APPENDIX E:

NOISE DATA

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Noise Fundamentals

Terminology

- **Sound.** A disturbance created by a vibrating object, which when transmitted by pressure waves through a medium such as air, is capable of being detected by the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A measure of sound on a logarithmic scale.
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent Noise Level (L_{eq})** is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- **L_{max}** is the instantaneous maximum noise level for a specified period of time.
- **L_{min}** is the minimum, instantaneous noise level experienced during a given period of time.
- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period). This is also called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."
- **Day-Night Average (L_{dn})** is a 24-hour average L_{eq} with a 10-dBA "weighting" added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
- **Community Noise Equivalent Level (CNEL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 5 dBA added to the levels occurring during the period from 7:00 p.m. to 10:00 p.m. and 10 dBA added to the sound levels occurring during the period from 10:00 p.m. to 7:00 a.m. *Note: For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dBA. As a matter of practice, L_{dn} and CNEL values are considered to be equivalent/interchangeable.*
- **Peak Particle Velocity (PPV).** The peak rate of speed at which soil particles move (e.g., inches per second) due to ground vibration. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave.

- **Root Mean Square Velocity (RMS).** The RMS velocity is defined as the average of the squared amplitude of the signal.
- **Vibration Decibel (VdB).** A unitless measure of vibration, expressed on a logarithmic scale and with respect to a defined reference vibration velocity. In the United States, the standard reference velocity is 1 micro-inch per second ($1x10^{-6}$ in/sec).
- **Noise-Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

Sound Fundamentals

Noise can be generally defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. Therefore, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear’s decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements.

Several rating scales have been developed to analyze the adverse effect of noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in L_{eq}) and the average daily noise levels/community noise equivalent level (in L_{dn}/CNEL), as shown in Table 3.13-1, *Common Noise Descriptors*. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise.

Table 3.13-1 Common Noise Descriptors

Descriptor	Definition
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hertz (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sounds are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high-frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
Community Noise Equivalent Level, CNEL	A 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.

Table 3.13-1 Common Noise Descriptors	
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content, as well as the prevailing ambient noise level.

Sound Measurement

As previously described, sound pressure is measured through the A-weighted measure to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies.

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. On a logarithmic scale, an increase of 10 dBA is 10 times more intense than 1 dBA, 20 dBA is 100 times more intense, and 30 dBA is 1,000 times more intense. A sound as soft as human breathing is about 10 times greater than 0 dBA. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). When the standard logarithmic dB is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be three dB higher than one source under the same conditions (FTA 2018). For example, a 65-dBA source of sound, such as a truck, when joined by another 65 dBA source results in a sound amplitude of 68 dBA, not 130 dBA (i.e., doubling the source strength increases the sound pressure by three dBA). Under the decibel scale, three sources of equal loudness together would produce an increase of five dBA.

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time. Half the time the noise level exceeds this level and half the time it is less than this level. This level also represents the level exceeded 30 minutes in an hour. Similarly, the L_2, L_8 and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time, or 1, 5, and 15 minutes per hour. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, State law requires that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). As described above, the CNEL descriptor requires that an artificial increment of 5 dBA be added to the actual noise level for the hours from 7:00 p.m. to 10:00 p.m. and 10 dBA for the hours from 10:00 p.m. to 7:00 a.m. The L_{dn} descriptor uses the same methodology but only adds a 10 dBA increment between 10:00 p.m. and 7:00 a.m. Both descriptors give roughly the same 24-hour level, with the CNEL being only slightly more restrictive (i.e., higher).

HUMAN RESPONSE TO NOISE

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL or L_{dn} is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response is expected. An increase of 5 dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA, averaging over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes of annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. Both the L_{dn} and CNEL as measures of noise have been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects our entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, and thereby affecting blood pressure, functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA could result in permanent hearing damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. Table 3.13-2, *Typical Noise Levels*, shows typical noise levels from familiar noise sources.

Table 3.13-2 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet

Table 3.13-2 Typical Noise Levels		
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: Caltrans 2013.

Sensitive Receptors

Some land uses are considered more sensitive to noise levels than others due to the duration and nature of time people spend at these uses. In general, residences are considered most sensitive to noise as people spend extended periods of time in them, including the nighttime hours. Therefore, noise impacts affecting rest and relaxation, sleep, and communication are highest at residential uses. Schools, hotels, hospitals, nursing homes, and recreational uses are also considered to be more sensitive to noise, as activities at these land uses involve rest, recovery, relaxation, and concentration, and increased noise levels tend to disrupt such activities. Places such as churches, libraries, and cemeteries, where people tend to pray, study, and/or contemplate, are also sensitive to noise but, due to the limited time people spend at these uses, impacts are usually tolerable. Commercial and industrial uses are considered the least noise sensitive.

NOISE PROPAGATION AND ATTENUATION

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks, and airplanes, as well as stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6.0 dB (dBA) for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3.0 dBA for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics. No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed. For line sources, an overall attenuation rate of 3.0 dB per doubling of distance is assumed (FHWA 2017a).

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about 5 dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2017b). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction of 35 dBA or greater. To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans Division of Aeronautics 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (FTA 2006). Generally, in exterior noise environments ranging from 60 dBA L_{dn} to 65 dBA L_{dn}, interior noise levels can typically be maintained below 45 dBA, a typical residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class (STC) 28.[1] In exterior noise environments of 65 dBA L_{dn} or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments less than 75 dBA L_{dn} with proper wall construction techniques following California Building Code (CBC) methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

Vibration Fundamentals

Vibration is an oscillating motion in the earth. Like noise, vibration is transmitted in waves, but through the earth or solid objects. Unlike noise, vibration is typically of a frequency that is felt rather than heard. Sources of earthborne vibrations include natural phenomena (e.g.,

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[1] STC is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations.

earthquakes, volcanic eruptions, sea waves, landslides) or humanmade causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. As with noise, vibration can be described by both its amplitude and frequency. Amplitude can be characterized in three ways—displacement, velocity, and acceleration. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage. For human response, however, an average vibration amplitude is more appropriate because it takes time for the human body to respond to the excitation (the human body responds to an average vibration amplitude, not a peak amplitude). Because the average particle velocity over time is zero, the RMS amplitude is typically used to assess human response. The RMS value is the average of the amplitude squared over time, typically a 1-second period.

Table 3.13-3, *Human Reaction and Damage to Buildings from Typical Vibration Levels*, displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high-noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Table 3.13-3 Human Reaction and Damage to Buildings from Typical Vibration Levels

Vibration Level Peak Particle Velocity (in/sec)	Vibration Level Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64-74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Threshold at which there is a risk of architectural damage to extremely fragile

Table 3.13-3 Human Reaction and Damage to Buildings from Typical Vibration Levels

			historic buildings, ruins, ancient monuments
0.10	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Threshold at which there is a risk of architectural damage to fragile buildings. Virtually no risk of architectural damage to normal buildings
0.25	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to historic and some old buildings
0.3	96	Vibrations may begin to feel severe to people in buildings	Threshold at which there is a risk of architectural damage to older residential structures
0.5	103	Vibrations considered unpleasant by people subjected to continuous vibrations	Threshold at which there is a risk of architectural damage to new residential structures and Modern industrial/commercial buildings

Source: Caltrans HWANP 2020; FTA 2018.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. For instance, heavy-duty trucks generally generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances, which as identified in Table 3.13-2, *Typical Noise Levels*, is considered very unlikely to cause damage to buildings of any type. Common sources for groundborne vibration are planes, trains, and construction activities such as earth moving that requires the use of heavy-duty equipment.

The way in which vibration is transmitted through the earth is called propagation. As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2024-062
Project Name: Lake County Existing Conditions

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: **California Department of Transportation Traffic Census**
Community Noise Descriptor: L_{dn}: x CNEL: ____

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Existing Conditions Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Ldn at 100 Feet	Distance to Contour 70 Ldn	65 Ldn	60 Ldn	55 Ldn	Calc Dist	Traffic Volumes Day	Eve	Night
Highway 20																
Between Lake/Mendocino County Line & Blue Lakes Rd	2	0	10,050	50	0.5	1.8%	0.7%	61.7	-	60	130	281	100	7,809	1,276	965
Junction	2	0	9,800	45	0.5	1.8%	0.7%	60.5	-	50	108	233	100	7,615	1,245	941
Cutoff	2	0	9,800	45	0.5	1.8%	0.7%	60.5	-	50	108	233	100	7,615	1,245	941
Between Lucerne Cutoff & Hammond Ave	2	0	12,000	45	0.5	1.8%	0.7%	61.4	-	57	124	267	100	9,324	1,524	1,152
Between Hammond Ave & Manzanita Dr	2	0	12,000	55	0.5	1.8%	0.7%	63.5	37	80	171	369	100	9,324	1,524	1,152
Between Manzanita Dr & Foothill Dr	2	0	12,000	35	0.5	1.8%	0.7%	58.9	-	39	84	182	100	9,324	1,524	1,152
Between Foothill Dr & Bell Ray Ave	2	0	12,000	35	0.5	1.8%	0.7%	58.9	-	39	84	182	100	9,324	1,524	1,152
Between Bell Ray Ave & Rosemont Dr	2	0	10,300	35	0.5	1.8%	0.7%	58.2	-	35	76	164	100	8,003	1,308	989
Between Rosemont Dr & Road 208K	2	0	10,300	45	0.5	1.8%	0.7%	60.7	-	52	112	241	100	8,003	1,308	989
Between Road 208K & Sulphur Bank Dr	2	0	10,300	35	0.5	1.8%	0.7%	58.2	-	35	76	164	100	8,003	1,308	989
Between Sulphur Bank Dr & HWY 53 Junction	2	0	10,300	65	0.5	1.8%	0.7%	64.7	44	95	205	442	100	8,003	1,308	989
Between HWY 53 Junction & Old Long Valley Road	2	0	7,300	50	0.5	1.8%	0.7%	60.3	-	49	105	227	100	5,672	927	701
Between Old Long Valley Road & Lake/Colusa County Line	2	0	7,300	65	0.5	1.8%	0.7%	63.2	35	76	163	352	100	5,672	927	701
Highway 29																
Betweeen Lake/Napa County Line & Sheveland Rd/Dry Creek Cutoff	2	0	10,800	60	0.5	1.8%	0.7%	64.0	40	86	185	398	100	8,392	1,372	1,037
Between Sheveland Rd/Dry Creek Cutoff & HWY 175 Junction	2	0	10,800	50	0.5	1.8%	0.7%	62.0	-	63	137	294	100	8,392	1,372	1,037
Between HWY 175 Junction & Hidden	2	0	12,800	55	0.5	1.8%	0.7%	63.8	39	83	179	386	100	9,946	1,626	1,229

Distance from Centerline of Roadway

Valley Rd																
Between Hidden Valley Rd & Clayton Creek Rd	2	0	10,900	55	0.5	1.8%	0.7%	63.1	35	75	161	346	100	8,469	1,384	1,046
Between Clayton Creek Rd & Lee Barr Dr	2	0	11,700	50	0.5	1.8%	0.7%	62.4	-	67	144	311	100	9,091	1,486	1,123
Between Lee Barr Dr & Marshview Way	2	0	11,700	45	0.5	1.8%	0.7%	61.3	-	56	122	262	100	9,091	1,486	1,123
Between Marshview Way & Diener Dr/Rd 543	2	0	11,700	55	0.5	1.8%	0.7%	63.4	36	78	169	363	100	9,091	1,486	1,123
Between Diener Dr/Rd 543 & Konocti Rock Company Rd	2	0	9,300	50	0.5	1.8%	0.7%	61.4	-	57	124	266	100	7,226	1,181	893
Between Konocti Rock Company Rd & HWY 175 Junction	4	30	9,300	60	0.5	1.8%	0.7%	63.7	-	82	177	381	100	7,226	1,181	893
Between HWY 175 Junction & Cruickshank Rd	2	0	13,500	55	0.5	1.8%	0.7%	64.0	40	86	185	400	100	10,490	1,715	1,296
Between Cruickshank Rd & Thomas Dr	2	15	13,500	45	0.5	1.8%	0.7%	61.9	-	63	135	291	100	10,490	1,715	1,296
Between Thomas Dr & HWY 175 Junction	2	0	13,500	50	0.5	1.8%	0.7%	63.0	34	74	159	342	100	10,490	1,715	1,296
Between HWY 175 Junction & Todd Rd	2	0	13,500	45	0.5	1.8%	0.7%	61.9	-	62	134	288	100	10,490	1,715	1,296
Between Todd Rd & 11th St	4	25	13,500	55	0.5	1.8%	0.7%	64.3	-	90	194	419	100	10,490	1,715	1,296
Between 11th St & Lucerne Cutoff	4	25	7,000	60	0.5	1.8%	0.7%	62.4	-	67	145	313	100	5,439	889	672
Between Lucerne Cutoff & Tule Lake Rd	2	0	7,000	50	0.5	1.8%	0.7%	60.2	-	48	102	221	100	5,439	889	672
Between Tule Lake Rd & HWY 20 Junction	2	0	7,000	55	0.5	1.8%	0.7%	61.2	-	56	120	258	100	5,439	889	672
Highway 53																
Between HWY 29 & Anderson Ranch Parkway	4	8	17,700	45	0.5	1.8%	0.7%	63.2	-	76	164	354	100	13,753	2,248	1,699
Between Anderson Ranch Parkway & Clearlake City Limits (south)	4	25	17,700	60	0.5	1.8%	0.7%	66.5	58	125	269	580	100	13,753	2,248	1,699
Between Clearlake City Limits (north) & HWY 20 Junction	2	0	8,500	50	0.5	1.8%	0.7%	61.0	-	54	116	251	100	6,605	1,080	816
Highway 175																
Between Lake/Mendocino County Line & Dixon Dr	2	0	1,900	55	0.5	1.8%	0.7%	55.5	-	-	50	108	100	1,476	241	182
Between Dixon Dr & HWY 29 Junction (south of Lakeport)	2	0	1,900	35	0.5	1.8%	0.7%	50.9	-	-	-	53	100	1,476	241	182
Between HWY 29 Junction & Cobb Post Office/High Rd (south of Kelseyville)	2	0	840	50	0.5	1.8%	0.7%	50.9	-	-	-	54	100	653	107	81
Between Cobb Post Office/High Road & Dry Creek Rd	2	0	2,700	50	0.5	1.8%	0.7%	56.0	-	-	54	117	100	2,098	343	259
Between Dry Creek Rd & HWY 29 Junction (at Middletown)	2	0	2,700	35	0.5	1.8%	0.7%	52.4	-	-	-	67	100	2,098	343	259
Highway 281																
Between Konocti Bay Rd & Point Lakeview Rd	2	0	6,400	50	0.5	1.8%	0.7%	59.8	-	45	96	208	100	4,973	813	614
Between Point Lakeview Rd & HWY 29 Junction	2	0	6,400	35	0.5	1.8%	0.7%	56.2	-	-	55	119	100	4,973	813	614

11th Street																
Between HWY 29 NB & Central Park Ave	2	0	9,426	35	0.5	1.8%	0.7%	57.8	-	33	72	155	100	7,324	1,197	905
Between Central Park Ave & Mellor St	2	13	9,426	30	0.5	1.8%	0.7%	56.9	-	-	62	134	100	7,324	1,197	905
Between Mellor St & N Main St	2	0	9,426	30	0.5	1.8%	0.7%	56.9	-	-	62	133	100	7,324	1,197	905
Bottle Rock Road																
Between HWY 29 & Cold Creek Rd	2	0	1,806	35	0.5	1.8%	0.7%	50.7	-	-	-	51	100	1,403	229	173
Between Cold Creek Rd & Sulphur Creek Rd	2	0	1,806	45	0.5	1.8%	0.7%	53.2	-	-	35	75	100	1,403	229	173
Between Sulphur Creek Rd & HWY 175	2	0	1,369	35	0.5	1.8%	0.7%	49.5	-	-	-	43	100	1,064	174	131
Hartmann Road																
Between HWY 29 & Stinson Rd	2	0	6,376	35	0.5	1.8%	0.7%	56.1	-	-	55	119	100	4,954	810	612
Lakeshore Boulevard																
Between 20th St & Hill Rd E	2	0	4,518	35	0.5	1.8%	0.7%	54.6	-	-	44	95	100	3,510	574	434
Between Hill Rd E & Nice-Lucerne Cutoff	2	0	4,518	45	0.5	1.8%	0.7%	57.1	-	-	65	139	100	3,510	574	434
Lakeshore Drive																
Between W 40th St & Old HWY 53	2	13	14,228	35	0.5	1.8%	0.7%	59.7	-	44	95	205	100	11,055	1,807	1,366
Between Old HWY 53 & Arrowhead Rd	2	0	14,228	30	0.5	1.8%	0.7%	58.7	-	38	81	175	100	11,055	1,807	1,366
Loch Lomond Road																
Between HW 175 & Sycamore Rd	2	0	1,089	35	0.5	1.8%	0.7%	48.5	-	-	-	37	100	846	138	105
Main Street (Kelseyville)																
Between HWY 29 & Merritt Rd	2	0	3,647	35	0.5	1.8%	0.7%	53.7	-	-	38	82	100	2,834	463	350
Main Street (Lower Lake)																
Between HWY 29 & Mill St	2	0	3,498	35	0.5	1.8%	0.7%	53.5	-	-	37	80	100	2,718	444	336
Merritt Road																
Between HWY 29 & Loasa Rd	2	0	3,347	30	0.5	1.8%	0.7%	52.4	-	-	-	67	100	2,601	425	321
Nice-Lucerne Cutoff Road																
Between HWY 29 & HWY 20	2	0	5,040	45	0.5	1.8%	0.7%	57.6	-	32	69	150	100	3,916	640	484
Old Highway 53																
Between Cache Creek Way & Olympic Dr	2	0	6,184	45	0.5	1.8%	0.7%	58.5	-	37	80	171	100	4,805	785	594
Olympic Drive																
Between HWY 53 and Lakeshore Dr	2	0	8,835	40	0.5	1.8%	0.7%	58.9	-	39	84	181	100	6,865	1,122	848
Park Way																
Between Hill Rd E & Lakeshore Blvd	2	0	2,136	35	0.5	1.8%	0.7%	51.4	-	-	-	57	100	1,660	271	205

Point Lakeview Road																
Between Soda Bay Rd & Wheeler Dr	2	0	2,251	35	0.5	1.8%	0.7%	51.6	-	-	-	59	100	1,749	286	216
S Main Street																
Between Soda Bay Rd & Lakeport Blvd	2	0	9,685	35	0.5	1.8%	0.7%	58.0	-	34	73	157	100	7,525	1,230	930
Between Lakeport Blvd & Peckham Ct	2	13	9,685	35	0.5	1.8%	0.7%	58.0	-	-	73	158	100	7,525	1,230	930
Between Peckham Ct & Martin St	2	0	9,685	35	0.5	1.8%	0.7%	58.0	-	34	73	157	100	7,525	1,230	930
Scotts Valley Road																
Between HWY 20 & Hendricks Rd	2	0	843	45	0.5	1.8%	0.7%	49.9	-	-	-	45	100	655	107	81
Between Hendricks Rd & Mountain View Rd	2	0	843	35	0.5	1.8%	0.7%	47.4	-	-	-	-	100	655	107	81
Sieglar Canyon Road																
Between HWY 29 & Perini Rd (southern)	2	0	870	30	0.5	1.8%	0.7%	46.5	-	-	-	-	100	676	110	84
Soda Bay Road																
Between HWY 29 & Montezuma Way	2	0	5,098	35	0.5	1.8%	0.7%	55.2	-	-	48	103	100	3,961	647	489
Between Montezuma Way & HWY 29	2	0	1,704	35	0.5	1.8%	0.7%	50.4	-	-	-	49	100	1,324	216	164
Spruce Grove Road																
Between HWY 29 & Tinilyn Dr	2	0	685	35	0.5	1.8%	0.7%	46.4	-	-	-	-	100	532	87	66

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2024-062
Project Name: Lake County General Plan 2050 Buildout

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: **California Department of Transportation Traffic Census**
Community Noise Descriptor: L_{dn}: x CNEL:

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

General Plan 2050 Buildout Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Distance from Centerline of Roadway: Ldn at 100 Feet	Distance to Contour 70 Ldn	65 Ldn	60 Ldn	55 Ldn	Calc Dist	Traffic Volumes Day	Eve	Night
Highway 20																
Between Lake/Mendocino County Line & Blue Lakes Rd	2	0	10,260	50	0.5	1.8%	0.7%	61.8	-	61	132	285	100	7,972	1,303	985
Junction	2	0	10,050	45	0.5	1.8%	0.7%	60.6	-	51	110	237	100	7,809	1,276	965
Cutoff	2	0	10,050	45	0.5	1.8%	0.7%	60.6	-	51	110	237	100	7,809	1,276	965
Between Lucerne Cutoff & Hammond Ave	2	0	12,000	45	0.5	1.8%	0.7%	61.4	-	57	124	267	100	9,324	1,524	1,152
Between Hammond Ave & Manzanita Dr	2	0	12,000	55	0.5	1.8%	0.7%	63.5	37	80	171	369	100	9,324	1,524	1,152
Between Manzanita Dr & Foothill Dr	2	0	12,000	35	0.5	1.8%	0.7%	58.9	-	39	84	182	100	9,324	1,524	1,152
Between Foothill Dr & Bell Ray Ave	2	0	12,250	35	0.5	1.8%	0.7%	59.0	-	40	85	184	100	9,518	1,556	1,176
Between Bell Ray Ave & Rosemont Dr	2	0	10,920	35	0.5	1.8%	0.7%	58.5	-	37	79	170	100	8,485	1,387	1,048
Between Rosemont Dr & Road 208K	2	0	10,920	45	0.5	1.8%	0.7%	61.0	-	54	116	250	100	8,485	1,387	1,048
Between Road 208K & Sulphur Bank Dr	2	0	10,920	35	0.5	1.8%	0.7%	58.5	-	37	79	170	100	8,485	1,387	1,048
Between Sulphur Bank Dr & HWY 53 Junction	2	0	10,920	65	0.5	1.8%	0.7%	64.9	46	99	213	460	100	8,485	1,387	1,048
Between HWY 53 Junction & Old Long Valley Road	2	0	7,440	50	0.5	1.8%	0.7%	60.4	-	49	107	230	100	5,781	945	714
Between Old Long Valley Road & Lake/Colusa County Line	2	0	7,440	65	0.5	1.8%	0.7%	63.3	36	77	165	356	100	5,781	945	714
Highway 29																
Betweeen Lake/Napa County Line & Sheveland Rd/Dry Creek Cutoff	2	0	12,290	60	0.5	1.8%	0.7%	64.6	43	94	202	434	100	9,549	1,561	1,180
Between Sheveland Rd/Dry Creek Cutoff & HWY 175 Junction	2	0	12,290	50	0.5	1.8%	0.7%	62.6	32	69	149	321	100	9,549	1,561	1,180
Between HWY 175 Junction & Hidden	2	0	17,660	55	0.5	1.8%	0.7%	65.2	48	103	222	478	100	13,722	2,243	1,695

Valley Rd																
Between Hidden Valley Rd & Clayton Creek Rd	2	0	16,970	55	0.5	1.8%	0.7%	65.0	47	100	216	465	100	13,186	2,155	1,629
Between Clayton Creek Rd & Lee Barr Dr	2	0	16,700	50	0.5	1.8%	0.7%	63.9	39	85	183	394	100	12,976	2,121	1,603
Between Lee Barr Dr & Marshview Way	2	0	14,180	45	0.5	1.8%	0.7%	62.1	-	64	138	298	100	11,018	1,801	1,361
Between Marshview Way & Diener Dr/Rd 543	2	0	14,180	55	0.5	1.8%	0.7%	64.2	41	89	192	413	100	11,018	1,801	1,361
Between Diener Dr/Rd 543 & Konocti Rock Company Rd	2	0	10,050	50	0.5	1.8%	0.7%	61.7	-	60	130	281	100	7,809	1,276	965
Between Konocti Rock Company Rd & HWY 175 Junction	4	30	10,050	60	0.5	1.8%	0.7%	64.1	-	87	186	402	100	7,809	1,276	965
Between HWY 175 Junction & Cruickshank Rd	2	0	13,500	55	0.5	1.8%	0.7%	64.0	40	86	185	400	100	10,490	1,715	1,296
Between Cruickshank Rd & Thomas Dr	2	15	13,500	45	0.5	1.8%	0.7%	61.9	-	63	135	291	100	10,490	1,715	1,296
Between Thomas Dr & HWY 175 Junction	2	0	13,500	50	0.5	1.8%	0.7%	63.0	34	74	159	342	100	10,490	1,715	1,296
Between HWY 175 Junction & Todd Rd	2	0	13,500	45	0.5	1.8%	0.7%	61.9	-	62	134	288	100	10,490	1,715	1,296
Between Todd Rd & 11th St	4	25	13,500	55	0.5	1.8%	0.7%	64.3	-	90	194	419	100	10,490	1,715	1,296
Between 11th St & Lucerne Cutoff	4	25	7,520	60	0.5	1.8%	0.7%	62.7	-	71	152	328	100	5,843	955	722
Between Lucerne Cutoff & Tule Lake Rd	2	0	7,520	50	0.5	1.8%	0.7%	60.5	-	50	107	231	100	5,843	955	722
Between Tule Lake Rd & HWY 20 Junction	2	0	7,520	55	0.5	1.8%	0.7%	61.5	-	58	126	271	100	5,843	955	722
Highway 53																
Between HWY 29 & Anderson Ranch Parkway	4	8	24,090	45	0.5	1.8%	0.7%	64.6	-	94	202	434	100	18,718	3,059	2,313
Between Anderson Ranch Parkway & Clearlake City Limits (south)	4	25	24,090	60	0.5	1.8%	0.7%	67.8	71	154	331	713	100	18,718	3,059	2,313
Between Clearlake City Limits (north) & HWY 20 Junction	2	0	10,550	50	0.5	1.8%	0.7%	61.9	-	62	135	290	100	8,197	1,340	1,013
Highway 175																
Between Lake/Mendocino County Line & Dixon Dr	2	0	1,900	55	0.5	1.8%	0.7%	55.5	-	-	50	108	100	1,476	241	182
Between Dixon Dr & HWY 29 Junction (south of Lakeport)	2	0	1,900	35	0.5	1.8%	0.7%	50.9	-	-	-	53	100	1,476	241	182
Between HWY 29 Junction & Cobb Post Office/High Rd (south of Kelseyville)	2	0	840	50	0.5	1.8%	0.7%	50.9	-	-	-	54	100	653	107	81
Between Cobb Post Office/High Road & Dry Creek Rd	2	0	4,290	50	0.5	1.8%	0.7%	58.0	-	34	74	159	100	3,333	545	412
Between Dry Creek Rd & HWY 29 Junction (at Middletown)	2	0	4,290	35	0.5	1.8%	0.7%	54.4	-	-	42	91	100	3,333	545	412
Highway 281																
Between Konocti Bay Rd & Point Lakeview Rd	2	0	8,430	50	0.5	1.8%	0.7%	61.0	-	54	116	250	100	6,550	1,071	809
Between Point Lakeview Rd & HWY 29 Junction	2	0	8,430	35	0.5	1.8%	0.7%	57.4	-	-	67	143	100	6,550	1,071	809

11th Street																
Between HWY 29 NB & Central Park Ave	2	0	9,430	35	0.5	1.8%	0.7%	57.8	-	33	72	155	100	7,327	1,198	905
Between Central Park Ave & Mellor St	2	13	9,430	30	0.5	1.8%	0.7%	56.9	-	-	62	134	100	7,327	1,198	905
Between Mellor St & N Main St	2	0	9,430	30	0.5	1.8%	0.7%	56.9	-	-	62	133	100	7,327	1,198	905
Bottle Rock Road																
Between HWY 29 & Cold Creek Rd	2	0	3,720	35	0.5	1.8%	0.7%	53.8	-	-	39	83	100	2,890	472	357
Between Cold Creek Rd & Sulphur Creek Rd	2	0	3,720	45	0.5	1.8%	0.7%	56.3	-	-	57	122	100	2,890	472	357
Between Sulphur Creek Rd & HWY 175	2	0	3,570	35	0.5	1.8%	0.7%	53.6	-	-	38	81	100	2,774	453	343
Hartmann Road																
Between HWY 29 & Stinson Rd	2	0	7,620	35	0.5	1.8%	0.7%	56.9	-	-	62	134	100	5,921	968	732
Lakeshore Boulevard																
Between 20th St & Hill Rd E	2	0	4,880	35	0.5	1.8%	0.7%	55.0	-	-	46	100	100	3,792	620	468
Between Hill Rd E & Nice-Lucerne Cutoff	2	0	4,880	45	0.5	1.8%	0.7%	57.5	-	-	68	146	100	3,792	620	468
Lakeshore Drive																
Between W 40th St & Old HWY 53	2	13	14,740	35	0.5	1.8%	0.7%	59.8	-	45	97	209	100	11,453	1,872	1,415
Between Old HWY 53 & Arrowhead Rd	2	0	14,740	30	0.5	1.8%	0.7%	58.8	-	39	83	179	100	11,453	1,872	1,415
Loch Lomond Road																
Between HW 175 & Sycamore Rd	2	0	1,630	35	0.5	1.8%	0.7%	50.2	-	-	-	48	100	1,267	207	156
Main Street (Kelseyville)																
Between HWY 29 & Merritt Rd	2	0	5,400	35	0.5	1.8%	0.7%	55.4	-	-	49	107	100	4,196	686	518
Main Street (Lower Lake)																
Between HWY 29 & Mill St	2	0	3,840	35	0.5	1.8%	0.7%	53.9	-	-	39	85	100	2,984	488	369
Merritt Road																
Between HWY 29 & Loasa Rd	2	0	3,350	30	0.5	1.8%	0.7%	52.4	-	-	-	67	100	2,603	425	322
Nice-Lucerne Cutoff Road																
Between HWY 29 & HWY 20	2	0	6,630	45	0.5	1.8%	0.7%	58.8	-	39	83	180	100	5,152	842	636
Old Highway 53																
Between Cache Creek Way & Olympic Dr	2	0	6,630	45	0.5	1.8%	0.7%	58.8	-	39	83	180	100	5,152	842	636
Olympic Drive																
Between HWY 53 and Lakeshore Dr	2	0	9,020	40	0.5	1.8%	0.7%	59.0	-	40	85	183	100	7,009	1,146	866
Park Way																
Between Hill Rd E & Lakeshore Blvd	2	0	2,720	35	0.5	1.8%	0.7%	52.4	-	-	-	67	100	2,113	345	261
Point Lakeview Road																

Between Soda Bay Rd & Wheeler Dr	2	0	3,560	35	0.5	1.8%	0.7%	53.6	-	-	37	81	100	2,766	452	342
S Main Street																
Between Soda Bay Rd & Lakeport Blvd	2	0	9,690	35	0.5	1.8%	0.7%	58.0	-	34	73	157	100	7,529	1,231	930
Between Lakeport Blvd & Peckham Ct	2	13	9,690	35	0.5	1.8%	0.7%	58.0	-	-	74	158	100	7,529	1,231	930
Between Peckham Ct & Martin St	2	0	9,690	35	0.5	1.8%	0.7%	58.0	-	34	73	157	100	7,529	1,231	930
Scotts Valley Road																
Between HWY 20 & Hendricks Rd	2	0	840	45	0.5	1.8%	0.7%	49.8	-	-	-	45	100	653	107	81
	2	0	840	35	0.5	1.8%	0.7%	47.3	-	-	-	-	100	653	107	81
Between Hendricks Rd & Mountain View Rd																
Sieglar Canyon Road																
Between HWY 29 & Perini Rd (southern)	2	0	1,000	30	0.5	1.8%	0.7%	47.1	-	-	-	-	100	777	127	96
Soda Bay Road																
Between HWY 29 & Montezuma Way	2	0	5,100	35	0.5	1.8%	0.7%	55.2	-	-	48	103	100	3,963	648	490
Between Montezuma Way & HWY 29	2	0	2,260	35	0.5	1.8%	0.7%	51.6	-	-	-	60	100	1,756	287	217
Spruce Grove Road																
Between HWY 29 & Tinilyn Dr	2	0	720	35	0.5	1.8%	0.7%	46.7	-	-	-	-	100	559	91	69