

Appendix G: Noise Study

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Yorba Linda In-N-Out

Noise Study

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April 2020

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EXECUTIVE SUMMARY

This Noise Study assesses and discusses the potential noise and vibration impacts that may occur with construction and operation of the In-N-Out Burger restaurant (Project) proposed in the City of Yorba Linda (City). The analysis describes the existing environment in the Project area; estimates future noise and vibration levels at surrounding land uses resulting from construction and operation of the Project; and identified the potential for significant impacts. The study summarizes the potential for the Project to conflict with applicable noise and vibration regulations, standards, and thresholds. The findings of the analyses are as follows:

- Construction activities would potentially result in short-term and temporary noise impacts to nearby noise-sensitive receptors due to on-site construction equipment and activities. Implementation of noise-attenuation techniques and placement of the construction-staging area away from noise-sensitive sites would lower construction noise levels. Noise associated with construction activities would be reduced to the degree reasonably and technically feasible through proposed recommended measures and compliance with locally adopted and enforced noise ordinances. Given that construction activities would be required to comply with the City's allowable hours and would be temporary, construction-related noise would not be significant.
- Construction of the Project would generate sporadic, temporary vibration effects adjacent to the Project area but would not be expected to exceed the significance thresholds.
- Operation of the Project would generate noise from Project-related traffic or from on-site sources (drive-through queuing, parking, amplified speech emanating from the speaker and trash compactor) that would not exceed the significance thresholds.
- Noise associated with project and cumulative operational roadway noise sources would not be significant.

INTRODUCTION

This report presents the noise and vibration analysis for the proposed In-N-Out Burger restaurant Project (Project) in the City of Yorba Linda. The noise report analyzes short-term noise and ground-borne vibration impacts associated with the Project. The report also discusses the applicable federal, State, and local noise and vibration regulations; the applicable noise and vibration thresholds; the methodology used to analyze potential noise and vibration impacts; and the modeled roadway noise.

Project Description

The 1.43 acre Project site is located at 18181 Imperial Highway, as shown in **Figure 1: Project Site Location**. The Project site is currently developed with the Yorba Linda Public Library, which would be relocated to the southeast corner of Lakeview Avenue and Lemon Drive. The existing structures and parking lots on the remaining two parcels are currently owned by the City of Yorba Linda and will be demolished prior to, and without respect to the approval of, the commencement of this project as part of the approved Yorba Linda Town Center project, which was analyzed within the Yorba Linda Town Center Addendum to the Certified EIR for the Yorba Linda Town Center Project Library and Arts Center.¹ The Project will include construction of a new 3,974-square-foot In-N-Out restaurant with a drive-through lane. All existing driveways currently serving the Yorba Linda Public Library. The restaurant would provide seating capacity of 134 (84 seats indoor, 68 seats outdoor), a 30 car drive-thru queuing lane, landscaping, and parking spaces for up to 49 vehicles. During the lunch (12:00 PM – 2:00 PM) and dinner (5:00 PM – 7:00 PM) peak periods, associates would monitor the parking lot to assure that traffic is always moving smoothly and not blocking parking spaces and/or the drive-thru lane by clearing ingress and egress drive aisles. The proposed Project is anticipated to be constructed and fully operational by Year 2021.

NOISE DESCRIPTORS

Fundamentals of Sound

Because the human ear does not respond uniformly to sounds at all frequencies, sound-pressure level alone is not a reliable indicator of loudness. For example, the human ear is less sensitive to low and high frequencies than to the medium frequencies that more closely correspond to human speech. In response to the human ear's sensitivity to certain sound frequencies, the A-weighted noise level, referenced in units of dB(A), was developed to better correspond with people's subjective judgment of sound levels. To support assessing a community reaction to noise, scales have been developed that average sound-pressure levels over time and quantify the result in terms of a single numerical descriptor. Several scales

¹ Tebo Environmental Consulting, Inc. *Yorba Linda Town Center Addendum to the Certified EIR for the Yorba Linda Town Center Project Library and Arts Center*, accessed April 2020, http://yorbalinda.granicus.com/MetaViewer.php?view_id=4&clip_id=924&meta_id=112867

have been developed that address community noise levels. The equivalent sound level (Leq) is the average A-weighted sound level measured over a given time interval. Leq can be measured over any period but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods.

Table 1: Noise Descriptors identifies various noise descriptors developed to measure sound levels over different periods of time.

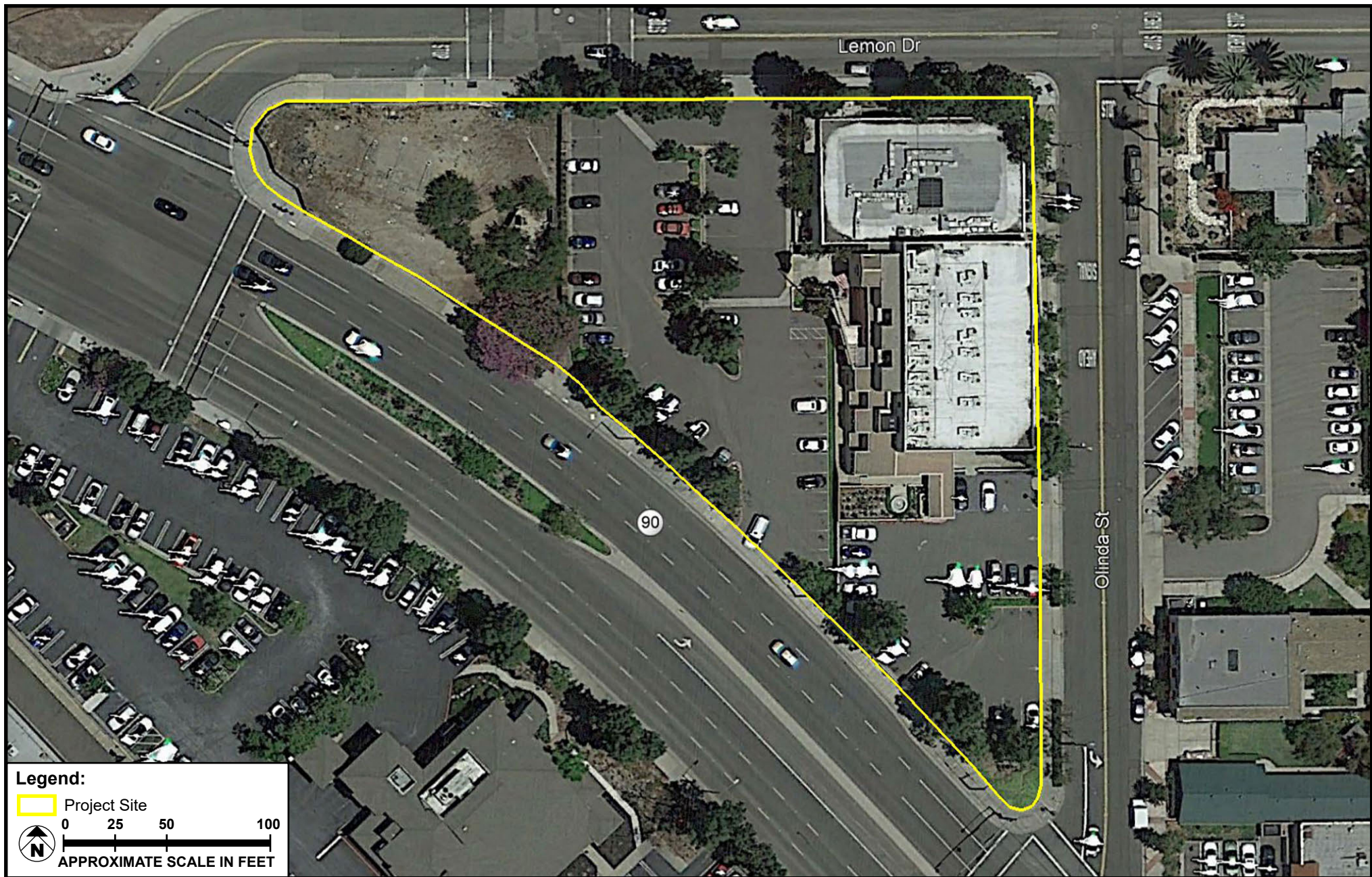


FIGURE 1

Table 1
Noise Descriptors

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measure sound to a reference pressure.
A-weighted decibel (dB[A])	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Hertz (Hz)	The frequency of the pressure vibration, which is measured in cycles per second.
Kilo hertz (kHz)	One thousand cycles per second.
Equivalent sound level (Leq)	The sound level containing the same total energy as a time varying signal over a given time period. The Leq is the value that expresses the time averaged total energy of a fluctuating sound level. Leq can be measured over any time period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods.
Community noise equivalent level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments add 5 dB(A) for the evening, 7:00 PM to 10:00 PM, and add 10 dB(A) for the night, 10:00 PM to 7:00 AM. The 5 and 10 dB penalties are applied to account for increased noise sensitivity during the evening and nighttime hours. The logarithmic effect of adding these penalties to the 1-hour Leq measurements typically results in a CNEL measurement that is within approximately 3 dB(A) of the peak-hour Leq. ^a
Nighttime (Lnight)	Lnight is the average noise exposure during the hourly periods from 10:00 PM to 7:00 AM.
Sound pressure level	The sound pressure is the force of sound on a surface area perpendicular to the direction of the sound. The sound pressure level is expressed in dB.
Ambient noise	The level of noise that is all-encompassing within a given environment, being usually a composite of sounds from many and varied sources near to and far from the observer. No specific source is identified in the ambient environment.

^a California Department of Transportation, *Technical Noise Supplement; A Technical Supplement to the Traffic Noise Analysis Protocol* (Sacramento, California: November 2009), pp. N51–N54.

A doubling of sound energy results in a 3 dB(A) increase in sound, which means that a doubling of sound wave energy (e.g., doubling the volume of traffic on a roadway) would result in a barely perceptible change in sound level. In general, changes in a noise level of less than 3 dB(A) are not noticed by the human ear.² Changes from 3 to 5 dB(A) may be noticed by some individuals who are extremely sensitive to changes in noise. An increase of greater than 5 dB(A) is readily noticeable, while the human ear perceives a 10 dB(A) increase in sound level to be a doubling of sound volume.

Noise sources can generally be categorized into two types: (1) point sources, such as stationary equipment; and (2) line sources, such as a roadway. Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dB(A) for each doubling of distance from the source to the receptor at acoustically hard sites, and at a rate of 7.5 dB(A) at acoustically soft sites.³ A hard, or reflective, site consists of asphalt, concrete, or very hard-packed soil, which does not provide any excess ground-effect attenuation. An acoustically soft or absorptive site is characteristic of normal earth and most ground with vegetation. As an example, a 60 dB(A) noise level measured at 50 feet from a point source at an acoustically hard site would be 54 dB(A) at 100 feet from the source and would be 48 dB(A) at 200 feet from the source. Noise from the same point source at an acoustically soft site would be 52.5 dB(A) at 100 feet and 45 dB(A) at 200 feet from the source. Sound generated by a line source typically attenuates at a rate of 3 dB(A) and 4.5 dB(A) per doubling of distance from the source to the receptor for hard and soft sites, respectively.⁴ Noise levels generated by a variety of activities are shown in **Figure 2: Common Noise Levels**. Man-made or natural barriers can also attenuate sound levels.⁵

Fundamentals of Vibration

Vibration is commonly defined as an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The peak particle velocity (PPV) or the root-mean-square (RMS) velocity is usually used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak of the vibration signal, while RMS is defined as the square root of the average of the squared amplitude of the signal. PPV is typically used for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response to ground-borne vibration. The RMS vibration velocity level can be presented in inches per second (in/sec) or in VdB (a decibel unit referenced to 1 microinch per second). Commonly, ground-borne vibration generated by man-

2 US Department of Transportation, Federal Highway Administration, *Fundamentals and Abatement of Highway Traffic Noise* (Springfield, VA: Author, September 1980), 81.

3 US Department of Transportation, *Fundamentals and Abatement* (September 1980), 97.

4 US Department of Transportation, *Fundamentals and Abatement* (September 1980), 97.

5 US Department of Housing and Urban Development, Office of Community Planning and Development, *The Noise Guidebook* (n.d.), 21–23.

made activities (i.e., road traffic, construction activity) attenuates rapidly with distance from the source of the vibration.

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings, such as the operation of mechanical equipment, the movement of people, or the slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration from traffic is barely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

NOISE STANDARDS

State of California Noise Standards

With regard to community noise exposure, The State of California Office of Planning and Research has published recommended guidelines for land use compatibility. These guidelines rate land use compatibility in terms of being *normally acceptable*, *normally unacceptable*, and *clearly unacceptable*. Each jurisdiction is required to consider these guidelines when developing a General Plan Noise Element and when determining acceptable noise levels within its community. These guidelines are representative of various land uses that include residential, commercial/mixed-use, industrial, and public facilities. **Figure 3: Land Use Compatibility to Noise** identifies the acceptable limit of noise exposure for various land use categories within the County. Noise exposure for single-family uses is “normally acceptable” when the CNEL at exterior residential locations is equal to or below 60 dB(A); “conditionally acceptable” when the CNEL is between 55 to 70 dB(A); and “normally unacceptable” when the CNEL exceeds 70 dB(A). These guidelines apply to noise sources such as vehicular traffic, aircraft, and rail movements.

In addition, the California Commission of Housing and Community Development officially adopted interior noise standards in 1974. In 1988, the Building Standards Commission approved revisions to the standards (Title 24, Part 2, California Code of Regulations). As revised, Title 24 establishes an interior noise standard of 45 dB(A) CNEL for residential space.

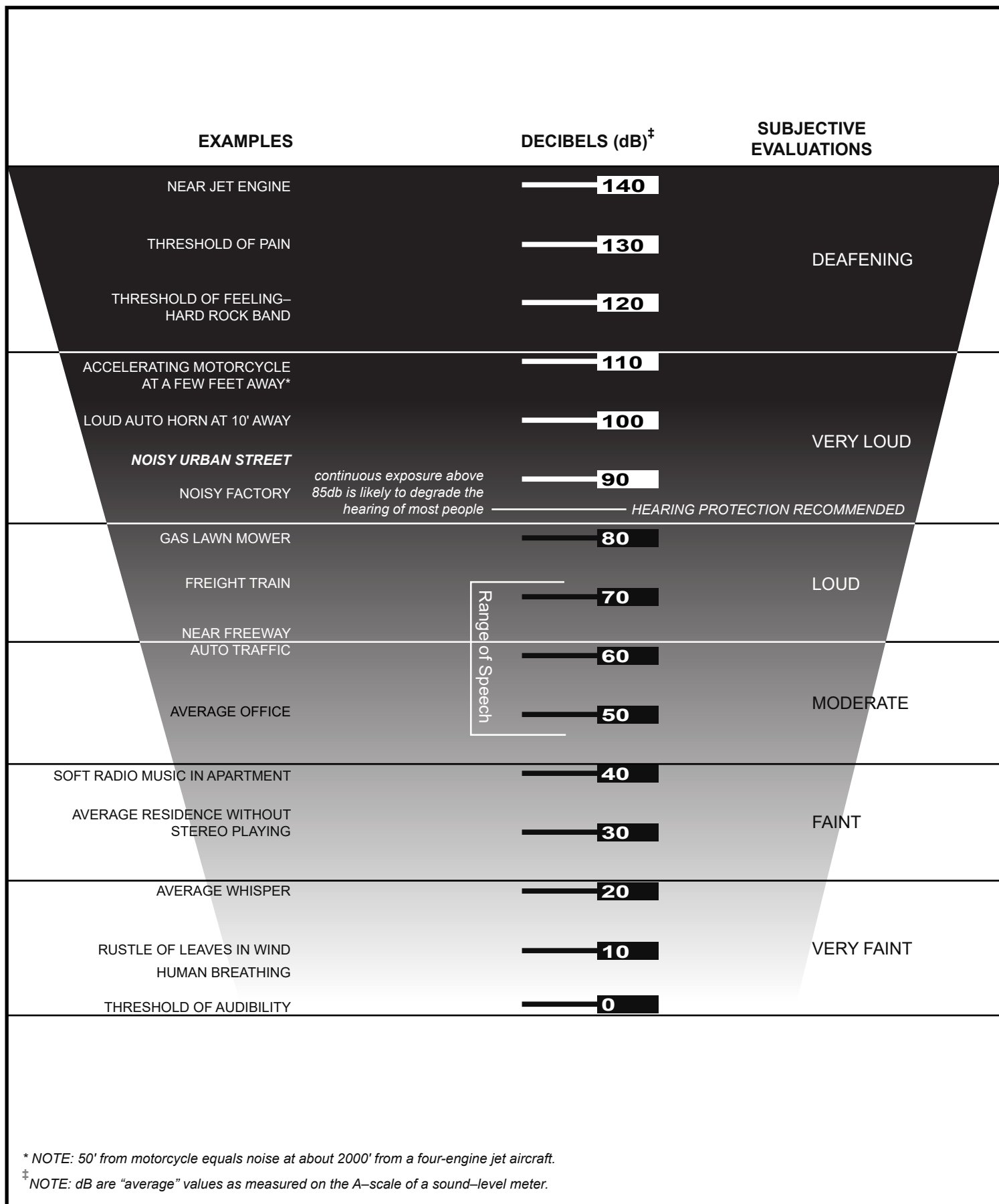
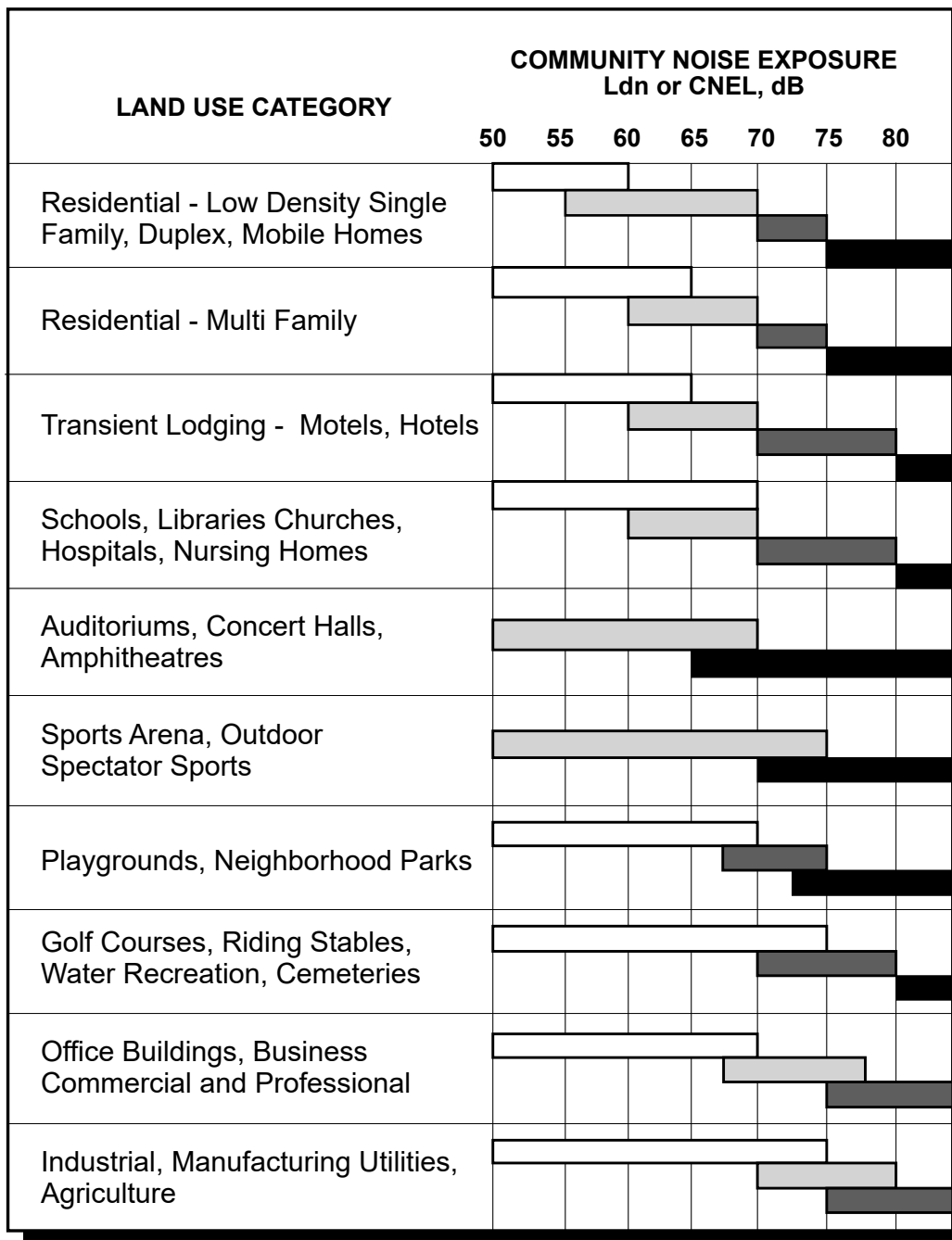


FIGURE 2



- NORMALLY ACCEPTABLE**
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
- CONDITIONALLY ACCEPTABLE**
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
- NORMALLY UNACCEPTABLE**
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise reduction features included in the design.
- CLEARLY UNACCEPTABLE**
New construction or development should generally not be undertaken.

SOURCE: California Governor's Office of Planning and Research, State of California General Plan Guidelines, Appendix C: Guidelines for the Preparation and Content of Noise Elements of the General Plan, October 2003.

FIGURE 3

City of Yorba Linda

Noise Element

The City's General Plan Noise Element provides goals and policies to protect local citizens from the harmful effects of excessive exposure to noise. The General Plan Noise Element identifies several policies to minimize the impacts of excessive noise levels throughout the community and establishes noise level requirements for all land uses. To protect residents from excessive noise, the General Plan Noise Element contains the following four goals:

- Goal N-1: Indoor and outdoor living areas that are adequately protected from excessive transportation noise impacts.
- Goal N-2: Noise and land use compatibility.
- Goal N-3: Mitigate noise impacts from nontransportation sources.
- Goal N-4: Project approvals that include conditions to mitigate noise impacts.

The noise policies specified in the General Plan Noise Element provide the guidelines necessary to satisfy these goals. To ensure the appropriate indoor and outdoor living areas are adequately protected from noise impacts (Goal 1), the General Plan Noise Element identifies a maximum allowable exterior and interior noise levels that correspond with the Municipal Code Noise Standards.

The General Plan Noise Element also provides several policies to ensure compatibility of land uses with their existing and future noise environments (Goal 2) that ensures compliance with established acceptable noise levels for various land uses. To control nontransportation noise impacts (Goal 3), the General Plan Noise Element ensures compliance with standards and procedures for mitigating construction-related activities that introduce excessive noise levels. Goal 4 identifies policies to ensure that noise issues are always considered during the planning process.

Municipal Code

The City of Yorba Linda Municipal Code (Title 8, Health & Safety, Chapter 8.32, Noise Control) includes various provisions intended to protect community residents from prolonged unnecessary, excessive and annoying sound levels that are detrimental to the public health, welfare, and safety, or are contrary to public interest. Examples of noise sources subject to the City's municipal Code include, but are not limited to, industrial and commercial machinery and equipment, pumps, fans, compressors, generators, air conditioners and refrigeration equipment. Section 8.32.060 of the City's noise ordinance establishes exterior noise standards for noise-sensitive land uses, which include residential areas, hospitals, schools,

and churches. These exterior noise standards are summarized in **Table 2: Municipal Code Exterior Noise Standards**. In the event the ambient noise level exceeds any of the five noise limit categories stated in subsection B of this section, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. Furthermore, the maximum permissible noise level shall never exceed the ambient noise level. Each of the noise limits specified shall be reduced by five dBA for impact or simple tone noises or for noise consisting of speech or music.

In addition, Section 8.32.070 establishes interior noise standards for residential uses, which are summarized in **Table 3: Municipal Code Interior Noise Standards for Residential Uses**. In the event the ambient noise level exceeds any of the three noise limit categories, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. Furthermore, the maximum permissible noise level shall never exceed the ambient noise level.

Table 2
Municipal Code Exterior Noise Standards

Time Period	Noise Standards (dBA)
7:00 AM – 10:00 PM	55
10:00 PM – 7:00 AM	50

Note:

The following exterior standards shall not exceed:

1. *The noise standard for a cumulative period of more than thirty minutes in any hour;*
2. *The noise standard plus five dBA for a cumulative period of more than fifteen minutes in any hour;*
3. *The noise standard plus ten dBA for a cumulative period of more than five minutes in any hour;*
4. *The noise standard plus fifteen dBA for a cumulative period of more than one minute in any hour;*
5. *The noise standard plus twenty dBA for any period of time.*

Source: City of Yorba Linda 2016.

Table 3
Municipal Code Interior Noise Standards for Residential Uses

Time Period	Noise Standards (dBA)
10:00 PM – 7:00 AM	45

Note:

The following interior noise standards shall not exceed:

1. *Forty-five dBA for a cumulative period of more than five minutes in any hour;*
2. *Fifty dBA for a cumulative period of more than one minute in any hour; or*
3. *Fifty-five dBA for any period of time.*

Noise sources associated with construction-related activities are typically exempt provided the activities do not take place between the hours of 8:00 PM and 7:00 AM on weekdays, including Saturday, or at any

time on Sunday or federal holidays. Various other activities are also exempt, including, but not limited to, school entertainment and athletic events, mobile sources associated with agricultural activities, and emergency response activities.

The City has not identified or adopted vibration standards. However, the Federal Transit Administration (FTA) provides guidelines for maximum acceptable levels of ground-borne vibration for different type of land uses. Vibration impacts are quantified both in terms of annoyance, and architectural damage due to vibration. For vibration annoyance, 78 VdB is considered the maximum vibration level for residential land uses. For architectural damage due to vibration, a Peak Particle Velocity (PPV) of 0.2 is considered the maximum vibration level for nonengineered timber and masonry buildings (typically applied to residential structures). In lieu of local standards or regulations, these FTA guidelines provide the basis for determining the relative significance of potential project-related vibration impacts.

EXISTING CONDITIONS

Ambient Noise Levels

Short-term (15 minutes) noise measurements were conducted to measure the ambient sound environment in the Project vicinity. Measurements were taken on September 25, 2019. **Figure 4: Ambient Noise Monitoring Locations and Sensitive Receptor Map** depicts the location of where ambient noise measurements were conducted including the surrounding sensitive receptors that may potentially be affected due to implementation of the Project. As shown in **Table 4: Ambient Noise Measurements**, ambient noise levels ranged from a low of 56.0 dBA (Site 4) to a high of 72.9 dBA (Site 1).

Table 4
Ambient Noise Measurements

Site No.	Location	Sensitive Use	LAeq (15-minute)	LApeak	LASmax
Site 1	Corner of Olinda Street and Imperial Highway	Commercial	72.9	101.4	87.0
Site 2	Corner of Lemon Drive and Plumosa Drive	Commercial	62.6	85.8	71.7
Site 3	Along Imperial Highway	Commercial	74.7	99.0	84.1
Site 4	East of the Project site along Lemon Drive	Residential	56.0	88.2	72.4
Site 5	North of the Project site along Plumosa Drive	Residential	59.1	97.2	72.6
Site 6	West of the Project site along Lemon Drive	Residential	58.7	86.3	69.6

Refer to **Appendix A** for noise monitoring data sheets.

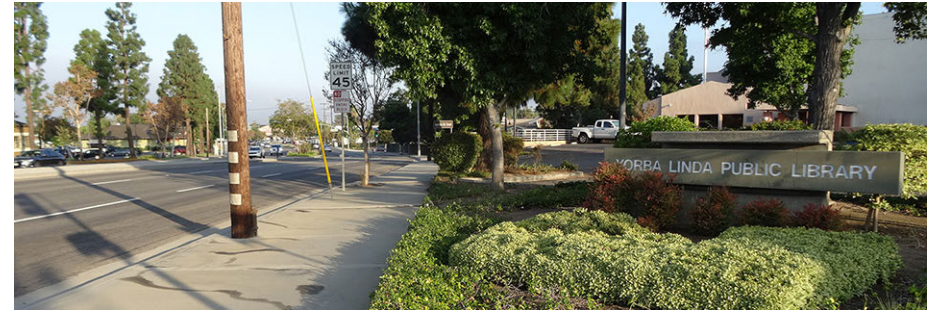
Existing Roadway Noise

To characterize the ambient roadway noise environment near the Project site, noise prediction modeling was conducted based on vehicular traffic volumes along nearby roadway segments. Existing roadway noise levels were modeled using the Federal Highway Administration Highway Prediction Noise Model (FHWA-RD-77-108). This model calculates the average noise level in dB(A) CNEL at a given roadway segment based on traffic volumes, vehicle mix, average speeds, roadway geometry, and site conditions. The noise model assumes a “hard” site condition (i.e., providing for the minimum amount of sound attenuation allowed by the traffic noise model, a 3 dB(A) noise reduction per doubling of distance) and assumes no barriers between the roadway and receivers. Traffic noise levels were calculated for sensitive receptors at distances of 75 feet from the center of the roadway. The noise prediction model used daily traffic volumes to determine average daily trips (ADTs) along the analyzed roadway segments. The estimated existing roadway noise levels are provided in **Table 5: Existing Weekday (Evening) Roadway Noise Levels** and **Table 6: Existing Saturday (Mid-Day) Roadway Noise Levels**. Note that these calculated noise levels only consider the traffic volumes along the identified street segment and do not include other noise sources that may contribute to the ambient noise level at that location. The purpose of these calculations is to compare existing to future based specifically on the traffic volume for each roadway segment.

As shown in **Table 5** and **Table 6**, the existing weekday vehicle-generated noise levels along roadway segments near the Project site range from a low of 42.2 dBA CNEL along Olinda Street north of Lemon Drive (Intersection 7) to a high of 67.4 dBA CNEL along Imperial Highway north of Casa Loma Avenue, at a distance of 75 feet from the center of the roadway.



North



West



South



East



SOURCE: Google Earth - 2019

FIGURE 4a



North



West



South



East



SOURCE: Google Earth - 2019

FIGURE 4b



North



West



South



East



SOURCE: Google Earth - 2019

FIGURE 4c



North



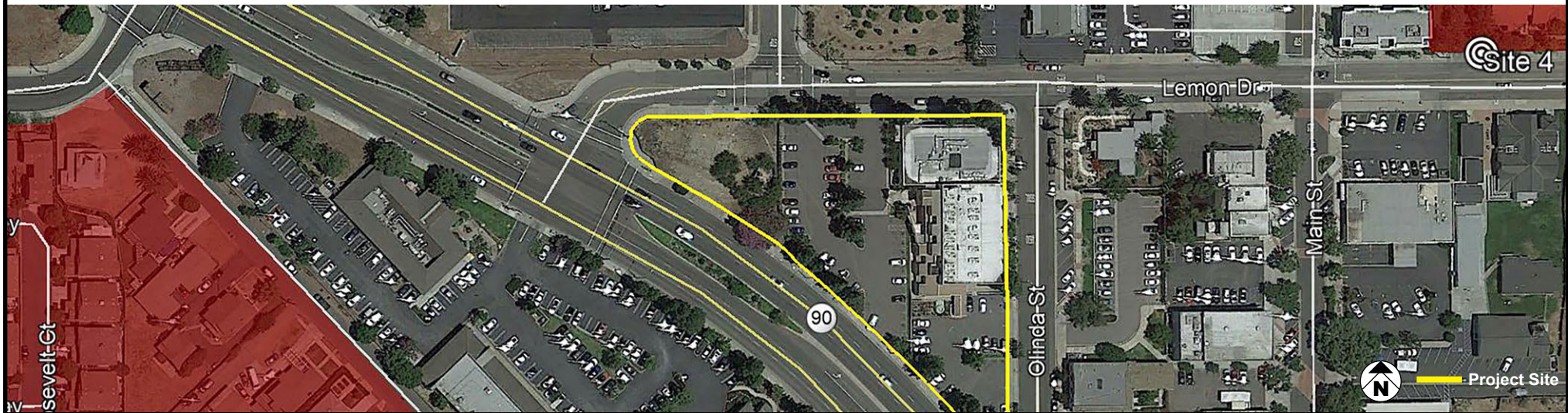
West



South



East



SOURCE: Google Earth - 2019

FIGURE 4d



North



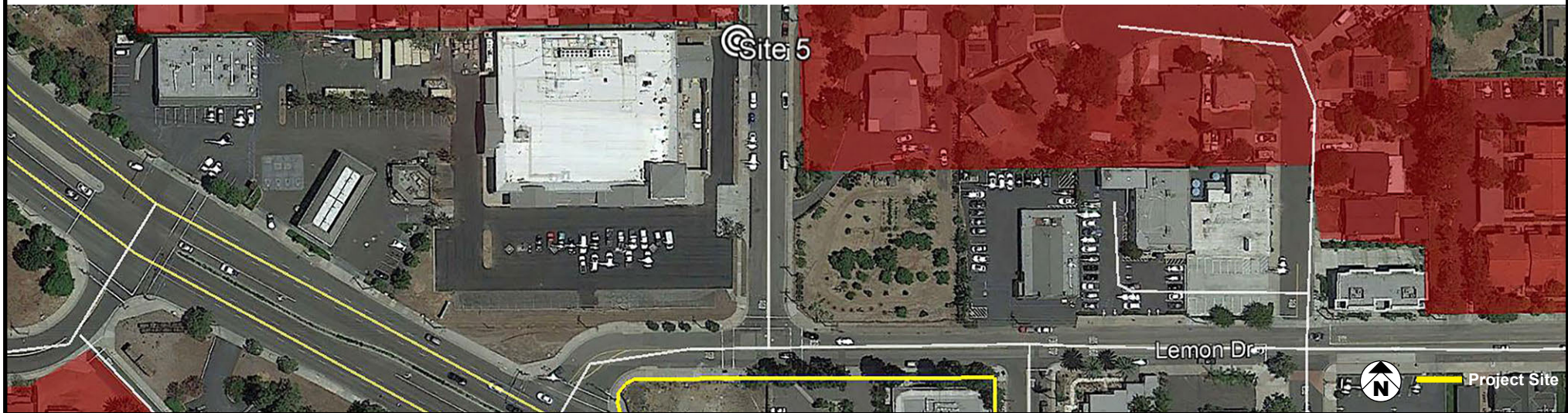
West



South



East



SOURCE: Google Earth - 2019

FIGURE 4e



North



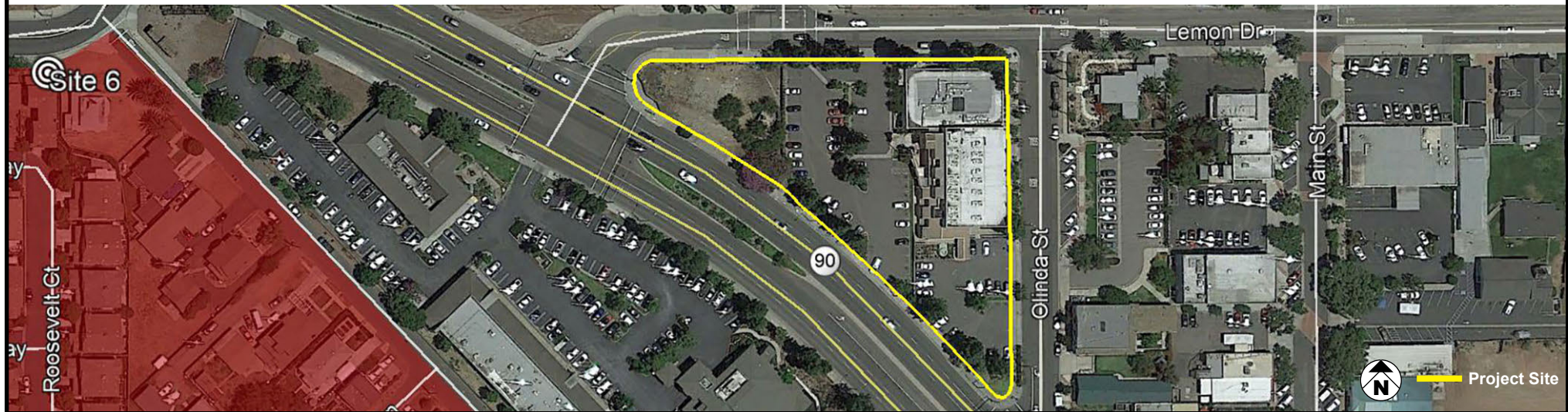
West



South



East



SOURCE: Google Earth - 2019

FIGURE 4f

Table 5
Existing Weekday (Evening) Roadway Noise Levels

Intersection	Roadway Segment	Existing (dBA CNEL)
<i>Imperial Highway</i>		
1	North of Casa Loma Avenue	67.4
	South of Casa Loma Avenue	67.3
2	North of Eureka Avenue	67.1
	South of Eureka Avenue	67.1
3	North of Lemon Drive	67.3
	South of Lemon Drive	67.1
4	North of Olinda Street	67.1
	South of Olinda Street	67.2
5	North of Yorba Linda Boulevard	67.2
	South of Yorba Linda Boulevard	66.6
<i>Plumosa Drive</i>		
6	North of Lemon Drive	57.4
	South of Lemon Drive	N/A
<i>Olinda Street</i>		
7	North of Lemon Drive	42.2
	South of Lemon Drive	52.6
10	North of Project Driveway	52.6
	South of Project Driveway	52.6
<i>Lakeview Avenue</i>		
8	North of Lemon Drive	61.4
	South of Lemon Drive	62.0
9	North of Yorba Linda Boulevard	62.3
	South of Yorba Linda Boulevard	62.8
<i>Casa Loma Avenue</i>		
1	East of Imperial Highway	53.0
	West of Imperial Highway	54.4
<i>Eureka Avenue</i>		
2	East of Imperial Highway	56.0
	West of Imperial Highway	57.7
<i>Lemon Drive</i>		
3	East of Imperial Highway	57.6
	West of Imperial Highway	49.4
6	East of Plumosa Drive	56.8
	West of Plumosa Drive	57.3

Intersection	Roadway Segment	Existing (dBA CNEL)
7	East of Olinda Street	57.0
	West of Olinda Street	56.7
8	East of Lakeview Avenue	38.8
	West of Lakeview Avenue	56.9
Olinda Street		
4	East of Imperial Highway	53.5
	West of Imperial Highway	54.3
Yorba Linda Boulevard		
5	East of Imperial Highway	66.2
	West of Imperial Highway	64.7
9	East of Lakeview Avenue	66.5
	West of Lakeview Avenue	66.2
Project Driveway		
10	East of Olinda Street	N/A
	West of Olinda Street	N/A

Source: Source: Refer to **Appendix B** for roadway noise worksheets.

Table 6
Existing Saturday (Mid-Day) Roadway Noise Levels

Intersection	Roadway Segment	Existing (dBA CNEL)
Imperial Highway		
1	North of Casa Loma Avenue	65.8
	South of Casa Loma Avenue	65.7
2	North of Eureka Avenue	65.5
	South of Eureka Avenue	65.5
3	North of Lemon Drive	65.8
	South of Lemon Drive	65.5
4	North of Olinda Street	65.5
	South of Olinda Street	65.8
5	North of Yorba Linda Boulevard	65.8
	South of Yorba Linda Boulevard	65.3
Plumosa Drive		
6	North of Lemon Drive	56.5
	South of Lemon Drive	N/A
Olinda Street		

Intersection	Roadway Segment	Existing (dBA CNEL)
7	North of Lemon Drive	41.8
	South of Lemon Drive	51.6
10	North of Project Driveway	52.3
	South of Project Driveway	52.3
Lakeview Avenue		
8	North of Lemon Drive	61.0
	South of Lemon Drive	61.4
9	North of Yorba Linda Boulevard	62.0
	South of Yorba Linda Boulevard	62.0
Casa Loma Avenue		
1	East of Imperial Highway	50.3
	West of Imperial Highway	53.7
Eureka Avenue		
2	East of Imperial Highway	54.1
	West of Imperial Highway	56.0
Lemon Drive		
3	East of Imperial Highway	57.5
	West of Imperial Highway	50.6
6	East of Plumosa Drive	57.1
	West of Plumosa Drive	57.5
7	East of Olinda Street	57.4
	West of Olinda Street	57.2
8	East of Lakeview Avenue	40.9
	West of Lakeview Avenue	56.8
Olinda Street		
4	East of Imperial Highway	52.3
	West of Imperial Highway	55.0
Yorba Linda Boulevard		
5	East of Imperial Highway	65.2
	West of Imperial Highway	63.9
9	East of Lakeview Avenue	65.6
	West of Lakeview Avenue	65.6
Project Driveway		
10	East of Olinda Street	N/A
	West of Olinda Street	N/A

Source: Refer to **Appendix B** for roadway noise worksheets.

Vibration Conditions

Based on field observations, the primary source of existing ground-borne vibration near the Project site is vehicle traffic on local roadways. According to the Federal Transit Administration (FTA),⁶ typical road traffic-induced vibration levels are unlikely to be perceptible by people. Trucks and buses typically generate ground-borne vibration velocity levels of approximately 63 VdB (at a 50-foot distance), and these levels could reach 72 VdB when trucks and buses pass over bumps in the road. A vibration level of 72 VdB is above the 60-VdB level of perceptibility.

METHODOLOGY

Construction Noise

The construction noise model for the Project is based on construction equipment noise levels as published by the FHWA Roadway Construction Noise Model.⁷ The ambient noise levels at surrounding sensitive-receptor locations were based on field measurement data. The construction noise levels were then calculated for sensitive-receptor locations based on the standard point source noise-distance attenuation factor of 6.0 dB(A) for each doubling distance.

Construction would consist of the following phases: (1) demolition; (2) building construction; (3) paving; and (4) architectural coating. As mentioned previously, the existing structures and remaining two parcels are currently owned by the City and would be removed as part of the approved Yorba Linda Town Center Project. However, the demolition analysis of the Yorba Linda Public Library and the associated parking lots is for informational purposes only. Each phase of construction would result in varying levels of intensity and a number of construction personnel. The construction workforce would consist of approximately 13 worker trips per day and 67 total hauling trips during demolition; 2 worker trips per day and 1 vendor trip per day during building construction; and 13 worker trips per day during paving.

Construction Vibration

Construction-related ground-borne vibration impacts were evaluated using the FTA's *Transit Noise and Vibration Impact Assessment* guidance document.⁸ The potential vibration source in the Project site includes construction equipment in operation during Project construction. Ground-borne vibration impacts were evaluated by identifying potential vibration sources and estimating the vibration levels at the affected receptor.

6 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment* (2004).

7 US Department of Transportation, Federal Highway Administration, *FHWA Roadway Construction Noise Model User's Guide*, (Cambridge, MA: US Department of Transportation, January 2006).

8 FTA, *Transit Noise*.

Roadway Noise

Traffic noise levels were modeled using the FHWA Noise Prediction Model (FHWA-RD-77-108). This model calculates the average noise level in dB(A) CNEL along a given roadway segment based on traffic volumes, vehicle mix, posted speed limits, roadway geometry, and site conditions. The model calculates noise associated with a specific line source and the results characterize noise generated by motor vehicle traffic along the specific roadway segment. According to data collected by Caltrans, California automobile noise is 0.8 to 1.0 dB(A) louder than national levels, while medium and heavy truck noise is 0.3 to 3.0 dB(A) quieter than national levels.⁹ Roadway traffic data was obtained from the traffic impact study¹⁰ for the Project. Noise levels were evaluated with respect to the following modeled traffic scenarios:

- Existing Conditions
- Existing plus Project Conditions
- Opening Year (2021) Conditions
- Opening Year (2021) plus Project Conditions
- Build-Out Year (2040) Conditions
- Build-Out Year (2040) plus Project Conditions

Operational Noise

Potential operational noise levels related to the drive-through, parking, amplified speech emanating from the speaker, and the trash compactor were calculated with the noise model SoundPLAN, a commercially available software that produces computer simulations of noise propagation from sources. The operational noise levels were calculated for sensitive-receptor locations using SoundPLAN. It was assumed operating hours would take place between 10:00 AM and 1:30 AM. The SoundPLAN model includes real-world noise levels and contains noise data in a reference library as provided below:

- To quantify events related to the drive-thru and parking activity, a line source was modeled with a sound pressure level (LwA) of 52 dB.
- To quantify events related to the speakerbox, a point source was modeled with a sound pressure level (LwA) of 65 dB.
- To quantify events related to outdoor patio area, a point source was modeled at each dining table with a sound pressure level (LwA) of 75 dB.

⁹ Rudolf W. Hendriks, California Vehicle Noise Emission Levels, *NTIS*, FHWA/CA/TL-87/03 (1987).

¹⁰ W-Trans, *Traffic Impact Study for 499 East Hamilton Avenue*, May 16, 2018.

- To quantify events related to the trash compactor, a point source was modeled with a sound pressure level (LwA) of 86.1 dB. However, it is important to note the trash compactor would be positioned behind a wall enclosure.

The modeling accounts for large differences in topography, and the presence of intervening structures or landscaping that would block a direct line of sight between operation activities from the proposed Project site and nearby sensitive-receptors.

Roadway Noise

Noise-prediction modeling was conducted and based on vehicular traffic volumes along nearby roadway segments to determine the ambient roadway noise environment related to traffic near the Project site. The average daily trips (ADTs) for roadway segments were estimated using similar In-N-Out Restaurant trip generation numbers based on a similarly sized facility. For purposes of analysis, approximately 300 hourly trips were used to develop the traffic noise levels.

As previously discussed, a doubling of sound energy results in a 3 dB(A) increase in sound, which means that a doubling of sound wave energy (e.g., doubling the volume of traffic on a roadway) would result in a barely perceptible change in sound level. ADTs associated with construction or operation would not result in a doubling of trip volumes along the study-area roadways. Given that it takes a doubling of ADTs on roadways to increase noise by 3 dB(A), the noise-level increase associated with construction and operation vehicle trips would be less than 3 dB(A). Accordingly, Project traffic-related noise levels would result in less than significant impacts.

NOISE ANALYSIS

Construction Noise

Construction activities occurring during the construction phases (demolition, building construction, architectural coating, and paving) would generate both steady-state and episodic noise that would be heard both on and off the Project site. Each phase involves the use of different types of construction equipment and, therefore, has its own distinct noise characteristics. The Project would be constructed using typical construction techniques; no blasting, impact pile driving, or jackhammers would be required.

Typical maximum noise levels and duty cycles of representative types of equipment are presented in **Table 7: Maximum Noise Levels for Project Construction Equipment**. Construction equipment noise would not be constant because of the variations of power, cycles, and equipment locations. For maximum noise events, this analysis considers equipment operating at the edge of the property line of the Project site. As a condition of approval, the Project will utilize construction best management practices to further reduce construction noise which include but are not limited to ensuring construction equipment is properly

muffled according to industry standards; and placing noise-generating construction equipment and locating construction staging areas away from the sensitive uses.

Table 7
Maximum Noise Levels for Project Construction Equipment

Equipment Description	Spec Lmax (dB[A])	Actual Lmax (dB[A])	Typical Duty Cycle (%)
Compressor (air)	80.0	77.7	40
Concrete/Industrial saw	90.0	89.6	20
Dozer	85.0	81.7	40
Forklift	80.0	N/A	40
Generator	82.0	80.6	50
Grader	85.0	N/A	40
Paver	85.0	77.2	50
Roller	85.0	80.0	20
Tractor	84.0	N/A	40
Welder	73.0	74.0	40

*Source: U.S. DOT, FHWA Construction Equipment and Noise Level Ranges.
Noise levels at a distance of 50 feet.*

As mentioned previously, sound generated by the construction noise source typically diminishes at a rate of 6 dBA over hard surfaces, such as asphalt, and 7.5 dBA over soft surfaces, such as vegetation, for each doubling of distance. Barriers—such as walls, berms, or buildings, and elevation differences—can also reduce sound levels by up to 20 dBA.¹¹

The potential noise impact generated during construction depends on the phase of construction and the percentage of time the equipment operates over the workday. However, construction noise estimates used for the analysis are representative of worst-case conditions because it is unlikely that all the equipment contained on site would operate simultaneously. The Project would be constructed using typical construction techniques; no blasting and impact pile driving would be required. As would be the case for construction of most land use development projects, construction of the proposed Project would require the use of heavy-duty equipment with the potential to generate audible noise above the ambient background noise level.

Construction equipment operates at its noisiest levels for certain percentages of time during operation. During a construction day, the highest noise levels would be generated when multiple pieces of

¹¹ Caltrans, *Technical Noise Supplement (1998)*, 33–40, 123–131.

construction equipment are operated concurrently. The Project's estimated construction noise levels were calculated for a scenario in which a reasonable number of construction equipment was assumed to be operating simultaneously, given the physical size of the site and logistical limitations, and with the noise equipment located at the construction area nearest to the affected receptors to present a conservative impact analysis. This is considered a worst-case evaluation because the Project would typically use fewer overall equipment simultaneously at any given time and, as such, would likely generate lower noise levels than reported herein.

The noise levels at the various distances from construction activity are shown in **Table 8: Construction Noise Estimates**. As shown in **Table 8**, construction noise levels would range from a low of 52.4 dBA during architectural coating at the residences along Lemon Drive to a high of 72.9 dBA during demolition at the residences along Plumosa Drive. It is important to note, the existing structures and remaining two parcels are currently owned by the City and would be removed as part of the approved Yorba Linda Town Center Project. However, the demolition analysis of the Yorba Linda Public Library and the associated parking lots is for informational purposes only.

Table 8
Construction Noise Estimates

Construction Activity	Sound Level at Various Receptor Distances From Construction Activities, dBA					
	Residential Along Plumosa Drive		Residential Along Lemon Drive (West)		Residential Along Lemon Drive (East)	
	Lmax	Leq	Lmax	Leq	Lmax	Leq
Demolition	72.9	70.7	68.3	66.0	70.1	67.9
Building Construction	68.3	68.3	63.7	63.7	65.5	65.5
Paving	67.3	66.4	62.7	61.8	64.5	63.6
Architectural Coating	61.0	57.0	56.4	52.4	58.2	54.2

Source: RCNM Version 1.1

Refer to **Appendix C** for construction noise worksheets.

The noise standard related to construction is intended to prevent, to the greatest extent possible, the use of nonstandard construction equipment, unnecessary idling, equipment that is not appropriately muffled, and not to overall construction noise, in general, during allowable hours. With implementation of the recommended **Mitigation Measure N-1**, optimal muffler systems for all equipment and the break in line

of sight to a sensitive receptor would reduce construction noise levels by approximately 10 dB or more.¹² Also, limiting the number of noise-generating heavy-duty construction equipment to two (2) pieces operating simultaneously would reduce construction noise levels by approximately 5 dB. With implementation of the recommended measures and compliant with local regulations, construction noise levels would be decreased by a minimum of 15 dB. Consequently, construction noise levels at the residential areas along Plumosa Drive would be reduced to 57.9 dBA, below the existing ambient noise levels (refer to **Table 4**). As such, impacts would not be considered significant.

Construction Vibration

Table 9: On-Site Construction Vibration Impacts—Building Damage and **Table 10: On-Site Construction Vibration Impacts—Human Annoyance** present the construction vibration impacts associated with on-site construction in terms of building damage and human annoyance. As shown in **Table 9**, the forecasted vibration levels due to on-site construction activities would not exceed the building damage significance threshold at the single-family residences in the vicinity of the Project site. It is important to note pile driving, large bulldozers and caisson drilling would not be required during construction. Consequently, heavy construction equipment would not generate substantial levels of vibration that would cause annoyance at the off-site, vibration-sensitive residences. Construction vibration impacts would be less than significant. Furthermore, as shown in **Table 10**, the forecasted vibration levels due to on-site construction activities would not exceed human annoyance.

Table 9
On-Site Construction Vibration Impacts—Building Damage

Nearest Off-Site Building Structures	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Project Construction Equipment							Significance Threshold (PPV ips)
	Pile Driver (impact) ¹	Vibratory Roller	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small bulldozer	
FTA Reference Vibration Levels at 25 feet								
	0.644	0.210	0.089	0.089	0.076	0.035	0.003	—
Residential Along Plumosa Drive	0.013	0.004	0.002	0.002	0.000	0.001	0.000	0.12
Residential Along Lemon Drive (West)	0.006	0.002	0.001	0.001	0.001	0.000	0.000	0.12

¹² FHWA, *Special Report – Measurement, Prediction, and Mitigation*, updated June 2017.
https://www.fhwa.dot.gov/Environment/noise/construction_noise/special_report/hcn04.cfm, accessed October 2019

Nearest Off-Site Building Structures	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Project Construction Equipment							Significance Threshold (PPV ips)
	Pile Driver (impact) ¹	Vibratory Roller	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small bulldozer	
Residential Along Lemon Drive (East)	0.008	0.003	0.001	0.001	0.001	0.000	0.000	0.12

Source: US Department of Transportation, Federal Transportation Authority, Transit Noise and Vibration Impact Assessment

Source: Refer to **Appendix D** for construction vibration worksheets.

Note:

¹ Pile driving would not be required during construction.

Table 10
On-Site Construction Vibration Impacts—Human Annoyance

Nearest Off-Site Building Structures	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Project Construction Equipment							Significance Threshold (PPV ips)
	Pile Driver (impact) ¹	Vibratory Roller	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small bulldozer	
FTA Reference Vibration Levels at 25 feet								
	104	94	87	87	86	79	58	—
Residential Along Plumosa Drive	70	60	53	53	52	45	23	72
Residential Along Lemon Drive (West)	63	53	45	46	45	38	17	72
Residential Along Lemon Drive (East)	66	56	49	49	47	41	19	72

Source: US Department of Transportation, Federal Transportation Authority, Transit Noise and Vibration Impact Assessment

Source: Refer to **Appendix D** for construction vibration worksheets.

Note:

¹ Pile driving would not be required during construction.

Roadway Noise

Roadway noise levels were modeled using the Federal Highway Administration Prediction Model (FHWA-RD-88-108) to determine if operation of the Project would increase levels greater than 3 dB(A) along local roadways. This model considers roadway noise levels from local street segments that would have an increase or decrease in vehicle traffic as a result of the Project.

Existing plus Project

Table 11: Existing plus Project Weekday (Evening) and **Table 12: Existing plus Project Saturday (Mid-Day)** illustrates the change in CNEL from existing traffic volumes and from traffic generated by the Project. The difference in traffic noise between existing conditions and existing plus Project conditions represents the increase in noise attributable to Project-related traffic. As shown in **Table 11** and **Table 12**, the weekday (evening) and Saturday (Mid-Day) maximum roadway noise level increase along existing roadways would be 1.8 dBA CNEL and 1.0 dBA CNEL along Olinda Street, south of the Project driveway (Intersection 10).

Table 11
Existing plus Project Weekday (Evening)

Intersection	Roadway Segment	Existing	Existing Plus Project	Difference
		dBA CNEL		
Imperial Highway				
1	North of Casa Loma Avenue	67.4	67.4	0.0
	South of Casa Loma Avenue	67.3	67.4	+0.1
2	North of Eureka Avenue	67.1	67.2	+0.1
	South of Eureka Avenue	67.1	67.1	0.0
3	North of Lemon Drive	67.3	67.3	0.0
	South of Lemon Drive	67.1	67.0	-0.1
4	North of Olinda Street	67.1	67.0	-0.1
	South of Olinda Street	67.2	67.3	+0.1
5	North of Yorba Linda Boulevard	67.2	67.2	0.0
	South of Yorba Linda Boulevard	66.6	66.6	0.0
Plumosa Drive				
6	North of Lemon Drive	57.4	57.4	0.0
	South of Lemon Drive	N/A	49.8	N/A
Olinda Street				
7	North of Lemon Drive	42.2	42.2	0.0
	South of Lemon Drive	52.6	52.8	+0.2
10	North of Project Driveway	52.6	52.8	+0.2
	South of Project Driveway	52.6	54.4	+1.8
Lakeview Avenue				
8	North of Lemon Drive	61.4	61.5	+0.1
	South of Lemon Drive	62.0	62.0	0.0
9	North of Yorba Linda Boulevard	62.3	62.3	0.0
	South of Yorba Linda Boulevard	62.8	62.8	0.0
Casa Loma Avenue				

		Existing	Existing Plus Project	Difference
Intersection	Roadway Segment	dBA CNEL		
1	East of Imperial Highway	53.0	53.0	0.0
	West of Imperial Highway	54.4	53.3	-1.1
Eureka Avenue				
2	East of Imperial Highway	56.0	56.5	+0.5
	West of Imperial Highway	57.7	55.8	-1.9
Lemon Drive				
3	East of Imperial Highway	57.6	57.9	+0.3
	West of Imperial Highway	49.4	49.4	0.0
6	East of Plumosa Drive	56.8	56.8	0.0
	West of Plumosa Drive	57.3	57.9	+0.6
7	East of Olinda Street	57.0	57.1	+0.1
	West of Olinda Street	56.7	56.7	0.0
8	East of Lakeview Avenue	38.8	38.8	0.0
	West of Lakeview Avenue	56.9	57.0	+0.1
Olinda Street				
4	East of Imperial Highway	53.5	55.0	+1.5
	West of Imperial Highway	54.3	54.3	0.0
Yorba Linda Boulevard				
5	East of Imperial Highway	66.2	66.2	0.0
	West of Imperial Highway	64.7	64.7	0.0
9	East of Lakeview Avenue	66.5	66.5	0.0
	West of Lakeview Avenue	66.2	66.2	0.0
Project Driveway				
10	East of Olinda Street	N/A	N/A	N/A
	West of Olinda Street	N/A	49.9	N/A

Source: Refer to **Appendix B** for roadway noise worksheets.

Table 12
Existing plus Project Saturday (Mid-Day)

Intersection	Roadway Segment	Existing	Existing plus Project	Difference
Imperial Highway				
1	North of Casa Loma Avenue	65.8	65.8	0.0
	South of Casa Loma Avenue	65.7	65.8	+0.1
2	North of Eureka Avenue	65.5	65.6	+0.1
	South of Eureka Avenue	65.5	65.5	0.0

Intersection	Roadway Segment	Existing	Existing plus Project	Difference
3	North of Lemon Drive	65.8	65.8	0.0
	South of Lemon Drive	65.5	65.5	0.0
4	North of Olinda Street	65.5	65.5	0.0
	South of Olinda Street	65.8	65.8	0.0
5	North of Yorba Linda Boulevard	65.8	65.8	0.0
	South of Yorba Linda Boulevard	65.3	65.4	+0.1
Plumosa Drive				
6	North of Lemon Drive	56.5	56.6	0.0
	South of Lemon Drive	N/A	47.0	N/A
Olinda Street				
7	North of Lemon Drive	41.8	41.8	0.0
	South of Lemon Drive	51.6	51.8	+0.2
10	North of Project Driveway	52.3	52.5	+0.2
	South of Project Driveway	52.3	53.3	+1.0
Lakeview Avenue				
8	North of Lemon Drive	61.0	61.0	0.0
	South of Lemon Drive	61.4	61.5	+0.1
9	North of Yorba Linda Boulevard	62.0	62.0	0.0
	South of Yorba Linda Boulevard	62.0	62.0	0.0
Casa Loma Avenue				
1	East of Imperial Highway	50.3	50.4	+0.1
	West of Imperial Highway	53.7	53.7	0.0
Eureka Avenue				
2	East of Imperial Highway	54.1	54.1	0.0
	West of Imperial Highway	56.0	56.0	0.0
Lemon Drive				
3	East of Imperial Highway	57.5	57.8	+0.3
	West of Imperial Highway	50.6	50.6	0.0
6	East of Plumosa Drive	57.1	57.1	0.0
	West of Plumosa Drive	57.5	57.8	+0.3
7	East of Olinda Street	57.4	57.4	0.0
	West of Olinda Street	57.2	57.3	+0.1
8	East of Lakeview Avenue	40.9	40.9	0.0
	West of Lakeview Avenue	56.8	56.9	+0.1
Olinda Street				
4	East of Imperial Highway	52.3	53.3	+1.0
	West of Imperial Highway	55.0	54.7	-0.3
Yorba Linda Boulevard				
5	East of Imperial Highway	65.2	65.2	0.0
	West of Imperial Highway	63.9	63.9	0.0

Intersection	Roadway Segment	Existing	Existing plus Project	Difference
9	East of Lakeview Avenue	65.6	65.6	0.0
	West of Lakeview Avenue	65.6	65.7	+0.1
Project Driveway				
10	East of Olinda Street	N/A	N/A	N/A
	West of Olinda Street	N/A	47.3	N/A

Source: Refer to **Appendix B** for roadway noise worksheets.

Opening Year (2021) plus Project

Table 13: Opening Year (2021) plus Project Weekday (Evening) and **Table 14: Opening Year (2021) plus Project Saturday (Mid-Day)** illustrates the change in CNEL from background traffic volumes and from traffic generated by the Project. As shown in **Table 13** and **Table 14**, the weekday (evening) and Saturday (Mid-Day) maximum roadway noise level increase along existing roadways would be 1.5 dBA CNEL and 0.9 dBA CNEL along Olinda Street, south of the Project Driveway (Intersection 10) respectively. Additionally, weekday (evening) and Saturday (Mid-Day) roadway noise levels would increase by 1.3 dBA CNEL and 0.9 dBA CNEL along Olinda Street, east of Imperial Highway (Intersection 4), respectively.

Table 13
Opening Year (2021) plus Project Weekday (Evening)

Intersection	Roadway Segment	Opening Year (2021)	Opening Year (2021) Plus Project	Difference
Imperial Highway				
1	North of Casa Loma Avenue	67.6	67.6	0.0
	South of Casa Loma Avenue	67.6	67.6	0.0
2	North of Eureka Avenue	67.4	67.5	+0.1
	South of Eureka Avenue	67.4	67.4	0.0
3	North of Lemon Drive	67.5	67.6	+0.1
	South of Lemon Drive	67.2	67.1	-0.1
4	North of Olinda Street	67.2	67.1	-0.1
	South of Olinda Street	67.3	67.4	+0.1
5	North of Yorba Linda Boulevard	67.3	67.3	0.0
	South of Yorba Linda Boulevard	66.8	66.9	+0.1
Plumosa Drive				
6	North of Lemon Drive	57.7	57.8	+0.1
	South of Lemon Drive	N/A	49.8	N/A

Intersection	Roadway Segment	Opening Year (2021)	Opening Year (2021) Plus Project	Difference
<i>Olinda Street</i>				
7	North of Lemon Drive	42.2	42.2	0.0
	South of Lemon Drive	53.2	53.3	+0.1
10	North of Project Driveway	53.2	53.3	+0.1
	South of Project Driveway	53.2	54.7	+1.5
<i>Lakeview Avenue</i>				
8	North of Lemon Drive	62.7	62.7	0.0
	South of Lemon Drive	63.6	63.6	0.0
9	North of Yorba Linda Boulevard	63.9	63.9	0.0
	South of Yorba Linda Boulevard	63.2	63.2	0.0
<i>Casa Loma Avenue</i>				
1	East of Imperial Highway	53.2	53.2	0.0
	West of Imperial Highway	53.6	53.6	0.0
<i>Eureka Avenue</i>				
2	East of Imperial Highway	56.7	56.7	0.0
	West of Imperial Highway	56.0	56.1	+0.1
<i>Lemon Drive</i>				
3	East of Imperial Highway	59.0	59.5	+0.5
	West of Imperial Highway	49.4	49.4	0.0
6	East of Plumosa Drive	58.9	58.9	0.0
	West of Plumosa Drive	59.0	59.5	+0.5
7	East of Olinda Street	59.2	59.2	0.0
	West of Olinda Street	58.8	58.9	+0.1
8	East of Lakeview Avenue	38.8	38.8	0.0
	West of Lakeview Avenue	59.1	59.2	+0.1
<i>Olinda Street</i>				
4	East of Imperial Highway	54.0	55.3	+1.3
	West of Imperial Highway	54.7	54.7	0.0
<i>Yorba Linda Boulevard</i>				
5	East of Imperial Highway	66.7	66.7	0.0
	West of Imperial Highway	65.1	65.1	0.0
9	East of Lakeview Avenue	66.8	66.8	0.0

Intersection	Roadway Segment	Opening Year (2021)	Opening Year (2021) Plus Project	Difference
	West of Lakeview Avenue	66.6	66.7	0.0
Project Driveway				
10	East of Olinda Street	N/A	N/A	NA
	West of Olinda Street	N/A	49.9	N/A

Source: Refer to **Appendix B** for roadway noise worksheets.

Table 14
Opening Year (2021) plus Project Saturday (Mid-Day)

Intersection	Roadway Segment	Opening Year (2021)	Opening Year (2021) Plus Project	Difference
Imperial Highway				
1	North of Casa Loma Avenue	66.2	66.1	-0.1
	South of Casa Loma Avenue	66.2	66.1	-0.1
2	North of Eureka Avenue	66.0	66.0	0.0
	South of Eureka Avenue	65.9	65.9	0.0
3	North of Lemon Drive	66.2	66.3	+0.1
	South of Lemon Drive	65.6	65.6	0.0
4	North of Olinda Street	65.6	65.6	0.0
	South of Olinda Street	65.9	66.0	+0.1
5	North of Yorba Linda Boulevard	65.9	65.9	0.0
	South of Yorba Linda Boulevard	65.7	65.8	+0.1
Plumosa Drive				
6	North of Lemon Drive	57.0	57.0	0.0
	South of Lemon Drive	N/A	47.4	N/A
Olinda Street				
7	North of Lemon Drive	41.8	41.8	0.0
	South of Lemon Drive	52.4	52.5	+0.1
10	North of Project Driveway	52.9	53.1	+0.2
	South of Project Driveway	52.9	53.8	+0.9
Lakeview Avenue				
8	North of Lemon Drive	62.4	62.5	+0.1
	South of Lemon Drive	63.4	63.4	0.0
9	North of Yorba Linda Boulevard	63.9	63.9	0.0

Intersection	Roadway Segment	Opening Year (2021)	Opening Year (2021) Plus Project	Difference
	South of Yorba Linda Boulevard	62.6	62.6	0.0
Casa Loma Avenue				
1	East of Imperial Highway	50.9	51.0	+0.1
	West of Imperial Highway	54.0	53.0	-1.0
Eureka Avenue				
2	East of Imperial Highway	54.5	54.5	0.0
	West of Imperial Highway	56.3	56.3	0.0
Lemon Drive				
3	East of Imperial Highway	59.4	59.6	+0.2
	West of Imperial Highway	50.6	50.6	0.0
6	East of Plumosa Drive	59.3	59.3	0.0
	West of Plumosa Drive	59.4	59.7	+0.3
7	East of Olinda Street	59.6	59.7	+0.1
	West of Olinda Street	59.4	59.4	0.0
8	East of Lakeview Avenue	40.9	40.9	0.0
	West of Lakeview Avenue	59.3	59.4	+0.1
Olinda Street				
4	East of Imperial Highway	52.9	53.8	+0.9
	West of Imperial Highway	55.4	55.4	0.0
Yorba Linda Boulevard				
5	East of Imperial Highway	65.8	65.9	+0.1
	West of Imperial Highway	64.4	64.4	0.0
9	East of Lakeview Avenue	66.0	66.0	0.0
	West of Lakeview Avenue	66.3	66.3	0.0
Project Driveway				
10	East of Olinda Street	N/A	N/A	N/A
	West of Olinda Street	N/A	47.3	N/A

Source: Refer to **Appendix B** for roadway noise worksheets.

Buildout plus Project

Table 15: Buildout plus Project Weekday (Evening) and **Table 16: Buildout plus Project Saturday (Mid-Day)** illustrates the change in CNEL from cumulative traffic volumes and from traffic generated by the Project. The weekday (evening) and Saturday (Mid-Day) maximum roadway noise level increase along roadways would be 1.3 dBA CNEL and 0.8 dBA CNEL along Olinda Street, south of Project driveway (Intersection 10), respectively. Additionally, maximum roadway noise levels along Olinda Street, east of Imperial Highway (Intersection 4) would increase by 1.2 dBA CNEL and 0.7 dBA CNEL, respectively.

Table 15
Buildout plus Project Weekday (Evening)

Intersection	Roadway Segment	Buildout Year (2040)	Buildout Year (2040) Plus Project	Difference
Imperial Highway				
1	North of Casa Loma Avenue	68.5	68.5	0.0
	South of Casa Loma Avenue	67.0	67.0	0.0
2	North of Eureka Avenue	68.3	68.3	0.0
	South of Eureka Avenue	68.3	68.3	0.0
3	North of Lemon Drive	68.4	68.4	0.0
	South of Lemon Drive	68.0	68.0	0.0
4	North of Olinda Street	68.0	68.0	0.0
	South of Olinda Street	68.2	68.3	+0.1
5	North of Yorba Linda Boulevard	68.1	68.2	+0.1
	South of Yorba Linda Boulevard	67.7	67.7	0.0
Plumosa Drive				
6	North of Lemon Drive	58.6	58.6	0.0
	South of Lemon Drive	N/A	49.8	N/A
Olinda Street				
7	North of Lemon Drive	43.3	43.3	0.0
	South of Lemon Drive	54.0	54.1	+0.1
10	North of Project Driveway	54.0	54.1	+0.1
	South of Project Driveway	54.0	55.3	+1.3
Lakeview Avenue				
8	North of Lemon Drive	63.3	63.4	+0.1
	South of Lemon Drive	64.2	64.2	0.0
9	North of Yorba Linda Boulevard	64.5	64.5	0.0
	South of Yorba Linda Boulevard	64.0	64.0	0.0
Casa Loma Avenue				
1	East of Imperial Highway	54.1	54.1	0.0
	West of Imperial Highway	54.5	54.5	0.0
Eureka Avenue				
2	East of Imperial Highway	57.6	57.6	0.0
	West of Imperial Highway	56.9	56.9	0.0
Lemon Drive				

Intersection	Roadway Segment	Buildout Year (2040)	Buildout Year (2040) Plus Project	Difference
3	East of Imperial Highway	59.7	60.1	+0.4
	West of Imperial Highway	50.3	50.3	0.0
6	East of Plumosa Drive	59.5	59.5	0.0
	West of Plumosa Drive	59.7	60.0	+0.3
7	East of Olinda Street	59.7	59.8	+0.1
	West of Olinda Street	59.4	59.4	0.0
8	East of Lakeview Avenue	39.6	39.6	0.0
	West of Lakeview Avenue	59.7	59.7	0.0
Olinda Street				
4	East of Imperial Highway	54.8	56.0	+1.2
	West of Imperial Highway	55.5	55.5	0.0
Yorba Linda Boulevard				
5	East of Imperial Highway	67.5	67.5	0.0
	West of Imperial Highway	65.9	65.9	0.0
9	East of Lakeview Avenue	67.6	67.6	0.0
	West of Lakeview Avenue	67.5	67.5	0.0
Project Driveway				
10	East of Olinda Street	N/A	N/A	N/A
	West of Olinda Street	N/A	49.9	N/A

Source: Refer to **Appendix B** for roadway noise worksheets.

Note: N/A = No Data

Table 16
Buildout plus Project Saturday (Mid-Day)

Intersection	Roadway Segment	Buildout Year (2040)	Buildout Year (2040) Plus Project	Difference
Imperial Highway				
1	North of Casa Loma Avenue	67.0	67.0	0.0
	South of Casa Loma Avenue	67.0	67.0	0.0
2	North of Eureka Avenue	66.8	66.8	0.0
	South of Eureka Avenue	66.7	66.8	+0.1
3	North of Lemon Drive	67.1	67.1	0.0
	South of Lemon Drive	66.5	66.5	0.0
4	North of Olinda Street	66.5	66.5	0.0
	South of Olinda Street	66.8	66.8	0.0

Intersection	Roadway Segment	Buildout Year (2040)	Buildout Year (2040) Plus Project	Difference
5	North of Yorba Linda Boulevard	66.8	66.8	0.0
	South of Yorba Linda Boulevard	66.6	66.6	0.0
Plumosa Drive				
6	North of Lemon Drive	57.8	57.8	0.0
	South of Lemon Drive	N/A	47.4	N/A
Olinda Street				
7	North of Lemon Drive	43.0	43.0	0.0
	South of Lemon Drive	53.2	53.3	+0.1
10	North of Project Driveway	53.7	53.9	+0.2
	South of Project Driveway	53.7	54.5	+0.8
Lakeview Avenue				
8	North of Lemon Drive	63.1	63.1	0.0
	South of Lemon Drive	64.0	64.0	0.0
9	North of Yorba Linda Boulevard	64.5	64.5	0.0
	South of Yorba Linda Boulevard	63.4	63.4	0.0
Casa Loma Avenue				
1	East of Imperial Highway	51.8	51.9	+0.1
	West of Imperial Highway	54.5	54.5	0.0
Eureka Avenue				
2	East of Imperial Highway	55.3	55.3	0.0
	West of Imperial Highway	57.1	57.2	+0.1
Lemon Drive				
3	East of Imperial Highway	60.0	60.2	+0.2
	West of Imperial Highway	51.6	51.6	0.0
6	East of Plumosa Drive	59.9	59.9	0.0
	West of Plumosa Drive	60.0	60.2	+0.2
7	East of Olinda Street	60.2	60.2	0.0
	West of Olinda Street	60.0	60.0	0.0
8	East of Lakeview Avenue	41.8	41.8	0.0
	West of Lakeview Avenue	59.9	59.9	0.0
Olinda Street				
4	East of Imperial Highway	53.8	54.5	+0.7
	West of Imperial Highway	56.3	56.3	0.0
Yorba Linda Boulevard				
5	East of Imperial Highway	66.6	66.6	0.0
	West of Imperial Highway	65.2	65.2	0.0

Intersection	Roadway Segment	Buildout Year (2040)	Buildout Year (2040) Plus Project	Difference
9	East of Lakeview Avenue	66.8	66.8	0.0
	West of Lakeview Avenue	67.0	67.1	+0.1
Project Driveway				
10	East of Olinda Street	N/A	N/A	N/A
	West of Olinda Street	N/A	47.3	N/A

Source: Refer to **Appendix B** for roadway noise worksheets.

Note: N/A = No Data

Operational Noise Sources

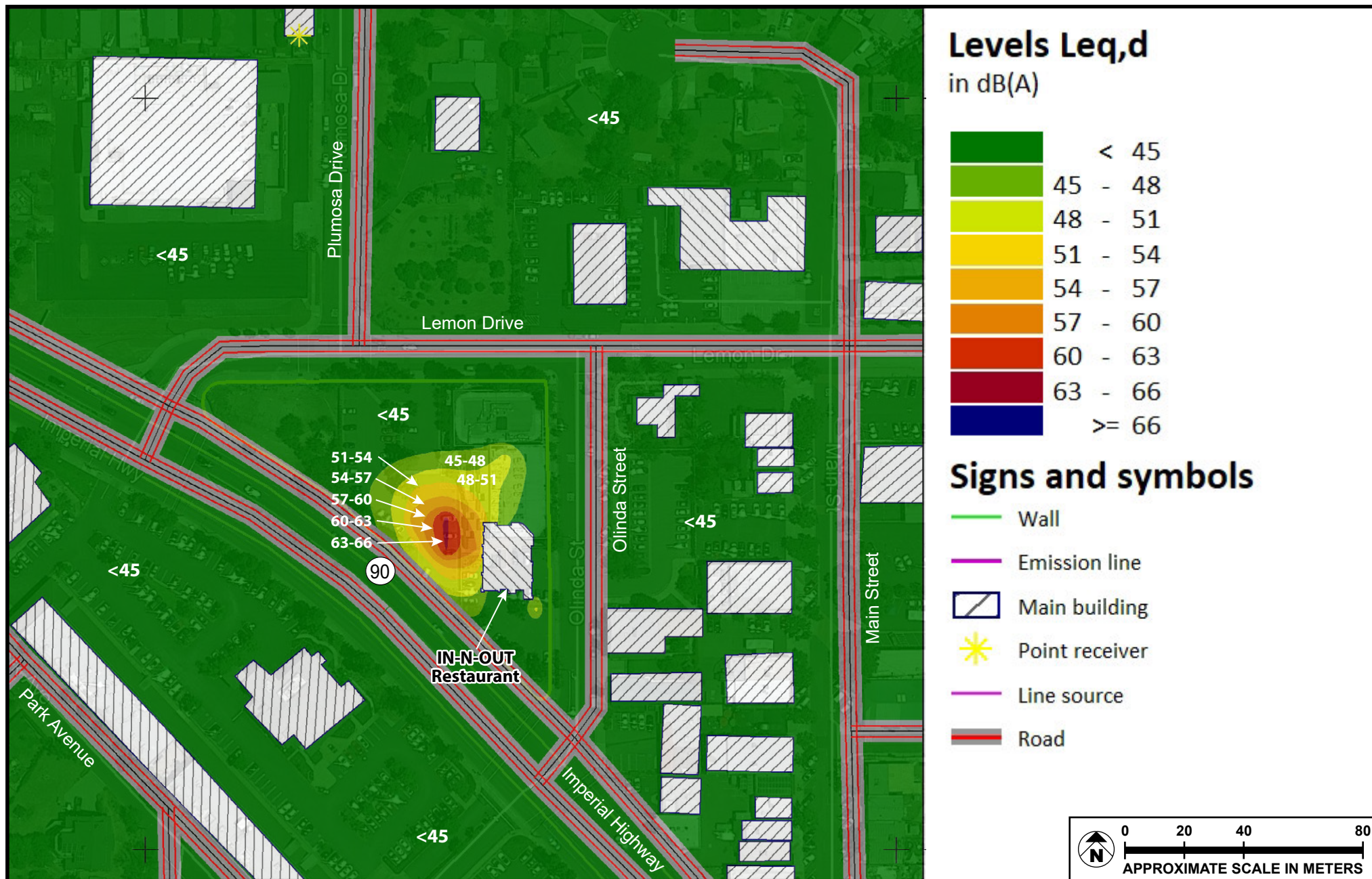
Truck deliveries would take place no more than once daily between the hours of 6:00 AM to 9:00 AM lasting less than an hour. Site access for these delivery trucks would be along Imperial Highway. The rear of the truck will stop adjacent to parking stall #36 with the lift gate facing E. Hamilton Avenue pointing away from any sensitive receptors. The nearest sensitive receptor would be located along Plumosa Drive approximately 200 feet to the north of the Project boundary. **Table 17: Modeled Exterior Noise Levels** provides the predicted noise levels which would be produced to the identified sensitive receptors. As mentioned previously, operational sources include the drive-through queuing, parking, amplified speech emanating from the speaker, and trash compactor uses. As shown in **Table 17**, operational noise levels would not cause any increases to the ambient noise environment (refer to **Table 4**) at the identified sensitive receptors along Plumosa Drive and Lemon Drive. The results of the predictive modeling process (Lday and Lnight) and the location of the sensitive receptors are shown graphically in **Figure 5: Operational Noise Level Contour Map**.

Table 17
Modeled Exterior Noise Levels

Site	Ambient Noise Measurement (Leq)	Proposed Project Modeled Noise Levels		Significant Impact?
		Lday	Lnight	
Residential Along Plumosa Drive	59.1	29.6	26.5	No
Residential Along Lemon Drive (West)	58.7	18.3	15.2	No
Residential Along Lemon Drive (East)	56.0	22.0	18.9	No

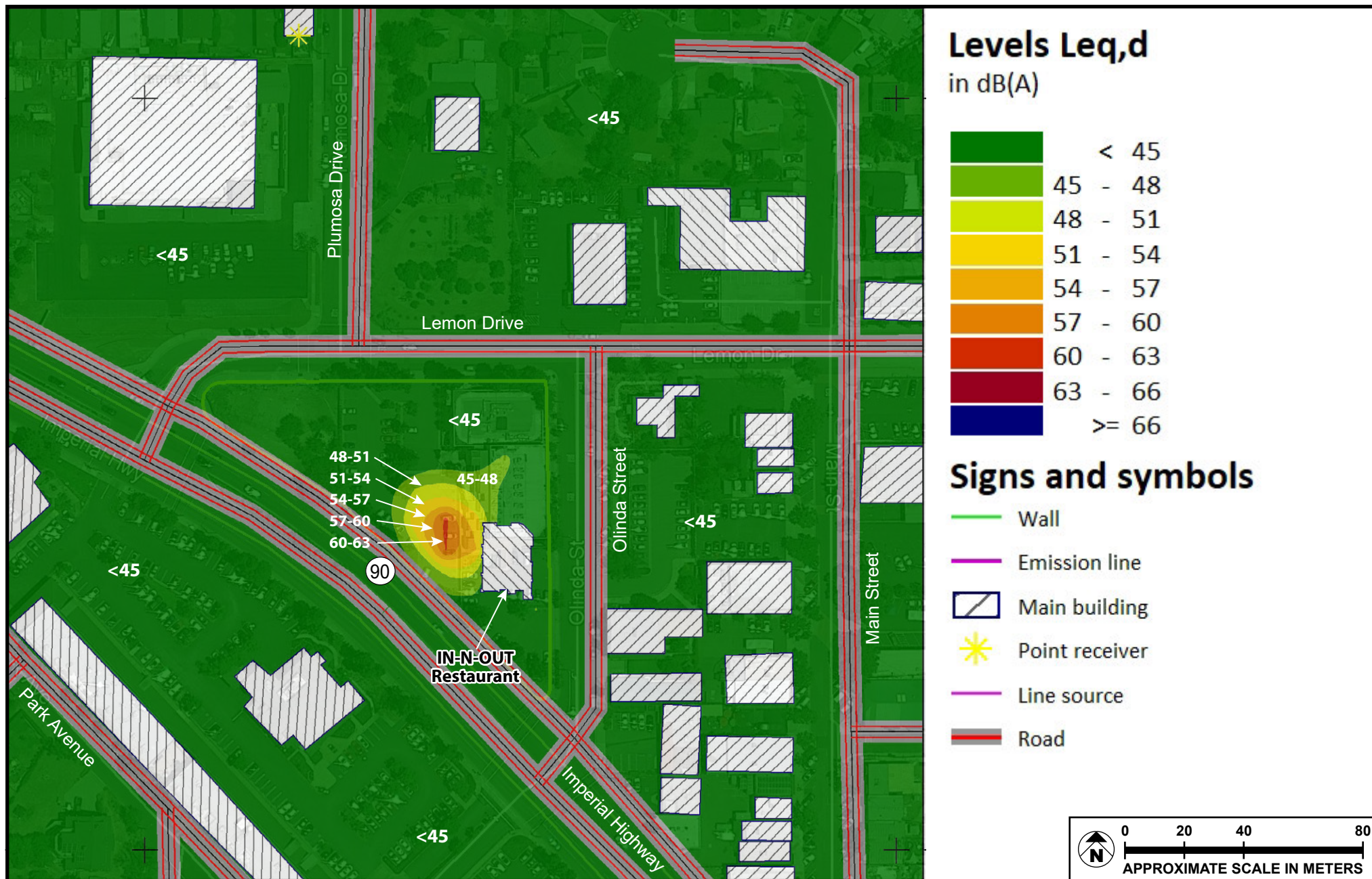
Source: SoundPLAN (version 8.1)

Refer to **Appendix E** for SoundPLAN output sheets.



SOURCE: SoundPlan - 2019

FIGURE 5a



SOURCE: SoundPlan - 2019

FIGURE 5b

APPENDIX A

Ambient Noise Measurements

Monitoring Location: Site 1

Monitoring Date: 9/25/2019

Monitoring Period

Time	LAeq	LApeak	LASmax
7:34:44	68.3	89.1	76.6
7:35:44	75.1	92.3	77.5
7:36:44	67.5	88.7	74.4
7:37:44	74.4	97.6	80.5
7:38:44	67.0	87.6	74.4
7:39:44	74.9	95.6	80.5
7:40:44	68.9	86.5	73.9
7:41:44	75.1	94.4	79.5
7:42:44	70.4	96.3	77.2
7:43:44	74.4	93.0	78.4
7:44:44	68.7	90.7	78.7
7:45:44	74.4	91.5	78.1
7:46:44	68.5	87.5	74.2
7:47:44	73.5	92.1	77.6
7:48:44	74.9	101.4	87.0
7:49:44	74.7	90.5	78.1
		101.4	87.0

15-minute LAeq

72.9

Monitoring Location: Site 2

Monitoring Date: 9/25/2019

Monitoring Period

Time	LAeq	LApeak	LASmax
8:09:57	63.7	78.5	66.8
8:10:57	64.1	82.1	69.2
8:11:57	63.7	78.6	66.8
8:12:57	64.2	84.7	71.7
8:13:57	63.3	78.8	66.0
8:14:57	60.0	78.0	65.2
8:15:57	63.7	80.5	68.1
8:16:57	63.1	82.4	71.4
8:17:57	61.3	76.6	64.6
8:18:57	60.2	79.0	65.3
8:19:57	64.1	82.5	69.6
8:20:57	63.2	85.8	71.7
8:21:57	62.3	78.8	65.2
8:22:57	61.1	78.6	66.0
8:23:57	62.1	77.5	65.1
8:24:57	49.7	69.2	53.8

85.8	71.7
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15-minute LAeq

62.6

Monitoring Location: Site 3

Monitoring Date: 9/25/2019

Monitoring Period

Time	LAeq	LApeak	LASmax
7:52:58	72.9	91.2	78.8
7:53:58	76.3	95.0	80.1
7:54:58	71.2	93.9	77.9
7:55:58	77.4	96.7	82.8
7:56:58	69.9	91.5	78.0
7:57:58	77.2	99.0	84.1
7:58:58	71.6	91.5	76.3
7:59:58	77.7	96.2	82.2
8:00:58	69.0	91.5	77.1
8:01:58	77.3	96.3	82.4
8:02:58	70.2	89.8	75.1
8:03:58	76.2	94.0	80.1
8:04:58	71.7	93.3	78.3
8:05:58	76.3	94.0	80.0
8:06:58	72.2	91.3	77.5
8:07:58	73.4	89.9	76.9
		99.0	84.1

15-minute LAeq

74.7

Monitoring Location: Site 4

Monitoring Date: 9/25/2019

Monitoring Period

Time	LAeq	LApeak	LASmax
8:48:09	56.1	79.3	65.2
8:49:09	54.8	79.1	65.3
8:50:09	59.2	87.1	72.4
8:51:09	54.7	79.6	65.4
8:52:09	51.1	74.9	61.6
8:53:09	48.3	71.1	61.4
8:54:09	56.5	78.9	65.2
8:55:09	55.7	81.0	66.2
8:56:09	52.8	75.3	60.9
8:57:09	54.8	76.7	63.2
8:58:09	57.5	88.2	71.6
8:59:09	58.1	84.6	71.6
9:00:09	59.1	83.3	72.1
9:01:09	55.7	78.1	65.2
9:02:09	56.3	85.1	68.1
9:03:09	54.6	75.2	58.4

	88.2	72.4
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15-minute LAeq

56.0

Monitoring Location: Site 5

Monitoring Date: 9/25/2019

Monitoring Period

Time	LAeq	LApeak	LASmax
8:27:17	60.1	84.4	70.6
8:28:17	55.5	81.3	67.8
8:29:17	55.5	81.4	67.8
8:30:17	60.4	85.0	70.8
8:31:17	58.4	84.1	67.7
8:32:17	57.8	81.8	66.2
8:33:17	62.0	88.7	69.0
8:34:17	62.7	87.3	72.4
8:35:17	62.0	97.2	71.3
8:36:17	53.4	75.8	63.2
8:37:17	56.8	82.7	68.1
8:38:17	56.8	81.2	67.4
8:39:17	61.6	88.8	72.6
8:40:17	58.5	83.5	68.4
8:41:17	57.6	84.7	68.8
8:42:17	49.9	63.9	51.1
		97.2	72.6

15-minute LAeq

59.1

Monitoring Location: Site 6
Monitoring Date: 9/25/2019

Monitoring Period

Time	LAeq	LApeak	LASmax
9:11:10	60.3	80.2	67.5
9:12:10	56.5	78.2	62.7
9:13:10	58.1	77.9	64.9
9:14:10	55.6	72.7	60.2
9:15:10	58.2	76.0	62.7
9:16:10	56.2	72.4	59.5
9:17:10	61.1	83.0	67.9
9:18:10	54.3	73.8	60.1
9:19:10	59.5	84.3	69.0
9:20:10	59.4	86.3	69.6
9:21:10	57.5	80.3	66.6
9:22:10	61.7	82.0	69.6
9:23:10	58.3	80.3	66.9
9:24:10	60.4	79.3	66.7
9:25:10	60.0	81.1	68.3
9:26:10	50.8	74.3	53.0
		86.3	69.6

15-minute LAeq

58.7

APPENDIX B

Roadway Noise Worksheets

10
NOISE LEVEL CONTOURS

ROADWAY NAME Segment	Land Use											Traffic Volumes					Ref. Energy Levels Dist					Ld			Le			Ln											
		Lanes	Median Width	ADT Volume	Design Dist. from		Barrier Alpha	Vehicle Mix		dB(A) CNEL	Day	Eve	Night	MTd	HTd	MTe	HTE	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total A	MT	HT	Total A	MT	HT	Total A	MT	HT	Total A			
					Speed (mph)	Center to Receptor (ft)		Medium Trucks	Heavy Trucks																														
Olinda St n/o Project Dwy																																							
Existing Weekday (Evening)		2	0	960	40	75	0	0	1.8%	0.7%	52.6	746	122	92	15	6	1	0	1	1	67.4	76.3	81.2	-1.8	52.0	44.2	45.0	53.4	49.0	36.6	34.8	49.4	35.8	34.7	35.8	40.2			
Existing Saturday (Mid-Day)		2	0	888	40	75	0	0	1.8%	0.7%	52.3	690	113	85	14	6	1	0	1	1	67.4	76.3	81.2	-1.8	51.7	43.8	44.7	53.0	48.7	36.2	34.5	49.1	35.5	34.4	35.4	39.9			
Existing plus Project Weekday (Evening)		2	0	1,000	40	75	0	0	1.8%	0.7%	52.8	777	127	96	16	6	1	0	1	1	67.4	76.3	81.2	-1.8	52.2	44.3	45.2	53.5	49.2	36.8	35.0	49.6	36.0	34.9	35.9	40.4			
Existing plus Project Saturday (Mid- Day)		2	0	928	40	75	0	0	1.8%	0.7%	52.5	721	118	89	15	6	1	0	1	1	67.4	76.3	81.2	-1.8	51.9	44.0	44.8	53.2	48.9	36.4	34.7	49.3	35.7	34.6	35.6	40.1			
Opening Year (2021) Without Project Weekday (Evening)		2	0	1,096	40	75	0	0	1.8%	0.7%	53.2	852	139	105	17	7	1	0	1	1	67.4	76.3	81.2	-1.8	52.6	44.7	45.6	53.9	49.6	37.2	35.4	50.0	36.4	35.3	36.3	40.8			
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	1,032	40	75	0	0	1.8%	0.7%	52.9	802	131	99	16	6	1	0	1	1	67.4	76.3	81.2	-1.8	52.3	44.5	45.3	53.7	49.4	36.9	35.1	49.7	36.2	35.0	36.1	40.6			
Opening Year (2021) with Project Weekday (Evening)		2	0	1,136	40	75	0	0	1.8%	0.7%	53.3	883	144	109	18	7	1	0	2	1	67.4	76.3	81.2	-1.8	52.8	44.9	45.7	54.1	49.8	37.3	35.6	50.2	36.6	35.4	36.5	41.0			
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	1,072	40	75	0	0	1.8%	0.7%	53.1	833	136	103	17	7	1	0	1	1	67.4	76.3	81.2	-1.8	52.5	44.6	45.5	53.8	49.5	37.1	35.3	49.9	36.3	35.2	36.2	40.7			
Build-out Year (2040) without Project Weekday (Evening)		2	0	1,312	40	75	0	0	1.8%	0.7%	54.0	1,019	167	126	21	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.4	45.5	46.3	54.7	50.4	37.9	36.2	50.8	37.2	36.1	37.1	41.6			
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	1,240	40	75	0	0	1.8%	0.7%	53.7	963	157	119	20	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.1	45.3	46.1	54.5	50.2	37.7	35.9	50.5	37.0	35.8	36.9	41.3			
Build-out Year (2040) with Project Weekday (Evening)		2	0	1,352	40	75	0	0	1.8%	0.7%	54.1	1,051	172	130	21	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.5	45.7	46.5	54.8	50.5	38.1	36.3	50.9	37.3	36.2	37.2	41.7			
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	1,280	40	75	0	0	1.8%	0.7%	53.9	995	163	123	20	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.3	45.4	46.2	54.6	50.3	37.8	36.1	50.7	37.1	36.0	37.0	41.5			
Olinda St s/o Project Dwy																																							
Existing Weekday (Evening)		2	0	960	40	75	0	0	1.8%	0.7%	52.6	746	122	92	15	6	1	0	1	1	67.4	76.3	81.2	-1.8	52.0	44.2	45.0	53.4	49.0	36.6	34.8	49.4	35.8	34.7	35.8	40.2			
Existing Saturday (Mid-Day)		2	0	888	40	75	0	0	1.8%	0.7%	52.3	690	113	85	14	6	1	0	1	1	67.4	76.3	81.2	-1.8	51.7	43.8	44.7	53.0	48.7	36.2	34.5	49.1	35.5	34.4	35.4	39.9			
Existing plus Project Weekday (Evening)		2	0	1,432	40	75	0	0	1.8%	0.7%	54.4	1,113	182	137	23	9	1	0	2	1	67.4	76.3	81.2	-1.8	53.8	45.9	46.7	55.1	50.8	38.3	36.6	51.2	37.6	36.4	37.5	42.0			
Existing plus Project Saturday (Mid- Day)		2	0	1,128	40	75	0	0	1.8%	0.7%	53.3	876	143	108	18	7	1	0	2	1	67.4	76.3	81.2	-1.8	52.7	44.9	45.7	54.1	49.7	37.3	35.5	50.1	36.5	35.4	36.5	40.9			
Opening Year (2021) Without Project Weekday (Evening)		2	0	1,096	40	75	0	0	1.8%	0.7%	53.2	852	139	105	17	7	1	0	1	1	67.4	76.3	81.2	-1.8	52.6	44.7	45.6	53.9	49.6	37.2	35.4	50.0	36.4	35.3	36.3	40.8			
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	1,032	40	75	0	0	1.8%	0.7%	52.9	802	131	99	16	6	1	0	1	1	67.4	76.3	81.2	-1.8	52.3	44.5	45.3	53.7	49.4	36.9	35.1	49.7	36.2	35.0	36.1	40.6			
Opening Year (2021) with Project Weekday (Evening)		2	0	1,568	40	75	0	0	1.8%	0.7%	54.7	1,218	199	151	25	10	1	0	2	1	67.4	76.3	81.2	-1.8	54.2	46.3	47.1	55.5	51.2	38.7	37.0	51.6	38.0	36.8	37.9	42.4			
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	1,272	40	75	0	0	1.8%	0.7%	53.8	988	162	122	20	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.2	45.4	46.2	54.6	50.3	37.8	36.0	50.7	37.1	35.9	37.0	41.5			
Build-out Year (2040) without Project Weekday (Evening)		2	0	1,312	40	75	0	0	1.8%	0.7%	54.0	1,019	167	126	21	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.4	45.5	46.3	54.7	50.4	37.9	36.2	50.8	37.2	36.1	37.1	41.6			
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	1,240	40	75	0	0	1.8%	0.7%	53.7	963	157	119	20	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.1	45.3	46.1	54.5	50.2	37.7	35.9	50.5	37.0	35.8	36.9	41.3			
Build-out Year (2040) with Project Weekday (Evening)		2	0	1,784	40	75	0	0	1.8%	0.7%	55.3	1,386	227	171	28	11	2	0	2	1	67.4	76.3	81.2	-1.8	54.7	46.9	47.7	56.1	51.7	39.3	37.5	52.1	38.5	37.4	38.4	42.9			
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	1,480	40	75	0	0	1.8%	0.7%	54.5	1,150	188	142	23	9	1	0	2	1	67.4	76.3	81.2	-1.8	53.9	46.0	46.9	55.2	50.9	38.5	36.7	51.3	37.7	36.6	37.6	42.1			
Project Dwy e/o Olinda St																																							
Existing Weekday (Evening)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####		
Existing Saturday (Mid-Day)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	
Existing plus Project Weekday (Evening)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	
Existing plus Project Saturday (Mid- Day)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	
Opening Year (2021) Without Project Weekday (Evening)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	
Opening Year (2021) with Project Weekday (Evening)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	
Build-out Year (2040) without Project Weekday (Evening)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	
Build-out Year (2040) with Project Weekday (Evening)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	
Project Dwy w/o Olinda St																																							
Existing Weekday (Evening)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	
Existing Saturday (Mid-Day)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####	####
Existing plus Project Weekday (Evening)		2	0	512	40	75	0	0	1.8%	0.7%	49.9	398	65	49	8	3	0	0	1	0	67.4	76.3	81.2	-1.8	49.3	41.4	42.3	50.6	46.3	33.8	32.1								

NOISE LEVEL CONTOURS

											Traffic Volumes								Ref. Energy Levels Dist				Le				Ln									
ROADWAY NAME	Land Use	Median Lanes	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor (ft)	Alpha Factor (1)	Barrier Attn. (dB(A))	Vehicle Mix Medium Trucks	Heavy Trucks	dB(A) CNEL	Day	Eve	Night	MTd	HTd	MTe	HTE	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total A	MT	HT	Total A	MT	HT	Total			
Segment																																				
Imperial Hwy n/o Casa Loma Ave																																				
Existing Weekday (Evening)		2	0	28,912	40	75	0	0	1.8%	0.7%	67.4	####	####	####	455	180	26	6	39	16	67.4	76.3	81.2	-1.8	66.8	59.0	59.8	68.2	63.8	51.4	49.6	64.2	50.6	49.5	50.5	55.0
Existing Saturday (Mid-Day)		2	0	19,760	40	75	0	0	1.8%	0.7%	65.8	####	####	####	311	123	18	4	27	11	67.4	76.3	81.2	-1.8	65.2	57.3	58.1	66.5	62.2	49.7	48.0	62.6	49.0	47.8	48.9	53.4
Existing plus Project Weekday (Evening)		2	0	28,720	40	75	0	0	1.8%	0.7%	67.4	####	####	####	452	179	26	6	39	16	67.4	76.3	81.2	-1.8	66.8	58.9	59.8	68.1	63.8	51.3	49.6	64.2	50.6	49.5	50.5	55.0
Existing plus Project Saturday (Mid-Day)		2	0	19,848	40	75	0	0	1.8%	0.7%	65.8	####	####	####	312	124	18	4	27	11	67.4	76.3	81.2	-1.8	65.2	57.3	58.1	66.5	62.2	49.7	48.0	62.6	49.0	47.9	48.9	53.4
Opening Year (2021) Without Project Weekday (Evening)		2	0	30,368	40	75	0	0	1.8%	0.7%	67.6	####	####	####	478	189	28	6	41	17	67.4	76.3	81.2	-1.8	67.0	59.2	60.0	68.4	64.0	51.6	49.8	64.4	50.8	49.7	50.8	55.2
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	21,720	40	75	0	0	1.8%	0.7%	66.2	####	####	####	342	135	20	4	29	12	67.4	76.3	81.2	-1.8	65.6	57.7	58.5	66.9	62.6	50.1	48.4	63.0	49.4	48.3	49.3	53.8
Opening Year (2021) with Project Weekday (Evening)		2	0	30,496	40	75	0	0	1.8%	0.7%	67.6	####	####	####	480	190	28	6	41	17	67.4	76.3	81.2	-1.8	67.0	59.2	60.0	68.4	64.1	51.6	49.8	64.5	50.9	49.7	50.8	55.3
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	21,520	40	75	0	0	1.8%	0.7%	66.1	####	####	####	339	134	20	4	29	12	67.4	76.3	81.2	-1.8	65.5	57.7	58.5	66.9	62.5	50.1	48.3	62.9	49.4	48.2	49.3	53.7
Build-out Year (2040) without Project Weekday (Evening)		2	0	36,952	40	75	0	0	1.8%	0.7%	68.5	####	####	####	582	230	34	7	50	21	67.4	76.3	81.2	-1.8	67.9	60.0	60.8	69.2	64.9	52.4	50.7	65.3	51.7	50.6	51.6	56.1
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	26,272	40	75	0	0	1.8%	0.7%	67.0	####	####	####	413	164	24	5	36	15	67.4	76.3	81.2	-1.8	66.4	58.5	59.4	67.7	63.4	51.0	49.2	63.8	50.2	49.1	50.1	54.6
Build-out Year (2040) with Project Weekday (Evening)		2	0	37,080	40	75	0	0	1.8%	0.7%	68.5	####	####	####	584	231	34	7	50	21	67.4	76.3	81.2	-1.8	67.9	60.0	60.9	69.2	64.9	52.4	50.7	65.3	51.7	50.6	51.6	56.1
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	26,360	40	75	0	0	1.8%	0.7%	67.0	####	####	####	415	164	24	5	36	15	67.4	76.3	81.2	-1.8	66.4	58.6	59.4	67.7	63.4	51.0	49.2	63.8	50.2	49.1	50.1	54.6
Imperial Hwy s/o Casa Loma Ave																																				
Existing Weekday (Evening)		2	0	28,488	40	75	0	0	1.8%	0.7%	67.3	####	####	####	448	178	26	6	39	16	67.4	76.3	81.2	-1.8	66.7	58.9	59.7	68.1	63.8	51.3	49.5	64.2	50.6	49.4	50.5	55.0
Existing Saturday (Mid-Day)		2	0	19,648	40	75	0	0	1.8%	0.7%	65.7	####	####	####	309	123	18	4	27	11	67.4	76.3	81.2	-1.8	65.1	57.3	58.1	66.5	62.2	49.7	47.9	62.5	49.0	47.8	48.9	53.3
Existing plus Project Weekday (Evening)		2	0	28,616	40	75	0	0	1.8%	0.7%	67.4	####	####	####	450	178	26	6	39	16	67.4	76.3	81.2	-1.8	66.8	58.9	59.7	68.1	63.8	51.3	49.6	64.2	50.6	49.5	50.5	55.0
Existing plus Project Saturday (Mid-Day)		2	0	19,752	40	75	0	0	1.8%	0.7%	65.8	####	####	####	311	123	18	4	27	11	67.4	76.3	81.2	-1.8	65.2	57.3	58.1	66.5	62.2	49.7	48.0	62.6	49.0	47.8	48.9	53.4
Opening Year (2021) Without Project Weekday (Evening)		2	0	30,376	40	75	0	0	1.8%	0.7%	67.6	####	####	####	478	189	28	6	41	17	67.4	76.3	81.2	-1.8	67.0	59.2	60.0	68.4	64.0	51.6	49.8	64.4	50.8	49.7	50.8	55.2
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	21,696	40	75	0	0	1.8%	0.7%	66.2	####	####	####	341	135	20	4	29	12	67.4	76.3	81.2	-1.8	65.6	57.7	58.5	66.9	62.6	50.1	48.4	63.0	49.4	48.3	49.3	53.8
Opening Year (2021) with Project Weekday (Evening)		2	0	30,504	40	75	0	0	1.8%	0.7%	67.6	####	####	####	480	190	28	6	41	17	67.4	76.3	81.2	-1.8	67.0	59.2	60.0	68.4	64.1	51.6	49.8	64.5	50.9	49.7	50.8	55.3
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	21,800	40	75	0	0	1.8%	0.7%	66.2	####	####	####	343	136	20	4	30	12	67.4	76.3	81.2	-1.8	65.6	57.7	58.6	66.9	62.6	50.1	48.4	63.0	49.4	48.3	49.3	53.8
Build-out Year (2040) without Project Weekday (Evening)		2	0	36,944	40	75	0	0	1.8%	0.7%	68.5	####	####	####	581	230	34	7	50	21	67.4	76.3	81.2	-1.8	67.9	60.0	60.8	69.2	64.9	52.4	50.7	65.3	51.7	50.6	51.6	56.1
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	26,232	40	75	0	0	1.8%	0.7%	67.0	####	####	####	413	164	24	5	36	15	67.4	76.3	81.2	-1.8	66.4	58.5	59.4	67.7	63.4	50.9	49.2	63.8	50.2	49.1	50.1	54.6
Build-out Year (2040) with Project Weekday (Evening)		2	0	37,072	40	75	0	0	1.8%	0.7%	68.5	####	####	####	583	231	34	7	50	21	67.4	76.3	81.2	-1.8	67.9	60.0	60.9	69.2	64.9	52.4	50.7	65.3	51.7	50.6	51.6	56.1
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	26,336	40	75	0	0	1.8%	0.7%	67.0	####	####	####	414	164	24	5	36	15	67.4	76.3	81.2	-1.8	66.4	58.5	59.4	67.7	63.4	51.0	49.2	63.8	50.2	49.1	50.1	54.6
Casa Loma Ave e/o Imperial Hwy																																				
Existing Weekday (Evening)		2	0	1,040	40	75	0	0	1.8%	0.7%	53.0	808	132	100	16	6	1	0	1	1	67.4	76.3	81.2	-1.8	52.4	44.5	45.3	53.7	49.4	36.9	35.2	49.8	36.2	35.1	36.1	40.6
Existing Saturday (Mid-Day)		2	0	568	40	75	0	0	1.8%	0.7%	50.3	441	72	55	9	4	1	0	1	0	67.4	76.3	81.2	-1.8	49.7	41.9	42.7	51.1	46.8	34.3	32.5	47.2	33.6	32.4	33.5	38.0
Existing plus Project Weekday (Evening)		2	0	1,040	40	75	0	0	1.8%	0.7%	53.0	808	132	100	16	6	1	0	1	1	67.4	76.3	81.2	-1.8	52.4	44.5	45.3	53.7	49.4	36.9	35.2	49.8	36.2	35.1	36.1	40.6
Existing plus Project Saturday (Mid-Day)		2	0	576	40	75	0	0	1.8%	0.7%	50.4	448	73	55	9	4	1	0	1	0	67.4	76.3	81.2	-1.8	49.8	41.9	42.8	51.1	46.8	34.4	32.6	47.2	33.6	32.5	33.5	38.0
Opening Year (2021) Without Project Weekday (Evening)		2	0	1,104	40	75	0	0	1.8%	0.7%	53.2	858	140	106	17	7	1	0	1	1	67.4	76.3	81.2	-1.8	52.6	44.8	45.6	54.0	49.6	37.2	35.4	50.0	36.5	35.3	36.4	40.8
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	648	40	75	0	0	1.8%	0.7%	50.9	503	82	62	10	4	1	0	1	0	67.4	76.3	81.2	-1.8	50.3	42.5	43.3	51.7	47.3	34.9	33.1	47.7	34.1	33.0	34.0	38.5
Opening Year (2021) with Project Weekday (Evening)		2	0	1,104	40	75	0	0	1.8%	0.7%	53.2	858	140	106	17	7	1	0	1	1	67.4	76.3	81.2	-1.8	52.6	44.8	45.6	54.0	49.6	37.2	35.4	50.0	36.5	35.3	36.4	40.8
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	656	40	75	0	0	1.8%	0.7%	51.0	510	83	63	10	4	1	0	1	0	67.4	76.3	81.2	-1.8	50.4	42.5	43.3	51.7	47.4	34.9	33.2	47.8	34.2	33.1	34.1	38.6
Build-out Year (2040) without Project Weekday (Evening)		2	0	1,360	40	75	0	0	1.8%	0.7%	54.1	####	173	131	21	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.5	45.7	46.5	54.9	50.6	38.1	36.3	50.9	37.4	36.2	37.3	41.8
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	800	40	75	0	0	1.8%	0.7%	51.8	622	102	77	13	5	1	0	1	0	67.4	76.3	81.2	-1.8	51.2	43.4	44.2	52.6	48.2	35.8	34.0	48.6	35.1	33.9	35.0	39.4
Build-out Year (2040) with Project Weekday (Evening)		2	0	1,360	40	75	0	0	1.8%	0.7%	54.1	####	173	131	21	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.5	45.7	46.5	54.9	50.6	38.1	36.3	50.9	37.4	36.2	37.3	41.8
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	808	40	75	0	0	1.8%	0.7%	51.9	628	103	78	13	5	1	0	1	0	67.4	76.3	81.2	-1.8	51.3	43.4	44.2	52.6	48.3	35.8	34.1	48.7	35.1	34.0	35.0	39.5
Casa Loma Ave w/o Imperial Hwy																																				
Existing Weekday (Evening)		2	0	1,448	40	75	0	0	1.8%	0.7%	54.4	####	184	139	23	9	1	0	2	1	67.4	76.3	81.2	-1.8	53.8	45.9	46.8	55.1	50.8	38.4	36.6	51.2	37.6	36.5	37.5	42.0
Existing Saturday (Mid-Day)		2	0	1,224	40	75	0	0	1.8%	0.7%	53.7	951	155	118	19	8	1	0	2	1	67.4	76.3														

Project Name
Weekday All Hours

Intersection:
Imperial Hwy & Eureka Ave

2

rev. (Date)

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Eastbound				
	left	through	right	
Existing Weekday (Evening)	84	66	18	
Existing Saturday (Mid-Day)	63	39	19	
Existing plus Project Weekday (Evening)	84	66	20	
Existing plus Project Saturday (Mid-Day)	63	39	22	
Opening Year (2021) Without Project Weekday (Evening)	67	68	21	
Opening Year (2021) Without Project Saturday (Mid-Day)	66	41	23	
Opening Year (2021) with Project Weekday (Evening)	87	68	23	
Opening Year (2021) with Project Saturday (Mid-Day)	66	41	26	
Build-out Year (2040) without Project Weekday (Evening)	106	84	26	
Build-out Year (2040) without Project Saturday (Mid-Day)	81	50	28	
Build-out Year (2040) with Project Weekday (Evening)	106	84	28	
Build-out Year (2040) with Project Saturday (Mid-Day)	81	50	31	

Imperial Hwy				
Southbound				
	right	through	left	
Existing Weekday (Evening)	29	1,461	24	
Existing Saturday (Mid-Day)	72	1,154	20	
Existing plus Project Weekday (Evening)	29	1,474	56	
Existing plus Project Saturday (Mid-Day)	72	1,172	20	
Opening Year (2021) Without Project Weekday (Evening)	31	1,510	57	
Opening Year (2021) Without Project Saturday (Mid-Day)	75	1,279	21	
Opening Year (2021) with Project Weekday (Evening)	31	1,583	57	
Opening Year (2021) with Project Saturday (Mid-Day)	75	1,297	21	
Build-out Year (2040) without Project Weekday (Evening)	37	1,906	70	
Build-out Year (2040) without Project Saturday (Mid-Day)	92	1,545	26	
Build-out Year (2040) with Project Weekday (Evening)	37	1,919	70	
Build-out Year (2040) with Project Saturday (Mid-Day)	92	1,563	26	

Northbound				
	left	through	right	
Existing Weekday (Evening)	19	1,759	96	
Existing Saturday (Mid-Day)	40	1,023	34	
Existing plus Project Weekday (Evening)	20	1,762	96	
Existing plus Project Saturday (Mid-Day)	39	1,018	34	
Opening Year (2021) Without Project Weekday (Evening)	23	1,877	102	
Opening Year (2021) Without Project Saturday (Mid-Day)	45	1,142	39	
Opening Year (2021) with Project Weekday (Evening)	24	1,880	102	
Opening Year (2021) with Project Saturday (Mid-Day)	44	1,137	39	
Build-out Year (2040) without Project Weekday (Evening)	28	2,282	124	
Build-out Year (2040) without Project Saturday (Mid-Day)	54	1,378	47	
Build-out Year (2040) with Project Weekday (Evening)	29	2,285	124	
Build-out Year (2040) with Project Saturday (Mid-Day)	53	1,373	47	

Westbound				
	right	through	left	
Existing Weekday (Evening)	27	30	20	
Existing Saturday (Mid-Day)	15	27	33	
Existing plus Project Weekday (Evening)	27	30	20	
Existing plus Project Saturday (Mid-Day)	15	27	34	
Opening Year (2021) Without Project Weekday (Evening)	28	32	23	
Opening Year (2021) Without Project Saturday (Mid-Day)	16	29	38	
Opening Year (2021) with Project Weekday (Evening)	28	32	23	
Opening Year (2021) with Project Saturday (Mid-Day)	16	29	39	
Build-out Year (2040) without Project Weekday (Evening)	34	39	28	
Build-out Year (2040) without Project Saturday (Mid-Day)	20	35	45	
Build-out Year (2040) with Project Weekday (Evening)	34	39	28	
Build-out Year (2040) with Project Saturday (Mid-Day)	20	35	46	

ADT				
Road	Imperial Hwy		Eureka Ave	
Led	North of	South of	East of	West of
Cross Street	Eureka Ave		Imperial Hwy	
Existing Weekday (Evening)	27,072.0	26,984.0	2,104.0	1,968.0
Existing Saturday (Mid-Day)	18,776.0	18,424.0	1,344.0	2,080.0
Existing plus Project Weekday (Evening)	27,456.0	27,136.0	2,360.0	1,992.0
Existing plus Project Saturday (Mid-Day)	18,880.0	18,552.0	1,352.0	2,096.0
Opening Year (2021) Without Project Weekday (Evening)	29,200.0	28,928.0	2,480.0	2,096.0
Opening Year (2021) Without Project Saturday (Mid-Day)	20,792.0	20,528.0	1,472.0	2,232.0
Opening Year (2021) with Project Weekday (Evening)	29,328.0	29,080.0	2,480.0	2,120.0
Opening Year (2021) with Project Saturday (Mid-Day)	20,896.0	20,656.0	1,480.0	2,248.0
Build-out Year (2040) without Project Weekday (Evening)	35,480.0	35,152.0	3,032.0	2,560.0
Build-out Year (2040) without Project Saturday (Mid-Day)	25,136.0	24,776.0	1,784.0	2,720.0
Build-out Year (2040) with Project Weekday (Evening)	35,608.0	35,304.0	3,032.0	2,584.0
Build-out Year (2040) with Project Saturday (Mid-Day)	25,240.0	24,904.0	1,792.0	2,736.0

2 NOISE LEVEL CONTOURS

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Dist. from		Barrier Attn.	Vehicle Mix		dB(A) CNEL	Traffic Volumes				Ref. Energy Levels Dist				Le				Ln														
					Speed	Center to		Alpha	Medium		Heavy	Day	Even	Night	MTd	HTd	MTe	HTe	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total	A	MT	HT	Total	A	MT	HT	Total	
					(mph)	Receptor		Factor (1	Trucks		Trucks																										
Imperial Hwy n/o Eureka Ave																																					
Existing Weekday (Evening)		2	0	27,072	40	75	0	0	1.8%	0.7%	67.1	####	3,438	2,599	426	169	25	5	37	15	67.4	76.3	81.2	-1.8	66.5	58.7	59.5	67.9	63.5	51.1	49.3	63.9	50.3	49.2	50.3	54.7	
Existing Saturday (Mid-Day)		2	0	18,776	40	75	0	0	1.8%	0.7%	65.5	####	2,385	1,802	295	117	17	4	25	11	67.4	76.3	81.2	-1.8	64.9	57.1	57.9	66.3	62.0	49.5	47.7	62.3	48.8	47.6	48.7	53.2	
Existing plus Project Weekday (Evening)		2	0	27,456	40	75	0	0	1.8%	0.7%	67.2	####	3,487	2,636	432	171	25	5	37	15	67.4	76.3	81.2	-1.8	66.6	58.7	59.6	67.9	63.6	51.1	49.4	64.0	50.4	49.3	50.3	54.8	
Existing plus Project Saturday (Mid- Day)		2	0	18,880	40	75	0	0	1.8%	0.7%	65.6	####	2,398	1,812	297	118	17	4	26	11	67.4	76.3	81.2	-1.8	65.0	57.1	57.9	66.3	62.0	49.5	47.8	62.4	48.8	47.6	48.7	53.2	
Opening Year (2021) Without Project Weekday (Evening)		2	0	29,200	40	75	0	0	1.8%	0.7%	67.4	####	3,708	2,803	460	182	27	6	40	16	67.4	76.3	81.2	-1.8	66.9	59.0	59.8	68.2	63.9	51.4	49.7	64.3	50.7	49.5	50.6	55.1	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	20,792	40	75	0	0	1.8%	0.7%	66.0	####	2,641	1,996	327	130	19	4	28	12	67.4	76.3	81.2	-1.8	65.4	57.5	58.3	66.7	62.4	49.9	48.2	62.8	49.2	48.1	49.1	53.6	
Opening Year (2021) with Project Weekday (Evening)		2	0	29,328	40	75	0	0	1.8%	0.7%	67.5	####	3,725	2,815	462	183	27	6	40	17	67.4	76.3	81.2	-1.8	66.9	59.0	59.8	68.2	63.9	51.4	49.7	64.3	50.7	49.6	50.6	55.1	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	20,896	40	75	0	0	1.8%	0.7%	66.0	####	2,654	2,006	329	130	19	4	28	12	67.4	76.3	81.2	-1.8	65.4	57.5	58.4	66.7	62.4	50.0	48.2	62.8	49.2	48.1	49.1	53.6	
Build-out Year (2040) without Project Weekday (Evening)		2	0	35,490	40	75	0	0	1.8%	0.7%	68.3	####	4,506	3,406	558	221	32	7	48	20	67.4	76.3	81.2	-1.8	67.7	59.8	60.7	69.0	64.7	52.3	50.5	65.1	51.5	50.4	51.4	55.9	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	25,136	40	75	0	0	1.8%	0.7%	66.8	####	3,192	2,413	396	157	23	5	34	14	67.4	76.3	81.2	-1.8	66.2	58.3	59.2	67.5	63.2	50.8	49.0	63.6	50.0	48.9	49.9	54.4	
Build-out Year (2040) with Project Weekday (Evening)		2	0	35,608	40	75	0	0	1.8%	0.7%	68.3	####	4,522	3,418	560	222	32	7	48	20	67.4	76.3	81.2	-1.8	67.7	59.9	60.7	69.1	64.7	52.3	50.5	65.1	51.5	50.4	51.4	55.9	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	25,240	40	75	0	0	1.8%	0.7%	66.8	####	3,205	2,423	397	157	23	5	34	14	67.4	76.3	81.2	-1.8	66.2	58.4	59.2	67.6	63.2	50.8	49.0	63.6	50.0	48.9	50.0	54.4	
Imperial Hwy s/o Eureka Ave																																					
Existing Weekday (Evening)		2	0	26,984	40	75	0	0	1.8%	0.7%	67.1	####	3,427	2,590	425	168	25	5	37	15	67.4	76.3	81.2	-1.8	66.5	58.7	59.5	67.9	63.5	51.1	49.3	63.9	50.3	49.2	50.2	54.7	
Existing Saturday (Mid-Day)		2	0	18,424	40	75	0	0	1.8%	0.7%	65.5	####	2,340	1,769	290	115	17	4	25	10	67.4	76.3	81.2	-1.8	64.9	57.0	57.8	66.2	61.9	49.4	47.7	62.3	48.7	47.5	48.6	53.1	
Existing plus Project Weekday (Evening)		2	0	27,136	40	75	0	0	1.8%	0.7%	67.1	####	3,446	2,605	427	169	25	5	37	15	67.4	76.3	81.2	-1.8	66.5	58.7	59.5	67.9	63.6	51.1	49.3	63.9	50.4	49.2	50.3	54.8	
Existing plus Project Saturday (Mid- Day)		2	0	18,552	40	75	0	0	1.8%	0.7%	65.5	####	2,356	1,781	292	116	17	4	25	10	67.4	76.3	81.2	-1.8	64.9	57.0	57.9	66.2	61.9	49.4	47.7	62.3	48.7	47.6	48.6	53.1	
Opening Year (2021) Without Project Weekday (Evening)		2	0	28,928	40	75	0	0	1.8%	0.7%	67.4	####	3,674	2,777	455	180	26	6	39	16	67.4	76.3	81.2	-1.8	66.8	59.0	59.8	68.2	63.8	51.4	49.6	64.2	50.6	49.5	50.5	55.0	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	20,528	40	75	0	0	1.8%	0.7%	65.9	####	2,607	1,971	323	128	19	4	28	12	67.4	76.3	81.2	-1.8	65.3	57.5	58.3	66.7	62.3	49.9	48.1	62.7	49.1	48.0	49.1	53.5	
Opening Year (2021) with Project Weekday (Evening)		2	0	29,080	40	75	0	0	1.8%	0.7%	67.4	####	3,693	2,792	458	181	26	6	39	16	67.4	76.3	81.2	-1.8	66.8	59.0	59.8	68.2	63.9	51.4	49.6	64.2	50.7	49.5	50.6	55.1	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	20,656	40	75	0	0	1.8%	0.7%	65.9	####	2,623	1,983	325	129	19	4	28	12	67.4	76.3	81.2	-1.8	65.3	57.5	58.3	66.7	62.4	49.9	48.2	62.8	49.2	48.0	49.1	53.6	
Build-out Year (2040) without Project Weekday (Evening)		2	0	35,152	40	75	0	0	1.8%	0.7%	68.3	####	4,464	3,375	553	219	32	7	48	20	67.4	76.3	81.2	-1.8	67.7	59.8	60.6	69.0	64.7	52.2	50.5	65.1	51.5	50.3	51.4	55.9	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	24,776	40	75	0	0	1.8%	0.7%	66.7	####	3,147	2,378	390	155	23	5	34	14	67.4	76.3	81.2	-1.8	66.1	58.3	59.1	67.5	63.2	50.7	48.9	63.6	50.0	48.8	49.9	54.4	
Build-out Year (2040) with Project Weekday (Evening)		2	0	35,304	40	75	0	0	1.8%	0.7%	68.3	####	4,484	3,389	556	220	32	7	48	20	67.4	76.3	81.2	-1.8	67.7	59.8	60.6	69.0	64.7	52.2	50.5	65.1	51.5	50.4	51.4	55.9	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	24,904	40	75	0	0	1.8%	0.7%	66.8	####	3,163	2,391	392	155	23	5	34	14	67.4	76.3	81.2	-1.8	66.2	58.3	59.1	67.5	63.2	50.7	49.0	63.6	50.0	48.8	49.9	54.4	
Eureka Ave e/o Imperial Hwy																																					
Existing Weekday (Evening)		2	0	2,104	40	75	0	0	1.8%	0.7%	56.0	1,635	267	202	33	13	2	0	3	1	67.4	76.3	81.2	-1.8	55.4	47.6	48.4	56.8	52.4	40.0	38.2	52.8	39.3	38.1	39.2	43.6	
Existing Saturday (Mid-Day)		2	0	1,344	40	75	0	0	1.8%	0.7%	54.1	1,044	171	129	21	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.5	45.6	46.5	54.8	50.5	38.0	36.3	50.9	37.3	36.2	37.2	41.7	
Existing plus Project Weekday (Evening)		2	0	2,360	40	75	0	0	1.8%	0.7%	56.5	1,834	300	227	37	15	2	0	3	1	67.4	76.3	81.2	-1.8	55.9	48.1	48.9	57.3	52.9	40.5	38.7	53.3	39.8	38.6	39.7	44.1	
Existing plus Project Saturday (Mid- Day)		2	0	1,352	40	75	0	0	1.8%	0.7%	54.1	1,051	172	130	21	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.5	45.7	46.5	54.8	50.5	38.1	36.3	50.9	37.3	36.2	37.2	41.7	
Opening Year (2021) Without Project Weekday (Evening)		2	0	2,480	40	75	0	0	1.8%	0.7%	56.7	1,927	315	238	39	15	2	0	3	1	67.4	76.3	81.2	-1.8	56.1	48.3	49.1	57.5	53.2	40.7	38.9	53.6	40.0	38.8	39.9	44.4	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	1,472	40	75	0	0	1.8%	0.7%	54.5	1,144	187	141	23	9	1	0	2	1	67.4	76.3	81.2	-1.8	53.9	46.0	46.8	55.2	50.9	38.4	36.7	51.3	37.7	36.6	37.6	42.1	
Opening Year (2021) with Project Weekday (Evening)		2	0	2,480	40	75	0	0	1.8%	0.7%	56.7	1,927	315	238	39	15	2	0	3	1	67.4	76.3	81.2	-1.8	56.1	48.3	49.1	57.5	53.2	40.7	38.9	53.6	40.0	38.8	39.9	44.4	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	1,480	40	75	0	0	1.8%	0.7%	54.5	1,150	188	142	23	9	1	0	2	1	67.4	76.3	81.2	-1.8	53.9	46.0	46.9	55.2	50.9	38.5	36.7	51.3	37.7	36.6	37.6	42.1	
Build-out Year (2040) without Project Weekday (Evening)		2	0	3,032	40	75	0	0	1.8%	0.7%	57.6	2,356	385	291	48	19	3	1	4	2	67.4	76.3	81.2	-1.8	57.0	49.2	50.0	58.4	54.0	41.6	39.8	54.4	40.8	39.7	40.8	45.2	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	1,784	40	75	0	0	1.8%	0.7%	55.3	1,386	227	171	28	11	2	0	2	1	67.4	76.3	81.2	-1.8	54.7	46.9	47.7	56.1	51.7	39.3	37.5	52.1	38.5	37.4	38.4	42.9	
Build-out Year (2040) with Project Weekday (Evening)		2	0	3,032	40	75	0	0	1.8%	0.7%	57.6	2,356	385	291	48	19	3	1	4	2	67.4	76.3	81.2	-1.8	57.0	49.2	50.0	58.4	54.0	41.6	39.8	54.4	40.8	39.7	40.8	45.2	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	1,792	40	75	0	0	1.8%	0.7%	55.3	1,392	228	172	28	11																					

Project Name
Weekday All Hours

rev. (Date)

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Intersection:
Imperial Hwy & Lemon Dr

3

Imperial Hwy

Southbound	right	through	left
Existing Weekday (Evening)	21	1,759	114
Existing Saturday (Mid-Day)	24	1,160	120
Existing plus Project Weekday (Evening)	21	1,741	147
Existing plus Project Saturday (Mid-Day)	24	1,152	150
Opening Year (2021) Without Project Weekday (Evening)	21	1,798	198
Opening Year (2021) Without Project Saturday (Mid-Day)	24	1,192	223
Opening Year (2021) with Project Weekday (Evening)	21	1,780	231
Opening Year (2021) with Project Saturday (Mid-Day)	24	1,184	253
Build-out Year (2040) without Project Weekday (Evening)	26	2,203	225
Build-out Year (2040) without Project Saturday (Mid-Day)	30	1,459	251
Build-out Year (2040) with Project Weekday (Evening)	26	2,185	258
Build-out Year (2040) with Project Saturday (Mid-Day)	30	1,451	281

Eastbound	left	through	right
Existing Weekday (Evening)	13	3	15
Existing Saturday (Mid-Day)	22	7	11
Existing plus Project Weekday (Evening)	13	3	15
Existing plus Project Saturday (Mid-Day)	22	7	11
Opening Year (2021) Without Project Weekday (Evening)	13	3	15
Opening Year (2021) Without Project Saturday (Mid-Day)	22	7	11
Opening Year (2021) with Project Weekday (Evening)	13	3	15
Opening Year (2021) with Project Saturday (Mid-Day)	22	7	11
Build-out Year (2040) without Project Weekday (Evening)	16	4	19
Build-out Year (2040) without Project Saturday (Mid-Day)	28	9	14
Build-out Year (2040) with Project Weekday (Evening)	16	4	19
Build-out Year (2040) with Project Saturday (Mid-Day)	28	9	14

N
S E
W

Northbound	left	through	right
Existing Weekday (Evening)		1,460	59
Existing Saturday (Mid-Day)		1,057	57
Existing plus Project Weekday (Evening)		1,460	59
Existing plus Project Saturday (Mid-Day)		1,057	57
Opening Year (2021) Without Project Weekday (Evening)		1493	60
Opening Year (2021) Without Project Saturday (Mid-Day)		1087	58
Opening Year (2021) with Project Weekday (Evening)		1493	60
Opening Year (2021) with Project Saturday (Mid-Day)		1087	58
Build-out Year (2040) without Project Weekday (Evening)		1829	74
Build-out Year (2040) without Project Saturday (Mid-Day)		1330	71
Build-out Year (2040) with Project Weekday (Evening)		1829	74
Build-out Year (2040) with Project Saturday (Mid-Day)		1330	71

Westbound	right	through	left
Existing Weekday (Evening)	120	5	50
Existing Saturday (Mid-Day)	112	11	61
Existing plus Project Weekday (Evening)	143	5	50
Existing plus Project Saturday (Mid-Day)	112	11	61
Opening Year (2021) Without Project Weekday (Evening)	209	5	51
Opening Year (2021) Without Project Saturday (Mid-Day)	212	11	62
Opening Year (2021) with Project Weekday (Evening)	232	5	51
Opening Year (2021) with Project Saturday (Mid-Day)	212	11	62
Build-out Year (2040) without Project Weekday (Evening)	237	6	63
Build-out Year (2040) without Project Saturday (Mid-Day)	238	14	76
Build-out Year (2040) with Project Weekday (Evening)	260	6	63
Build-out Year (2040) with Project Saturday (Mid-Day)	238	14	76

ADT

Road	Imperial Hwy		Lemon Dr	
Led	North of	South of	East of	West of
Cross Street	Lemon Dr		Imperial Hwy	
Existing Weekday (Evening)	27,896.0	26,744.0	2,808.0	456.0
Existing Saturday (Mid-Day)	19,960.0	18,768.0	2,944.0	600.0
Existing plus Project Weekday (Evening)	28,200.0	26,600.0	3,256.0	456.0
Existing plus Project Saturday (Mid-Day)	20,136.0	18,704.0	3,184.0	600.0
Opening Year (2021) Without Project Weekday (Evening)	29,856.0	27,336.0	4,208.0	456.0
Opening Year (2021) Without Project Saturday (Mid-Day)	22,080.0	19,280.0	4,584.0	600.0
Opening Year (2021) with Project Weekday (Evening)	30,160.0	27,192.0	4,656.0	456.0
Opening Year (2021) with Project Saturday (Mid-Day)	22,256.0	19,216.0	4,824.0	600.0
Build-out Year (2040) without Project Weekday (Evening)	36,288.0	33,504.0	4,872.0	568.0
Build-out Year (2040) without Project Saturday (Mid-Day)	26,688.0	23,600.0	5,272.0	760.0
Build-out Year (2040) with Project Weekday (Evening)	36,592.0	33,360.0	5,320.0	568.0
Build-out Year (2040) with Project Saturday (Mid-Day)	26,864.0	23,536.0	5,512.0	760.0

3 NOISE LEVEL CONTOURS

											Traffic Volumes				Ref. Energy Levels Dist				Ld				Le				Ln									
ROADWAY NAME			Median	ADT	Design	Dist. from	Barrier	Vehicle Mix			Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total	A	MT	HT	Total	A	MT	HT	Total	
Segment	Land Use	Lanes	Width	Volume	Speed (mph)	Center to Receptor	Alpha Factor (1)	Attn. dB(A)	Medium Trucks	Heavy Trucks	dB(A) CNEL																									
Imperial Hwy w/o Lemon Dr																																				
Existing Weekday (Evening)		2	0	27,896	40	75	0	0	1.8%	0.7%	67.3	####	3,543	2,678	439	174	25	6	38	16	67.4	76.3	81.2	-1.8	66.7	58.8	59.6	68.0	63.7	51.2	49.5	64.1	50.5	49.3	50.4	54.9
Existing Saturday (Mid-Day)		2	0	19,960	40	75	0	0	1.8%	0.7%	65.8	####	2,535	1,916	314	124	18	4	27	11	67.4	76.3	81.2	-1.8	65.2	57.3	58.2	66.5	62.2	49.8	48.0	62.6	49.0	47.9	48.9	53.4
Existing plus Project Weekday (Evening)		2	0	28,200	40	75	0	0	1.8%	0.7%	67.3	####	3,581	2,707	444	176	26	6	38	16	67.4	76.3	81.2	-1.8	66.7	58.8	59.7	68.0	63.7	51.3	49.5	64.1	50.5	49.4	50.4	54.9
Existing plus Project Saturday (Mid- Day)		2	0	20,136	40	75	0	0	1.8%	0.7%	65.8	####	2,557	1,933	317	126	18	4	27	11	67.4	76.3	81.2	-1.8	65.2	57.4	58.2	66.6	62.3	49.8	48.0	62.7	49.1	47.9	49.0	53.5
Opening Year (2021) Without Project Weekday (Evening)		2	0	29,856	40	75	0	0	1.8%	0.7%	67.5	####	3,792	2,866	470	186	27	6	40	17	67.4	76.3	81.2	-1.8	66.9	59.1	59.9	68.3	64.0	51.5	49.8	64.4	50.8	49.6	50.7	55.2
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	22,080	40	75	0	0	1.8%	0.7%	66.2	####	2,804	2,120	347	138	20	4	30	12	67.4	76.3	81.2	-1.8	65.6	57.8	58.6	67.0	62.7	50.2	48.4	63.1	49.5	48.3	49.4	53.9
Opening Year (2021) with Project Weekday (Evening)		2	0	30,160	40	75	0	0	1.8%	0.7%	67.6	####	3,830	2,895	475	188	27	6	41	17	67.4	76.3	81.2	-1.8	67.0	59.1	60.0	68.3	64.0	51.6	49.8	64.4	50.8	49.7	50.7	55.2
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	22,256	40	75	0	0	1.8%	0.7%	66.3	####	2,827	2,137	350	139	20	4	30	13	67.4	76.3	81.2	-1.8	65.7	57.8	58.6	67.0	62.7	50.2	48.5	63.1	49.5	48.4	49.4	53.9
Build-out Year (2040) without Project Weekday (Evening)		2	0	36,288	40	75	0	0	1.8%	0.7%	68.4	####	4,609	3,484	571	226	33	7	49	20	67.4	76.3	81.2	-1.8	67.8	59.9	60.8	69.1	64.8	52.4	50.6	65.2	51.6	50.5	51.5	56.0
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	26,688	40	75	0	0	1.8%	0.7%	67.1	####	3,389	2,562	420	166	24	5	36	15	67.4	76.3	81.2	-1.8	66.5	58.6	59.4	67.8	63.5	51.0	49.3	63.9	50.3	49.1	50.2	54.7
Build-out Year (2040) with Project Weekday (Evening)		2	0	36,592	40	75	0	0	1.8%	0.7%	68.4	####	4,647	3,513	576	228	33	7	50	21	67.4	76.3	81.2	-1.8	67.8	60.0	60.8	69.2	64.9	52.4	50.6	65.2	51.7	50.5	51.6	56.0
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	26,864	40	75	0	0	1.8%	0.7%	67.1	####	3,412	2,579	423	168	24	5	36	15	67.4	76.3	81.2	-1.8	66.5	58.6	59.5	67.8	63.5	51.0	49.3	63.9	50.3	49.2	50.2	54.7
Imperial Hwy s/o Lemon Dr																																				
Existing Weekday (Evening)		2	0	26,744	40	75	0	0	1.8%	0.7%	67.1	####	3,396	2,567	421	167	24	5	36	15	67.4	76.3	81.2	-1.8	66.5	58.6	59.4	67.8	63.5	51.0	49.3	63.9	50.3	49.2	50.2	54.7
Existing Saturday (Mid-Day)		2	0	18,768	40	75	0	0	1.8%	0.7%	65.5	####	2,384	1,802	295	117	17	4	25	11	67.4	76.3	81.2	-1.8	64.9	57.1	57.9	66.3	62.0	49.5	47.7	62.3	48.8	47.6	48.7	53.1
Existing plus Project Weekday (Evening)		2	0	26,600	40	75	0	0	1.8%	0.7%	67.0	####	3,378	2,554	419	166	24	5	36	15	67.4	76.3	81.2	-1.8	66.4	58.6	59.4	67.8	63.5	51.0	49.3	63.9	50.3	49.1	50.2	54.7
Existing plus Project Saturday (Mid- Day)		2	0	18,704	40	75	0	0	1.8%	0.7%	65.5	####	2,375	1,796	294	117	17	4	25	11	67.4	76.3	81.2	-1.8	64.9	57.1	57.9	66.3	61.9	49.5	47.7	62.3	48.7	47.6	48.7	53.1
Opening Year (2021) Without Project Weekday (Evening)		2	0	27,336	40	75	0	0	1.8%	0.7%	67.2	####	3,472	2,624	430	170	25	5	37	15	67.4	76.3	81.2	-1.8	66.6	58.7	59.5	67.9	63.6	51.1	49.4	64.0	50.4	49.3	50.3	54.8
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	19,280	40	75	0	0	1.8%	0.7%	65.6	####	2,449	1,851	303	120	18	4	26	11	67.4	76.3	81.2	-1.8	65.0	57.2	58.0	66.4	62.1	49.6	47.9	62.5	48.9	47.7	48.8	53.3
Opening Year (2021) with Project Weekday (Evening)		2	0	27,192	40	75	0	0	1.8%	0.7%	67.1	####	3,453	2,610	428	170	25	5	37	15	67.4	76.3	81.2	-1.8	66.5	58.7	59.5	67.9	63.6	51.1	49.3	64.0	50.4	49.2	50.3	54.8
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	19,216	40	75	0	0	1.8%	0.7%	65.6	####	2,440	1,845	302	120	17	4	26	11	67.4	76.3	81.2	-1.8	65.0	57.2	58.0	66.4	62.1	49.6	47.8	62.4	48.9	47.7	48.8	53.3
Build-out Year (2040) without Project Weekday (Evening)		2	0	33,504	40	75	0	0	1.8%	0.7%	68.0	####	4,255	3,216	527	209	30	7	45	19	67.4	76.3	81.2	-1.8	67.4	59.6	60.4	68.8	64.5	52.0	50.3	64.9	51.3	50.1	51.2	55.7
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	23,600	40	75	0	0	1.8%	0.7%	66.5	####	2,997	2,266	371	147	21	5	32	13	67.4	76.3	81.2	-1.8	65.9	58.1	58.9	67.3	62.9	50.5	48.7	63.3	49.8	48.6	49.7	54.1
Build-out Year (2040) with Project Weekday (Evening)		2	0	33,360	40	75	0	0	1.8%	0.7%	68.0	####	4,237	3,203	525	208	30	7	45	19	67.4	76.3	81.2	-1.8	67.4	59.6	60.4	68.8	64.5	52.0	50.2	64.8	51.3	50.1	51.2	55.6
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	23,536	40	75	0	0	1.8%	0.7%	66.5	####	2,989	2,259	370	147	21	5	32	13	67.4	76.3	81.2	-1.8	65.9	58.1	58.9	67.3	62.9	50.5	48.7	63.3	49.7	48.6	49.7	54.1
Lemon Dr e/o Imperial Hwy																																				
Existing Weekday (Evening)		2	0	2,808	40	75	0	0	1.8%	0.7%	57.3	2,182	357	270	44	18	3	1	4	2	67.4	76.3	81.2	-1.8	56.7	48.8	49.7	58.0	53.7	41.2	39.5	54.1	40.5	39.4	40.4	44.9
Existing Saturday (Mid-Day)		2	0	2,944	40	75	0	0	1.8%	0.7%	57.5	2,287	374	283	46	18	3	1	4	2	67.4	76.3	81.2	-1.8	56.9	49.0	49.9	58.2	53.9	41.4	39.7	54.3	40.7	39.6	40.6	45.1
Existing plus Project Weekday (Evening)		2	0	3,256	40	75	0	0	1.8%	0.7%	57.9	2,530	414	313	51	20	3	1	4	2	67.4	76.3	81.2	-1.8	57.3	49.5	50.3	58.7	54.3	41.9	40.1	54.7	41.2	40.0	41.1	45.5
Existing plus Project Saturday (Mid- Day)		2	0	3,184	40	75	0	0	1.8%	0.7%	57.8	2,474	404	306	50	20	3	1	4	2	67.4	76.3	81.2	-1.8	57.2	49.4	50.2	58.6	54.2	41.8	40.0	54.6	41.1	39.9	41.0	45.4
Opening Year (2021) Without Project Weekday (Evening)		2	0	4,208	40	75	0	0	1.8%	0.7%	59.0	3,270	534	404	66	26	4	1	6	2	67.4	76.3	81.2	-1.8	58.4	50.6	51.4	59.8	55.5	43.0	41.2	55.9	42.3	41.1	42.2	46.7
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	4,584	40	75	0	0	1.8%	0.7%	59.4	3,562	582	440	72	29	4	1	6	3	67.4	76.3	81.2	-1.8	58.8	51.0	51.8	60.2	55.8	43.4	41.6	56.2	42.6	41.5	42.5	47.0
Opening Year (2021) with Project Weekday (Evening)		2	0	4,656	40	75	0	0	1.8%	0.7%	59.5	3,618	591	447	73	29	4	1	6	3	67.4	76.3	81.2	-1.8	58.9	51.0	51.8	60.2	55.9	43.4	41.7	56.3	42.7	41.6	42.6	47.1
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	4,824	40	75	0	0	1.8%	0.7%	59.6	3,748	613	463	76	30	4	1	7	3	67.4	76.3	81.2	-1.8	59.0	51.2	52.0	60.4	56.1	43.6	41.8	56.4	42.9	41.7	42.8	47.2
Build-out Year (2040) without Project Weekday (Evening)		2	0	4,872	40	75	0	0	1.8%	0.7%	59.7	3,786	619	468	77	30	4	1	7	3	67.4	76.3	81.2	-1.8	59.1	51.2	52.0	60.4	56.1	43.6	41.9	56.5	42.9	41.8	42.8	47.3
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	5,272	40	75	0	0	1.8%	0.7%	60.0	4,096	670	506	83	33	5	1	7	3	67.4	76.3	81.2	-1.8	59.4	51.6	52.4	60.8	56.4	44.0	42.2	56.8	43.2	42.1	43.2	47.6
Build-out Year (2040) with Project Weekday (Evening)		2	0	5,320	40	75	0	0	1.8%	0.7%	60.1	4,134	676	511	84	33	5	1	7	3	67.4	76.3	81.2	-1.8	59.5	51.6	52.4	60.8	56.5	44.0	42.2	56.9	43.3	42.1	43.2	47.7
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	5,512	40	75	0	0																												

Project Name
Weekday All Hours

Intersection:
Imperial Hwy & Olinda St

4

rev. (Date)

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Eastbound			
	left	through	right
Existing Weekday (Evening)	20	8	57
Existing Saturday (Mid-Day)	34	7	84
Existing plus Project Weekday (Evening)	20	8	57
Existing plus Project Saturday (Mid-Day)	34	7	84
Opening Year (2021) Without Project Weekday (Evening)	20	15	58
Opening Year (2021) Without Project Saturday (Mid-Day)	35	15	86
Opening Year (2021) with Project Weekday (Evening)	20	15	58
Opening Year (2021) with Project Saturday (Mid-Day)	35	15	86
Build-out Year (2040) without Project Weekday (Evening)	25	17	71
Build-out Year (2040) without Project Saturday (Mid-Day)	43	17	105
Build-out Year (2040) with Project Weekday (Evening)	25	17	71
Build-out Year (2040) with Project Saturday (Mid-Day)	43	17	105

Imperial Hwy			
Southbound			
	right	through	left
Existing Weekday (Evening)	25	1,761	17
Existing Saturday (Mid-Day)	15	1,203	11
Existing plus Project Weekday (Evening)	25	1,761	17
Existing plus Project Saturday (Mid-Day)	15	1,203	11
Opening Year (2021) Without Project Weekday (Evening)	26	1,800	17
Opening Year (2021) Without Project Saturday (Mid-Day)	15	1,236	11
Opening Year (2021) with Project Weekday (Evening)	26	1,800	17
Opening Year (2021) with Project Saturday (Mid-Day)	15	1,236	11
Build-out Year (2040) without Project Weekday (Evening)	31	2,205	21
Build-out Year (2040) without Project Saturday (Mid-Day)	19	1,513	14
Build-out Year (2040) with Project Weekday (Evening)	31	2,205	21
Build-out Year (2040) with Project Saturday (Mid-Day)	19	1,513	14

Northbound			
	left	through	right
Existing Weekday (Evening)	61	1,502	58
Existing Saturday (Mid-Day)	65	1,067	47
Existing plus Project Weekday (Evening)	61	1,483	93
Existing plus Project Saturday (Mid-Day)	65	1,059	77
Opening Year (2021) Without Project Weekday (Evening)	62	1,536	59
Opening Year (2021) Without Project Saturday (Mid-Day)	66	1,097	48
Opening Year (2021) with Project Weekday (Evening)	62	1,517	94
Opening Year (2021) with Project Saturday (Mid-Day)	66	1,089	78
Build-out Year (2040) without Project Weekday (Evening)	76	1,882	73
Build-out Year (2040) without Project Saturday (Mid-Day)	61	1,343	59
Build-out Year (2040) with Project Weekday (Evening)	76	1,863	108
Build-out Year (2040) with Project Saturday (Mid-Day)	81	1,335	89

Westbound			
	right	through	left
Existing Weekday (Evening)	14	5	46
Existing Saturday (Mid-Day)	13	3	30
Existing plus Project Weekday (Evening)	14	5	70
Existing plus Project Saturday (Mid-Day)	13	3	30
Opening Year (2021) Without Project Weekday (Evening)	14	12	47
Opening Year (2021) Without Project Saturday (Mid-Day)	13	11	31
Opening Year (2021) with Project Weekday (Evening)	14	12	71
Opening Year (2021) with Project Saturday (Mid-Day)	13	11	31
Build-out Year (2040) without Project Weekday (Evening)	18	13	58
Build-out Year (2040) without Project Saturday (Mid-Day)	16	12	38
Build-out Year (2040) with Project Weekday (Evening)	18	13	82
Build-out Year (2040) with Project Saturday (Mid-Day)	16	12	38

Road	Imperial Hwy		Olinda St	
	North of	South of	East of	West of
Lead	Olinda St		Imperial Hwy	
Cross Street				
Existing Weekday (Evening)	26,712.0	27,880.0	1,184.0	1,408.0
Existing Saturday (Mid-Day)	18,744.0	19,968.0	888.0	1,664.0
Existing plus Project Weekday (Evening)	26,560.0	28,200.0	1,656.0	1,408.0
Existing plus Project Saturday (Mid-Day)	18,680.0	20,144.0	1,128.0	1,664.0
Opening Year (2021) Without Project Weekday (Evening)	27,304.0	28,496.0	1,312.0	1,544.0
Opening Year (2021) Without Project Saturday (Mid-Day)	19,256.0	20,512.0	1,032.0	1,824.0
Opening Year (2021) with Project Weekday (Evening)	27,152.0	28,816.0	1,784.0	1,544.0
Opening Year (2021) with Project Saturday (Mid-Day)	19,192.0	20,688.0	1,272.0	1,824.0
Build-out Year (2040) without Project Weekday (Evening)	33,456.0	34,520.0	1,600.0	1,864.0
Build-out Year (2040) without Project Saturday (Mid-Day)	23,584.0	25,112.0	1,248.0	2,216.0
Build-out Year (2040) with Project Weekday (Evening)	33,304.0	35,240.0	2,072.0	1,864.0
Build-out Year (2040) with Project Saturday (Mid-Day)	23,520.0	25,288.0	1,488.0	2,216.0

4
NOISE LEVEL CONTOURS

										Traffic Volumes				Ref. Energy Levels Dist				Ld				Le				Ln											
ROADWAY NAME			Median	ADT	Design Dist. from		Barrier	Vehicle Mix																													
Segment	Land Use	Lanes	Width	Volume	Speed (mph)	Center to Receptor Factor	Attn. (dB(A))	Medium Trucks	Heavy Trucks	dB(A) CNEL	Day	Even	Night	MTd	HTd	MTe	HTe	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total A	MT	HT	Total A	MT	HT	Total A				
Imperial Hwy n/o Olinda St																																					
Existing Weekday (Evening)		2	0	26,712	40	75	0	0	1.8%	0.7%	67.1	####	3,392	2,564	420	167	24	5	36	15	67.4	76.3	81.2	-1.8	66.5	58.6	59.4	67.8	63.5	51.0	49.3	63.9	50.3	49.2	50.2	54.7	
Existing Saturday (Mid-Day)		2	0	18,744	40	75	0	0	1.8%	0.7%	65.5	####	2,380	1,799	295	117	17	4	25	11	67.4	76.3	81.2	-1.8	64.9	57.1	57.9	66.3	61.9	49.5	47.7	62.3	48.8	47.6	48.7	53.1	
Existing plus Project Weekday (Evening)		2	0	26,560	40	75	0	0	1.8%	0.7%	67.0	####	3,373	2,550	418	166	24	5	36	15	67.4	76.3	81.2	-1.8	66.4	58.6	59.4	67.8	63.5	51.0	49.2	63.9	50.3	49.1	50.2	54.7	
Existing plus Project Saturday (Mid- Day)		2	0	18,680	40	75	0	0	1.8%	0.7%	65.5	####	2,372	1,793	294	117	17	4	25	11	67.4	76.3	81.2	-1.8	64.9	57.1	57.9	66.3	61.9	49.5	47.7	62.3	48.7	47.6	48.6	53.1	
Opening Year (2021) Without Project Weekday (Evening)		2	0	27,304	40	75	0	0	1.8%	0.7%	67.2	####	3,468	2,621	430	170	25	5	37	15	67.4	76.3	81.2	-1.8	66.6	58.7	59.5	67.9	63.6	51.1	49.4	64.0	50.4	49.2	50.3	54.8	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	19,256	40	75	0	0	1.8%	0.7%	65.6	####	2,446	1,849	303	120	18	4	26	11	67.4	76.3	81.2	-1.8	65.0	57.2	58.0	66.4	62.1	49.6	47.8	62.5	48.9	47.7	48.8	53.3	
Opening Year (2021) with Project Weekday (Evening)		2	0	27,152	40	75	0	0	1.8%	0.7%	67.1	####	3,448	2,607	427	169	25	5	37	15	67.4	76.3	81.2	-1.8	66.5	58.7	59.5	67.9	63.6	51.1	49.3	63.9	50.4	49.2	50.3	54.8	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	19,192	40	75	0	0	1.8%	0.7%	65.6	####	2,437	1,842	302	120	17	4	26	11	67.4	76.3	81.2	-1.8	65.0	57.2	58.0	66.4	62.0	49.6	47.8	62.4	48.9	47.7	48.8	53.2	
Build-out Year (2040) without Project Weekday (Evening)		2	0	33,456	40	75	0	0	1.8%	0.7%	68.0	####	4,249	3,212	527	209	30	7	45	19	67.4	76.3	81.2	-1.8	67.4	59.6	60.4	68.8	64.5	52.0	50.2	64.9	51.3	50.1	51.2	55.7	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	23,584	40	75	0	0	1.8%	0.7%	66.5	####	2,995	2,264	371	147	21	5	32	13	67.4	76.3	81.2	-1.8	65.9	58.1	58.9	67.3	62.9	50.5	48.7	63.3	49.7	48.6	49.7	54.1	
Build-out Year (2040) with Project Weekday (Evening)		2	0	33,304	40	75	0	0	1.8%	0.7%	68.0	####	4,230	3,197	524	208	30	7	45	19	67.4	76.3	81.2	-1.8	67.4	59.6	60.4	68.8	64.4	52.0	50.2	64.8	51.2	50.1	51.2	55.6	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	23,520	40	75	0	0	1.8%	0.7%	66.5	####	2,987	2,258	370	147	21	5	32	13	67.4	76.3	81.2	-1.8	65.9	58.1	58.9	67.3	62.9	50.5	48.7	63.3	49.7	48.6	49.6	54.1	
Imperial Hwy s/o Olinda St																																					
Existing Weekday (Evening)		2	0	27,880	40	75	0	0	1.8%	0.7%	67.2	####	3,541	2,676	439	174	25	6	38	16	67.4	76.3	81.2	-1.8	66.7	58.8	59.6	68.0	63.7	51.2	49.5	64.1	50.5	49.3	50.4	54.9	
Existing Saturday (Mid-Day)		2	0	19,968	40	75	0	0	1.8%	0.7%	65.8	####	2,536	1,917	314	125	18	4	27	11	67.4	76.3	81.2	-1.8	65.2	57.3	58.2	66.5	62.2	49.8	48.0	62.6	49.0	47.9	48.9	53.4	
Existing plus Project Weekday (Evening)		2	0	28,200	40	75	0	0	1.8%	0.7%	67.3	####	3,581	2,707	444	176	26	6	38	16	67.4	76.3	81.2	-1.8	66.7	58.8	59.7	68.0	63.7	51.3	49.5	64.1	50.5	49.4	50.4	54.9	
Existing plus Project Saturday (Mid- Day)		2	0	20,144	40	75	0	0	1.8%	0.7%	65.8	####	2,558	1,934	317	126	18	4	27	11	67.4	76.3	81.2	-1.8	65.2	57.4	58.2	66.6	62.3	49.8	48.0	62.7	49.1	47.9	49.0	53.5	
Opening Year (2021) Without Project Weekday (Evening)		2	0	28,496	40	75	0	0	1.8%	0.7%	67.3	####	3,619	2,736	448	178	26	6	39	16	67.4	76.3	81.2	-1.8	66.7	58.9	59.7	68.1	63.8	51.3	49.6	64.2	50.6	49.4	50.5	55.0	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	20,512	40	75	0	0	1.8%	0.7%	65.9	####	2,605	1,969	323	128	19	4	28	12	67.4	76.3	81.2	-1.8	65.3	57.5	58.3	66.7	62.3	49.9	48.1	62.7	49.1	48.0	49.1	53.5	
Opening Year (2021) with Project Weekday (Evening)		2	0	28,816	40	75	0	0	1.8%	0.7%	67.4	####	3,680	2,766	453	180	26	6	39	16	67.4	76.3	81.2	-1.8	66.8	58.9	59.8	68.1	63.8	51.4	49.6	64.2	50.6	49.5	50.5	55.0	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	20,688	40	75	0	0	1.8%	0.7%	66.0	####	2,627	1,986	326	129	19	4	28	12	67.4	76.3	81.2	-1.8	65.4	57.5	58.3	66.7	62.4	49.9	48.2	62.8	49.2	48.0	49.1	53.6	
Build-out Year (2040) without Project Weekday (Evening)		2	0	34,920	40	75	0	0	1.8%	0.7%	68.2	####	4,435	3,352	550	218	32	7	47	20	67.4	76.3	81.2	-1.8	67.6	59.8	60.6	69.0	64.6	52.2	50.4	65.0	51.5	50.3	51.4	55.8	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	25,112	40	75	0	0	1.8%	0.7%	66.8	####	3,189	2,411	395	157	23	5	34	14	67.4	76.3	81.2	-1.8	66.2	58.3	59.2	67.5	63.2	50.8	49.0	63.6	50.0	48.9	49.9	54.4	
Build-out Year (2040) with Project Weekday (Evening)		2	0	35,240	40	75	0	0	1.8%	0.7%	68.3	####	4,475	3,383	555	220	32	7	48	20	67.4	76.3	81.2	-1.8	67.7	59.8	60.6	69.0	64.7	52.2	50.5	65.1	51.5	50.4	51.4	55.9	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	25,288	40	75	0	0	1.8%	0.7%	66.8	####	3,212	2,428	398	158	23	5	34	14	67.4	76.3	81.2	-1.8	66.2	58.4	59.2	67.6	63.2	50.8	49.0	63.6	50.1	48.9	50.0	54.4	
Olinda St e/o Imperial Hwy																																					
Existing Weekday (Evening)		2	0	1,184	40	75	0	0	1.8%	0.7%	53.5	920	150	114	19	7	1	0	2	1	67.4	76.3	81.2	-1.8	52.9	45.1	45.9	54.3	50.0	37.5	35.7	50.3	36.8	35.6	36.7	41.1	
Existing Saturday (Mid-Day)		2	0	888	40	75	0	0	1.8%	0.7%	52.3	690	113	85	14	6	1	0	1	1	67.4	76.3	81.2	-1.8	51.7	43.8	44.7	53.0	48.7	36.2	34.5	49.1	35.5	34.4	35.4	39.9	
Existing plus Project Weekday (Evening)		2	0	1,656	40	75	0	0	1.8%	0.7%	55.0	1,287	210	159	26	10	2	0	2	1	67.4	76.3	81.2	-1.8	54.4	46.5	47.4	55.7	51.4	38.9	37.2	51.8	38.2	37.1	38.1	42.6	
Existing plus Project Saturday (Mid- Day)		2	0	1,128	40	75	0	0	1.8%	0.7%	53.3	876	143	108	18	7	1	0	2	1	67.4	76.3	81.2	-1.8	52.7	44.9	45.7	54.1	49.7	37.3	35.5	50.1	36.5	35.4	36.5	40.9	
Opening Year (2021) Without Project Weekday (Evening)		2	0	1,312	40	75	0	0	1.8%	0.7%	54.0	1,019	167	126	21	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.4	45.5	46.3	54.7	50.4	37.9	36.2	50.8	37.2	36.1	37.1	41.6	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	1,032	40	75	0	0	1.8%	0.7%	52.9	802	131	99	16	6	1	0	1	1	67.4	76.3	81.2	-1.8	52.3	44.5	45.3	53.7	49.4	36.9	35.1	49.7	36.2	35.0	36.1	40.6	
Opening Year (2021) with Project Weekday (Evening)		2	0	1,784	40	75	0	0	1.8%	0.7%	55.3	1,386	227	171	28	11	2	0	2	1	67.4	76.3	81.2	-1.8	54.7	46.9	47.7	56.1	51.7	39.3	37.5	52.1	38.5	37.4	38.4	42.9	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	1,272	40	75	0	0	1.8%	0.7%	53.8	988	162	122	20	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.2	45.4	46.2	54.6	50.3	37.8	36.0	50.7	37.1	35.9	37.0	41.5	
Build-out Year (2040) without Project Weekday (Evening)		2	0	1,600	40	75	0	0	1.8%	0.7%	54.8	1,243	203	154	25	10	1	0	2	1	67.4	76.3	81.2	-1.8	54.2	46.4	47.2	55.6	51.3	38.8	37.0	51.7	38.1	36.9	38.0	42.5	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	1,248	40	75	0	0	1.8%	0.7%	53.8	970	158	120	20	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.2	45.3	46.1	54.5	50.2	37.7	36.0	50.6	37.0	35.8	36.9	41.4	
Build-out Year (2040) with Project Weekday (Evening)		2	0	2,072	40	75	0	0	1.8%	0.7%	56.0	1,610	263	199	33	13	2	0	3	1	67.4	76.3	81.2	-1.8	55.4	47.5	48.3	56.7	52.4	39.9	38.2	52.8	39.2	38.1	39.1	43.6	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	1,488	40	75	0	0	1.8%	0.7%	54.5	1,156	189	143	23	9	1	0	2	1	67.4	76.3	81.2	-1.8	53.9	46.1											

Project Name
Weekday All Hours

Intersection:
Imperial Hwy & Yorba Linda Blvd

5

rev. (Date)

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Eastbound			
	left	through	right
Existing Weekday (Evening)	98	576	321
Existing Saturday (Mid-Day)	94	430	237
Existing plus Project Weekday (Evening)	100	576	321
Existing plus Project Saturday (Mid-Day)	97	430	237
Opening Year (2021) Without Project Weekday (Evening)	100	647	328
Opening Year (2021) Without Project Saturday (Mid-Day)	96	511	243
Opening Year (2021) with Project Weekday (Evening)	102	647	328
Opening Year (2021) with Project Saturday (Mid-Day)	99	511	243
Build-out Year (2040) without Project Weekday (Evening)	123	779	402
Build-out Year (2040) without Project Saturday (Mid-Day)	118	610	297
Build-out Year (2040) with Project Weekday (Evening)	125	779	402
Build-out Year (2040) with Project Saturday (Mid-Day)	121	610	297

Yorba Linda Blvd

Imperial Hwy			
Southbound			
	right	through	left
Existing Weekday (Evening)	75	1,050	625
Existing Saturday (Mid-Day)	94	693	446
Existing plus Project Weekday (Evening)	76	1,052	628
Existing plus Project Saturday (Mid-Day)	93	691	443
Opening Year (2021) Without Project Weekday (Evening)	77	1,011	642
Opening Year (2021) Without Project Saturday (Mid-Day)	96	709	462
Opening Year (2021) with Project Weekday (Evening)	78	1,073	645
Opening Year (2021) with Project Saturday (Mid-Day)	95	707	459
Build-out Year (2040) without Project Weekday (Evening)	94	1,313	785
Build-out Year (2040) without Project Saturday (Mid-Day)	118	868	565
Build-out Year (2040) with Project Weekday (Evening)	95	1,315	788
Build-out Year (2040) with Project Saturday (Mid-Day)	117	866	562

Northbound			
	left	through	right
Existing Weekday (Evening)	293	961	186
Existing Saturday (Mid-Day)	263	708	152
Existing plus Project Weekday (Evening)	293	967	186
Existing plus Project Saturday (Mid-Day)	263	716	152
Opening Year (2021) Without Project Weekday (Evening)	301	980	260
Opening Year (2021) Without Project Saturday (Mid-Day)	269	725	238
Opening Year (2021) with Project Weekday (Evening)	301	986	260
Opening Year (2021) with Project Saturday (Mid-Day)	269	733	238
Build-out Year (2040) without Project Weekday (Evening)	368	1201	303
Build-out Year (2040) without Project Saturday (Mid-Day)	330	888	273
Build-out Year (2040) with Project Weekday (Evening)	368	1207	303
Build-out Year (2040) with Project Saturday (Mid-Day)	330	896	273

N
S E

Westbound			
	right	through	left
Existing Weekday (Evening)	603	583	162
Existing Saturday (Mid-Day)	437	501	194
Existing plus Project Weekday (Evening)	611	583	162
Existing plus Project Saturday (Mid-Day)	448	501	194
Opening Year (2021) Without Project Weekday (Evening)	619	658	236
Opening Year (2021) Without Project Saturday (Mid-Day)	452	581	278
Opening Year (2021) with Project Weekday (Evening)	627	658	236
Opening Year (2021) with Project Saturday (Mid-Day)	463	581	278
Build-out Year (2040) without Project Weekday (Evening)	758	792	274
Build-out Year (2040) without Project Saturday (Mid-Day)	552	696	323
Build-out Year (2040) with Project Weekday (Evening)	766	792	274
Build-out Year (2040) with Project Saturday (Mid-Day)	563	696	323

ADT				
Road	Imperial Hwy		Yorba Linda Blvd	
Lead	North of	South of	East of	West of
Cross Street	Yorba Linda Blvd		Imperial Hwy	
Existing Weekday (Evening)	27,296.0	23,784.0	21,880.0	15,568.0
Existing Saturday (Mid-Day)	19,776.0	17,976.0	17,280.0	12,952.0
Existing plus Project Weekday (Evening)	27,472.0	23,848.0	21,968.0	15,592.0
Existing plus Project Saturday (Mid-Day)	19,904.0	18,024.0	17,344.0	12,968.0
Opening Year (2021) Without Project Weekday (Evening)	27,512.0	25,408.0	24,496.0	16,888.0
Opening Year (2021) Without Project Saturday (Mid-Day)	20,320.0	19,696.0	20,176.0	14,368.0
Opening Year (2021) with Project Weekday (Evening)	28,088.0	25,472.0	24,584.0	16,912.0
Opening Year (2021) with Project Saturday (Mid-Day)	20,448.0	19,744.0	20,240.0	14,384.0
Build-out Year (2040) without Project Weekday (Evening)	34,192.0	30,888.0	29,528.0	20,464.0
Build-out Year (2040) without Project Saturday (Mid-Day)	24,872.0	23,832.0	24,152.0	17,352.0
Build-out Year (2040) with Project Weekday (Evening)	34,368.0	30,952.0	29,616.0	20,488.0
Build-out Year (2040) with Project Saturday (Mid-Day)	25,000.0	23,880.0	24,216.0	17,368.0

5
NOISE LEVEL CONTOURS

											Traffic Volumes				Ref. Energy Levels Dist				Ld				Le				Ln											
ROADWAY NAME			Median	ADT	Design	Dist. from	Barrier	Vehicle Mix			Day	Even	Night	MTd	HTd	MTe	HTe	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total A	MT	HT	Total A	MT	HT	Total A	MT	HT	Total		
Segment	Land Use	Lanes	Width	Volume	Speed (mph)	Center to Receptor	Factor (1)	Attn. dB(A)	Medium Trucks	Heavy Trucks	dB(A) CNEL																											
Imperial Hwy w/o Yorba Linda Blvd																																						
Existing Weekday (Evening)		2	0	27,296	40	75	0	0	1.8%	0.7%	67.2	####	3,467	2,620	430	170	25	5	37	15	67.4	76.3	81.2	-1.8	66.6	58.7	59.5	67.9	63.6	51.1	49.4	64.0	50.4	49.2	50.3	54.8		
Existing Saturday (Mid-Day)		2	0	19,776	40	75	0	0	1.8%	0.7%	65.8	####	2,512	1,898	311	123	18	4	27	11	67.4	76.3	81.2	-1.8	65.2	57.3	58.1	66.5	62.2	49.7	48.0	62.6	49.0	47.8	48.9	53.4		
Existing plus Project Weekday (Evening)		2	0	27,472	40	75	0	0	1.8%	0.7%	67.2	####	3,489	2,637	432	171	25	5	37	15	67.4	76.3	81.2	-1.8	66.6	58.7	59.6	67.9	63.6	51.1	49.4	64.0	50.4	49.3	50.3	54.8		
Existing plus Project Saturday (Mid-Day)		2	0	19,904	40	75	0	0	1.8%	0.7%	65.8	####	2,528	1,911	313	124	18	4	27	11	67.4	76.3	81.2	-1.8	65.2	57.3	58.2	66.5	62.2	49.7	48.0	62.6	49.0	47.9	48.9	53.4		
Opening Year (2021) Without Project Weekday (Evening)		2	0	27,912	40	75	0	0	1.8%	0.7%	67.3	####	3,545	2,680	439	174	25	6	38	16	67.4	76.3	81.2	-1.8	66.7	58.8	59.6	68.0	63.7	51.2	49.5	64.1	50.5	49.3	50.4	54.9		
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	20,320	40	75	0	0	1.8%	0.7%	65.9	####	2,581	1,951	320	127	18	4	28	11	67.4	76.3	81.2	-1.8	65.3	57.4	58.2	66.6	62.3	49.8	48.1	62.7	49.1	48.0	49.0	53.5		
Opening Year (2021) with Project Weekday (Evening)		2	0	28,088	40	75	0	0	1.8%	0.7%	67.3	####	3,567	2,696	442	175	26	6	38	16	67.4	76.3	81.2	-1.8	66.7	58.8	59.7	68.0	63.7	51.2	49.5	64.1	50.5	49.4	50.4	54.9		
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	20,448	40	75	0	0	1.8%	0.7%	65.9	####	2,597	1,963	322	128	19	4	28	12	67.4	76.3	81.2	-1.8	65.3	57.4	58.3	66.6	62.3	49.9	48.1	62.7	49.1	48.0	49.0	53.5		
Build-out Year (2040) without Project Weekday (Evening)		2	0	34,192	40	75	0	0	1.8%	0.7%	68.1	####	4,342	3,282	538	213	31	7	46	19	67.4	76.3	81.2	-1.8	67.5	59.7	60.5	68.9	64.6	52.1	50.3	65.0	51.4	50.2	51.3	55.8		
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	24,872	40	75	0	0	1.8%	0.7%	66.8	####	3,159	2,388	391	155	23	5	34	14	67.4	76.3	81.2	-1.8	66.2	58.3	59.1	67.5	63.2	50.7	49.0	63.6	50.0	48.8	49.9	54.4		
Build-out Year (2040) with Project Weekday (Evening)		2	0	34,368	40	75	0	0	1.8%	0.7%	68.2	####	4,365	3,299	541	214	31	7	47	19	67.4	76.3	81.2	-1.8	67.6	59.7	60.5	68.9	64.6	52.1	50.4	65.0	51.4	50.2	51.3	55.8		
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	25,000	40	75	0	0	1.8%	0.7%	66.8	####	3,175	2,400	393	156	23	5	34	14	67.4	76.3	81.2	-1.8	66.2	58.3	59.1	67.5	63.2	50.7	49.0	63.6	50.0	48.9	49.9	54.4		
Imperial Hwy s/o Yorba Linda Blvd																																						
Existing Weekday (Evening)		2	0	23,784	40	75	0	0	1.8%	0.7%	66.6	####	3,021	2,283	374	148	22	5	32	13	67.4	76.3	81.2	-1.8	66.0	58.1	58.9	67.3	63.0	50.5	48.8	63.4	49.8	48.6	49.7	54.2		
Existing Saturday (Mid-Day)		2	0	17,976	40	75	0	0	1.8%	0.7%	65.3	####	2,283	1,726	283	112	16	4	24	10	67.4	76.3	81.2	-1.8	64.7	56.9	57.7	66.1	61.8	49.3	47.5	62.2	48.6	47.4	48.5	53.0		
Existing plus Project Weekday (Evening)		2	0	23,848	40	75	0	0	1.8%	0.7%	66.6	####	3,029	2,289	375	149	22	5	32	13	67.4	76.3	81.2	-1.8	66.0	58.1	58.9	67.3	63.0	50.5	48.8	63.4	49.8	48.7	49.7	54.2		
Existing plus Project Saturday (Mid-Day)		2	0	18,024	40	75	0	0	1.8%	0.7%	65.4	####	2,289	1,730	284	112	16	4	24	10	67.4	76.3	81.2	-1.8	64.8	56.9	57.7	66.1	61.8	49.3	47.6	62.2	48.6	47.4	48.5	53.0		
Opening Year (2021) Without Project Weekday (Evening)		2	0	25,408	40	75	0	0	1.8%	0.7%	66.8	####	3,227	2,439	400	158	23	5	34	14	67.4	76.3	81.2	-1.8	66.2	58.4	59.2	67.6	63.3	50.8	49.1	63.7	50.1	48.9	50.0	54.5		
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	19,696	40	75	0	0	1.8%	0.7%	65.7	####	2,501	1,891	310	123	18	4	27	11	67.4	76.3	81.2	-1.8	65.1	57.3	58.1	66.5	62.2	49.7	47.9	62.6	49.0	47.8	48.9	53.4		
Opening Year (2021) with Project Weekday (Evening)		2	0	25,472	40	75	0	0	1.8%	0.7%	66.9	####	3,235	2,445	401	159	23	5	34	14	67.4	76.3	81.2	-1.8	66.3	58.4	59.2	67.6	63.3	50.8	49.1	63.7	50.1	48.9	50.0	54.5		
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	19,744	40	75	0	0	1.8%	0.7%	65.8	####	2,507	1,895	311	123	18	4	27	11	67.4	76.3	81.2	-1.8	65.2	57.3	58.1	66.5	62.2	49.7	48.0	62.6	49.0	47.8	48.9	53.4		
Build-out Year (2040) without Project Weekday (Evening)		2	0	30,888	40	75	0	0	1.8%	0.7%	67.7	####	3,923	2,965	486	193	28	6	42	17	67.4	76.3	81.2	-1.8	67.1	59.2	60.1	68.4	64.1	51.7	49.9	64.5	50.9	49.8	50.8	55.3		
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	23,832	40	75	0	0	1.8%	0.7%	66.6	####	3,027	2,288	375	149	22	5	32	13	67.4	76.3	81.2	-1.8	66.0	58.1	58.9	67.3	63.0	50.5	48.8	63.4	49.8	48.7	49.7	54.2		
Build-out Year (2040) with Project Weekday (Evening)		2	0	30,952	40	75	0	0	1.8%	0.7%	67.7	####	3,931	2,971	487	193	28	6	42	17	67.4	76.3	81.2	-1.8	67.1	59.2	60.1	68.4	64.1	51.7	49.9	64.5	50.9	49.8	50.8	55.3		
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	23,880	40	75	0	0	1.8%	0.7%	66.6	####	3,033	2,292	376	149	22	5	32	13	67.4	76.3	81.2	-1.8	66.0	58.1	58.9	67.3	63.0	50.5	48.8	63.4	49.8	48.7	49.7	54.2		
Yorba Linda Blvd e/o Imperial Hwy																																						
Existing Weekday (Evening)		2	0	21,880	40	75	0	0	1.8%	0.7%	66.2	####	2,779	2,100	344	136	20	4	30	12	67.4	76.3	81.2	-1.8	65.6	57.7	58.6	66.9	62.6	50.2	48.4	63.0	49.4	48.3	49.3	53.8		
Existing Saturday (Mid-Day)		2	0	17,280	40	75	0	0	1.8%	0.7%	65.2	####	2,195	1,659	272	108	16	3	23	10	67.4	76.3	81.2	-1.8	64.6	56.7	57.5	65.9	61.6	49.1	47.4	62.0	48.4	47.3	48.3	52.8		
Existing plus Project Weekday (Evening)		2	0	21,968	40	75	0	0	1.8%	0.7%	66.2	####	2,790	2,109	346	137	20	4	30	12	67.4	76.3	81.2	-1.8	65.6	57.8	58.6	67.0	62.6	50.2	48.4	63.0	49.4	48.3	49.4	53.8		
Existing plus Project Saturday (Mid-Day)		2	0	17,344	40	75	0	0	1.8%	0.7%	65.2	####	2,203	1,665	273	108	16	3	23	10	67.4	76.3	81.2	-1.8	64.6	56.7	57.6	65.9	61.6	49.1	47.4	62.0	48.4	47.3	48.3	52.8		
Opening Year (2021) Without Project Weekday (Evening)		2	0	24,496	40	75	0	0	1.8%	0.7%	66.7	####	3,111	2,352	386	153	22	5	33	14	67.4	76.3	81.2	-1.8	66.1	58.2	59.1	67.4	63.1	50.6	48.9	63.5	49.9	48.8	49.8	54.3		
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	20,176	40	75	0	0	1.8%	0.7%	65.8	####	2,562	1,937	318	126	18	4	27	11	67.4	76.3	81.2	-1.8	65.2	57.4	58.2	66.6	62.3	49.8	48.1	62.7	49.1	47.9	49.0	53.5		
Opening Year (2021) with Project Weekday (Evening)		2	0	24,584	40	75	0	0	1.8%	0.7%	66.7	####	3,122	2,360	387	153	22	5	33	14	67.4	76.3	81.2	-1.8	66.1	58.2	59.1	67.4	63.1	50.7	48.9	63.5	49.9	48.8	49.8	54.3		
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	20,240	40	75	0	0	1.8%	0.7%	65.9	####	2,570	1,943	319	126	18	4	27	11	67.4	76.3	81.2	-1.8	65.3	57.4	58.2	66.6	62.3	49.8	48.1	62.7	49.1	47.9	49.0	53.5		
Build-out Year (2040) without Project Weekday (Evening)		2	0	29,528	40	75	0	0	1.8%	0.7%	67.5	####	3,750	2,835	465	184	27	6	40	17	67.4	76.3	81.2	-1.8	66.9	59.0	59.9	68.2	63.9	51.5	49.7	64.3	50.7	49.6	50.6	55.1		
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	24,152	40	75	0	0	1.8%	0.7%	66.6	####	3,067	2,319	380	151	22	5	33	14	67.4	76.3	81.2	-1.8	66.0	58.2	59.0	67.4	63.0	50.6	48.8	63.4	49.9	48.7	49.8	54.2		
Build-out Year (2040) with Project Weekday (Evening)		2	0	29,616	40	75	0	0	1.8%	0.7%	67.5	####	3,761	2,843	466	185	27	6	40	17	67.4	76.3	81.2	-1.8	66.9	59.1	59.9	68.3	63.9	51.5	49.7	64.3	50.7	49.6	50.6	55.1		
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	24,216																																		

Project Name
Weekday All Hours

Intersection:
Project Dwy/Plumosa Dr & Lemon Dr

6

rev. (Date)

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Eastbound			
	left	through	right
Existing Weekday (Evening)	99	71	0
Existing Saturday (Mid-Day)	87	98	0
Existing plus Project Weekday (Evening)	99	71	34
Existing plus Project Saturday (Mid-Day)	87	98	30
Opening Year (2021) Without Project Weekday (Evening)	101	154	0
Opening Year (2021) Without Project Saturday (Mid-Day)	90	200	0
Opening Year (2021) with Project Weekday (Evening)	101	154	34
Opening Year (2021) with Project Saturday (Mid-Day)	90	200	30
Build-out Year (2040) without Project Weekday (Evening)	124	171	0
Build-out Year (2040) without Project Saturday (Mid-Day)	110	223	0
Build-out Year (2040) with Project Weekday (Evening)	124	171	34
Build-out Year (2040) with Project Saturday (Mid-Day)	110	223	30

Lemon Dr

Southbound			
	right	through	left
Existing Weekday (Evening)	101	0	84
Existing Saturday (Mid-Day)	78	0	73
Existing plus Project Weekday (Evening)	101	2	84
Existing plus Project Saturday (Mid-Day)	78	3	73
Opening Year (2021) Without Project Weekday (Evening)	103	0	96
Opening Year (2021) Without Project Saturday (Mid-Day)	81	0	86
Opening Year (2021) with Project Weekday (Evening)	103	2	96
Opening Year (2021) with Project Saturday (Mid-Day)	81	3	86
Build-out Year (2040) without Project Weekday (Evening)	126	0	115
Build-out Year (2040) without Project Saturday (Mid-Day)	99	0	103
Build-out Year (2040) with Project Weekday (Evening)	126	2	115
Build-out Year (2040) with Project Saturday (Mid-Day)	99	3	103

Project Dwy/Plumosa Dr

N
S
E
W

Northbound			
	left	through	right
Existing Weekday (Evening)	0	0	0
Existing Saturday (Mid-Day)	0	0	0
Existing plus Project Weekday (Evening)	22	1	1
Existing plus Project Saturday (Mid-Day)	0	0	0
Opening Year (2021) Without Project Weekday (Evening)	0	0	0
Opening Year (2021) Without Project Saturday (Mid-Day)	0	0	0
Opening Year (2021) with Project Weekday (Evening)	22	1	1
Opening Year (2021) with Project Saturday (Mid-Day)	0	0	0
Build-out Year (2040) without Project Weekday (Evening)	0	0	0
Build-out Year (2040) without Project Saturday (Mid-Day)	0	0	0
Build-out Year (2040) with Project Weekday (Evening)	22	1	1
Build-out Year (2040) with Project Saturday (Mid-Day)	0	0	0

Westbound			
	right	through	left
Existing Weekday (Evening)	78	79	0
Existing Saturday (Mid-Day)	57	106	0
Existing plus Project Weekday (Evening)	78	79	2
Existing plus Project Saturday (Mid-Day)	57	106	0
Opening Year (2021) Without Project Weekday (Evening)	91	168	0
Opening Year (2021) Without Project Saturday (Mid-Day)	70	205	0
Opening Year (2021) with Project Weekday (Evening)	91	168	2
Opening Year (2021) with Project Saturday (Mid-Day)	70	205	3
Build-out Year (2040) without Project Weekday (Evening)	109	186	0
Build-out Year (2040) without Project Saturday (Mid-Day)	83	230	0
Build-out Year (2040) with Project Weekday (Evening)	109	186	2
Build-out Year (2040) with Project Saturday (Mid-Day)	83	230	3

ADT				
Road	Project Dwy/Plumosa Dr		Lemon Dr	
Led	North of	South of	East of	West of
Cross Street	Lemon Dr		Project Dwy/Plumosa Dr	
Existing Weekday (Evening)	2,896.0	0.0	2,496.0	2,800.0
Existing Saturday (Mid-Day)	2,360.0	0.0	2,672.0	2,952.0
Existing plus Project Weekday (Evening)	2,920.0	496.0	2,520.0	3,248.0
Existing plus Project Saturday (Mid-Day)	2,384.0	264.0	2,672.0	3,192.0
Opening Year (2021) Without Project Weekday (Evening)	3,128.0	0.0	4,072.0	4,208.0
Opening Year (2021) Without Project Saturday (Mid-Day)	2,616.0	0.0	4,488.0	4,608.0
Opening Year (2021) with Project Weekday (Evening)	3,152.0	496.0	4,096.0	4,656.0
Opening Year (2021) with Project Saturday (Mid-Day)	2,640.0	288.0	4,512.0	4,848.0
Build-out Year (2040) without Project Weekday (Evening)	3,752.0	0.0	4,648.0	4,856.0
Build-out Year (2040) without Project Saturday (Mid-Day)	3,160.0	0.0	5,112.0	5,296.0
Build-out Year (2040) with Project Weekday (Evening)	3,816.0	496.0	4,672.0	5,304.0
Build-out Year (2040) with Project Saturday (Mid-Day)	3,184.0	288.0	5,136.0	5,536.0

6
NOISE LEVEL CONTOURS

											Traffic Volumes				Ref. Energy Levels Dist				Ln																			
ROADWAY NAME		Median	ADT	Design Dist. from	Alpha	Barrier	Vehicle Mix				Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total	A	MT	HT	Total	A	MT	HT	Total			
Segment	Land Use	Lanes	Width	Volume	Speed (mph)	Center to Receptor Factor (1)	dB(A)	Medium Trucks	Heavy Trucks	CNEL																												
Project Dwy/Plumosa Dr n/o Lemon Dr																																						
Existing Weekday (Evening)		2	0	2,896	40	75	0	0	1.8%	0.7%	57.4	2,250	368	278	46	18	3	1	4	2	67.4	76.3	81.2	-1.8	56.8	49.0	49.8	58.2	53.8	41.4	39.6	54.2	40.6	39.5	40.6	45.0		
Existing Saturday (Mid-Day)		2	0	2,360	40	75	0	0	1.8%	0.7%	56.5	1,834	300	227	37	15	2	0	3	1	67.4	76.3	81.2	-1.8	55.9	48.1	48.9	57.3	52.9	40.5	38.7	53.3	39.8	38.6	39.7	44.1		
Existing plus Project Weekday (Evening)		2	0	2,920	40	75	0	0	1.8%	0.7%	57.4	2,269	371	280	46	18	3	1	4	2	67.4	76.3	81.2	-1.8	56.9	49.0	49.8	58.2	53.9	41.4	39.7	54.3	40.7	39.5	40.6	45.1		
Existing plus Project Saturday (Mid- Day)		2	0	2,384	40	75	0	0	1.8%	0.7%	56.6	1,852	303	229	38	15	2	0	3	1	67.4	76.3	81.2	-1.8	56.0	48.1	48.9	57.3	53.0	40.5	38.8	53.4	39.8	38.7	39.7	44.2		
Opening Year (2021) Without Project Weekday (Evening)		2	0	3,128	40	75	0	0	1.8%	0.7%	57.7	2,430	397	300	49	20	3	1	4	2	67.4	76.3	81.2	-1.8	57.2	49.3	50.1	58.5	54.2	41.7	40.0	54.6	41.0	39.8	40.9	45.4		
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	2,616	40	75	0	0	1.8%	0.7%	57.0	2,033	332	251	41	16	2	1	4	1	67.4	76.3	81.2	-1.8	56.4	48.5	49.3	57.7	53.4	40.9	39.2	53.8	40.2	39.1	40.1	44.6		
Opening Year (2021) with Project Weekday (Evening)		2	0	3,152	40	75	0	0	1.8%	0.7%	57.8	2,449	400	303	50	20	3	1	4	2	67.4	76.3	81.2	-1.8	57.2	49.3	50.2	58.5	54.2	41.7	40.0	54.6	41.0	39.9	40.9	45.4		
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	2,640	40	75	0	0	1.8%	0.7%	57.0	2,051	335	253	42	16	2	1	4	1	67.4	76.3	81.2	-1.8	56.4	48.6	49.4	57.8	53.4	41.0	39.2	53.8	40.2	39.1	40.1	44.6		
Build-out Year (2040) without Project Weekday (Evening)		2	0	3,792	40	75	0	0	1.8%	0.7%	58.6	2,946	482	364	60	24	3	1	5	2	67.4	76.3	81.2	-1.8	58.0	50.1	51.0	59.3	55.0	42.5	40.8	55.4	41.8	40.7	41.7	46.2		
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	3,160	40	75	0	0	1.8%	0.7%	57.8	2,455	401	303	50	20	3	1	4	2	67.4	76.3	81.2	-1.8	57.2	49.3	50.2	58.5	54.2	41.8	40.0	54.6	41.0	39.9	40.9	45.4		
Build-out Year (2040) with Project Weekday (Evening)		2	0	3,816	40	75	0	0	1.8%	0.7%	58.6	2,965	485	366	60	24	3	1	5	2	67.4	76.3	81.2	-1.8	58.0	50.2	51.0	59.4	55.0	42.6	40.8	55.4	41.8	40.7	41.7	46.2		
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	3,184	40	75	0	0	1.8%	0.7%	57.8	2,474	404	306	50	20	3	1	4	2	67.4	76.3	81.2	-1.8	57.2	49.4	50.2	58.6	54.2	41.8	40.0	54.6	41.1	39.9	41.0	45.4		
Project Dwy/Plumosa Dr s/o Lemon Dr																																						
Existing Weekday (Evening)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	
Existing Saturday (Mid-Day)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####
Existing plus Project Weekday (Evening)		2	0	496	40	75	0	0	1.8%	0.7%	49.8	385	63	48	8	3	0	0	1	0	67.4	76.3	81.2	-1.8	49.2	41.3	42.1	50.5	46.2	33.7	32.0	46.6	33.0	31.8	32.9	37.4		
Existing plus Project Saturday (Mid- Day)		2	0	264	40	75	0	0	1.8%	0.7%	47.0	205	34	25	4	2	0	0	0	0	67.4	76.3	81.2	-1.8	46.4	38.6	39.4	47.8	43.4	31.0	29.2	43.8	30.2	29.1	30.1	34.6		
Opening Year (2021) Without Project Weekday (Evening)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####
Opening Year (2021) with Project Weekday (Evening)		2	0	496	40	75	0	0	1.8%	0.7%	49.8	385	63	48	8	3	0	0	1	0	67.4	76.3	81.2	-1.8	49.2	41.3	42.1	50.5	46.2	33.7	32.0	46.6	33.0	31.8	32.9	37.4		
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	288	40	75	0	0	1.8%	0.7%	47.4	224	37	28	5	2	0	0	0	0	67.4	76.3	81.2	-1.8	46.8	38.9	39.8	48.1	43.8	31.4	29.6	44.2	30.6	29.5	30.5	35.0		
Build-out Year (2040) without Project Saturday (Evening)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	0	40	75	0	0	1.8%	0.7%	#NUM!	0	0	0	0	0	0	0	0	0	67.4	76.3	81.2	-1.8	####	####	####	####	####	####	####	####	####	####	####	####	####	####
Build-out Year (2040) with Project Weekday (Evening)		2	0	496	40	75	0	0	1.8%	0.7%	49.8	385	63	48	8	3	0	0	1	0	67.4	76.3	81.2	-1.8	49.2	41.3	42.1	50.5	46.2	33.7	32.0	46.6	33.0	31.8	32.9	37.4		
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	288	40	75	0	0	1.8%	0.7%	47.4	224	37	28	5	2	0	0	0	0	67.4	76.3	81.2	-1.8	46.8	38.9	39.8	48.1	43.8	31.4	29.6	44.2	30.6	29.5	30.5	35.0		
Lemon Dr s/o Project Dwy/Plumosa Dr																																						
Existing Weekday (Evening)		2	0	2,496	40	75	0	0	1.8%	0.7%	56.8	1,939	317	240	39	16	2	0	3	1	67.4	76.3	81.2	-1.8	56.2	48.3	49.1	57.5	53.2	40.7	39.0	53.6	40.0	38.9	39.9	44.4		
Existing Saturday (Mid-Day)		2	0	2,672	40	75	0	0	1.8%	0.7%	57.1	2,076	339	257	42	17	2	1	4	2	67.4	76.3	81.2	-1.8	56.5	48.6	49.4	57.8	53.5	41.0	39.3	53.9	40.3	39.2	40.2	44.7		
Existing plus Project Weekday (Evening)		2	0	2,520	40	75	0	0	1.8%	0.7%	56.8	1,958	320	242	40	16	2	1	3	1	67.4	76.3	81.2	-1.8	56.2	48.4	49.2	57.6	53.2	40.8	39.0	53.6	40.0	38.9	39.9	44.4		
Existing plus Project Saturday (Mid- Day)		2	0	2,672	40	75	0	0	1.8%	0.7%	57.1	2,076	339	257	42	17	2	1	4	2	67.4	76.3	81.2	-1.8	56.5	48.6	49.4	57.8	53.5	41.0	39.3	53.9	40.3	39.2	40.2	44.7		
Opening Year (2021) Without Project Weekday (Evening)		2	0	4,072	40	75	0	0	1.8%	0.7%	58.9	3,164	517	391	64	25	4	1	6	2	67.4	76.3	81.2	-1.8	58.3	50.4	51.3	59.6	55.3	42.9	41.1	55.7	42.1	41.0	42.0	46.5		
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	4,488	40	75	0	0	1.8%	0.7%	59.3	3,487	570	431	71	28	4	1	6	3	67.4	76.3	81.2	-1.8	58.7	50.9	51.7	60.1	55.7	43.3	41.5	56.1	42.5	41.4	42.5	46.9		
Opening Year (2021) with Project Weekday (Evening)		2	0	4,096	40	75	0	0	1.8%	0.7%	58.9	3,183	520	393	64	26	4	1	6	2	67.4	76.3	81.2	-1.8	58.3	50.5	51.3	59.7	55.3	42.9	41.1	55.7	42.1	41.0	42.1	46.5		
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	4,512	40	75	0	0	1.8%	0.7%	59.3	3,506	573	433	71	28	4	1	6	3	67.4	76.3	81.2	-1.8	58.7	50.9	51.7	60.1	55.8	43.3	41.5	56.2	42.6	41.4	42.5	47.0		
Build-out Year (2040) without Project Weekday (Evening)		2	0	4,648	40	75	0	0	1.8%	0.7%	59.5	3,611	590	446	73	29	4	1	6	3	67.4	76.3	81.2	-1.8	58.9	51.0	51.8	60.2	55.9	43.4	41.7	56.3	42.7	41.6	42.6	47.1		
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	5,112	40	75	0	0	1.8%	0.7%	59.9	3,972	649	491	80	32	5	1	7	3	67.4	76.3	81.2	-1.8	59.3	51.4	52.3	60.6	56.3	43.8	42.1	56.7	43.1	42.0	43.0	47.5		
Build-out Year (2040) with Project Weekday (Evening)		2	0	4,672	40	75	0	0	1.8%	0.7%	59.5	3,630	593	449	74	29	4	1	6	3	67.4	76.3	81.2	-1.8	58.9	51.0	51.9	60.2	55.9	43.5	41.7	56.3	42.7	41.6	42.6	47.1		
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	5,136	40	75	0	0	1.8%	0.7%	59.9	3,991	652	493	81	32	5	1	7	3	67.4	76.3	81.2	-1.8	59.3	51.4	52.3	60.6	56.3	43.9	42.1	56.7	43.1	42.0	43.0	47.5		
Lemon Dr w/o Project Dwy/Plumosa Dr																																						
Existing Weekday (Evening)		2	0	2,800	40	75	0	0	1.8%	0.7%	57.3	2,176	356	269	44	17	3	1	4																			

Project Name
Weekday All Hours

Intersection:
Olinda St & Lemon Dr

7

rev. (Date)

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Eastbound				
	left	through	right	
Existing Weekday (Evening)	1	159	20	
Existing Saturday (Mid-Day)	2	151	20	
Existing plus Project Weekday (Evening)	1	160	20	
Existing plus Project Saturday (Mid-Day)	2	150	20	
Opening Year (2021) Without Project Weekday (Evening)	1	254	20	
Opening Year (2021) Without Project Saturday (Mid-Day)	2	266	20	
Opening Year (2021) with Project Weekday (Evening)	1	255	20	
Opening Year (2021) with Project Saturday (Mid-Day)	2	265	20	
Build-out Year (2040) without Project Weekday (Evening)	1	291	25	
Build-out Year (2040) without Project Saturday (Mid-Day)	3	301	25	
Build-out Year (2040) with Project Weekday (Evening)	1	292	25	
Build-out Year (2040) with Project Saturday (Mid-Day)	3	300	25	

Southbound				
	right	through	left	
Existing Weekday (Evening)	0	1	2	
Existing Saturday (Mid-Day)	4	0	1	
Existing plus Project Weekday (Evening)	0	1	2	
Existing plus Project Saturday (Mid-Day)	4	0	1	
Opening Year (2021) Without Project Weekday (Evening)	0	1	2	
Opening Year (2021) Without Project Saturday (Mid-Day)	4	0	1	
Opening Year (2021) with Project Weekday (Evening)	0	1	2	
Opening Year (2021) with Project Saturday (Mid-Day)	4	0	1	
Build-out Year (2040) without Project Weekday (Evening)	0	1	3	
Build-out Year (2040) without Project Saturday (Mid-Day)	5	0	1	
Build-out Year (2040) with Project Weekday (Evening)	0	1	3	
Build-out Year (2040) with Project Saturday (Mid-Day)	5	0	1	

Northbound				
	left	through	right	
Existing Weekday (Evening)	28	2	53	
Existing Saturday (Mid-Day)	20	1	35	
Existing plus Project Weekday (Evening)	28	2	54	
Existing plus Project Saturday (Mid-Day)	20	1	33	
Opening Year (2021) Without Project Weekday (Evening)	29	2	61	
Opening Year (2021) Without Project Saturday (Mid-Day)	20	1	44	
Opening Year (2021) with Project Weekday (Evening)	29	2	62	
Opening Year (2021) with Project Saturday (Mid-Day)	20	1	42	
Build-out Year (2040) without Project Weekday (Evening)	35	3	73	
Build-out Year (2040) without Project Saturday (Mid-Day)	25	1	52	
Build-out Year (2040) with Project Weekday (Evening)	35	3	74	
Build-out Year (2040) with Project Saturday (Mid-Day)	25	1	50	

Westbound				
	right	through	left	
Existing Weekday (Evening)	5	97	16	
Existing Saturday (Mid-Day)	2	151	20	
Existing plus Project Weekday (Evening)	5	99	20	
Existing plus Project Saturday (Mid-Day)	2	154	25	
Opening Year (2021) Without Project Weekday (Evening)	5	197	23	
Opening Year (2021) Without Project Saturday (Mid-Day)	2	263	28	
Opening Year (2021) with Project Weekday (Evening)	5	199	27	
Opening Year (2021) with Project Saturday (Mid-Day)	2	266	33	
Build-out Year (2040) without Project Weekday (Evening)	6	219	27	
Build-out Year (2040) without Project Saturday (Mid-Day)	3	298	33	
Build-out Year (2040) with Project Weekday (Evening)	6	221	31	
Build-out Year (2040) with Project Saturday (Mid-Day)	3	301	38	

ADT				
Road	Olinda St		Lemon Dr	
Led	North of	South of	East of	West of
Cross Street	Lemon Dr		Olinda St	
Existing Weekday (Evening)	88.0	960.0	2,656.0	2,440.0
Existing Saturday (Mid-Day)	80.0	768.0	2,880.0	2,784.0
Existing plus Project Weekday (Evening)	88.0	1,000.0	2,720.0	2,464.0
Existing plus Project Saturday (Mid-Day)	80.0	792.0	2,920.0	2,800.0
Opening Year (2021) Without Project Weekday (Evening)	88.0	1,088.0	4,336.0	4,008.0
Opening Year (2021) Without Project Saturday (Mid-Day)	80.0	904.0	4,832.0	4,600.0
Opening Year (2021) with Project Weekday (Evening)	88.0	1,128.0	4,400.0	4,032.0
Opening Year (2021) with Project Saturday (Mid-Day)	80.0	928.0	4,872.0	4,616.0
Build-out Year (2040) without Project Weekday (Evening)	112.0	1,312.0	4,952.0	4,568.0
Build-out Year (2040) without Project Saturday (Mid-Day)	104.0	1,088.0	5,504.0	5,256.0
Build-out Year (2040) with Project Weekday (Evening)	112.0	1,352.0	5,016.0	4,592.0
Build-out Year (2040) with Project Saturday (Mid-Day)	104.0	1,112.0	5,544.0	5,272.0

NOISE LEVEL CONTOURS

ROADWAY NAME Segment	Land Use	Traffic Volumes										Ref. Energy Levels Dist										Ld				Le				Ln							
		Lanes	Median Width	ADT Volume	Design Dist. from		Barrier Attn. dB(A)	Vehicle Mix		dB(A) CNEI	Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total A	MT	HT	Total A	MT	HT	Total A	MT	HT	Total A	
					Speed (mph)	Center to Receptor Factor (1)		Medium Trucks	Heavy Trucks																												
Olinda St n/o Lemon Dr																																					
Existing Weekday (Evening)		2	0	88	40	75	0	0	1.8%	0.7%	42.2	68	11	8	1	1	0	0	0	0	67.4	76.3	81.2	-1.8	41.6	33.8	34.6	43.0	38.7	26.2	24.4	39.1	25.5	24.3	25.4	29.9	
Existing Saturday (Mid-Day)		2	0	80	40	75	0	0	1.8%	0.7%	41.8	62	10	8	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	41.2	33.4	34.2	42.6	38.2	25.8	24.0	38.6	25.1	23.9	25.0	29.4	
Existing plus Project Weekday (Evening)		2	0	88	40	75	0	0	1.8%	0.7%	42.2	68	11	8	1	1	0	0	0	0	67.4	76.3	81.2	-1.8	41.6	33.8	34.6	43.0	38.7	26.2	24.4	39.1	25.5	24.3	25.4	29.9	
Existing plus Project Saturday (Mid- Day)		2	0	80	40	75	0	0	1.8%	0.7%	41.8	62	10	8	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	41.2	33.4	34.2	42.6	38.2	25.8	24.0	38.6	25.1	23.9	25.0	29.4	
Opening Year (2021) Without Project Weekday (Evening)		2	0	88	40	75	0	0	1.8%	0.7%	42.2	68	11	8	1	1	0	0	0	0	67.4	76.3	81.2	-1.8	41.6	33.8	34.6	43.0	38.7	26.2	24.4	39.1	25.5	24.3	25.4	29.9	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	80	40	75	0	0	1.8%	0.7%	41.8	62	10	8	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	41.2	33.4	34.2	42.6	38.2	25.8	24.0	38.6	25.1	23.9	25.0	29.4	
Opening Year (2021) with Project Weekday (Evening)		2	0	88	40	75	0	0	1.8%	0.7%	42.2	68	11	8	1	1	0	0	0	0	67.4	76.3	81.2	-1.8	41.6	33.8	34.6	43.0	38.7	26.2	24.4	39.1	25.5	24.3	25.4	29.9	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	80	40	75	0	0	1.8%	0.7%	41.8	62	10	8	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	41.2	33.4	34.2	42.6	38.2	25.8	24.0	38.6	25.1	23.9	25.0	29.4	
Build-out Year (2040) without Project Weekday (Evening)		2	0	112	40	75	0	0	1.8%	0.7%	43.3	87	14	11	2	1	0	0	0	0	67.4	76.3	81.2	-1.8	42.7	34.8	35.7	44.0	39.7	27.2	25.5	40.1	26.5	25.4	26.4	30.9	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	104	40	75	0	0	1.8%	0.7%	43.0	81	13	10	2	1	0	0	0	0	67.4	76.3	81.2	-1.8	42.4	34.5	35.3	43.7	39.4	26.9	25.2	39.8	26.2	25.1	26.1	30.6	
Build-out Year (2040) with Project Weekday (Evening)		2	0	112	40	75	0	0	1.8%	0.7%	43.3	87	14	11	2	1	0	0	0	0	67.4	76.3	81.2	-1.8	42.7	34.8	35.7	44.0	39.7	27.2	25.5	40.1	26.5	25.4	26.4	30.9	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	104	40	75	0	0	1.8%	0.7%	43.0	81	13	10	2	1	0	0	0	0	67.4	76.3	81.2	-1.8	42.4	34.5	35.3	43.7	39.4	26.9	25.2	39.8	26.2	25.1	26.1	30.6	
Olinda St s/o Lemon Dr																																					
Existing Weekday (Evening)		2	0	960	40	75	0	0	1.8%	0.7%	52.6	746	122	92	15	6	1	0	1	1	67.4	76.3	81.2	-1.8	52.0	44.2	45.0	53.4	49.0	36.6	34.8	49.4	35.8	34.7	35.8	40.2	
Existing Saturday (Mid-Day)		2	0	768	40	75	0	0	1.8%	0.7%	51.6	597	98	74	12	5	1	0	1	0	67.4	76.3	81.2	-1.8	51.1	43.2	44.0	52.4	48.1	35.6	33.9	48.5	34.9	33.7	34.8	39.3	
Existing plus Project Weekday (Evening)		2	0	1,000	40	75	0	0	1.8%	0.7%	52.8	777	127	96	16	6	1	0	1	1	67.4	76.3	81.2	-1.8	52.2	44.3	45.2	53.5	49.2	36.8	35.0	49.6	36.0	34.9	35.9	40.4	
Existing plus Project Saturday (Mid- Day)		2	0	792	40	75	0	0	1.8%	0.7%	51.8	615	101	76	12	5	1	0	1	0	67.4	76.3	81.2	-1.8	51.2	43.3	44.2	52.5	48.2	35.7	34.0	48.6	35.0	33.9	34.9	39.4	
Opening Year (2021) Without Project Weekday (Evening)		2	0	1,088	40	75	0	0	1.8%	0.7%	53.2	845	138	104	17	7	1	0	1	1	67.4	76.3	81.2	-1.8	52.6	44.7	45.5	53.9	49.6	37.1	35.4	50.0	36.4	35.3	36.3	40.8	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	904	40	75	0	0	1.8%	0.7%	52.4	702	115	87	14	6	1	0	1	1	67.4	76.3	81.2	-1.8	51.8	43.9	44.7	53.1	48.8	36.3	34.6	49.2	35.6	34.4	35.5	40.0	
Opening Year (2021) with Project Weekday (Evening)		2	0	1,128	40	75	0	0	1.8%	0.7%	53.3	876	143	108	18	7	1	0	2	1	67.4	76.3	81.2	-1.8	52.7	44.9	45.7	54.1	49.7	37.3	35.5	50.1	36.5	35.4	36.5	40.9	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	928	40	75	0	0	1.8%	0.7%	52.5	721	118	89	15	6	1	0	1	1	67.4	76.3	81.2	-1.8	51.9	44.0	44.8	53.2	48.9	36.4	34.7	49.3	35.7	34.6	35.6	40.1	
Build-out Year (2040) without Project Weekday (Evening)		2	0	1,312	40	75	0	0	1.8%	0.7%	54.0	1,019	167	126	21	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.4	45.5	46.3	54.7	50.4	37.9	36.2	50.8	37.2	36.1	37.1	41.6	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	1,088	40	75	0	0	1.8%	0.7%	53.2	845	138	104	17	7	1	0	1	1	67.4	76.3	81.2	-1.8	52.6	44.7	45.5	53.9	49.6	37.1	35.4	50.0	36.4	35.3	36.3	40.8	
Build-out Year (2040) with Project Weekday (Evening)		2	0	1,352	40	75	0	0	1.8%	0.7%	54.1	1,051	172	130	21	8	1	0	2	1	67.4	76.3	81.2	-1.8	53.5	45.7	46.5	54.8	50.5	38.1	36.3	50.9	37.3	36.2	37.2	41.7	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	1,112	40	75	0	0	1.8%	0.7%	53.3	864	141	107	17	7	1	0	2	1	67.4	76.3	81.2	-1.8	52.7	44.8	45.6	54.0	49.7	37.2	35.5	50.1	36.5	35.3	36.4	40.9	
Lemon Dr e/o Olinda St																																					
Existing Weekday (Evening)		2	0	2,656	40	75	0	0	1.8%	0.7%	57.0	2,064	337	255	42	17	2	1	4	1	67.4	76.3	81.2	-1.8	56.4	48.6	49.4	57.8	53.5	41.0	39.2	53.9	40.3	39.1	40.2	44.7	
Existing Saturday (Mid-Day)		2	0	2,880	40	75	0	0	1.8%	0.7%	57.4	2,238	366	276	45	18	3	1	4	2	67.4	76.3	81.2	-1.8	56.8	48.9	49.8	58.1	53.8	41.4	39.6	54.2	40.6	39.5	40.5	45.0	
Existing plus Project Weekday (Evening)		2	0	2,720	40	75	0	0	1.8%	0.7%	57.1	2,113	345	261	43	17	2	1	4	2	67.4	76.3	81.2	-1.8	56.5	48.7	49.5	57.9	53.6	41.1	39.3	54.0	40.4	39.2	40.3	44.8	
Existing plus Project Saturday (Mid- Day)		2	0	2,920	40	75	0	0	1.8%	0.7%	57.4	2,269	371	280	46	18	3	1	4	2	67.4	76.3	81.2	-1.8	56.9	49.0	49.8	58.2	53.9	41.4	39.7	54.3	40.7	39.5	40.6	45.1	
Opening Year (2021) Without Project Weekday (Evening)		2	0	4,336	40	75	0	0	1.8%	0.7%	59.2	3,369	551	416	68	27	4	1	6	2	67.4	76.3	81.2	-1.8	58.6	50.7	51.5	59.9	55.6	43.1	41.4	56.0	42.4	41.3	42.3	46.8	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	4,832	40	75	0	0	1.8%	0.7%	59.6	3,754	614	464	76	30	4	1	7	3	67.4	76.3	81.2	-1.8	59.0	51.2	52.0	60.4	56.1	43.6	41.8	56.5	42.9	41.7	42.8	47.3	
Opening Year (2021) with Project Weekday (Evening)		2	0	4,400	40	75	0	0	1.8%	0.7%	59.2	3,419	559	422	69	27	4	1	6	2	67.4	76.3	81.2	-1.8	58.6	50.8	51.6	60.0	55.7	43.2	41.4	56.0	42.5	41.3	42.4	46.8	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	4,872	40	75	0	0	1.8%	0.7%	59.7	3,786	619	468	77	30	4	1	7	3	67.4	76.3	81.2	-1.8	59.1	51.2	52.0	60.4	56.1	43.6	41.9	56.5	42.9	41.8	42.8	47.3	
Build-out Year (2040) without Project Weekday (Evening)		2	0	4,952	40	75	0	0	1.8%	0.7%	59.7	3,848	629	475	78	31	5	1	7	3	67.4	76.3	81.2	-1.8	59.1	51.3	52.1	60.5	56.2	43.7	42.0	56.6	43.0	41.8	42.9	47.4	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	5,504	40	75	0	0	1.8%	0.7%	60.2	4,277	699	528	87	34	5	1	7	3	67.4	76.3	81.2	-1.8	59.6	51.7	52.6	60.9	56.6	44.2	42.4	57.0	43.4	42.3	43.3	47.8	
Build-out Year (2040) with Project Weekday (Evening)		2	0	5,016	40	75	0	0	1.8%	0.7%	59.8	3,897	637	482	79	31	5	1	7	3	67.4	76.3	81.2	-1.8	59.2	51.3	52.2	60.5	56.2	43.8	42.0	56.6	43.0	41.9	42.9	47.4	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	5,544	40	75	0	0	1.8%	0.7%	60.2	4,308	704	532	87	35	5	1	8	3	67.4	76.3	81.2	-1.8	59.6	51.8	52.6	61.0	56.7	44.2	42.4	57.0	43.5	42.3	43.4	47.9	
Lemon Dr w/o Olinda St																																					
Existing Weekday (Evening)		2	0	2,440	40	75	0	0	1.8%	0.7%	56.7	1,896	310</																								

Project Name
Weekday All Hours

Intersection:
Lakeview Ave & Lemon Dr

8

rev. (Date)

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Lakeview Ave				
Southbound				
	right	through	left	
Existing Weekday (Evening)	36	297	0	
Existing Saturday (Mid-Day)	52	343	1	
Existing plus Project Weekday (Evening)	40	297	0	
Existing plus Project Saturday (Mid- Day)	57	343	1	
Opening Year (2021) Without Project Weekday (Evening)	48	410	0	
Opening Year (2021) Without Project Saturday (Mid-Day)	68	487	1	
Opening Year (2021) with Project Weekday (Evening)	52	410	0	
Opening Year (2021) with Project Saturday (Mid-Day)	73	487	1	
Build-out Year (2040) without Project Weekday (Evening)	56	478	0	
Build-out Year (2040) without Project Saturday (Mid-Day)	80	566	1	
Build-out Year (2040) with Project Weekday (Evening)	60	478	0	
Build-out Year (2040) with Project Saturday (Mid-Day)	85	566	1	

Eastbound				
	left	through	right	
Existing Weekday (Evening)	61	0	124	
Existing Saturday (Mid-Day)	60	0	120	
Existing plus Project Weekday (Evening)	62	0	125	
Existing plus Project Saturday (Mid- Day)	58	0	119	
Opening Year (2021) Without Project Weekday (Evening)	80	0	210	
Opening Year (2021) Without Project Saturday (Mid-Day)	78	0	229	
Opening Year (2021) with Project Weekday (Evening)	81	0	211	
Opening Year (2021) with Project Saturday (Mid-Day)	76	0	228	
Build-out Year (2040) without Project Weekday (Evening)	94	0	239	
Build-out Year (2040) without Project Saturday (Mid-Day)	92	0	257	
Build-out Year (2040) with Project Weekday (Evening)	95	0	240	
Build-out Year (2040) with Project Saturday (Mid-Day)	90	0	256	

Lemon Dr

N
S
E
W

Northbound				
	left	through	right	
Existing Weekday (Evening)	96	518	1	
Existing Saturday (Mid-Day)	80	366	3	
Existing plus Project Weekday (Evening)	98	518	1	
Existing plus Project Saturday (Mid- Day)	83	366	3	
Opening Year (2021) Without Project Weekday (Evening)	195	670	1	
Opening Year (2021) Without Project Saturday (Mid-Day)	188	518	3	
Opening Year (2021) with Project Weekday (Evening)	198	670	1	
Opening Year (2021) with Project Saturday (Mid-Day)	191	518	3	
Build-out Year (2040) without Project Weekday (Evening)	218	790	1	
Build-out Year (2040) without Project Saturday (Mid-Day)	206	603	4	
Build-out Year (2040) with Project Weekday (Evening)	220	790	1	
Build-out Year (2040) with Project Saturday (Mid-Day)	209	603	4	

ADT				
Road	Lakeview Ave		Lemon Dr	
Led	North of	South of	East of	West of
Cross Street	Lemon Dr		Lakeview Ave	
Existing Weekday (Evening)	7,304.0	8,296.0	40.0	2,552.0
Existing Saturday (Mid-Day)	6,576.0	7,320.0	64.0	2,504.0
Existing plus Project Weekday (Evening)	7,344.0	8,320.0	40.0	2,616.0
Existing plus Project Saturday (Mid- Day)	6,600.0	7,336.0	64.0	2,544.0
Opening Year (2021) Without Project Weekday (Evening)	9,672.0	11,304.0	40.0	4,288.0
Opening Year (2021) Without Project Saturday (Mid-Day)	9,216.0	11,424.0	64.0	4,512.0
Opening Year (2021) with Project Weekday (Evening)	9,712.0	11,928.0	40.0	4,352.0
Opening Year (2021) with Project Saturday (Mid-Day)	9,240.0	11,440.0	64.0	4,552.0
Build-out Year (2040) without Project Weekday (Evening)	11,352.0	13,816.0	48.0	4,880.0
Build-out Year (2040) without Project Saturday (Mid-Day)	10,736.0	13,120.0	80.0	5,088.0
Build-out Year (2040) with Project Weekday (Evening)	11,392.0	13,840.0	48.0	4,944.0
Build-out Year (2040) with Project Saturday (Mid-Day)	10,760.0	13,136.0	80.0	5,128.0

8
NOISE LEVEL CONTOURS

											Traffic Volumes					Ref. Energy Levels Dist					Ld			Le			Ln										
ROADWAY NAME			Median	ADT	Design	Dist. from	Barrier	Vehicle Mix																													
Segment	Land Use	Lanes	Width	Volume	Speed	Center to	Alpha	Medium	Heavy	dB(A)	Day	Even	Night	MTd	HTd	MTe	HTe	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total	A	MT	HT	Total	A	MT	HT	Total		
Lakeview Ave n/o Lemon Dr																																					
Existing Weekday (Evening)		2	0	7,304	40	75	0	0	1.8%	0.7%	61.4	5,675	928	701	115	46	7	1	10	4	67.4	76.3	81.2	-1.8	60.8	53.0	53.8	62.2	57.9	45.4	43.6	58.2	44.7	43.5	44.6	49.1	
Existing Saturday (Mid-Day)		2	0	6,576	40	75	0	0	1.8%	0.7%	61.0	5,110	835	631	103	41	6	1	9	4	67.4	76.3	81.2	-1.8	60.4	52.5	53.3	61.7	57.4	44.9	43.2	57.8	44.2	43.1	44.1	48.6	
Existing plus Project Weekday (Evening)		2	0	7,344	40	75	0	0	1.8%	0.7%	61.5	5,706	933	705	116	46	7	1	10	4	67.4	76.3	81.2	-1.8	60.9	53.0	53.8	62.2	57.9	45.4	43.7	58.3	44.7	43.5	44.6	49.1	
Existing plus Project Saturday (Mid-Day)		2	0	6,600	40	75	0	0	1.8%	0.7%	61.0	5,128	838	634	104	41	6	1	9	4	67.4	76.3	81.2	-1.8	60.4	52.5	53.4	61.7	57.4	45.0	43.2	57.8	44.2	43.1	44.1	48.6	
Opening Year (2021) Without Project Weekday (Evening)		2	0	9,672	40	75	0	0	1.8%	0.7%	62.7	7,515	1,228	929	152	60	9	2	13	5	67.4	76.3	81.2	-1.8	62.1	54.2	55.0	63.4	59.1	46.6	44.9	59.5	45.9	44.7	45.8	50.3	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	9,216	40	75	0	0	1.8%	0.7%	62.4	7,161	1,170	885	145	57	8	2	12	5	67.4	76.3	81.2	-1.8	61.8	54.0	54.8	63.2	58.9	46.4	44.6	59.3	45.7	44.5	45.6	50.1	
Opening Year (2021) with Project Weekday (Evening)		2	0	9,712	40	75	0	0	1.8%	0.7%	62.7	7,546	1,233	932	153	61	9	2	13	5	67.4	76.3	81.2	-1.8	62.1	54.2	55.0	63.4	59.1	46.6	44.9	59.5	45.9	44.8	45.8	50.3	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	9,240	40	75	0	0	1.8%	0.7%	62.5	7,179	1,173	887	145	58	8	2	13	5	67.4	76.3	81.2	-1.8	61.9	54.0	54.8	63.2	58.9	46.4	44.7	59.3	45.7	44.5	45.6	50.1	
Build-out Year (2040) without Project Weekday (Evening)		2	0	11,352	40	75	0	0	1.8%	0.7%	63.3	8,821	1,442	1,090	179	71	10	2	15	6	67.4	76.3	81.2	-1.8	62.7	54.9	55.7	64.1	59.8	47.3	45.6	60.2	46.6	45.4	46.5	51.0	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	10,736	40	75	0	0	1.8%	0.7%	63.1	8,342	1,363	1,031	169	67	10	2	15	6	67.4	76.3	81.2	-1.8	62.5	54.6	55.5	63.8	59.5	47.1	45.3	59.9	46.3	45.2	46.2	50.7	
Build-out Year (2040) with Project Weekday (Evening)		2	0	11,392	40	75	0	0	1.8%	0.7%	63.4	8,852	1,447	1,094	179	71	10	2	15	6	67.4	76.3	81.2	-1.8	62.8	54.9	55.7	64.1	59.8	47.3	45.6	60.2	46.6	45.5	46.5	51.0	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	10,760	40	75	0	0	1.8%	0.7%	63.1	8,361	1,367	1,033	169	67	10	2	15	6	67.4	76.3	81.2	-1.8	62.5	54.7	55.5	63.9	59.5	47.1	45.3	59.9	46.3	45.2	46.3	50.7	
Lakeview Ave s/o Lemon Dr																																					
Existing Weekday (Evening)		2	0	8,296	40	75	0	0	1.8%	0.7%	62.0	6,446	1,054	796	131	52	8	2	11	5	67.4	76.3	81.2	-1.8	61.4	53.5	54.4	62.7	58.4	45.9	44.2	58.8	45.2	44.1	45.1	49.6	
Existing Saturday (Mid-Day)		2	0	7,320	40	75	0	0	1.8%	0.7%	61.4	5,688	930	703	115	46	7	1	10	4	67.4	76.3	81.2	-1.8	60.8	53.0	53.8	62.2	57.9	45.4	43.6	58.3	44.7	43.5	44.6	49.1	
Existing plus Project Weekday (Evening)		2	0	8,320	40	75	0	0	1.8%	0.7%	62.0	6,465	1,057	799	131	52	8	2	11	5	67.4	76.3	81.2	-1.8	61.4	53.5	54.4	62.7	58.4	46.0	44.2	58.8	45.2	44.1	45.1	49.6	
Existing plus Project Saturday (Mid-Day)		2	0	7,336	40	75	0	0	1.8%	0.7%	61.5	5,700	932	704	115	46	7	1	10	4	67.4	76.3	81.2	-1.8	60.9	53.0	53.8	62.2	57.9	45.4	43.7	58.3	44.7	43.5	44.6	49.1	
Opening Year (2021) Without Project Weekday (Evening)		2	0	11,904	40	75	0	0	1.8%	0.7%	63.6	9,249	1,512	1,143	187	74	11	2	16	7	67.4	76.3	81.2	-1.8	63.0	55.1	55.9	64.3	60.0	47.5	45.8	60.4	46.8	45.6	46.7	51.2	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	11,424	40	75	0	0	1.8%	0.7%	63.4	8,876	1,451	1,097	180	71	10	2	15	6	67.4	76.3	81.2	-1.8	62.8	54.9	55.7	64.1	59.8	47.3	45.6	60.2	46.6	45.5	46.5	51.0	
Opening Year (2021) with Project Weekday (Evening)		2	0	11,928	40	75	0	0	1.8%	0.7%	63.6	9,268	1,515	1,145	188	74	11	2	16	7	67.4	76.3	81.2	-1.8	63.0	55.1	55.9	64.3	60.0	47.5	45.8	60.4	46.8	45.7	46.7	51.2	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	11,440	40	75	0	0	1.8%	0.7%	63.4	8,889	1,453	1,098	180	71	10	2	15	6	67.4	76.3	81.2	-1.8	62.8	54.9	55.8	64.1	59.8	47.3	45.6	60.2	46.6	45.5	46.5	51.0	
Build-out Year (2040) without Project Weekday (Evening)		2	0	13,816	40	75	0	0	1.8%	0.7%	64.2	#####	1,755	1,326	217	86	13	3	19	8	67.4	76.3	81.2	-1.8	63.6	55.7	56.6	64.9	60.6	48.2	46.4	61.0	47.4	46.3	47.3	51.8	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	13,120	40	75	0	0	1.8%	0.7%	64.0	#####	1,666	1,260	206	82	12	3	18	7	67.4	76.3	81.2	-1.8	63.4	55.5	56.3	64.7	60.4	47.9	46.2	60.8	47.2	46.1	47.1	51.6	
Build-out Year (2040) with Project Weekday (Evening)		2	0	13,840	40	75	0	0	1.8%	0.7%	64.2	#####	1,758	1,329	218	86	13	3	19	8	67.4	76.3	81.2	-1.8	63.6	55.8	56.6	65.0	60.6	48.2	46.4	61.0	47.4	46.3	47.3	51.8	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	13,136	40	75	0	0	1.8%	0.7%	64.0	#####	1,668	1,261	207	82	12	3	18	7	67.4	76.3	81.2	-1.8	63.4	55.5	56.4	64.7	60.4	47.9	46.2	60.8	47.2	46.1	47.1	51.6	
Lemon Dr e/o Lakeview Ave																																					
Existing Weekday (Evening)		2	0	40	40	75	0	0	1.8%	0.7%	38.8	31	5	4	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	38.2	30.4	31.2	39.6	35.2	22.8	21.0	35.6	22.0	20.9	22.0	26.4	
Existing Saturday (Mid-Day)		2	0	64	40	75	0	0	1.8%	0.7%	40.9	50	8	6	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	40.3	32.4	33.2	41.6	37.3	24.8	23.1	37.7	24.1	22.9	24.0	28.5	
Existing plus Project Weekday (Evening)		2	0	40	40	75	0	0	1.8%	0.7%	38.8	31	5	4	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	38.2	30.4	31.2	39.6	35.2	22.8	21.0	35.6	22.0	20.9	22.0	26.4	
Existing plus Project Saturday (Mid-Day)		2	0	64	40	75	0	0	1.8%	0.7%	40.9	50	8	6	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	40.3	32.4	33.2	41.6	37.3	24.8	23.1	37.7	24.1	22.9	24.0	28.5	
Opening Year (2021) Without Project Weekday (Evening)		2	0	40	40	75	0	0	1.8%	0.7%	38.8	31	5	4	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	38.2	30.4	31.2	39.6	35.2	22.8	21.0	35.6	22.0	20.9	22.0	26.4	
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	64	40	75	0	0	1.8%	0.7%	40.9	50	8	6	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	40.3	32.4	33.2	41.6	37.3	24.8	23.1	37.7	24.1	22.9	24.0	28.5	
Opening Year (2021) with Project Weekday (Evening)		2	0	40	40	75	0	0	1.8%	0.7%	38.8	31	5	4	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	38.2	30.4	31.2	39.6	35.2	22.8	21.0	35.6	22.0	20.9	22.0	26.4	
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	64	40	75	0	0	1.8%	0.7%	40.9	50	8	6	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	40.3	32.4	33.2	41.6	37.3	24.8	23.1	37.7	24.1	22.9	24.0	28.5	
Build-out Year (2040) without Project Weekday (Evening)		2	0	48	40	75	0	0	1.8%	0.7%	39.6	37	6	5	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	39.0	31.2	32.0	40.4	36.0	23.6	21.8	36.4	22.8	21.7	22.7	27.2	
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	80	40	75	0	0	1.8%	0.7%	41.8	62	10	8	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	41.2	33.4	34.2	42.6	38.2	25.8	24.0	38.6	25.1	23.9	25.0	29.4	
Build-out Year (2040) with Project Weekday (Evening)		2	0	48	40	75	0	0	1.8%	0.7%	39.6	37	6	5	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	39.0	31.2	32.0	40.4	36.0	23.6	21.8	36.4	22.8	21.7	22.7	27.2	
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	80	40	75	0	0	1.8%	0.7%	41.8	62	10	8	1	0	0	0	0	0	67.4	76.3	81.2	-1.8	41.2	33.4	34.2	42.6	38.2	25.8	24.0	38.6	25.1	23.9	25.0	29.4	
Lemon Dr w/o Lakeview Ave																																					
Existing Weekday (Evening)		2	0	2,552																																	

Project Name
Weekday All Hours

Intersection:
Lakeview Ave & Yorba Linda Blvd

9

rev. (Date)

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Eastbound			
	left	through	right
Existing Weekday (Evening)	180	1,116	74
Existing Saturday (Mid-Day)	189	898	108
Existing plus Project Weekday (Evening)	180	1,118	75
Existing plus Project Saturday (Mid-Day)	189	896	107
Opening Year (2021) Without Project Weekday (Evening)	309	1,138	83
Opening Year (2021) Without Project Saturday (Mid-Day)	342	918	121
Opening Year (2021) with Project Weekday (Evening)	309	1,140	84
Opening Year (2021) with Project Saturday (Mid-Day)	342	916	120
Build-out Year (2040) without Project Weekday (Evening)	350	1,395	101
Build-out Year (2040) without Project Saturday (Mid-Day)	385	1,125	146
Build-out Year (2040) with Project Weekday (Evening)	350	1,397	102
Build-out Year (2040) with Project Saturday (Mid-Day)	385	1,123	145

Yorba Linda Blvd

Lakeview Ave			
Southbound			
	right	through	left
Existing Weekday (Evening)	141	212	197
Existing Saturday (Mid-Day)	155	231	187
Existing plus Project Weekday (Evening)	141	213	197
Existing plus Project Saturday (Mid-Day)	155	230	187
Opening Year (2021) Without Project Weekday (Evening)	272	257	268
Opening Year (2021) Without Project Saturday (Mid-Day)	303	284	267
Opening Year (2021) with Project Weekday (Evening)	272	258	268
Opening Year (2021) with Project Saturday (Mid-Day)	303	283	267
Build-out Year (2040) without Project Weekday (Evening)	304	306	313
Build-out Year (2040) without Project Saturday (Mid-Day)	339	337	310
Build-out Year (2040) with Project Weekday (Evening)	304	307	313
Build-out Year (2040) with Project Saturday (Mid-Day)	339	336	310

N
S E

Northbound			
	left	through	right
Existing Weekday (Evening)	180	286	286
Existing Saturday (Mid-Day)	163	209	140
Existing plus Project Weekday (Evening)	182	288	286
Existing plus Project Saturday (Mid-Day)	166	212	140
Opening Year (2021) Without Project Weekday (Evening)	192	337	296
Opening Year (2021) Without Project Saturday (Mid-Day)	175	262	147
Opening Year (2021) with Project Weekday (Evening)	194	339	296
Opening Year (2021) with Project Saturday (Mid-Day)	178	265	147
Build-out Year (2040) without Project Weekday (Evening)	233	403	362
Build-out Year (2040) without Project Saturday (Mid-Day)	213	310	179
Build-out Year (2040) with Project Weekday (Evening)	235	405	362
Build-out Year (2040) with Project Saturday (Mid-Day)	216	313	179

Westbound			
	right	through	left
Existing Weekday (Evening)	89	1,017	200
Existing Saturday (Mid-Day)	68	894	190
Existing plus Project Weekday (Evening)	89	1,023	200
Existing plus Project Saturday (Mid-Day)	68	902	190
Opening Year (2021) Without Project Weekday (Evening)	158	1,039	208
Opening Year (2021) Without Project Saturday (Mid-Day)	147	914	199
Opening Year (2021) with Project Weekday (Evening)	158	1,045	208
Opening Year (2021) with Project Saturday (Mid-Day)	147	922	199
Build-out Year (2040) without Project Weekday (Evening)	178	1,273	254
Build-out Year (2040) without Project Saturday (Mid-Day)	163	1,120	243
Build-out Year (2040) with Project Weekday (Evening)	178	1,279	254
Build-out Year (2040) with Project Saturday (Mid-Day)	163	1,128	243

Road	Lakeview Ave		Yorba Linda Blvd	
	North of	South of	East of	West of
Lead	Yorba Linda Blvd			
Cross Street	Lakeview Ave			
Existing Weekday (Evening)	8,840.0	9,904.0	23,240.0	21,664.0
Existing Saturday (Mid-Day)	8,312.0	8,328.0	19,016.0	19,256.0
Existing plus Project Weekday (Evening)	8,864.0	9,952.0	23,304.0	21,752.0
Existing plus Project Saturday (Mid-Day)	8,328.0	8,360.0	19,064.0	19,320.0
Opening Year (2021) Without Project Weekday (Evening)	12,808.0	10,384.0	24,856.0	24,264.0
Opening Year (2021) Without Project Saturday (Mid-Day)	12,840.0	9,504.0	20,736.0	22,184.0
Opening Year (2021) with Project Weekday (Evening)	12,832.0	11,032.0	24,920.0	24,352.0
Opening Year (2021) with Project Saturday (Mid-Day)	12,856.0	9,536.0	20,784.0	22,248.0
Build-out Year (2040) without Project Weekday (Evening)	14,532.0	13,272.0	30,200.0	29,248.0
Build-out Year (2040) without Project Saturday (Mid-Day)	14,752.0	11,424.0	25,120.0	26,624.0
Build-out Year (2040) with Project Weekday (Evening)	14,856.0	13,320.0	30,264.0	29,336.0
Build-out Year (2040) with Project Saturday (Mid-Day)	14,768.0	11,456.0	25,168.0	26,688.0

9
NOISE LEVEL CONTOURS

										Traffic Volumes				Ref. Energy Levels Dist				Ld				Le				Ln										
ROADWAY NAME			Median	ADT	Design	Dist. from	Barrier	Vehicle Mix			Day	Eve	Night	MTd	HTd	MTe	HTe	MTn	HTn	A	MT	HT	Adj	A	MT	HT	Total	A	MT	HT	Total	A	MT	HT	Total	
Segment	Land Use	Lanes	Width	Volume	Speed (mph)	Center to Receptor (ft)	Alpha Factor (1)	Attn. dB(A)	Medium Trucks	Heavy Trucks	dB(A) CNEL																									
Lakeview Ave n/o Yorba Linda Blvd																																				
Existing Weekday (Evening)		2	0	8,840	40	75	0	0	1.8%	0.7%	62.3	6,869	1,123	849	139	55	8	2	12	5	67.4	76.3	81.2	-1.8	61.7	53.8	54.6	63.0	58.7	46.2	44.5	59.1	45.5	44.4	45.4	49.9
Existing Saturday (Mid-Day)		2	0	8,312	40	75	0	0	1.8%	0.7%	62.0	6,458	1,056	798	131	52	8	2	11	5	67.4	76.3	81.2	-1.8	61.4	53.5	54.4	62.7	58.4	46.0	44.2	58.8	45.2	44.1	45.1	49.6
Existing plus Project Weekday (Evening)		2	0	8,864	40	75	0	0	1.8%	0.7%	62.3	6,887	1,126	851	139	55	8	2	12	5	67.4	76.3	81.2	-1.8	61.7	53.8	54.6	63.0	58.7	46.2	44.5	59.1	45.5	44.4	45.4	49.9
Existing plus Project Saturday (Mid-Day)		2	0	8,328	40	75	0	0	1.8%	0.7%	62.0	6,471	1,058	799	131	52	8	2	11	5	67.4	76.3	81.2	-1.8	61.4	53.5	54.4	62.7	58.4	46.0	44.2	58.8	45.2	44.1	45.1	49.6
Opening Year (2021) Without Project Weekday (Evening)		2	0	12,808	40	75	0	0	1.8%	0.7%	63.9	9,952	1,627	1,230	202	80	12	3	17	7	67.4	76.3	81.2	-1.8	63.3	55.4	56.2	64.6	60.3	47.8	46.1	60.7	47.1	46.0	47.0	51.5
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	12,840	40	75	0	0	1.8%	0.7%	63.9	9,977	1,631	1,233	202	80	12	3	17	7	67.4	76.3	81.2	-1.8	63.3	55.4	56.3	64.6	60.3	47.8	46.1	60.7	47.1	46.0	47.0	51.5
Opening Year (2021) with Project Weekday (Evening)		2	0	12,832	40	75	0	0	1.8%	0.7%	63.9	9,970	1,630	1,232	202	80	12	3	17	7	67.4	76.3	81.2	-1.8	63.3	55.4	56.3	64.6	60.3	47.8	46.1	60.7	47.1	46.0	47.0	51.5
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	12,856	40	75	0	0	1.8%	0.7%	63.9	9,989	1,633	1,234	202	80	12	3	17	7	67.4	76.3	81.2	-1.8	63.3	55.4	56.3	64.6	60.3	47.8	46.1	60.7	47.1	46.0	47.0	51.5
Build-out Year (2040) without Project Weekday (Evening)		2	0	14,832	40	75	0	0	1.8%	0.7%	64.5	#####	1,884	1,424	233	93	13	3	20	8	67.4	76.3	81.2	-1.8	63.9	56.1	56.9	65.3	60.9	48.5	46.7	61.3	47.7	46.6	47.6	52.1
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	14,752	40	75	0	0	1.8%	0.7%	64.5	#####	1,874	1,416	232	92	13	3	20	8	67.4	76.3	81.2	-1.8	63.9	56.0	56.9	65.2	60.9	48.4	46.7	61.3	47.7	46.6	47.6	52.1
Build-out Year (2040) with Project Weekday (Evening)		2	0	14,856	40	75	0	0	1.8%	0.7%	64.5	#####	1,887	1,426	234	93	14	3	20	8	67.4	76.3	81.2	-1.8	63.9	56.1	56.9	65.3	60.9	48.5	46.7	61.3	47.7	46.6	47.7	52.1
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	14,768	40	75	0	0	1.8%	0.7%	64.5	#####	1,876	1,418	232	92	13	3	20	8	67.4	76.3	81.2	-1.8	63.9	56.0	56.9	65.2	60.9	48.5	46.7	61.3	47.7	46.6	47.6	52.1
Lakeview Ave s/o Yorba Linda Blvd																																				
Existing Weekday (Evening)		2	0	9,904	40	75	0	0	1.8%	0.7%	62.8	7,695	1,258	951	156	62	9	2	13	6	67.4	76.3	81.2	-1.8	62.2	54.3	55.1	63.5	59.2	46.7	45.0	59.6	46.0	44.8	45.9	50.4
Existing Saturday (Mid-Day)		2	0	8,328	40	75	0	0	1.8%	0.7%	62.0	6,471	1,058	799	131	52	8	2	11	5	67.4	76.3	81.2	-1.8	61.4	53.5	54.4	62.7	58.4	46.0	44.2	58.8	45.2	44.1	45.1	49.6
Existing plus Project Weekday (Evening)		2	0	9,952	40	75	0	0	1.8%	0.7%	62.8	7,733	1,264	955	157	62	9	2	13	6	67.4	76.3	81.2	-1.8	62.2	54.3	55.1	63.5	59.2	46.7	45.0	59.6	46.0	44.9	45.9	50.4
Existing plus Project Saturday (Mid-Day)		2	0	8,360	40	75	0	0	1.8%	0.7%	62.0	6,496	1,062	803	132	52	8	2	11	5	67.4	76.3	81.2	-1.8	61.4	53.6	54.4	62.8	58.4	46.0	44.2	58.8	45.2	44.1	45.2	49.6
Opening Year (2021) Without Project Weekday (Evening)		2	0	10,984	40	75	0	0	1.8%	0.7%	63.2	8,535	1,395	1,054	173	69	10	2	15	6	67.4	76.3	81.2	-1.8	62.6	54.7	55.6	63.9	59.6	47.2	45.4	60.0	46.4	45.3	46.3	50.8
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	9,504	40	75	0	0	1.8%	0.7%	62.6	7,385	1,207	912	150	59	9	2	13	5	67.4	76.3	81.2	-1.8	62.0	54.1	54.9	63.3	59.0	46.5	44.8	59.4	45.8	44.7	45.7	50.2
Opening Year (2021) with Project Weekday (Evening)		2	0	11,032	40	75	0	0	1.8%	0.7%	63.2	8,572	1,401	1,059	174	69	10	2	15	6	67.4	76.3	81.2	-1.8	62.6	54.8	55.6	64.0	59.6	47.2	45.4	60.0	46.5	45.3	46.4	50.8
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	9,536	40	75	0	0	1.8%	0.7%	62.6	7,409	1,211	915	150	59	9	2	13	5	67.4	76.3	81.2	-1.8	62.0	54.1	55.0	63.3	59.0	46.6	44.8	59.4	45.8	44.7	45.7	50.2
Build-out Year (2040) without Project Weekday (Evening)		2	0	13,272	40	75	0	0	1.8%	0.7%	64.0	#####	1,686	1,274	209	83	12	3	18	7	67.4	76.3	81.2	-1.8	63.4	55.6	56.4	64.8	60.4	48.0	46.2	60.8	47.3	46.1	47.2	51.6
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	11,424	40	75	0	0	1.8%	0.7%	63.4	8,876	1,451	1,097	180	71	10	2	15	6	67.4	76.3	81.2	-1.8	62.8	54.9	55.7	64.1	59.8	47.3	45.6	60.2	46.6	45.5	46.5	51.0
Build-out Year (2040) with Project Weekday (Evening)		2	0	13,320	40	75	0	0	1.8%	0.7%	64.0	#####	1,692	1,279	210	83	12	3	18	8	67.4	76.3	81.2	-1.8	63.4	55.6	56.4	64.8	60.5	48.0	46.2	60.9	47.3	46.1	47.2	51.7
Build-out Year (2040) with Project Saturday (Mid-Day)		2	0	11,456	40	75	0	0	1.8%	0.7%	63.4	8,901	1,455	1,100	180	71	10	2	16	6	67.4	76.3	81.2	-1.8	62.8	54.9	55.8	64.1	59.8	47.3	45.6	60.2	46.6	45.5	46.5	51.0
Yorba Linda Blvd e/o Lakeview Ave																																				
Existing Weekday (Evening)		2	0	23,240	40	75	0	0	1.8%	0.7%	66.5	#####	2,951	2,231	366	145	21	5	31	13	67.4	76.3	81.2	-1.8	65.9	58.0	58.8	67.2	62.9	50.4	48.7	63.3	49.7	48.5	49.6	54.1
Existing Saturday (Mid-Day)		2	0	19,016	40	75	0	0	1.8%	0.7%	65.6	#####	2,415	1,826	299	119	17	4	26	11	67.4	76.3	81.2	-1.8	65.0	57.1	58.0	66.3	62.0	49.5	47.8	62.4	48.8	47.7	48.7	53.2
Existing plus Project Weekday (Evening)		2	0	23,304	40	75	0	0	1.8%	0.7%	66.5	#####	2,960	2,237	367	145	21	5	32	13	67.4	76.3	81.2	-1.8	65.9	58.0	58.8	67.2	62.9	50.4	48.7	63.3	49.7	48.6	49.6	54.1
Existing plus Project Saturday (Mid-Day)		2	0	19,064	40	75	0	0	1.8%	0.7%	65.6	#####	2,421	1,830	300	119	17	4	26	11	67.4	76.3	81.2	-1.8	65.0	57.1	58.0	66.3	62.0	49.6	47.8	62.4	48.8	47.7	48.7	53.2
Opening Year (2021) Without Project Weekday (Evening)		2	0	24,856	40	75	0	0	1.8%	0.7%	66.8	#####	3,157	2,386	391	155	23	5	34	14	67.4	76.3	81.2	-1.8	66.2	58.3	59.1	67.5	63.2	50.7	49.0	63.6	50.0	48.8	49.9	54.4
Opening Year (2021) Without Project Saturday (Mid-Day)		2	0	20,736	40	75	0	0	1.8%	0.7%	66.0	#####	2,633	1,991	326	129	19	4	28	12	67.4	76.3	81.2	-1.8	65.4	57.5	58.3	66.7	62.4	49.9	48.2	62.8	49.2	48.1	49.1	53.6
Opening Year (2021) with Project Weekday (Evening)		2	0	24,920	40	75	0	0	1.8%	0.7%	66.8	#####	3,165	2,392	392	155	23	5	34	14	67.4	76.3	81.2	-1.8	66.2	58.3	59.1	67.5	63.2	50.7	49.0	63.6	50.0	48.9	49.9	54.4
Opening Year (2021) with Project Saturday (Mid-Day)		2	0	20,784	40	75	0	0	1.8%	0.7%	66.0	#####	2,640	1,995	327	130	19	4	28	12	67.4	76.3	81.2	-1.8	65.4	57.5	58.3	66.7	62.4	49.9	48.2	62.8	49.2	48.1	49.1	53.6
Build-out Year (2040) without Project Weekday (Evening)		2	0	30,200	40	75	0	0	1.8%	0.7%	67.6	#####	3,835	2,899	475	188	27	6	41	17	67.4	76.3	81.2	-1.8	67.0	59.1	60.0	68.3	64.0	51.6	49.8	64.4	50.8	49.7	50.7	55.2
Build-out Year (2040) without Project Saturday (Mid-Day)		2	0	25,120	40	75	0	0	1.8%	0.7%	66.8	#####	3,190	2,412	395	157	23	5	34	14	67.4	76.3	81.2	-1.8	66.2	58.3	59.2	67.5	63.2	50.8	49.0	63.6	50.0	48.9	49.9	54.4
Build-out Year (2040) with Project Weekday (Evening)		2	0	30,264	40	75	0	0	1.8%	0.7%	67.6	#####	3,844	2,905	476	188	28	6	41	17	67.4	76.3	81.2	-1.8	67.0	59.2	60.0	68.3	64.0	51.6	49.8	64.4	50.8	49.7	50.7	55.2
Build-out Year (2040) with Project Saturday (Mid																																				

Project Name
Weekday All Hours

rev. (Date)

If Peak Hour = 6% of ADT, Scaling Factor = 16.667
If Peak Hour = 7% of ADT, Scaling Factor = 14.286
If Peak Hour = 8% of ADT, Scaling Factor = 12.5
If Peak Hour = 9% of ADT, Scaling Factor = 11.111
If Peak Hour = 10% of ADT, Scaling Factor = 10

Intersection:
Olinda St & Project Dwy

10

Olinda St

Southbound			
	right	through	left
Existing Weekday (Evening)	0	37	
Existing Saturday (Mid-Day)	0	46	
Existing plus Project Weekday (Evening)	4	37	
Existing plus Project Saturday (Mid- Day)	5	46	
Opening Year (2021) Without Project Weekday (Evening)	0	45	
Opening Year (2021) Without Project Saturday (Mid-Day)	0	55	
Opening Year (2021) with Project Weekday (Evening)	4	45	
Opening Year (2021) with Project Saturday (Mid-Day)	5	55	
Build-out Year (2040) without Project Weekday (Evening)	0	53	
Build-out Year (2040) without Project Saturday (Mid-Day)	0	66	
Build-out Year (2040) with Project Weekday (Evening)	4	53	
Build-out Year (2040) with Project Saturday (Mid-Day)	5	66	

Eastbound			
	left	through	right
Existing Weekday (Evening)	0		0
Existing Saturday (Mid-Day)	0		0
Existing plus Project Weekday (Evening)	1		24
Existing plus Project Saturday (Mid- Day)	0		0
Opening Year (2021) Without Project Weekday (Evening)	0		0
Opening Year (2021) Without Project Saturday (Mid-Day)	0		0
Opening Year (2021) with Project Weekday (Evening)	1		24
Opening Year (2021) with Project Saturday (Mid-Day)	0		0
Build-out Year (2040) without Project Weekday (Evening)	0		0
Build-out Year (2040) without Project Saturday (Mid-Day)	0		0
Build-out Year (2040) with Project Weekday (Evening)	1		24
Build-out Year (2040) with Project Saturday (Mid-Day)	0		0

N
S
E
W

Westbound			
	right	through	left
Existing Weekday (Evening)			
Existing Saturday (Mid-Day)			
Existing plus Project Weekday (Evening)			
Existing plus Project Saturday (Mid- Day)			
Opening Year (2021) Without Project Weekday (Evening)			
Opening Year (2021) Without Project Saturday (Mid-Day)			
Opening Year (2021) with Project Weekday (Evening)			
Opening Year (2021) with Project Saturday (Mid-Day)			
Build-out Year (2040) without Project Weekday (Evening)			
Build-out Year (2040) without Project Saturday (Mid-Day)			
Build-out Year (2040) with Project Weekday (Evening)			
Build-out Year (2040) with Project Saturday (Mid-Day)			

Northbound			
	left	through	right
Existing Weekday (Evening)	0	83	
Existing Saturday (Mid-Day)	0	65	
Existing plus Project Weekday (Evening)	35	83	
Existing plus Project Saturday (Mid- Day)	30	65	
Opening Year (2021) Without Project Weekday (Evening)	0	92	
Opening Year (2021) Without Project Saturday (Mid-Day)	0	74	
Opening Year (2021) with Project Weekday (Evening)	35	92	
Opening Year (2021) with Project Saturday (Mid-Day)	30	74	
Build-out Year (2040) without Project Weekday (Evening)	0	111	
Build-out Year (2040) without Project Saturday (Mid-Day)	0	89	
Build-out Year (2040) with Project Weekday (Evening)	35	111	
Build-out Year (2040) with Project Saturday (Mid-Day)	30	89	

ADT

Road	Olinda St		Project Dwy	
	North of	South of	East of	West of
Lead	Project Dwy			
Cross Street	Olinda St			
Existing Weekday (Evening)	960.0	960.0	0.0	0.0
Existing Saturday (Mid-Day)	888.0	888.0	0.0	0.0
Existing plus Project Weekday (Evening)	1,000.0	1,432.0	0.0	512.0
Existing plus Project Saturday (Mid- Day)	928.0	1,128.0	0.0	280.0
Opening Year (2021) Without Project Weekday (Evening)	1,096.0	1,096.0	0.0	0.0
Opening Year (2021) Without Project Saturday (Mid-Day)	1,032.0	1,032.0	0.0	0.0
Opening Year (2021) with Project Weekday (Evening)	1,136.0	1,568.0	0.0	512.0
Opening Year (2021) with Project Saturday (Mid-Day)	1,072.0	1,272.0	0.0	280.0
Build-out Year (2040) without Project Weekday (Evening)	1,312.0	1,312.0	0.0	0.0
Build-out Year (2040) without Project Saturday (Mid-Day)	1,240.0	1,240.0	0.0	0.0
Build-out Year (2040) with Project Weekday (Evening)	1,352.0	1,784.0	0.0	512.0
Build-out Year (2040) with Project Saturday (Mid-Day)	1,280.0	1,480.0	0.0	280.0

APPENDIX C

Construction Noise Worksheets

Roadway Construction Noise Model (RCNM),Version 1.1

Report date 10/5/2019

Case Description: Yorba Linda (Demolition)

---- Receptor #1 ----

		Baselines (dBA)		
Description Land Use		Daytime	Evening	Night
Residential Residential		59.1	59.1	59.1

		Equipment				
		Spec	Actual	Receptor	Estimated	
		Lmax	Lmax	Distance	Shielding	
Description	Impact Device Usage(%)	(dBA)	(dBA)	(feet)	(dBA)	
Concrete Saw	No	20	89.6	340	0	
Dozer	No	40	81.7	340	0	
Tractor	No	40	84	340	0	
Tractor	No	40	84	340	0	
Tractor	No	40	84	340	0	

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Saw	72.9	65.9
Dozer	65	61
Tractor	67.3	63.4
Tractor	67.3	63.4
Tractor	67.3	63.4
Total	72.9	70.7

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residential	Residential	58.7	58.7	58.7

Description	Impact	Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
				Spec Lmax (dBA)	Actual Lmax (dBA)		
Concrete Saw	No		20		89.6	580	0
Dozer	No		40		81.7	580	0
Tractor	No		40	84		580	0
Tractor	No		40	84		580	0
Tractor	No		40	84		580	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Saw	68.3	61.3
Dozer	60.4	56.4
Tractor	62.7	58.7
Tractor	62.7	58.7
Tractor	62.7	58.7
Total	68.3	66

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)				
Description	Land Use	Daytime	Evening	Night
Residential	Residential	56	56	56

Description	Impact	Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
				Spec Lmax (dBA)	Actual Lmax (dBA)		

Concrete Saw	No	20		89.6	470	0
Dozer	No	40		81.7	470	0
Tractor	No	40	84		470	0
Tractor	No	40	84		470	0
Tractor	No	40	84		470	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Saw	70.1	63.1
Dozer	62.2	58.2
Tractor	64.5	60.6
Tractor	64.5	60.6
Tractor	64.5	60.6
Total	70.1	67.9

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date 10/5/2019

Case Descr INO: Yorba Linda (Building Construction)

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential	Residential	59.1	59.1	59.1

		Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
Description	Impact	Spec Lmax (dBA)	Actual Lmax (dBA)		
Forklift	No	40	85	340	0
Generator	No	50	80.6	340	0
Tractor	No	40	84	340	0
Welder / Torch	No	40	74	340	0
Welder / Torch	No	40	74	340	0
Welder / Torch	No	40	74	340	0

Calculated (dBA)

Equipment	*Lmax	Leq
Forklift	68.3	64.4
Generator	64	61
Tractor	67.3	63.4
Welder / Torch	57.3	53.4
Welder / Torch	57.3	53.4
Welder / Torch	57.3	53.4
Total	68.3	68.3

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential	Residential	58.7	58.7	58.7

		Equipment				
		Spec	Actual	Receptor	Estimated	
		Lmax	Lmax	Distance	Shielding	
Description	Impact Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Forklift	No	40	85		580	0
Generator	No	50		80.6	580	0
Tractor	No	40	84		580	0
Welder / Torch	No	40		74	580	0
Welder / Torch	No	40		74	580	0
Welder / Torch	No	40		74	580	0

Calculated (dBA)

Equipment	*Lmax	Leq
Forklift	63.7	59.7
Generator	59.3	56.3
Tractor	62.7	58.7
Welder / Torch	52.7	48.7
Welder / Torch	52.7	48.7
Welder / Torch	52.7	48.7
Total	63.7	63.7

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential	Residential	56	56	56

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec	Actual		
			Lmax (dBA)	Lmax (dBA)		
Forklift	No	40	85		470	0
Generator	No	50		80.6	470	0
Tractor	No	40	84		470	0
Welder / Torch	No	40		74	470	0
Welder / Torch	No	40		74	470	0
Welder / Torch	No	40		74	470	0

Calculated (dBA)

Equipment	*Lmax	Leq
Forklift	65.5	61.6
Generator	61.2	58.2
Tractor	64.5	60.6
Welder / Torch	54.5	50.6
Welder / Torch	54.5	50.6
Welder / Torch	54.5	50.6
Total	65.5	65.5

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/5/2019

Case Descr INO: Yorba Linda (Paving)

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential	Residential	59.1	59.1	59.1

		Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
Description	Impact	Spec Lmax (dBA)	Actual Lmax (dBA)		
Concrete Mixer Truck	No	40	78.8	340	0
Paver	No	50	77.2	340	0
Paver	No	50	77.2	340	0
Roller	No	20	80	340	0
Tractor	No	40	84	340	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Mixer Truck	62.1	58.2
Paver	60.6	57.6
Paver	60.6	57.6
Roller	63.3	56.4
Tractor	67.3	63.4
Total	67.3	66.4

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential	Residential	58.7	58.7	58.7

		Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
Description	Impact	Spec Lmax (dBA)	Actual Lmax (dBA)		
Concrete Mixer Truck	No	40	78.8	580	0
Paver	No	50	77.2	580	0

Paver	No	50		77.2	580	0
Roller	No	20		80	580	0
Tractor	No	40	84		580	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Mixer Truck	57.5	53.5
Paver	55.9	52.9
Paver	55.9	52.9
Roller	58.7	51.7
Tractor	62.7	58.7
Total	62.7	61.8

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)			
Description Land Use	Daytime	Evening	Night
Residential Residential	56	56	56

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Concrete Mixer Truck	No	40		78.8	470	0
Paver	No	50		77.2	470	0
Paver	No	50		77.2	470	0
Roller	No	20		80	470	0
Tractor	No	40	84		470	0

Calculated (dBA)

Equipment	*Lmax	Leq
Concrete Mixer Truck	59.3	55.4
Paver	57.8	54.7
Paver	57.8	54.7
Roller	60.5	53.5
Tractor	64.5	60.6
Total	64.5	63.6

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date 10/5/2019

Case Description: Yorba Linda (Architectural Coating)

---- Receptor #1 ----

		Baselines (dBA)		
Descriptor Land Use		Daytime	Evening	Night
Residential	Residential	59.1	59.1	59.1

		Equipment				
		Impact	Spec	Actual	Receptor	Estimated
Description		Device	Lmax	Lmax	Distance	Shielding
		Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	340	0

Calculated (dBA)

Equipment		*Lmax	Leq
Compressor (air)		61	57
Total		61	57

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Descriptor Land Use		Daytime	Evening	Night
Residential	Residential	58.7	58.7	58.7

		Equipment				
		Impact	Spec	Actual	Receptor	Estimated
Description		Device	Lmax	Lmax	Distance	Shielding
		Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	580	0

Calculated (dBA)

Equipment	*Lmax	Leq
Compressor (air)	56.4	52.4
Total	56.4	52.4

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)

Descriptor Land Use	Daytime	Evening	Night
Residential Residential	56	56	56

Equipment

	Impact	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Description Compressor (air)	No	40		77.7	470	0

Calculated (dBA)

Equipment	*Lmax	Leq
Compressor (air)	58.2	54.2
Total	58.2	54.2

*Calculated Lmax is the Loudest value.

APPENDIX D

Construction Vibration Worksheets

**INO: Yorba Linda
Construction Vibration Model
(340 feet)**

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance ^a	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	340	0.002	0.000	53
Jackhammer		1	0.035	340	0.001	0.000	45
Large bulldozer		1	0.089	340	0.002	0.000	53
Loaded trucks		1	0.076	340	0.002	0.000	52
Pile Drive (impact)		1	0.644	340	0.013	0.003	70
Vibratory Roller		1	0.210	340	0.004	0.001	60
Small bulldozer		1	0.003	340	0.000	0.000	23

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.**

-Fragile Buildings- 0.20 in/sec

**INO: Yorba Linda
Construction Vibration Model
(580 feet)**

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance ^a	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	580	0.001	0.000	46
Jackhammer		1	0.035	580	0.000	0.000	38
Large bulldozer		1	0.089	580	0.001	0.000	46
Loaded trucks		1	0.076	580	0.001	0.000	45
Pile Drive (impact)		1	0.644	580	0.006	0.001	63
Vibratory Roller		1	0.210	580	0.002	0.000	53
Small bulldozer		1	0.003	580	0.000	0.000	17

*** Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.**

-Fragile Buildings- 0.20 in/sec

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance ^a	RMS Vibration level in VdB at adjusted distance
Caisson drilling		1	0.089	470	0.001	0.000	49
Jackhammer		1	0.035	470	0.000	0.000	41
Large bulldozer		1	0.089	470	0.001	0.000	49
Loaded trucks		1	0.076	470	0.001	0.000	47
Pile Drive (impact)		1	0.644	470	0.008	0.002	66
Vibratory Roller		1	0.210	470	0.003	0.001	56
Small bulldozer		1	0.003	470	0.000	0.000	19

* Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.

-Fragile Buildings- 0.20 in/sec

APPENDIX E

SoundPLAN Outputs

Receiver	Fl	/dB(A)	Ldn/dB(A)	Leq,d/dB(A)	Leq,n/dB(A)	Source	Ldn	dB(A)	Leq,d	dB(A)	Leq,n	dB(A)	# 0-1 o'clock	1-2 o'clock	2-3 o'clock	3-4 o'clock	4-5 o'clock	5-6 o'clock
Residential Along Lemon Drive (East) Site 4	G		25.9	22	18.9	Drive Through	9.6		5.7		2.6		6.7		3.7			
						Outdoor Dining	17.2		13.3		10.2		14.3		11.2			
						Outdoor Dining	17.1		13.3		10.1		14.2		11.2			
						Outdoor Dining	17.2		13.3		10.2		14.3		11.3			
						Outdoor Dining	17.3		13.4		10.3		14.4		11.4			
						Outdoor Dining	17.3		13.4		10.3		14.4		11.4			
						Outdoor Dining	17.4		13.5		10.4		14.5		11.5			
						Outdoor Dining	7.8		3.9		0.8		4.9		1.9			
						Outdoor Dining	7		3.2		0		4.1		1.1			
						Outdoor Dining	7		3.1		0		4.1		1.1			
						Outdoor Dining	5.8		2		-1.2		2.9		-0.1			
						Outdoor Dining	6.1		2.2		-0.9		3.2		0.2			
						Parking	7.5		3.6		0.5		4.6		1.6			
						Speakerbox	4.7		0.8		-2.3		1.8		-1.2			
						Trash Compactor	14.9		11		7.9		12		9			
Residential Along Plumosa Drive (Site 5)	G		33.5	29.6	26.5	Drive Through	18.2		14.3		11.2		15.3		12.3			
						Outdoor Dining	23.1		19.2		16		20.1		17.1			
						Outdoor Dining	23		19.1		16		20.1		17			
						Outdoor Dining	22.9		19		15.9		20		17			
						Outdoor Dining	23		19.1		16		20.1		17			
						Outdoor Dining	22.8		18.9		15.8		19.9		16.9			
						Outdoor Dining	22.8		18.9		15.8		19.9		16.9			
						Outdoor Dining	22.8		18.9		15.8		19.9		16.9			
						Outdoor Dining	22.7		18.8		15.7		19.8		16.8			
						Outdoor Dining	22.6		18.7		15.6		19.7		16.7			
						Outdoor Dining	22.6		18.7		15.6		19.7		16.7			
						Outdoor Dining	22.5		18.6		15.5		19.6		16.6			
						Parking	17.5		13.6		10.5		14.6		11.6			
						Speakerbox	-7.5		-11.4		-14.5		-10.4		-13.4			
						Trash Compactor	14.3		10.4		7.3		11.4		8.4			
Residential Along Lemon Drive (West) Site 6	G		22.2	18.3	15.2	Drive Through	8.6		4.7		1.6		5.7		2.7			
						Outdoor Dining	11.1		7.3		4.1		8.2		5.2			
						Outdoor Dining	10.5		6.6		3.5		7.6		4.6			
						Outdoor Dining	11.2		7.3		4.2		8.3		5.3			
						Outdoor Dining	11.5		7.6		4.5		8.6		5.6			
						Outdoor Dining	11.3		7.4		4.3		8.4		5.4			
						Outdoor Dining	11.6		7.7		4.6		8.7		5.7			
						Outdoor Dining	10.7		6.8		3.7		7.8		4.8			
						Outdoor Dining	11.4		7.5		4.4		8.5		5.4			
						Outdoor Dining	10.6		6.7		3.5		7.6		4.6			
						Outdoor Dining	11.6		7.7		4.5		8.7		5.6			
						Outdoor Dining	11.3		7.4		4.2		8.3		5.3			
						Parking	6.6		2.7		-0.4		3.7		0.7			
						Speakerbox	6.1		2.2		-1		3.1		0.1			
						Trash Compactor	7.2		3.3		0.1		4.2		1.2			

Residential Along Lemon Drive (East) Site 4

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