Figure 1 is a general cross-section of a bioretention facility from the BASMAA (2014) manual. It shows that the bottom of the facility will rest on undisturbed or natural soil. This means the very low vertical infiltration rates discussed above apply to the soils beneath the facility. The manual allows for the contractor to scarify the soil to potentially increase the infiltration rate, but this would not increase infiltration through the fine-grained silty clay loam that exists at the site very much because if would become cohesive, or stick together more tightly, whenever the basins filled with water. With low infiltration rates, they would be like tubs filling with water and likely overflowing during large runoff events.

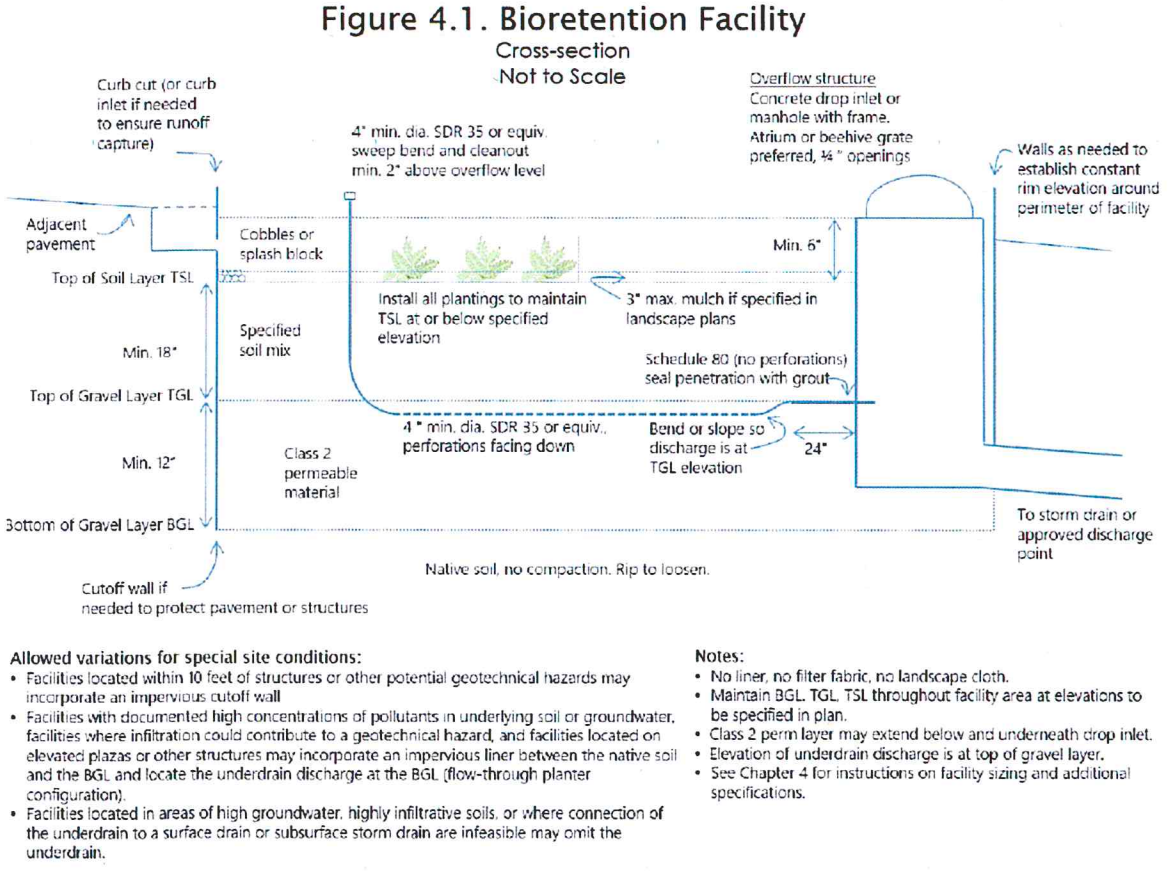

Figure 1: Snapshot of Figure 4.1 from BASMAA (2014) show a cross-section of a bioretention facility.

References

Bay Area Stormwater Management Agencies Association (BASMAA) (2014) BASMAA Post-Construction Manual, Design Guidance for Stormwater Treatment and Control for Projects in Marin, Sonoma, Napa, and Solano Counties. July 14, 2014.

Myers T (2017) Technical Memorandum, Review of Raymond Vineyard and Cellar, Inc./ Raymond -Ticen Ranch Winery Major Modification to Use Permit, Application #P15-00307 – MOD. Reno NV, January 15, 2017

Summit Environmental (2016) Wastewater Feasibility Study for Raymond Vineyards. Revised January 15, 2016. Santa Rosa CA

Summit Environmental (2015c) Stormwater Control Plan for a Regulated Project, Raymond Vineyards, September 14, 2015. Santa Rosa CA

873813.2

Gallina, Charlene

From: Anderson, Laura
Sent: Wednesday, March 15, 2017 7:14 AM
To: Gallina, Charlene; Frost, Melissa
Cc: Morrison, David
Subject: FW: Raymond-Ticen Ranch Winery Hydrology Comments
Attachments: myers final memo raymond ranch 031517.PDF

From: Carmen J. Borg [mailto:Borg@smwlaw.com]
Sent: Tuesday, March 14, 2017 9:39 PM
To: Ayers, Dana
Cc: Anderson, Laura; Morrison, David; Robert "Perl" Perlmutter
Subject: Raymond-Ticen Ranch Winery Hydrology Comments

Dana,

Attached please find a memo prepared by our hydrologist providing comments on the Staff Report for the Raymond-Ticen Ranch Winery Project. The hydrologist will attend the hearing tomorrow and will summarize the contents of this memo during the public comment period.

Thank you,

Carmen Borg, AICP
Urban Planner
Shute, Mihaly & Weinberger
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415-552-7272
http://www.smwlaw.com/

Petition to Protest Construction of New Highway 29 Entrance for Raymond Winery

Raymond Winery has a perfectly adequate entrance on East Zinfandel Lane. Despite this, they want to create another entrance on Highway 29, between Whitehall Lane and Franciscan Winery. In addition to the environmental concerns generated by paving over approximately a mile long stretch of prime vineyard land, this new entrance would create extremely dangerous conditions for motorists as well as bicyclists, given its proximity to the already dangerous Whitehall Lane intersection. Please do not allow this to happen.

	NAME	ADDRESS	PHONE	EMAIL
1.	Robert A. Holder	953 Gallaren Rd	9633107	rhholder@aol.com
2.	Donna Holder	953 Gallaren Rd	9633107	dholder@manzynurse.com
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18.	Lauren Pesch	1225 Whitehall Ln	707-480-1149	lepesch@gmail.com
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RAYMOND WINERY PETITION, CONT...

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21.	Pat Garvey	1445-S. Whitehall Ln	963-9535	pgarvey45@gmail.com
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Planning Commission Mtg.

MAR 15 2017

Agenda Item # 8B