APPENDIX H

WELL COMPLETION REPORT

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14090 S&S Ranch

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. E0323591

Page 1 of 1

Owner's Well Number ______

Date Work Began 05/06/2015 Date Work Ended 8/26/2015

Local Permit Agency County of Fresno

Permit Number 33692 Permit Date 9/4/14

DWR Use Only – Do Not Fill In

14S/13E-26

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ⦿ Vertical ○ Horizontal ○ Angle Specify ______

Drilling Method Reverse Circulation Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	70	Gravel/Sand
70	90	Clay/Sand
90	110	Clay
110	210	Clay/Sand
210	220	Clay
220	240	Clay/Sand/Gravel
240	250	Clay/Sand
250	270	Clay/Sand/Gravel
270	290	Clay/Sand
290	300	Clay
300	360	Clay/Sand
360	370	Gravel
370	410	Clay/Sand
410	420	Clay/Sand/Gravel
420	430	Clay/Sand
430	460	Clay
460	500	Clay/Gravel
500	510	Clay
510	520	Clay/Gravel
520	680	Clay/Sand
680	690	Clay
690	740	Clay/Sand
740	760	Clay
760	780	Clay/Sand
780	800	Clay
800	1,275	Clay/Sand

Total Depth of Boring 1275 Feet

Total Depth of Completed Well 1259 Feet

Well Owner

Well Location

Address Jerrold/North

City ______ County Fresno

Latitude ___ Deg. ___ Min. ___ Sec. N Longitude ___ Deg. ___ Min. ___ Sec. W

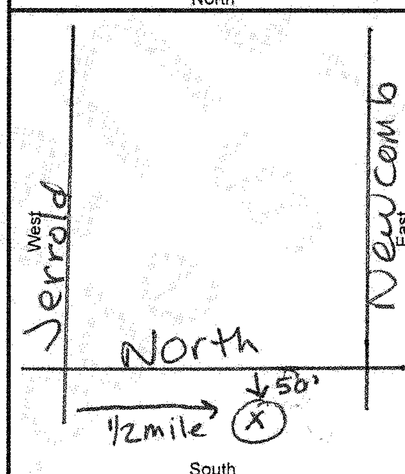
Datum ______ Dec. Lat. ______ Dec. Long. ______

APN Book 019 Page 150 Parcel 64

Township 14 Range 13 Section 26

Location Sketch

(Sketch must be drawn by hand after form is printed.)



Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

- ⦿ New Well
- ○ Modification/Repair
  - ○ Deepen
  - ○ Other ______
- ○ Destroy
  Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

- ⦿ Water Supply
  - ☐ Domestic ☐ Public
  - ☑ Irrigation ☐ Industrial
- ○ Cathodic Protection
- ○ Dewatering
- ○ Heat Exchange
- ○ Injection
- ○ Monitoring
- ○ Remediation
- ○ Sparging
- ○ Test Well
- ○ Vapor Extraction
- ○ Other ______

Water Level and Yield of Completed Well

Depth to first water ______ (Feet below surface)

Depth to Static Water Level 542 (Feet) Date Measured 08/26/2015

Estimated Yield * 1,800 (GPM) Test Type Step-Drawndown

Test Length 3.0 (Hours) Total Drawdown 252 (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	842	28	Sounding Tul	PVC Sch. 80		2.5		
0	791	28	Blank	Low Carbon Steel	18	.375		
791	803	28	Compression	Low Carbon Steel				
803	1,245	28	Screen	Low Carbon Steel	18		54	.
1,245	1,259	28	Blank	Low Carbon Steel				

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	690	Fill	Gravel 1/4"
690	720	hole plug	

Attachments

- ☐ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☐ Other ______

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Zim Industries, Inc.
Person, Firm or Corporation

4545 E. Lincoln Ave (Address) Fresno (City) CA (State) 93725 (Zip)

Signed [signature] C-57 Licensed Water Well Contractor 9-25-15 Date Signed 440537 C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

14090 S&S Ranch

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Datum Dec. Lat. Dec. Long.

APN Book 019 Page 150 Parcel 64

Township 14 Range 13 Section 26

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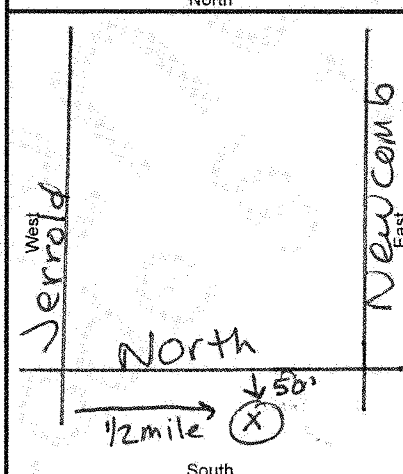
North



South

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Activity

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○ Deepen

○ Other

○ Destroy

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○ Dewatering

○ Heat Exchange

○ Injection

○ Monitoring

○ Remediation

○ Sparging

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DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

APPENDIX I

NOISE AND VIBRATION MEMORANDUM

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CARLSBAD
CLOVIS
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: October 5, 2023

TO: Ejaz Ahmad, Planner, Department of Public Works and Planning
Development Services Division

FROM: J.T. Stephens, Principal / Noise and Vibration Specialist
Moe Abushanab, Noise Engineer

SUBJECT: Noise and Vibration Impact Analysis: S. Stamoules, Inc. Pistachio Processing Project in the County of Fresno, California

INTRODUCTION AND PROJECT DESCRIPTION

This noise and vibration impact analysis has been prepared to evaluate the potential impacts associated with the proposed S. Stamoules, Inc. Pistachio Processing Facility Project (project) in Fresno County, California. This report is intended to satisfy the County of Fresno's (County) requirement for a project-specific noise and vibration impact analysis and examines the impacts of the proposed project to the existing noise-sensitive uses adjacent to the project site. To properly account for the impacts associated with the proposed project, existing noise levels are assessed based on noise measurement data gathered in the vicinity of the project site (July 27, 2023) and project-related noise and vibration levels generated are based on estimated construction equipment. Traffic volumes from the *Traffic Impact Study for the S. Stamoules, Inc. Pistachio Processing Facility Project*[1] and additional stationary sources on the project site were also evaluated.

Location and Description

The project site is located within one parcel (Assessor's Parcel Number [APN] 019-150-64S) and is approximately 98 acres in size; parcel APN 019-150-64S is currently under a Williamson Act contract. The project site is currently open farm ground and is not developed. The project site is located in western Fresno County, approximately 8 miles southwest of the City of Mendota. The project site is located in an agricultural area of Fresno County and is surrounded by orchards and row crops. The project site is bounded by farm fields and West Panoche Road to the south, West Panoche Road and farm fields to the east, and farm fields to the north and to the west. The San Luis Canal of the California Aqueduct is located approximately 0.6 mile to the west of the project site.
Vehicular access to the project site is provided by West Panoche Road, and no public transportation. routes are present in the vicinity of the project site. Figure 1 shows the project location, and Figure 2 provides an overview of the proposed site plan (all figures are provided in Attachment A).

1 LSA. 2023. *Traffic Impact Study for S. Stamoules, Inc. Pistachio Processing Facility Project, Fresno County, California*. August.

METHODOLOGY

The evaluation of noise impacts associated with the proposed project includes the following:

- A determination of the short-term construction noise and vibration levels at off-site noise-sensitive uses and comparison to the County's General Plan and Municipal Code Ordinance requirements;
- A determination of the long-term noise levels at off-site noise-sensitive uses and comparison of those levels to the County's pertinent noise standards; and
- If necessary, a determination of required mitigation measures, such as noise barriers, to reduce long-term noise impacts from all sources.

CHARACTERISTICS OF SOUND

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave, resulting in the tone's range from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment and is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

Measurement of Sound

Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units (e.g., inches or pounds), decibels are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 decibels (dB) is 10 times more intense than 1 dB, 20 dB is 100 times more intense than 1 dB, and 30 dB is 1,000 times more intense than 1 dB. Thirty decibels (30 dB) represent 1,000 times as much acoustic energy as 1 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single-point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source (e.g., highway traffic or railroad operations), the sound decreases 3 dB for each doubling of distance in a hard site environment. Similarly, line sources with intervening absorptive vegetation or line sources that are located at a great distance to the receptor would decrease 4.5 dB for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and Community Noise Equivalent Level (CNEL) or the day-night average noise level (L_{dn}) based on A-weighted decibels (dBA). CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noises occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within 1 dBA of each other and are normally interchangeable.

Other noise rating scales of importance when assessing the annoyance factor include the maximum instantaneous noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis for short-term noise impacts are specified in terms of maximum levels denoted by L_{max}, which reflects peak operating conditions and addresses the annoying aspects of intermittent noise. L_{max} is often used together with another noise scale or noise standards in terms of percentile noise levels in noise ordinances for enforcement purposes. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level (i.e., half the time the noise level exceeds this level, and half the time it is less than this level). The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first category is audible impacts, which refers to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3 dB or greater because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1 and 3 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise levels of less than 1 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 160–165 dBA will result in dizziness or loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying, less developed areas.

Table A lists full definitions of acoustical terms, and Table B shows common sound levels and their sources.

Table A: Definitions of Acoustical Terms

Term	Definitions
Decibel, dB	A unit of sound level that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in 1 second (i.e., the number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. 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. (All sound levels in this report are A-weighted unless reported otherwise.)
L_{01}, L_{10}, L_{50}, L_{90}	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1%, 10%, 50%, and 90% of a stated time period, respectively.
Equivalent Continuous Noise Level, L_{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dBA to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L_{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L_{max}, L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time. It is usually a composite of sound from many sources from many directions, near and far; no particular sound is dominant.

Source 1: *Technical Noise Supplement* (Caltrans 2013)
Source 2: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
Caltrans = California Department of Transportation
FTA = Federal Transit Administration

Table B: Common Sound Levels and Their Noise Sources

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

Source: *Technical Noise Supplement* (Caltrans 2013).
Caltrans = California Department of Transportation
dBA = A-weighted decibels
ft = feet
mph = miles per hour

CHARACTERISTICS OF VIBRATION

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may not be discernible. Typically, there is more adverse reaction to effects associated with the shaking of a building. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as the motion of building surfaces, the rattling of items on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibration of walls, floors, and ceilings that radiate sound waves.

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with both ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 feet (ft) of the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 ft (FTA 2018).[2] When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible.

2 Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual – FTA Report No. .0123*. September.

It is assumed for most projects that the roadway surface will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, the construction of the project could result in ground-borne vibration that may be perceptible.

Ground-borne vibration has the potential to damage buildings. Although it is very rare for typical construction activities to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile driving to cause vibration of sufficient amplitudes to damage nearby buildings (FTA 2018).[2] Ground-borne vibration that may resulting in damage is usually measured in terms of peak particle velocity (PPV).

APPLICABLE NOISE STANDARDS

The applicable noise standards governing the project site include the criteria in the County's General Plan Health and Safety Element and the County of Fresno Municipal Code (FMC).

County of Fresno

General Plan Health and Safety Element

The Fresno County General Plan Health and Safety Element[2] includes noise policies to manage sources of noise and protect noise sensitive land uses. The General Plan provides the County's goals and policies related to noise. The County has identified the following goals and policies that are applicable to the project:

Goal HS-G: To protect residential and other noise-sensitive uses from exposure to harmful or annoying noise levels; to identify maximum acceptable noise levels compatible with various land use designations; and to develop a policy framework necessary to achieve and maintain a healthful noise environment.

- Policy HS-G.1 The County shall require that all proposed development incorporate design elements necessary to minimize adverse noise impacts on surrounding land uses.

- Policy HS-G.5 Where noise mitigation measures are required to achieve acceptable levels according to land use compatibility or the Noise Control Ordinance, the County shall place emphasis of such measures upon site planning and project design. These measures may include, but are not limited to, building orientation, setbacks, earthen berms, and building construction practices. The County shall consider the use of noise barriers, such as soundwalls, as a means of achieving the noise standards after other design-related noise mitigation measures have been evaluated or integrated into the project.

- Policy HS-G.6 The County shall regulate construction-related noise to reduce impacts on adjacent uses in accordance with the County's Noise Control Ordinance.

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[2] Fresno County. 2000. *General Plan*. October 3.

- Policy HS-G.7 Where existing noise-sensitive uses may be exposed to increased noise levels due to roadway improvement projects, the County shall apply the following criteria to determine the significance of the impact:

  a. Where existing noise levels are less than 60 dB L_{dn} at outdoor activity areas of noise-sensitive uses, a 5 dB Ldn increase in noise levels will be considered significant;

  b. Where existing noise levels are between 60 and 65 dB L_{dn} at outdoor activity areas of noise-sensitive uses, a 3 dB L_{dn} increase in noise levels will be considered significant; and

  c. Where existing noise levels are greater than 65 dB L_{dn} at outdoor activity areas of noise-sensitive uses, a 1.5 dB Ldn increase in noise levels will be considered significant.

- Policy HS-G.8 The County shall evaluate the compatibility of Proposed Projects with existing and future noise levels through a comparison to Chart HS-1, "Land Use Compatibility for Community Noise Environments."

County of Fresno Municipal Code

This project utilizes the County's noise control guidelines for determining and mitigating nontransportation or stationary noise source impacts from operations found in Section 8.40.040 of the FMC[3]. Table C summarizes the maximum acceptable noise levels**.** If existing measured ambient noise levels exceed the levels in Table C, then the limit becomes the existing ambient level. A penalty of 5 dBA shall be given to simple tone noise, noises consisting primarily of speech or music, or for recurring impulsive noises**.**

Section 8.40.060 exempts the following activities from the provisions of the County's municipal code:

A. Activities conducted in public parks, public playgrounds, and public or private school grounds, including but not limited to school athletic and school entertainment events;

B. Any mechanical device, apparatus or equipment used, related to or connected with emergency activities or emergency work;

C. Noise sources associated with construction, provided such activities do not take place before six a.m. or after nine p.m. on any day except Saturday or Sunday, or before seven a.m. or after five p.m. on Saturday or Sunday;

D. Noise sources associated with the maintenance of residential property provided such activities take place between the hours of six a.m. and nine p.m. on any day except Saturday or Sunday, or between the hours of seven a.m. and nine p.m. on Saturday or Sunday;

E. Noise sources associated with agricultural activities on agricultural property;

[3] Fresno County. 2023. *Municipal Code*. June 13.

F. Noise sources associated with a lawful commercial or industrial activity caused by mechanical devices or equipment, including air conditioning or refrigeration systems, installed prior to the effective date of this chapter; that this exemption shall expire on July 1, 1980;

G. Noise sources associated with work performed by private or public utilities in the maintenance or modification of its facilities;

H. Noise sources associate with the drilling or redrilling of petroleum, gas, injection or water wells;

I. Noise sources associated with the collection of waste or garbage from property devoted to commercial or industrial uses;

J. Any activity to the extent regulation thereof has been preempted by state or federal law.

Table C: Exterior Noise Level Standards

Category	Cumulative Number of Minutes in Any 1-Hour Period	Noise Level Standards, dBA	
		Daytime (7:00 a.m.–10:00 p.m.)	Nighttime (10:00 p.m.–7:00 a.m.)
1	30	50	45
2	15	55	50
3	5	60	55
4	1	65	60
5	0	70	65

Source: County of Fresno (2023).
dBA = A-weighted decibels

State of California Green Building Standards Code

The State of California's Green Building Standards Code (CALGreen) contains mandatory measures for nonresidential building construction in Section 5.507 on Environmental Comfort. These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when nonresidential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, or other noise source. If the development falls within an airport or freeway 65 dBA CNEL noise contour, buildings shall be constructed to provide an interior noise level environment attributable to exterior sources that does not exceed an hourly equivalent level of 50 dBA L_{eq} in occupied areas during any hour of operation.

Federal Transit Administration

Although the County does not have daytime construction noise level limits for activities that occur within the specified hours of Section 18-63(b)(7), to determine potential CEQA noise impacts, construction noise was assessed using criteria from the Federal Transit Administration's (FTA)

Transit Noise and Vibration Impact Assessment Manual (FTA 2018) (FTA Manual).[3] Table D shows the FTA's Detailed Assessment Construction Noise Criteria based on the composite noise levels per construction phase.

Table D: Detailed Assessment Daytime Construction Noise Criteria

Land Use	Daytime 1-hour L_{eq} (dBA)
Residential	80
Commercial	85
Industrial	90

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
dBA = A-weighted decibels
L_{eq} = equivalent continuous sound level

APPLICABLE VIBRATION STANDARDS

The following information provides standards to which potential vibration impacts will be compared.

Federal Transit Administration

Vibration standards included in the FTA Manual (2018) are used in this analysis for ground-borne vibration impacts on surrounding buildings.

The criteria for environmental impacts resulting from ground-borne vibration are based on the maximum levels for a single event. The County's Municipal Code does not include specific criteria for assessing vibration impacts associated with damage. Therefore, for the purpose of determining the significance of vibration impacts experienced at sensitive uses surrounding the project site, the guidelines within the FTA Manual have been used to determine vibration impacts (refer to Table E, below).

Table E: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
Reinforced concrete, steel, or timber (no plaster)	0.50
Engineered concrete and masonry (no plaster)	0.30
Non-engineered timber and masonry buildings	0.20
Buildings extremely susceptible to vibration damage	0.12

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
in/sec = inches per second PPV = peak particle velocity

The FTA Manual guidelines show that a vibration level of up to 0.2 inches per second (in/sec) in PPV is considered safe for non-engineered timber and masonry buildings, which are the types of

[3] Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual – FTA Report No. .0123.* September.

buildings located on properties adjacent to the project site. Accordingly, the 0.2 in/sec PPV threshold was used to evaluate vibration impacts at the nearest structures to the site.

THRESHOLDS OF SIGNIFICANCE

Based on *Guidelines for the Implementation of the California Environmental Quality Act* (CEQA), Appendix G, Public Resources Code, Sections 15000–15387, a project will normally have a significant effect on the environment related to noise if it will substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and the goals of the community in which it is located.

The *State CEQA Guidelines* indicate that a project would have a significant impact on noise if it would result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive ground-borne vibration or ground-borne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.

OVERVIEW OF THE EXISTING NOISE ENVIRONMENT

The primary existing noise sources in the project area are transportation facilities, including Annedale, Newcomb Avenue, and Panoche Road.

In order to assess the existing noise conditions in the area, four short-term noise measurements were conducted at the project site on July 27, 2023. The locations of the noise measurements are shown on Figure 3, and the results are summarized in Table F. Noise measurement data are provided in Attachment B of this analysis.

Table F: Existing Noise Level Measurements

Location Number	Location Description	Time	Average Noise Level (L_{eq})
ST-1	Northeast corner of project site by power pole, approximately 45 ft from Newcomb Avenue centerline.	5:49 p.m. – 5:59 p.m.	36.1
ST-2	Near northern boundary of project site, approximately 1,300 ft from Newcomb Avenue centerline.	6:05 p.m. – 6:16 p.m.	33.9
ST-3	Center of project site, approximately 1,300 ft from Newcomb Avenue centerline and 1,260 ft away from ST-2.	6:19 p.m. – 6:29 p.m.	34.9

Table F: Existing Noise Level Measurements

Location Number	Location Description	Time	Average Noise Level (L_{eq})
ST-4	Near western boundary of project site, by pump and palm tree, approximately 850 ft away from Annedale centerline.	6:47 p.m. – 6:57 p.m.	40.6

Source: Compiled by LSA (October 2023).
dBA = A-weighted decibel(s)
ft = foot/feet
L_{eq} = equivalent continuous sound level

AIRCRAFT NOISE

The project site is approximately 12.3 miles south of Firebaugh Airport. Because the project site is not located within the 65 dBA CNEL and 60 dBA CNEL noise contours, no further analysis associated with aircraft noise impacts is necessary. Additionally, there are no helipads or private airstrips within 2 miles from the project area.

Sensitive Land Uses in the Project Vicinity

Certain land uses are considered more sensitive to noise than others are. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The project site is mainly surrounded by active farmland. Land uses adjacent to the project site include the following:

- **Northeast:** Existing residential and agriculture-supporting uses.
- **Southeast:** Existing Pilibos Ranch.

The nearest sensitive receptors are:

- **Southeast:** Existing residential uses within the existing Pilibos Ranch, approximately 480 feet from the project site boundary.

PROJECT IMPACT ANALYSIS

The proposed project would result in short-term construction noise and vibration impacts and long-term mobile-source noise and vibration impacts as described below.

Short-Term Construction-Related Impact Analysis

Project construction would result in short-term noise and vibration. Maximum construction noise would be short-term, generally intermittent depending on the construction phase, and variable depending on receiver distance from the active construction zone. The duration of various types of construction noise and vibration would vary from 1 day to several weeks, depending on the phase of construction. The levels and types of impacts that may occur during construction are described below.

Construction Noise Analysis

Two types of short-term noise would occur during project construction, including: (1) equipment delivery and construction worker commutes; and (2) project construction operations.

The first type of short-term construction noise would result from the transport of construction equipment and materials to the project site and construction worker commutes. These transportation activities would incrementally raise noise levels on access roads leading to the site. It is expected that larger trucks used in equipment delivery would generate higher noise impacts than trucks associated with worker commutes. Although there would be a relatively high single-event noise-exposure potential causing intermittent noise nuisance (passing trucks at 50 ft would generate up to 84 dBA L_{max}), the effect on longer-term ambient noise levels would be small when compared to existing daily traffic volumes on Panoche Road. The results of the California Emissions Estimator Model (CalEEMod) for the proposed project indicate that during the grading phase, an additional 159 vehicles, consisting of worker and hauling trips, would be added to the roadway adjacent to the project site. Because the existing traffic volume on Panoche Road is more than 159, construction-related vehicle trips would not approach existing daily traffic volumes and traffic noise would not increase by 3 dBA CNEL. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, short-term construction-related impacts associated with worker commute and equipment transport to the project site would be less than significant.

The second type of short-term noise impact is related to noise generated during site preparation, grading, building construction, architectural coating, and paving on the project site. Construction is undertaken in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the project site. Therefore, the noise levels would vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table G lists the maximum noise levels recommended for noise impact assessments for typical construction equipment based on a distance of 50 ft between the construction equipment and a noise receptor. Typical operating cycles for these types of construction equipment may involve 1–2 minutes of full-power operation followed by 3–4 minutes at lower power settings.

Table G: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Maximum Noise Level (L_{max}) at 50 ft
Compressor	100	81
Concrete Mixer	40	85
Concrete Pump	40	85
Crane	16	83
Dozer	40	80
Forklift	20	75
Front [End] Loader	40	79
Generator	100	78
Grader	8	85
Scraper	40	88
Welder	40	74

Sources: *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances* (USEPA 1971); Roadway Construction Noise Model (FHWA 2006).
ft = foot/feet
L_{max} = maximum instantaneous sound level

In addition to the reference maximum noise level, the usage factor provided in Table G is utilized to calculate the hourly noise level impact for each piece of equipment based on the following equation:

$$L_{eq}(equip) = E.L. + 10\log(U.F.) - 20\log\left(\frac{D}{50}\right)$$

where: *L_{eq} (equip)* = L_{eq} at a receiver resulting from the operation of a single piece of equipment over a specified time period

E.L. = Noise emission level of the particular piece of equipment at a reference distance of 50 ft

U.F. = Usage factor that accounts for the fraction of time that the equipment is in use over the specified period of time

D = Distance from the receiver to the piece of equipment

Each piece of construction equipment operates as an individual point source. Utilizing the following equation, a composite noise level can be calculated when multiple sources of noise operate simultaneously:

$$Leq\ (composite) = 10 * \log_{10}\left(\sum_{1}^{n} 10^{\frac{Ln}{10}}\right)$$

Table H shows the composite noise levels of one piece of equipment type for each construction phase at a distance of 50 ft from the construction area. Once composite noise levels are calculated, reference noise levels can then be adjusted for distance using the following equation:

$$Leq\ (at\ distance\ X) = Leq\ (at\ 50\ feet) - 20 * \log_{10}\left(\frac{X}{50}\right)$$

In general, this equation shows that doubling the distance would decrease noise levels by 6 dBA, while halving the distance would increase noise levels by 6 dBA.

Table H: Construction Noise Levels by Phase

Phase	Duration (days)	Equipment	Composite Noise Level at 50 ft (dBA L_{eq})	Distance to Sensitive Receptor (ft)[1]	Noise Level at Receptor (dBA L_{eq})
Site Preparation	50	3 dozers and 4 tractors	88	2,000	56
Grading	70	1 grader, 2 scrapers, 1 dozer, 3 tractors, and 1 excavator	89	2,000	57
Building Construction	740	1 crane, 3 forklifts, 1 generator set, 3 tractors, and 1 welder	86	2,000	54
Paving	50	2 pavers, 2 paving equipment, and 2 rollers	86	2,000	54
Architectural Coating	50	1 air compressor	74	2,000	42

Source: Compiled by LSA (2023).

[1] Distances are from the average location of construction activity for each phase, assumed to be the center of the project site. Residential uses to the north are 30 feet from the edge of construction activity.

dBA L_{eq} = average A-weighted hourly noise level

ft = foot/feet

As presented above, Table H shows the construction phases, the expected duration of each phase, the equipment expected to be used during each phase, the composite noise levels of the equipment at 50 ft, the distance of the nearest sensitive receptor from the average location of construction activities (a distance of 2,000 ft from the center of the project site), and noise levels expected during each phase of construction. These noise level projections do not take into account intervening topography or barriers. Attachment C provides construction noise calculations.

It is expected that average noise levels during construction at the nearest sensitive receptor, the residential uses to the southeast, would approach 57 dBA L_{eq} during the grading phase, which would occur for a duration of approximately 70 days. Average noise levels during other construction phases would range from 42 dBA L_{eq} to 56 dBA L_{eq}. Noise levels at the nearest off-site commercial uses to the northeast would reach an average noise level of 55 dBA L_{eq} during the daytime hours. These predicted noise levels would only occur when all construction equipment is operating simultaneously; therefore, these noise levels are assumed to be conservative in nature.

Although the project construction-related short-term noise levels have the potential to be higher than the ambient noise in the project vicinity, construction noise would cease to occur once the project construction is completed. Furthermore, the construction-related noise levels would be below the 80 dBA L_{eq} and 85 dBA L_{eq} criteria established by FTA for residential and commercial uses, respectively. The project would be constructed in compliance with the requirements of the County's Noise Ordinance, which states that construction activities shall only occur between the hours of 6:00 a.m. and 9:00 p.m. on weekdays and between 7:00 a.m. and 5 p.m. on Saturdays and Sundays.

With incorporation of best business practices for noise reduction, the overall noise levels generated will be minimized, and construction noise impacts would be less than significant. No mitigation is required.

Construction Vibration Building Damage Potential

Ground-borne noise and vibration from construction activity would be low. Table I provides reference PPV values and vibration levels (in terms of VdB) from typical construction vibration sources at 25 ft. While there is currently limited information regarding vibration source levels specific to the equipment that would be used for the project, to provide a comparison of vibration levels expected for a project of this size, a large bulldozer would generate 0.089 PPV (in/sec) of ground-borne vibration when measured at 25 ft, based on the FTA Manual. As shown previously in Table E, it would take a minimum of 0.2 PPV (in/sec) to cause any potential building damage to non-engineered timber and masonry buildings.

Table I: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L_V at 25 ft	
	PPV (in/sec)	L_V (VdB)[1]
Hoe Ram	0.089	87
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
[1] RMS VdB re 1 µin/sec.

µin/sec = micro-inches per second
ft = foot/feet
FTA = Federal Transit Administration
in/sec = inches per second
L_V = velocity in decibels
PPV = peak particle velocity
RMS = root-mean-square
VdB = vibration velocity in decibels

The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project construction boundary (assuming the construction equipment would only be used at or near the project setback line). The formula for vibration transmission is provided below:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

The closest structures to the external construction activities are the residential uses to the southeast, which are within approximately 480 ft from the project's southeastern construction boundary. Using the reference data from Table I and the equation above, vibration levels are expected to approach 0.001 PPV in/sec at the nearest surrounding structures and would not exceed the 0.2 PPV in/sec damage threshold considered safe for non-engineered timber and masonry buildings. Vibration levels at all other buildings would be lower. Therefore, construction would not result in any vibration damage, and impacts would be less than significant.

Long-Term Off-Site Traffic Noise Impact Analysis

The guidelines included in the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77 108) were used to evaluate highway traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry, to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values. Table J provides the traffic noise levels for the opening year with and without project scenarios. These noise levels represent the worst-case scenario, which assumes no shielding is provided between the traffic and the location where the noise contours are drawn.

The without and with project scenario traffic volumes were obtained from the *Traffic Impact Study for the S. Stamoules, Inc. Pistachio Processing Facility Project*. Attachment D provides the specific assumptions used in developing these noise levels and model printouts. Table J shows that the increase in project-related traffic noise would be no greater than 2.0 dBA. Noise level increases less than 3.0 dBA are not perceptible to the human ear. Therefore, traffic noise impacts from project-related traffic on off-site sensitive receptors would be less than significant and no mitigation measures are required.

Long-Term Operational Noise Impact Analysis

Adjacent off-site land uses would be potentially exposed to stationary-source noise impacts from the proposed operations activities. The harvest season is 45 days long and which time the machinery would be running at least 18 hours a day for a total of 810 hours. The process building will be a steal structure inside frame designed and 8-inch thick Insulated Metal Panels (IMP) for exterior walls and 6-inch interior walls. IMP walls are Thermal-Loc Mode SL-100 insulated panels with 1.25# expanded polystyrene core. The Sound Transmission Coefficient (STC) is estimated to be between 26 to 30.

To determine the future noise impacts from project operations to the noise sensitive uses, a 3-D noise model, SoundPLAN, was used to incorporate the site topography as well as the shielding from the proposed processing building. Any equipment located within the processing building or within an enclosure is not expected to contribute to overall noise levels. The model incorporates the following stationary sources which are located outdoors:

- Three (3) Forsburgs Gravity Decks, assumed to operate 24 hours per day and could generate sound power levels (SPL) of up to 99.9 dBA SPL based on data provided in the SoundPLAN emission library for a 50 HP electric motor.

- Ten (10) Sukup Dryers and ten (10) future Sukup Dryers, assumed to operate 24 hours per day and could generate up to 99.9 dBA SPL based on data provided in the SoundPLAN emission library for a 50 HP electric motor.

- Five (5) Delivery trucks would arrive on site for loading and unloading activities. During this process, noise levels are associated with the truck engine noise, air brakes, and back-up alarms. These noise levels would occur for a shorter period of time (less than 5 minutes), which generate a noise level of 76.3 dBA L_8 at 20 ft based on measurements taken by LSA[4].

Based on the SoundPLAN results presented in Attachment E, Noise levels generated at the closest sensitive uses to the southeast will not exceed the County's daytime and nighttime noise standards of 50 dBA L_{eq} and 45 dBA L_{eq}. Therefore, the impact would be less than significant, and no noise reduction measures are required.

[4] LSA Associates, Inc. (LSA). 2016. Operational Noise Impact Analysis for Richmond Wholesale Meat Distribution Center. May.

Table J: Traffic Noise Levels Without and With Proposed Project—Cumulative

Roadway	Roadway Segment	Direction	Cumulative – Without Project		Cumulative – With Project		
			ADT	CNEL (dBA) 50 ft from Centerline of Nearest Lane	ADT	CNEL (dBA) 50 ft from Centerline of Nearest Lane	Increase from Existing Conditions (dBA)
Panoche Road	North of Project Driveway	Northbound	1,100	54.8	1,270	55.4	0.6
		Southbound	240	48.2	380	50.2	2.0
	South of Project Driveway	Northbound	1,100	54.8	1,190	55.1	0.3
		Southbound	240	48.2	350	49.8	1.6

Source: Compiled by LSA (October 2023).
ADT = average daily traffic
CNEL= Community Noise Equivalent Level
dBA = A-weighted decibels
ft = foot/feet

Long-Term Ground-Borne Noise and Vibration from Vehicular Traffic

The proposed project would not generate vibration levels related to on-site operations. In addition, vibration levels generated from project-related traffic on the adjacent roadways are unusual for on-road vehicles because the rubber tires and suspension systems of on-road vehicles provide vibration isolation. Based on a reference vibration level of 0.076 in/sec PPV, structures more than 20 ft from the roadways that contain project trips would experience vibration levels below the most conservative standard of 0.12 in/sec PPV; therefore, vibration levels generated from project-related traffic on the adjacent roadways would be less than significant, and no mitigation measures are required.

Attachments:
- A: Figures
- B: Noise Measurement Data
- C: Construction Noise Calculations
- D: FHWA Traffic Noise Model Printout
- E: SoundPLAN Noise Model Printout

ATTACHMENT A

FIGURES

FIGURE 1

SOURCE: Esri World Street Map.

S. Stamoules, Inc. Pistachio Processing Facility Project
Fresno County, California

Regional and Local Location

I:\OPA2101-PTR\GIS\Maps\Project Description\Figure 3-1_Regional and Local Location.mxd (10/3/2023)

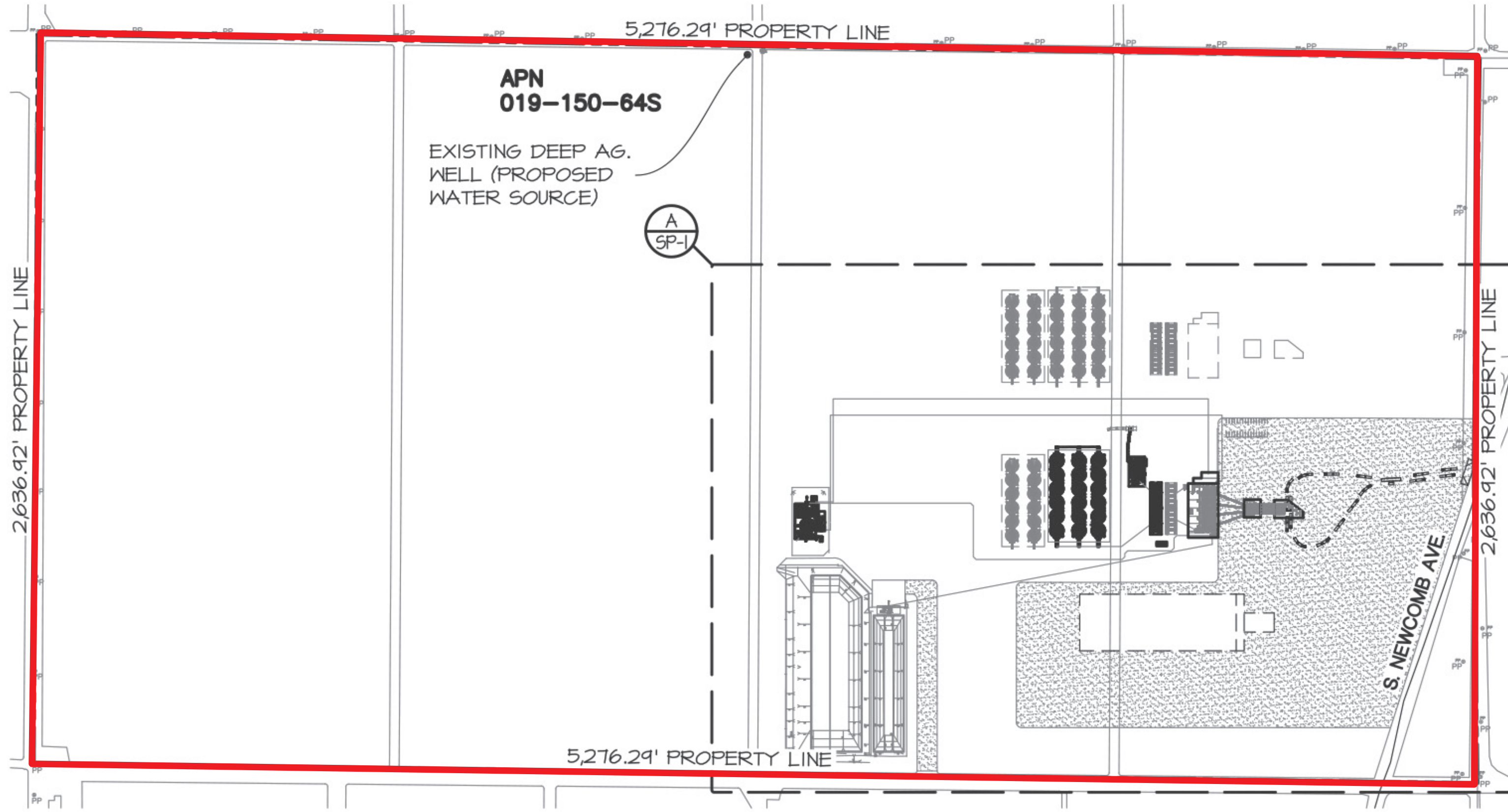


FIGURE 2

Project Site Boundary

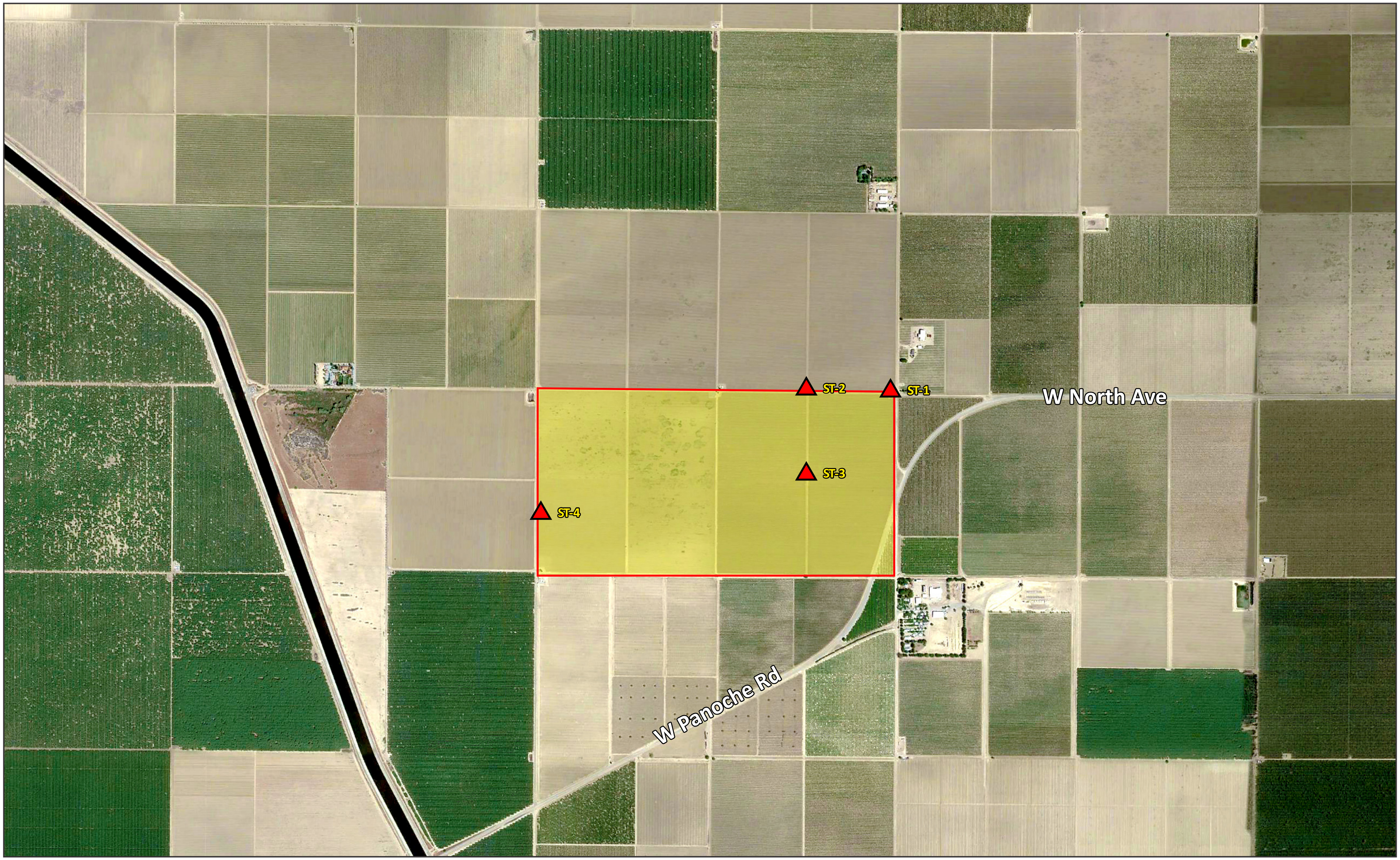
NOT TO SCALE

SOURCE: Engel & Company, 2020

S. Stamoules, Inc. Pistachio Processing Facility Project

Project Site Plan

FREProjects:\CFF2201 OPA Pistachio\PRODUCTS\Project Description\Figures\Figure 3-3.ai (10/3/2023)



LSA

LEGEND

Project Site Boundary

ST-1 Short-term Noise Monitoring Location

0 1250 2500

FEET

SOURCE: Google Earth 2023

FIGURE 3

S. Stamoules, Inc. Pistachio Processing

Noise Monitoring Locations

I:\CFF2201\G\Noise_Locs.ai (10/3/2023)

ATTACHMENT B

NOISE MEASUREMENT DATA

Noise Measurement Survey

Project Number: CFF2201
Test Personnel: Moe Abushanab
Project Name: Stamoules Inc
Equipment: Larson Davis LxT

Site Number: ST-1 Date: 7/27/23 Time: From 5:49 p.m. To 5:59 p.m.

Site Location: Located northeast corner of project site by power pole, approximately 45 feet from Newcomb Avenue centerline.

Primary Noise Sources: Constant pump noise from property across
Faint vehicle traffic noise

Measurement Results:

	dBA
L_{eq}	36.1
L_{max}	43.1
L_{min}	33.9
L_{peak}	98.0
L_2	39.2
L_8	37.5
L_{25}	36.6
L_{50}	35.7
SEL	

Atmospheric Conditions:

Maximum Wind Velocity (mph)	13.1
Average Wind Velocity (mph)	6.4
Temperature (F)	96.5
Relative Humidity (%)	21.0
Comments:	

Comments: Windy conditions

Traffic Description:

Roadway	# Lanes	Speeds	NB/EB Counts			SB/WB Counts		
			Auto	MT	HT	Auto	MT	HT

Location Photo:

Noise Measurement Survey

Project Number: CFF2201
Test Personnel: Moe Abushanab
Project Name: Stamoules Inc
Equipment: Larson Davis LxT

Site Number: ST-2 Date: 7/27/23 Time: From 6:05 p.m. To 6:16 p.m.

Site Location: Located near northern boundary of project site, approximately 1,300 feet from Newcomb Avenue centerline.

Primary Noise Sources: Faint vehicle traffic noise

Measurement Results:

	dBA
L_{eq}	33.9
L_{max}	45.5
L_{min}	25.3
L_{peak}	100.9
L_2	40.3
L_8	37.6
L_{25}	34.5
L_{50}	32.1
SEL	

Atmospheric Conditions:

Maximum Wind Velocity (mph)	13.1
Average Wind Velocity (mph)	6.4
Temperature (F)	96.5
Relative Humidity (%)	21.0
Comments:	

Comments: Windy conditions

Traffic Description:

Roadway	# Lanes	Speeds	NB/EB Counts			SB/WB Counts		
			Auto	MT	HT	Auto	MT	HT

Location Photo:

Noise Measurement Survey

Project Number: CFF2201
Project Name: Stamoules Inc

Test Personnel: Moe Abushanab
Equipment: Larson Davis LxT

Site Number: ST-3 Date: 7/27/23

Time: From 6:19 p.m. To 6:29 p.m.

Site Location: Located center of project site, approximately 1,300 feet from Newcomb Avenue centerline and 1,260 feet away from ST-2

Primary Noise Sources: Faint vehicle traffic noise on Panoche Road.

Measurement Results:

	dBA
L_{eq}	34.9
L_{max}	44.3
L_{min}	25.7
L_{peak}	103.3
L_2	41.0
L_8	38.7
L_{25}	35.4
L_{50}	33.4
SEL	

Atmospheric Conditions:

Maximum Wind Velocity (mph)	13.1
Average Wind Velocity (mph)	6.4
Temperature (F)	96.5
Relative Humidity (%)	21.0
Comments:	

Comments: Windy conditions

Traffic Description:

Roadway	# Lanes	Speeds	NB/EB Counts			SB/WB Counts		
			Auto	MT	HT	Auto	MT	HT

Location Photo:

Noise Measurement Survey

Project Number: CFF2201
Project Name: Stamoules Inc

Test Personnel: Moe Abushanab
Equipment: Larson Davis LxT

Site Number: ST-4 Date: 7/27/23 Time: From 6:47 p.m. To 6:57 p.m.

Site Location: Located near western boundary of project site, by pump and palm tree, approximately 850 feet away from Annedale centerline.

Primary Noise Sources: Faint vehicle traffic noise

Measurement Results:

	dBA
L_{eq}	40.6
L_{max}	45.4
L_{min}	33.5
L_{peak}	104.4
L_2	44.1
L_8	43.0
L_{25}	41.7
L_{50}	40.3
SEL	

Atmospheric Conditions:

Maximum Wind Velocity (mph)	13.1
Average Wind Velocity (mph)	6.4
Temperature (F)	96.5
Relative Humidity (%)	21.0
Comments:	

Comments: Windy conditions

Traffic Description:

Roadway	# Lanes	Speeds	NB/EB Counts			SB/WB Counts		
			Auto	MT	HT	Auto	MT	HT

Location Photo:

ATTACHMENT C

CONSTRUCTION NOISE CALCULATIONS

Construction Calculations

Phase: Site Preparation

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Tractor	4	84	40	50	0.5	84	86
Dozer	3	82	40	50	0.5	82	83
					Combined at 50 feet	**86**	**88**
					Combined at Receptor 2000 feet	**54**	**56**

Phase: Grading

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Grader	1	85	40	50	0.5	85	81
Scraper	2	84	40	50	0.5	84	83
Dozer	1	82	40	50	0.5	82	78
Tractor	3	84	40	50	0.5	84	85
Excavator	1	81	40	50	0.5	81	77
					Combined at 50 feet	**90**	**89**
					Combined at Receptor 2000 feet	**58**	**57**
					Combined at Receptor 2400 feet	**57**	**55**

Phase:Building Construction

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Crane	1	81	16	50	0.5	81	73
Man Lift	3	75	20	50	0.5	75	73
Generator	1	81	50	50	0.5	81	78
Tractor	3	84	40	50	0.5	84	85
Welder / Torch	1	74	40	50	0.5	74	70
					Combined at 50 feet	**87**	**86**
					Combined at Receptor 2000 feet	**55**	**54**

Phase:Paving

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Paver	2	77	50	50	0.5	77	77
All Other Equipment > 5 HP	2	85	50	50	0.5	85	85
Roller	2	80	20	50	0.5	80	76
					Combined at 50 feet	**87**	**86**
					Combined at Receptor 2000 feet	**55**	**54**

Phase:Architectural Coating

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Compressor (air)	1	78	40	50	0.5	78	74
					Combined at 50 feet	**78**	**74**
					Combined at Receptor 2000 feet	**46**	**42**

Sources: RCNM

[1]- Percentage of time that a piece of equipment is operating at full power.
dBA – A-weighted Decibels
Lmax- Maximum Level
Leq- Equivalent Level

ATTACHMENT D

FHWA TRAFFIC NOISE MODEL PRINTOUT

TABLE Cumulative - Without Project-01

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/04/2023
ROADWAY SEGMENT: North of Project Driveway - Northbound
NOTES: S. Stamoules, Inc. Pistachio Processing Project - Cumulative - Without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1100   SPEED (MPH): 40   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 20   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	68.1

TABLE Cumulative - Without Project-02

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/04/2023
ROADWAY SEGMENT: North of Project Driveway - Southbound
NOTES: S. Stamoules, Inc. Pistachio Processing Project - Cumulative - Without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 240   SPEED (MPH): 40   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 20   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 48.19

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	0.0

TABLE Cumulative - Without Project-03

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/04/2023
ROADWAY SEGMENT: South of Project Driveway - Northbound
NOTES: S. Stamoules, Inc. Pistachio Processing Project - Cumulative - Without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 20 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	68.1

TABLE Cumulative - Without Project-04

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/04/2023
ROADWAY SEGMENT: South of Project Driveway - Southbound
NOTES: S. Stamoules, Inc. Pistachio Processing Project - Cumulative - Without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 240   SPEED (MPH): 40   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 20   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 48.19

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	0.0

TABLE Cumilative - With Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/04/2023
ROADWAY SEGMENT: North of Project Driveway - Northbound
NOTES: S. Stamoules, Inc. Pistachio Processing Project - Cumilative - With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1270   SPEED (MPH): 40   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 20   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.43

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	74.4

TABLE Cumilative - With Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/04/2023
ROADWAY SEGMENT: North of Project Driveway - Southbound
NOTES: S. Stamoules, Inc. Pistachio Processing Project - Cumilative - With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 380   SPEED (MPH): 40   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 20   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 50.19

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	0.0

TABLE Cumilative - With Project-03

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/04/2023
ROADWAY SEGMENT: South of Project Driveway - Northbound
NOTES: S. Stamoules, Inc. Pistachio Processing Project - Cumilative - With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1190   SPEED (MPH): 40   GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS			
	75.51	12.57	9.34
M-TRUCKS			
	1.56	0.09	0.19
H-TRUCKS			
	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 20   SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	71.4

TABLE Cumilative - With Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/04/2023
ROADWAY SEGMENT: South of Project Driveway - Southbound
NOTES: S. Stamoules, Inc. Pistachio Processing Project - Cumilative - With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 350 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 20 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 49.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	0.0

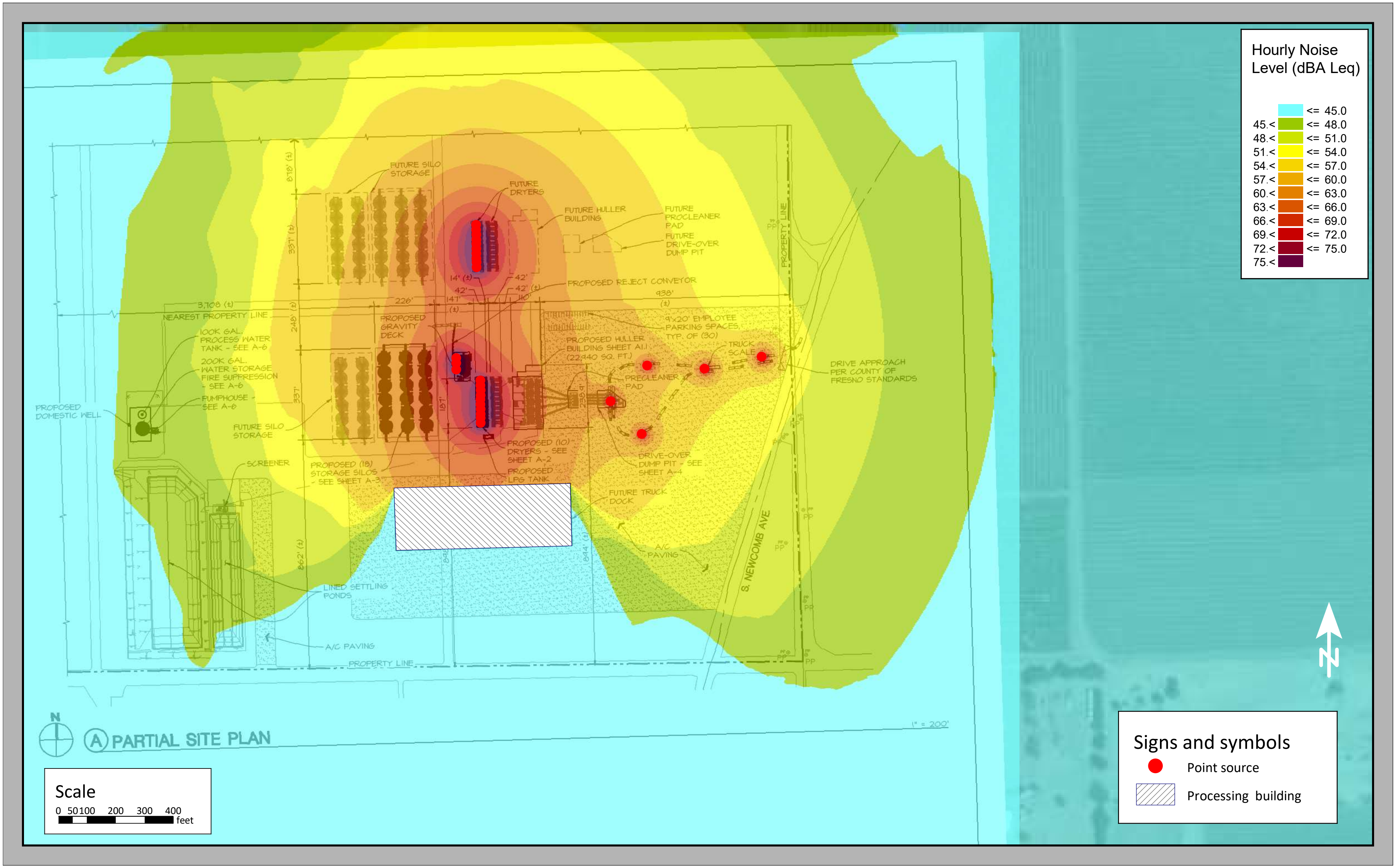
ATTACHMENT D

SOUNDPLAN NOISE MODEL PRINTOUT

S. Stamoules, Inc. Pistachio Processing

Project No. CFF2201

Project Operational Noise Levels



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APPENDIX J

TRAFFIC IMPACT STUDY

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TRAFFIC IMPACT STUDY

S. STAMOULES, INC. PISTACHIO PROCESSING FACILITY PROJECT

FRESNO COUNTY, CALIFORNIA

LSA

August 2023

TRAFFIC IMPACT STUDY

S. STAMOULES, INC. PISTACHIO PROCESSING FACILITY PROJECT

FRESNO COUNTY, CALIFORNIA

Prepared for:

County of Fresno
2220 Tulare Street, 6th Floor
Fresno, California 93721

Prepared by:

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Project No. CFF2201

LSA

August 2023

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LIST OF ABBREVIATIONS AND ACRONYMS

ABM	Activity-Based Model
AWSC	All-Way Stop Control
CA-MUTCD	California – Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
COG	(Fresno) Council of Governments
County	County of Fresno
CSTDM	California Statewide Travel Demand Model
HCM	*Highway Capacity Manual*
HCM 6	*Highway Capacity Manual 6th Edition*
HDM	(Caltrans) *Highway Design Manual*
ITE	Institute of Transportation Engineers
LOS	Level of Service
mph	Miles Per Hour
MPO	Metropolitan Planning Area
NCHRP	National Cooperative Highway Research Program
OPR	Office of Planning and Research
SB 743	Senate Bill 743
TIS	Transportation Impact Study
TWSC	Two-Way Stop Control
v/c	Volume to Capacity
VMT	Vehicle Miles Traveled

1.0 INTRODUCTION

The Traffic Impact Study (TIS) has been prepared to assess the potential circulation impacts associated with the proposed S. Stamoules, Inc. Pistachio Processing Facility (project) in western Fresno County (County), located approximately 8 miles southwest of the City of Mendota and 35 miles southeast of the City of Fresno. The project site is bounded by agricultural lands, Annedale, and West Panoche Road to the South, West Panoche Road and agricultural lands to the east, and farm fields to the north and to the west. The project site is currently vacant. Figure 1-1 illustrates the regional and project location. (Figures and tables are provided at the end of each chapter.)

While Level of Service (LOS) analysis is no longer a determinant of California Environmental Quality Act (CEQA) impacts, consistency with the County's General Plan goals and policies is still required. Therefore, this TIS includes a detailed LOS study, prepared in accordance with the recommended methodology included in the *Draft Guidelines for the Preparation of Traffic Impact Studies within the County of Fresno* (TIS Guidelines), dated May 2018. Additionally, pursuant to CEQA, a VMT analysis was conducted for the project using the recommended methodologies included in *Fresno County SB 743 Implementation Regional Guidelines,* dated January 2021 (VMT Guidelines).

The scope of work for this TIS, including trip generation, trip distribution, study area, and analysis methodologies, has been approved by County staff via the Scoping Agreement process. A copy of the Scoping Agreement is included as Appendix A.

This study examines traffic operations in the vicinity of the proposed project under the following six scenarios:

- Existing conditions;
- Existing plus Project conditions;
- Near-term Without Project conditions;
- Near-term Plus Project conditions;
- Cumulative Without Project conditions; and
- Cumulative Plus Project conditions.

Traffic conditions at study intersections and roadway segments were examined for weekday a.m. and p.m. peak-hour conditions. Within the TIS Guidelines, the a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and 9:00 a.m. The p.m. peak hour is the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m. However, based on the observed traffic counts along the project frontage, the a.m. peak hour occurs between 4:30 a.m. to 5:30 a.m., while the p.m. peak hour is from 1:30 p.m. to 2:30 p.m. Therefore, as a conservative estimate, for both a.m. and p.m. peak hours, these peak hour counts were utilized as a conservative approach.

1.1 PROJECT DESCRIPTION

The proposed project will include a pistachio hulling, processing, and packing facility that can process pistachio crops from the surrounding pistachio orchards. Trucks carrying pistachios from the project applicant's orchards will deposit their load on a conveyor belt system that will transport the pistachios through different sections of the proposed facility that include a huller building, a gas-powered dryer area, a drive-over dump pit area, and an area with storage silos. The project will be implemented in four phases and each phase will include the construction and addition of buildings, working areas, and equipment. The different phases of the project are as follows:

- Phase I will be completed by 2023 and will include construction of an approximately 5,608 square foot (sf) drive-over dumping pit area, 3,900 sf pre-cleaning area, and an approximately 22,940 sf huller building. Ten 8 by 29 feet (ft) dryers and eighteen 52 by 52 ft galvanized steel silos, each of 2,200,000-pound capacity, will be added to the project site west of the proposed huller building.
- Phase II will be completed between 2025 and 2026 and will include the construction of an approximately 155,169 sf processing building.
- Phase III will be completed between 2027 and 2028 and will include the installation of the processing equipment inside the processing building constructed during Phase II. Additionally, ten dryers and twelve silos with the same dimensions and style of those constructed during Phase I will be added adjacent to the existing dryers and storage silos in the project site.
- Phase IV will be completed between 2029 and 2030 and will include the construction of a second huller building, a second drive-over dumping pit area, and an additional pre-cleaning area with the same dimensions as the facilities constructed during Phase I. Additionally, twenty dryers and thirty silos with the same dimensions and style of those constructed during Phase I will be added to the north of the existing dryer and storage silo areas of the project site.

For purpose of this TIS, the entire build-out condition of the project has been considered. As such, since the project is estimated to be completed by the year 2030, year 2030 was considered as the near-term conditions.

Access to the site will be provided via a full-access driveway on Panoche Road. Tractors and field trucks will access the site from the surrounding orchards mostly via unpaved farm roads. For purposes of this analysis, it has been assumed that these tractors and field trucks will enter the project site using the full-access driveway on Panoche Road. Figure 1-2 illustrates the conceptual site plan for the project.

During peak pistachio harvest season, from September to Mid-November, the Huller portion of the facility will be operational from 6:00 a.m. to 11:00 p.m., or for 17 hours each day, for 6 to 7 days a week. Once complete, the processing building will be operational from 7.30 a.m. to 4.30 p.m. for five days a week. The Processing Building will run throughout the year except during the harvest season. During this period, additional manpower will be required for the harvest process and there will be very little product available for processing. Therefore, some employees will shift from working in the Processing Building to working in the Huller during the harvest season.

1.2 STUDY AREA

Based on the County's TIS Guidelines, any intersection where the project is projected to add 10 or more peak hour trips should be included in the TIS. As per information provided by the applicant, during peak harvest season, there will not be any trucks carrying processed pistachio products to retail and wholesale markets. Therefore, apart from employees and services vehicles, which include a total of less than 10 peak hour trips, the remaining project traffic will be for pistachio raw material hauling and dry waste hauling trucks. These trucks will be stored at a cold storage facility on 904 South Lyons Avenue and will be carrying the pistachio from the orchards in the vicinity of the project site. As such, there are no major intersections between the project site and the cold storage site. Study intersections and roadway segments considered for the analysis were finalized during the TIS scoping agreement process and based on the discussion with County staff.

1.2.1 Study Intersections

Based on the County Guidelines, the study area shall generally include, at a minimum, any intersection where the proposed project will add 10 or more peak hour trips. However, as previously mentioned in the project's operations, the intersection analyzed in this study is as follows:

1. Panoche Road/ Project Driveway (Fresno County).

Figure 1-3 illustrates the study area intersection.

1.2.2 Roadway Segments

As per the County's TIS Guidelines, any roadway segment where the project is adding 100 or more daily trips (both directions combined) should be included in the TIS. Per the Scoping Agreement (Appendix A), roadway segments analyzed in this study are as follows:

Panoche Road

1. North of Project Driveway (Fresno County); and
2. South of Project Driveway (Fresno County).

For each roadway segment, the highest volume on any part of the segment will be considered as the analysis volume for the entire segment.

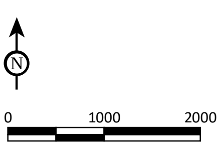
The study intersections and roadway segments included in this analysis were approved by the County during the scoping agreement process.

1.3 LIST OF CHAPTER 1.0 FIGURES

- Figure 1-1: Regional and Project Location
- Figure 1-2: Conceptual Site Plan
- Figure 1-3: Study Area Intersections

LSA

FIGURE 1-1



S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Regional and Project Location

SOURCE: ESRI Streetmap, 2021; Google Earth, 2020.

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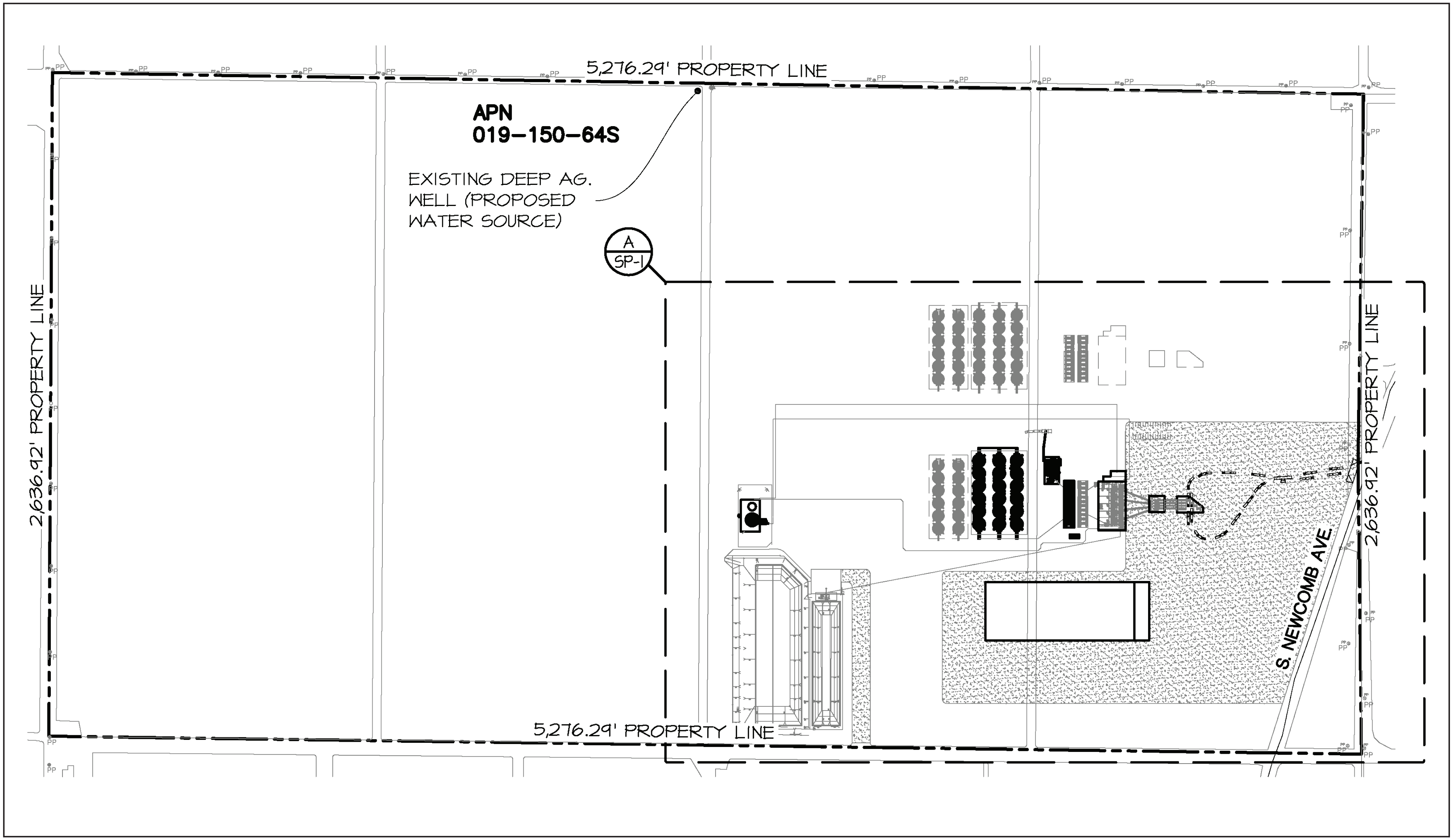
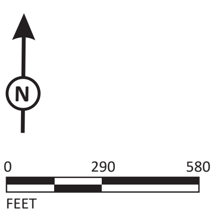


LSA

FIGURE 1-2



S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Conceptual Site Plan

SOURCE: Engel & Company, September 2020.

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LSA

LEGEND

Project Site

Study Intersection

Project Driveway

FIGURE 1-3

N

0 1000 2000

FEET

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Study Area Intersections

SOURCE: ESRI Streetmap, 2021.

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2.0 ANALYSIS METHODOLOGY

2.1 LEVEL OF SERVICE DEFINITIONS

LOS can be characterized for the whole intersection, each intersection approach, and by each lane group. Control delay alone is used to characterize LOS for the entire intersection. Control delay quantifies the increase in travel time due to the traffic signal control and is a surrogate measure of driver discomfort and fuel consumption.

A complete description of the meaning of LOS can be found in the Transportation Research Board Special Report 209, *Highway Capacity Manual* (HCM). The HCM establishes LOS A through F for intersections. A description of LOS for signalized and unsignalized intersections is summarized in Table 2-A. A description of LOS for roadway segments is summarized in Table 2-B.

Table 2-C shows the LOS criteria for unsignalized and signalized intersections. For all study area intersections, the *Highway Capacity Manual 6th Edition* (HCM 6) analysis methodologies were used to determine intersection LOS. Intersection LOS was calculated using the Synchro 11 software, which uses the HCM 6 methodologies.

The TIS Guidelines recommend using Florida LOS tables for roadway segment analysis. Table 2-D summarizes the LOS criteria used to evaluate roadway segments based on the Florida LOS Tables for rural undeveloped areas and developed areas less than 5,000 population, which was adapted from Table 9 of the *2020 Quality/Level of Service Handbook*, dated June 2020. The directional peak-hour traffic volumes at roadway segments represent the total vehicles (along one direction) traveling on the segment during the a.m. and p.m. peak hour.

2.2 LEVEL OF SERVICE PROCEDURES AND STANDARDS

Study intersections and roadway segments analyzed in this report are completely under the jurisdiction of Fresno County.

Per the County of Fresno *Draft Guidelines for the Preparation of Traffic Impact Studies within the County of Fresno*, dated May 2018, LOS D is considered as the level of service standard for all intersections and roadway segments under all analysis scenarios within the sphere of influence of the Cities of Fresno and Clovis. The level of service standard on all other roadways in the County is LOS C. None of the study intersections and roadway segments are located within the spheres of influence of the Cities of Fresno and Clovis. Therefore, for the study area, LOS C have been considered as the applicable LOS standard. The County considers the following operational deficiency criteria for study intersections and roadway segments:

- **Signalized Intersections**
    a) If the project causes an intersection that is operating at an acceptable LOS to deteriorate to an unacceptable LOS; OR
    b) If the project causes the average delay to increase by more than 5.0 seconds at a signalized intersection that is operating at an unacceptable LOS. It is to be noted that a decrease from

an unacceptable LOS to a lesser LOS (e.g., from LOS D to LOS E in County areas) is not considered a deficiency unless the corresponding delay increase is greater than 5.0 seconds.

- **Unsignalized Intersections**

  a) If the project causes a movement or approach that is operating at an acceptable LOS to deteriorate to an unacceptable LOS; OR

  b) If the project causes the average delay to increase by more than 5.0 seconds on a movement or approach that is operating at an unacceptable LOS. It is to be noted that a decrease from an unacceptable LOS to a lesser LOS (e.g., from LOS D to LOS E in County areas) is not considered a deficiency unless the corresponding delay increase is greater than 5.0 seconds.

- **Roadway Segments**

  a) If the project causes a roadway that is operating at an acceptable LOS to deteriorate to an unacceptable LOS; OR

  b) If the project causes the V/C ratio (on a directional peak hour basis) to increase by more than 0.05 on a roadway that is already operating at an unacceptable LOS. It is to be noted that a decrease from an unacceptable LOS to a lesser LOS (e.g., from LOS D to LOS E in County areas) is not considered a deficiency unless the corresponding V/C ratio increase is greater than 0.05.

2.3 LIST OF CHAPTER 2.0 TABLES

Table 2-A: Intersection Level of Service Definitions

LOS	Description
A	Traffic operations with a control delay of 10 seconds per vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable, or the cycle length is very short. If LOS A is the result of favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
B	Traffic operations with control delay between 10 seconds per vehicle and 20 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable, or the cycle length is short. More vehicles stop than with LOS A.
C	Traffic operations with control delay between 20 and 35 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable, or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of the insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
D	Traffic operations with control delay between 35 and 55 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective, or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
E	Traffic operations with control delay between 55 and 80 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
F	Traffic operations with control delay exceeding 80 seconds per vehicle or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: *Highway Capacity Manual* (6th Edition)

Table 2-B: Roadway Segment Level of Service Definitions

LOS	Description
A	Describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control Delay at the boundary intersection is minimal. The travel speed exceeds 80% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
B	Describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted, and control delay at the boundary is not significant. The travel speed is between 67% and 80% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
C	Describes stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersection may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
D	Indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40% and 50% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
E	Characterized by unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30% and 40% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.

Table 2-B: Roadway Segment Level of Service Definitions

F	Characterized by flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is between 30% or less of the base free-flow speed, and the volume-to-capacity ratio is greater than 1.0.

Source: *Highway Capacity Manual* (6th Edition)

Table 2-C: Level of Service Criteria for Unsignalized and Signalized Intersections

Level of Service	Unsignalized Intersection Average Delay per Vehicle (sec.)	Signalized Intersection Average Delay per Vehicle (sec.)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	> 50	> 80

Source: *Highway Capacity Manual* (6th Edition)

Table 2-D: Roadway Segment Capacity and Levels of Service

Uninterrupted Flow Highways – Rural Undeveloped					
		Level of Service			
Lanes	**Median**	**B**	**C**	**D**	**E**
1	Undivided	240	450	730	1,490
2	Divided	1,630	2,350	2,910	3,280
3	Divided	2,450	3,530	4,360	4,920

Source: State of Florida *2020 Quality/Level of Service Handbook, June 2020*.

3.0 CIRCULATION NETWORK SETTING

3.1 EXISTING CIRCULATION NETWORK

The project study area includes the following major roadways as classified based on the roadway classification provided in the Circulation Element of the County's General Plan. Figure 3-1 summarizes the classifications of major roadways within the study area. Following is a brief description of these roadways:

- **Panoche Road:** Within the study area, Panoche Road is designated as a Collector in the Fresno County General Plan. Panoche Road is mostly a two-lane, undivided roadway within the study area. There are no bike facilities or provision for designated on-street parking along either direction of this segment.

Figure 3-2 illustrates study intersection geometrics and traffic control under 'plus project' scenarios.

3.2 BICYCLE, PEDESTRIAN, AND TRANSIT FACILITIES

3.2.1 Bicycle Network

The County of Fresno is committed to improving non-motorized travel. To facilitate and encourage bicycle trips among other non-motorized modes of travel, the County has adopted the Fresno County Regional Bicycle & Recreational Trails Master Plan (Plan) in September 2013 that includes a network of proposed facilities and implementation plan for the future.

According to the Plan, the bikeway network within the County is classified into three categories: Class I, Class II, and Class III. Class I bikeways are paths/trails that follow existing streams and greenways and are a component of a community trails system separate from motor vehicle traffic. Class II bikeways are paths that provide designated lanes for the use of bicycles through the use of striping on the roadway and signage designations for the facility. Class III bikeways are paths that are designated only by signage and are generally shared between bicyclists and motorists. Within the project study area, there is no existing or planned bicycles facilities.

Figures 3-3 and 3-4 illustrate the Class I and Class II bike route networks within the County of Fresno.

3.2.2 Pedestrian Network

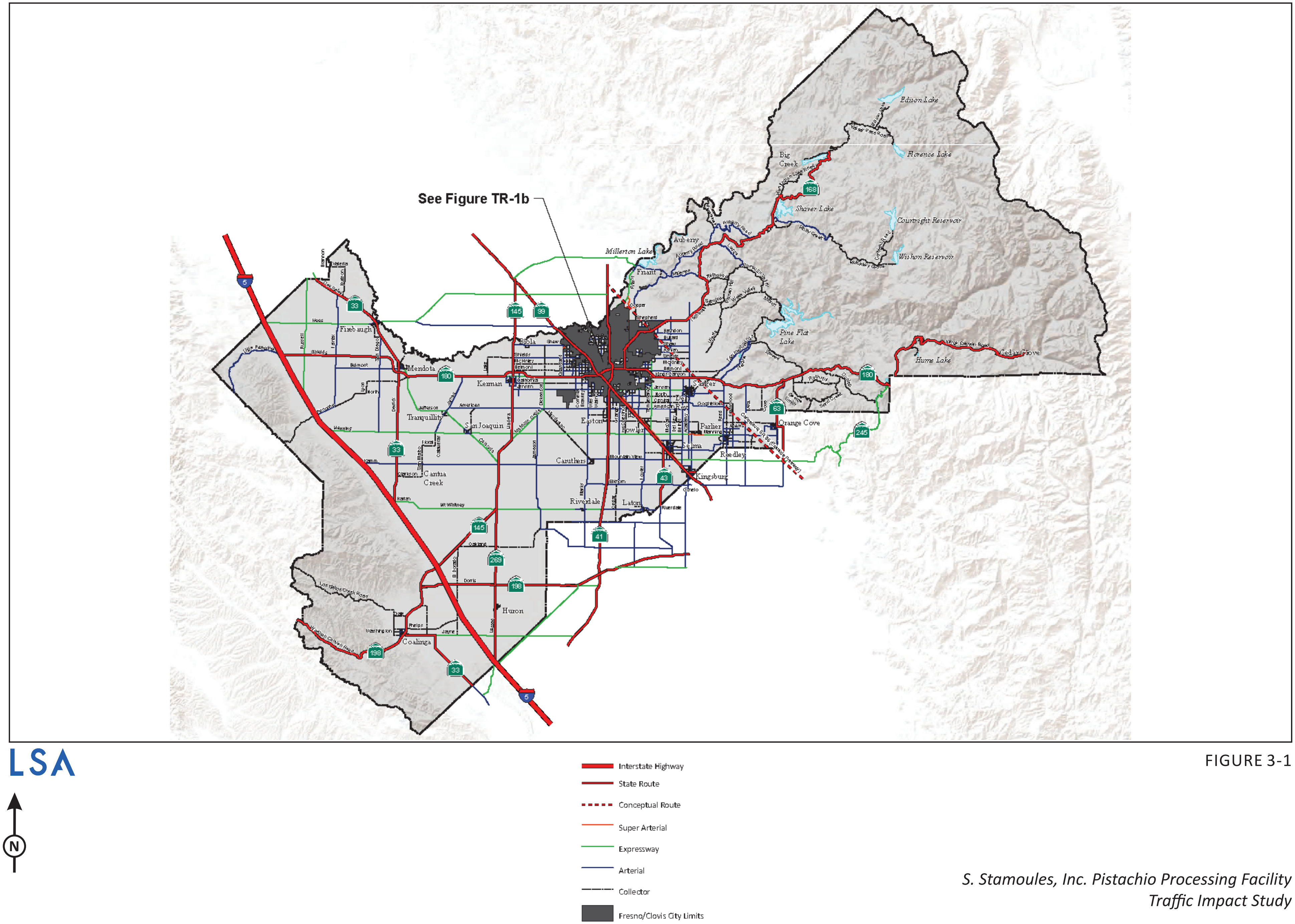
Under existing conditions, the project site has extremely limited pedestrian access, as there are no sidewalks in the vicinity.

3.2.3 Transit Network

Fresno County Rural Transit Agency (FCRTA) is the Transportation Service Agency within the County and is responsible for coordinating transit services within its service area. FCRTA allows passengers to travel conveniently, by providing both inner-city service to residents of communities within our service area, as well as intercity services from outlying communities. As well as reservation-based, demand responsive service that offers curb-to-curb transportation. There are currently no transit routes present within the study area.

3.3 LIST OF CHAPTER 3.0 FIGURES

- Figure 3-1: Fresno County Roadway Classification
- Figure 3-2: Study Intersection Geometrics and Traffic Control under 'Plus Project' Scenarios
- Figure 3-3: Fresno County Class I Bike Routes
- Figure 3-4: Fresno County Class II Bike Routes



LSA

FIGURE 3-1

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Fresno County Roadway Classification

SOURCE: Fresno County 2000 General Plan, October 2000

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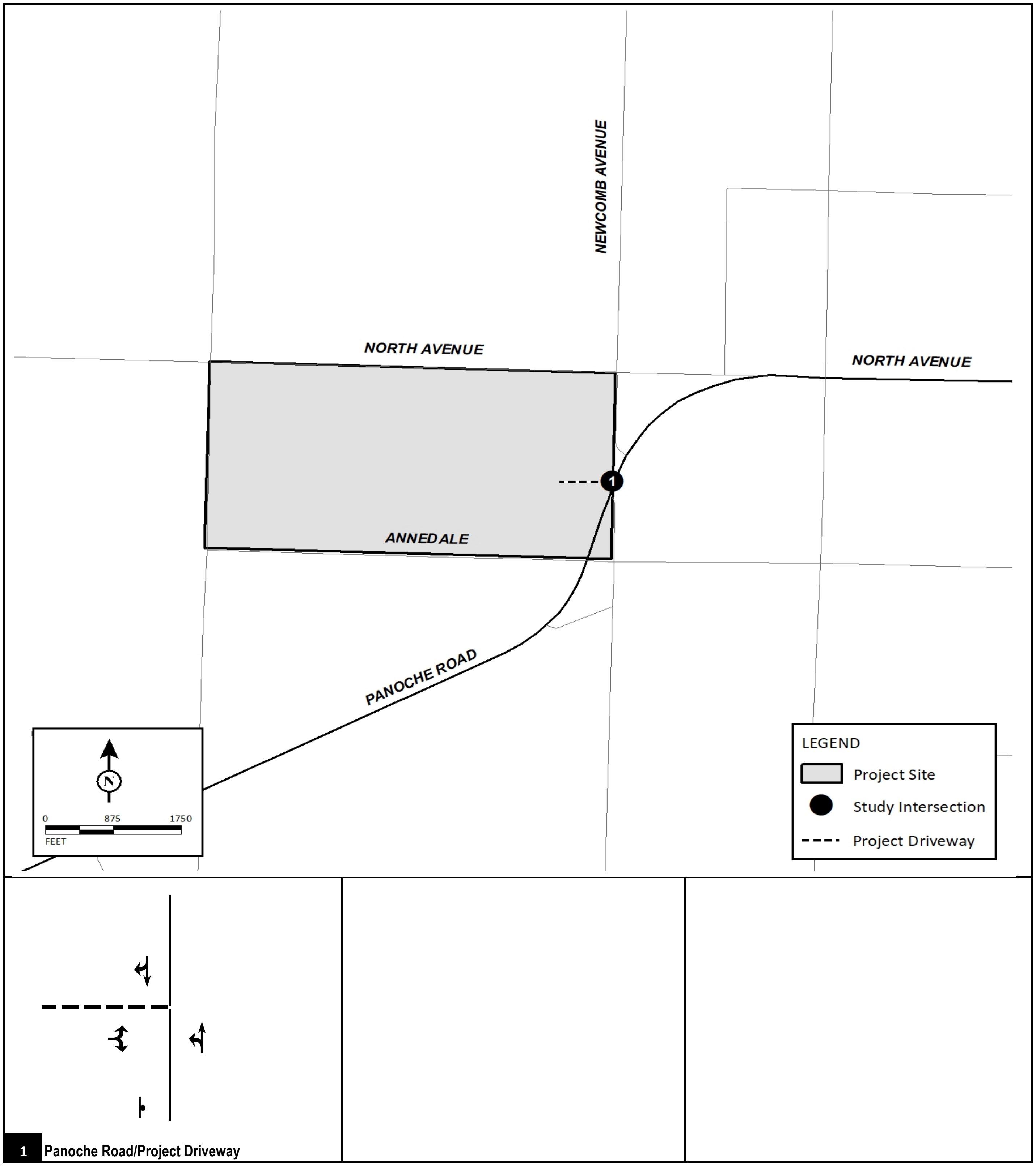


FIGURE 3-2

Legend

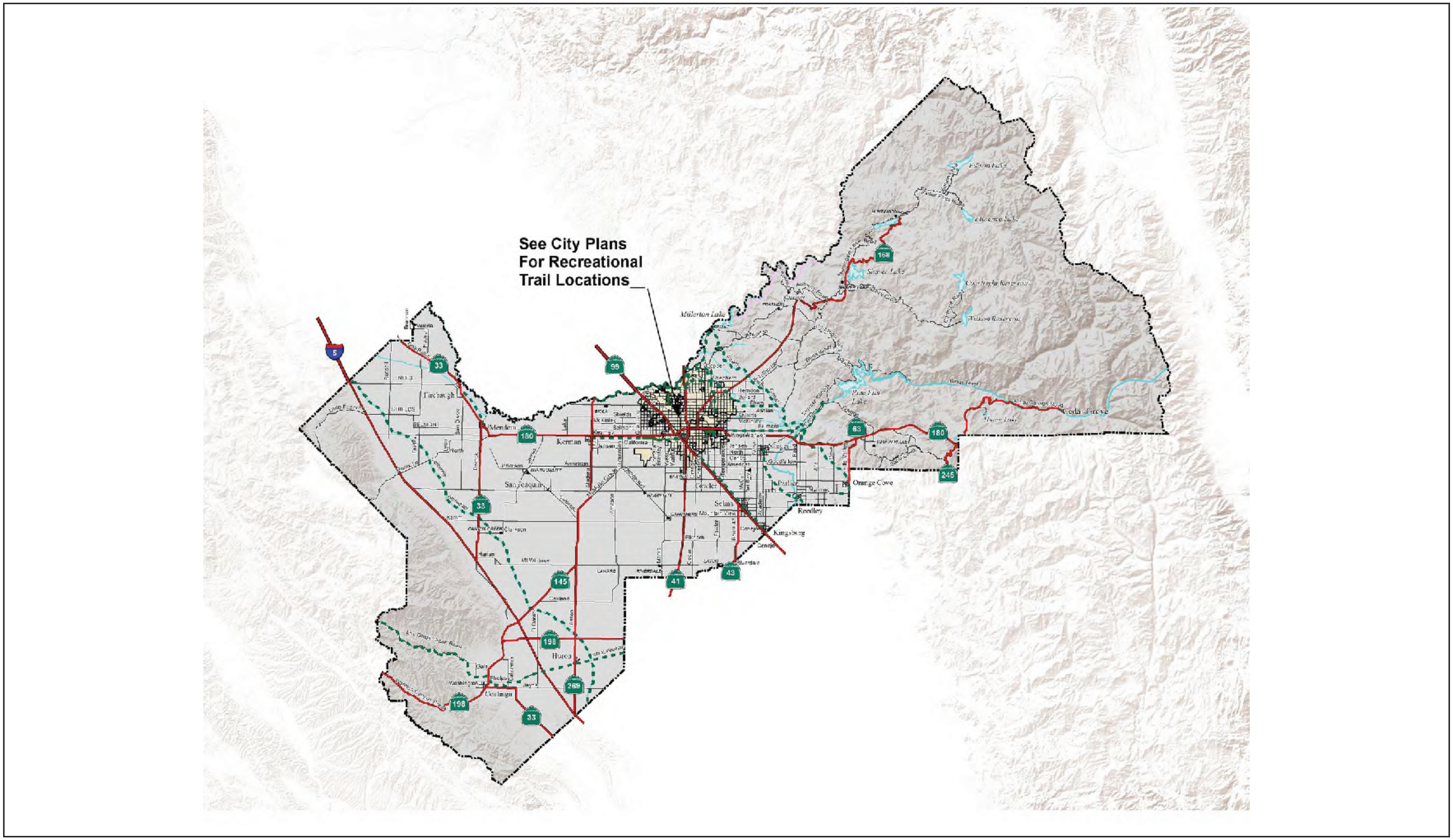
Stop Sign

Project Driveway

S. Stamoules, Inc. Pistachio Processing Facility

Traffic Impact Study

Existing Study Intersection Geometrics and Traffic Control



LSA

FIGURE 3-3

Class I Exisitng Multiple Purpose Bikeways

Class I Planned Multiple Purpose Bikeways

Waterway

State Route

Local Road

Fresno/Clovis City Limits

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Fresno County Class I Bike Routes

SOURCE: Fresno County 2000 General Plan, October 2000

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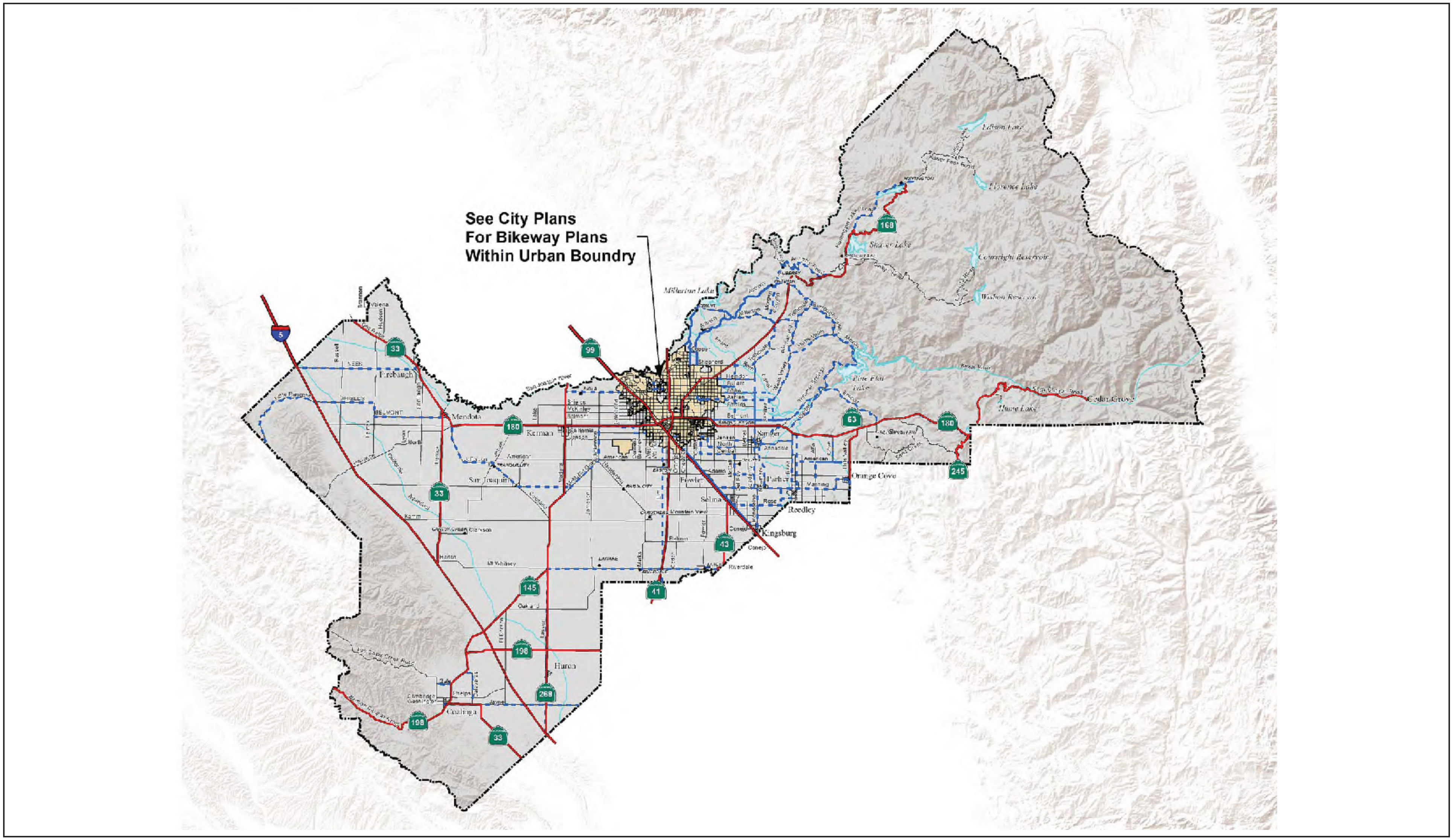

LSA

FIGURE 3-4

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Fresno County Class II Bike Routes

SOURCE: Fresno County 2000 General Plan, October 2000

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4.0 TRAFFIC VOLUMES FOR WITHOUT PROJECT SCENARIOS

4.1 EXISTING TRAFFIC VOLUMES

Traffic volumes for existing conditions were developed using recent count data collected by Counts Unlimited at the project vicinity. Daily traffic counts were collected along Panoche Road along the project frontage in May 2023.

As previously mentioned, within the TIS Guidelines, the a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and 9:00 a.m. The p.m. peak hour is the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m. However, based on the observed traffic counts along the project frontage, the a.m. peak hour occurs between 4:30 a.m. to 5:30 a.m., while the p.m. peak hour is from 1:30 p.m. to 2:30 p.m. Therefore, as a conservative estimate, for both a.m. and p.m. peak hours, these peak hour counts were utilized as a conservative approach. It should be noted that since the only study intersection is the driveway of the proposed project, for the without project scenarios, no conflicting movements are present at the study intersection.

Figure 4-1 illustrates the peak hour traffic volumes at the study intersection under existing conditions. Table 4-A shows peak hour traffic volumes at roadway segments under existing conditions. Detailed count sheets are included in Appendix B.

4.2 NEAR-TERM WITHOUT PROJECT TRAFFIC VOLUMES

Typically, the near-term traffic volumes are developed by adding trips from approved and pending projects in the vicinity of the project. The project area and surrounding areas were examined for recent approved and pending projects within the Fresno County website for recent entitlements. However, based on the Fresno county entitlement website, there is no cumulative projects within the proposed project's vicinity. Therefore, traffic volumes for the near-term scenario were developed by interpolating the forecast volume growth from Fresno COG ABM and adding it to the existing traffic volumes. As such, these traffic volumes were developed using linear interpolation method between existing traffic volume and Cumulative Year traffic volumes developed using forecast traffic data from Fresno COG ABM and after using the NCHRP and Fresno COG post-processing methodology. Figure 4-2 illustrates the peak hour traffic volumes at study intersections under near-term conditions. Table 4-B shows the peak hour traffic volumes at roadway segments under near-term conditions.

4.3 CUMULATIVE YEAR WITHOUT PROJECT TRAFFIC VOLUMES

Traffic volumes for cumulative year conditions were developed using the Fresno COG's Activity-Based Model (ABM). The methodology used to develop cumulative year traffic volumes at all study intersections is consistent with the National Cooperative Highway Research Program (NCHRP) and Fresno COG's procedures for post-processing of modeled traffic volumes. Figure 4-3 illustrates the peak hour traffic volumes at study intersections under cumulative year conditions. Table 4-C shows the peak hour traffic volumes at roadway segments under cumulative year conditions.

Detailed volume development worksheets are included in Appendix C.

4.4 LIST OF CHAPTER 4.0 FIGURES AND TABLES

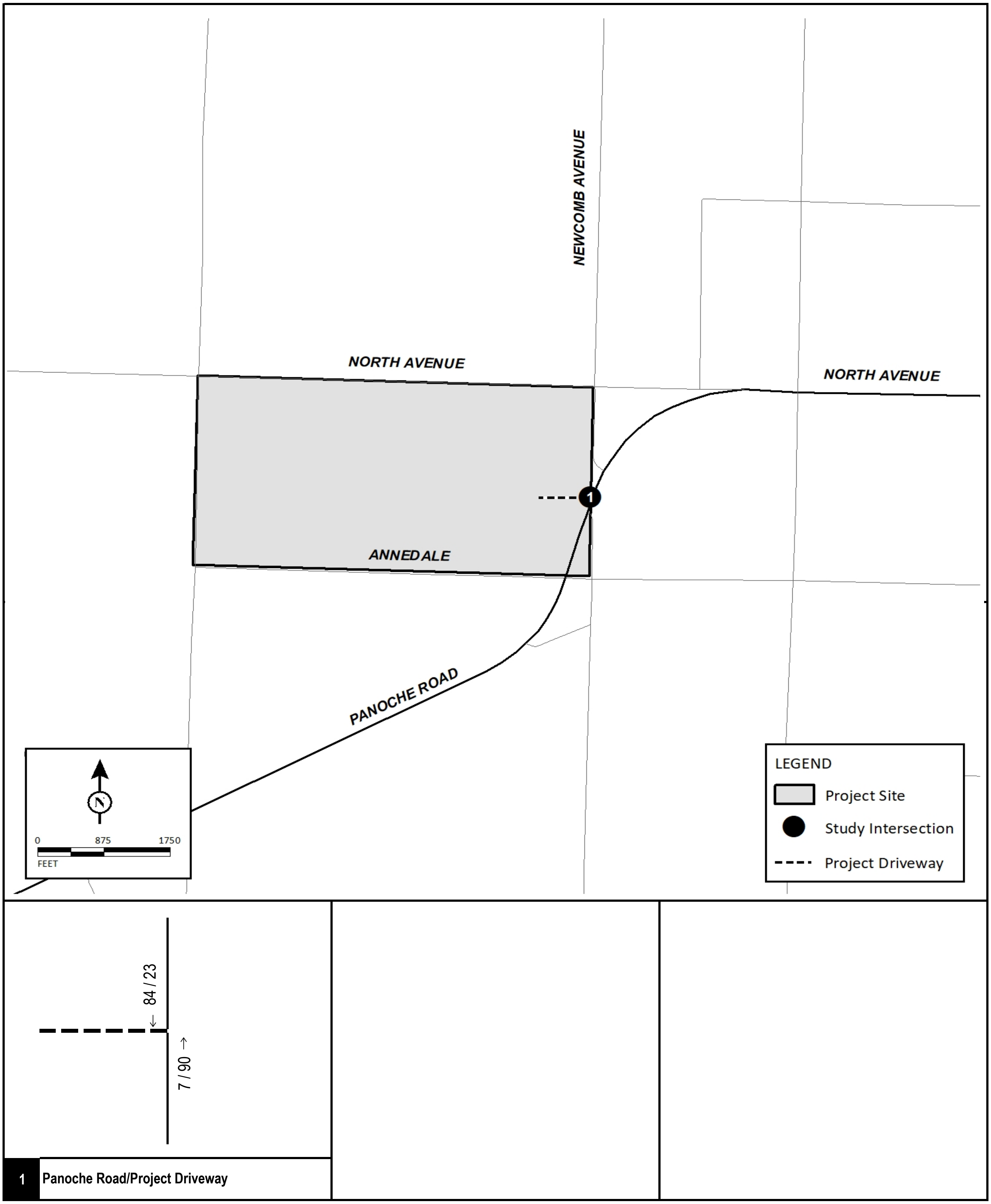

FIGURE 4-1

LSA

--- Project Driveway

XX / YY
AM / PM Peak Hour Trips

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Existing Peak Hour Traffic Volumes

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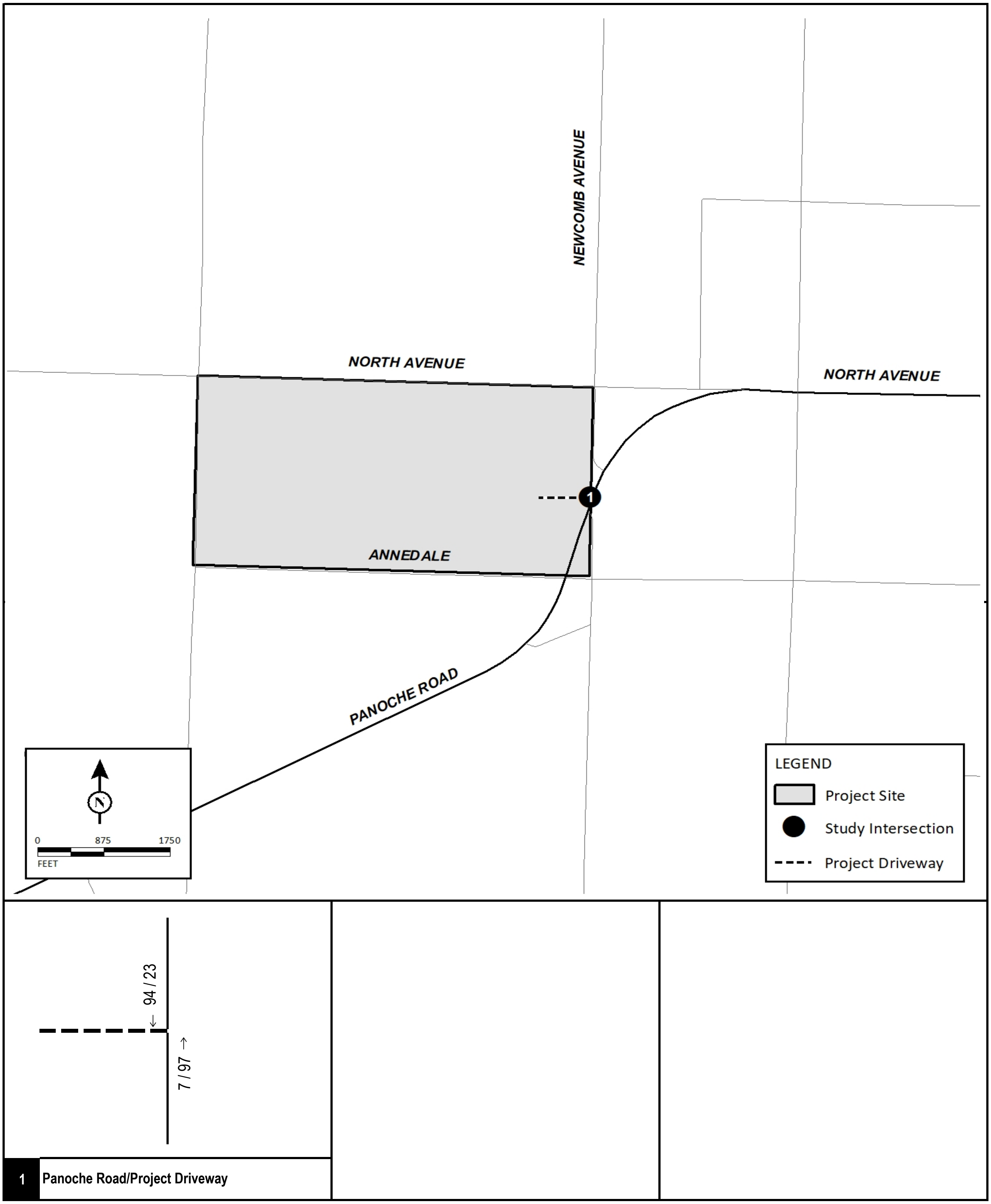

FIGURE 4-2

LSA

--- Project Driveway

XX / YY
AM / PM Peak Hour Trips

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Near-Term without Project Peak Hour Traffic Volumes

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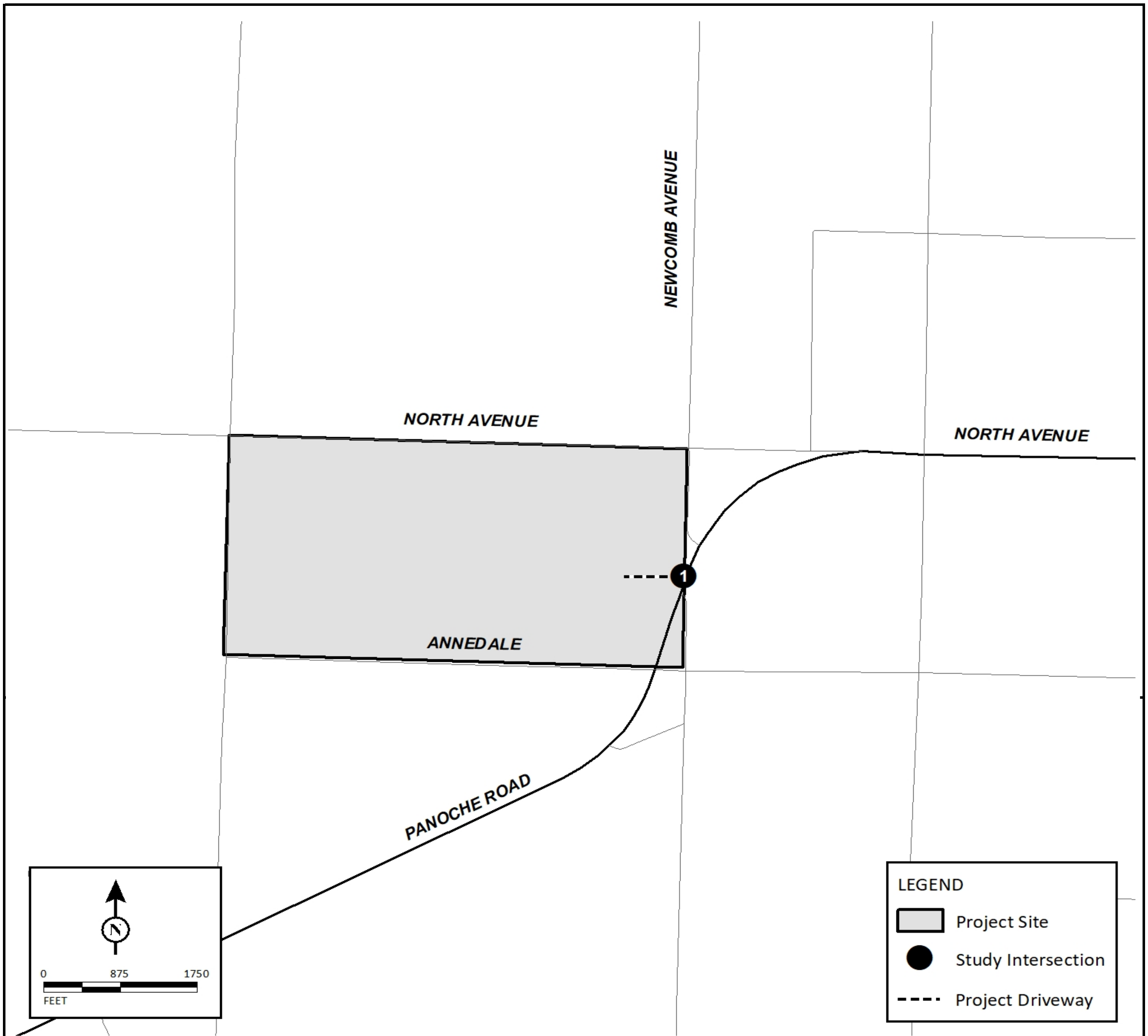
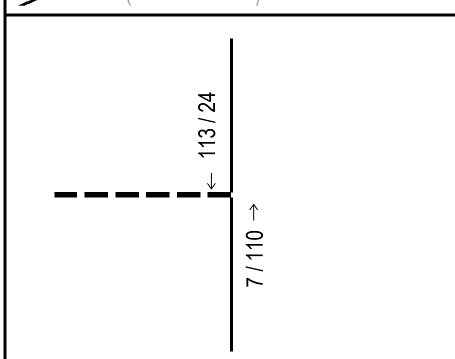




1 Panoche Road/Project Driveway

--- Project Driveway

XXX / YYY
AM / PM Peak Hour Trips

FIGURE 4-3

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Cumulative Year without Project Peak Hour Traffic Volumes

LSA

Table 4-A: Existing Roadway Segment Peak Hour Traffic Volumes

Roadway	#	Segment	Jurisdiction	Direction	A.M. Peak Hour			P.M. Peak Hour		
					Existing Traffic Volumes	Project Trips	Existing Plus Project Traffic Volumes	Existing Traffic Volumes	Project Trips	Existing Plus Project Traffic Volumes
Panoche Road	1	North of Project Driveway	Fresno County	Northbound	7	13	20	90	17	107
				Southbound	84	17	101	23	14	37
	2	South of Project Driveway	Fresno County	Northbound	7	12	19	90	9	99
				Southbound	84	9	93	23	11	34

Table 4-B: Near-Term Roadway Segment Peak Hour Traffic Volumes

Roadway	#	Segment	Jurisdiction	Direction	A.M. Peak Hour			P.M. Peak Hour		
					Near-Term Traffic Volumes	Project Trips	Near-Term Plus Project Traffic Volumes	Near-Term Traffic Volumes	Project Trips	Near-Term Plus Project Traffic Volumes
Panoche Road	1	North of Project Driveway	Fresno County	Northbound	7	13	20	97	17	114
				Southbound	94	17	111	23	14	37
	2	South of Project Driveway	Fresno County	Northbound	7	12	19	97	9	106
				Southbound	94	9	103	23	11	34

LSA

Table 4-C: Cumulative Year Roadway Segment Peak Hour Traffic Volumes

Roadway	#	Segment	Jurisdiction	Direction	A.M. Peak Hour			P.M. Peak Hour		
					Cumulative W/O Project	Project Trips	Cumulative Plus Project Traffic Volumes	Cumulative W/O Project	Project Trips	Cumulative Plus Project Traffic Volumes
Panoche Road	1	North of Project Driveway	Fresno County	Northbound	7	13	20	110	17	127
				Southbound	113	17	130	24	14	38
	2	South of Project Driveway	Fresno County	Northbound	7	12	19	110	9	119
				Southbound	113	9	122	24	11	35

5.0 PROJECT TRAFFIC

5.1 PROJECT TRIP GENERATION

Given the unique land use of the project, the project trip generation was developed based on the project's operational statement and estimated future annual production under full build-out conditions. The future annual raw material production estimate was developed based on the operational statement (OS) and information obtained from the applicant.

Based on information received from the applicant, currently approximately 76,000,000 pounds of raw pistachio is harvested from applicant's 7,500 acres of orchard. As such, approximately 10,133 pounds of raw pistachio is produced per acre. As stated in the OS, the pistachio orchards are planned to be expanded to 13,000 acres in the future, with the entire raw materials produced in these orchards being directed to the project for processing purposes. Therefore, the current production per acre rate was multiplied with 13,000 to determine the amount of raw material estimated to be produced at applicant's orchards and to be processed in the facility at full project buildout and after the applicant's orchard expansion. As such, the facility will process approximately 131,733,333 pounds of raw materials harvested at applicant's orchards. In addition, based on the OS, 6.5 percent of raw material is marketable dry waste, 49.5 percent is marketable livestock supplement waste and 30 percent is finished product. These percentages were used to calculate the annual production of dry waste, livestock supplementary waste, and finished products, respectively. Table 5-A summarizes the calculations for annual future production and truck hauling estimates. Additionally, based on the OS, raw materials, waste materials, and finished products are hauled in 50,000 lbs. capacity trucks. The annual number of roundtrips (inbound and outbound trips combined and considered as one) were calculated using the truck hauling capacity. Previously referenced Table 5-A also summarizes the annual roundtrip truck hauling trips related to these products and waste materials.

Based on the OS, the harvesting season is typically within the months of September to mid-November for 84 days. However, peak harvesting season is typically the first month of the season. Therefore, as a conservative approach, it was estimated that all the harvesting would be completed within the first four weeks of the season. Additionally, the harvesting will occur for all seven days of the weeks of the peak harvesting season. As such, all the raw materials will be delivered to the project within 28 days.

Additionally, based on the OS, during the harvest season, raw produce from the orchards would be delivered to the project site, and the marketable dry waste would be collected and shipped from the project to the green waste recycle facilities. Since this process will also occur during the peak harvest season, as a conservative estimate it was considered that all the green waste would be shipped from the project within the 28-day peak harvest season. Also, based on information obtained from the OS, the livestock supplementary waste and finished products would be shipped from the project during the non-harvest season throughout the year.

Therefore, daily truck roundtrips for raw materials, green waste material, livestock supplementary waste and finished products were estimated by dividing the annual roundtrip estimates for each of these products with corresponding number of days obtained from the OS.

As such, it was estimated that there will be approximately 95 daily inbound and 95 daily outbound truck trips, or 190 daily truck trips for raw materials during the peak harvest season. Similarly, for dry waste materials, it was estimated that there will be approximately 6 daily inbound and 6 daily outbound truck trips, or 12 daily truck trips during the peak harvest season. Therefore, it is estimated that the project will have 101 daily inbound and 101 daily outbound truck trips, or 202 daily truck trips during peak harvest season.

For livestock supplement waste, it was estimated that there will be approximately 7 daily inbound and 7 daily outbound truck trips, or 14 daily truck trips during the non-harvest season. Similarly, for finished products, it was estimated that there will be approximately 3 daily inbound and 3 daily outbound truck trips, or 6 daily truck trips during the non-harvest season. Table 5-B summarizes the calculations for total daily truck trip estimates. As estimated in Table 5-B, daily project trip estimate during the peak harvest season is much higher than corresponding daily project trip during non-harvest season. Therefore, the harvest season was considered for project trip generation and traffic impact study purposes.

As previously stated, during peak harvest season, there will not be any trucks carrying processed pistachio products to retail and wholesale markets, or livestock supplement waste material. Therefore, the project trip generation during the peak harvest season will include raw material hauling truck trips, dry waste hauling truck trips, employee trips and service vehicles trips. Table 5-C summarizes the project trip generation. As such, the project trip generation was developed as follows:

- Raw Material Hauling Truck Trip Generation –As shown in Table 5-B, it was estimated that there will be approximately 95 daily inbound and 95 daily outbound truck trips, or 190 daily truck trips during the peak harvest season. Further, assuming a uniform approach rate throughout the day for the 17 hours (6:00 a.m. to 11:00 p.m.) the project will be operational, it is anticipated that there will be 6 inbound and 6 outbound truck trips during both the a.m. and p.m. peak hours. As a conservative approach, all truck trips were converted to Passenger Car Equivalents (PCEs) using a PCE factor of 3.0. Therefore, it is anticipated that there will be 36 PCE trips during both the a.m. and p.m. peak hours and 570 daily PCE trips for delivery of raw materials to the project.
- Dry Waste Hauling Truck Trip Generation: As shown in Table 5-B, it is estimated that there will be approximately 6 daily inbound and 6 outbound, or 12 daily truck trips for shipping the dry waste to green recycle facilities from the project. As a conservative approach, it was estimated that there will be two trips (one inbound and one outbound) during both the a.m. peak hour and p.m. peak hour. Therefore, it is anticipated that there will be 6 PCE trips during both the a.m. and p.m. peak hours and 36 daily PCE trips.
- Employee Trip Generation – The project will include a maximum of 14 employees. The trip generation for employees was develop using rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* for Land Use 110 – General Light Industrial. As shown in Table 5-C, it is anticipated that there will be 7 employee trips during both the a.m. and p.m. peak hours and 43 daily employee trips.
- Service Vehicles Trip Generation – As per information provided in the OS, only two light duty service trucks will visit the site every day. As a conservative approach, both service vehicles

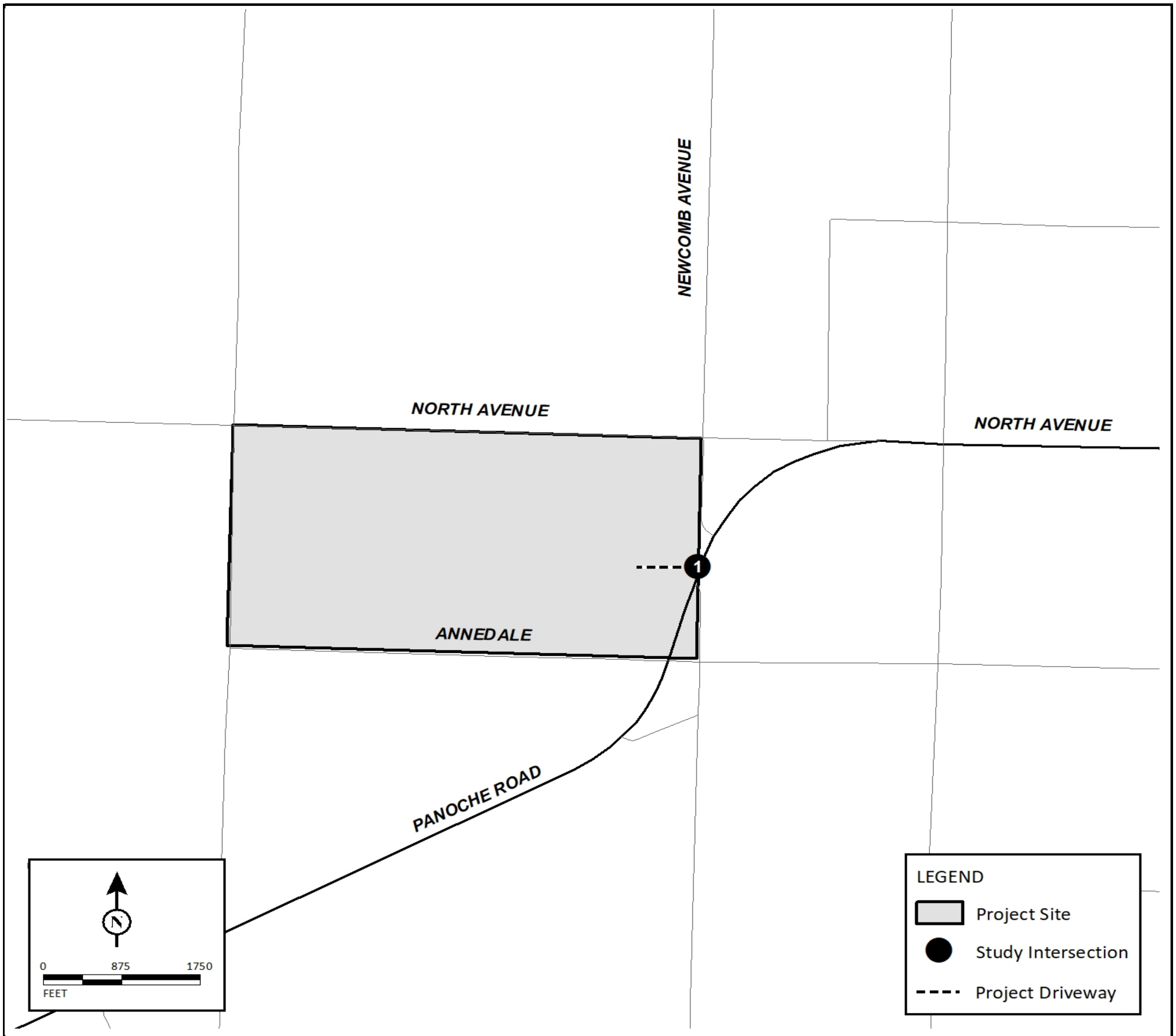
have been assumed to arrive during the a.m. peak hour and leave during the p.m. peak hour. Therefore, as shown in Table 5-C, it is anticipated that there will be 2 service vehicle trips during both the a.m. and p.m. peak hours and 4 daily trips.

Overall, the project is anticipated to generate 51 PCE trips during both the a.m. and p.m. peak hours and 653 daily PCE trips during the peak harvest season.

5.2 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution percentages were developed based on the location of the proposed project in relation to surrounding land uses, project operational statement, the regional roadway network, and existing traffic volumes. Figure 5-1 illustrates the proposed project trip distribution at the study intersections. The project trip assignment at the study intersections is the product of the project trip generation and the corresponding trip distribution percentages. Figure 5-2 illustrates the project trip assignment.

5.3 LIST OF CHAPTER 5.0 FIGURES AND TABLES



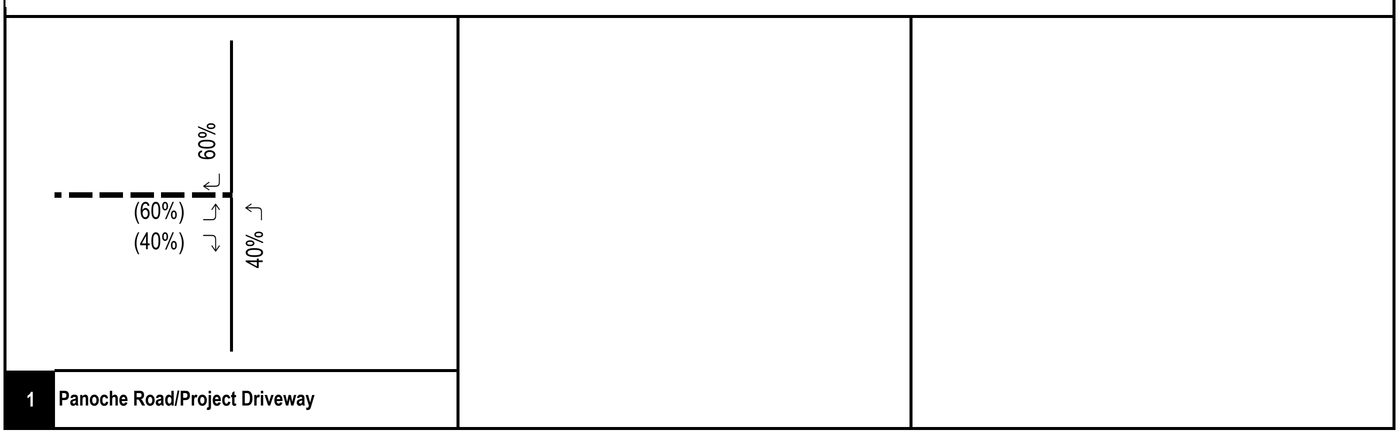


FIGURE 5-1

LSA

XX% (YY%)
Inbound% (Outbound%) Distribution

Project Driveway

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Project Trip Distribution

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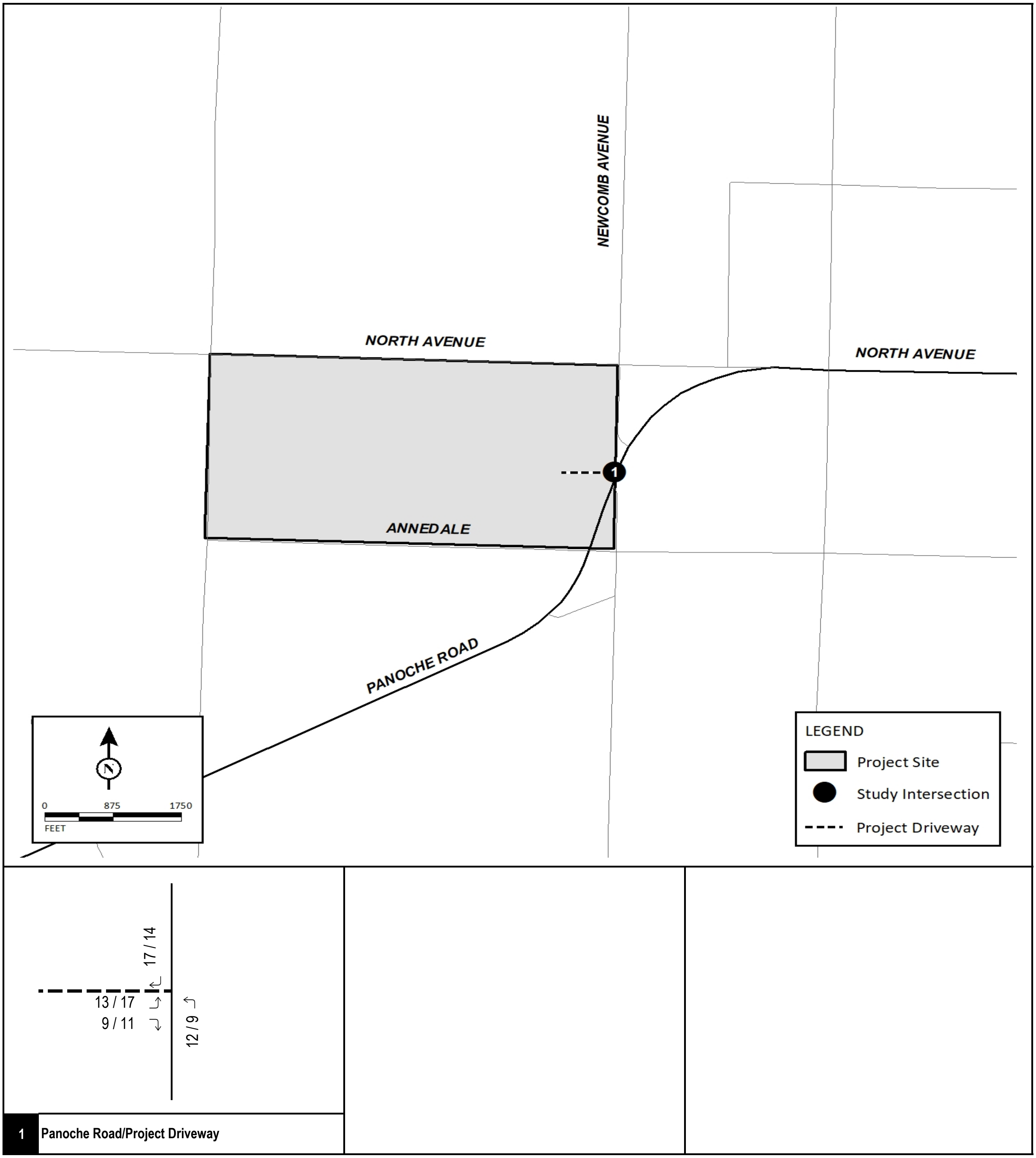

FIGURE 5-2

LSA

XX / YY
AM / PM Peak Hour PCE Trips

Project Driveway

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Project Trip Assignment

Table 5-A: Annual Future Production and Truck Hauling Estimate

Current Annual Production Information	
Current Acreage[1]	7,500
Current Annual Raw Material Production (2021) in lbs[2]	76,000,000
Current Production rate per acre (lbs/acre)	10,133
Future Acreage[1]	13,000
Future Annual Production Calculation	
Annual Raw Material Production in lbs.	131,733,333
Annual Dry Waste (6.5% of Raw Material) in lbs.	8,562,667
Annual Marketable Livestock Supplement Waste (49.5% of Raw Material) in lbs.	65,208,000
Annual Finished Product (30% of Raw Material) in lbs.	39,520,000
Future Annual Truck Hauling Calculation (# of Roundtrips)	
Truck Hauling Capacity in lbs.[1]	50,000
Annual Raw Materials Hauling Trips	2,635
Annual Dry Waste Hauling Trips	171
Annual Marketable Livestock Supplement Waste Hauling Trips	1,304
Annual Finished Product Hauling Trips	790

Notes:

1 Information was obtained from the Project Operational Statement, dated January 30, 2023.

2 Year 2021 raw material production information was obtaied from the*Additional Imformation Request Re: S. Stamoules Inc, Pistachio Processing Facility* letter, from Dirk Poeschel Land Development Services, Inc., dated October 21, 2022.

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Table 5-B: Total Daily Truck Trips Estimate

Truck Traffic Trips				
Hauling Truck Type[1]	Annual Roundtrip Truck Hauling Trips[2]	Number of Days[1]	Roundtrips Per Day	Total Daily Trips (Inbound + Outbound)[3]
Harvest Season				
Raw Materials Hauling	2,635	28	95	190
Dry Waste Hauling	171	28	6	12
Total	2,806		101	202
Non-Harvest Season				
Marketable Livestock Supplement Waste Hauling	1,304	200	7	14
Finished Product Hauling	790	300	3	6
Total	2,094		10	20

Notes:

1 Information was obtained from the Project Operational Statement, dated January 30, 2023. However,as summarized in the operational statement, majority of the harvesting will occur during the first month of the season. Therefore, as a conservative estimate, it was estimated that the raw materials will be harvested during 28 day

2 Annual roundtrip truck hauling trips was calculated as follows : Future Annual Production / Truck Hauling Capacity.

3 Total daily truck hauling trips was calculated by multiplying the estimated daily roundtrip numbers by a factor of 2 to account for inbound and outbound trips.

LSA

Table 5-C: Project Trip Generation

Land Uses	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
Pistachio Processing Facility							
Raw Material Hauling Trucks							
Trip Generation[1]	6	6	12	6	6	12	190
PCE Generation[2]	18	18	36	18	18	36	570
Dry Waste Hauling Trucks							
Trip Generation[3]	1	1	2	1	1	2	12
PCE Generation[2]	3	3	6	3	3	6	36
Employees							
Trips/Unit[4]	0.44	0.09	0.53	0.11	0.38	0.49	3.10
Trip Generation	6	1	7	2	5	7	43
Service Vehicles[5]	2	0	2	0	2	2	4
Total Trip Generation	**15**	**8**	**23**	**9**	**14**	**23**	**249**
Total PCE Trip Generation	**29**	**22**	**51**	**23**	**28**	**51**	**653**

Notes:

PCE = Passenger Car Equivalent

1 As per information provided by the applicant, under full build-out conditions, the facility will process approximately 131,733,333 pounds of harvested material from the applicant's 13,000 acres of orchard. The capacity of each truck is 25 tons or 50,000 pounds. Considering 28 days of peak harvesting season, and the facility operating all seven days a week during the peak harvesting season, the average number of inbound trucks per workday required to haul material to the site is approximately 95. Addtionally, the trucks are anticipated to arrive and leave the site uniformly over an 17-hour period.

2 As a conservative approach, all truck trips were converted to PCEs using a PCE factor of 3.0.

3 The facility is estimated to produce 8,562,667 pounds of dry waste material for the 131,733,333 pounds of harvested material. Considering 28 days of peak harvesting season, and the facility operating all seven days a week during the peak harvesting season, the average number of inbound trucks per workday required to haul material to the site is approximately 12. As a conservative approach, it was assumed that one inbound and one outbound dry waste truck trip during both the a.m. peak hour and p.m. peak hour.

4 Rates obtained from the Institute of Transportation Engineers *Trip Generation Manual* (11th Edition) for Land Use 110 - "General Light Industrial", Setting/Location - General Urban/Suburban. The facility will have a maximum of 14 employees.

5 As per information provided by the applicant, only two light duty service trucks will visit the site every day. As a conservative approach, both service vehicles have been assumed to arrive during the a.m. peak hour and leave during the p.m. peak hour.

6.0 TRAFFIC VOLUMES FOR PLUS PROJECT SCENARIOS

Existing, near-term, and cumulative year plus project traffic volumes were developed by adding project traffic to the traffic for the corresponding no project scenarios. Figures 6-1, 6-2 and 6-3 illustrate “plus project” peak hour traffic volumes at study intersections under existing, near-term, and cumulative year conditions, respectively. Previously referenced Tables 4-A, 4-B, and 4-C summarize the with project peak hour traffic volumes at study roadway segments for Existing, near-term, and cumulative year plus project scenarios, respectively.

Detailed volume development worksheets are included in Appendix C.

6.1 LIST OF CHAPTER 6.0 FIGURES

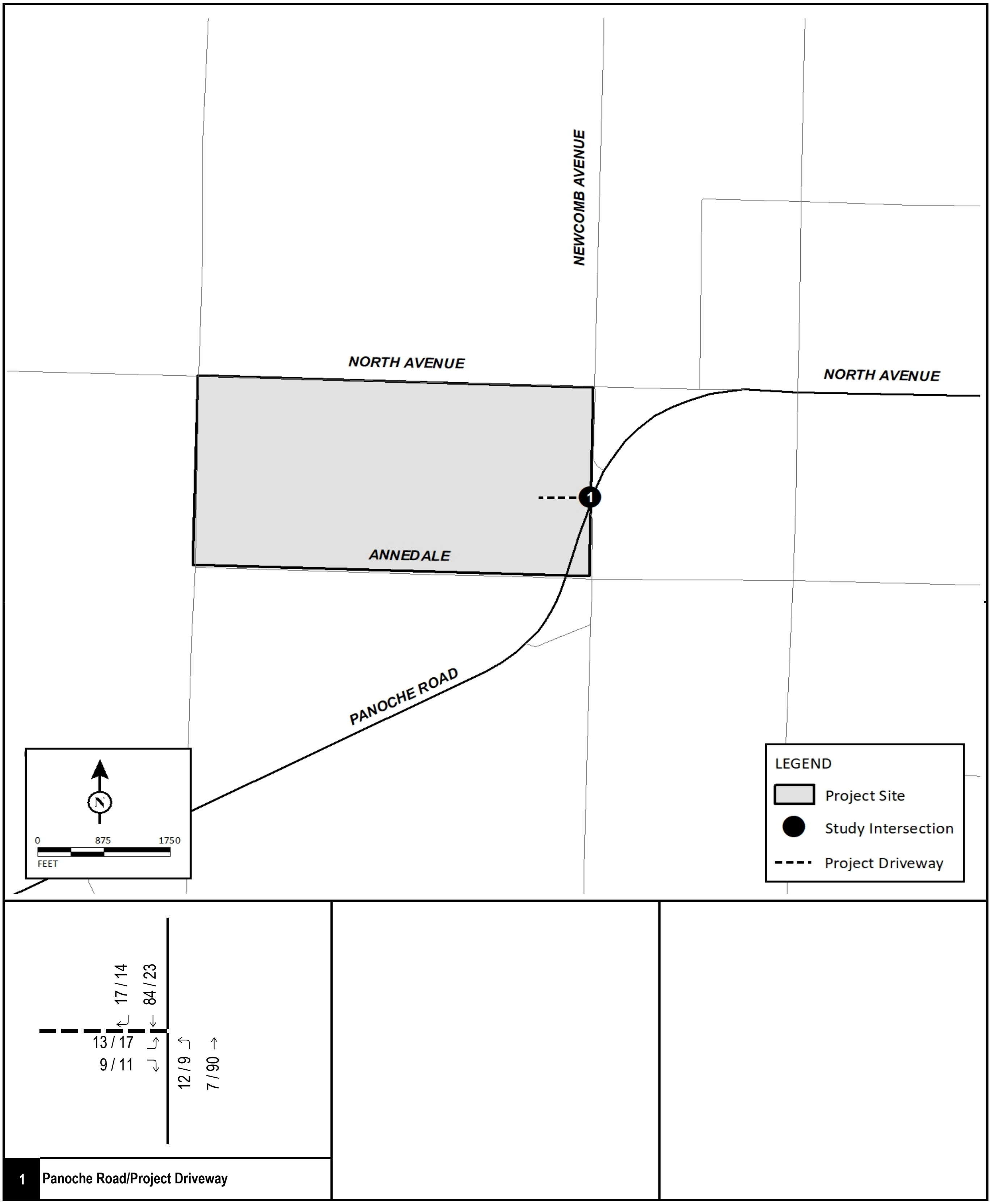


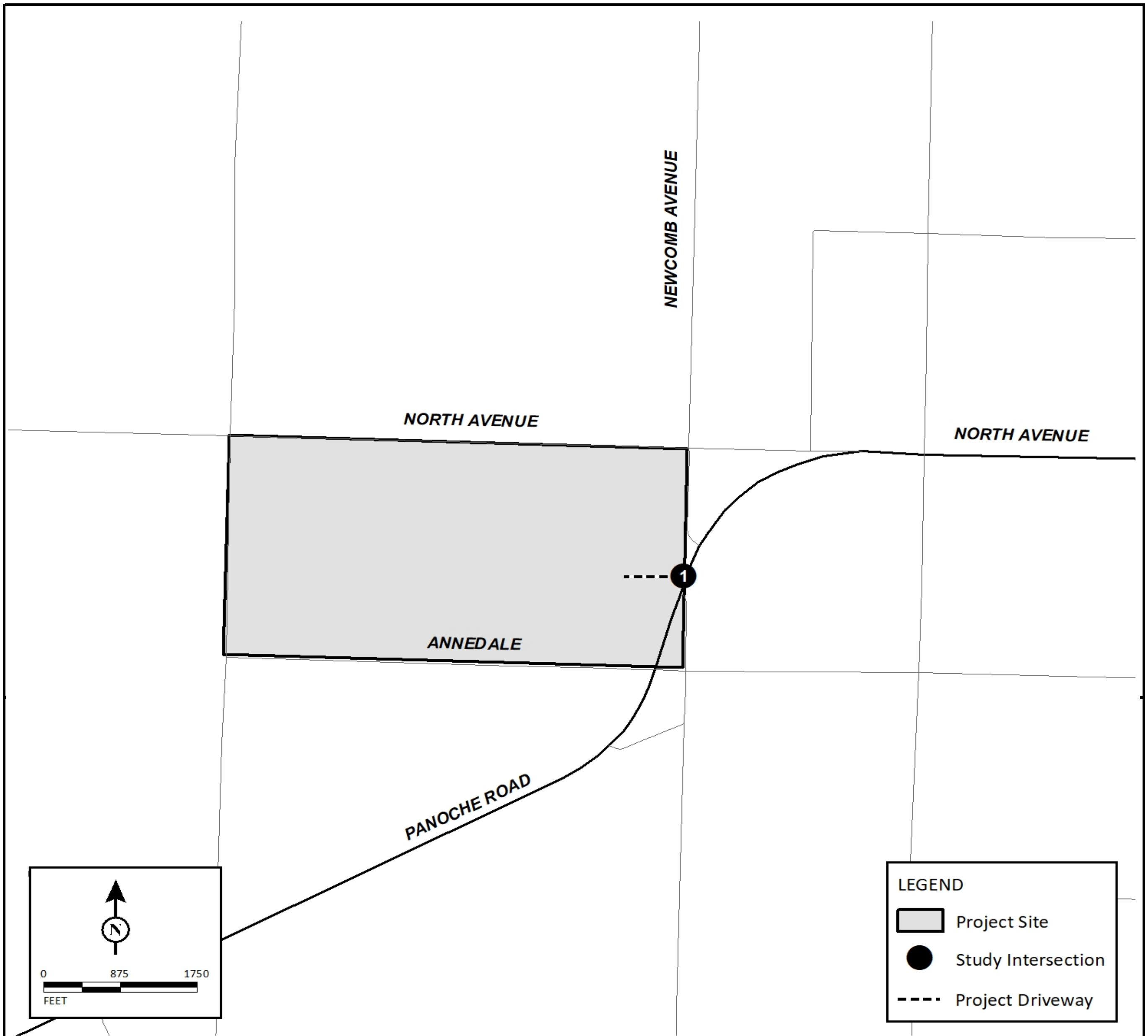
FIGURE 6-1

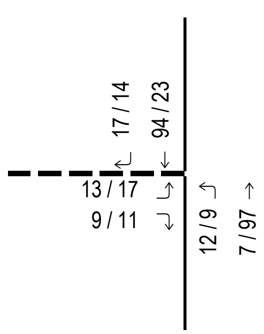
--- Project Driveway

XX / YY
AM / PM Peak Hour Trips

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Existing Plus Project Peak Hour Traffic Volumes





1 Panoche Road/Project Driveway

FIGURE 6-2

--- Project Driveway

XX / YY
AM / PM Peak Hour Trips

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Near-Term Plus Project Peak Hour Traffic Volumes

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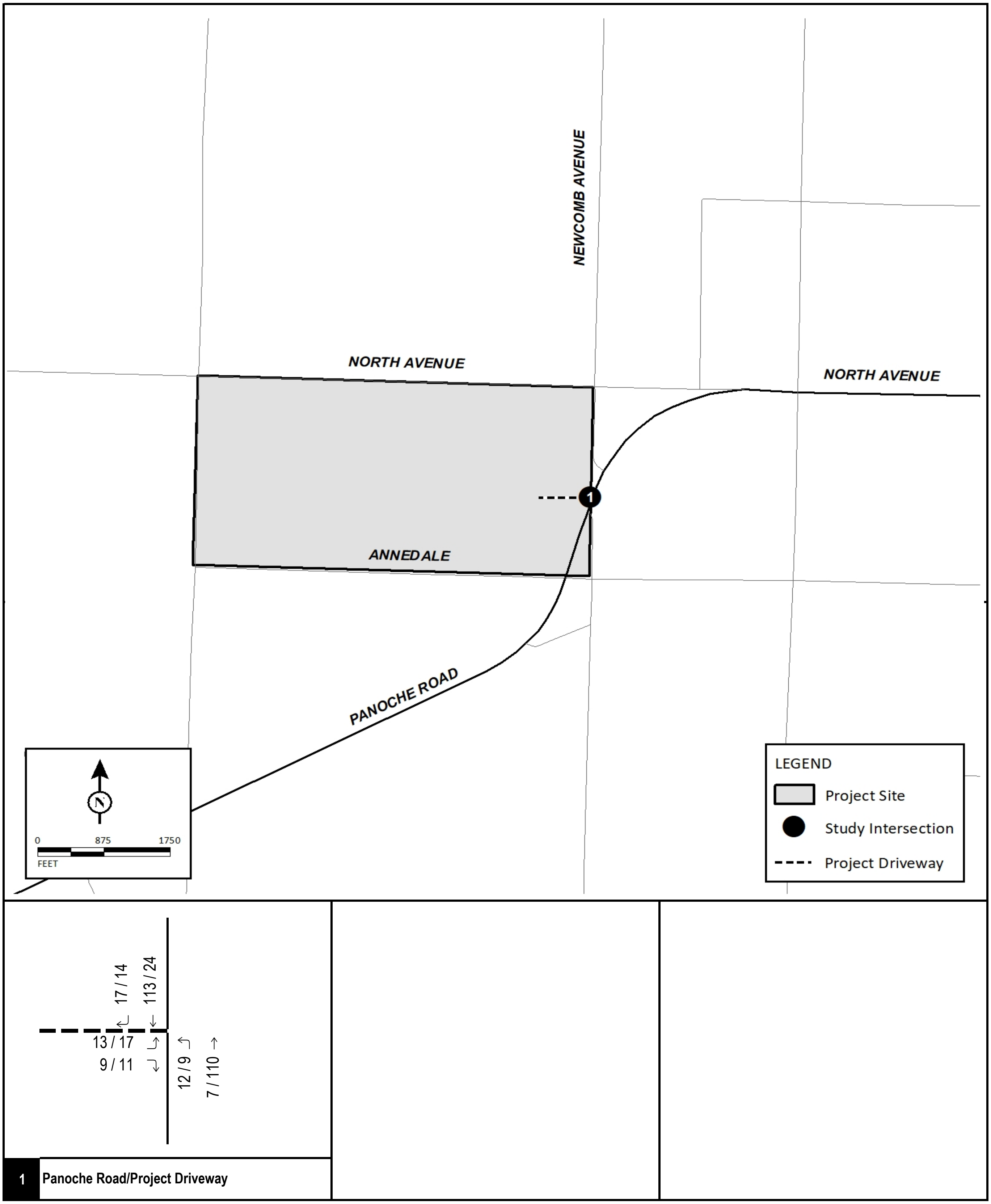

--- Project Driveway

XXX / YYY
AM / PM Peak Hour Trips

FIGURE 6-3

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Cumulative Year Plus Project Peak Hour Traffic Volumes

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7.0 LEVELS OF SERVICE ANALYSIS

7.1 EXISTING LEVELS OF SERVICE

7.1.1 Study Intersections

Since the study intersection is a future intersection (project driveway), currently there is with no conflicting movements present at this location. As such, no LOS analysis was conducted for this location under existing without project scenario.

7.1.2 Roadway Segments

A roadway segment LOS analysis was conducted for existing conditions using the methodologies previously discussed. Table 7-A summarizes the results of this analysis and shows that all roadway segments are currently operating at a satisfactory LOS under existing conditions.

7.2 EXISTING PLUS PROJECT LEVELS OF SERVICE

Analysis of the existing plus project scenario is provided to identify direct project-related operational deficiency if the project were to be built and in operation today. This scenario eliminates the effects of ambient growth and other cumulative projects and deals specifically with operational deficiencies only due to the project traffic. Previously referenced Figure 3-2 illustrates the study intersection geometrics and traffic control under existing plus project conditions.

7.2.1 Study Intersections

An intersection LOS analysis was conducted for existing plus project conditions using the methodologies previously discussed. Table 7-B summarizes the results of this analysis and shows that the following intersection is forecast to operate at a satisfactory LOS under existing plus project conditions.

7.2.2 Roadway Segments

A roadway segment LOS analysis was conducted for existing plus project conditions using the methodologies previously discussed. Table 7-A summarizes the results of this analysis and shows that all roadway segments are forecast to operate at a satisfactory LOS under existing plus project conditions.

7.3 NEAR-TERM LEVELS OF SERVICE

7.3.1 Study Intersections

Without the project, no conflicting movements are anticipated to be present at the study intersection. As such, no LOS analysis was conducted for this location under Near-term without project conditions.

7.3.2 Roadway Segments

A roadway segment LOS analysis was conducted for near-term conditions using the methodologies previously discussed. Table 7-A summarizes the results of this analysis and shows that all roadway segments are forecast to operate at a satisfactory LOS under near-term conditions.

7.4 NEAR-TERM PLUS PROJECT LEVELS OF SERVICE

7.4.1 Study Intersections

An intersection LOS analysis was conducted for near-term plus project conditions using the methodologies previously discussed. Table 7-B summarizes the results of this analysis and shows that the following intersection is forecast to operate at a satisfactory LOS under near-term plus project conditions.

7.4.2 Roadway Segments

A roadway segment LOS analysis was conducted for near-term plus project conditions using the methodologies previously discussed. Table 7-A summarizes the results of this analysis and shows that all roadway segments are forecast to operate at a satisfactory LOS under near-term plus project conditions.

7.5 CUMULATIVE YEAR LEVELS OF SERVICE

7.5.1 Study Intersections

Without the project, no conflicting movements are anticipated to be present at the study intersection. As such, no LOS analysis was conducted for this location under cumulative year conditions.

7.5.2 Roadway Segments

A roadway segment LOS analysis was conducted for cumulative year conditions using the methodologies previously discussed. Table 7-A summarizes the results of this analysis and shows that all roadway segments are forecast to operate at a satisfactory LOS under cumulative year conditions.

7.6 CUMULATIVE YEAR PLUS PROJECT LEVELS OF SERVICE

7.6.1 Study Intersections

An intersection LOS analysis was conducted for cumulative year plus project conditions using the methodologies previously discussed. Table 7-B summarizes the results of this analysis and shows that the following intersection is forecast to operate at a satisfactory LOS under cumulative year plus project conditions.

7.6.2 Roadway Segments

A roadway segment LOS analysis was conducted for cumulative year plus project conditions using the methodologies previously discussed. Table 7-A summarizes the results of this analysis and shows that all roadway segments are forecast to operate at a satisfactory LOS under cumulative year plus project conditions.

Detailed intersection LOS worksheets are included in Appendix D.

7.7 LIST OF CHAPTER 7.0 TABLES

Table 7-A: Roadway Segments Weekday Peak Hour Levels of Service

Roadway Segments on Panoche Road	Jurisdiction	Functional Classification[1]	Peak Hour Roadway Capacity[2]	Without Project						Plus Project						Increase in v/c		Improvement Required?
				A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour			P.M. Peak Hour			A.M. Peak Hour	P.M. Peak Hour	
				Volume	v/c	LOS	Volume	v/c	LOS	Volume	v/c	LOS	Volume	v/c	LOS			
Existing																		
1 . North of Project Driveway (Northbound)		1-Lane Undivided Collector	450	7	0.02	B	90	0.20	B	20	0.04	B	107	0.24	B	0.03	0.04	No
North of Project Driveway (Southbound)		1-Lane Undivided Collector	450	84	0.19	B	23	0.05	B	101	0.22	B	37	0.08	B	0.04	0.03	No
2 . South of Project Driveway (Northbound)		1-Lane Undivided Collector	450	7	0.02	B	90	0.20	B	19	0.04	B	99	0.22	B	0.03	0.02	No
South of Project Driveway (Southbound)		1-Lane Undivided Collector	450	84	0.19	B	23	0.05	B	93	0.21	B	34	0.08	B	0.02	0.02	No
Near-Term Year																		
1 . North of Project Driveway (Northbound)		1-Lane Undivided Collector	450	7	0.02	B	97	0.22	B	20	0.04	B	114	0.25	B	0.03	0.04	No
North of Project Driveway (Southbound)		1-Lane Undivided Collector	450	94	0.21	B	23	0.05	B	111	0.25	B	37	0.08	B	0.04	0.03	No
	Fresno County																	
2 . South of Project Driveway (Northbound)		1-Lane Undivided Collector	450	7	0.02	B	97	0.22	B	19	0.04	B	106	0.24	B	0.03	0.02	No
South of Project Driveway (Southbound)		1-Lane Undivided Collector	450	94	0.21	B	23	0.05	B	103	0.23	B	34	0.08	B	0.02	0.02	No
Cumulative Year																		
1 . North of Project Driveway (Northbound)		1-Lane Undivided Collector	450	7	0.02	B	110	0.24	B	20	0.04	B	127	0.28	B	0.03	0.04	No
North of Project Driveway (Southbound)		1-Lane Undivided Collector	450	113	0.25	B	24	0.05	B	130	0.29	B	38	0.08	B	0.04	0.03	No
2 . South of Project Driveway (Northbound)		1-Lane Undivided Collector	450	7	0.02	B	110	0.24	B	19	0.04	B	119	0.26	B	0.03	0.02	No
South of Project Driveway (Southbound)		1-Lane Undivided Collector	450	113	0.25	B	24	0.05	B	122	0.27	B	35	0.08	B	0.02	0.02	No

Notes:

LOS = Level of Service; v/c = Volume to Capacity Ratio

[1] Classification obtained from the Figure TR-1a - Regional Circulation Diagram, *Fresno County General Plan* .

[2] Roadway Capacity obtained from Table 9 - Generalized Peak Hour Directional Volumes for Florida's Rural Undeveloped Areas and Developed Areas Less Than 5,000 Population, State of Florida Department of Transportation *2020 Quality/ Level of Service Handbook* .

* Exceeds LOS Standard

LSA

Table 7-B: Panoche Road/Project Driveway Intersection Levels of Service

Analysis Year	Jurisdiction	LOS Standard	Without Project					Plus Project					Improvement Required?
			Control	A.M. Peak Hour		P.M. Peak Hour		Control	A.M. Peak Hour		P.M. Peak Hour		
				Delay (sec.)	LOS	Delay (sec.)	LOS		Delay (sec.)	LOS	Delay (sec.)	LOS	
Existing	Fresno County	C	OWSC	*Future Intersection*		*Future Intersection*		OWSC	9.2	A	9.1	A	No
Near-Term Year	Fresno County	C	OWSC	*Future Intersection*		*Future Intersection*		OWSC	9.3	A	9.2	A	No
Cumulative Year	Fresno County	C	OWSC	*Future Intersection*		*Future Intersection*		OWSC	9.3	A	9.2	A	No

Notes:

OWSC = One-Way Stop Control; LOS = Level of Service

Delay = Average control delay in seconds (For OWSC/TWSC intersections, reported delay is for worst-case movement).

* Exceeds LOS Standard

8.0 INTERSECTION QUEUING ANALYSIS

Tables 8-A, 8-B, and 8-C list the available turn-pocket storage lengths and summarize the 95th percentile back-of-queue lengths at the project driveway under existing, near-term, and cumulative year without project and plus project conditions. The queues have been reported from SimTraffic since Synchro does not appropriately report queues at unsignalized intersections. As shown in these tables, the project is not anticipated to block the through traffic at the project driveway.

Detailed queuing worksheets are included in Appendix E.

8.1 LIST OF CHAPTER 8.0 TABLES

LSA

Table 8-A - Existing Queuing Analysis

Intersection	Movement	Without Project Storage Length[1] (ft/ln)	Existing Plus Project [2]	
			AM	PM
1 . Panoche Road/Project Driveway	EBLR	100	40	45
OWSC				

Notes:

ft/ln = feet per lane

EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound

L = Left; R = Right

Bold = Queue exceeds available storage.

1 Storage length for movement was assumed based on conceptual site plan.

2 All queues reported are 95th percentile queues. Queues for signalized intersections have been taken from Synchro and queues for stop controlled intersections have been taken from SimTraffic.

LSA

Table 8-B - Near-Term Queuing Analysis

Intersection	Movement	Without Project Storage Length[1] (ft/ln)	Near-Term Plus Project [2]	
			AM	PM
1 . Panoche Road/Project Driveway	**EBLR**	100	35	45
OWSC				

Notes:

ft/ln = feet per lane

EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound

L = Left; R = Right

Bold = Queue exceeds available storage.

1 Storage length for movement was assumed based on conceptual site plan.

2 All queues reported are 95th percentile queues. Queues for signalized intersections have been taken from Synchro and queues for stop controlled intersections have been taken from SimTraffic.

LSA

Table 8-C - Cumulative Year Queuing Analysis

Intersection	Movement	Without Project Storage Length[1] (ft/ln)	Cumulative Year Plus Project [2]	
			AM	PM
1 . Panoche Road/Project Driveway OWSC	**EBLR**	100	40	45

Notes:

ft/ln = feet per lane

EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound

L = Left; R = Right

Bold = Queue exceeds available storage.

1 Storage length for movement was assumed based on conceptual site plan.

2 All queues reported are 95th percentile queues. Queues for signalized intersections have been taken from Synchro and queues for stop controlled intersections have been taken from SimTraffic.

9.0 SITE ACCESS ANALYSIS

As previously illustrated in Figure 1-2, access to the project would be provided via a full-access driveway on Panoche Road.

9.1 SIGHT DISTANCE ANALYSIS

A sight distance analysis was conducted at Project Driveway along Panoche Road to evaluate safe access in and out of the project. Sight distance is the length of the visible roadway a driver can see approaching vehicles before their line of sight is blocked by any object. For purposes of this analysis, both the stopping sight distance and corner sight distance have been evaluated. That is because these are the two sight distance lengths that would affect safe maneuver of ingress/egress traffic from the project driveways.

According to the Caltrans *Highway Design Manual* (HDM) (dated July 2020), the stopping sight distance is the minimum sight distance along a roadway required to allow a driver to decrease their speed from the design speed to a complete stop. The corner sight distance is the minimum sight distance in which a driver at a stop-controlled approach can see oncoming traffic on the major street to safely maneuver onto the roadway.

The stopping sight distance was evaluated on the major arterial abutting the project (i.e. Panoche Road). The posted speed limit on Panoche Road is 50 mph. The posted speed limit is considered as the design speed for the purposes of the study. As stated in Table 201.1 of the HDM, the minimum stopping sight distance is 430 feet for a design speed of 50 mph. Therefore, the minimum stopping sight distance has been considered as 430 feet for Project Driveway.

As for corner sight distance, Section 405.1 of the HDM states that corner sight distance requirements are not applicable for urban driveways unless signalized. However, as a conservative approach, corner sight distances were also evaluated for the project driveways. The minimum corner sight distance was based on design speed, time gap, and type of vehicles from the minor road (Project Driveway 1) to enter the major road (Panoche Road). Based on the requirements established in the HDM for combination trucks, it was determined that a minimum corner sight distance of 850 feet would be required for left-turn maneuvers coming out of Project Driveway. Furthermore, a minimum corner sight distance of 775 feet would be required for right-turn maneuvers coming out of Project Driveway.

Since the corner sight distance required at Project Driveway would be greater than the stopping sight distance (850 feet compared to 430 feet), a sight triangle figure was created using corner sight distance. As a conservative measure, left-turn corner sight distances were used for both right- and left-turn sight triangles. As illustrated in Figure 9-1, Project Driveway will provide adequate sight distance for left- and right-turn maneuvers onto Panoche Road.

9.2 LIST OF CHAPTER 9.0 FIGURES

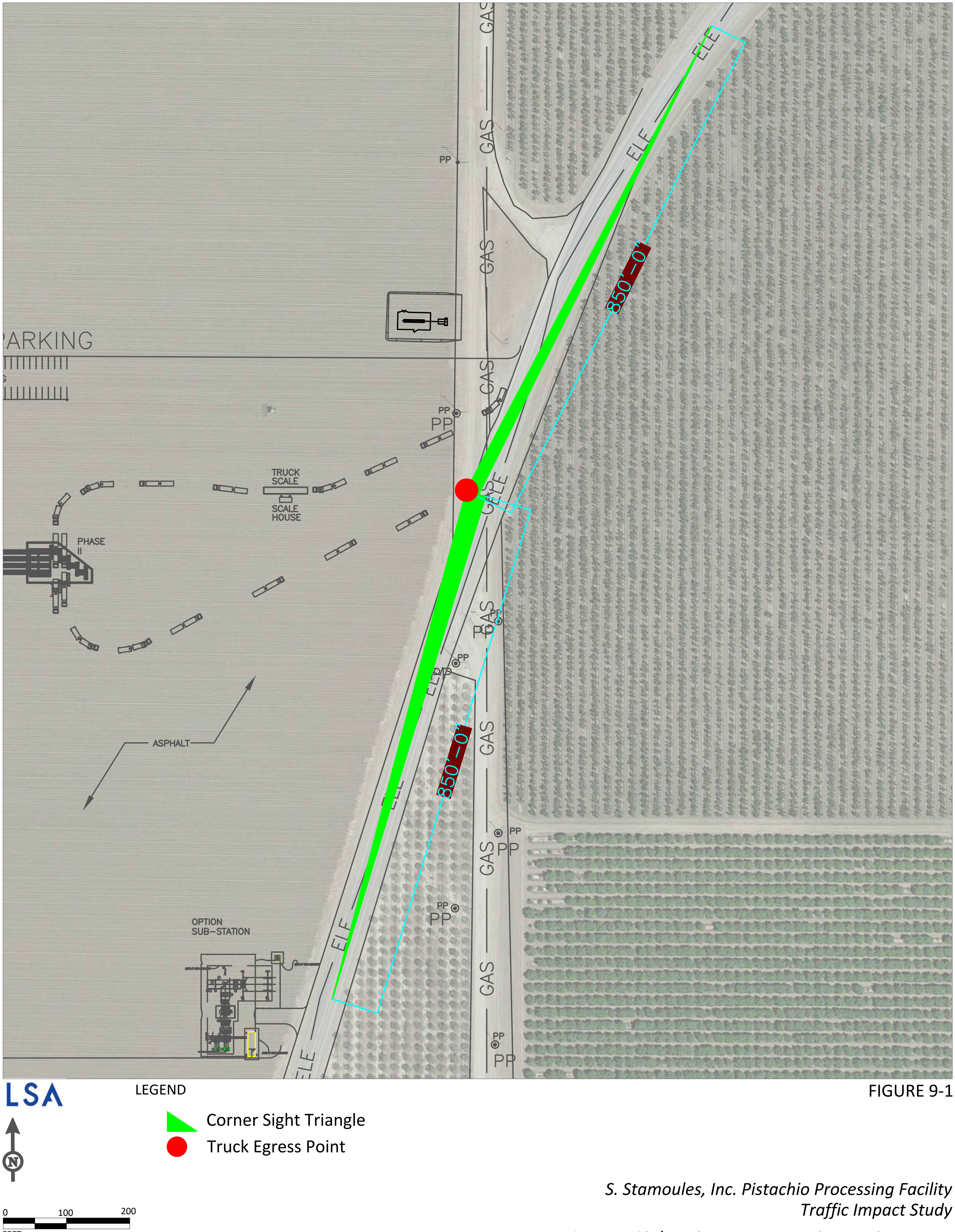

FIGURE 9-1

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Corner Sight Distance at Project Driveway 1

SOURCE: Engel & Company, September 2020.

P:\CFF2201-OPA Pistachio\Traffic\GIS\AutoCAD\ISD.dwg (7/13/2023)

10.0 VEHICLE MILES TRAVELED ANALYSIS

On December 28, 2018, the California Office of Administrative Law cleared the revised CEQA guidelines for use. Among the changes to the guidelines was removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on VMT.

The County is one of the member jurisdictions of Fresno County Association of Governments (Fresno COG). Fresno COG has recently completed the *Fresno County SB 743 Implementation Regional Guidelines*, dated January 2021 (VMT Guidelines) that includes recommended screening criteria, methodology and significant threshold criteria for projects within Fresno COG member jurisdictions, including the County. Substantial evidence is also included in the implementation guidelines for these screening criteria, recommended methodologies, and significant impact criteria. Therefore, the VMT evaluation was conducted using the recommended screening criteria, methodology and significant threshold criteria included in the Fresno COG Guidelines.

10.1 METHODOLOGY

The Fresno COG VMT Guidelines provide multiple screening criteria for land use projects. Each of these criteria was evaluated for the project to determine if the project can be screened out. Following is a brief description about the applicability of each of these screening criteria for the proposed project:

- Transit Priority Area (TPA) Screening: The project location was evaluated in the Fresno COG VMT screening tool to determine whether it is located within a TPA. The project is not located within a TPA. Additionally, it could not be classified as a residential or office project. Therefore, this screening criteria does not apply to the project.
- Low Trip Generator: Fresno COG VMT Guidelines identify that project generating less than 500 daily trips could be screened out provided there is substantial evidence on the contrary. As discussed in Section 5.0, Project Trip Generation, the project is estimated to generate 249 daily trips. Therefore, the project would satisfy this screening criteria. As such, the project could be screened out from a detailed VMT analysis using this screening criteria.
- Low VMT Zone Screening: Fresno COG VMT Guidelines state that residential and office projects located in a low VMT area could be screened out from a detailed VMT analysis. The project land use could not be classified as residential or office land uses. Therefore, the project does not satisfy this screening criteria. However, the project location was evaluated in the Fresno COG VMT screening tool under non-residential uses, and it is not located within a low VMT zone either.
- Other Screening Criteria: The project is neither an affordable housing project nor can it be classified as local-serving retail, institutional/government uses, or public service uses. Therefore, these screening criteria do not apply to the project.

As stated above, the project would be screened out from a detailed VMT analysis as a low trip generator. As such, pursuant to the Fresno COG VMT analysis guidelines, a detailed VMT analysis is not required for the project.

11.0 SUMMARY AND CONCLUSIONS

The proposed project would construct a pistachio processing facility in four stages with an estimated completion date of 2030. Access to the site will be provided via a full-access driveway on Panoche Road. Overall, the project is anticipated to generate 51 PCE trips during both the a.m. and p.m. peak hours and 653 daily PCE trips during the peak harvest season.

11.1 EXISTING CONDITIONS SUMMARY

All study intersections and all roadway segments operate at a satisfactory LOS under existing and existing plus project conditions.

11.2 NEAR-TERM CONDITIONS SUMMARY

All study intersections and roadway segments are forecast to operate at a satisfactory LOS under near-term (approved and pending) and near-term plus project conditions.

11.3 CUMULATIVE YEAR CONDITIONS SUMMARY

All study intersections and roadway segments are forecast to operate at a satisfactory LOS under cumulative year and cumulative year plus project conditions.

11.4 SITE ACCESS, QUEUING AND CIRCULATION ANALYSIS SUMMARY

The project driveway has adequate corner sight distance and will be stop controlled. Based on the locations of the project driveway, the project is not anticipated to create deficiency in the neighborhood traffic flow pattern.

11.5 VEHICLE MILES TRAVELED SUMMARY

Based on the recommended screening criteria included in the Fresno COG VMT Guidelines, The project would be screened out as a low trip generator and a detailed VMT analysis is not required for the project.

APPENDIX A

SCOPING AGREEMENT

CARLSBAD
CLOVIS
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

March 10, 2023

Ejaz Ahmad; Planner
Department of Public Works and Planning
Development Services and Capital Projects Division/Current Planning Section
County of Fresno
2220 Tulare Street, 6th Floor
Fresno, California 93721

Subject: Scope of Work for the S. Stamoules, Inc. Pistachio Processing Facility Traffic Impact Study (EIR No. 8077; CUP 3709; LSA Project No. CFF2201)

Dear Ejaz:

LSA will be preparing a traffic impact study (TIS) for the proposed S. Stamoules, Inc. Pistachio Processing Facility Project (project) to be located in western Fresno County (County) approximately 8 miles southwest of the City of Mendota and 35 miles southeast of the City of Fresno. The 98-acre project site is located in an agricultural area of Fresno County. The project site is bounded by farm fields and West Panoche Road to the south, West Panoche Road and farm fields to the east, and farm fields to the north and to the west. Figure 1 (all figures and tables attached) illustrates the regional and project location.

The proposed project will include a pistachio hulling, processing, and packing facility that can process pistachio crops from the surrounding pistachio orchards. Trucks carrying pistachios from the project applicant's orchards will deposit their load on a conveyor belt system that will transport the pistachios through different sections of the proposed facility that include a huller building, a gas-powered dryer area, a drive-over dump pit area, and an area with storage silos. The project will be implemented in four phases and each phase will include the construction and addition of buildings, working areas, and equipment. The different phases of the project are as follows:

- Phase I will be completed by 2023 and will include construction of an approximately 5,608 square foot (sf) drive-over dumping pit area, 3,900 sf pre-cleaning area, and an approximately 24,940 sf huller building. Ten 8 by 29 feet (ft) dryers and eighteen 52 by 52 ft galvanized steel silos, each of 2,200,000-pound capacity, will be added to the project site west of the proposed huller building.

- Phase II will be completed between 2024 and 2025 and will include the construction of an approximately 155,169 sf processing building.

- Phase III will be completed between 2026 and 2027 and will include the installation of the processing equipment inside the processing building constructed during Phase II. Additionally, ten dryers and twelve silos with the same dimensions and style of those constructed during Phase I will be added adjacent to the existing dryers and storage silos in the project site.

- Phase IV will be completed between 2028 and 2029 and will include the construction of a second huller building, a second drive-over dumping pit area, and an additional pre-cleaning area with the same dimensions as the facilities constructed during Phase I. Additionally, twenty dryers and thirty silos with the same dimensions and style of those constructed during Phase I will be added to the north of the existing dryer and storage silo areas of the project site.

For purpose of this TIS, the entire build-out condition of the project has been considered.

Access to the site will be provided via a full-access driveway on Panoche Road. Tractors and field trucks will access the site from the surrounding orchards mostly via unpaved farm roads. For purposes of this analysis, it has been assumed that these tractors and field trucks will enter the project site using the full-access driveway on Panoche Road. Figure 2 illustrates the conceptual site plan for the project.

During peak pistachio harvest season, from September to Mid-November, the Huller portion of the facility will be operational from 6:00 a.m. to 11:00 p.m., or for 17 hours each day, for 6 to 7 days a week. Once complete, the processing building will be operational from 7.30 a.m. to 4.30 p.m. for five days a week. The Processing Building will run throughout the year except during the harvest season. During this period, additional manpower will be required for the harvest process and there will be very little product available for processing. Therefore, some employees will shift from working in the Processing Building to working in the Huller during the harvest season.

LSA anticipates that the following scope of work will be required for preparation of the TIS.

SCOPE OF WORK: LEVEL OF SERVICE ANALYSIS

While Level of Service (LOS) analysis is no longer a determinant of California Environmental Quality Act (CEQA) impacts, the project will need to demonstrate consistency with the County's General Plan goals and policies since project traffic will be affecting the surrounding roadway circulation network under the jurisdiction of the County. Therefore, the LOS analysis will be prepared based on the *Draft Guidelines for the Preparation of Traffic Impact Studies within the County of Fresno* (TIS Guidelines), dated May 2018.

Study Intersections

As per the County's TIS Guidelines, any intersection where the project is projected to add 10 or more peak hour trips should be included in the TIS. As per information provided by the applicant, during peak harvest season, there will not be any trucks carrying processed pistachio products to retail and wholesale markets. Therefore, apart from employees and service vehicles, which include a total of less than 10 peak hour trips, the remaining project traffic will be for pistachio raw material hauling and dry waste hauling trucks. These trucks will be stored at a cold storage facility on 904 South Lyons Avenue and will be carrying the pistachio from the orchards in the vicinity of the project site. As such, there are no major intersections between the project site and the cold storage facility. Therefore, for purposes of this TIS, only the intersection of Panoche Road/Project Driveway will be analyzed.

Figures 3 illustrate the study area intersection.

Roadway Segments

As per the County's TIS Guidelines, any roadway segment where the project is adding 100 or more daily trips (both directions combined) should be included in the TIS. For purposes of this analysis, only the following two roadway segments have been considered:

1. Panoche Road, north of Project Driveway; and
2. Panoche Road, south of Project Driveway.

Analysis Scenarios

As per the County's TIS Guidelines, the following scenarios will be included in the TIS:

- Existing Conditions;
- Existing Plus Project Conditions;
- Near-Term Without Project Conditions;
- Near-Term Plus Project Conditions;
- Cumulative Without Project Conditions; and
- Cumulative Plus Project Conditions.

Trip Generation

Given the unique land use of the project, the project trip generation was developed based on the project's operational statement and estimated future annual production under full build-out conditions. The future annual raw material production estimate was developed based on the OS and information obtained from the applicant.

Based on information received from the applicant, currently approximately 76,000,000 pounds of raw pistachio is harvested from applicant's 7,500 acres of orchard. As such, approximately 10,133 pounds of raw pistachio is produced per acre. As stated in the OS, the pistachio orchards are planned to be expanded to 13,000 acres in the future, with the entire raw materials produced in these orchards being directed to the project for processing purposes. Therefore, the current production per acre rate was multiplied with 13,000 to determine the amount of raw material estimated to be produced at applicant's orchards and to be processed in the facility at full project buildout and after the applicant's orchard expansion. As such, the facility will process approximately 131,733,333 pounds of raw materials harvested at applicant's orchards. In addition, based on the OS, 6.5 percent of raw material is marketable dry waste, 49.5 percent is marketable livestock supplement waste and 30 percent is finished product. These percentages were used to calculate the annual production of dry waste, livestock supplementary waste, and finished products, respectively. Table A summarizes the calculations for annual future production and truck hauling estimates. Additionally, based on the OS, raw materials, waste materials, and finished products are hauled in 50,000 lbs. capacity trucks. The annual number of roundtrips (inbound and outbound trips combined and considered as one) were calculated using the truck hauling capacity. Previously referenced Table A also summarizes the annual roundtrip truck hauling trips related to these products and waste materials.

Based on the OS, the harvesting season is typically within the months of September to mid-November for 84 days. However, peak harvesting season is typically the first month of the season. Therefore, as a conservative approach, it was estimated that all the harvesting would be completed within the first four weeks of the season. Additionally, the harvesting will occur for all seven days of the weeks of the peak harvesting season. As such, all the raw materials will be delivered to the project within 28 days.

Additionally, based on the OS, during the harvest season, raw produce from the orchards would be delivered to the project site, and the marketable dry waste would be collected and shipped from the project to the green waste recycle facilities. Since this process will also occur during the peak harvest season, as a conservative estimate it was considered that all the green waste would be shipped from the project within the 28-day peak harvest season. Also, based on information obtained from the OS, the livestock supplementary waste and finished products would be shipped from the project during the non-harvest season throughout the year.

Therefore, daily truck roundtrips for raw materials, green waste material, livestock supplementary waste and finished products were estimated by dividing the annual roundtrip estimates for each of these products with corresponding number of days obtained from the OS.

As such, it was estimated that there will be approximately 95 daily inbound and 95 daily outbound truck trips, or 190 daily truck trips for raw materials during the peak harvest season. Similarly, for dry waste materials, it was estimated that there will be approximately 6 daily inbound and 6 daily outbound truck trips, or 12 daily truck trips during the peak harvest season. Therefore, it is estimated that the project will have 101 daily inbound and 101 daily outbound truck trips, or 202 daily truck trips during peak harvest season.

For livestock supplement waste, it was estimated that there will be approximately 7 daily inbound and 7 daily outbound truck trips, or 14 daily truck trips during the non-harvest season. Similarly, for finished products, it was estimated that there will be approximately 3 daily inbound and 3 daily outbound truck trips, or 6 daily truck trips during the non-harvest season. Table B summarizes the calculations for total daily truck trip estimates. As estimated in Table B, daily project trip estimate during the peak harvest season is much higher than corresponding daily project trip during non-harvest season. Therefore, the harvest season was considered for project trip generation and traffic impact study purposes.

As previously stated, during peak harvest season, there will not be any trucks carrying processed pistachio products to retail and wholesale markets, or livestock supplement waste material. Therefore, the project trip generation during the peak harvest season will include raw material hauling truck trips, dry waste hauling truck trips, employee trips and service vehicles trips. Table C summarizes the project trip generation. As such, the project trip generation was developed as follows:

- Raw Material Hauling Truck Trip Generation –As shown in Table B, it was estimated that there will be approximately 95 daily inbound and 95 daily outbound truck trips, or 190 daily truck trips during the peak harvest season. Further, assuming a uniform approach rate throughout the day for the 17 hours (6:00 a.m. to 11:00 p.m.) the project will be operational, it is anticipated that there will be 6 inbound and 6 outbound truck trips during both the a.m. and p.m. peak hours. As a conservative approach, all truck trips were converted to Passenger Car Equivalents (PCEs) using a PCE factor of 3.0. Therefore, it is anticipated that there will be 36 PCE trips during both the a.m. and p.m. peak hours and 570 daily PCE trips for delivery of raw materials to the project.

- Dry Waste Hauling Truck Trip Generation: As shown in Table B, it is estimated that there will be approximately 6 daily inbound and 6 outbound, or 12 daily truck trips for shipping the dry waste to green recycle facilities from the project. As a conservative approach, it was estimated that there will be two trips (one inbound and one outbound) during both the a.m. peak hour and p.m. peak hour. Therefore, it is anticipated that there will be 6 PCE trips during both the a.m. and p.m. peak hours and 36 daily PCE trips.

- Employee Trip Generation – The project will include a maximum of 14 employees. The trip generation for employees was develop using rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* for Land Use 110 – General Light Industrial. As shown in Table C, it is anticipated that there will be 7 employee trips during both the a.m. and p.m. peak hours and 43 daily employee trips.

- Service Vehicles Trip Generation – As per information provided in the OS, only two light duty service trucks will visit the site every day. As a conservative approach, both service vehicles have been assumed to arrive during the a.m. peak hour and leave during the p.m. peak hour. Therefore, as shown in Table C, it is anticipated that there will be 2 service vehicle trips during both the a.m. and p.m. peak hours and 4 daily trips.

Overall, the project is anticipated to generate 51 PCE trips during both the a.m. and p.m. peak hours and 653 daily PCE trips during the peak harvest season.

Volume Development and Analysis Methodology

Traffic volumes for existing conditions will be developed using existing count data collected at study area intersections and roadway segments. In case County staff requires adjustments to existing traffic counts, appropriate adjustments will be made by obtaining historical counts at study area intersections and roadway segments.

Traffic volumes for near-term without project conditions will be developed by adding traffic volumes from approved and pending development projects in the vicinity of the project to existing traffic volumes. Cumulative project information will be obtained from the County of Fresno and adjacent jurisdictions.

Traffic volumes for cumulative without project conditions will be developed using forecast volumes obtained from the latest version of the Fresno Council of Governments' (COG's) Activity-Based Model (ABM) and by applying the COG's recommended post-processing methodologies. Per the County's TIS Guidelines, cumulative conditions are considered to be 20 years from existing conditions.

Traffic volumes for existing, near-term, and cumulative plus project conditions will be developed by adding project traffic to the traffic for the respective without project scenarios.

As previously stated, all study intersections will be analyzed during the a.m. and p.m. peak hours during peak harvest season. Intersection LOS will be calculated using *Highway Capacity* Manual 6th Edition (HCM 6) analysis methodologies by using the Synchro 11 software. The a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and 9:00 a.m. while the p.m. peak hour is defined as the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m. However, peak hours may be determined based on existing counts if required by the County. Roadway segments will be analyzed for the highest volume on any part of the segment during the peak hours.

Analysis of Traffic Operations and Recommended Circulation Improvements

LOS and delay will be analyzed under all analysis scenarios to determine operational deficiencies at the study intersection and roadway segments. Determination of operational deficiencies will be made based on the County's LOS standards and operational deficiency criteria.

Improvements will be recommended at locations where the project creates an operational deficiency. Improvements may include addition of intersection turn lanes, roadway widening, traffic signal installation and modification, local street striping and channelization improvements, and signage. The LOS with improvements will be calculated and summarized along with a comparison of the LOS without improvements.

Signal Warrant Analysis (if Required)

A signal warrant analysis will be conducted at the project driveway if it is determined that a signal is required at this intersection as an operational improvement. Peak hour approach volumes for the study intersections will be examined to determine whether signalization may be warranted per the criteria defined in the California supplement of the *Manual on Uniform Traffic Control Devices* (CA-MUTCD).

RTMF/Fair Share Contributions

LSA will evaluate whether the improvements identified in the TIS are included as part of the Fresno COG *Regional Transportation Mitigation Fee* (RTMF) program or any other fee program. If it is determined that the improvement is not covered through any such fee program, then the project's fair share contribution will be calculated based on the project traffic as a percentage of total growth from existing to cumulative conditions, as outlined in the County's guidelines.

Active Transportation and Public Transit Analysis

Typically, the County requires evaluation of potential project impacts on public transit, bicycle, and pedestrian facilities in the vicinity of the project. Due to the location of the project within agricultural farmland, it is anticipated that such an analysis will not be required.

Left-Turn Pocket at Site Entrance Analysis

The County's TIS Guidelines require an analysis to examine the need for left-turn pockets at the project site entrances to be included in the TIS to address safe and acceptable traffic operations. The analysis will be conducted using the American Association of State and Highway Transportation Officials (AASHTO) tables, Harmelink tables, or similar analysis methodologies.

SCOPE OF WORK: PROJECT VMT ANALYSIS

It is LSA's understanding that the County follows the Governor's Office of Planning and Research (OPR) *Technical Advisory* (dated December 2018), (TA) for California Environmental Quality Act (CEQA) Vehicle Miles Traveled (VMT) Analysis. Therefore, the VMT analysis will be based on the recommended methodology and significant threshold criteria included in the OPR TA. LSA will utilize the Fresno Council of Governments (Fresno COG) Activity Based Model (ABM) for the VMT calculations for the project. The detailed scope of work for the project is as follows:

Project Traffic Analysis Zone Update

The first step in preparation of this analysis will be to update the traffic analysis zones (TAZs) in the model that includes the project area. LSA will convert the project land use into model socioeconomic categories using regional conversion factors. The socioeconomic data for the project TAZ in the existing year model scenario will be updated. LSA will coordinate with the County to confirm the socioeconomic data before incorporating data into the travel model.

Project VMT Analysis

Upon completion of the socioeconomic data update, LSA will conduct model run for the existing scenario. LSA will utilize the outputs from the model runs to calculate the project VMT per employee. Further, the project VMT per employee will be compared to the appropriate threshold to determine whether the project would create any significant VMT impact.

Should you have any questions, please do not hesitate to contact me at (951) 781-9310 or email me at ambarish.mukherjee@lsa.net

Sincerely,

LSA ASSOCIATES, INC.

Ambarish Mukherjee, PE, AICP
Principal

ATTACHMENTS

Tables:

Table A: Annual Future Production and Truck Hauling Estimate
Table B: Total Daily Truck Trip Estimate
Table C: Project Trip Generation

Figures:

Figure 1: Regional and Project Location
Figure 2: Conceptual Site Plan
Figure 3: Study Area Intersections
Figure 4: Project Trip Distribution
Figure 5: Project Trip Assignment

Attachment:

Project Operational Statement

TABLES

Table A - Annual Future Production and Truck Hauling Estimate

Current Annual Production Information	
Current Acreage[1]	7,500
Current Annual Raw Material Production (2021) in lbs[2]	76,000,000
Current Production rate per acre (lbs/acre)	10,133
Future Acreage[1]	13,000
Future Annual Production Calculation	
Annual Raw Material Production in lbs.	131,733,333
Annual Dry Waste (6.5% of Raw Material) in lbs.	8,562,667
Annual Marketable Livestock Supplement Waste (49.5% of Raw Material) in lbs.	65,208,000
Annual Finished Product (30% of Raw Material) in lbs.	39,520,000
Future Annual Truck Hauling Calculation (# of Roundtrips)	
Truck Hauling Capacity in lbs.[1]	50,000
Annual Raw Materials Hauling Trips	2,635
Annual Dry Waste Hauling Trips	171
Annual Marketable Livestock Supplement Waste Hauling Trips	1,304
Annual Finished Product Hauling Trips	790

Notes:

1 Information was obtained from the Project Operational Statement, dated January 30, 2023.

2 Year 2021 raw material production information was obtaied from the*Additional Imformation Request Re: S. Stamoules Inc, Pistachio Processing Facility* letter, from Dirk Poeschel Land Development Services, Inc., dated October 21, 2022.

LSA

Table B - Total Daily Truck Trips Estimate

Truck Traffic Trips				
Hauling Truck Type[1]	Annual Roundtrip Truck Hauling Trips[2]	Number of Days[1]	Roundtrips Per Day	Total Daily Trips (Inbound + Outbound)[3]
Harvest Season				
Raw Materials Hauling	2,635	28	95	190
Dry Waste Hauling	171	28	6	12
Total	2,806		101	202
Non-Harvest Season				
Marketable Livestock Supplement Waste Hauling	1,304	200	7	14
Finished Product Hauling	790	300	3	6
Total	2,094		10	20

Notes:

1 Information was obtained from the Project Operational Statement, dated January 30, 2023. However,as summarized in the operational statement, majority of the harvesting will occur during the first month of the season. Therefore, as a conservative estimate, it was estimated that the raw materials will be harvested during 28 day

2 Annual roundtrip truck hauling trips was calculated as follows : Future Annual Production / Truck Hauling Capacity.

3 Total daily truck hauling trips was calculated by multiplying the estimated daily roundtrip numbers by a factor of 2 to account for inbound and outbound trips.

LSA

Table C - Project Trip Generation

Land Uses	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
Pistachio Processing Facility							
Raw Material Hauling Trucks							
Trip Generation[1]	6	6	12	6	6	12	190
PCE Generation[2]	18	18	36	18	18	36	570
Dry Waste Hauling Trucks							
Trip Generation[3]	1	1	2	1	1	2	12
PCE Generation[2]	3	3	6	3	3	6	36
Employees							
Trips/Unit[4]	0.44	0.09	0.53	0.11	0.38	0.49	3.10
Trip Generation	6	1	7	2	5	7	43
Service Vehicles[5]	2	0	2	0	2	2	4
Total Trip Generation	**15**	**8**	**23**	**9**	**14**	**23**	**249**
Total PCE Trip Generation	**29**	**22**	**51**	**23**	**28**	**51**	**653**

Notes:

PCE = Passenger Car Equivalent

[1] As per information provided by the applicant, under full build-out conditions, the facility will process approximately 131,733,333 pounds of harvested material from the applicant's 13,000 acres of orchard. The capacity of each truck is 25 tons or 50,000 pounds. Considering 28 days of peak harvesting season, and the facility operating all seven days a week during the peak harvesting season, the average number of inbound trucks per workday required to haul material to the site is approximately 95. Addtionally, the trucks are anticipated to arrive and leave the site uniformly over an 17-hour period.

[2] As a conservative approach, all truck trips were converted to PCEs using a PCE factor of 3.0.

[3] The facility is estimated to produce 8,562,667 pounds of dry waste material for the 131,733,333 pounds of harvested material. Considering 28 days of peak harvesting season, and the facility operating all seven days a week during the peak harvesting season, the average number of inbound trucks per workday required to haul material to the site is approximately 12. As a conservative approach, it was assumed that one inbound and one outbound dry waste truck trip during both the a.m. peak hour and p.m. peak hour

[4] Rates obtained from the Institute of Transportation Engineers *Trip Generation Manual* (11th Edition) for Land Use 110 - "General Light Industrial", Setting/Location - General Urban/Suburban. The facility will have a maximum of 14 employees.

[5] As per information provided by the applicant, only two light duty service trucks will visit the site every day. As a conservative approach, both service vehicles have been assumed to arrive during the a.m. peak hour and leave during the p.m. peak hour.

FIGURES

FIGURE 1

0 1000 2000
FEET

SOURCE: ESRI Streetmap, 2021; Google Earth, 2020.

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Regional and Project Location

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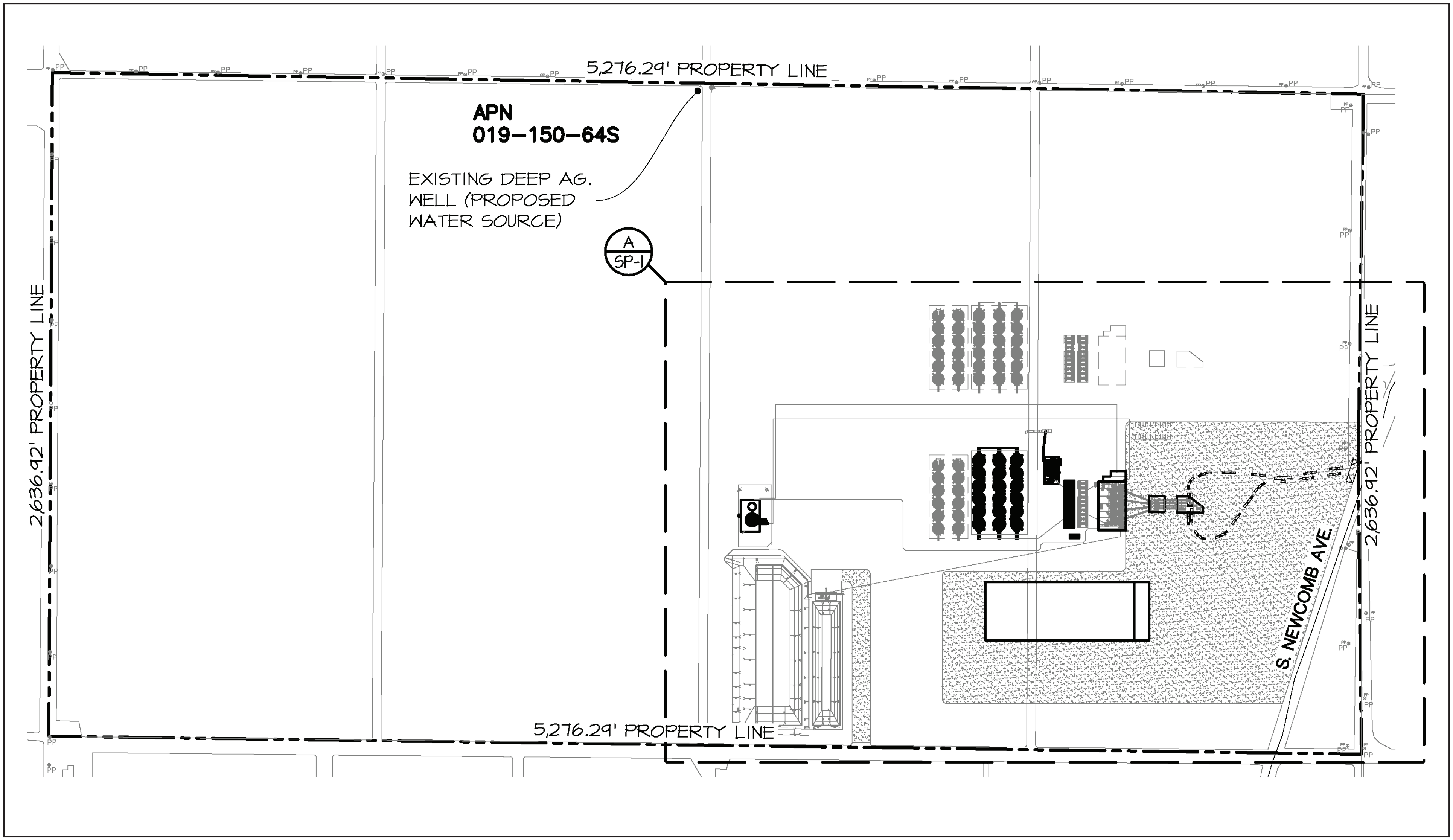

FIGURE 2

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Conceptual Site Plan

SOURCE: Engel & Company, September 2020.

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LSA

LEGEND

Project Site

Study Intersection

Project Driveway

0 1000 2000
FEET

FIGURE 3

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Study Area Intersections

SOURCE: ESRI Streetmap, 2021.

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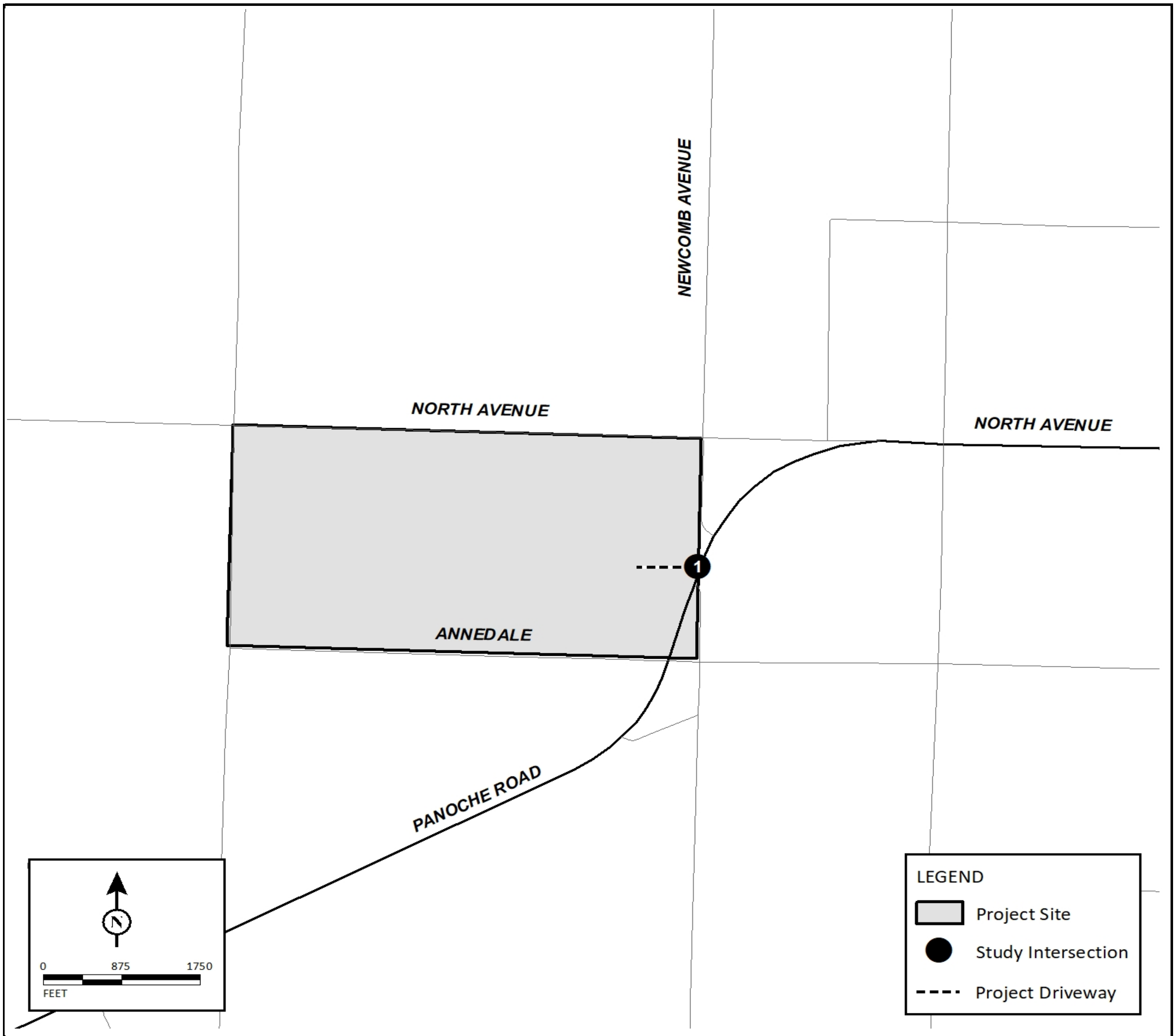
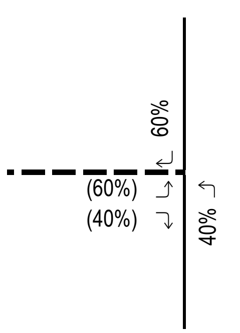




1 Panoche Road/Project Driveway

FIGURE 4

XX% (YY%)
Inbound% (Outbound%) Distribution

Project Driveway

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Project Trip Distribution

P:\CFF2201-OPA Pistachio\Traffic\z12_Dist.xlsx 3/10/2023

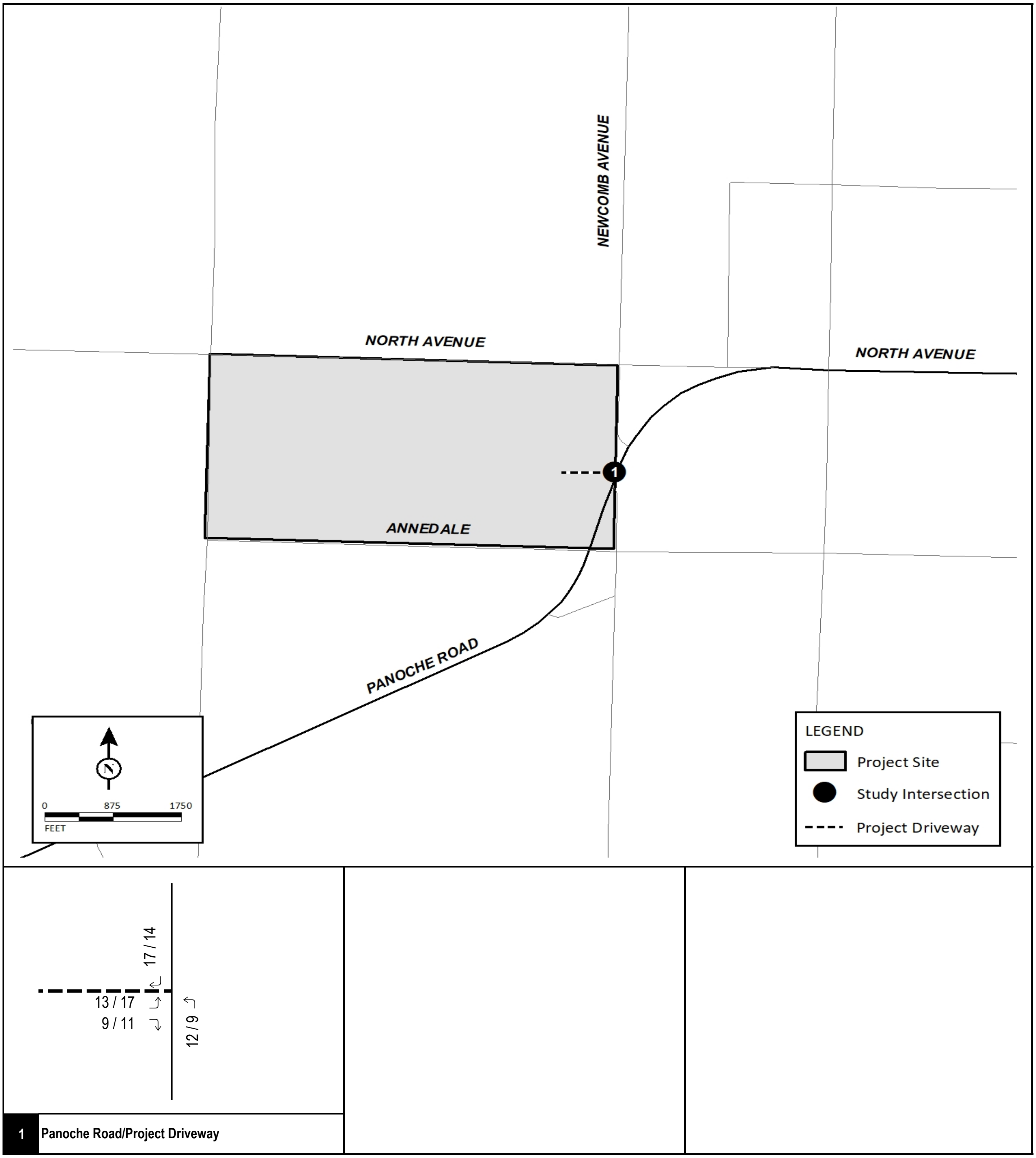


FIGURE 5

XX / YY
AM / PM Peak Hour PCE Trips

Project Driveway

S. Stamoules, Inc. Pistachio Processing Facility
Traffic Impact Study

Project Trip Assignment

ATTACHMENTS

Conditional Use Permit Application Operational Statement for
S. Stamoules, Inc. Pistachio Huller
January 30, 2023

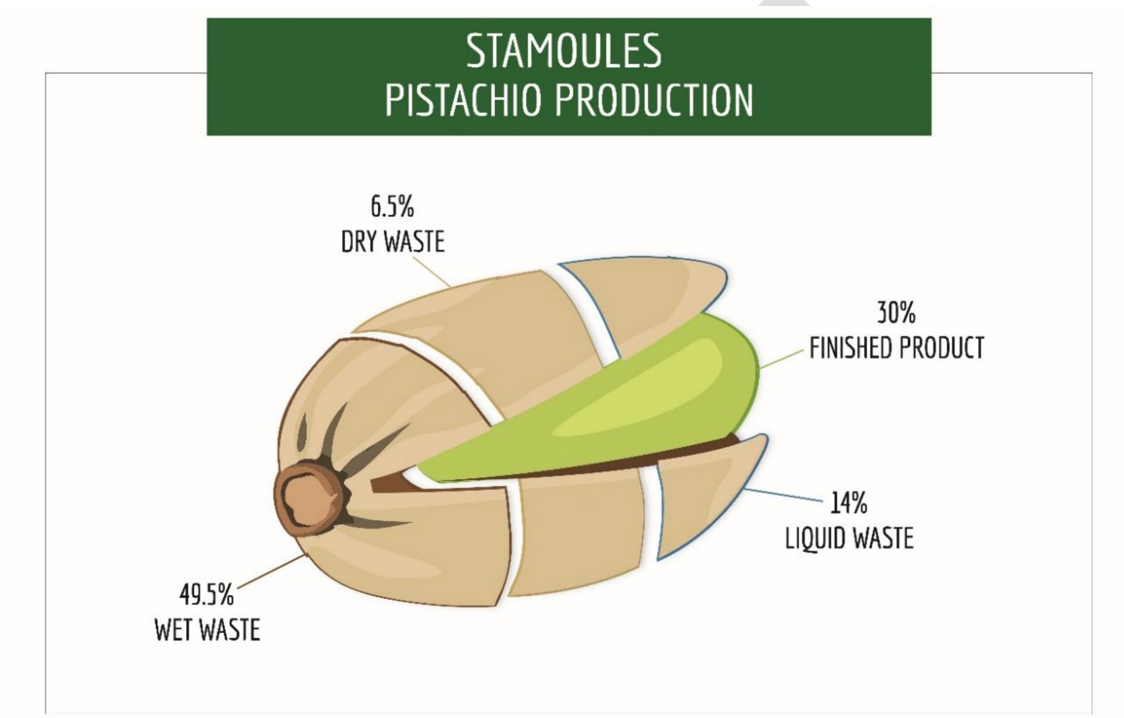
Applicant:	S. Stamoules, Inc. 904 S. Lyon Ave. Mendota, CA 93640
Record Owners:	S. Stamoules, Inc. 904 S. Lyon Ave. Mendota, CA 93640
Representatives:	Land Development Services, Inc. (Dirk Poeschel) Engel & Co. (Paul Anchordoquy)
APN:	019-150-64S (316.2 Acres)
Project Area:	98 Acres +/-
Location:	S. Newcomb Ave. between North Ave. and Annandale Ave.
Request:	Approval of an Unclassified Conditional Use Permit to allow the owner to construct and operate a pistachio processing facility in the AE-20 zone.
References:	1. Water Process Flow Diagram (South Valley Pump) (REF 1) 2. Process Flow Diagram (JTI) (REF 2) 3. Figure 1: Site Location Map (Valley Science and Engineering) (REF 3) 4. Equipment brochures (REF 4)

1. Nature of the Operation

Please see the project site plan, floor plans and elevations prepared for the project by Engel & Co., structural engineers in Bakersfield, California. The proposed pistachio processing facility is for the owner's use in processing their own pistachio harvest from approximately 7,500 acres of existing mature pistachio orchards. The owner is currently sending their entire pistachio crop to an outside huller. In addition to other advantages of having their own processing facility, such as significantly shorter haul distances, the proposed facility would allow the applicant to select the optimum time of harvest rather than relying on the availability of the facilities for processing by others. Simply, instead of transporting the same pistachio crop to another processing plant, the applicant will transport the same acreage of his crop over essentially the same county roads to his own facility that is half the distance of the current processing facility.

The owner has plans to eventually develop approximately 13,000 acres of pistachio orchards, with the entire crop being directed to this site for processing, with no outside pistachios being processed. All such expanded orchards will be proximate to the existing applicant's holdings.

To clarify the nature of the incoming material, for every 100 pounds of raw pistachios delivered to the site, about 70 pounds of raw waste are created after processing with leaving about 30 pounds of processed product. Of those 70 pounds of raw waste, 20% or 14 lbs. will be water removed from the pistachios as they are processed therefore creating about 56 pounds of marketable waste material.



The raw pistachios will arrive on site from the owner's surrounding orchards in the owner's collection of field trucks where they are dumped onto conveyors that deliver the nuts to the Pre-Cleaners. The Pre-Cleaners remove large debris that has been mixed with the pistachios during harvest.

From the Pre-Cleaners, the nuts are conveyed to the Huller Building. The Huller Building contains mechanical peelers that use a combination of water and abrasion to remove the hulls from the pistachios.

From the Huller Building, the pistachios are conveyed to gas-powered dryers that heat the product and ready it for bulk storage in large on-site Storage Silos, until the product is ready to be packaged. Raw product may be stored in the Storage Silos anywhere from 2 to 8 months, depending on market demand.

Site improvements will be phased in. The proposed huller buildings will total 22,940 sq. ft. In or around the year 2025, there will be a 155,169 sq. ft., Processing Building constructed on site where the pistachios will be placed in “super sacks” (large bags weighing approximately 1,500 lbs.) and shipped to an off-site processing and packing facility. By 2026 or 2027, the owner will begin installing processing equipment in the Processing Building to allow processing, sorting and packaging of their own pistachios on site. The finished product would then be shipped via truck not owned by the applicant to retail markets.

Project Phase	Est. Construction	Scope
1	2022	Pit, Pre-Cleaners, Huller Building, (10) Dryers, 18 Silos.
2	2024 - 2025	Processing Building (no equipment)
3	2026 - 2027	Process Equipment install in Processing Building, add (10) Dryers and (12) Silos at Huller Area
4 (+)	2028 - 2029	Second (identical) Huller w/ Pits, Pre-Cleaners, Huller Building, (20) Dryers and (30) Silos

2. Operational Time Limits

The pistachio harvest typically begins around September 1 and runs through mid-November for an estimated 84 days with the majority of the crop being harvested and delivered to the facility in the first month of the season. Based on a variety of variables, the season runs for about 84 days. During the peak of the harvest it is expected the Huller portion of the facility to be operational from 6 a.m. until 11 p.m. for six to seven days per week. Although, the Huller will likely operate 24/7 during the harvest season.

Once complete, the Processing Building will keep regular hours, running from 7:30 a.m. to 4:30 p.m. for five days each week. The Process Building will run all year except during estimated 84 day harvest season. The Processing Building will not run during the harvest season because the harvest process requires additional manpower and at this time of year there is usually very little product available for processing. Some employees will shift from working in the Processing Building to working in the Huller during the harvest season.

Hours of Operation

Activity	Proposed Time
Office	7:30 a.m. - 4:30 p.m.
Material Receiving	6:00 a.m. - 4:00 p.m.
Material Processing (Peak Season Only)	6:00 a.m. - 11:00 p.m.
Maintenance	7:30 a.m. - 4:30 p.m.

3. Number of Customers or Visitors

This site will be closed to the public for food safety reasons. Only employees and delivery vehicles will have regular access. It is estimated two light duty delivery trucks will visit the site on average each day with supplies and parts etc.

4. Number of Employees

At maximum capacity there will be as many as 14 employees on site with 4 employees performing administrative tasks and 10 employees operating the facility. Please see section 2 for operating hours. As previously mentioned, the Processing Building and Huller will not operate at the same time, so the total number of employees on site will not be cumulative between the two areas. The site will not have a resident caretaker.

5. Service and Delivery Vehicles

It is estimated that there will be 4 daily trips to the site for equipment servicing, general delivery of materials and parts.

Traffic

Product Related Trips

As stated above, the harvest season varies from year to year but is estimated to span 84 days from September 1 to mid November. A summary of the estimated total project incoming and outgoing truck trips is illustrated below.

During the typical harvest season, it is estimated the facility will accept 100,000,000 pounds of raw material in trucks with a hauling capacity of 50,000 pounds. The 100,000,000 lbs. of incoming raw pistachios will be processed at the proposed plant which will create about 30,000,000 lbs. of processed pistachios to be sold to wholesalers in bulk 2,000 lb. bags for shipment to buyers around the world. No retail sales will occur on site.

It is estimated another 14% or 14,000,000 lbs. of the incoming raw pistachios is liquid extracted from the pistachios when the pistachios are crushed. That liquid will be transported to the proposed ponds via piping. About 6.5% of the incoming material or 6,500,000 lbs. contains leaves, twigs, dirt, broken hulls, culls rejected due to some deficiency and shells with no pistachio meat which is pure waste.

The remaining 49.5% or 49,500,000 lbs. are hulls which will be transported to the proposed ponds where they degrade and will be cleared regularly from the ponds and sold as a livestock food supplement.

STAMOULES PISTACHIO FACILITY ESTIMATED TRUCK TRAFFIC
TOTAL PROJECT TRIPS

Trip Purpose	In	Out	84 Day Avg.
100,000,000 lbs. incoming raw material in 50,000 ton capacity trucks (1)	2,000	2,000	47.6 (5)

6,500,000 lbs. of waste shipped to green waste recyclers in 50,000 ton capacity trucks (2)	130	130	3.0 (6)
49,500,000 lbs. of marketable livestock supplement waste in 50,000 ton capacity trucks (3)	990	990	9.9 (7)
30,000,000 lbs. of processed material shipped to wholesalers in 2,000 lb. bags in 50,000 ton capacity trucks (4)	600	600	4.0 (8)

Trips Occurring Everyday of Harvest Season

(1) 100,000,000 lbs. of incoming raw material ÷ 50,000 ton capacity trucks = 2,000 truck trips ÷84 days = 23.8 truck trips per day in and 23.8 truck trips per day out or 47.6 total trips

(2) 6,500,000 lbs. of waste ÷ 50,000 ton capacity trucks = 130 truck trips ÷ 84 days = 1.54 truck trips per day in and 1.54 truck trips per day out or 3.08 total trips

Trips Occurring Over the Year

(3) 49,590,000 lbs. of marketable waste ÷ 50,000 ton capacity trucks = 990 truck trips ÷ 200 days = 4.95 truck trips per day in and 4.95 truck trips per day out or 9.9 total trips

(4) 30,000,000 lbs. of processed material ÷ 50,000 ton capacity trucks = 600 truck trips ÷300 days = 2 truck trips per day in and 2 truck trips per day out or 4 total trips

Average Trips Per Day

(5) 4,000 trips of incoming raw material ÷ 84 days = 47.6 trip ends per day
(6) 260 trips to green waste recyclers to green waste recyclers ÷ 84 days = 3.0 trip ends per day
(7) 1,980 trips of marketable livestock supplement waste ÷ 200 days = 9.9 trip ends per day
(8) 1,200 trips of processed material shipped to wholesalers ÷ 300 days = 4 trip ends per day

Estimated Trip Distribution Routes

Reference is made to the notated aerial photo below that estimates the routes in which project truck traffic will travel. Due to seasonal and demand variations, some of these routes will change.

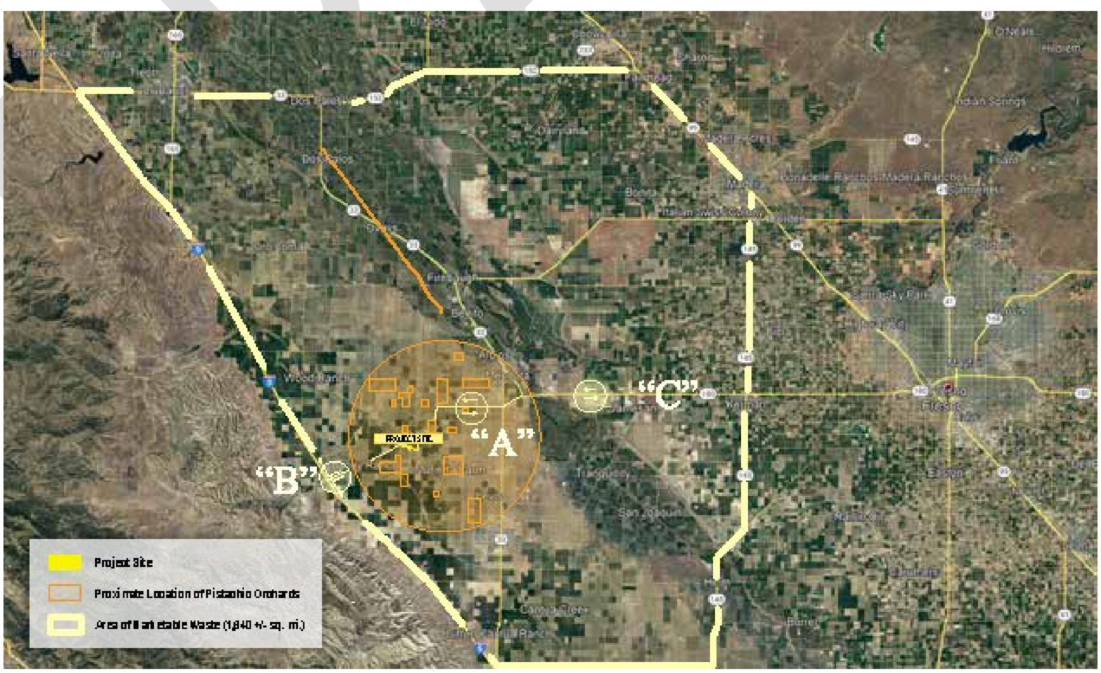
As for incoming raw material, the applicant owns the parcels illustrated within the orange circular area notated aerial photo below. Some applicant fields may be added over time but the fields will generally be located in the orange circle area of the aforementioned map. The inbound routes include farm roads owned by the applicant and tangents of county roads within Area “A” to the proposed plant site. Outbound trucks will return by reversing that inbound route.

Also illustrated within Area "A" notated aerial photo below is the general area of the applicant's trucks that will load huller waste such as twigs, leaves, dirt, etc. at the proposed plant and deliver that waste to the applicant's fields for composting. Those trucks will return to the applicant's farms using the same route of farm roads and tangents of county roads.

Area "B" illustrates the truck route for the finished product transported from the proposed site onto Panoche Rd. to Interstate 5 proceeding either north or south to northern or southern California to wholesale markets. The applicant does not operate these trucks so these trips begin in northern or southern California, load the finished material and return to their original destination over Interstate 5.

Area "C" illustrates the truck route for the finished product transported from the proposed site onto Panoche Rd. to Interstate 5 proceeding either north or south to northern or southern California to wholesale markets.

The area of marketable waste deliveries is also noted on the aerial below. That area contains 1,640 +/- sq. miles and utilizes the roadways within Areas "A", "C" and other roadways that the related location of those deliveries. difficult to define due the unknown location of product purchasers. Due to demand variations, some of the purchasers will change but it is logical to assume transportation of the marketable material outside of this area is cost prohibitive due to its distance and scarcity of potential product purchasers. It is also logical to assume that the delivery routes for the marketable waste material will utilize state roadways to the extent possible due to their good condition, connection to other state routes and proximity to food supplement purchasers.



For Phase I of the project, it is anticipated that there will be up to 100,000,000 lbs. of raw harvested product annually delivered to the site from the applicant's fields for cleaning and processing. The plant is expected to receive less than that total in the first few years of operation but that harvest will increase steadily as more of the owner's orchards mature into production.

When the first huller is completed (Phase 3, please see table above), the facility will process approximately 100,000 tons of harvested raw material annually. When the second huller is constructed (Phase 4) the capacity of the facility will double.

It is important to understand that the applicant's current crop is processed at an another hulling facility not owned or operated by the applicant. Simply, the applicant is changing the location of the processing facility for his pistachio crop. The applicant's crops are currently being transported over county roads from the same applicant's fields that are the subject of this application. By constructing his own facility, the applicant will, among other things, reduce the transportation distance of his crop by approximately half.

Employee Related Trips

According to the ITE, total weekday employee trips are estimated to be 3.05 trips per employee or 54.9 total daily employee related trips (3.05 trip generation factor x 18 employees=54.9 total daily employee trips). Therefore, the proposed maximum 14 employees will generate 54.9 employee related traffic trips. Note these trips estimates are for full project build out (Phases 1 through 4).

6. Access to Site

An aerial illustrating the project truck distribution to and from the site is provided below. Access to the site is from S. Newcomb Ave. which is designated a *local road* in the Circulation Element of the Fresno County General Plan from Panoche Rd. Panoche Rd. provides east west connection to major state roadways I-5 and St. Rt. 180 and is designated as a *collector* in the Circulation Element of the Fresno County General Plan. The applicant's tractors and field trucks will also take access to the site from the surrounding orchards via unpaved farm roads.

7. Number of Parking Spaces

Thirty paved employee parking spaces will be provided in the Huller Area of the facility (Please see attached site plan). Truck loading and parking are located on the project site.

8. On-site Sales

There will be no on-site sales of any products.

9. Processing Equipment

Stationary Processing Equip. Huller Area	Stationary Processing Equip. Processing Building	Mobile Equipment Huller & Processing
Truck Scale	Scales	Bobcats
Conveyors	Baggers	Front-end loaders

Pre-cleaners Hullers Float Tank Water Collection pumps Screener De-Twigger Dryers Gravity Deck Silos	Hoppers Roasters Forklifts	Forklifts

10. <u>Supplies and Materials</u>

Typical supplies and materials for processing agricultural products are required for this facility. Paper, plastic and metal packaging materials will be used depending on the type of storage/transportation application.

11. <u>Appearance, Glare, Noise, Dust, Odor</u>

The applicant is his own neighbor. The adjacent land the applicant does not own is also in agricultural production.

The facility will operate under strict federal and state food safety protocols and will be subject to inspection by a variety of regulatory agencies. The site will be kept free and clear of litter and debris to avoid attracting vermin. The applicant will implement state of the art vermin control measures.

All lighting will be hooded and directed downward to minimize light pollution.

The Huller Area and the Processing Building will be industrial-style construction, consisting of steel-framed construction with insulated metal panel exterior walls. The Pre-Cleaners, Dryers, conveyors and Silos will be visible from S. Newcomb Ave. However, the entire Huller Area will be kept very clean because of food safety requirements. The facility will be consistent in appearance with similar industrial food plants.

The Silos and Dryers will be constructed of galvanized steel and will reflect sunlight if viewed from a certain angle. However, the Silos and Dryers are located on the other side of the Huller Area relative to S. Newcomb Ave., so glare seen from the road will be limited. The rest of the equipment and buildings on site will be painted white. Exposed structural steel framing will be coated with grey primer. Please see attached brochures (Ref. 4) depicting examples of the process equipment that will be visible from the outside of the plant. The maximum height of the Silos will be 52 feet and corresponding height of the Dryers will be 33 feet.

The process of removing the pistachio hulls is a wet process, so there will be very little dust generated at this facility. Trucks will travel on paved surfaces when on site to minimize the amount of dust generated.

The water used in the hulling process will be directed to lined settling ponds. The settling ponds where solids are continually removed from the process wastewater have the potential to generate some unpleasant odors but the ponds will be continually monitored to assure odors are abated. The settling ponds will be drained and scraped clean at the end of the season, with all solids being transported off site to compost green waste firms or to ranches for cattle feed.

The Dryers and some of the pre-cleaner equipment make enough noise that employees working in near to the equipment will be required to wear ear protection. However, past experience with similar equipment has shown that the noise will not be noticeable from off site.

12. <u>Solid or Liquid Waste</u>

Please see attached process flow diagram (Ref. 2). The hulling process requires a large volume of water (defined in below), and all process wastewater will be captured on site. Upon leaving the Hullers, the process wastewater will contain pistachio hulls and other debris that comes from the field with the harvested pistachios. The process wastewater will pass through a screen intended to capture most of the larger debris.

The process wastewater will then be directed to lined settling ponds where small debris that passed through the screens will settle to the bottom of the ponds to be collected when the ponds are drained at the end of the harvest season. Both the large and small solids will be used for either compost or cattle feed. The process wastewater will be beneficially reused to irrigate crops.

The facility is proposed to generate approximately 311.4 million gallons (955.5 acre-feet) of process wastewater annually, at final build-out. The process wastewater will be used as a supplemental irrigation and nutrient source for pistachio orchards owned by S. Stamoules, Inc. (Ref. 3). The pistachio orchards, land application area slated to receive the process wastewater are located approximately 2 to 6 miles to the northeast of the facility and total approximately 3,740 acres.

The process wastewater will be conveyed to the land application areas utilizing existing subsurface piping. Based on water quality information from existing pistachio processing plants using similar source water, including projected nitrogen, potassium, and biochemical oxygen demand concentrations that have been permitted in existing waste discharge requirements (WDR) adopted by the Regional Water Quality Control Board, irrigation of the process wastewater would be used on a minimum of 2 acres of land per acre-foot to meet applicable water quality requirements. The proposed 3,740-acre land application areas should supply sufficient acreage to effectively treat the process wastewater and meet water quality objectives. The land application process wastewater will be subject to the approval of a Wastewater Discharge Permit issued by the Regional Water Quality Control Board.

As described above, Pistachio waste contains different components that are of potential value to certain entities. One component is twigs, broken shells and earthen material that can be used for composting or other soil amendment applications. Rejected pistachio nuts and pistachio hulls are a large part of the waste stream and have nutritional value as the nuts have a relatively high fat content and can be used to supplement cattle feed. An illustration of likely huller waste truck routes is provided above.

Only typical putrescible waste will be generated by the project employees, with eligible materials such as paper, cardboard, etc. directed to the appropriate recycling centers in accordance with the California Green Code.

13. <u>Volume of Water</u>

Both process and fire suppression water will be supplied by an existing deep irrigation well located in the northwest corner of the site. The well currently can produce from 1,800 to 2,000 gallons per minute.

Please see attached water process flow diagram (Ref. 1). Water will be pumped from the existing well, through sand media filters, then to a large storage tank (approximately 250,000 gallons). Approximately 180,000 gallons will be allotted for site fire suppression, with the balance being used for processing operations. The tank will be plumbed in such a way to preserve the 180,000 gallons for fire suppression at all times. The majority of the water used at the facility will occur during the harvest season estimated to be 84 days between September to mid-November.

It is anticipated that the initial phase of the project will require between 1,000 and 1,250 gallons per minute (GPM) of water for processing operation during the peak season, totaling 78.03 million gallons (239.5 acre-feet) annually. The final build-out is expected to use between 4,000 and 5,000 GPM of water during the peak season, which equates to approximately 311.4 million gallons (955.5 acre-feet) annually. The final build-out will require additional water from other existing wells on the owner’s adjacent properties, or new wells to be installed.

From the Hullers, the process wastewater will be pumped over screens to remove hulls and other debris, with the wash water then placed in lined settling ponds The screens collect the hulls and other solid materials, which are routinely squeezed to remove as much water as possible. The hulls and other solids are then collected with a loader and used for compost or cattle feed.

The surface application of wastewater from the hulling process will be subject to the approval of a Wastewater Discharge Permit issued by the Regional Water Quality Control Board. There are a number of factors that are considered in the discharge permit, such as the soil type where the water is applied, the crops to be irrigated, etc. The applicant is currently in possession of approximately 172 parcels used in the production of pistachios, row crops and forage crops, and should have the ability to designate a land application area large enough to effectively treat the wastewater to satisfy the permitting requirements of the Regional Water Quality Control Board.

<u>Domestic Water</u>

A new domestic well will be developed for potable water purposes.

14. Advertising

No site advertising is proposed. Traffic directional signs will be installed per county standards near S. Newcomb Ave. to help truck drivers identify the site.

15. Existing or New Buildings

The site is currently undeveloped and used for farming, so all construction on site will be new. Please see attached site plan, floor plan and exterior elevations for more detail on building location, appearance and construction materials.

16. Buildings Used in the Operation

All buildings and non-building structures constructed on site will be used as part of the proposed pistachio hulling and packing operation.

17. Outdoor Lighting and Sound

There will be no sound amplification system or public address system installed with this project. There will be lighting installed on site, however it will be directed downward to minimize light pollution. There will be light standards in the parking areas, in the Huller Building, and in certain outdoor areas of the Huller Area. The Processing Building will have exterior wall-mounted lights directed downward to illuminate the ground adjacent to the building.

18. Landscaping and Site Fencing

No landscaping is proposed for the site. There will be a chain-link security fence around the perimeter of the facility to control access to comply with food-safety requirements. Security staff will monitor the site 24/7 either in person or with security cameras.

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DIRK POESCHEL *923 Van Ness Avenue. Suite 200 • Fresno. California 93721*
Land Development Services, Inc. *559/445-0374 • FAX: 559/445-0551 • e-mail: dirk@dplds.com*

October 21, 2022

Mr. Kyle Simpson, Associate
LSA
2565 Alluvial Ave., Suite 172
Clovis, CA 93611
Via email: kyle.simpson@lsa.net

SUBJECT: October 5, 2022, Additional Information Request Re: S. Stamoules, Inc, Pistachio Processing Facility

Dear Kyle:

Reference is made to the subject request for additional information. Based on this inquiry, the project Operational Statement was modified on October 18th to clarify the project details. A copy of that revised Operational Statement is attached. Below please find my client's reply to your inquiry in italics.

1. **Pistachio Yields**

   a. The Operational Statement indicates that the proposed facility is intended to process only pistachios harvested from fields owned by the Project Applicant and that no pistachios from other fields will be processed at the proposed facility (Page 1).

      The Operational Statement is correct. The proposed facility will only process raw material from the owner's fields.

   b. The Operational Statement states that upon completion of Phase 1, up to 100 million pounds of harvested product will be annually delivered to the proposed facility (Page 3) from 7,500 acres of mature pistachio orchards owned by the Project Applicant. The County calculates that the fields owned by the Project Applicant would yield over 13,000 pounds of pistachios per acre. The County believes this number is exorbitantly high.

      Although Phase One is proposed to handle up to 100 million pounds of raw material, the applicant's current yearly yield for his 7,500 acres was slightly over 76,000,000 lbs. of ***raw product****. Raw product includes stems, hulls, dirt and water that can vary depending on the time of harvest.*

*The applicant has documentation for 2021 showing they delivered 76,000,000 lbs. of raw material to the huller facility in Firebaugh. Using current production numbers, the applicant's 7,000 acres is averaging approximately 10,000 lbs. of **raw product** per acre.*

c. The Operational Statement States that upon completion of Phase 3, the proposed facility will be capable of processing approximately 83,000 tons (166 million pounds), and upon completion of Phase 4 the processing capacity of the proposed facility will double (assumed to be 166,000 tons or 332 million pounds [Page 4]). The Operational Statement indicates that the Project Applicant plans to develop additional acreage to an approximate total of 13,000 acres of pistachio orchards. Please confirm and/or provide data regarding pounds per acre to validate assumptions.

Items a., b., and c., all fall under the same answer. The proposed project huller was designed to handle up to 100,000,000 lbs. of raw product. As stated above, the applicant has harvest data verifying delivery of just over 76,000,000 lbs. of raw product in the 2021 harvest season using his current 7,500 acres. The applicant is developing an additional 7,500-10,000 acres to mature for processing within the next 7 years. It is anticipated that new production fields will at maturity produce at the same rate per acre as the applicant's other Pistachio holdings.

2. The Operational Statement states that the Project Applicant plans to divert approximately 18,630 tons of their own raw harvest material to the proposed facility. Clarification of this statement is needed because it conflicts with the 100 million pounds (50,000 tons) that is anticipated for Phase 1 (Page 3).

   There was a typo in the Operational Statement. The correct number of the applicant's diverted raw material is 38,000 tons. Further, what was trying to be conveyed with the word "diverted" was the fact that the applicant's current crop is processed at another hulling facility not owned or operated by him. Said simply, instead of transporting the same pistachio crop to another processing plant, the applicant will transport the same acreage of his crop over essentially the same county roads to his own facility that is half the distance of the current processing facility.

3. The Operational Statement indicates that the majority of the crops being harvested and delivered to the proposed facility occurs in the first month of the harvest season which begins around September 1st and runs through October. However, the products-related trips for Phase 1 are calculated based upon an even distribution of delivery over 313 working days (Page 2). Please confirm or rectify.

   A revised Operational Statement section regarding project seasonal trips has been added on page 4 which now reads as follows:

<u>Product Related Trips</u>

During the harvest season, it is anticipated that 2 or 3 loads of raw nuts arrive at the processing facility from the field each hour of operation. Each load from the field will weigh between 48,000 and 52,000 lbs. The applicant anticipates 4 to 6 trucks per day leaving the Process Building once it is complete, with each truck load weighing approximately 80,000 lbs. The finished product will be delivered to both retail and wholesale markets.

For Phase I of the project, it is anticipated that there will be up to 100 million pounds of harvested product annually delivered to the site from the field for cleaning and processing. The plant is expected to receive less than that total in the first few years of operation but that harvest will increase steadily as more of the owner's orchards mature into production. Incoming raw product of 100 million pounds is processed per year which requires trucks with a 25-ton capacity per truck (50,000 lbs.) generate of 5.47 trucks per workday hauling raw material to the site. The same 5.47 trucks exit the site empty meaning 12.8 one-way truck trip ends are generated by the facility per day, year. In a 12-week harvest season, or 84 days, the facility will accept 23.8 truck trips per harvest season day (100 million pounds of raw material divided by 50,000 pounds of track capacity= 2,000 truck trips for the harvest season of 84 days.

When the first huller is completed (Phase 3, please see table above), the facility will process approximately 38,000 tons of harvested material annually, resulting in an average of 21.2 one-way truck trips per day each year. Finally, when the second huller is constructed (Phase 4) the capacity of the facility will double, resulting in 66.4 one-way truck trips per day each year.

It is important to note that the applicant's current crop is processed at an outside hulling facility. By constructing their own facility, the applicant will reduce the distance travelled by trucks transporting their current crop to the outside huller. The applicant plans to direct approximately 38,000 tons of their own raw harvest material to the proposed huller and processing facility.

4. Clarification is needed as to why the average truck trips per day each year goes from 12.8 one- way trips per day for Phase 1 at a processing capacity of 100 million pounds, to 21.2 one-way- trips for Phase 2 at 166 million pounds, and then 66.4 one-way trips for Phase 3 at 332 million pounds (Pages 3-4). The County believes that the transition from Phase 1 to Phase 2 is proportional based upon processing capacity, but the transition from Phase 2 to Phase 3 does not appear to be proportional.

This was another typo. On page 4, the project Operational Statement has been clarified as follows:

For Phase I of the project, it is anticipated that there will be up to 100 million pounds of raw harvested product annually delivered to the site from the field for cleaning and processing. The plant is expected to receive less than that total in the first few years of operation but that harvest will increase steadily as more of the owner's orchards mature *into production. Incoming raw product of 100 million pounds will be processed per year which means trucks with a 25-ton capacity per truck (50,000 lbs.) will generate 5.47 trucks per workday hauling raw material to the site. The same 5.47 trucks exit the site empty meaning 12.8 one-way truck trip ends are generated by the facility per day, per year.*

During the 12-week harvest season, or 84 days, the facility will accept 23.8 truck trips per harvest season day (100 million pounds of raw material divided by 50,000 pounds of truck capacity= 2,000 truck trips for the harvest season of 84 days).

When the first huller is completed (Phase 3, please see table above), the facility will process approximately 100,000 tons of harvested raw material annually, resulting in an average of 42.4 one-way truck trips per day each year. When the second huller is constructed (Phase 4) the capacity of the facility will double, resulting in 84.8 one-way truck trips per harvest day each year.

It is important to understand that the applicant's current crop is processed at another hulling facility not owned or operated by him. Simply, the applicant is changing the location of the processing facility for his pistachio crop. The applicant's crops are currently being transported over county roads from the same applicant's fields that are the subject of this application. By constructing his own facility, the applicant will, among other things, reduce the transportation distance of his crop by approximately half.

5. Provide data to support the number of employees estimated to work at proposed facility. The County is concerned that the number of employees for an operation of this size appears to be underestimated, especially when compared to that of a similar but smaller project in the County.

   The applicant selected a highly automated processing plant which requires substantially fewer employees than other similarly purposed plants in the area. This highly automated plant is substantially more expensive yet produces the highest quality of processing than the traditional labor-intensive plants common to this area. The applicant and his design consultants are confident the estimated number of employees is accurate.

6. Pistachio Waste

   a. Please provide quantity of volume of pistachio waste material that will be produced through each phase.

      As detailed on page 7 of the revised Operational Statement, pistachio waste contains different components that are of potential value to certain entities. One component is twigs, broken shells and earthen material that can be used for composting or other soil amendment applications. Rejected pistachio nuts and pistachio hulls are a large part of the waste stream and have nutritional value as the nuts have a relatively high fat content and can be used to supplement cattle feed. For these reasons, and due to varying market demands, it is difficult *to predict exactly where the solid waste from this site will be directed. However, it is certain that the waste will be re-used in one form or another.*

For example, 100 million pounds of raw material will enter the site of which after processing will generate 70 million pounds of raw waste. Of those 70 million pounds, 20% will be water therefore creating 56 million pounds of marketable waste material. Therefore, the project will generate 1,120 truck trips per year (56,000,000 divided by 50,000 lbs. per truck = 1,120 trucks per year or an average of 3 project waste truck trips per day (1,120 divided by 365 days =3 waste trips per day).

b. Provide quantity of truck trips generated for the transport of pistachio waste material.

Please see the response directly above.

7. Provide a site plan showing the existing subsurface piping/infrastructure proposed to convey processed wastewater to land application areas. This site plan must be submitted to ensure all affected properties are included in the application. The County needs to understand the location and easement information related to where the system crosses private properties not part of the permit, and/or in road rights-of-way. The County notes that if the project is approved, engineering analysis will be required to determine adequacy and safety of the improvements.

   This information was previously provided to Fresno County but will be resent to you by separate cover.

Conclusion

Thank you for this opportunity to clarify the project and correct typos. Mr. Stefanopoulos and his project development team appreciate your desire to produce an accurate environmental document. If you have any additional questions, please do not hesitate to ask.

Sincerely,

Dirk Poeschel, AICP

By

Maria Spera, Associate Planner (for D.P.)

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APPENDIX B

TRAFFIC COUNT AND SIGNAL TIMING SHEETS

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

County of Fresno
Panoche Road
N/ Newcomb Avenue
24 Hour Directional Volume Count

CFO001
Site Code: 003-23470

Start	5/10/23	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		1	8			1	3				
12:15		0	3			0	7				
12:30		0	4			0	6				
12:45		0	5	1	20	1	2	2	18	3	38
01:00		0	4			0	5				
01:15		0	13			0	1				
01:30		0	24			0	**9**				
01:45		0	**30**	0	71	0	**2**	0	17	0	88
02:00		0	**22**			0	**6**				
02:15		0	**14**			1	**6**				
02:30		0	**28**			0	4				
02:45		0	12	0	76	1	5	2	21	2	97
03:00		0	8			1	0				
03:15		1	10			2	3				
03:30		0	9			1	1				
03:45		0	3	1	30	7	2	11	6	12	36
04:00		0	6			4	5				
04:15		1	6			9	2				
04:30		0	6			**27**	5				
04:45		2	3	3	21	**20**	0	60	12	63	33
05:00		3	3			**17**	1				
05:15		2	6			**20**	2				
05:30		3	3			20	0				
05:45		2	2	10	14	16	0	73	3	83	17
06:00		3	3			11	0				
06:15		4	2			5	4				
06:30		7	0			13	1				
06:45		3	1	17	6	9	1	38	6	55	12
07:00		3	3			6	1				
07:15		2	3			4	2				
07:30		0	5			10	1				
07:45		3	1	8	12	0	1	20	5	28	17
08:00		1	1			3	2				
08:15		4	2			9	2				
08:30		4	0			3	0				
08:45		3	0	12	3	3	2	18	6	30	9
09:00		4	1			7	1				
09:15		8	2			3	0				
09:30		2	2			7	1				
09:45		5	2	19	7	7	5	24	7	43	14
10:00		6	3			7	0				
10:15		**4**	1			2	1				
10:30		**7**	0			8	2				
10:45		**7**	2	24	6	4	0	21	3	45	9
11:00		**7**	2			0	1				
11:15		1	0			4	0				
11:30		7	0			5	0				
11:45		5	0	20	2	1	0	10	1	30	3
Total		115	268	115	268	279	105	279	105	394	373
Combined Total		383		383		384		384		767	
AM Peak	-	10:15	-	-	-	04:30	-	-	-	-	-
Vol.	-	25	-	-	-	84	-	-	-	-	-
P.H.F.		0.893				0.778					
PM Peak	-	-	01:45	-	-	-	01:30	-	-	-	-
Vol.	-	-	94	-	-	-	23	-	-	-	-
P.H.F.			0.783				0.639				
Percentage		30.0%	70.0%			72.7%	27.3%				
ADT/AADT		ADT 767		AADT 767							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

County of Fresno
Panoche Road
S/ Newcomb Avenue
24 Hour Directional Volume Count

CFO002
Site Code: 003-23470

Start	5/10/23	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	9			0	3				
12:15		1	3			0	**8**				
12:30		0	4			0	**7**				
12:45		0	5	1	21	1	**2**	1	20	2	41
01:00		0	4			0	**8**				
01:15		0	14			0	1				
01:30		0	24			0	9				
01:45		0	**30**	0	72	1	2	1	20	1	92
02:00		0	**22**			0	6				
02:15		0	**14**			1	6				
02:30		0	**28**			0	5				
02:45		0	12	0	76	1	5	2	22	2	98
03:00		0	8			1	0				
03:15		1	10			2	3				
03:30		0	9			1	1				
03:45		0	3	1	30	7	2	11	6	12	36
04:00		0	5			4	4				
04:15		1	6			9	2				
04:30		0	6			**27**	5				
04:45		2	3	3	20	**20**	0	60	11	63	31
05:00		3	3			**17**	1				
05:15		2	6			**20**	2				
05:30		3	3			20	0				
05:45		2	2	10	14	17	0	74	3	84	17
06:00		4	3			11	0				
06:15		4	2			5	4				
06:30		8	0			13	1				
06:45		3	1	19	6	9	1	38	6	57	12
07:00		2	3			5	1				
07:15		3	3			5	2				
07:30		0	5			10	1				
07:45		3	1	8	12	0	1	20	5	28	17
08:00		1	1			4	2				
08:15		5	2			9	2				
08:30		5	0			5	0				
08:45		3	0	14	3	4	2	22	6	36	9
09:00		5	1			9	1				
09:15		8	2			3	0				
09:30		2	2			7	1				
09:45		5	2	20	7	8	5	27	7	47	14
10:00		**7**	3			8	0				
10:15		**4**	1			2	1				
10:30		**7**	0			9	2				
10:45		**7**	2	25	6	4	0	23	3	48	9
11:00		7	2			0	1				
11:15		1	0			4	0				
11:30		7	0			5	0				
11:45		5	0	20	2	1	0	10	1	30	3
Total		121	269	121	269	289	110	289	110	410	379
Combined Total		390		390		399		399		789	
AM Peak	-	10:00	-	-	-	04:30	-	-	-	-	-
Vol.	-	25	-	-	-	84	-	-	-	-	-
P.H.F.		0.893				0.778					
PM Peak	-	-	01:45	-	-	-	00:15	-	-	-	-
Vol.	-	-	94	-	-	-	25	-	-	-	-
P.H.F.			0.783				0.781				
Percentage		31.0%	69.0%			72.4%	27.6%				
ADT/AADT		ADT 789		AADT 789							

APPENDIX C

VOLUME DEVELOPMENT WORKSHEETS

LSA

Table C-1 - Existing Peak Hour Volume Summary

	AM Peak Hour			PM Peak Hour		
	Existing (2023) W/O Project	Project Trips	Existing (2023) Plus Project	Existing (2023) W/O Project	Project Trips	Existing (2023) Plus Project
1 Panoche Road/Project Driveway						
NBL	0	12	12	0	9	9
NBT	7	0	7	90	0	90
NBR	0	0	0	0	0	0
SBL	0	0	0	0	0	0
SBT	84	0	84	23	0	23
SBR	0	17	17	0	14	14
EBL	0	13	13	0	17	17
EBT	0	0	0	0	0	0
EBR	0	9	9	0	11	11
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	0	0	0	0	0	0
North Leg						
Approach	84	17	101	23	14	37
Departure	7	13	20	90	17	107
Total	91	30	121	113	31	144
South Leg						
Approach	7	12	19	90	9	99
Departure	84	9	93	23	11	34
Total	91	21	112	113	20	133
East Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
West Leg						
Approach	0	22	22	0	28	28
Departure	0	29	29	0	23	23
Total	0	51	51	0	51	51
Total Approaches						
Approach	91	51	142	113	51	164
Departure	91	51	142	113	51	164
Total	182	102	284	226	102	328

Table C-2 - Near-Term Peak Hour Volume Summary

	AM Peak Hour					
	Existing (2023) W/O Project	Cumulative W/O Project	Interpolated Growth	Near-Term W/O Project	Project Trips	Near-Term Plus Project
1 Panoche Road/Project Driveway						
NBL	0	0	0	0	12	12
NBT	7	7	0	7	0	7
NBR	0	0	0	0	0	0
SBL	0	0	0	0	0	0
SBT	84	113	10	94	0	94
SBR	0	0	0	0	17	17
EBL	0	0	0	0	13	13
EBT	0	0	0	0	0	0
EBR	0	0	0	0	9	9
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	0	0	0	0	0	0
North Leg						
Approach	84	113	10	94	17	111
Departure	7	7	0	7	13	20
Total	91	120	10	101	30	131
South Leg						
Approach	7	7	0	7	12	19
Departure	84	113	10	94	9	103
Total	91	120	10	101	21	122
East Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
West Leg						
Approach	0	0	0	0	22	22
Departure	0	0	0	0	29	29
Total	0	0	0	0	51	51
Total Approaches						
Approach	91	120	10	101	51	152
Departure	91	120	10	101	51	152
Total	182	240	20	202	102	304

Table C-2 - Near-Term Peak Hour Volume Summary

	PM Peak Hour					
	Existing (2023) W/O Project	Cumulative W/O Project	Interpolated Growth	Near-Term W/O Project	Project Trips	Near-Term Plus Project
1 Panoche Road/Project Driveway						
NBL	0	0	0	0	9	9
NBT	90	110	7	97	0	97
NBR	0	0	0	0	0	0
SBL	0	0	0	0	0	0
SBT	23	24	0	23	0	23
SBR	0	0	0	0	14	14
EBL	0	0	0	0	17	17
EBT	0	0	0	0	0	0
EBR	0	0	0	0	11	11
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	0	0	0	0	0	0
North Leg						
Approach	23	24	0	23	14	37
Departure	90	110	7	97	17	114
Total	113	134	7	120	31	151
South Leg						
Approach	90	110	7	97	9	106
Departure	23	24	0	23	11	34
Total	113	134	7	120	20	140
East Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
West Leg						
Approach	0	0	0	0	28	28
Departure	0	0	0	0	23	23
Total	0	0	0	0	51	51
Total Approaches						
Approach	113	134	7	120	51	171
Departure	113	134	7	120	51	171
Total	226	268	14	240	102	342

LSA

Table C-3 - Cumulative Peak Hour Volume Summary

	AM Peak Hour			PM Peak Hour		
	Cumulative W/O Project	Project Trips	Cumulative Plus Project	Cumulative W/O Project	Project Trips	Cumulative Plus Project
1 Panoche Road/Project Driveway						
NBL	0	12	12	0	9	9
NBT	7	0	7	110	0	110
NBR	0	0	0	0	0	0
SBL	0	0	0	0	0	0
SBT	113	0	113	24	0	24
SBR	0	17	17	0	14	14
EBL	0	13	13	0	17	17
EBT	0	0	0	0	0	0
EBR	0	9	9	0	11	11
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	0	0	0	0	0	0
North Leg						
Approach	113	17	130	24	14	38
Departure	7	13	20	110	17	127
Total	120	30	150	134	31	165
South Leg						
Approach	7	12	19	110	9	119
Departure	113	9	122	24	11	35
Total	120	21	141	134	20	154
East Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
West Leg						
Approach	0	22	22	0	28	28
Departure	0	29	29	0	23	23
Total	0	51	51	0	51	51
Total Approaches						
Approach	120	51	171	134	51	185
Departure	120	51	171	134	51	185
Total	240	102	342	268	102	370

APPENDIX D

LEVEL OF SERVICE WORKSHEETS

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	9	12	7	84	17
Future Vol, veh/h	13	9	12	7	84	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	38	38	14	14
Mvmt Flow	15	11	14	8	100	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	146	110	120	0	-	0
Stage 1	110	-	-	-	-	-
Stage 2	36	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.48	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.542	-	-	-
Pot Cap-1 Maneuver	851	949	1272	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	992	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	842	949	1272	-	-	-
Mov Cap-2 Maneuver	842	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	992	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1272	-	883	-	-
HCM Lane V/C Ratio	0.011	-	0.03	-	-
HCM Control Delay (s)	7.9	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	11	9	90	23	14
Future Vol, veh/h	17	11	9	90	23	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	92
Heavy Vehicles, %	0	0	8	8	8	8
Mvmt Flow	20	13	10	105	27	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	160	35	42	0	-	0
Stage 1	35	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	836	1044	1529	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	830	1044	1529	-	-	-
Mov Cap-2 Maneuver	830	-	-	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	906	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	9.1		0.7		0	
HCM LOS	A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1529	-	903	-	-
HCM Lane V/C Ratio	0.007	-	0.036	-	-
HCM Control Delay (s)	7.4	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	9	12	7	94	17
Future Vol, veh/h	13	9	12	7	94	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	92
Heavy Vehicles, %	0	0	38	38	14	14
Mvmt Flow	15	11	14	8	112	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	157	121	130	0	-	0
Stage 1	121	-	-	-	-	-
Stage 2	36	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.48	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.542	-	-	-
Pot Cap-1 Maneuver	839	936	1261	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	992	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	830	936	1261	-	-	-
Mov Cap-2 Maneuver	830	-	-	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	992	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	9.3		5		0	
HCM LOS	A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1261	-	870	-	-
HCM Lane V/C Ratio	0.011	-	0.03	-	-
HCM Control Delay (s)	7.9	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	11	9	97	23	14
Future Vol, veh/h	17	11	9	97	23	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	8	8	8	8
Mvmt Flow	20	13	10	113	27	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	168	35	43	0	-	0
Stage 1	35	-	-	-	-	-
Stage 2	133	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	827	1044	1528	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	898	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	821	1044	1528	-	-	-
Mov Cap-2 Maneuver	821	-	-	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	898	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1528	-	896	-	-
HCM Lane V/C Ratio	0.007	-	0.036	-	-
HCM Control Delay (s)	7.4	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	9	12	7	113	17
Future Vol, veh/h	13	9	12	7	113	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	38	38	14	14
Mvmt Flow	14	10	13	8	123	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	166	132	141	0	-	0
Stage 1	132	-	-	-	-	-
Stage 2	34	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.48	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.542	-	-	-
Pot Cap-1 Maneuver	829	923	1248	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	821	923	1248	-	-	-
Mov Cap-2 Maneuver	821	-	-	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	994	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1248	-	860	-	-
HCM Lane V/C Ratio	0.01	-	0.028	-	-
HCM Control Delay (s)	7.9	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	11	9	110	24	14
Future Vol, veh/h	17	11	9	110	24	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	8	8	8	8
Mvmt Flow	18	12	10	120	26	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	174	34	41	0	-	0
Stage 1	34	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	821	1045	1530	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	892	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	815	1045	1530	-	-	-
Mov Cap-2 Maneuver	815	-	-	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	892	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1530	-	892	-	-
HCM Lane V/C Ratio	0.006	-	0.034	-	-
HCM Control Delay (s)	7.4	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

APPENDIX E

QUEUING ANALYSIS WORKSHEETS

Intersection: 1: Panoche Rd & Project Dwy

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	28	25
Average Queue (ft)	16	1
95th Queue (ft)	38	9
Link Distance (ft)	816	866
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 1: Panoche Rd & Project Dwy

Movement	EB
Directions Served	LR
Maximum Queue (ft)	51
Average Queue (ft)	23
95th Queue (ft)	45
Link Distance (ft)	816
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 1: Panoche Rd & Project Dwy

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	28	25
Average Queue (ft)	13	1
95th Queue (ft)	35	9
Link Distance (ft)	816	866
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 1: Panoche Rd & Project Dwy

Movement	EB
Directions Served	LR
Maximum Queue (ft)	50
Average Queue (ft)	20
95th Queue (ft)	43
Link Distance (ft)	816
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 1: Panoche Rd & Project Dwy

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	28	26
Average Queue (ft)	14	2
95th Queue (ft)	36	13
Link Distance (ft)	816	866
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 1: Panoche Rd & Project Dwy

Movement	EB
Directions Served	LR
Maximum Queue (ft)	51
Average Queue (ft)	20
95th Queue (ft)	43
Link Distance (ft)	816
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	