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Traffic Study

TRAFFIC IMPACT REPORT

PROPOSED KENZO ESTATES WINERY EXPANSION IN NAPA COUNTY

March 1, 2016

Prepared for: KENZO ESTATES WINERY

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I. INTRODUCTION

This report has been prepared at the request of Kenzo Estates Winery to determine if proposed winery expansion will result in any significant circulation system impacts at the project entrance intersection with State Route 121 highway or along the state highway to the east and west of the project entrance. The primary focus of the access intersection evaluation is determination of whether a left turn lane is required on the westbound SR 121 approach to the project entrance based upon both County of Napa and Caltrans warrant criteria. Analysis has been provided for harvest and summer Friday AM and PM peak hour and Saturday PM peak hour conditions for existing, year 2020 and year 2030 (general plan buildout) horizons.

II. SCOPE OF SERVICES

The scope of service for this traffic study was developed to satisfy both the Napa County Public Works and the Planning, Building and Environmental Sciences departments. Evaluation was conducted for both harvest and summer (non-harvest) traffic periods for Friday AM and PM commute and Saturday afternoon peak traffic conditions. Existing, year 2020 and year 2030 (Cumulative – General Plan Buildout) horizons were evaluated both with and without project traffic. Operating conditions along the State Route 121 highway (SR 12) were evaluated for all analysis scenarios based upon significance criteria contained in the General Plan and/or utilized in recent County traffic studies. In addition, sight line adequacy was evaluated at the project driveway intersection with SR 121. Finally, the need for a left turn lane on the westbound SR 12 approach to the proposed project driveways was evaluated based upon both County of Napa as well as Caltrans warrant criteria. Potentially significant impacts, if any, were identified and measures listed, if needed, to mitigate all potentially significant impacts to a less than significant level.

III. SUMMARY OF FINDINGS

A. “WITHOUT PROJECT” OPERATING CONDITIONS

1. Existing Volumes – May 2015

Analysis peak traffic hours were based upon total volumes passing through the SR 121/project access intersection. SR 121 adjacent to the proposed project site now has higher two-way traffic volumes during the Friday PM peak traffic hour compared to either the Friday AM or Saturday PM peak traffic hours (598 two-way peak hour vehicles during the Friday PM peak hour versus 303 two-way vehicles during the Friday AM peak hour and 223 two-way vehicles during the Saturday PM peak hour). The driveway serving the project site had 13 vehicles during the Friday AM peak hour, 17 vehicles during the Friday PM peak hour and 6 vehicles during the Saturday PM peak hour. Three of the Friday AM and 2 of the Friday PM peak hour vehicles were construction workers who are only working at the winery on a temporary basis.

2. Year 2015 Harvest or Summer Circulation System Operation

- **SR 121 roadway segments** – Acceptable level of service during all evaluated time periods.

3. Year 2020 Harvest or Summer Circulation System Operation

- **SR 121 roadway segments** – Acceptable level of service during all evaluated time periods.

4. Year 2030 Harvest or Summer Circulation System Operation

- **SR 121 roadway segments** – Acceptable level of service during all evaluated time periods.

B. PROJECT IMPACTS

1. Project Trip Generation

The proposed project will result in the following trip generation during the Friday and Saturday peak traffic hours.

PROJECT TRIP GENERATION

HARVEST

FRIDAY AM PEAK HOUR* (7:15-8:15)		FRIDAY PM PEAK HOUR* (4:30-5:30)		SATURDAY PM PEAK HOUR* (3:30-4:30)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
0	0	0	4	0	6

SUMMER (NON-HARVEST)

FRIDAY AM PEAK HOUR* (7:15-8:15)		FRIDAY PM PEAK HOUR* (4:30-5:30)		SATURDAY PM PEAK HOUR* (3:30-4:30)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
0	0	0	5	0	6

* Peak hour along SR 121.

2. Year 2015 Existing + Project Off-Site Circulation Impacts – Harvest or Summer

The proposed project would not result in any significant off-site level of service impacts to SR 121.

3. **Year 2020 + Project Off-Site Circulation Impacts – Harvest or Summer**
The proposed project would not result in any significant off-site level of service impacts to SR 121.
4. **Year 2030 + Project Off-Site Circulation Impacts – Harvest or Summer**
The proposed project would not result in any significant off-site level of service impacts to SR 121.
5. **Warrant for Provision of a Left Turn Lane on SR 121 at the Project Entrance**
Existing and future “with” and “without” project volumes do not meet Caltrans warrant criteria for provision of a left turn lane on the westbound SR 121 approach to the proposed driveway. However, they do meet County of Napa criteria.
6. **Sight Lines at Project Driveway**
Sight lines are acceptable at the project’s driveway connection to SR 121.
7. **Recommendations**
 - **Left Turn Lane on SR 121 at Project Entrance**
A determination will need to be made whether County of Napa or Caltrans criteria control the need for a left turn lane at the project entrance. It should be noted that at Caltrans request Kenzo Estates recently provided an eight-foot-wide shoulder on the north side of SR 121 opposite the Kenzo entrance. Also, there are no left turn lanes on westbound SR 121 for the six miles between the Kenzo entrance and Silverado Trail intersection in the City of Napa.

IV. PROJECT LOCATION & DESCRIPTION

The Kenzo Estates Winery is located on the south side of Monticello Road (State Route 121) about six miles east of the SR 121/Silverado Trail intersection in the City of Napa (see **Figure 1**). The Kenzo Estates entrance splits into two driveways immediately south of SR 121, both gated. The westerly driveway provides access to two residential estates, while the easterly driveway provides access to the existing Kenzo Estates Winery. Both driveways connect internal to the site. There are no other active driveways along SR 121 in the vicinity of the project entrance.

Kenzo Estates Winery currently produces 85,000 gallons of wine per year and has nine full-time employees and two part-time employees during harvest. In addition, 25 visitors per day are now allowed by appointment only.

The Kenzo Estates Winery proposed expansion would have the following characteristics.

- Production would increase from 85,000 up to 102,000 gallons.

- Additional employees: 5 full time admin and production employees for the entire year, 6 additional production employees during harvest only, 3 new tours and tasting employees for the entire year.
- No increase in vineyard management personnel.
- All grapes utilized will be grown on site or on adjoining property owned by the applicant.
- New tours and tasting visitors by appointment only – 75 additional visitors/day Friday to Sunday, 25 additional visitors/day Monday to Thursday May 1 to October 31 (10:00 AM to 4:00 PM). Remainder of the year a maximum of 50 additional visitors/day Friday to Sunday.
- New marketing events: +24/year with 50 guests; + 2/year with 150 guests. New marketing events will occur from 7:00-10:00 PM on Fridays and weekend days, or from noon to 2:30 PM on weekends.

V. EXISTING CIRCULATION SYSTEM EVALUATION PROCEDURES

A. ANALYSIS LOCATIONS

The following locations have been evaluated.

1. **SR 121/Project Driveway intersection.**
2. **SR 121 two-lane highway segments just east and west of the project driveways.**

The Kenzo Estates Winery driveway intersection with SR 121 has been evaluated to determine if existing volumes or the increased traffic due to the proposed Kenzo Estates Winery expansion will warrant provision of a left turn lane on the westbound SR 121 driveway approach. Sight line adequacy at the Kenzo Estates entrance has also be evaluated.

Figure 2 presents approach geometrics and control at the project access intersection. It should be noted that an eight-foot-wide paved shoulder has been provided by Kenzo Estates Winery (as required by Caltrans) along the north side of the state highway in the vicinity of the project access intersection. This improvement was provided as part of the initial Kenzo Estates Winery development several years ago.

B. VOLUMES

1. ANALYSIS SEASONS AND DAYS OF THE WEEK

At County request project traffic impacts have been evaluated during both harvest and peak summer (non-harvest) conditions. Based upon more than four years of historical information from Caltrans PeMS (Performance Measurement System) count surveys along SR 29 in the Napa

Valley, September has the highest daily volumes of the year (during harvest), with August having the highest summer non-harvest daily volumes of the year. August counts were almost as high as September counts. Therefore, conditions during these two months were selected for evaluation.

In regards to the peak traffic days of the week, the recently released Napa County Travel Behavioral Study¹ shows that the highest weekday volumes in Napa Valley occur on a Friday, with the highest weekend volumes occurring on a Saturday. In addition, historical count data from the City of Napa show that Friday has the highest volumes of any weekday, while Caltrans historical counts for SR 29 between St. Helena and Napa also show that weekday AM and PM peak hour volumes are higher on a Friday than on either a Wednesday or Thursday. Therefore, Friday and Saturday peak traffic conditions were evaluated in this study.

2. COUNT RESULTS

Friday 7:00 to 9:00 AM and 3:00 to 6:00 PM as well as Saturday noon to 6:00 PM turn movement counts were conducted by Crane Transportation Group (CTG) on May 1 & 2, 2015 at the SR 121 intersection with the project driveway. The peak traffic hours were 7:15 to 8:15 AM and 4:30 to 5:30 PM on Friday and 3:30 to 4:30 PM on Saturday. May 2015 peak hour counts are presented in **Appendix Figure 1**. Previous counts in September 2014 at the project entrance intersection on Friday, Saturday and Sunday showed similar peak hours during the Friday AM and PM peaks. The September Saturday peak hour was 2:00-3:00 PM, while the Sunday peak hour was 1:00-2:00 PM. There was about 7 percent less traffic during the Sunday PM peak hour compared to the Saturday PM peak hour. The Sunday peak hour also had only about 40 percent of the traffic as the Friday PM peak hour. Overall, two-way volumes along SR 121 at the project entrance were higher during the Friday PM peak hour (about 600 vehicles per hour [vph]) than during the Friday AM peak hour (about 300 vph) or the Saturday PM peak hour (about 225 vph). The project access driveway had 13 two-way vehicles during the Friday AM peak hour, 17 vehicles during the Friday PM peak hour and 6 during the Saturday afternoon peak hour.² It should be noted that temporary construction on the project site resulted in 3 additional trips during the AM peak hour and 2 additional trips during the PM peak hour. These trips have been removed from harvest and summer evaluation.

Daily two-way directional counts were conducted on Tuesday to Thursday, May 5-7, 2015 on both SR 121 just west of the project entrance as well as on the project driveway. The average two-way volume on SR 121 was 3,843 vehicles, while the average two-way volume on the Kenzo driveway³ was 150 vehicles.

3. SEASONAL ADJUSTMENTS

May 2015 peak hour turn movement counts were seasonally adjusted to reflect September 2015 harvest conditions based upon monthly and day of week adjustment factors utilized in other

¹ Fehr & Peers, December 8, 2014.

² These volumes reflect total traffic on the two Kenzo Estates driveways just south of SR 121.

³ These volumes reflect total traffic on the two Kenzo Estates driveways just south of SR 121.

Napa Valley jurisdictions. Overall, May counts would be expected to increase by about 3 percent to reflect fall harvest conditions.

Historical traffic count data from Caltrans as well as past studies, extending back to the Wine Train EIR in 1992, were utilized to determine the seasonal difference in summer (August) versus harvest (September) weekday and weekend peak hour volumes. While some sources showed August volumes at a few locations in the Napa Valley being the same or a little higher than those in September, overall it was determined that September volumes at the vast majority of locations were slightly higher than August volumes by the following factors.

	September Compared to August Peak Hour Volumes
Weekday	+ 1%
Saturday	+ 2%

Resultant 2015 Friday AM and PM as well as Saturday PM peak hour harvest volumes are presented in **Figure 3** while summer volumes are presented in **Figure 4**.

C. ROADWAYS

SR 121 provides the primary access to the project site. In the project vicinity it has two well-paved 12-foot travel lanes and 8-foot paved shoulders. A left turn lane has not been provided on the westbound SR 121 intersection approach, but an eight-foot-wide paved shoulder has been constructed by Kenzo Estates Winery on the north side of SR 121 (opposite the project entrance) extending for about 500 feet. Turnouts for slow-moving vehicles are provided on the south side of the highway starting just east of the Winery driveway and on the north side of the highway east of the Winery driveway and just east of the beginning of the eight-foot paved shoulder. Surveyed vehicle speeds in the vicinity of the Kenzo Estates Winery entrance ranged from about 30 to 40 miles per hour. Currently, there are no left turn lanes provided on the westbound SR 121 approaches to any driveway or intersection between the Kenzo Estates Winery entrance and the Silverado Trail/Trancas Street intersection in the City of Napa, about six miles to the west.

D. ROADWAY SEGMENT LEVEL OF SERVICE

1. ANALYSIS METHODOLOGY

Roadway segment operation for SR 121 has been evaluated based upon criteria developed for Napa County roadways as part of the County General Plan Update in 2007: Napa County General Plan Update EIR – Technical Memorandum for Traffic and Circulation Supporting the Findings and Recommendations by Dowling Associates, February 2007. Table 5 in this report, “Peak Hour Roadway Capacities,” shows the following directional capacity limit-level of service relationships for a two-lane rural arterial, such as SR 121.

**SR 121 ROADWAY SEGMENT CAPACITIES
WITHOUT ADJUSTMENT FOR GRADES AND CURVATURE**

		LOS A	LOS B	LOS C	LOS D	LOS E
2-Lane Rural Arterial – SR 121	Maximum Peak Direction Volumes	72	120	590	740	800
	Volume/Capacity Ratio	(.09)	(.15)	(.74)	(.93)	(1.00)

However, while the above capacities would be appropriate for operation along flat or rolling topography, they are potentially too high for evaluating conditions with steeper grades and significant horizontal curves, which is the case for SR 121 both east and west of Kenzo Estates. Therefore, based upon the engineering judgment of the report author, a 20 percent reduction in capacity has been utilized for analysis of SR 121 near the project site, as presented below.

**SR 121 ROADWAY SEGMENT CAPACITIES
WITH ADJUSTMENT FOR GRADES AND CURVATURE
NEAR KENZO WINERY**

		LOS A	LOS B	LOS C	LOS D	LOS E
2-Lane Rural Arterial – SR 121 With Significant Grades & Horizontal Curves	Maximum Peak Direction Volumes	58	96	474	595	640
	Volume/Capacity Ratio	(.09)	(.15)	(.74)	(.93)	(1.00)

2. MINIMUM ACCEPTABLE OPERATION

Level of service D (LOS D) is the poorest acceptable roadway segment operation in Napa County.

E. PLANNED IMPROVEMENTS

There are no planned and funded improvements at any location evaluated in this study.⁴

VI. FUTURE HORIZON TRAFFIC VOLUME PROJECTIONS

Traffic analysis has been conducted for existing, year 2020 and year 2030 horizons at County request. The 2030 horizon reflects the County General Plan Buildout year, while 2020 reflects a near term analysis horizon. Traffic modeling for the General Plan shows about an 11 percent growth in two-way weekday PM peak hour traffic along SR 121 in the project area between 2015 and 2030. Projecting straight line traffic growth for analysis purposes, this translates into about a

⁴ Mr. Paul Wilkinson, Napa County Public Works Department, February 2015.

3.7 percent growth in two-way PM peak hour traffic from 2015 to 2020. Weekday year 2030 AM peak hour traffic projections were also available from the General Plan traffic model. However, they showed a reduction in traffic would be expected between 2015 and 2030. Therefore, to provide a conservative analysis, AM peak hour volumes were increased by 1 percent per year to 2030.

Since traffic modeling projections were only available for weekday AM and PM peak hour conditions and not for the Saturday PM peak hour, east and westbound Saturday PM peak hour volumes on SR 121 were also uniformly increased by the PM percentages above.

Resultant year 2020 harvest and summer “Without Project” peak hour volumes are presented in **Figures 5** and **6**, respectively, while year 2030 harvest and summer “Without Project” peak hour volumes are presented in **Figures 7** and **8**, respectively.

VII. OFF-SITE CIRCULATION SYSTEM OPERATION – WITHOUT PROJECT

1. EXISTING (YEAR 2015) OPERATING CONDITIONS (WITHOUT PROJECT)

A. HARVEST

1. ROADWAY SEGMENT LEVEL OF SERVICE (SR 121) – Table 1A

a) Friday AM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS A eastbound and LOS C westbound).

b) Friday PM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS D eastbound and LOS B westbound).

c) Saturday PM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS C eastbound and westbound).

B. SUMMER (NON-HARVEST)

1. ROADWAY SEGMENT LEVEL OF SERVICE (SR 121) – Table 1B

a) Friday AM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS A eastbound and LOS C westbound).

b) Friday PM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS D eastbound and LOS B westbound).

c) Saturday PM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS C eastbound and westbound).

2. YEAR 2020 OPERATING CONDITIONS (WITHOUT PROJECT)

A. HARVEST

1. ROADWAY SEGMENT LEVEL OF SERVICE (SR 121) – Table 2A

a) Friday AM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS A eastbound and LOS C westbound).

b) Friday PM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS D eastbound and LOS B westbound).

c) Saturday PM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS C eastbound and C westbound).

B. SUMMER (NON-HARVEST)

3. ROADWAY SEGMENT LEVEL OF SERVICE (SR 121) – Table 2B

a) Friday AM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS A eastbound and LOS C westbound).

b) Friday PM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS D eastbound and LOS B westbound).

c) Saturday PM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS C eastbound and westbound).

3. YEAR 2030 OPERATING CONDITIONS (WITHOUT PROJECT)

A. HARVEST

1. ROADWAY SEGMENT LEVEL OF SERVICE (SR 12-121) – Table 3A

a) Friday AM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS A eastbound and LOS C westbound).

b) Friday PM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS D eastbound and LOS B westbound).

c) Saturday PM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS C eastbound and westbound).

B. SUMMER (NON-HARVEST)

1. ROADWAY SEGMENT LEVEL OF SERVICE (SR 12-121) – Table 3B

a) Friday AM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS A eastbound and LOS C westbound).

b) Friday PM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS D eastbound and LOS B westbound).

c) Saturday PM Peak Hour

SR 121: Acceptable operation in both directions both east and west of the project access intersection (LOS C eastbound and westbound).

VIII. PROJECT IMPACT EVALUATION SIGNIFICANCE CRITERIA

The following criteria have been utilized for recent traffic impact analyses in the County. These same criteria have been utilized in this study to determine the significance of impacts due to the project. An impact is considered to be significant if any of the following conditions are met.

- If a roadway segment has “Without Project” LOS A, B, C or D operation and deteriorates to LOS E or F operation with the addition of project traffic (and increases volumes by 1 percent or more), the impact is significant and would require mitigation.
- If a roadway segment already has “Without Project” unacceptable LOS E or F operation, an increase in directional traffic of 1 percent or greater is considered significant.
- If sight lines at project access driveways do not meet Caltrans stopping sight distance criteria based upon prevailing vehicle speeds.
- If the addition of project traffic results in left turn lane warrant criteria being met.

IX. PROJECT TRIP GENERATION & DISTRIBUTION

A. TRIP GENERATION

There are no standard peak hour trip generation rates for wineries since number of employees, employee shift change hours, visitation levels (with or without appointments) and visitation hours vary significantly from winery to winery. Also, the peak traffic hours along the roadways adjacent to a winery can vary significantly depending upon the winery location. For this reason, proposed project trip generation was developed by Crane Transportation Group in consultation with the project applicant for both weekdays and weekend days on an hour-by-hour basis. This allowed determination of the project trip generation projections for the specific peak traffic hours along SR 121.

Friday AM and PM peak hour and Saturday afternoon peak hour trip generation worksheets developed with the assistance of the project applicant and their representative for all components of the employee and visitor activities at the proposed Kenzo Estates Winery are presented in the **Appendix**. Results are presented on an hourly basis in **Tables 4** and **5** for harvest Friday and Saturday conditions, while **Tables 6** and **7** present results for summer Friday and Saturday conditions. A summary of peak hour trips is presented in **Table 8**. During the harvest Friday AM peak traffic hour there would be a projected 0 inbound and 0 outbound vehicles, while during the harvest Friday PM peak traffic hour there would be a projected 0 inbound and 4 outbound vehicles. During the harvest Saturday PM peak traffic hour, there would be a

projected 0 inbound and 6 outbound vehicles. As shown, winery administrative employees would be expected on the local roadway network during the harvest Friday PM peak hour, while during the Saturday afternoon peak traffic hour the project traffic increment of up to 6 vehicles would be visitors. There would be no new grape truck deliveries on SR 121 (Monticello Road) associated with the proposed project. Any new grapes delivered to the winery would come from adjoining property owned by the applicant and would not add truck traffic to the state highway.

During summer conditions, project trip generation during the Friday AM and Saturday PM peak traffic hours would be the same as during harvest conditions (0 inbound and 0 outbound trips during the summer Friday AM peak hour, with 0 inbound and 6 outbound trips during the summer Saturday PM peak hour). However, during the summer Friday PM peak hour there would be 1 additional outbound trip, for a total of 5. The reason for this increase would be the shorter employee working hours, which would shift change times for all full-time employees into standard work hours, which are also the peak traffic hours along SR 121. There would be no change in vineyard management contractors, who are included in the existing traffic counts.

B. TRIP DISTRIBUTION

Project traffic was distributed to SR 121 in a pattern reflective of existing vehicle distribution patterns. About 80 percent of visitor and employee traffic would be expected to travel to/from the west on the state highway.

The harvest and summer Friday and Saturday project traffic increments expected on SR 121 during the times of ambient peak traffic flows on the state highway are presented in **Figures 9 and 10**, respectively. Friday and Saturday existing “With Project” peak hour volumes are presented in **Figures 11 and 12**, respectively; “With Project” peak hour volumes for year 2020 conditions are presented in **Figures 13 and 14**, respectively, and “With Project” peak hour volumes for 2030 conditions are presented in **Figures 15 and 16**, respectively.

C. PLANNED ROADWAY IMPROVEMENTS

There are no capacity increasing roadway improvements planned by Caltrans or the County on SR 121 in the project vicinity.⁵ SR 121 has recently been improved in the project area with the addition of an eight-foot-wide paved shoulder on the north side of the highway in the vicinity of the Kenzo driveway.

⁵ Paul Wilkinson, Napa County Public Works Department, February 2015.

X. PROJECT IMPACTS

A. EXISTING (YEAR 2015) WITH PROJECT CONDITIONS

1. HARVEST

a) Summary

Project traffic would not result in any significant level of service impact along any analyzed SR 121 roadway segments during any Friday or Saturday peak traffic hour. *Less than Significant.*

i) Roadway Segments (SR 12-121) – Table 1A

During both the Friday AM & PM peak hours and the Saturday PM peak hour when “Without Project” operation along SR 121 would be acceptable in both the east and westbound directions and project traffic would not increase segment volumes to unacceptable levels. *Less than Significant.*

2. SUMMER (NON-HARVEST)

a) Summary

Project traffic would not result in any significant level of service impact along any analyzed SR 121 roadway segments during any Friday or Saturday peak traffic hour. *Less than Significant.*

i) Roadway Segments (SR 121) – Table 1B

During both the Friday AM & PM peak hours and the Saturday PM peak hour when “Without Project” operation along SR 121 would be acceptable in both the east and westbound directions and project traffic would not increase segment volumes to unacceptable levels. *Less than Significant.*

B. YEAR 2020 WITH PROJECT CONDITIONS

1. HARVEST

a) Summary

Project traffic would not result in any significant level of service impact along any analyzed SR 121 roadway segments during any Friday or Saturday peak traffic hour. *Less than Significant.*

i) Roadway Segments (SR 12-121) – Table 2A

During both the Friday AM & PM peak hours and the Saturday PM peak hour when “Without Project” operation along SR 121 would be acceptable in both the east and westbound directions and project traffic would not increase segment volumes to unacceptable levels. ***Less than Significant.***

2. SUMMER (NON-HARVEST)

a) Summary

Project traffic would not result in any significant level of service impact along any analyzed SR 121 roadway segments during any Friday or Saturday peak traffic hour. ***Less than Significant.***

i) Roadway Segments (SR 121) – Table 2B

During both the Friday AM & PM peak hours and the Saturday PM peak hour when “Without Project” operation along SR 121 would be acceptable in both the east and westbound directions and project traffic would not increase segment volumes to unacceptable levels. ***Less than Significant.***

C. YEAR 2030 WITH PROJECT CONDITIONS

1. HARVEST

a) Summary

Project traffic would not result in any significant level of service impact along any analyzed SR 121 roadway segments during any Friday or Saturday peak traffic hour. ***Less than Significant.***

i) Roadway Segments (SR 12-121) – Table 3A

During both the Friday AM & PM peak hours and the Saturday PM peak hour when “Without Project” operation along SR 121 would be acceptable in both the east and westbound directions and project traffic would not increase segment volumes to unacceptable levels. ***Less than Significant.***

2. SUMMER (NON-HARVEST)

a) Summary

Project traffic would not result in any significant level of service impact along any analyzed SR 121 roadway segments during any Friday or Saturday peak traffic hour. *Less than Significant.*

i) Roadway Segments (SR 121) – Table 3B

During both the Friday AM & PM peak hours and the Saturday PM peak hour when “Without Project” operation along SR 121 would be acceptable in both the east and westbound directions and project traffic would not increase segment volumes to unacceptable levels. *Less than Significant.*

XI. PROJECT ACCESS IMPACTS

A. SIGHT LINE ADEQUACY AT THE PROJECT DRIVEWAY CONNECTION TO SR 121

Sight lines are acceptable for drivers turning from the Kenzo Estates Winery private driveway to SR 121. Sight lines to the east are about 350 feet, while sight lines to the west are about 300 feet. Caltrans uses stopping sight distance as sight line evaluation criteria at private driveway intersections. Based upon observed travel speeds in both directions along SR 121 at the Winery entrance of 30 to 35 miles per hour, the required Caltrans Highway Design Manual (2014) stopping sight distance would be, at most, 250 feet.⁶ Therefore, sight lines are more than adequate.

B. PROJECT ENTRANCE SR 12-121 LEFT TURN LANE IMPACTS

1. NAPA COUNTY WARRANT CRITERIA

Napa County utilizes daily two-way volumes on both the public roadway as well as the private driveway connection to determine whether a left turn lane is warranted on the public roadway intersection approach. Daily volumes are then plotted on a left turn warrant graph – see **Appendix Figure 2**. Based upon existing average two-way volumes of 3,843 vehicles on SR 121 and 150 vehicles on the Kenzo Estates driveway, the combination of volumes meets the requirement that a left turn lane should be provided. With the addition of about 94 daily two-way trips due to the project, there would be a greater indication that a left turn lane be provided.

⁶ Caltrans Highway Design Manual, 2014.

However, it should be noted that County warrant criteria do not take into account the distribution of traffic turning into a driveway in their determination of the need for a left turn lane. In the case of Kenzo Winery, only about 20 percent of inbound traffic is making a left turn into the project site.

2. CALTRANS CRITERIA

Caltrans left turn lane warrant criteria are based upon evaluation of peak hour volumes. The combination of advancing (westbound) and opposing (eastbound) volumes along with vehicle speeds determines the maximum allowable percent left turns before a left turn lane is warranted. The left turn lane warrant chart for 40 mile per hour speeds is presented in **Table 9**.

Based upon existing harvest peak hour eastbound and westbound volumes at the Kenzo Estates entrance, the maximum allowable percent left turns allowable before provision of a left turn lane versus the actual percent left turns is presented in **Table 10** for harvest 2015 “without” project volumes and **Table 11** for harvest 2030 “with” project volumes. As shown in both tables, given the volume levels on SR 21 the Caltrans criteria show that there would need to be at least 10 percent left turns turning into the Kenzo driveway before a left turn lane would be warranted on the westbound SR 121 approach. The reality is for 2015 to 2030 conditions that there will never be more than just over 1 percent westbound left turns into the Kenzo Estates site during any of the peak traffic hours, with or without the proposed project.

Existing and future “with” and “without” project volumes would not meet Caltrans criteria for provision of a left turn lane on the westbound SR 121 approach to the Kenzo Estates Winery entrance.

C. PEDESTRIAN & BICYCLE RIDER IMPACTS

There is no pedestrian traffic and virtually no bicycle traffic along SR 121 at the project entrance due to the three- to four-mile climb in both directions to reach the Kenzo access driveway. *Less than Significant.*

XII. MARKETING EVENTS

Table 12 presents details of the number of guests, employees and hired event staffing that would likely be present for new marketing events. There would be an additional 24 events with up to 50 guests (resulting in 18 to 20 vehicle trips to and from the winery). Total hired staffing for the events would result in an additional 3 vehicles accessing the winery. Events would run from 7:00 to 10:00 PM on Fridays or weekend days or from noon to 2:30 PM on weekends.

There would also be 2 new marketing events each year with up to 150 guests (resulting in about 54 to 58 vehicle trips to/from the winery). Hired event staffing for each of these two events would result in an additional 5 or so vehicles accessing the winery. Both events would be on a

Friday or a weekend day and would run from 7:00-10:00 PM on either day, or from noon to 2:30 PM on a weekend day.

There would be no regular visitation allowed during any marketing events.

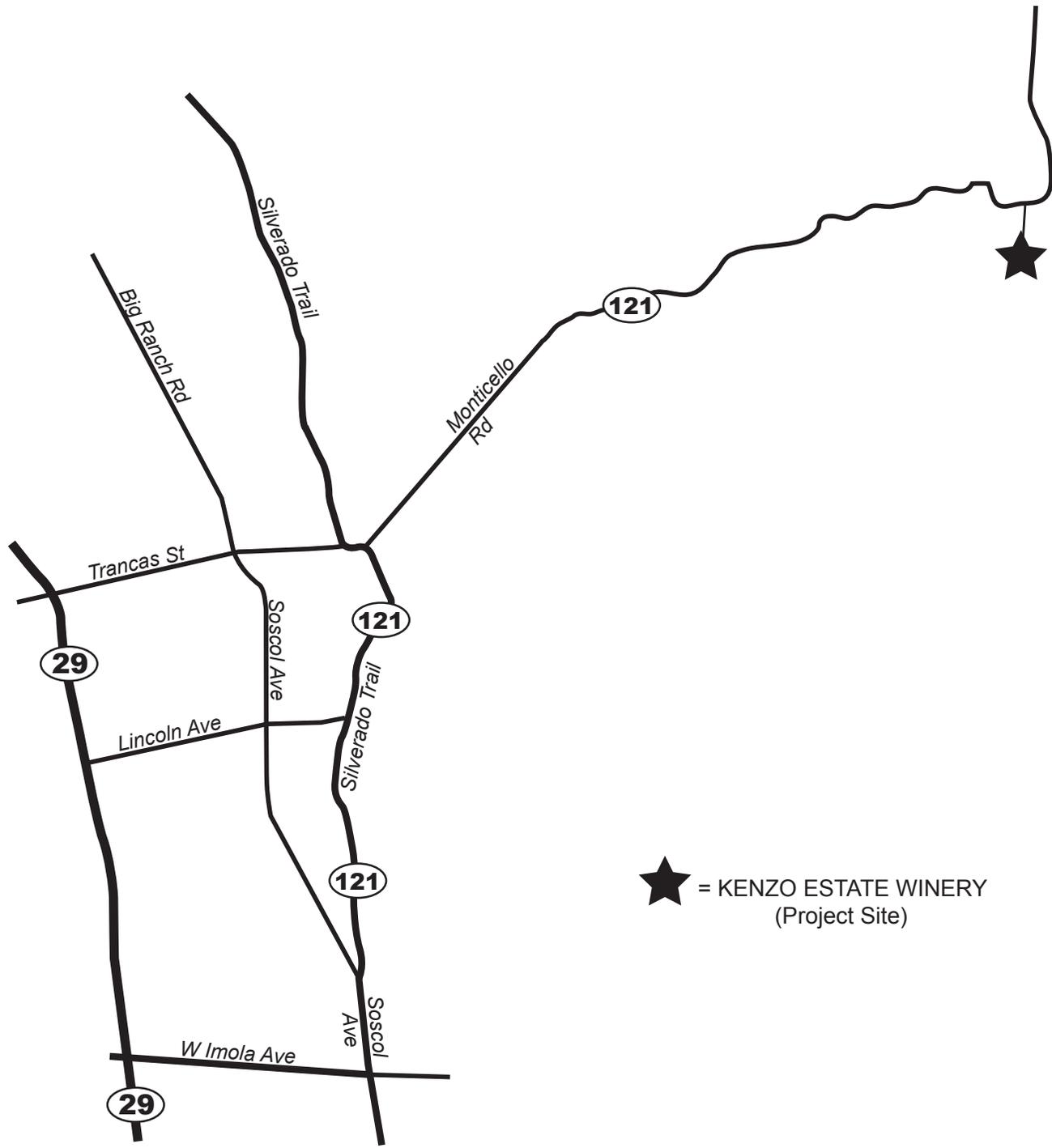
XIII. RECOMMENDATIONS

A determination will need to be made whether County of Napa or Caltrans criteria control the need for a left turn lane at the project entrance. It should be noted that at Caltrans request Kenzo Estates recently provided an eight-foot-wide shoulder on the north side of SR 121 opposite the Kenzo entrance. Also, there are no left turn lanes on westbound SR 121 for the six miles between the Kenzo entrance and Silverado Trail intersection in the City of Napa.

This Report is intended for presentation and use in its entirety, together with all of its supporting exhibits, schedules, and appendices. Crane Transportation Group will have no liability for any use of the Report other than in its entirety, such as providing an excerpt to a third party or quoting a portion of the Report. If you provide a portion of the Report to a third party, you agree to hold CTG harmless against any liability to such third parties based upon their use of or reliance upon a less than complete version of the Report.

Figures

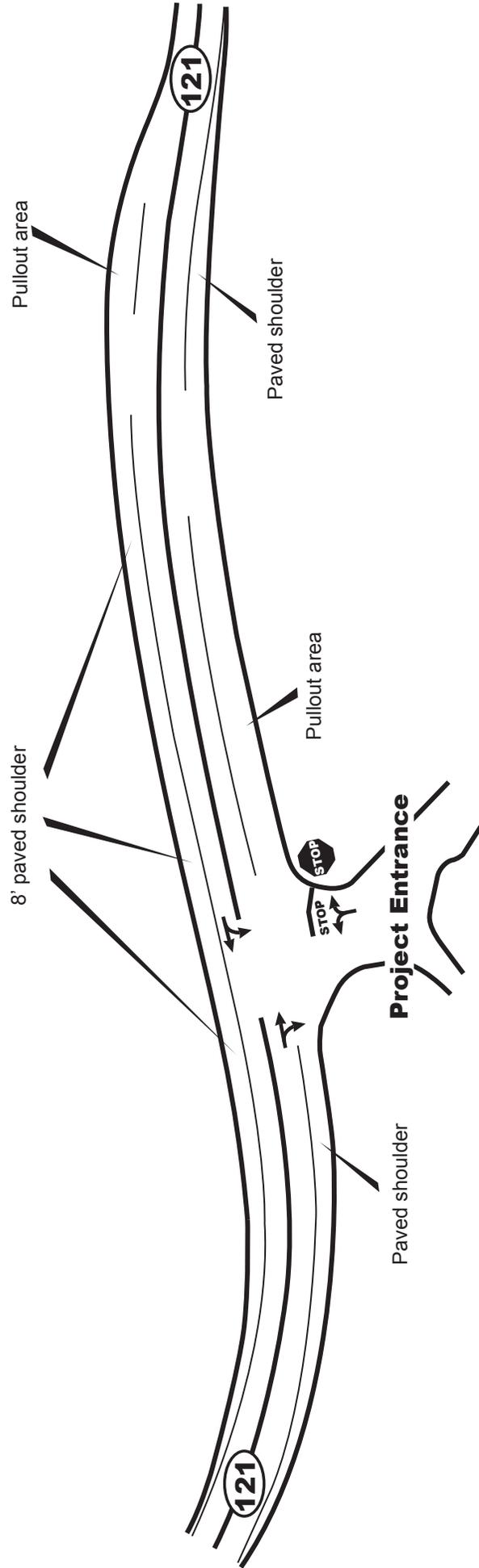
Not To Scale



★ = KENZO ESTATE WINERY
(Project Site)

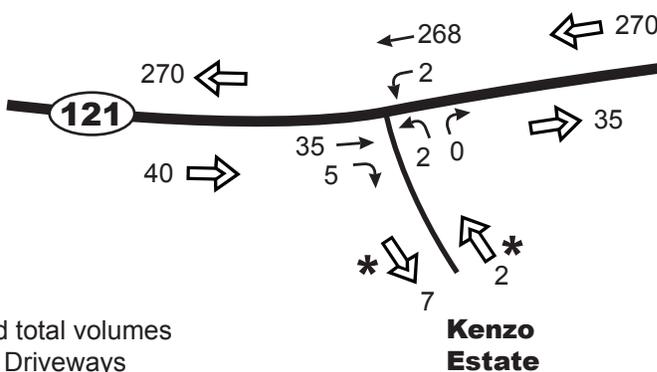
Figure 1
Area Map

Not To Scale
NORTH



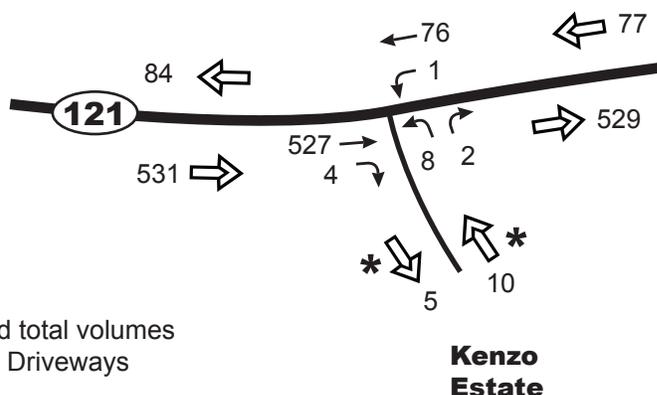
Kenzo Estate Winery Traffic Study

Figure 2
Existing Lane Geometrics
and Intersection Control



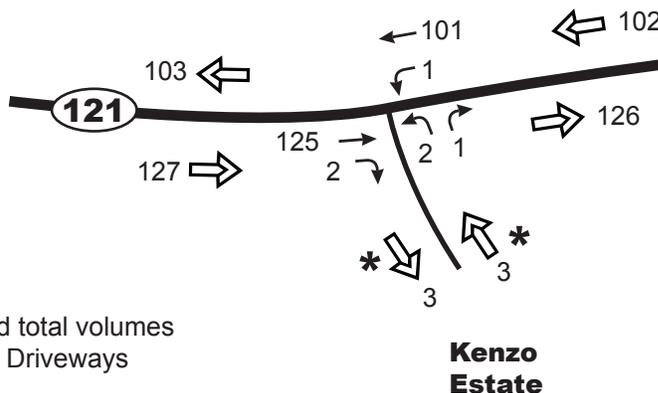
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



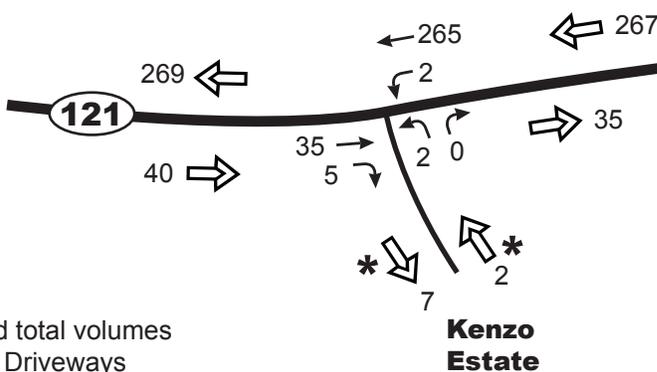
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)

Figure 3

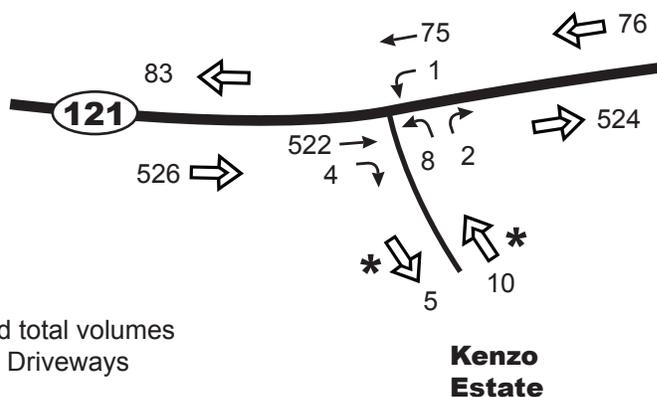
Harvest 2015 (without Project) Friday AM and PM & Saturday PM Peak Hour Traffic Volumes





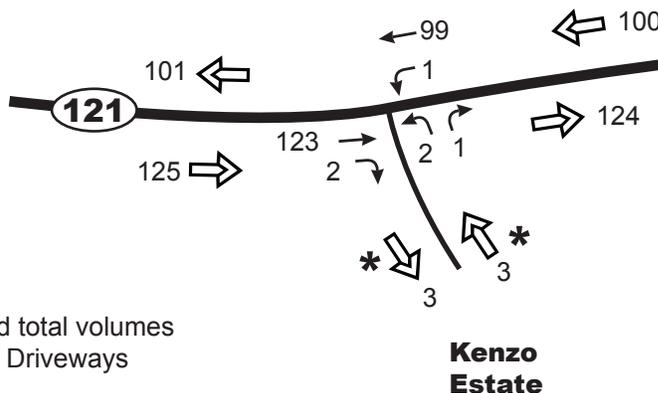
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



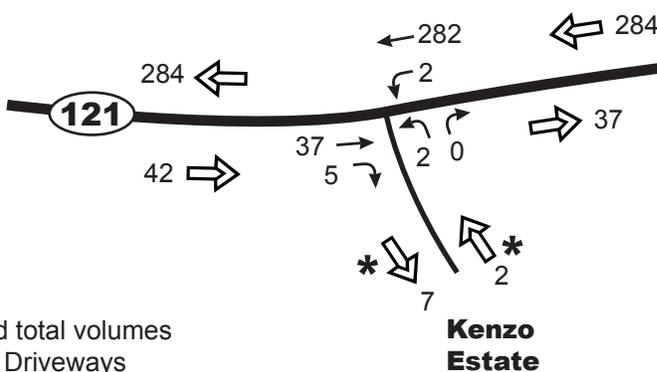
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)

Figure 4

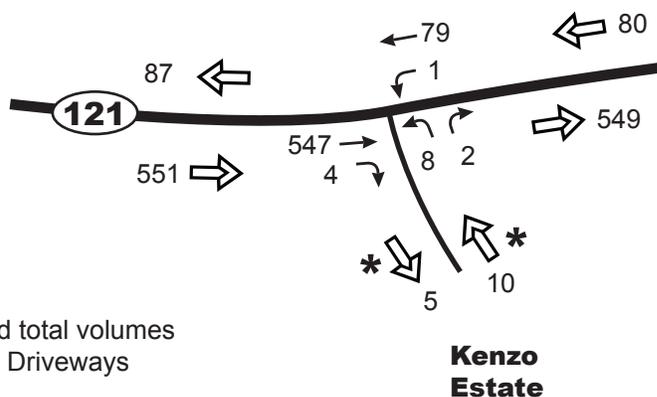
Summer 2015 (without Project) Friday AM and PM & Saturday PM Peak Hour Traffic Volumes





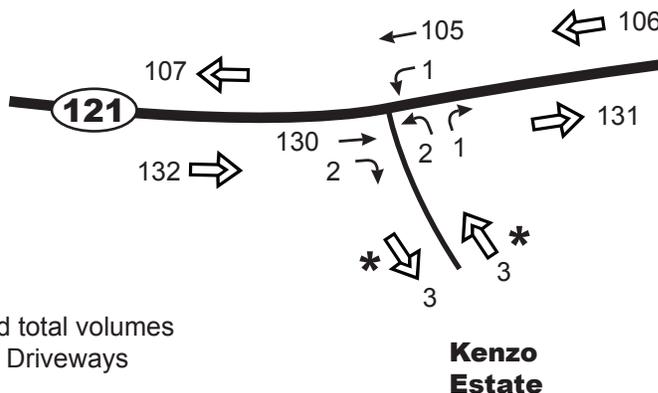
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



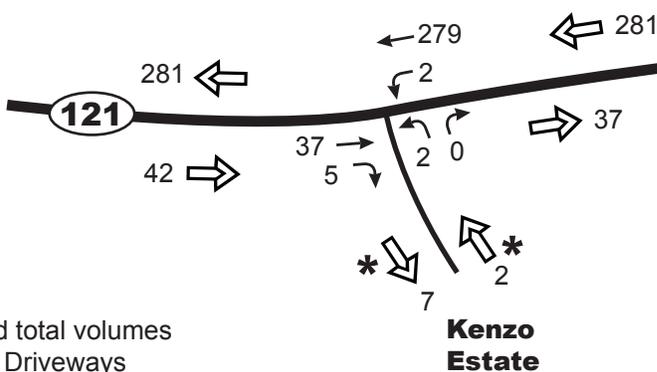
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)

Figure 5

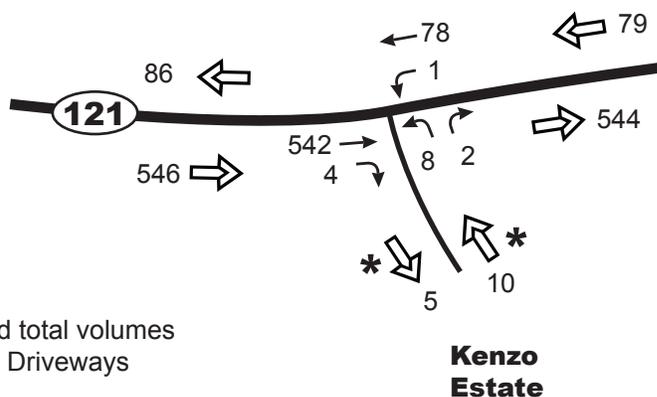
Harvest 2020 (without Project) Friday AM and PM & Saturday PM Peak Hour Traffic Volumes





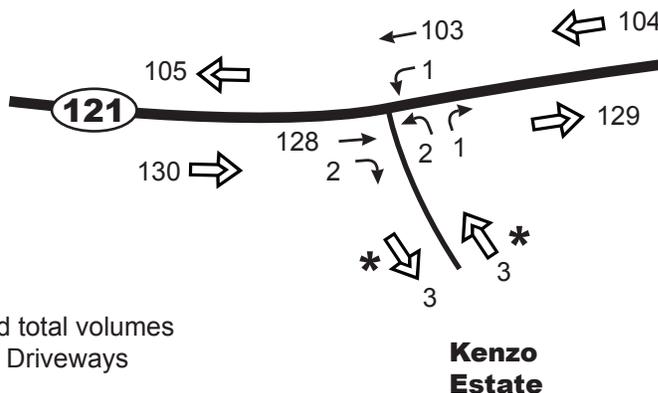
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



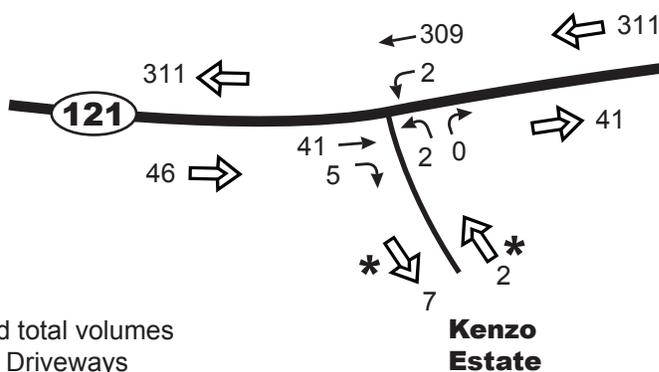
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)

Figure 6

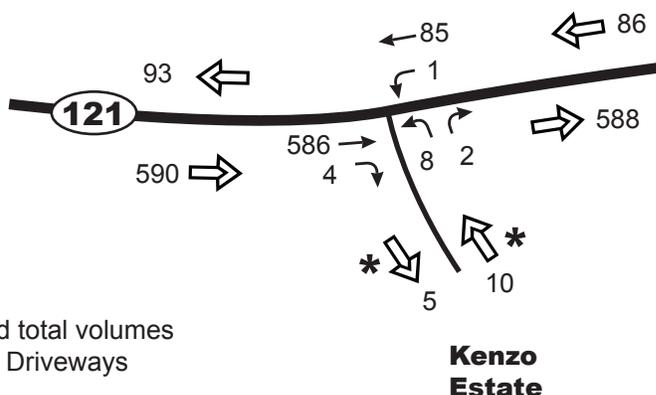
Summer 2020 (without Project) Friday AM and PM & Saturday PM Peak Hour Traffic Volumes





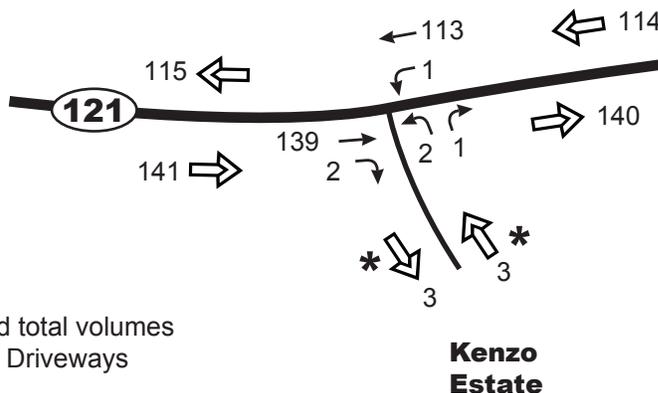
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



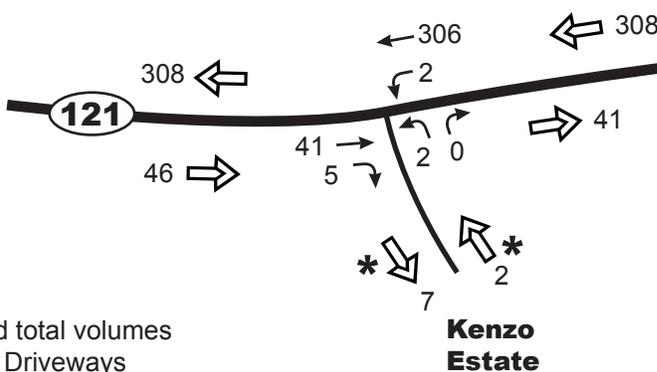
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)



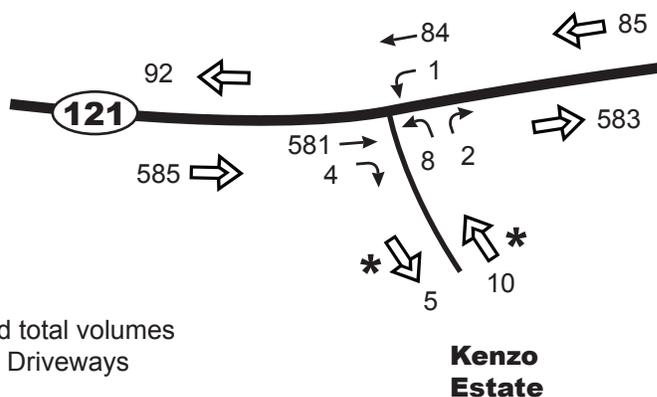
Figure 7

Harvest 2030 (without Project) Friday AM and PM & Saturday PM Peak Hour Traffic Volumes



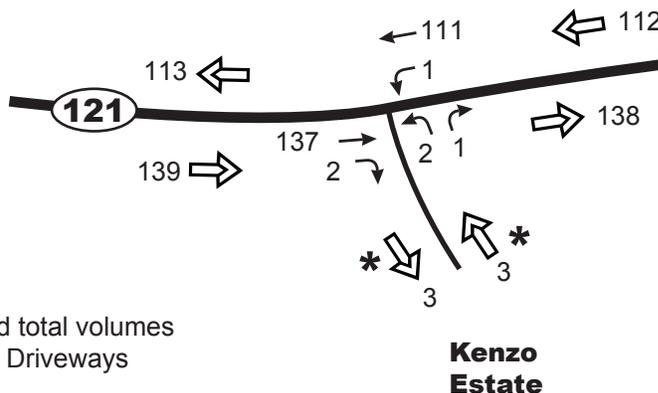
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



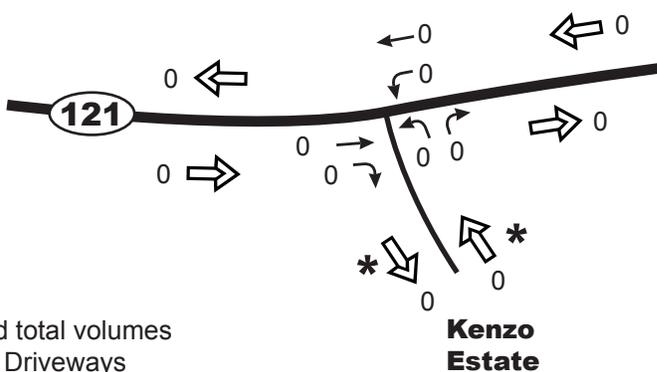
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)



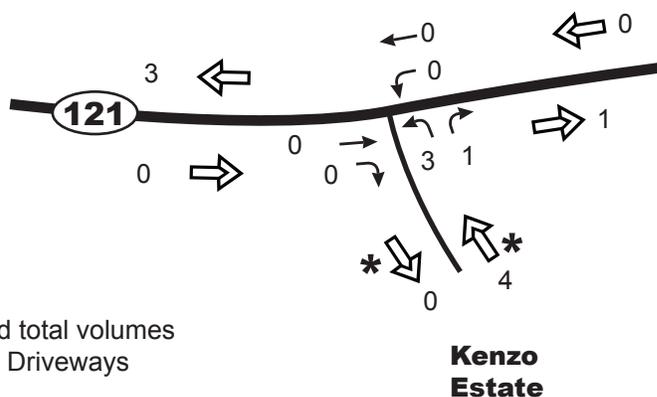
Figure 8

Summer 2030 (without Project) Friday AM and PM & Saturday PM Peak Hour Traffic Volumes



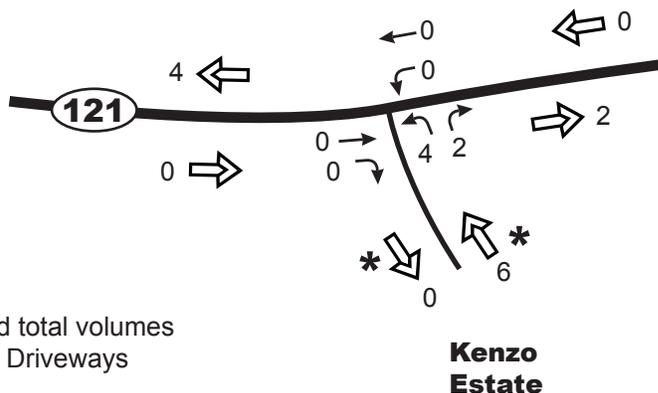
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



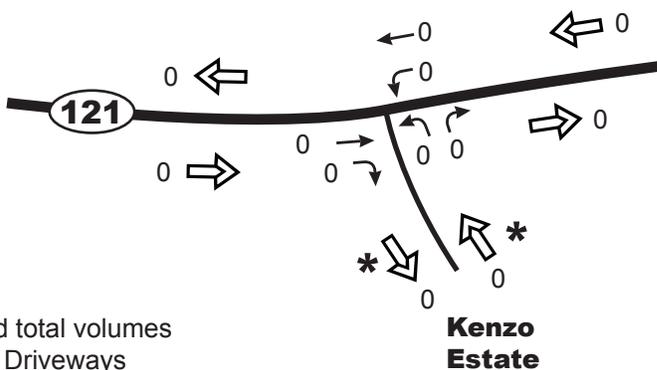
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)

Kenzo Estate Winery Traffic Study

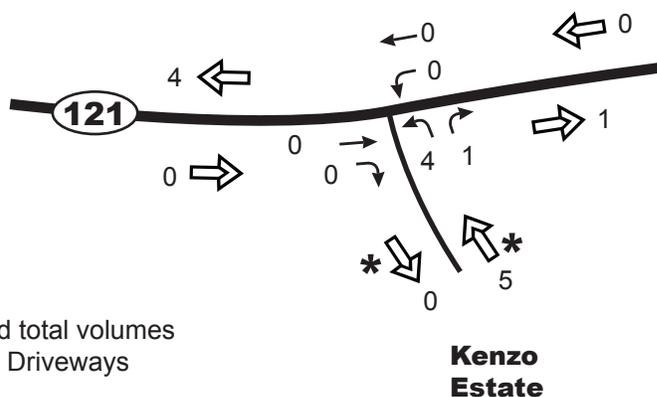
Figure 9





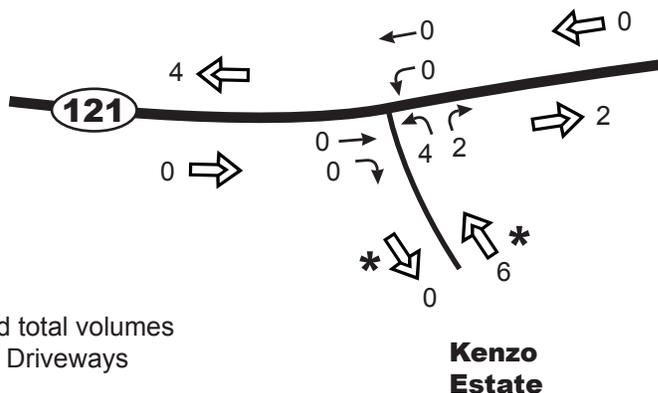
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



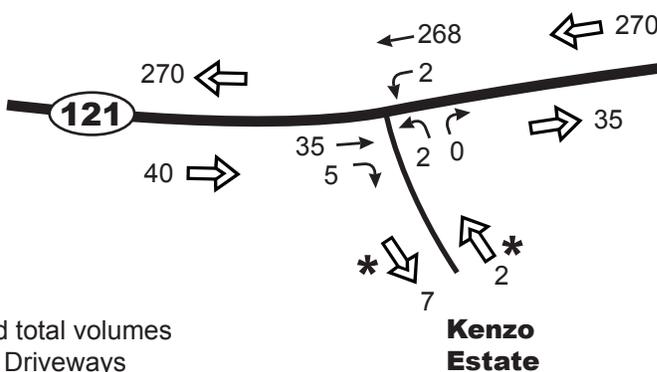
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)

Figure 10

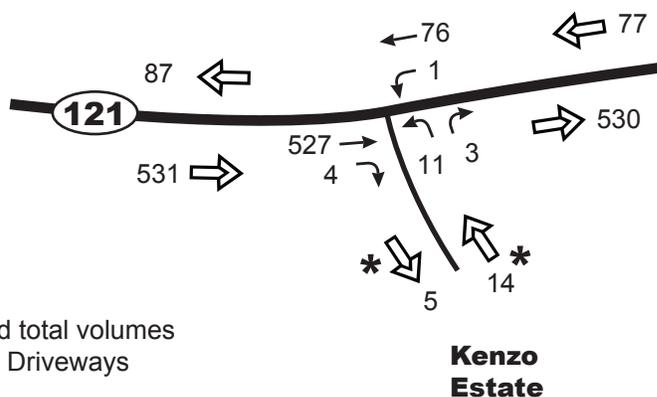
Summer Friday AM and PM & Saturday PM Peak Hour Project Traffic Increment





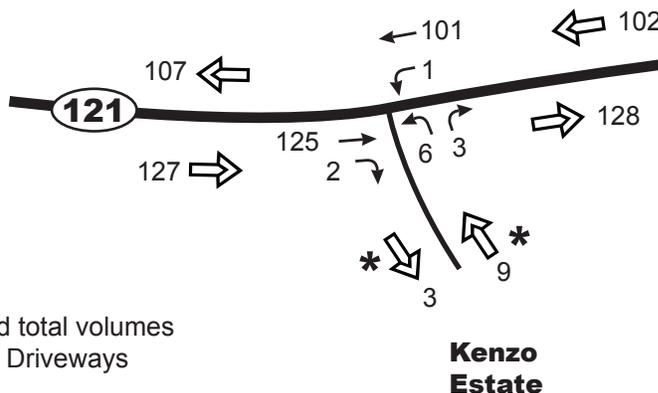
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



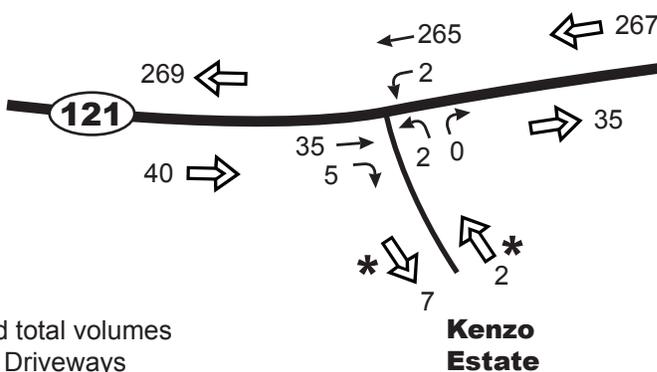
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)

Figure 11

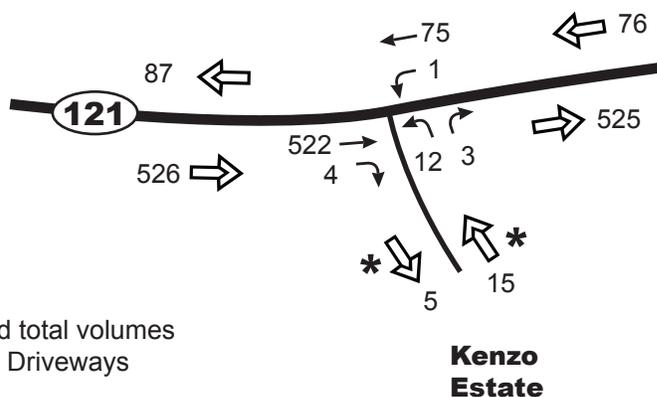
Harvest 2015 (with Project) Friday AM and PM & Saturday PM Peak Hour Traffic Volumes





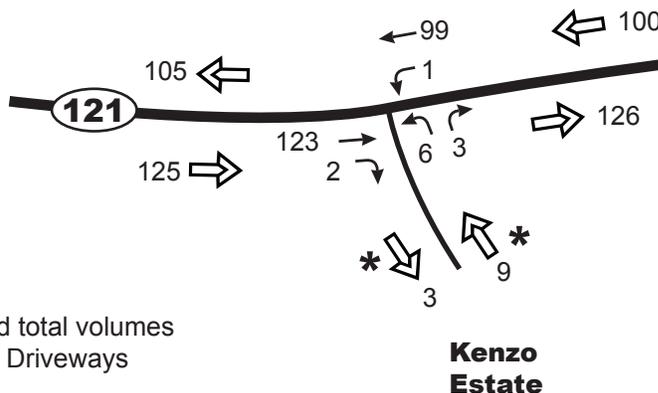
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



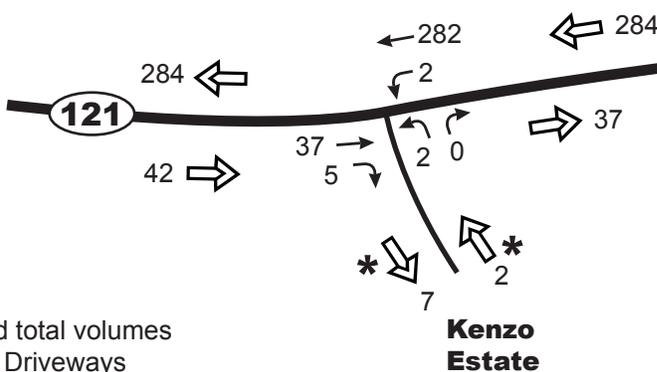
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)

Figure 12

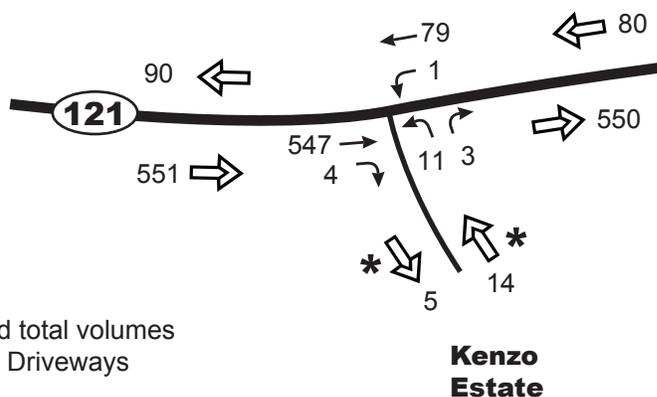
Summer 2015 (with Project) Friday AM and PM & Saturday PM Peak Hour Traffic Volumes





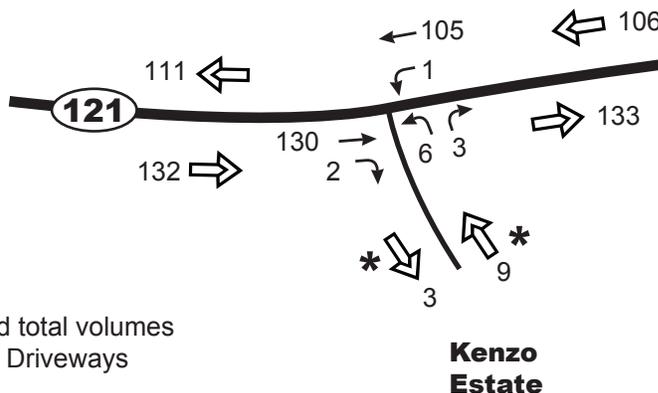
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



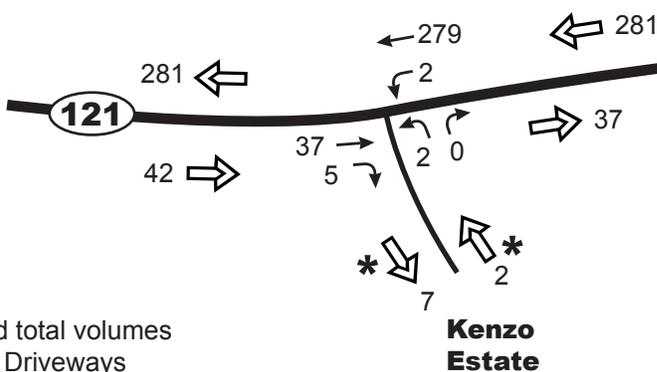
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)

Figure 13

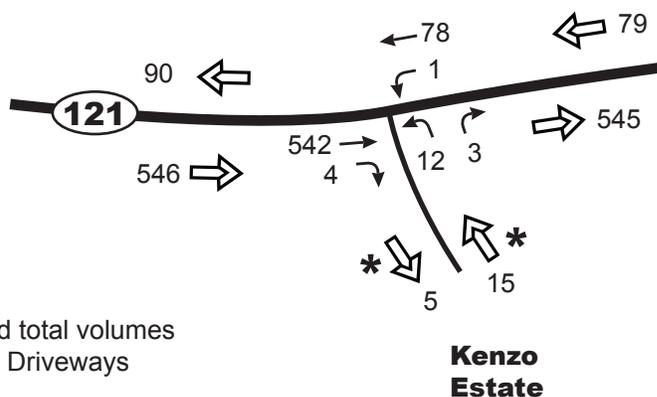
Harvest 2020 (with Project) Friday AM and PM & Saturday PM Peak Hour Traffic Volumes





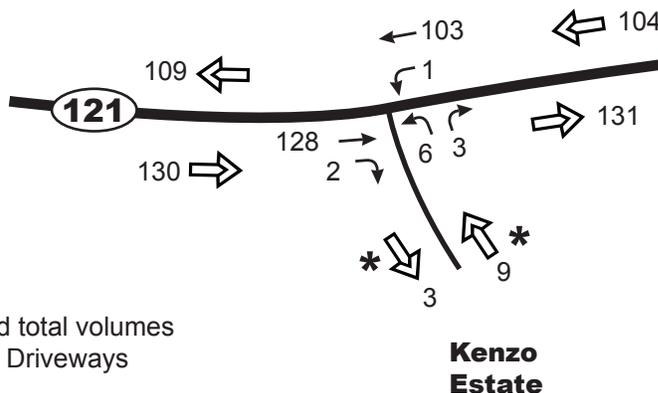
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



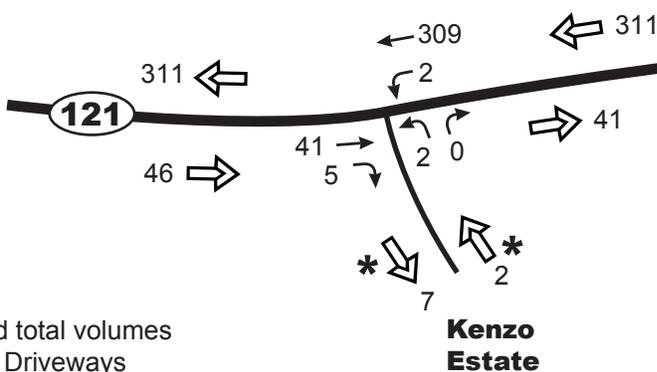
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)

Figure 14

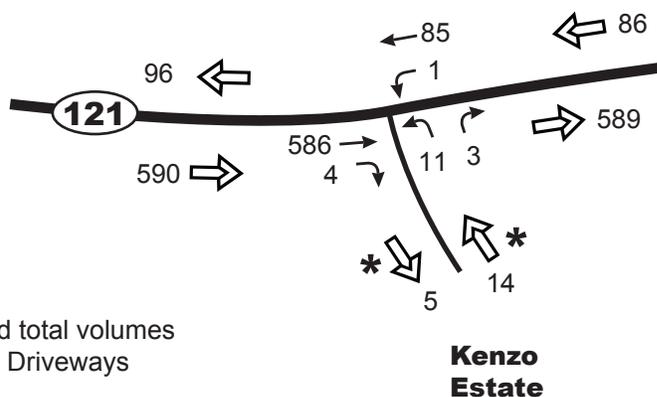
Summer 2020 (with Project) Friday AM and PM & Saturday PM Peak Hour Traffic Volumes





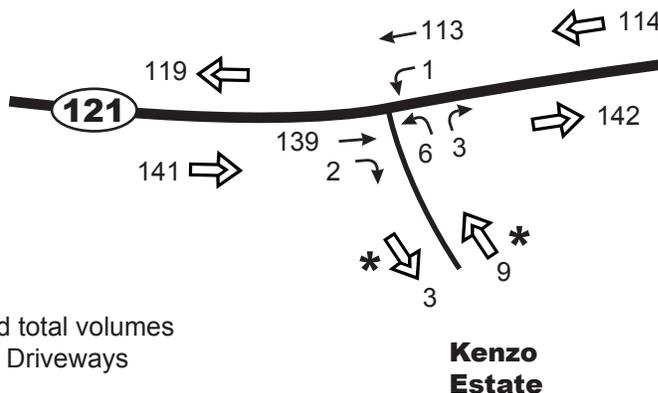
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



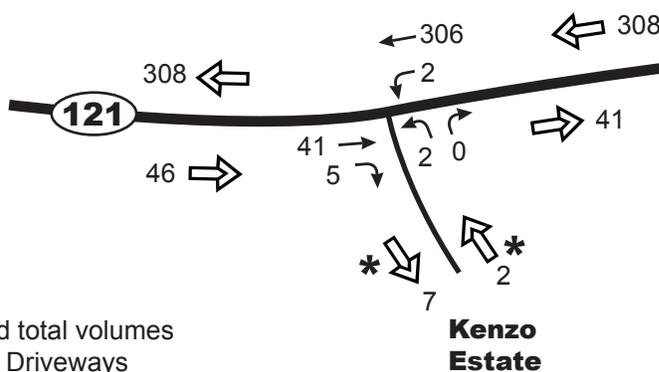
* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)

Figure 15

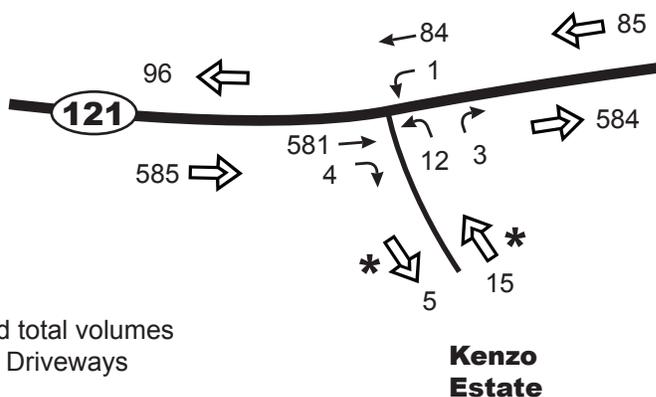
Harvest 2030 (with Project) Friday AM and PM & Saturday PM Peak Hour Traffic Volumes





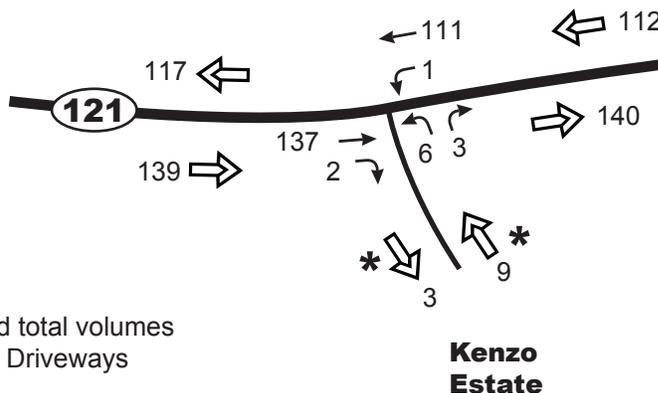
* Represents combined total volumes of both Kenzo Estate Driveways

Friday AM Peak Hour (7:15 - 8:15)



* Represents combined total volumes of both Kenzo Estate Driveways

Friday PM Peak Hour (4:30 - 5:30)



* Represents combined total volumes of both Kenzo Estate Driveways

Saturday PM Peak Hour (3:30 - 4:30)

Figure 16

Summer 2030 (with Project) Friday AM and PM & Saturday PM Peak Hour Traffic Volumes



Tables

Table 1A
ROADWAY SEGMENT LEVEL OF SERVICE
SR 121 EAST & WEST OF KENZO DRIVEWAY

EXISTING – 2015

HARVEST

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY AM PEAK HOUR				FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL ⁽¹⁾	LOS (V/C) ⁽²⁾	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)
SR 121 East of Kenzo Driveway	EB	640	35	A .055	35	A .055	529	D .827	530	D .828	128	C .197	128	C .200
	WB	640	270	C .421	270	C .421	77	B .120	77	B .120	102	C .159	102	C .159
SR 121 West of Kenzo Driveway	EB	640	40	A .063	40	A .063	531	D .83	531	D .83	127	C .198	127	C .198
	WB	640	270	C .421	270	C .421	84	B .131	87	B .136	103	C .161	107	C .167

⁽¹⁾ Vol = volume

⁽²⁾ LOS (V/C) = level of service (volume to capacity ratio).

Analysis Methodology Source: Napa County General Plan Update EIR Technical Memorandum for Traffic and Circulation Supporting the Findings and recommendations, Dowling Associates, February 9, 2007.

Compiled by: Crane Transportation Group

Table 1B
ROADWAY SEGMENT LEVEL OF SERVICE
SR 121 EAST & WEST OF KENZO DRIVEWAY

EXISTING – 2015

SUMMER (NON-HARVEST)

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY AM PEAK HOUR				FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL ⁽¹⁾	LOS (V/C) ⁽²⁾	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)
SR 121 East of Kenzo Driveway	EB	640	35	A .055	35	A .055	524	D .819	525	D .820	124	C .194	126	C .197
	WB	640	267	C .417	267	C .417	76	B .119	76	B .119	100	C .156	100	C .156
SR 121 West of Kenzo Driveway	EB	640	40	A .063	40	A .063	526	D .822	526	D .822	125	C .195	125	C .195
	WB	640	267	C .417	267	C .417	83	B .130	87	B .136	101	C .158	105	C .164

⁽¹⁾ Vol = volume

⁽²⁾ LOS (V/C) = level of service (volume to capacity ratio).

Analysis Methodology Source: Napa County General Plan Update EIR Technical Memorandum for Traffic and Circulation Supporting the Findings and recommendations, Dowling Associates, February 9, 2007.

Compiled by: Crane Transportation Group

Table 2A
ROADWAY SEGMENT LEVEL OF SERVICE
SR 121 EAST & WEST OF KENZO DRIVEWAY

YEAR 2020

HARVEST

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY AM PEAK HOUR				FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL ⁽¹⁾	LOS (V/C) ⁽²⁾	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)
SR 121 East of Kenzo Driveway	EB	640	37	A .058	37	A .058	549	D .858	550	D .859	131	C .205	133	C .208
	WB	640	284	C .444	284	C .444	80	B .125	80	B .125	106	C .166	106	C .166
SR 121 West of Kenzo Driveway	EB	640	42	A .066	42	A .066	551	D .861	551	D .861	132	C .206	132	C .206
	WB	640	284	C .444	284	C .444	87	B .136	90	B .141	107	C .167	111	C .173

⁽¹⁾ Vol = volume

⁽²⁾ LOS (V/C) = level of service (volume to capacity ratio).

Analysis Methodology Source: Napa County General Plan Update EIR Technical Memorandum for Traffic and Circulation Supporting the Findings and recommendations, Dowling Associates, February 9, 2007.

Compiled by: Crane Transportation Group

Table 2B
ROADWAY SEGMENT LEVEL OF SERVICE
SR 121 EAST & WEST OF KENZO DRIVEWAY

YEAR 2020

SUMMER (NON-HARVEST)

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY AM PEAK HOUR				FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL ⁽¹⁾	LOS (V/C) ⁽²⁾	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)
SR 121 East of Kenzo Driveway	EB	640	37	A .058	37	A .058	544	D .850	545	D .852	129	C .202	131	C .205
	WB	640	281	C .439	281	C .439	79	B .123	79	B .123	104	C .163	104	C .163
SR 121 West of Kenzo Driveway	EB	640	42	A .066	42	A .066	546	D .853	546	D .853	130	C .203	130	C .203
	WB	640	281	C .439	281	C .439	86	B .134	90	B .141	105	C .164	109	C .170

⁽¹⁾ Vol = volume

⁽²⁾ LOS (V/C) = level of service (volume to capacity ratio).

Analysis Methodology Source: Napa County General Plan Update EIR Technical Memorandum for Traffic and Circulation Supporting the Findings and recommendations, Dowling Associates, February 9, 2007.

Compiled by: Crane Transportation Group

Table 3A
ROADWAY SEGMENT LEVEL OF SERVICE
SR 121 EAST & WEST OF KENZO DRIVEWAY

YEAR 2030

HARVEST

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY AM PEAK HOUR				FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL ⁽¹⁾	LOS (V/C) ⁽²⁾	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)
SR 121 East of Kenzo Driveway	EB	640	41	A .064	41	A .064	588	D .919	589	D .920	140	C .219	142	C .222
	WB	640	311	C .486	311	C .486	86	B .134	86	B .134	114	C .178	114	C .178
SR 121 West of Kenzo Driveway	EB	640	46	A .072	46	A .072	590	D .922	590	D .922	141	C .220	141	C .220
	WB	640	311	C .486	311	C .486	93	B .145	96	B/C .150	115	C .180	119	C .186

⁽¹⁾ Vol = volume

⁽²⁾ LOS (V/C) = level of service (volume to capacity ratio).

Analysis Methodology Source: Napa County General Plan Update EIR Technical Memorandum for Traffic and Circulation Supporting the Findings and recommendations, Dowling Associates, February 9, 2007.

Compiled by: Crane Transportation Group

Table 3B
ROADWAY SEGMENT LEVEL OF SERVICE
SR 121 EAST & WEST OF KENZO DRIVEWAY

YEAR 2030

SUMMER (NON-HARVEST)

LOCATION	DIRECTION	DIRECTIONAL CAPACITY (VEH/HR)	FRIDAY AM PEAK HOUR				FRIDAY PM PEAK HOUR				SATURDAY PM PEAK HOUR			
			W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT		W/O PROJECT		WITH PROJECT	
			VOL ⁽¹⁾	LOS (V/C) ⁽²⁾	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)	VOL	LOS (V/C)
SR 121 East of Kenzo Driveway	EB	640	41	A .064	41	A .064	583	D .911	584	D .913	138	C .216	140	C .219
	WB	640	308	C .481	308	C .481	85	B .133	85	B .133	112	C .175	112	C .175
SR 121 West of Kenzo Driveway	EB	640	46	A .072	46	A .072	585	D .914	585	D .914	139	C .217	139	C .217
	WB	640	308	C .481	308	C .481	92	B .144	96	B/C .150	113	C .177	117	C .183

⁽¹⁾ Vol = volume

⁽²⁾ LOS (V/C) = level of service (volume to capacity ratio).

Analysis Methodology Source: Napa County General Plan Update EIR Technical Memorandum for Traffic and Circulation Supporting the Findings and recommendations, Dowling Associates, February 9, 2007.

Compiled by: Crane Transportation Group

Table 4

**KENZO ESTATES WINERY EXPANSION
NET NEW TRIP GENERATION ON LOCAL ROADWAY SYSTEM**

HARVEST FRIDAY

CATEGORY	NUMBER	HOURS	AM TRIPS						PM TRIPS							
			7-8 AM		8-9 AM		AM PEAK 7:15-8:15 AM*		3-4 PM		4-5 PM		5-6 PM		PM PEAK 4:30-5:30 PM*	
			IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Admin Employees	4	8:30AM-5PM	0	0	4	0	0	0	0	0	0	0	0	4	0	4
Production Employees – Full Time	1	6AM-6PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Production Employees – Part Time	6	6AM-6PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tours/Tasting Employees	3	9AM-5:30PM	0	0	3	0	0	0	0	0	0	0	0	3	0	0
Grape Delivery Trucks (0% grown off-site)	0	–	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Visitors	75 total = 29 vehicles**	10AM-4PM	0	0	0	0	0	0	0	6	0	6	0	0	0	0
TOTAL			0	0	7	0	0	0	0	6	0	6	0	7	0	4

* Peak traffic hours on SR 121.

** 2.6 visitors/vehicle average on weekdays per County data.

Source: Crane Transportation Group

Table 5

**KENZO ESTATES WINERY EXPANSION
NET NEW TRIP GENERATION ON LOCAL ROADWAY SYSTEM**

HARVEST SATURDAY

CATEGORY	NUMBER	HOURS	TRIPS									
			2-3 PM		3-4 PM		4-5 PM		5-6 PM		PEAK 3:30-4:30 PM*	
			IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Admin Employees	0		0	0	0	0	0	0	0	0	0	0
Production Employees – Full Time	1	6AM-6PM	0	0	0	0	0	0	0	0	0	0
Production Employees – Part Time	6	6AM-6PM	0	0	0	0	0	0	0	0	0	0
Tours/Tasting Employees	3	9AM-5:30PM	0	0	0	0	0	0	0	3	0	0
Grape Delivery Trucks (0% grown off-site)	0	–	0	0	0	0	0	0	0	0	0	0
Visitors	75 total = 27 vehicles**	10AM-4PM	5	6	0	6	0	6	0	0	0	6
TOTAL			5	6	0	6	0	6	0	3	0	6

* Peak traffic hour on SR 121.

** 2.8 visitors/vehicle average on Saturdays per County data.

Source: Crane Transportation Group

Table 6

**KENZO ESTATES WINERY EXPANSION
NET NEW TRIP GENERATION ON LOCAL ROADWAY SYSTEM**

SUMMER (NON-HARVEST) FRIDAY

CATEGORY	NUMBER	HOURS	AM TRIPS						PM TRIPS							
			7-8 AM		8-9 AM		AM PEAK 7:15-8:15 AM*		3-4 PM		4-5 PM		5-6 PM		PM PEAK 4:30-5:30 PM*	
			IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Admin Employees	4	8:30AM-5PM	0	0	4	0	0	0	0	0	0	0	0	4	0	4
Production Employees – Full Time	1	8AM-4:30PM	1	0	0	0	0	0	0	0	0	1	0	0	0	1
Tours/Tasting Employees	3	9AM-5:30PM	0	0	3	0	0	0	0	0	0	0	0	3	0	0
Visitors	75 total = 29 vehicles**	10AM-4PM	0	0	0	0	0	0	0	6	0	6	0	0	0	0
TOTAL			1	0	7	0	0	0	0	6	0	7	0	7	0	5

* Peak traffic hours on SR 121.

** 2.6 visitors/vehicle average on weekdays per County data.

Source: Crane Transportation Group

Table 7

**KENZO ESTATES WINERY EXPANSION
NET NEW TRIP GENERATION ON LOCAL ROADWAY SYSTEM**

SUMMER (NON-HARVEST) SATURDAY

CATEGORY	NUMBER	HOURS	TRIPS										
			2-3 PM		3-4 PM		4-5 PM		5-6 PM		PEAK 3:30-4:30 PM*		
			IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	
Admin Employees	0		0	0	0	0	0	0	0	0	0	0	0
Production Employees – Full Time	0		0	0	0	0	0	0	0	0	0	0	0
Tours/Tasting Employees	3	9AM-5:30PM	0	0	0	0	0	0	0	3	0	0	0
Visitors	75 total = 27 vehicles**	10AM-4PM	5	6	0	6	0	6	0	0	0	0	6
TOTAL			5	6	0	6	0	6	0	3	0	0	6

* Peak traffic hour on SR 121.

** 2.8 visitors/vehicle average on Saturdays per County data.

Source: Crane Transportation Group

Table 8

PROJECT TRIP GENERATION

HARVEST

FRIDAY AM PEAK HOUR* (7:15-8:15)		FRIDAY PM PEAK HOUR* (4:30-5:30)		SATURDAY PM PEAK HOUR* (3:30-4:30)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
0	0	0	4	0	6

SUMMER (NON-HARVEST)

FRIDAY AM PEAK HOUR* (7:15-8:15)		FRIDAY PM PEAK HOUR* (4:30-5:30)		SATURDAY PM PEAK HOUR* (3:30-4:30)	
INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS	INBOUND TRIPS	OUTBOUND TRIPS
0	0	0	5	0	6

* Peak hour along SR 121.

Source: Crane Transportation Group

Table 9

**CALTRANS HOURLY VOLUME WARRANTS FOR
PROVISION OF LEFT TURN DECELERATION LANES
ON TWO-LANE STATE HIGHWAYS**

40 mph Operating Speed

Advancing Volumes, VPH*

Opposing Volume, VPH*	5% Left Turns	10% Left Turns	20% Left Turns	30% Left Turns
800	330	240	150	180
600	410	305	225	200
400	510	380	275	245
200	640	470	360	305
100	720	575	390	340

* VPH = vehicles per hour

Source: *Caltrans Guidelines for Reconstruction of Intersections, 1985.*

Table 10

**CALTRANS LEFT TURN LANE WARRANT EVALUATION
SR 121 AT KENZO ESTATES ENTRANCE**

HARVEST 2015 VOLUMES WITHOUT PROJECT

40 MPH SPEED ON SR 121

DAY & PEAK HOUR	ADVANCING VOLUME (WB)	OPPOSING VOLUME (EB)	% LEFT TURNS ALLOWED BEFORE LEFT TURN LANE WARRANTED	ACTUAL % WB LEFT TURNS TO KENZO DRIVEWAY	LEFT TURN LANE WARRANTED?
Friday AM Peak Hour	270	40	30%+	0.7%	No
Friday PM Peak Hour	77	531	10%+	1.3%	No
Saturday PM Peak Hour	102	127	30%+	1.0%	No

Source: Crane Transportation Group

Table 11

**CALTRANS LEFT TURN LANE WARRANT EVALUATION
SR 121 AT KENZO ESTATES ENTRANCE**

HARVEST 2030 VOLUMES WITH PROJECT

40 MPH SPEED ON SR 121

DAY & PEAK HOUR	ADVANCING VOLUME (WB)	OPPOSING VOLUME (EB)	% LEFT TURNS ALLOWED BEFORE LEFT TURN LANE WARRANTED	ACTUAL % WB LEFT TURNS TO KENZO DRIVEWAY	LEFT TURN LANE WARRANTED?
Friday AM Peak Hour	311	46	30%+	0.6%	No
Friday PM Peak Hour	86	590	10%+	1.2%	No
Saturday PM Peak Hour	114	141	30%+	0.9%	No

Source: Crane Transportation Group

Table 12

**KENZO WINERY
NEW MARKETING EVENT TRAFFIC DETAILS**

NEW MARKETING EVENTS	STAFF/GUEST CATEGORY	# OF PEOPLE	# OF VEHICLES	TIMES	REGULAR VISITATION ELIMINATED DURING MARKETING EVENT?
24 pear year	Guests	50	18-20	Friday or weekend day 7:00-10:00 PM or Noon-2:30 PM (weekend day only)	Yes
	Extra Winery Staff	0	0		
	Caterers	2	2		
	Entertainers	0	0		
	Delivery vehicles	1	1		
2 per year	Guests	150	54-58	Friday or weekend day 7:00-10:00 PM or Noon-2:30 PM (weekend day only)	Yes
	Extra Winery Staff	0	0		
	Caterers	3	3		
	Entertainers	1	1		
	Delivery vehicles	1	1		

Source: Kenzo Estates Winery applicant

Appendix

Appendix

KENZO WINERY EXPECTED ACTIVITY ONLY DUE TO PROPOSED PROJECT

HARVEST CONDITIONS	NON-HARVEST CONDITIONS
<p>A. Full-time admin employees # on Weekdays <u> 4 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Work hours: Weekday 8:30 AM to 5:00 PM Saturday _____ to _____ Sunday _____ to _____</p>	<p>Full-time admin employees # on Weekdays <u> 4 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Work hours: Weekday 8:30 AM to 5:00 PM Saturday _____ to _____ Sunday _____ to _____</p>
<p>B. Full-time production employees # on Weekdays <u> 1 </u> # on Saturday <u> 1 </u> # on Sunday <u> 1 </u> Work hours: Weekday 6:00 AM to 6:00 PM Saturday 6:00 AM to 6:00 PM Sunday 6:00 AM to 6:00 PM</p>	<p>Full-time production employees # on Weekdays <u> 1 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Work hours: Weekday 8:00 AM to 4:30 PM Saturday _____ to _____ Sunday _____ to _____</p>
<p>C. Part-time production employees # on Weekdays <u> 6 </u> # on Saturday <u> 6 </u> # on Sunday <u> 6 </u> Work hours: Weekday 6:00 AM to 6:00 PM Saturday 6:00 AM to 6:00 PM Sunday 6:00 AM to 6:00 PM</p>	<p>Part-time production employees # on Weekdays <u> 0 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Work hours: Weekday _____ to _____ Saturday _____ to _____ Sunday _____ to _____</p>
<p>D. Tours & tasting employees # on Weekdays <u> 3 </u> # on Saturday <u> 3 </u> # on Sunday <u> 3 </u> Work hours: Weekday 9:00 AM to 5:30 PM Saturday 9:00 AM to 5:30 PM Sunday 9:00 AM to 5:30 PM</p>	<p>Tours & tasting employees # on Weekdays <u> 3 </u> # on Saturday <u> 3 </u> # on Sunday <u> 3 </u> Work hours: Weekday 9:00 AM to 5:30 PM Saturday 9:00 AM to 5:30 PM Sunday 9:00 AM to 5:30 PM</p>

Appendix

KENZO WINERY EXPECTED ACTIVITY ONLY DUE TO PROPOSED PROJECT

HARVEST CONDITIONS	NON-HARVEST CONDITIONS
<p>E. Grape Delivery Trucks # on Weekdays <u> 0 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Delivery hours: Weekday <u> </u> to <u> </u> Saturday <u> </u> to <u> </u> Sunday <u> </u> to <u> </u> # days of grape delivery: <u> </u></p>	<p>No grape delivery</p>
<p>F. Maximum tours/tasting visitors # on Friday <u> 75 </u> # on Saturday <u> 75 </u> # on Sunday <u> 75 </u> Tasting hours: Weekday 10:00 AM to 4:00 PM Saturday 10:00 AM to 4:00 PM Sunday 10:00 AM to 4:00 PM</p>	<p>Maximum tours/tasting visitors # on Friday <u> 75 </u> # on Saturday <u> 75 </u> # on Sunday <u> 75 </u> Tasting hours: Weekday 10:00 AM to 4:00 PM Saturday 10:00 AM to 4:00 PM Sunday 10:00 AM to 4:00 PM</p>
<p>G. Other employees # on Weekdays <u> 0 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Work hours: Weekday <u> </u> to <u> </u> Saturday <u> </u> to <u> </u> Sunday <u> </u> to <u> </u></p>	<p>Other employees # on Weekdays <u> 0 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Work hours: Weekday <u> </u> to <u> </u> Saturday <u> </u> to <u> </u> Sunday <u> </u> to <u> </u></p>
<p>H. Other trucks # on Weekdays <u> 0 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Delivery hours: Weekday <u> </u> to <u> </u> Saturday <u> </u> to <u> </u> Sunday <u> </u> to <u> </u></p>	<p>Other trucks # on Weekdays <u> 0 </u> # on Saturday <u> 0 </u> # on Sunday <u> 0 </u> Delivery hours: Weekday <u> </u> to <u> </u> Saturday <u> </u> to <u> </u> Sunday <u> </u> to <u> </u></p>

Appendix

KENZO WINERY EXPECTED ACTIVITY ONLY DUE TO PROPOSED PROJECT

I. Grape source

Percent grapes grown on site: 100%

Grapes grown off site – access route to winery entrance

SR 121 from the west: 0%

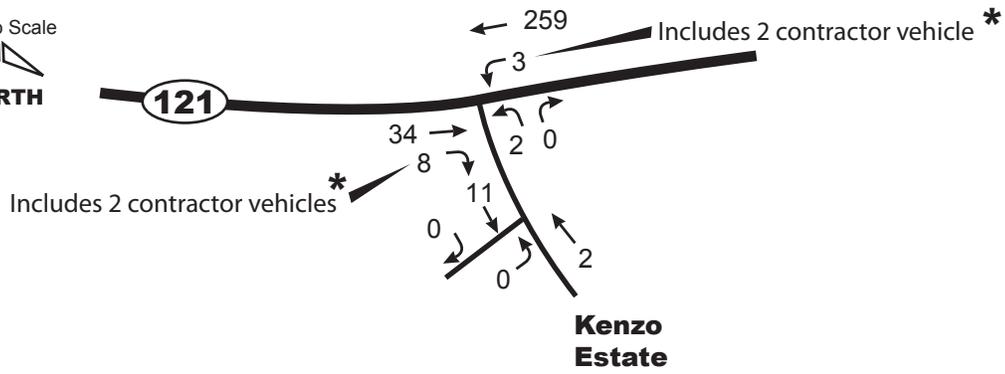
SR 121 from the east: 0%

NEW MARKETING EVENTS

- Maximum # people/event: 50
events/year: 24
Typical days: Friday & weekends
Times: 7:00-10:00 PM on Friday or weekend days, or from noon-2:30 PM on weekend days
- # people/event: 150
events/year: 2
Typical days: Friday or weekend days
Times: 7:00-10:00 PM on Friday or weekend days, or from noon-2:30 PM on weekend days

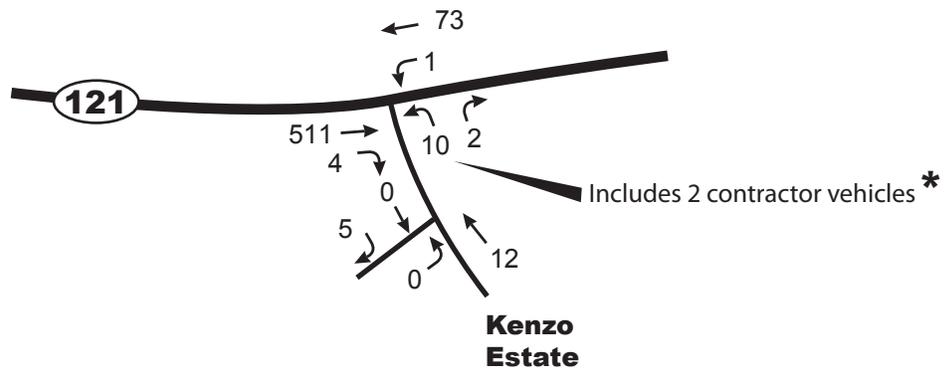
Not To Scale

NORTH



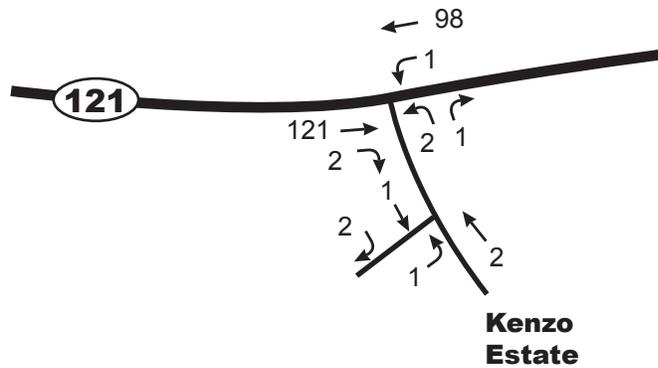
* Temporary construction project

Friday AM Peak Hour (7:15 - 8:15)



* Temporary construction project

Friday PM Peak Hour (4:30 - 5:30)



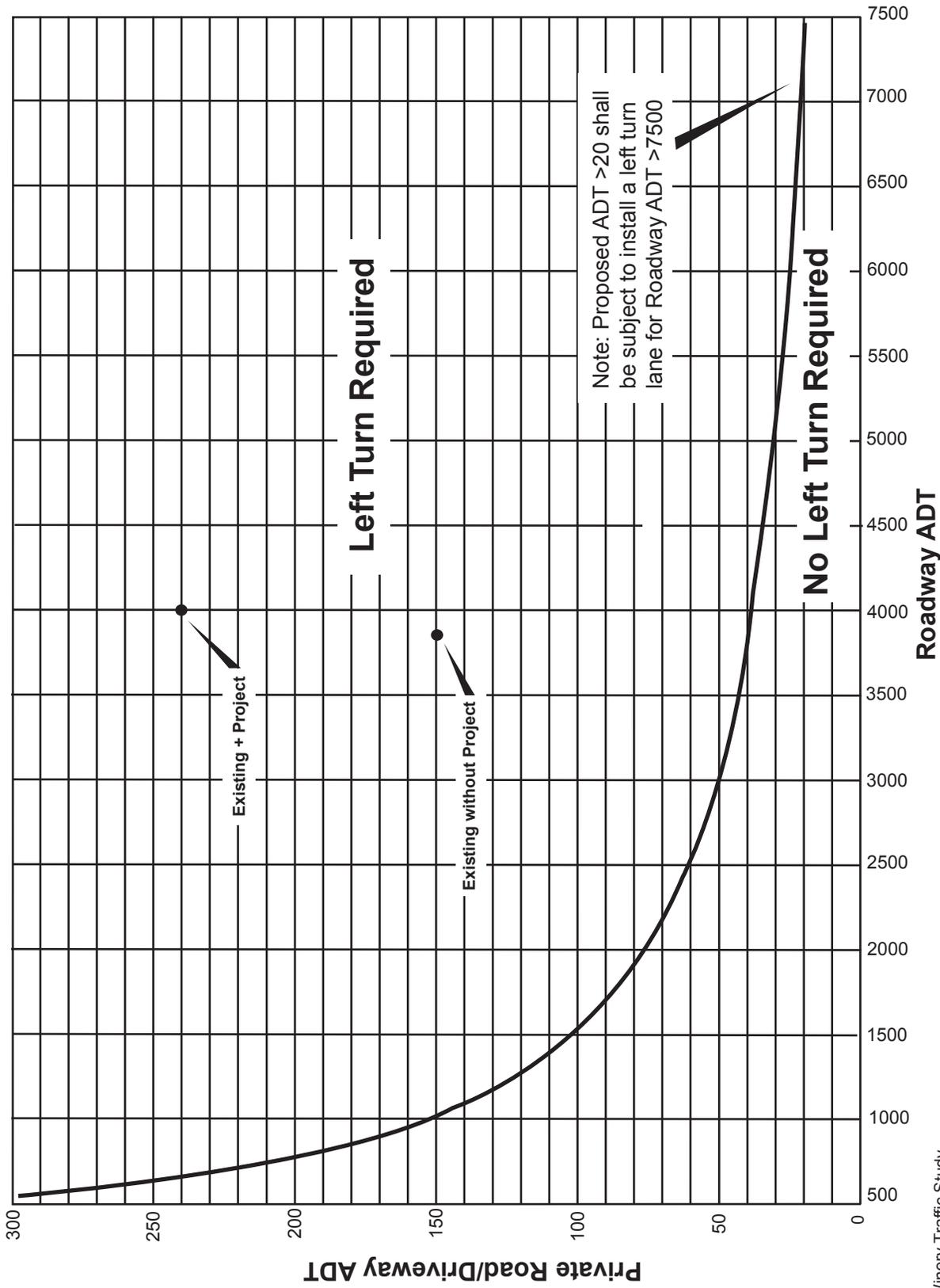
Saturday PM Peak Hour (3:30 - 4:30)

Appendix Figure 1

Existing May 2015 Friday AM and PM & Saturday PM Peak Hour Traffic Volumes



COUNTY OF NAPA LEFT TURN WARRANT GRAPH at Private Road and Driveway Intersections



Kenzo Estate Winery Traffic Study

Appendix Figure 2
COUNTY OF NAPA LEFT TURN WARRANT GRAPH
at Private Road and Driveway Intersections
SR121 at Kenzo Estate Driveway